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

The Eclectic Materia Medica, Pharmacology and Therapeutics

By

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CINCINNATI, OHIO
JOHN K. SCUDDER
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PART II — Individual Drugs.

ABIES (Tsuga canadensis).

The bark and prepared resinous exudate of ***Tsuga canadensis***, Carriére (***Abies canadensis***, Michaux; ***Pinuscanadensis***, Linné). (Nat. Ord. Coniferae.) A well known and handsome evergreen, tree of the forests of Northern United States and Canada.

Common Names: Hemlock, Hemlock Spruce.

Principal Constituents.—The oleoresin Canada pitch, and a volatile oil known as Oil of Hemlock or Oil of Spruce; that from the leaves is known as Pine-needle Oil, and contains pinene, bornyl acetate, and cadinene; the bark contains a large amount of tannic acid.

Preparations.—1. ***Specific Medicine Pinus***. ***Dose***, 5 to 60 drops.
2. ***Oil of Hemlock. Dose***, 1 to 5 drops.

Specific Indications.—General asthenia, with feeble digestion, vascular weakness, and pale and relaxed mucosa; broncho-pulmonic irritation, with profuse secretions; coughs and colds; pyrosis with gastric irritation, vomiting, and diarrhoea. Contraindicated in inflammations.

Therapy.—***External***. A strong decoction of the bark is a satisfactory astringent for the checking of leucorrhoea and a good local application of this type for aphthous and other oral ulcerations, gangrenous ulcers, prolapsus ani and prolapsus uteri. The specific medicine on cotton. may be applied to the cervix uteri to heal abrasions and control discharge. The oil may be used as an embrocation for painful and swollen parts, and by spray in nose and throat disorders attended by mild catarrhal symptoms. It enters into many proprietary and semi-proprietary preparations for the treatment of coryza, congested turbinates, and ulcerations of the nasal fossae and throat. The oil dropped upon boiling water is a timehonored inhalation for croup. It has also been used to advantage in some forms of eczema, particularly the weeping type.

Internal. Pinus Canadensis, the name under which most of the alcoholic preparations pass, is mildly stimulant, antiseptic, and useful where an astringent remedy is desired in conditions of relaxation, with pallid mucosa. In small doses, the specific medicine may be employed

in gastric irritation and in that of the urinary organs, in both of which 'there is an excess of mucous secretion. As a remedy for passive hemorrhages it has little to commend it, though it is not wholly without effect, acting much like but with less power than the oil of erigeron and similar preparations. Both the specific medicine and the oil may be incorporated into cough medicines, to be used where there is excessive secretion of mucus and the cough is largely precipitated by a feeble and relaxed state of the uvula and fauces.

ABSINTHIUM (Artemisia absinthium).

The flowering tops and leaves of ***Artemisia Absinthium***, Linné (Nat. Ord. Compositae); Europe, Siberia, Barbary, Newfoundland, and the United States; naturalized in New England; cultivated. Dose, 10 to 20 grains.

Common Name: Wormwood.

Principal Constituents.—A volatile oil (Oleum Absinthii), containing principally absinthol (CIO H16 0) and a crystalline bitter absinthin ($C_{15}H_{20}0_4$).

Preparations.—1. ***Infusum Absinthii***, Infusion of Absinthium (3j to Oj). ***Dose***, 1 to 2 fluidrachms.

2. ***Oleum Absinthii***, Oil of Wormwood. ***Dose***, 1 to 5 drops.,

Action.—Both oil of wormwood and extract of absinth act as nerve depressants upon man. Small doses at first stimulate, larger ones produce headache, and still larger doses induce cerebral disturbances and clonic hysteroidal convulsions. Victims of ***absinthism***, a vicious form of drunkenness, are subject to disturbed rest, with disagreeable dreams, and morning sickness and vomiting. A chronic intoxication ensues that is more fearful in its effects than that resulting from the abuse of alcoholics. Epileptoid attacks are common, physical and mental force is seriously impaired, and virile power is lost in the male, while a premature menopause is a common result in the female. It is also said to produce a peculiar hyperesthesia, most marked in the integument of the hypogastrium. The French liquer ***Absinthe***, which is a viscous alcoholic cordial, and ***Wermuth***, a German beer, both depend upon wormwood for their activity.

Therapy.—***External***. Absinthium, steeped in vinegar and water, makes an admirable hot fomentation for sprains, bruises and local inflammations. It should not be applied to abraded surfaces.

Internal. Small doses of absinthium stimulate the appetite and give tone to the gastric membranes, thus favoring digestion. For this purpose it is sometimes useful in atonic dyspepsia; especially in that form due to alcoholic excesses. Large doses irritate the stomach and give rise to increased action of the heart. Though less agreeable than santonin, it may also be used for the expulsion of the intestinal parasites-Ascaris vermicularis and Ascaris lumbricoides. The oil may be given in doses of 1 to 5 drops.

ACACIA.

The dried gummy exudate of ***AcaciaSenegal***, Willdenow; and of some other African species of Acacia. (Nat. Ord. Leguminosae.) Eastern Africa (Kordofan, chiefly), and Western Africa north of river Senegal.

Common Names: Acacia; Gum Arabic.

Principal Constituents.—***Arabin*** ($C_{12}H_{22}O_{11}$—Arabic acid) in combination with salts of calcium, magnesium, and potassium.

Description.—Tears or fragments of a nearly odorless, translucent white, yellowwhite, to pale amber-colored exudate, having a rather insipid and mucilaginous taste; soluble in water, but insoluble in alcohol.

Preparations.—1. ***Mucilago Acaciae***, Mucilage of Acacia. ***Dose***, 1 to 4 fluidrachms or more.

2. ***Syrupus Acaciciae***, Syrup of Acacia. ***Dose***, 1 to 4 fluidrachms or more.

Action and Therapy.-Acacia is largely employed in the preparation of pills and in the emulsification of oils and resins. It is demulcent and probably slightly nutritive. In the form of a solution or mucilage it is an agreeable lenitive for irritated and inflamed membranes, and for this purpose is frequently used in medicinal preparations for coughs, colds, hoarseness, pharyngitis, gastric irritation and inflammation, diarrhea, dysentery, ardor urinae, etc. It also forms a good mucilage in which to suspend heavy and insoluble powders. When the stomach is irritable in low fevers and in pulmonary tuberculosis, a half ounce of acacia may be dissolved in 5 fluidounces of water, sweetened with sugar, and given in tablespoonful doses occasionally to relieve the sense of hunger when but little food can be taken. Mucilage of acacia is soothing to burns and scalds of the mouth and alimentary canal, and may be used as a demulcent after poisoning by irritant and corrosive poisons. Acacia may be given freely and at pleasure, in the form of

powder, troches, mucilage, or syrup, as desired.

ACHILLEA MILLEFOLIUM.

The whole plant ***Achillea millefolium***, Linné (Nat. Ord. Compositae); a common wayside and field herb in North America and Europe.

Common Names: Yarrow, Milfoil, Thousand Leaf.

Principal Constituents.—The bitter alkaloid achilleine ($C_{20}H_{38}N_2O_{15}$), achilleic acid (aconitic acid); a volatile oil, tannin, and potassium and calcium salts.

Preparation.—***Specific Medicine Achillea***. Dose, 5 to 30 drops.

Specific Indications. —Atony and relaxation of tissue, with free dis. charges; passive hemorrhage.

Action and Therapy.—Achillea is astringent and tonic. Its chief virtues are shown in its occasional control of passive menorrhagia due wholly to atony, and not to the presence of tissue change or destruction. It sometimes relieves hematuria, and is soothing to the urinary tract.

ACONITUM NEPALLUS.

The dried tuberous root of ***Aconitum Napellus***, Linné (Nat. Ord. Ranunculaceae). Mountains of Europe and Asia, and northwestern North America. ***Dose*** (maximum), 1 grain.

Common Names: Aconite, Monkshood, Wolfsbane.

Principal Constituents.—Aconitine ($C_{34}H_{47}O_{11}N$) one of the most poisonous of known alkaloids, occurring as permanent colorless or white crystals, without odor. A drop of solution of one part of aconitine in 100,000 of water will produce the characteristic tingling and benumbing sensation of aconite. The alkaloid itself must never be tasted, and the solution only when extremely diluted, and then with the greatest of caution. Aconitine is soluble in alcohol, ether, and benzene; very slightly in water. Other constituents of Aconite are ***aconine*** and ***benzaconine***, both alkaloids; the former of little activity; the latter a strong heart depressant.

Commercial Aconitine is a more or less impure mixture of aconite alkaloids.

Preparations.—1. ***Specific Medicine Aconite***. An exceedingly poisonous and representative preparation. ***Dose***, 1/30 to 1/2 drop. (Usual form of

administration: Rx Specific Medicine Aconite 1-10 drops: Water 4 fluidounces . Mix. Sig. One teaspoonful every one-half (1/2) to two (2) hours.)

2. ***Tinctura Aconiti***, Tincture of Aconite (10 per cent aconite). ***Dose***, 1 to 8 minims.

♯Fleming's Tincture of Aconite is many times stronger than the preceding, with which it should not be confounded. It should have no place in modern therapeutics.

Specific Indications.—The ***small and frequent pulse***, whether corded or compressible, with either elevated or depressed temperature and not due to sepsis, is the most direct indication. Irritation of mucous membranes with vascular excitation and determination of blood; hyperemia; chilly sensations; skin hot and dry, with small, frequent pulse. Early stage of fevers with or without restlessness. When septic processes prevail it is only relatively indicated.

Action.—The effects of aconite, considered from the so-called physiological action, are expressed in local and general irritation followed by tingling, numbness, and peripheral sensory paralysis, primarily reduced force and frequency of the heart action, due to vagal stimulation, and subsequent rapid pulse, due to vagal depression. The heart muscle is also thought to be paralyzed by it. The action upon the vaso-motor system is not well understood, though the lowered arterial pressure is explained by some as due to depression of the vaso-motor center. In small doses aconite quiets hurried breathing, but large doses may cause death through respiratory paralysis. Temperature is lowered by aconite, probably by increase of heat-dissipation and possibly through the action of the thermo-genetic system. This action is most pronounced during fevers. Except of the skin and kidneys, the glands of the body seem to be but little, if at all, affected by aconite. The kidney function is slightly increased, while that of the skin is markedly influenced according to the quantity administered. The motor nervous system is not noticeably affected except when poisonous doses are given, but the sensory nerves, especially at the periphery, are notably impressed by even so-called therapeutic doses. It is quite clear that aconite does not act strongly upon the cerebrum, except that poisonous doses somewhat depress the perceptive faculty. Upon the skin and mucous surfaces it acts first as an irritant, then as an anaesthetic. The mode of elimination of aconite is not yet well determined, but it is thought that it is largely oxidized, thus accounting for the short duration of its action. Indeed, the systemic effects of aconite seldom last over three hours, though the therapeutic

result may be permanent. When aconite kills it does so usually by paralyzing the heart, arresting that organ in diastole.

Locally, aconite and its alkaloid, aconitine, act as irritants, producing a tingling, pricking sensation and numbness, followed by peripheral sensory impairment, resulting in anaesthesia of the part. The latter is due to paralysis of the sensory nerve terminals. Usually no redness nor inflammation follows, but in rarely susceptible cases vesicular or pustular eruptions take place, or intense cutaneous itching. Both are extremely irritating to the nasal and ocular membranes, and when inhaled may give rise to a peculiar local sense of icy-coldness.

Administered internally in small doses aconite occasions a tingling or prickling sensation, felt first in the mouth, tongue, and fauces, and quickly extending to the stomach. This is rapidly followed by more or less numbness. Gastric warmth and a general glow of the surface follow non-lethal doses. Slight perspiration may be induced, but sweating to any great degree does not take place except from large doses. Then it is an almost constant symptom. Temperature is reduced, but the more readily during pyrexia, when the pulse is frequent and small, if the dose administered be fractional.

In maximum doses (by some called full therapeutic doses) aconite causes gastric heat. A sense of warmth throughout the system follows, and occasionally the thrilling or tingling sensation will be more generally experienced, with perhaps some numbness. There may be dizziness most marked upon assuming the upright posture, pain in the head, acute body pain, excessive depression, with feeble circulation and diminished respiration. The pulse may fall to 30 or 40 beats per minute and muscular weakness become extreme. Eclectic teaching has long protested against giving aconite in doses sufficient to produce these effects, which some, with extreme boldness, declare to be therapeutic results.

Toxicology.—In poisonous amounts the symptoms given are exaggerated and the effects extremely rapid. Tingling and numbness increase and are felt all over the body, the thrilling and creeping coldness approaching from the extremities to the body. Excessive sweating comes on, rapidly lowering the body temperature, dimness of vision, loss of hearing and touch, and general peripheral paralysis extending from the extremities to the trunk. The victim is conscious of

danger, feels cold and is extremely anxious and prostrated. Muscular weakness is pronounced, tremors occur, and rarely convulsions. The power of standing is lost early. The face is extremely pale, the sclerotics pearly, eyes sunken, the countenance one of extreme anxiety, and there is a tendency to fainting. There may be gastric pain and vomiting. If the recumbent position is not maintained, or even if slight exertion be attempted, sudden death may occur from syncope. Unless consciousness be lost through syncope, the intellect remains unimpaired until just before death, showing that aconite probably does not greatly impress the cerebrum.

The one diagnostic symptom of aconite poisoning is the characteristic aconite tingling. If confession (in case of attempted suicide) is not forthcoming or the patient is unable to reveal the fact that poison has been taken, this of course cannot be known. In the absence of this knowledge, and when absolute muscular and other prostration, fainting and other forms of collapse, shallow dyspnoeic breathing, merely trickling or barely perceptible pulse, with no vomiting, no purging, or no alteration of pupils, nor characteristic symptoms of other poisons, poisoning by aconite should be suspected. The action of a lethal dose of aconite is rapid, symptoms coming on within a few minutes. Death may occur in from one half hour to six hours, the average time being a little over three hours.

The treatment of poisoning by aconite should be prompt and quietly administered. The victim must at all hazards be kept in the recumbent position, with the feet slightly elevated. If seen early, tannic acid or strong infusion of common store tea (to occlude the poison) should be administered. External heat should be applied and artificial respiration resorted to as soon as respiratory embarrassment takes place. In the earlier stage emetics may be tried, but will probably fail to act if the stomach has been anaesthetized by the poison. The stomach-pump, or siphon, is to be preferred. Besides, emetics may be inadvisable for fear of the muscular contraction producing heart-failure. Whatever method be followed the stomach contents should be received upon a towel, the patient under no circumstances to be raised from the prostrate position. The chief hope lies in stimulation. Ammonia or alcohol, or Hoffman's anodyne, may be given by mouth, and ether, alcohol, and digitalis hypodermatically. Digitalis is the nearest to a physiological antidote to aconite, but acts very slowly, whereas the action of aconite is rapid. The more diffusible stimulants, therefore, are to be given first,

and closely followed by the digitalis. Atropine may stimulate respiration, and caffeine (or hot coffee) sustain the heart. Nitrite of amyl may be used cautiously, allowing but a whiff or two, lest the stimulant action be passed and dangerous depression induced. A full dose of strychnine sulphate or nitrate (1/20 to 1/10 grain) should be given subcutaneously to sustain the heart-action. Of the newer biologic products, possibly adrenalin chloride (1 to 1000) or pituitrin, hypodermatically administered, might aid in preventing circulatory collapse.

Therapy.—***External***.-As a topical agent, aconite, in tincture or as an ingredient of anodyne liniments, may be applied to relieve pain, allay itching and reduce inflammation. Its use, however, must be guarded as it is readily absorbed. A well-diluted spray gives relief in the early stage of tonsillitis and when quinsy occurs, and it relieves the distress and shortens the duration of faucitis, pharyngitis, and some cases of laryngitis. If used in local inflammations it should be in the earlier stages. Locally applied above the orbits it may give relief in sinusitis; used over the mastoid bone it mitigates the pain of otitis media and modifies external inflammation of the ear. Its obtunding power gives temporary relief in facial and other forms of neuralgia (when hyperaemia is present), the neuralgia preceding zoster, pleurodynia, myalgia, rheumatic gout (rheumatoid arthritis), peridental inflammation, and so-called chronic rheumatism. It also allays the pain and itching of chilblains, and the discomfort of papular eczema, pruritus ani, and other forms of pruritus.

Internal.—Aconite is a most useful internal medicine. The weight of evidence from those who use aconite most frequently shows that it is a safe agent when used in the minute dose and according to specific indications, and is proportionately dangerous as the dose approaches that which produces its physiological action. It is capable of great good in the hands of the cautious and careful therapeutist, and is capable of great harm if carelessly or thoughtlessly employed.

Aconite is the remedy where there is a dilatation from want of tone in the capillary vessels. It moderates the force and frequency of the heart's action, increasing its power, and is, therefore, useful in functional asthenia; it also lessens pain and nervous irritation. Aconite cases are those showing a frequent but free circulation; where there is super-active capillary movement; and in enfeeblement of the circulation,

functional in character and not due to structural degeneration or sepsis, and manifested by a frequent small pulse, a hard and wiry pulse, a frequent, open and easily compressed pulse, a rebounding pulse, or an irregular pulse. It lessens determination of blood (hyperaemia), quiets irritation, checks the rapid circulation in the capillaries when it is too active, and increases the circulation when it is sluggish. We account for this by believing that it gives the right innervation to the vascular system. Scudder (***Diseases of Children***, 42) says of it: "I have been in the habit of saying that aconite is a stimulant to the heart, arteries, and capillaries, because whilst it lessens the frequency, it increases the power of the apparatus engaged in the circulation." It should be stated that our term sedative differs in fact from that accepted by other schools. An agent such as aconite, which in full doses would depress but in minute doses will stimulate the vascular system to normal activity and thereby reduce febrile states by correcting or regulating innervation, is classed in Eclectic therapy as a "special," "vascular," or "arterial sedative."

Aconite is a remedy for irritation of the mucous membranes. It matters little whether it be of the nares preceding an attack of coryza, of the larynx, of the bronchi, or of the gastro-intestinal tube, liable to lead to inflammation of those tracts, aconite may be used to control the morbid process. In simple gastric irritation with or without vomiting, in the irritative forms of diarrhoea—whether simple or of the more complicated forms of enteric inflammation, of cholera infantum, or of dysentery—it is equally important and usually specifically indicated. In the diarrhoea of dentition it often controls the nervous symptoms and the discharges. Of course one must take into consideration the role played by food toxemia. In such cases modification or complete change of food must be resorted to, and frequently a simple purge given to cleanse the gastro-intestinal tract. Then if irritation persists, or there is fever, aconite usually acts promptly. The form of cholera infantum best treated by it is that showing increased bodily heat. If dentition is accompanied by irritation and fever, it may be given alone or with matricaria. In many of the stomach and bowel disorders, particularly gastric irritation with diarrhoea, and gastro-enteritis, it acts well with ipecac, or rhus. For aphthous ulcerations with fever, aconite and phytolacca internally with infusion of coptis locally have not been excelled. In simple dysentery, aconite, ipecac and magnesium sulphate is a most effective combination, seldom failing to control the disease in a few hours.

Aconite allays fever and inflammation, and it's the most commonly used agent for such conditions. When specifically selected it proves useful in glandular fever (with phytolacca) and in acute gastritis and gastric fever, with yellow-coated tongue and diarrhoea. In simple febricula it is diagnostic, if, as Locke has well stated, the patient is not well or markedly improved in twelve hours, he has more than a case of simple fever. In intermittent or malarial fevers it prepares the way for the successful exhibition of antiperiodics. As quinine, the best antagonist of the malarial parasite, acts most kindly when the skin is moist, the tongue soft and clean, and nervous system calm, aconite is signally useful as it establishes those very conditions. In septic fevers, or those depending upon sepsis, the presence of pus, etc., its value is limited, though it may assist other measures. It is especially of value in the fevers of irritation of childhood—such as arise from overloading the stomach, from colds, and from dentition. Most febricuIa subside quickly, but they do so more quickly and kindly when assisted by the small dose of aconite. So valuable has aconite become in fevers, that by some writers it has been christened the "vegetable lancet;" by Webster, the "pulsatilla of the febrile state;" and by Scudder, the "child's sedative."

In all febrile states in which aconite is indicated there is ***sudden onset and rapid evolution***; moreover, the remedy is seldom needed, nor indeed is it admissible except in the first few days of the invasion. Very rarely is it to be used in the protracted fevers, except at the very outset, and then it must be strongly indicated. It is much better to omit it than to advise its employment in continued fevers of an adynamic type, lest some carelessly or perhaps boldly push it in too large doses or for too long a period to the detriment of the patient. In typhoid or enteric fever there are usually conditions to face which make aconite an ill-advised medicine, except in rare instances in which distinct indications for it may be present. These are so rare, however, as to be pronounced exceptions. The blood disintegration, the toxic impression of the secretions and the nervous system, the defective excretion and the progressive weakening of the heart and circulation, make aconite all but contraindicated in this devitalizing disease. If used at all we question the expediency of employing aconite or any other febrifuge for a prolonged period in typhoid or other adynamic fevers.

In urethral fever, due to catheterization, and in the febrile stage of

acute gonorrhoeal urethritis, its action is prompt and effective. It may be used as an auxiliary agent in visceral inflammations of the abdominal and pelvic cavities, when simple in character. In such grave disorders as puerperal fever, because of its highly septic character, it is of questionable utility. The same is true of peritonitis of septic origin.

In the acute infectious diseases (including the infectious fevers already mentioned, but respecting the limitations in typhoid states) aconite is of very great value when used at the onset of the invasion. It is among the best agents in acute tonsillitis and quinsy before pus forms, in the initial stage of la grippe, in acute colds, acute coryza, lobar, and broncho-pneumonia, pleurisy, and allied infections. Here it controls temperature, retards hyperaemia, establishes secretion, prevents effusion when threatened, and gives the nervous system rest. When it alleviates pain it does so chiefly by allaying inflammation. In pleurisy, aconite associated with bryonia is an admirable remedy until effusion takes place, then it no longer is serviceable. To reduce high temperature it is temporarily useful in phthisis when invasion of new portions of the lungs takes place. Aconite may be used in cerebro-spinal meningitis until effusion takes place; after which it should be discarded.

Other disorders of the respiratory tract are benefited by its action as far as irritation, hyperaemia, and inflammation prevail—acute nasal and faucial catarrh, acute pharyngitis, acute bronchitis, acute laryngitis and acute tracheitis. For spasmodic and mucous croup it is the best single remedy, often checking the disease in an hour's time. Aconite was at one time freely used in diphtheria, and is still valued by some, but its use should be carefully guarded for the same reasons stated under typhoid fever. The most it can do is to aid in controlling temperature; and if carelessly employed it may invite paralysis of the heart in a disease itself prone to paralysis through its own toxicity. Aconite should not be omitted in the treatment of erysipelas with high temperature.

Aconite and belladonna are indispensable in the exanthemata, and are the drugs most often indicated. It is to be used when the skin is hot, dry, and burning and the temperature high. By its timely use the eruption is facilitated, the temperature lowered, the secretory organs protected, spasms averted, and damage to the kidneys and the over-wrought nervous system forestalled. It is, therefore, indicated in the

initial stages of varicella, measles, scarlatina, and sometimes in variola.

While by no means an antirheumatic, aconite is of marked benefit in acute inflammatory rheumatism, when high fever and great restlessness prevail. Besides it protects the heart by lessening the probability of endocarditis and possible heart failure. The dose, however, must be small lest we induce the very calamity we aim to avoid. Locke regarded it almost a specific in uncomplicated rheumatism; but while it greatly aids in reducing fever, inflammation and pain, it needs the assistance of the more direct antirheumatics and their allies, as sodium salicylate, bryonia and macrotys. More slowly, but less certainly, it sometimes alleviates simple acute neuritis.

Mumps is well treated by aconite, asclepias and phytolacca, while for mastitis aconite, bryonia, and phytolacca are our most effective agents. With careful nursing, emptying of the breasts, and sometimes judicious strapping and supporting of the glands the formation of pus may be averted. Should it form, the bistoury is the only rational medium of relief.

As a remedy for the disorders of the female reproductive organs, aconite is very valuable. It is particularly valuable in recent amenorrhea, due to cold, if the circulation and temperature are increased; and in menorrhagia, with excited circulation and hot, dry skin. Dover's powder or the diaphoretic powder adds to its efficiency. Some rely on it to relieve the nausea and vomiting of pregnancy.

Neuralgic pain is somewhat relieved by aconite, used both locally and internally. The varieties best treated are facial, dental, visceral, and rectal neuralgia, and that preceding herpes zoster. Though most efficient when fever accompanies, it is held to be useful also when the temperature is not exalted. King found aconite a remedy of marked worth in that anomalous condition best described as non-febrile spinal irritation.

Purely functional palpitation of the heart, due to indigestion, has been relieved by small doses of aconite. One of the instances in which ***large*** or physiological doses of aconite are permissible is in simple cardiac hypertrophy, but even then veratrum is to be preferred. In very ***minute*** doses aconite has been advised by Scudder in the algid stage of Asiatic

cholera, and in the cold stage of fevers.

ACTÆA ALBA.

The rhizome and rootlets of ***Actaeaalba***, Bigelow (Nat. Ord. Ranunculaceae). A perennial of the United States east of the Mississippi, abounding in the rich mold of rocky forests and hillsides. ***Dose***, 1 to 20 grains.

Common Names: White Cohosh, White Baneberry, White Beads.

Principal Constituents.—A non-acrid and non-bitter resin similar to that obtained from black cohosh (cimicifuga). Albumen, starch, sugar, and gum are present, but neither tannic nor gallic acids.

Preparation.—***Specific Medicine Actaea***. ***Dose***, 1 to 20 drops. (Usual form of administration: Rx. Specific Medicine Actaea, 20 drops. Water, 4 fluidounces. Mix. Sig. One teaspoonful every 1 to 3 hours.)

Specific Indications.—Atony dependent upon nervous derangements from reproductive disturbances, with headache, insomnia, melancholia, and convulsive tendencies; extreme sensitiveness of the ovarian region; "pinkish hue of parts freely supplied by blood" (Scudder).

Action and Therapy.—Actaea is an active drug, acting in general somewhat like cimicifuga. In large doses it is emeto-cathartic, and serious gastrointestinal irritation and inflammation have resulted from overdoses of it. It deserves a more extended study than has yet been given it. Actaea acts specifically in disorders of the female reproductive organs, with atony and nervous impairment—such as the debility conducing to amenorrhea, dysmenorrhea and menorrhagia, and the irritability of weakness of the sexual system provoking choreic, hysteric, and hystero-epileptic attacks. It is only of value to correct the nervous impairment and sexual disturbances when they are underlying causes of these spasmodic disorders, and has little or no value in controlling the attacks. It has a well-sustained reputation as a remedy for after-pains; and may be used in ovarian disorders when there is pain or uneasy sensations in or around the ovaries, with extreme sensitiveness to touch or pressure. It also relieves mental aberrations arising from derangement of the reproductive organs. Like cimicifuga it is useful in atonic indigestion of the nervous dyspepsia type.

ADONIS VERNALIS.

The whole plant of ***Adonis vernalis***, Linné. (Nat. Ord. Ranunculaceae). Southern Europe, Siberia, and Labrador. ***Dose***, 1/2 to 3 grains.

Common Name: Pheasant's Eye.

Principal Constituent.—***Adonidin***, probably a mixture of acids and glucosides.

Preparation.—***Specific Medicine Adonis***. ***Dose***, 1/2 to 3 drops.

Specific Indications.—Weak cardiac action, with low blood pressure, and shortened diastole, with consequent venous stasis, with increased back-pressure, and feeble intermittent or irregular pulse; cardiac dropsy, with weak heart.

Action.—Fresh adonis is irritant and vesicant. Upon the circulation it acts much like digitalis, but is prompter in action and not cumulative. It is an energetic agent and capable of poisoning. Adonis slows, regulates, and strengthens the heart's contractions, raises blood pressure, and thereby acts as a diuretic. It also causes deeper and slower breathing, and in proper cases overcomes dyspnea. Large doses paralyze the heart and blood vessels.

Therapy.—On account of its quicker action Adonis has been preferred by some to digitalis and strophanthus in the same class of heart affections to which these are applicable, or in which for some reason it is undesirable to employ them. It is especially commended where arryrthmia with feeble cardiac force and dyspnoea and dropsy are present. It has long been a popular remedy in Russia for dropsies of both heart and kidney origin. It is probably less valuable than digitalis where the cardiac valves are greatly affected. Scudder valued adonis in heart-strain from overexertion; Hale recommended it in endocarditis and in weak and irregular heart action resulting from chronic nephritis. Wilcox used it in chronic albuminuria, with pale urine and delirium with good results and in uremic convulsions, which had been frequent, without a return of the eclampsia for two years, when the patient died. It is undoubtedly emmenagogue and has been advised in epilepsy, administering it with bromide of potassium. It should not be given when there is gastro-intestinal irritation or inflammation.

ÆSCULUS GLABRA.

The bark and fruit of ***Aesculus glabra***, Willdenow (Nat. Ord. Sapindaceae). A small fetid tree common to the central portion of the United States.

Common Names: Ohio Buckeye, Smooth Buckeye, Fetid Buc eye.

Principal Constituents.—The glucoside ***aesculin*** ($C_{15}H_{16}O_9$) (displays a blue fluorescence in water and more strongly in the presence of alkalies); aesculetin ($C_9H_6O_4$); a peculiar tannin and saponin. Starch is abundant and a rich yellow oil is present.

Preparation.—***Specific Medicine Aesculus***. (Made from the ripe fruit.) ***Dose***, 1 to 15 minims. The smaller doses are to be preferred.

Specific Indications.—Sense of constriction, tightness, or uneasiness in the rectum, with or without hemorrhoids; intestinal irritation with constriction and colicky pain near the umbilicus; dyspnea and constriction of the respiratory tract with spasmodic cough.

Action.—The dried, powdered fruit of the buckeye causes violent sneezing. Buckeye acts powerfully upon the nervous and circulatory systems. Its action is probably strongest on the spinal nerves, and in some respects resembles that of strychnine. The cerebrum is also impressed by it. Toxic symptoms include dizziness, fixation of the eye, impaired vision, vomiting, wry-neck, opisthotonos, stupor, and tympanites. In lethal doses these symptoms are increased, coma comes on, and the victim dies. Cattle are often killed by eating buckeyes; if not fatal, a condition known as "blind staggers" is produced.

Therapy.—Aesculus is sedative, somewhat narcotic, and has a special control over the portal circulation, relieving venous congestion. When the circulation is rapid and the constrictive sensation prominent and dyspnea prolonged, it relieves such conditions as continuous asthmatic breathing. There is a sense of constriction back of the upper portion of the sternum, with or without irritative cough, that is relieved by it. It is useful in intestinal irritability with the contractive colic-like pain centering in the umbilical region, probably dependent most largely upon hepatic or portal congestion and associated with chronic constipation. Its chief value, however, lies in its power to relieve hemorrhoids due to faulty hemorrhoidal circulation. The sense of

fullness and tightness rather than marked pain is the indication for it. It often succeeds admirably, and as often completely fails to relieve. Its action upon visceral disorders is practically the same as that mentioned under ***Hippocastanum*** (which see).

Aesculus sometimes relieves uterine congestion with full tumid and enlarged cervix and too frequent and profuse menstruation. This would suggest its possible value in uterine subinvolution. It has a domestic reputation for the cure of rheumatism, but this has not been verified to any great degree in professional practice. It has been suggested as a spinal stimulant in paralysis. If so used it should be used like strychnine after active symptoms have ceased, and to stimulate the unimpaired nervous tissue. Aesculus deserves further study to determine its status as a remedy for nervous disorders, and especially its control over visceral neuralgias.

AGAR.

A dried substance of mucilaginous character abstracted from several species of sea weeds (marine algae) growing along the coast of Asia. Most of it comes from Japan. ***Dose***, 1 to 4 drachms.

Common Name: Agar-agar.

Description.—Agglutinated membranous pieces, tough or brittle accordingly as it is damp or dry. The pulverulent form is most commonly used. It is a coarse, buff-colored granular powder, having practically no odor or taste. It swells to a soft magma in the presence of water.

Action and Therapy.—Agar has no action upon the human body nor is it in turn affected by the digestive ferments or intestinal flora. It has the property of absorbing moisture and swelling to a soft mass, and for this purpose is given in constipation as a mechanical laxative; rendering the best service when intestinal secretion is scanty, and in consequence, the feces are abnormally dry. From one teaspoonful to two heaping tablespoonfuls may be given once or twice a day in dry form alone, or mixed with some cereal at meal-time. Biscuits, bread, and crackers are prepared from it and may be procured in the general trade. Agar is also used as a culture medium in making labaratory cultures.

AGARICUS (Amanita muscaria).

The fungus ***Amanitamuscaria***, Persoon; (***Agaricus muscarius***, Linné.) (Nat. Ord. Fungi.) An extremely poisonous fungus found in the pine forests of Europe.

Common Name: Fly Agaric.

Principal Constituents.—***Muscarine***, a deadly alkaloid, and ***pilzatropin***, its physiologic opposite.

Preparations.—1. ***Tinctura Agarici***, Tincture of Agaricus (Fresh fungus, 1 ounce; strong alcohol, 16 fluidounces). Dose, 1/30 drop.

2. ***Muscarine***. Dose, 1/30 to 1/12 grain.

Action and Toxicology.—The chief toxic action of agaricus is probably due to muscarine, which produces ptyalism, weeping, vomiting, depressed circulation, difficult breathing, muscular weakness, minutely contracted pupils, tetanic contraction of the viscera with subsequent relaxation of the bowels, when violent peristalsis takes place, paralysis and death. Muscarine is the direct antagonist to atropine.

Closely allied to Agaricus is ***Amanita phalloides***, Fries or ***Death Cup***. Common in the United States and the cause of many fatal poisonings. Gastro-enteritis with choleraic diarrhoea occurs, with death within two to four days. It contains muscarine and a toxalbumen ***phallin***, both of which are deadly agents. While salt abstracts the latter, there is no known antidote after it has been absorbed.

Therapy.—Agaricus is seldom used, but possesses undoubted power over the secretions and the nervous system. The chief uses that have been made of it, and for these even the muscarine sulphate or nitrate have been mostly employed, are in colliquative night-sweating from debilitating diseases, and profuse sweating in the daytime; and to restrain the excess of urine in polyuria, or so-called diabetes insipidus.

Scudder suggested a tincture of the fresh fungus for “involuntary twitching of the muscles of the face, forehead, and even of the eyes, so that objects are not well seen because they seem to move; drawing of the tissues of the forehead and nose; pressing pain in the occiput and an inclination to fall backward.” Webster thought it useful in typhoid

conditions and spinal irritation when there is "tremor, restlessness, and desire to get out of bed." These indications are of homeopathic origin and have been but little followed by Eclectic practitioners.

Muscarine is used in atropine and belladonna poisoning, sometimes being employed in place of eserine (physostigmine).

AGRIMONIA EUPATORIA.

The whole plant of ***Agrimonia Eupatoria***, Linné (Nat. Ord. Rosaceae). A common perennial in the United States, Canada, Europe, and Asia. ***Dose***, 5 to 60 grains.

Common Names: Agrimony, Stickwort, Cockleburr.

Principal Constituents.—Tannin and a volatile oil.

Preparations.—1. ***Infusum Agrimoniae***, Infusion of Agrimony (1 ounce to Water, 16 ounces. ***Dose***, 2 to 3 fluidounces.

2. ***Specific Medicine Agrimonia***. ***Dose***, 5 to 60 drops.

Specific Indications.—Deep-seated colicky pain in lumbar region with uneasy sensations reaching from kidneys and hips to the umbilicus; atony or irritation of the urinary tract, with muddy, ill-smelling urine.

Action and Therapy.—A mild tonic and astringent, indicated as abovementioned, and of considerable value in cystic catarrh and nephritic irritation from the presence of gravel. It is also sometimes used as a gargle, and internally for mucous profluvia from any of the mucous structures of the body. The infusion is especially useful. We have known it to give relief in abdominal pain due to faulty intestinal digestion. Dribbling of urine in old persons is said to be relieved by agrimony.

ALETRIS FARINOSA.

The rhizome of ***Aletris farinosa***, Linné, gathered after the plant has flowered (Nat. Ord. Haemodoraceae). United States. ***Dose***, 5 to 60 grains.

Common Names: Blazing Star, Star Grass, Starwort, False Unicorn root.

Preparation.—***Specific Medicine Aletris***. ***Dose***, 5 to 60 drops.

Action and Therapy.—Owing to the confusion that has long existed resulting from the unwitting substitution of aletris, for Helonias (Chamaelirium) the virtues of the latter, as a remedy for various disorders of the female reproductive organs, have been ascribed also to the former. It is probably nothing more than a gentle stomachic and tonic, and as such may be employed to promote the appetite and aid digestion. It is accredited with value in atonic dyspepsia, with flatulence and borborygmus. Even the carminative effects thus ascribed would seem to belong to helonias rather than to aletris, which is neither bitter nor aromatic like the former.

ALLIUM CEPA.

The fresh bulb of ***Allium Cepa***, Linné (Nat. Ord. Liliaceae). Common in cultivation everywhere.

Common Name: Onion.

Principal Constituent.—A colorless oil, composed chiefly of a sulphur compound ($C_6 H_{12} S_2$).

Preparations.-1. ***Tincture of Red Onion***. 5 to 60 drops.
2. ***Syrup of Onion***. ***Dose***, 1 to 2 fluidrachms.

Action and Therapy.—***External***. Onion is rubefacient. A poultice of onion with vinegar gives relief to inflamed corns and bunions. Roasted onion makes an efficient poultice for acute broncho-pulmonic inflammations, especially of young children, when local applications are desired. Onion poultices are objectionable only when made too heavy, carelessly applied, or when applied to open surfaces.

Internal. Onion is stimulant, expectorant, and diuretic. A syrup of onion, prepared by drawing the juice with sugar, is a very effectual expectorant cough medicine for infants, young children, and old persons. If given in moderate quantities it is very soothing; if too freely administered it may cause nausea and disorder digestion. It, together with the onion poultice, are among the good things inherited from domestic medication, and might well be considered in preference to less safe and less depressing pulmonic medication. A tincture of red onion is useful in gravel and other urinary disorders with passages of blood, pus, and mucus. The dose is from 5 to 10 drops in water. It is

sometimes given with an equal quantity of tincture of Xanthium Strumarium.

ALLIUM SATIVUM.

The bulb of ***Allium sativum***, Linné (Nat. Ord. Liliaceae). Sicily, Asia Minor, and Central Asia; cultivated also in the United States and Europe. ***Dose***, 1 to 2 drachms.

Common Name: Garlic.

Principal Constituents.—Chiefly an acrid volatile oil, containing sulphur compounds.

Preparations.—1. ***Syrupus Allii***, Syrup of Allium. ***Dose***, 1 to 2 fluidrachms.
2. ***Succus Allii***, Juice of Allium. ***Dose***, 1 fluidrachm.

Action and Therapy.—***External***. Stimulant and rubefacient. Garlic poultice, like that of the onion, may be applied with benefit in acute respiratory and abdominal inflammations. It sometimes excites a flow of urine in atony of the bladder, and in gastro-intestinal catarrh it is as efficient as the spice poultice. Applied to the feet it has been successful as a revulsant in brain and cerebro-spinal disorders of children, associated with convulsions.

Internal. Expectorant and diuretic. The juice or the syrup (made by covering bruised garlic with sugar) is often effectual in common colds, especially when tending to become chronic or frequently repeated. It should not be used when there is marked irritation or inflammation. As a food, garlic is a stimulant to digestion if not used to excess. As such it is a common ingredient of certain meat sausages.

ALNUS SERRULATA.

The recent bark of ***Alnus serrulata***, Aiton (Nat. Ord. Betulaceae). A shrub of the United States east of the Mississippi River.

Common Names: Tag Alder, Red Alder, Black Alder, Smooth Alder, Common Alder.

Principal Constituents.—Oils, tannin, and resins.

Preparations.-1. ***Decoctum Alni***, Decoction of Alnus (bark 1 ounce, Water, 16

fluidounces). ***Dose***, 1 to 2 fluidrachms. Chiefly used as a local application.

2. ***Specific Medicine Alnus***. ***Dose***, 1 to 60 drops.

Action and Therapy.—***External***. The decoction is one of the best of local applications for rhus poisoning. We have observed rapid cures with it. It stains the skin. It is also a useful wash for nursing sore mouth of mothers, and should be given internally at the same time.

Internal. A good remedy to promote waste and repair and to improve nutrition. It is astringent and a bitter tonic, of use in gastric indigestion, with relaxed stomach walls and imperfect peptic function. Its alterative properties are best displayed in pustular eczema and recurrent crops of boils. Passive haematuria is sometimes controlled by its astringent action.

ALOE.

The dried juice of the leaves of several species of Aloe: (1) ***Aloe Perryi***, Baker; (2) ***Aloe vera***, Linné; (3) ***Aloe ferox***, Miller. (Nat. Ord. Liliaceae). Barbadoes, Africa and the Orient.

Common Names: (1) Socotrine Aloes; (2) Curaçoa Aloes; (3) Cape Aloes.

Description.—(l) Yellow-brown or black-brown masses, aromatic, bitter, and nauseous, half of which is soluble in water; powder, deep brown; aqueous solution yellowish. (2) Orange to black-brown masses, waxy, not aromatic; more than half soluble in water; powder, deep red-brown; aqueous solution, purplish red. (3) Red-brown or greenish-black, smooth, glassy masses, more than half soluble in water; powder, greenish-yellow (fresh), light brown (old); aqueous solution, pale yellow. Dose, 1 to 8 grains.

Principal Constituents.-***Aloin*** ($C_{14}H_{10}$). resin, and volatile oil.

Preparations.-(1) ***Aloinum***, Aloin (a very bitter, yellow-to-dark-yellow, finely-crystalline powder, soluble in water, slightly in ether). ***Dose***, 1/12 to 1/2 grain.

2. ***Pilulae Aloes***, Pills of Aloes. (Each pill contains 2 grains of Aloes.) ***Dose***, 1 to 2 pills.

3. ***Tinctura Aloes***, Tincture of Aloes (10 per cent of Aloes). ***Dose***, 15 to 60 minims.

Specific Indications.—Atony of the large intestine and rectum; mucoid discharges, prolapsus ani, ascaris vermicularis (Scudder). Difficult evacuation of the lower bowel when not due to fissure or inflammation.

Action.—Aloes is a slow-acting stimulating purgative, probably affecting only the lower bowel, notably the rectum. In small doses it is laxative. It strongly increases colonic peristalsis, but does not greatly increase the secretions of the intestinal glands, consequently the stools are feculent rather than watery, unless the dose be large. As it takes from 10 to 15 hours to operate, it should be administered in the early evening so that evacuation may occur in the morning. When given alone it causes considerable griping and often rectal fullness and heat. These may be modified by giving it in pill with soap or an alkaline carbonate, or with hyoscyamus, belladonna, or carminatives. Sulphate of iron slightly restrains its action and ipecac increases it. Applied to a denuded surface it operates the same as if taken internally, and administered to a nursing mother it purges the sucking child. By its stimulating action upon unstriped fibre, as of the bowel and uterus, and its tendency to excite the pelvic circulation producing pelvic congestion, it proves- emmenagogue. It is a purgative for torpor and debility, and should not be given to plethoric persons, nor when gastro-enteritis, or actively inflamed hemorrhoids are present; nor when pregnancy exists.

Therapy.—Aloes, in 1/2 to 1 grain doses, is a gastric stimulant of value in atonic indigestion, with obstinate constipation. It has had a large vogue as an after-dinner pill, but is now little used for that purpose. As a rule it is a good agent for use in atonic chronic constipation, but should never be exhibited in cathartic doses for this purpose. Aloes, or its derivative, aloin, is usually an ingredient of many favorite laxative pills, composed of varying amounts of either drug in combination with belladonna, strychnine, and ipecac, and sometimes with the addition of capsicum. One of the best of these is the “Lapactic pill.” When sulphate of iron is indicated in chlorosis and anemia, aloes is generally combined with it. It has the effect of restraining the constipating action of the chalybeate. Aloes and iron are both very useful in delicate women who are subject to amenorrhoea or menorrhagia, with pelvic and intestinal torpor, poor appetite, and a weak circulation. As most of these cases are profoundly constipated, the explanation of the combination may be found in the laxative action of the aloes. When hemorrhoids are due to feeble venous return, small doses of aloes or aloin may improve conditions, but it should never be given when there is active hemorrhoidal inflammation. In very small doses aloin is useful in rectal prolapsus, due to pelvic debility and

general ill-health. It is still a debatable question whether aloes influences the flow of bile. When, however, jaundice is coexistent with torpor of the hemorrhoidal veins, it may be improved by laxative doses of aloes or aloin. Aloes is a decidedly useful but much abused medicine in chronic or habitual constipation. As stated above only slightly laxative amounts should be used. When a purgative is needed for bowel impaction in the insane—particularly in hypochondriasis and melancholia—aloes is probably the best that can be given. The improvement in the mental state often will be commensurate with the betterment of the intestinal torpor.

ALTHÆA OFFICINALIS.

The decorticated dried root of ***Althaeaofficinalis***, Linné (Nat. Ord. Malvaceae), a plant of salt marshes, river banks, and moist, sandy soils. Europe, Asia, Australia, and Eastern United States.

Common Name: Marshmallow.

Principal Constituents.—Mucilage, starch, pectin, and ***asparagin***, an odorless and colorless crystallizable body identical with ***althein*** and ***agedolite***, found also in many other plants.

Preparations.—1. ***Infusum Althææ***. Infusion of Althaea. ***Dose***, Freely.
2. ***Decoctum Althææ***. Decoction of Althaea. ***Dose***, Freely.
3. ***Syrupus Althaææ***. Syrup of Althaea. ***Dose***, 1 fluidounce to 4 fluidounces.

Therapy. ***External***. A soothing application to inflamed surfaces; and may be used as an injection for dysentery, acute vaginitis, and the acute stage of gonorrhea. A favorite gargle for irritated throat. Applied upon a compress, it is reputed to be comforting to painful piles.

Internal. An excellent lenitive and demulcent diuretic employed to soothe irritated and inflamed mucous surfaces, in hoarseness, cough due to faucial irritation, gastro-intestinal irritation and inflammation, and as a soothing drink in vesical and renal irritation and inflammation, acute cystitis, strangury and gravel. If the mucilage chiefly is desired, an infusion should be prepared with cold water; if starch, with some mucilage is needed, a decoction. It may be given freely. A syrup of marshmallow is a good vehicle for pectoral medication.

AMYGDALUS PERSICA.

The leaves and bark of the twigs of ***AmygdalusPersica***, Linné (Nat. Ord. Rosaceae). Native to Persia. Cultivated everywhere.

Common Name: Peach tree.

Principal Constituents.—The glucosid ***amygdalin***, which in the presence of water and emulsin splits into hydrocyanic acid and other bodies. Hydrocyanic acid can be obtained from most parts of the tree.

Preparations.—1. ***Infusum Amygdali***, Infusion of Amygdalus. Prepared by saturating the ***freshly*** scraped inner bark of the twigs (1 ounce) in cold water (16 ounces). It must ***not*** be boiled. ***Dose***, 1 fluidrachm to I fluidounce.

2. ***Specific Medicine Amygdalus***. (Made from the green young twigs and leaves.) ***Dose***, 1 to 30 drops.

Specific Indications.—Gastric and abdominal tenderness, with irritation and congestion, and pointed tongue with reddened tip and edges and prominent papillae, nausea, and vomiting.

Therapy.—Used according to indications as given above, the infusion is a reliable sedative for gastric irritation with vomiting, particularly in children, and in the irritable stomach of phthisis. Scudder valued it in the vomiting of cholera infantum. We believe the failure of many to obtain results from amygdalus in vomiting is due to the use of alcoholic preparations instead of the infusion; and the latter is of no value unless prepared daily from the fresh green inner bark and leaves. We have both succeeded and failed with it according to the cause of the gastric disturbance. It is of less value for cough than wild cherry or hydrocyanic acid. For the latter the infusion or the specific medicine may be used.

AMYLUM.

The fecula or starch of the seed of ***Zea Mays***, Linné (Nat. Ord. Gramineae). (Formula: $C_6 H_{10} 0_5$).

Common Name: Corn Starch.

Description.—Irregular, angular, white masses, or a fine, white powder; inodorous, with a slight but characteristic taste. Insoluble in alcohol and cold water. When boiled with 15 parts of water and cooled, it yields a whitish,

translucent jelly (starch paste).

Preparation—***Glyceritum Amyli***, Glycerite of Starch.

Action.—A carbohydrate food contributing to the production of animal-heat, and when consumed in too large quantities for long periods increases fat and gives rise to flatulence and gastric acidity. Under the same conditions it may cause sugar to appear in the urine.

Therapy.—***External***. A valued dusting powder for intertrigo, erysipelas and irritated skin, and as starch-water (diluted starch paste) a useful demulcent for inflammatory disorders of the lower bowel and a medium for rectal medication. The glycerite alone (or as a vehicle for other medicaments) is a bland and non-irritating application to relieve the heat of eczema, erythema, excoriations, and other irritated or inflamed disorders of the skin.

Internal. The antidote for ***iodine*** poisoning. Diluted starch paste may be used as a lenitive after other forms of irritant poisoning, and as a mucilage for the administration of medicines.

ANEMOPSIS CALIFORNICA.

The root of ***Anemopsis californica***, Hooker (Nat. Ord. Saururaceae). A native perennial of wet places in Southern California and Northern Mexico. ***Dose***, 1 to 60 grains.

Common Names: Yerba mansa; Yerba del mansa.

Principal Constituents.—A heavy aromatic oil (5 per cent) and tannic acid. No alkaloid has been found in it.

Preparation.—***Specific Medicine Anemopsis***. ***Dose***, 10 to 60 drops in syrup.

Action and Therapy.—Reputed astringent, tonic, carminative, and anti-emetic. A mucous membrane stimulant for catarrhal conditions of the respiratory, gastro-intestinal, and genito-urinal tracts. It has given good results in bronchial cough and nasal catarrh. In the latter affection, Munk uses it largely as a spray to the nose and throat, employing from 10 to 30 drops of the specific medicine to slightly

glycerinated water. It has a reputation for relieving the excessive discharges of chronic gonorrhea, acting somewhat like cubeb.

ANISUM (Pimpinella anisum).

The dried ripe fruit of ***PimpinellaAnisum***, Linné (Nat. Ord. Umbelliferae). Egypt and Western Asia; cultivated in Southern Europe. ***Dose***, 5 to 40 grains.

Common Names: Anise, Aniseed.

Principal Constituents.—A volatile oil (***Oleum Anisi***) composed chiefly (95 per cent) of the stearopten ***anethol*** ($C_{10}H_{12}0$), which, upon oxidation, yields anisic acid ($C_8H_8O_3$)

Preparations.—1. ***Oleum Anisi***, Oil of Anise. Derived from Anise (above) or from Star Anise (***Illicium verum***, Hooker, Nat. Ord. Magnoliaceae.). The botanical origin must be stated on the label. Oil of Anise is a highly refractive, colorless or light-yellow liquid, having the taste and odor of anise. It is freely dissolved by alcohol. ***Dose***, 1 to 5 drops on sugar.

2. ***Infusum Anisi***, Infusion of Anise (Anise, 2 or 3 drachms;] Boiling Water, 8 ounces). ***Dose***, 1 to 2 fluidrachms.

3. ***Spiritus Anisi***, Spirit of Anise. Ten per cent Oil of Anise in Alcohol. ***Dose***, 1/2 to 1 fluidrachm in hot water.

4. ***Aqua Anisi***, Anise Water. ***Dose***, a fluidrachms to a fluidounce.

5. ***Specific Medicine Anise***. ***Dose***, one fluidrachm in water.

Specific Indication.-Flatulence, with colicky pain.

Action and Therapy.—Anise is an agreeable stimulating carminative employed principally for the relief of nausea, flatulency, and the flatulent colic of infants. Anise imparts its odor to the milk of nursing mothers. It is an ingredient of Paregoric (Camphorated Tincture of Opium), and is largely used to impart to or correct flavor in medicinal preparations, especially cough mixtures. For infants the infusion is the best preparation and it should not be sweetened. The spirit (1/2 to 1 fluidrachm) given in hot water is more agreeable and effective for older children and adults. The oil (1 to 5 drops) on sugar may be used by the latter, if desired.

ANTHEMIS NOBILIS.

The flower-heads of ***Anthemis nobilis***, Linné, (Nat. Ord. Compositae). Collected from cultivated plants.

Common Names: Roman Chamomile, Chamomile, English Chamomile.

Principal Constituents.—A stimulating oil (***Oleum Anthemidis***) and resin; and tannin.

Preparations.—1. ***Specific Medicine Anthemis***. ***Dose***, 1 to 60 drops.

2. ***Oleum Anthemidis***, Oil of Anthemis. ***Dose***, 5 to 15 minims (on sugar).

3. ***InfusumAnthemidis***, Infusion of Anthemis; (Anthemis, 1/2 ounce; Water, 16 ounces). ***Dose***, 1 to 4 fluidounces.

Therapy.—The cold infusion is reputed stomachic; the hot infusion diaphoretic (1 to 2 fluidounces), and emetic (5 to 12 fluidounces); the oil carminative. The cold infusion may be used in gastric debility, with flatus; the hot infusion to relieve colds due to sudden cutaneous chilling, and in dysmenorrhea to check pain and facilitate the flow. The oil may be employed for a like purpose, and for intestinal cramps and colic due to flatulency. Anthemis is little used.

APOCYNUM CANNABINUM.

The root of ***Apocynumcannabinum***, Linné (Nat. Ord. Apocynaceae) gathered in autumn after the leaves and fruit have matured. Grows throughout the United States. ***Dose***, 1 to 20 grains.

Common Names: Bitter Root, Canadian Hemp, and improperly, Indian Hemp.

Principal Constituents.—A resinous principle—***apocynin***, and a yellow glucoside, ***apocynein***; and ***apocynamarin***, or ***cynotoxin***, or ***cymarin***, all of which resemble digitalis glucosides in action.

Preparations.-1. ***Specific Medicine Apocynum***. Dose, 1/4 to 20 drops. ***Usual form of administration***: Rx Specific Medicine Apocynum, 10 drops to 1 fluidrachm; Water, four ounces; Mix. Sig. One teaspoonful every 1 to 3 hours.

2. ***Decoctum Apocyni***, Decoction of Apocynum (root 1 ounce to Water, 16 ounces). Dose, 1 to 2 fluidrachms.

Specific Indications.—Watery infiltration of cellular tissue—edema—with weak circulation and general debility; skin blanched, full, smooth, and easily indented; puffiness under the eyes; eyelids wrinkled, as if parts had been recently swollen; feet full and edematous, pitting upon pressure; constipation, with edema; urine scanty and circulation sluggish; boggy, watery uterus; full relaxed uterus with watery discharge; profuse menorrhagia, too often and too

long continued; passive hemorrhages, small in amount and associated with pedal edema; mitral and tricuspid regurgitation, with rapid and weak heart action, low arterial tension, difficult breathing, cough, and tendency to cyanosis.

Action.—Apocynum acts powerfully upon the heart, slowing its action and raising arterial tension. The cardiac muscle appears to be directly stimulated by it as are probably the arterial coats. Contraction of the renal arteries also takes place, so that while less blood passes at a time through the kidneys, the act of filtration is more perfect and marked diuresis results. Though long known that diuresis was one of its most prominent results, the knowledge that this is due to the better cardiac pressure and arterial tonus, rather than to the increased intrinsic secreting power of the renal glomeruli, is the result of pharmacologic investigation in recent years, particularly the work of Horatio C. Wood, Jr. The general effects upon man of full doses of apocynum are nausea, and sometimes vomiting and purging, succeeded by copious sweating. The pulse is then depressed, and in some a disposition to drowsiness is observed until relieved by vomiting. The powdered drug causes sneezing. The small doses employed in Eclectic therapeutics seldom occasion any of the above-named symptoms save that of severe watery purging, which may occur suddenly, when the drug has been administered persistently for several weeks.

Therapy.—No remedy in the Eclectic materia medica acts with greater certainty than does apocynum. In former times it was employed in heroic doses chiefly for its hydragogue cathartic and diuretic effects. Early in the last century it was employed by the botanic practitioners for the relief of dropsy. Later the Eclectic school developed its specific uses in dropsy and affections of the heart and circulation. Like many similar drugs, the powder was employed as a sternutatory in the days when it was believed that such effects as the increasing of the nasal discharges was the best way to relieve headaches and certain catarrhal affections. Again, it was recommended in diaphoretic doses, for the relief of intermittent and remittent fevers, and in pneumonic involvements, conditions in which it is now seldom or never thought of. It is rarely employed nowadays as a cathartic, and then only in dropsical conditions, as other hydragogues have been similarly used. Such is the use of it advocated by the authors of the regular school of medicine, by those who use it at all; and from such a use arises the criticisms frequently indulged in in condemnation of the drug.

Eclectics do not use it in this manner. Specific medication has established that this action is not necessary, for when specifically indicated it promptly removes effusions without resorting to cathartic doses. Consequently it finds little use as a cathartic, except very rarely as recommended by Goss, for the removal of ascarides.

To use apocynum intelligently and successfully, the prescriber must recognize, first, that debility is the condition in which it exerts its specific and beneficial effects—debility of the heart and circulatory apparatus, of the kidneys, of the capillaries of the skin particularly. In such a state it will prove a remedy; under opposite conditions it is likely to prove an aggravation. The patient with a strong, rope-like, hard, and quick pulse is not the patient for apocynum. On the other hand, the feeble pulse, soft and of little force, indicates its selection as the remedial agent. The atonic state which readily permits of exudation from the blood vessels is the ideal condition which we seek to remedy with apocynum. It is a vascular stimulant. Such results one would not expect to obtain if there were circulatory obstruction or active fever. The only apparent exception, in which it is adapted to active conditions, is that reported by Webster of its efficacy in active inflammation of the upper pharyngeal and post-nasal tract, where, he declares, it rivals phytolacca in its results. One can not expect apocynum to reconstruct wornout tissues or to restore damaged vascular valves. We must not hope to work miracles with it where there are such structural lesions as incurable or malignant organic diseases of the heart, liver, or kidneys. Yet in these conditions, when debility and subcutaneous, watery exudation are strong factors, it alone is a powerful remedy to relieve urgent symptoms and to put into action that portion of sound tissue that remains. The most we can hope for is an amelioration of the symptoms, and a notable decrease of the watery accumulation may be looked for. Under these circumstances we have removed enormous dropsical swellings with it, giving quick relief from dyspnea and thereby allowing the patient to obtain rest in the recumbent position. Still it did not cure, and in many such instances death mercifully removes the victim before extensive infiltration can again take place. Digitalis, cactus, strophanthus, and convallaria often aid its action. It is a singular circumstance, mentioned by Krausi, and which we have also observed, that apocynum seldom has any effect upon patients who have been subjected to paracentesis. In our opinion this is due to the advanced stage of the disease, usually reached by the time it is necessary to tap; for tapping is seldom regarded a curative

measure, and is resorted to in the later stages of ascites to give temporary relief. It is then too late for any drug to gain a satisfactory foothold. Moreover, apocynum is less effective in ascites than in edema or anasarca, for the latter is most likely to depend upon circulatory failure, whereas the former may depend most largely upon malignant or obstructing tumors.

The chief indication for apocynum is watery fullness of tissues as if infiltrated and accompanied by debility. This may be shown in the puffy eyelids, the swollen feet and ankles or other parts, which pit upon pressure. The skin is usually blanched, sometimes streaked with pinkish lines, full, smooth, and glistening. If the case be chronic or subacute, the more active the drug appears. With these conditions it may confidently be relied upon to cure curable cases or to give relief in incurable maladies, whether they are revealed in simple edema or anasarca, ascites, or dropsy of any of the serous cavities, or dropsy following scarlatina or malarial poisoning. In both of the latter conditions it is unusually effective. When such accumulations, functional in origin and due chiefly to vascular weakness, accompany atonic stomach and bowel disorders, as gastric and intestinal dyspepsia, and in syphilis, it is a signally useful drug. In rheumatism, arthritis, and sciatica, with edema, or even if but slight puffiness of the part be present, it renders valuable aid to antirheumatics or other appropriate remedies. Acute and chronic hydrocephalus, with spreading sutures, protruding fontanelles, and puffy eyelids, have yielded to the curative action of apocynum. It has been recommended in cerebro-spinal meningitis during the stage of effusion. In watery leucorrhoea, passive menorrhagia, irritable and congested uterus, prolapsus uteri, uterine subinvolution, and in some cases of amenorrhoea, in all of which debility is marked and the pelvic tissues are heavy, lax, and sodden, and there is slight infiltration about the ankles, apocynum has cured when remedies ordinarily directed in gynecological practice have failed to relieve. For the renal congestion of the second stage of tubular nephritis Gere found it to be the best remedy. Others assert its usefulness in the nephritis of pregnancy with albumen in the urine. Our experience with apocynum leads us to believe it less valuable in dropsies with albumen waste than in those without it but dependent most largely upon circulatory embarrassment.

Apocynum is of very great value in diseases of the heart and

circulation—a fact recognized and acted upon in Eclectic therapy years ago. Its action in giving tone to the heart muscle and vessels, and its use in cardiac disorders, was the subject of comment by Scudder, Locke, Ellingwood, Freeman, Waterhouse, Webster, and others. Angina pectoris, attended with edema, and praecordial oppression of smokers, are relieved by it. Krausi calls attention to its utility in mitral regurgitation, and speaks of it as the king of remedies in tricuspid regurgitation, with rapid and feeble cardiac action, low arterial tension, cough, dyspnea, pulsating jugulars, general cyanosis, scanty and high-colored urine, and general dropsy. He also refers to it as giving no special aid in aortic diseases.

The observation made by Krausi that apocynum increases secretion and excretion by way of the kidneys, whereas digitalis, after twenty-four hours, causes a retention of urea, is an important one, and should not be lost sight of. This ought to make it a valuable agent in uraemia and conditions depending upon faulty elimination of that body. Within a few years the internal and the hypodermatic use of apocynum directly upon the nerve is said to have promptly relieved sciatic neuritis.

The observations of a single reporter on the use of the first dilution of apocynum in not over one-drop doses every two hours as a remedy for obesity, is worthy of consideration and seems rational as the classic indications are noted. However, one must not be too optimistic concerning the power of a medicine to reduce fat, nor must anasarca be mistaken for obesity. In these cases the pulse lacks strength, though it is rapid; the temperature is inclined to subnormal in the morning and slightly above normal in the evening; the tongue has a dirty-white coating; the appetite is poor, the abdomen full and doughy to the touch; and there are gaseous eructations from the stomach and expulsion of flatus from the bowels. Occasionally there are night-sweats, and the ever-present indication for apocynum, edema of the extremities, is constant.

AQUA ROSÆ.

Rose Water.
Stronger Rose Water mixed with an equal part of distilled water, immediately before dispensing.

Description.—A clear aqueous preparation having the pleasant odor of roses. [Stronger Rose Water is a saturated, aqueous distillate from the flowers of the hundred-leaved rose (***Rosa centifolia***, Linné, Nat. Ord. Rosaceae). It is colorless and should have only the odor and taste of fresh rose petals.]

Action and Therapy.—***External***. A cooling, non-irritating and slightly astringent collyrium. As a perfume preparation it is of much value in cosmetic lotions and washes, and the Stronger Rose Water (Aqua Rosae Fortior) is an ingredient of ***Ointment of Rose Water*** (***Unguentum, Aquae Rosæ***), or so-called ***Cold Cream***. Equal parts of Rose Water and Glycerin is a favorite perfumed lotion for chapped hands, lips, and face.

ARALIA HISPIDA.

The bark of the root of ***Aralia hispida***, Linné (Nat. Ord. Araliaceae). A perennial undershrub of the eastern section of the United States. ***Dose***, 1 to 30 grains.

Common Names: Dwarf Elder, Wild Elder, Bristle-stem Sarsaparilla.

Preparations.—1. ***Specific Medicine Aralia***. Dose, 1 to 30 drops.
2. ***Decoctum Aralia***, Decoction of Aralia (1/2 ounce to water, 16 ounces). ***Dose***, 2 to 4 fluidounces.

Specific Indications.—Anasarca and edema with constipation.

Action and Therapy.—Sometimes a surprisingly effective agent for the removal of anasarca dependent chiefly upon renal inactivity or renal irritation. Moreover, it often fails. It is, however, useful as a mild renal stimulant and laxative, and occasionally gives a good account of itself in the treatment of gravel.

ARALIA RACEMOSA.

The root of ***Aralia racemosa***, Linné (Nat. Ord. Araliaceae). Found in rich woodlands and rocky situations in the eastern half of the United States.

Common Names: Spikenard, American Spikenard, Spignet, Pettymorrel.

Principal Constituents.—Resin and a trace of an aromatic volatile oil.

Preparation.—***Specific Medicine Spikenard***. ***Dose***, 5 to 40 drops in syrup or water.

Specific Indications.—Irritative cough of debility with excessive

secretion.

Action and Therapy.—A pleasant aromatic stimulating expectorant for chronic pulmonic affections, with cough from marked irritation and excessive catarrhal secretions. The syrup is a really valuable cough remedy in greatly debilitated subjects. When used in very small amounts the specific medicine is an agreeable flavor for syrupy cough mixtures. A number of apocryphal uses have been recorded for it, but outside of its good effects upon the respiratory and renal mucosa it has nothing to commend it.

ARISÆMA TRIPHYLLUM.

The fresh corm of ***Arisaema triphyllum***, Torre (Nat. Ord. Araceae). Common in damp woods and wet situations in North and South merica.

Common Names: Indian Turnip, Jack-in-the- Pulpit, Dragon Root.

Principal Constituents.—Starch, potassium and calcium salts, particularly raphides of calcium oxalate and possibly another acid principle.

Preparation.— ***Tinctura Arisæmæ***, Tincture of Arisaema (Corm, 8 ounces; Dilute Alcohol, 16 ounces). ***Dose***, 1 to 5 drops. Only the tincture of the fresh corm is of any value.

Action.—The fresh corm has no effect upon the unbroken skin. When bitten or chewed it is fiercely irritant, causing a persistent and intensely acrid impression on the tongue, lips, and fauces, something like that of a severe scald, with considerable pricking. Slight inflammation and tenderness may follow. This effect is thought to be due to the raphides of calcium oxalate present. Milk mitigates the distressing sensation.

Therapy.—Arisaema has been recommended for a variety of disorders, chiefly of the respiratory tract, and as a stimulant in low forms of fever, when delirium is marked and the membranes are inflamed and the tongue red, painful and swollen. It is seldom used for these purposes. It is, however, of real value in severe forms of sore throat, intensely painful, swollen and fetid, with deep or purplish-red membranes similar to that of the angina of scarlet fever. It is also useful in chronic laryngitis aggravated by singing or public speaking, and accompanied by hoarseness and loss of voice, burning and sense of constriction in

the throat, and thin ichorous discharge from the nose. A strong tincture of the fresh corm may be given in drop doses every half to one hour, and a throat wash of one drachm of the tincture to a half glass of water may be used freely.

ARNICA MONTANA.

The dried flower-heads of ***Arnica montana***, Linné (Nat. Ord. Compositae). A perennial of Siberia and the cooler parts of Europe; also found in Northwestern United States (? —MM). ***Dose***, 1 to 10 grains.

Common Names: Arnica, Leopard's Bane.

Principal Constituents.—***Arnicine*** ($C_{12}H_{22}O_2$), a golden-yellow body, a volatile oil, and angelic and formic acids.

Preparations.—1. ***Specific Medicine Arnica***. Dose, 1/4 to 10 drops.
2. ***Tinctura Arnicæ***, Tincture of Arnica. Locally.

Specific Indications.—"Muscular soreness and pain from strain or overexertion; advanced stage of disease, with marked enfeeblement, weak circulation, and impaired spinal innervation; embarrassed respiration; lack of control over urine and feces; sleeplessness from impeded respiration; and dull praecordial pain from 'heart strain'; muscular pain and soreness when the limbs are moved; tensive backache, as if bruised or strained; cystitis, with bruised feeling in bladder, as from a fall or blow; headache, with tensive, bruised feeling and pain on movement; hematuria, with dull, aching, lumbar pain; or from overexertion. Debility with enfeebled circulation." (***American Dispensatory***.)

Action.—Arnica is a decided irritant to the skin, under some circumstances producing marked dermal irritation, deepening into an erysipelatous or acute eczematous inflammation, with pustules and blisters, and often grave constitutional symptoms. In this respect the alcoholic preparations of the flowers are most active, and for this reason full strength preparations should not be used upon the skin, nor as a rule should any preparation of arnica be used upon cuts or injuries causing a breaking of the skin. Under the latter conditions dangerous inflammation, with vesication, has occurred. Persons of sensitive skin, and it is said gouty subjects, are most susceptible to this untoward action of the drug.

Medicinal doses of arnica slow the heart, slightly raise arterial pressure, and stimulate the vagi. Poisonous doses operate reversely and paralyze the vagal centers. Intermediate but large doses produce heat in the throat, nausea and vomiting, dyspnea, headache, lowering of temperature, and sometimes convulsive movements. With toxic doses these effects deepen into unconsciousness, motor, sensory and vagal paralysis, coma, and death. Death is said to have been caused by two ounces of tincture of arnica.

Therapy.—***External***. Arnica, in tincture or fomentation, has long been a popular but by no means safe discutient to prevent and discuss inflammatory swellings, and to relieve the soreness of myalgia and the effects of sprains, bruises, and contusions. It is often serviceable to remove ecchymoses, and it gives grateful relief to sore muscles that have undergone much strain and exertion. A glycerite has been effectually used upon bites of mosquitoes and other insects. Preparations of the root are less liable to excite dermatitis, and the infusion of the flowers is less irritant than the tincture. After applying the latter, which should always be well diluted, the surface should not be covered or bandaged, so that evaporation may take place freely.

Internal. Arnica is a greatly unappreciated medicine. It has a pronounced action upon the medulla and spinal cord which can be invoked to good advantage in states of depression. The keynote for arnica is spinal and vagal enervation. It should be brought into service when there is deficient nervous response, sluggish vascular power, and in almost all conditions in which prevails the triad-torpor, debility, and depressed function. In the advanced stages of exhausting diseases, where spinal innervation is poor, control over the sphincters lost, and there is feeble respiration due to central vagal impairment, it is a most important stimulant. It should be used when breathing can be carried on chiefly only by force of the will, and becomes weak and shallow when the patient drops into sleep; or when the sleeper awakens with a start on account of dyspnoea when automatic respiratory action alone is depended upon. Such a state occurs in the low stage of typhoid and other fevers, and in lobar pneumonia. In such conditions arnica is most useful and compares well with strychnine or atropine, or phosphorus, none of which are so safe as arnica. Arnica will prove useful in the depression occasioned by extreme forms of diarrhoea and dysentery when the discharges escape control. In so-called typhoid

pneumonia—which is but pneumonia with typhoid conditions—marked asthenia, feeble circulation, great depression, low muttering delirium, picking at the bed clothes, and dry tongue loaded with foul mucus and sordes, it is a most valuable auxiliary to other treatment. In the hectic fever of phthisis, with exhausting diarrhoea and excessive sweating, it often proves the needed stimulant and antihydrotic.

Arnica is a stimulant of great power in anemia, with weak heart and capillary feebleness, and marked depression, diarrhoea and dropsy, but no inflammation. During mild forms of so-called chronic rheumatism, with cold skin and general debility it will stimulate the nervous system, restore normal warmth, re-establish restrained secretion, and thus relieve pain. In painful, bruised or subacute inflammatory disorders arising from injury, with marked lowering of nerve tone, muscular aching and chilly sensations, arnica is a remedy of power to give comfort and hasten resolution. When myalgia is caused by exposure, or when muscular soreness and pain are due to strain, overexertion, or sudden jars or blows, the administration of arnica internally, in small doses of the specific medicine preferably, and the diluted tincture applied locally are among the most serviceable of measures.

Arnica frequently relieves “heart-strain” due to exertion, overwork, or from long marching. It also benefits in the heart debility that follows severe strain, worry, or excitement. Dull aching pain in the praecordia, due to lifting or when working against vibrating machinery, as in shoe making, is dissipated by small doses of arnica. For lame back, backache and feelings of soreness and debility of the back, when accompanied by nervous depression and poor circulation, arnica is one of the most direct of remedies. Lumbago, when due to muscular strain or falls, is relieved by arnica. Its action is increased by rhus, macrotys, or sometimes gelsemium. When dependent upon a loaded bowel, venous relaxation in the hemorrhoidal circulation, piles, fissures, sagging of the abdominal contents, pelvic weakness, or a neuritic state of the lumbar plexus, arnica is of little or no value. Indeed, in some of these conditions it may only result in an aggravation of the nervous unrest so frequently attendant upon lumbago, and allied painful disorders.

We have used arnica most successfully in paraplegia and hemiplegia after all evidence of acute inflammation or recent injury has passed. It

is especially to be remembered in sphincteral paralyses, so common after long illness in which spinal enervation has played an important role. Nervous headache of depression and debility frequently is relieved by arnica, and some believe it to be the best agent for amaurosis, a rather ill-defined ocular disturbance.

Should the patient to whom arnica is administered appear to become nervously excited and restless, or show gastric irritability, its use should be discontinued.

ASAFŒTIDA (Ferula fetida).

A gum-resin derived from the rhizome and rootlets of ***Ferula Asafetida***, Linné; ***Ferula foetida***, Regel, and other species of Ferula (Nat. Ord. Umbelliferae). Persia and other parts of Western Asia. ***Dose***, 1 to 10 grains.

Common Names: Asafetida, Gum Asafetida.

Principal Constituents.—A volatile oil and a bitter resin to both of which its virtues are mostly due; also gum. The unpleasant odor is due to the presence in the oil of allyl sulphide chiefly.

Preparations.—1. ***Emulsum Asafœtidæ***, Emulsion of Asafetida (Milk of Asafetida). ***Dose***, 1 fluidrachm to 1 fluidounce.

2. ***Tinctura Asafœtidæ***, Tincture of Asafetida. ***Dose***, 5 to 30 drops.

Specific Indications.— "Nervous irritation, with mental depression, headache, and dizziness; hysteroidal conditions; convulsive disorders from purely functional wrongs of the stomach, gastro-intestinal irritation, with flatulence and palpitation of the heart; dry, deep, choking bronchial cough" (***American Dispensatory***).

Action.—Asafetida is a general excitant causing quickened breathing and heart-action, genito-urinary irritation, increased sexual desire, and mucous feces. It also increases the bronchial secretion. In overdoses it may cause dizziness and headache.

Therapy.—Asafetida is carminative and antispasmodic, and is a very useful nervine for functional spasmodic affections. It is especially adapted to neurotic individuals subject to hysterical or emotional attacks, usually attended by flatulent distention of the abdomen. In gastric discomfort with flatulence and nervous excitability, and in the

flatulent colic of children and flatus due to intestinal indigestion of old persons, asafetida is extremely satisfactory. Tympanites occurring during fevers is often relieved by it, for its carminative influence is especially effective upon the lower bowel. Owing to its expectorant qualities it is occasionally serviceable in the bronchitis of the aged, in which secretion is free but the power to expectorate is weak. It is also an ideal sedative for the nervous cough following the active stage of whooping cough. It relieves the nervous irritability of dentition. On the whole asafetida is a simple and efficient remedy best adapted to disorders with nervous depression, more or less feebleness, and particularly if associated with constipation, flatulence, or tardy or imperfect menstruation. Asafetida is contraindicated by inflammation. It may be given in emulsion, tincture, or pill or capsule.

ASARUM CANDENSE.

The rhizome and rootlets of ***Asarum canadense***, Linné (Nat. Ord. Aristolochiaceae). A native perennial of the United States found in rich soils in woods, mountains, and along road sides. ***Dose***, 5 to 30 grains.

Common Names: Wild Ginger, Indian Ginger, Canada Snakeroot.

Principal Constituents.—An acrid resin, a spicy volatile oil, and thought to contain among other fractions, ***methyl-eugenol***, a principle not before found in nature.

Preparations.—1. ***Tinctura Asari***, Tincture of Asarum. ***Dose***, 1/2 to 2 fluidrachms.

2. ***Infusum Asari***, Infusion of Asarum (1/2 ounce; Water, 16 ounces). ***Dose***, ad libitum.

3. ***Syrupus Asari***, Syrup of Asarum. Dose, 1-2 fluidrachms.

Action and Therapy.—A very pleasant stimulating carminative, diaphoretic and emmenagogue, of considerable value in amenorrhea from recent colds, in atonic dysmenorrhea, and in flatulent colic. A warm infusion is a very good diaphoretic with which to “break up a cold”. Asarum may be added to cough mixtures, and with syrup forms a very agreeable vehicle for the administration of pectoral medicines to be used in the chronic coughs of debility to aid expectoration. It is contraindicated by gastro-intestinal inflammation.

ASCLEPIAS INCARNATA.

The root of ***Asclepias incarnata***, Linné (Nat. Ord. Asclepiadaceae). Common in damp

and wet grounds throughout the United States. ***Dose***, 1 to 60 grains.

Common Names: Flesh-colored Asclepias, Swamp Milkweed, Swamp Silkweed, White Indian Hemp, Rose-colored Silkweed.

Principal Constituents.—A fixed and a volatile oil, two acrid resins, and an unstable amorphous alkaloid ***asclepiadine***, resembling emetine in action.

Preparation.—***Specific Medicine Swamp Milkweed***. Dose, 1 to 60 drops.

Action and Therapy.—Diuretic and vermifuge. There is good reason to believe this agent a good diuretic to be substituted for digitalis in cases of edema dependent upon cardiac insufficiency. Its action is similar to that of foxglove, without the irritating effects upon the gastric membranes. In fact, in small doses it is a stomachic and of some value in chronic catarrh of the stomach. In powder, 10 to 20 grains, 3 times a day, it is said to expel lumbricoids.

ASCLEPIAS SYRIACA.

The root of ***Asclepias syriaca*** (***Asclepias Cornuti,*** in the original), Decaisne (Nat. Ord. Asclepiadaceae). Common in rich soils throughout the United States. ***Dose***, 1 to 60 grains.

Common Names: Milkweed, Common Milkweed, Silkweed, Wild Cotton.

Principal Constituents.—The milky juice contains a caoutchouc-like body. The root contains a glucoside, not yet fully determined and a volatile oil and a bitter principle.

Preparation.—***Tinctura Asclepiadis Cornuti***, Tincture of Asclepias Cornuti (8 ounces; Alcohol, 16 ounces). ***Dose***, 5 to 60 drops.

Action and Therapy.—***External***. It is a common practice among the laity to remove warts by the application of the fresh, milky juice of the plant. Krausi believed it effective in removing small epitheliomata.

Internal. As the root possesses tonic, diuretic, and anthelmintic properties it may be used occasionally for the functions indicated. The heart-action is stimulated by it, and it has been suggested as a useful remedy in muscular rheumatoid affections, acting much like macrotys. Constipation is said to be favorably influenced by it, and in full doses it is recommended to expel intestinal worms. The drug deserves study.

The young “shoots” or turiones are a favorite pot-herb or “greens” in some sections of our country.

ASCLEPIAS TUBEROSA.

The root of ***Asclepias tuberosa***, Linné (Nat. Ord. Asclepiadaceae). United States and Canada. ***Dose***, 5 to 60 grains.

Common Names: Pleurisy Root, Butterfly Weed, Orange Swallow-wort.

Principal Constituents.—Resins and a glucoside.

Preparation.—***Specific Medicine Asclepias***. ***Dose***, 1 to 60 drops. (***Usual form of administration***: Specific Medicine Asclepias, 20 drops to 2 fluidrachms; Water, 4 ounce. Mix. Sig. One teaspoonful every 1 or 2 hours.)

Specific Indications.— “Pulse strong, vibratile; skin moist; pain acute, and seemingly dependent on motion” (Scudder). Skin hot and dry, or inclined to moisture; urine scanty; face flushed; vascular excitement marked in the area supplied by the bronchial arteries; inflammation of serous tissues; gastro-intestinal catarrhs due to recent colds.

Action.—The physiological action of asclepias is not extensive, but important. Asclepias slows the action of the heart and lowers arterial tension. It especially relieves local hyperemia by vaso-motor control. Through some unexplained, though probably circulatory regulating action upon the sweat-glands it produces a true diaphoresis, including the elimination of both solids and liquids, the latter sparingly and almost insensibly. Its regulation of the true secretion of the skin more nearly resembles that of normal or insensible perspiration than that caused by any other diaphoretic, corallorhiza possibly excepted.

Therapy.—Asclepias is one of the most important medicines for broncho-pulmonic inflammations and catarrhs, and an agent for re-establishing suppressed secretion of the skin. It is the most perfect diaphoretic we possess, so completely does it counterfeit the normal process of insensible perspiration. When the secretion of sweat is in abeyance it restores it; when colliquative it restrains it through its effect of promoting normal functioning of the sudoriparous glands. It may be indicated even though the patient be freely perspiring, for sometimes when the liquid excretion is abundant there is a retention

of the solid detritus, the removal of which is one of the effects of asclepias. By softening and moistening the skin, temperature is safely reduced. Asclepias never causes an outpouring of drops of sweat. If such occurs, it is due to bundling with bed-clothing, or the too copious administration of either hot or cold water with. it. Given in alcoholic preparations, in the usual small doses, it merely favors the reestablishment of natural secretion. While asclepias is serviceable when the temperature is high, it does its best work when heat is but moderately exalted, and when the skin is slightly moist, or inclined to moisture, and the pulse is vibratile and not too rapid. In fact, in febrile and inflammatory disorders asclepias is not a leading remedy, but is largely a necessary accessory. If the pulse be rapid and small, aconite should be given with it; if rapidly bounding, large and strong, veratrum. While useful in disorders of adults, especially old persons, asclepias will be most often indicated in diseases of infants and children. While it acts best when strictly indicated, it is almost never contraindicated in acute respiratory affections.

In acute chest diseases asclepias is useful to control cough, pain, temperature, to favor expectoration, and restore checked perspiration. When cough is dry and there is scant bronchial secretion, asclepias stimulates the latter and thus relieves the irritation upon which the cough depends. In chest disorders requiring asclepias our experience verifies the classic indications for it.

The asclepias condition in broncho-pulmonic disorders shows either a hot and dry skin, or there is pungent heat of the skin with inclination to moisture, the pulse is usually full and active and even may be bounding, much as when veratrum is indicated. The face is flushed, there is, in children particularly, marked restlessness, and more or less febrile reaction. In chest disorders there is pain upon motion—pleural pain—and the cough is short, hacking, barking, rasping, and nervous-and restrained as much as possible on account of the pain and soreness it occasions. Bronchial secretion is arrested, though that of the skin may be in evidence. The early Eclectics were neither dreaming nor romancing when they voiced their verdict concerning the great value of pleurisy root in pleuritic and other chest affections.

With the conditions named asclepias is of the very greatest value in acute coryza, la grippe, acute bronchitis, pleuro-pneumonia, and pneumonia, both catarrhal and croupous. Its use should be begun

early, usually in association with other agents sure to be indicated, and continued through the active stage; and if a dry cough persists it should still be continued and used freely. There is no kindlier cough medicine than asclepias, and when fever is present it is an ideal aid to the special sedatives. Asclepias should form an important part of the medication in acute pleurisy and pleurodynia, conditions in which it is most efficient and in which it first earned a therapeutic reputation. It may need to be fortified by the intercurrent use of aconite or bryonia, or both, and in any case it will enhance the value of these agents.

In pneumonia and in bronchitis asclepias is best adapted to the acute stage, where the lesions seem to be extensive, taking in a large area of the parenchyma of the lung or the bronchial structures and the mucosa. Webster declares it best adapted to control vascular disturbances in the area supplied by the bronchial arteries, and suggests that by reserving it for this use we shall lessen its liability to confusion with other appropriate remedies. In the convalescent stage of pneumonia and other respiratory lesions, when expectoration is scanty and dyspnea threatens, small doses of asclepias are helpful. It renders a similar service in dry, non-spasmodic asthma. The dose for these purposes should be about 5 drops of the specific medicine.

Asclepias is an admirable or adjuvant remedy for the acute catarrhal states of the broncho-pulmonary or gastro-intestinal tracts when produced by recent colds. Full doses will sometimes “break” ordinary colds. Asclepias, euphrasia, and matricaria are the best three agents for "snuffles" or acute nasal catarrh of infants. In the irritable mucosa and distressing cough of phthisis it is a suitable agent, being also useful to control the excited circulation and excessive sweating, as well as being sedative to the stomach. In the acute gastro-intestinal disorders of a catarrhal type, especially in the very young who are impressed by the variable weather of the summer season, asclepias in small doses frequently proves a helpful remedy. It is adapted to those of weak constitutions, sensitive stomach, and alternate attacks of diarrhoea or dysentery. These disorders frequently occur in wet seasons, or when a cold, wet spell quickly follows the exhaustive heat of very hot seasons. By aiding the checked perspiration less of a burden is put upon the internal organs, and this is the work which asclepias does. It sometimes relieves flatulent colic in infants and headache in children due to disordered digestion. The fractional doses are preferred.

Asclepias is of special utility in measles for at least three purposes: It alleviates the distressing cough, assists in an early determination of the eruption, and controls the present and after catarrhal phenomena. Though not often thought of in glandular and skin disorders, it is an ideal medicine in mumps and sometimes in mastitis, while for skin affections with excessive cutaneous dryness it assists other agents by its moistening diaphoresis.

Altogether asclepias is one of the most kindly acting and safest agents in the materia medica for one that accomplishes so much. One can scarcely do harm with it.

For pleural pain employ specific medicine asclepias in hot water preferably, using from ten to thirty drops in an ounce of hot water, every half hour, or hour. Carried too far it may cause nausea and vomiting, especially if the doses are large and the water merely warm. For cough and other purposes, employ the specific medicine in the usual way, in cold water, alone or in combination with other indicated agents. As a pectoral and expectorant the compound emetic tincture, which contains asclepias, administered in water, syrup or glycerin, or suitable proportions of either of the latter two with water, is very effectual in dry chronic forms of cough.

ASPIDIUM.

The rhizome of ***Dryopteris Filix-mas*** and of ***Dryopteris marginalis***, Asa Gray (Nat. Ord. Filices). World-wide ferns of the Northern Hemispheres. ***Dose***, 1 to 4 drachms.

Common Names: (1) Male Fern; (2) Marginal Shield Fern.

Principal Constituents.—Oils, resins, ***filicin***, and ***filicic acid***, the poisonous principle.

Preparation.—***Oleoresina Aspidii***, Oleoresin of Aspidium (Oleoresin of Male Fern). Dose, 30 grains but once a day. Do not give with oils.

Action and Toxicology.—When freely absorbed the oleoresin causes nausea, vomiting, purging, severe abdominal pain, headache, dizziness, muscular prostration, tremors, cramps, dyspnea, cold perspiration, cyanosis, collapse, and death. In some cases amblyopia results, and permanent visual and aural disturbances have resulted

from its toxic action. Unless the doses are excessive or frequently given, or given with oil, as castor oil, such accidents are less likely to occur. The treatment consists in stimulation by ammonia and purging by Epsom salt.

Therapy.—A most certain taenicide, effectually removing tapeworm, especially the ***Bothriocephalus latus*** and the ***Taenia solium***, and said to be less effective upon the ***Taenia medio-canellata***. Prepare the patient in the usual manner over night for the administration of taenicides by purging and fasting. In the morning administer 30 grains of the oleoresin in capsules or flavored emulsion, follow at midday with a full meal without fats, and in the evening give a brisk saline cathartic. Under no circumstances must oils, especially castor oil, be given with it during the treatment. They favor absorption of the filicic acid, thought to be the toxic principle. Aspidium is seldom used; the oleoresin being preferred. The latter is also effectual against the hook-worm (***Uncinaria americana***).

ASPIDOSPERMA.

The dried bark of ***Aspidosperma Quebracho-blanco***, Schlechtendal (Nat. Ord. Apocynaceae). An evergreen tree of Chili and the Argentine Republic. ***Dose***, 5 to 60 grains.

Common Name: Quebracho.

Principal Constituents.—Six alkaloids: ***Aspidospermine*** ($C_{22}H_{30}N_2O_2$), Aspidospermatine ($C_{22}H_{26}N_2O_2$), Aspidosamine ($C_{22}H_{28}N_2O_2$), Quebrachine ($C_{21}H_{26}N_2O_2$), Hypoquebrachine ($C_{21}H_{26}N_2O_2$), and Quebrachamine, the latter sometimes absent.

The commercial amorphous Aspidospermine is a mixture probably of all the alkaloids or is chiefly Aspidosamine.

Preparations—1. ***Fluidextractum Aspidospermatis***, Fluidextract of Aspidosperma, (Fluidextract of Quebracho). ***Dose***, 5 to 60 drops.

2. ***Aspidospermine***. 1/4 to 1/2 grain.

Specific Indications.—Dyspnea of functional origin, with or without emphysema; face pale, anxious and livid; lips cyanotic; pulse small, soft and compressible, irregular or intermittent; cardiac palpitation with cough.

Action.—The various alkaloids of quebracho act more or less antagonistically to each other, but the chief good effect is the increase in depth and regulation of the rate of respiration. It should not be used intravenously.

Therapy.—Quebracho is a remedy for dyspnea when not due to pronounced organic changes. Being a centric stimulant to the pneumogastric it affects chiefly the cardiac and pulmonary plexuses, and is a remedy of power in imperfect oxygenation with a disturbed balance between the pulmonic circulation and the action of the heart. It is used in cardiac and renal asthma, emphysema, the dyspnoea of capillary bronchitis and of chronic pneumonia, advanced bronchitis, phthisis, bronchial asthma and uncomplicated asthma with insufficient cardiac force. It relieves the cough of la grippe, when associated with dyspnoea. From 5 to 60 drops of the fluidextract may be given in water or plain or aromatized syrup.

AURANTII AMARI CORTEX.

The dried rind of the fruit of ***CitrusAurantiumamara***, Linné (Nat. Ord. Rutaceae). ***Dose***, 5 to 30 grains.

Common Names: Bitter Orange Peel (of Bitter Orange, Bigarade Orange, Seville Orange).

Principal Constituents.— ***Hesperidin***, a crystalline, bitter glucoside; isohesperidin, water soluble; ***aurantiamarin***, the bitter principle; and a volatile oil.

Preparation.—***TincturaAurantiiAmara***. Tincture of Bitter Orange Peel. ***Dose***, 1/2 to 2 fluidrachms.

Therapy.—Stimulant, carminative and tonic, but used chiefly as a flavoring agent. This preparation is contained in both Compound Tincture of Cinchona and Compound Tincture of Gentian.

AURANTII DULCIS CORTEX.

The outer rind of the ripe, fresh fruit of ***Citrus Aurantium. sinensis***, Gallesio (Nat. Ord. Rutaceae)

Common Names: Sweet Orange Peel (of Sweet Orange, Portugal Orange, China Orange).

Principal Constituents.—Oil of orange (***Oleum Aurantii***); other constituents same as in Bitter Orange Peel. (***Orange Juice*** [from the pulp of the fruit] contains citric acid, sugar and mucilage.)

Preparation.— ***Tinctura Aurantii Dulcis***, Tincture of Sweet Orange Peel. ***Dose***, 1 fluidrachm. This agent is used in the preparation of Syrupus Aurantii or Syrup of Orange—a syrup containing also Citric Acid.

Specific Indications.-(For Orange juice). Deep red tongue, with brown to black coating; scurvy.

Therapy.—***Sweet Orange Peel***. Slightly stimulant, carminative, and tonic. Used almost wholly as a flavoring agent. It makes an elegant addition to acid solution of iron dispensed in syrup. It is also an agreeable addition to the bitter infusions, as of quassia or Peruvian bark.

Sweet Orange Juice. The juice of the orange is a light refrigerant article of diet, and is especially useful where the bowels are sluggish in action, and during convalescence from illness, as well as to be given during fevers and the exanthemata where acids are craved. It is par excellence the remedial agent in scurvy of infants, as well as adults, and if given early will abort this unpleasant disorder. Like all acids, orange juice is best indicated when the patient's tongue is deep-red or coated brown, black, or any intermediate color.

AVENA SATIVA.

The unripe seed of the ***Avena sativa***, Linné, and the farina derived from the ripened seed (Nat. Ord. Graminaceae). Probably indigenous to Sicily and to an island off the coast of Chili. Cultivated everywhere.

Common Names: Oat, Common Oat.

Principal Constituents.—Starch, oil, albumen, potassium and magnesium salts, silica, and a nitrogenous body, ***avenine***.

Preparations.—1. Avenae Farina, Oatmeal. Chiefly a food and to prepare oatmeal water.

2. ***Tinctura Avenae***, Tincture of Avena. (Cover best unripe oats [in “milk”] with strong alcohol.) ***Dose***, 1/2 to 2 fluidrachms.

3. ***Specific Medicine Avena***. ***Dose***, 1/2 to 2 fluidrachms.

Specific Indications.—Nervous exhaustion; nervous debility of convalescence; cardiac weakness of nervous depression; nocturnal losses following fevers and from the nervous erethism of debility; nervous headache from overwork or depression.

Action and Therapy.—Oatmeal water is sometimes useful to dilute "baby foods" and milk when children are not well nourished and suffering from summer diarrhoeal disorders. It is also used as a demulcent drink in diarrhea and dysentery of adults. When so used, it should be about the consistence of milk.

Oatmeal gruel, when not otherwise contraindicated, as in diabetes mellitus or amylaceous indigestion, is an excellent and easily digested food in convalescence from exhaustive illness. It may be sweetened if desired.

A paste, made by moistening a small quantity of oatmeal, held in the hands, with water, will soften roughened skin of the palms and fingers; and also remove the odor of some substances, as iodoform.

Tincture of Avena is a mild stimulant and nerve tonic. It is regarded by many as a remedy of some importance for nervous debility, and for affections bordering closely upon nervous prostration. It seemingly acts well in the exhaustion following typhoid and other low fevers and is thought to hasten convalescence, particularly where there is much nervous involvement and enfeebled action of the heart. In the nervous erethism or the enervated conditions following fevers and giving rise to spermatic losses it is sometimes effectual, but it seldom benefits such a state when due to prostatic irritation, masturbation, or sexual excesses. It may be given to relieve spasms of the neck of the bladder; and in some cases of relapsing rheumatism. Webster asserts it is useful, not as an antirheumatic, but for the debility underlying the rheumatic diathesis, so that the patient is less affected by meteorologic influences. Probably its chief value as a medicine is to energize in nervous exhaustion with or without spasms. It is useful in headache from exhaustion or overwork, or the nervous headache of menstruation. It is not a remedy of great power and will be found effective, probably, in but few of the conditions mentioned. However, many agents of this type sometimes, in exceptional cases, accomplish that which no other remedy seems to do. To fortify some of the claims made for this remedy

is to unwisely challenge the credulity of physicians of bedside experience. The much-heralded reputation of this drug to enable the morphine habitué to throw off the habit has not been sustained. In our own experience we have utterly failed to accomplish any good with it in any form of drug habit.

BALSAMUM PERUVIANUM.

A balsam obtained from ***ToluiferaPereirae*** (Royle) Baillon. San Salvador in Central America; called Balsam of Peru because first exported to Europe from Peru.

Common Names: Balsam of Peru, Peru Balsam.

Description.—A dark brown, heavy fluid of syrupy consistence, without stickiness and non-hardening in the air, and having a vanilla-like odor, and an acrid, bitter persistent taste. It is soluble in alcohol and chloroform.

Principal Constituents.— ***Cinnamein*** or ***benzyliccinnamate*** ($C_9 H_7 (C_7 H_7) 0_2$) constitutes 60 per cent of Peru balsam. Other constituents are vanillin, styracin, a fragrant oil and a large proportion of resin.

Action.—Skin eruptions have been produced by applying the balsam to the skin, as hives, eczema, and erythema; sometimes the latter results from its internal use. These effects are thought to be due largely to impurities in the factitious drug, which is oftener sold than the genuine balsam. A good and true product allays dermal irritation and that of the mucosa, and has decided antiseptic and parasitic properties. Large doses cause gastro-intestinal irritation, with vomiting and diarrhea. Internally it causes increased circulation, some cutaneous warmth, and augments the flow of urine and the bronchial secretions. It is excreted by the respiratory mucosa, skin, and kidneys, upon which it probably exerts an antiseptic effect.

Therapy.—***External***. Balsam of Peru is a good parasiticide and has given the best of satisfaction in scabies and for the destruction of lice. For the former it may be combined with the sulphurated ointments, or may be used alone, with an oleaginous and petrolatum base (balsam, 25 parts; olive oil, 50 parts; petrolatum, 100 parts). We prefer the former preparations. The latter combination is useful in pediculosis, both to kill the nits and the lice. Balsam of Peru, either full strength or in desired dilution with oils or petrolatum, may be used to cure ringworm of the scalp and other forms of tinea, in chronic eczema, and is

splendidly effective in senile and other forms of pruritus, especially pruritus vulvae, and in chilblains. As a stimulant to ulcers of low vitality and pus-oozing granulations following operations, and similar conditions in burns, abscesses, and wounds, the old-time use of the balsam has been revived in surgery, applying it in 5 to 15 per cent solutions in castor oil, and covering well with several layers of gauze to allow of free drainage. This method is one of the best forms of treatment for old tibial ulcers, due to varicosis, but the patient must be compelled to rest the leg in a horizontal position for some weeks in order to insure results. The same solution may be poured into small granulating sinuses, produced by drainage tubes, that refuse to heal. Beef marrow, 1 ounce; quinine, 10 grains; and balsam of Peru, 1 drachm, has been advised in alopecia.

Internal. Balsam of Peru is a stimulating expectorant and is of some value to restrain secretion in the bronchorrhoea of the aged. It has a similar restraining effect upon catarrhal conditions of the gastro-intestinal and renal tracts and is sometimes of advantage in stubbornly resisting gonorrhoea. Peru balsam should not be used in inflammatory or febrile conditions; and its use should be discontinued if it produces gastro-intestinal irritation.

BAPTISIA.

The recent root and leaves of ***Baptisia tinctoria***, Robert Brown (Nat. Ord. Leguminosae), a perennial shrub-like plant, indigenous to North America.

Common Names: Wild Indigo, Indigo Weed.

Principal Constituents.—A poisonous alkaloid ***baptitoxine*** (***baptisine***); two glucosides, ***baptisin***, non-poisonous, and ***baptin***, laxative and cathartic; and a yellowish resin. Baptitoxine is identical with cystisine, ulexine, and sophorine, toxic principles found in other active plants, and resembles sparteine in its action upon the heart.

Preparations.—1. ***Decoctum Baptisiae***, Decoction of Baptisia. (Recent root of Baptisia 1 ounce, Water 16 ounces.) ***Dose***, 1 to 4 drachms; employed chiefly as a local application.

2. ***Specific Medicine Baptisia***.—***Dose***, 1 to 20 drops; as a topical wash or dressing, 1-2 fluidounces to water 16 ounces. ***Usual form of administration***: Rx Specific Medicine Baptisia, 20 drops Water, 4 fluidounces. Sig.: One teaspoonful every 1 to 2 hours.

Specific Indications.—Fullness of tissue, with dusky, leaden, purplish or livid discoloration, tendency to ulceration and decay (gangrene); sepsis, with enfeebled circulation; fetid discharges with atony; stools resembling "prune juice" or fetid "meat washings"; face swollen, bluish, and resembling one having been frozen or long exposed to cold; typhoid conditions.

Action.—Large doses of baptisia may provoke dangerous emetocatharsis, sometimes so violent as to induce gastro-enteritis. The evacuations are soft and mushy, and the effort is often accompanied by a general bodily discomfort or soreness. Profuse viscid ptyalism also occurs. Small doses are laxative; and the drug also appears to stimulate the intestinal glands to secrete more freely and probably increases hepatic secretion. Baptitoxine is said to quicken the breathing and accelerate and strengthen the heart-beat; but in toxic doses it paralyzes the respiratory center, thus causing death by asphyxiation.

Therapy.—***External***. Locally the decoction and the specific medicine baptisia (diluted with water) are effective as washes and dressings for indolent and fetid as well as for irritable and painful ulcers, inflammations with full or swollen and dusky tissues, and tendency to destruction, aphthous and nursing sore mouth, mercurial gingivitis, sore nipples, and ulceration of the cervix uteri, with foul, sanious, or muco-purulent leucorrhoea. Its internal exhibition hastens its local action in these conditions.

Internal. Internally, baptisia is indicated in pathological conditions characterized by feeble vitality, suppressed or vitiated secretions, and sepsis with a disposition to disintegration and death of tissues. These indications are manifest in the peculiar appearance of the parts affected, of the membranes, and of the patient as a whole. There is a peculiar duskiness of a bluish or purplish hue of the skin and mucous structures, and usually there is fetor. The face has a bluish, swollen appearance, with expressionless countenance, like one who has been long exposed to cold. There may be ulcers of an indolent character, with bluish or purplish edges. The excretions are fetid-those of the bowels being dark and tarry, or resembling the "washings of raw meat or prune juice." Baptisia is not, as a rule, a remedy in acute diseases showing great activity, but rather for disorders showing marked capillary enfeeblement and tendency to ulceration-in fact, a condition of atony. It is contraindicated by hyperaemia; indicated by capillary

stasis.

Baptisia is important for its influence upon typhoid conditions. It is quite generally regarded as one of our most effective antityphoid agents. Here we encounter the dusky appearance of the skin and membranes, the sleek, beefy tongue with pasty coating, the fetor of mouth, sordes, upon teeth and lips, and the sluggish capillary flow. Its usefulness in typhoid or enteric fever is one of record. One or more of the foregoing symptoms will be present with the addition of the characteristic pea-soup, meat washings, or prune juice stools, or tar-like viscous evacuations, showing the admixture of decomposed blood. In fact, it is likely to be indicated by any form of persistent diarrhea accompanying this type of fever. Typhomalarial fever, which is most generally predominantly typhoid, is equally influenced for good by baptisia. Typhoid dysentery and typhoid pneumonia, so called, are helped by it just in proportion to the typhoid element present. In dysentery the greater the evidence of intestinal ulceration the stronger the call for baptisia.

For septic conditions other than typhoid, baptisia is distinctly useful. In putrid forms of sore throat, with great stench and full, dusky tissues, the angina of scarlet fever, and tonsillitis, with sluggish circulation and fetid exudate, and also when necrotic, baptisia holds a high rank as a remedy. It is often valuable as an aid in the treatment of diphtheria, but alone should not be relied upon to conquer this vicious disease. When most useful the tissues will be swollen, dusky, or blanched, the secretions free, and the parts sloughing. Indeed, the most important indication for the drug, is the tendency to disintegration of tissues. Baptisia is very valuable in putrid ulcerations of the nasal passages—in fetid catarrh, ozaena, and similar disorders with stench and turgidity. Under these circumstances it overcomes the putrescency, restrains the discharge, and promotes healing of the ulcerated surfaces.

In all of the local disorders mentioned, baptisia should be given internally as well as applied locally.

BELLADONNA (Atropa belladonna).

The (1) dried root and the (2) dried leaves and tops of ***AtropaBelladonna***, Linné (Nat. Ord. Solanaceae). Europe and Central Asia; also cultivated. ***Dose***, (1) 1/4 to

1 grain; (2) 1/4 to 2 grains.

Common Names: Deadly Nightshade, Dwale. (1) Belladonna Root (Belladonnae Radix); (2) Belladonna Leaves (Belladonnae Folia).

Principal Constituents.—The poisonous alkaloids ***atropine***, ***hyoscyamine***, ***belladonnine***, and ***hyoscine***. There is much confusion concerning the constituents of belladonna, hyoscyamine, with conversion products, probably being the chief alkaloid. This is readily convertible in atropine. The alkaloids probably exist as malates.

Preparations.—1. ***Specific Medicine Belladonna*** (prepared from the root). ***Dose***, 1/20 to 1 drop. ***Usual method of administration***: Rx Specific Medicine Belladonna, 5-10 drops; Water, 4 fluidounces. Mix. Sig.: One teaspoonful every 1 to 3 hours.

2. ***Unguentum Belladonnae***. Ointment of Belladonna. (This is prepared from the Extract of Belladonna, which in turn is prepared from Belladonna leaves. Tincture of Belladonna is also prepared from the leaves, while the fluidextract is prepared from the root.)

Specific Indications.—Dull expressionless face, with dilated or immobile pupils, dullness of intellect, drowsiness with inability to sleep well whether there is pain or not; impaired capillary circulation either in skin or mucous membranes; dusky, deep-red or bluish face and extremities, the color being effaced by drawing the finger over the parts, the blood slowly returning in the whitish streak so produced; circulation sluggish, with soft, oppressed, and compressible pulse; cold extremities; breathing slow, labored, and imperfect; hebetude; the patient sleeps with eyes partially open; coma; urinal incontinence; free and large passages of limpid urine; fullness and deep aching in loins or back; spasm of the involuntary muscles. In 3x dilution the indications are: Pallid countenance, with frequent urination; nervous excitation, with wild and furious delirium. Large doses: mydriatic.

Action.—The action of Belladonna depends largely upon its chief alkaloid ***Atropine***.

Therapy.—***External***. Belladonna, and more rarely atropine, may be applied for the relief of pain and spasm, and especially for spasmodic pain. A lotion of belladonna (5 to 10 per cent) may be used to allay itching in general pruritus, eczema, and urticaria. The tincture, painted upon the feet, controls local bromidrosis. A weak lotion is effectual in general hyperhydrosis and in the colliquative sweating of phthisis and other debilitating diseases. The ointment and liniment

may serve a similar purpose. This use of belladonna is less desirable, however, than other medication on account of the dryness of the throat and mouth, and the ocular disturbance it is likely to occasion.

Ointment of belladonna and the liniment are extremely useful in local inflammations and swellings, having a wide range of efficiency. Thus they may be applied to painful and swollen joints, forming abscesses, incipient and recurrent boils, buboes, hemorrhoids and fissures, inflamed glands, and in neuralgia, chronic rheumatism, lumbago, myalgia, pleurodynia, the chest pains of pulmonary tuberculosis, and in acute mastitis. In many of the surface conditions mentioned the plaster may prove most effectual. The liniment is especially useful to alleviate cramps in the calf of the leg.

The ointment is effectual in relaxing rigid os during labor, and carried into the urethral canal of male or female it relaxes spasmodic constriction of that canal and cystic spasm and relieves pain. Rubbed on the under surface of the penis it has given marked relief in chordee. A suppository of belladonna relieves spasmodic dysmenorrhea and may be applied either in the vagina or the rectum. A similar application, with or without tannin or geranium, may be inserted into the vagina for painful menstruation, with leucorrhoea. The liniment and the ointment may be used as antigalactagogues and are especially serviceable after weaning the child or when mastitis threatens. All local applications of belladonna should be made with judgment and carefully watched lest poisonous absorption take place. In many of the conditions mentioned the conjoint internal use is advisable—provided the specific indications for the drug are present.

Therapy.—***Internal***. Belladonna is employed in Eclectic Therapeutics in doses which produce exactly the opposite effects from the gross or physiologic and toxic action. Large doses paralyze; small doses stimulate. While employed for its physiological effects in some instances, the chief use of the drug with us is in conditions showing impairment of the capillary circulation in any part of the body with congestion or tendency to blood stasis. The size of the dose is of great importance in administering belladonna. Ordinary drachm doses of a dilution of 5 to 10 drops of the specific medicine in four ounces of water meet conditions of dullness, hebetude, and congestion, as first pointed out by Scudder. Others claim that the use of infinitesimal doses, of the 3x dilution, acts promptly in conditions of nervous

exaltation, with great irritability and impressionability of all the senses; in some cases the hyperaesthesia amounts to delirium and it is then claimed to be most efficient to control both mild and furious outbreaks of delirium. Others again (and this agrees with our personal experience) find marked pallor of the surface, with contracted pupils, the indication, for minute doses of the drug. Following a law which appears to be commonly borne out in therapeutics, that opposite effects are produced by large or by minute doses respectively, belladonna seems a possible therapeutic agent in many varied conditions. The cases, however, in which belladonna appears to have rendered the best service are in those in what might be called medium doses, as advised by Scudder, in which the drug is employed to overcome dullness, hebetude, expressionless countenance, tendency to congestion, dilated pupils, and a dusky redness effaced upon pressure, the blood slowly returning. For specific medication purposes the drug should not be given in doses sufficient to produce mydriasis. At the risk of repetition of some of the conditions and to make the belladonna picture more complete, we quote from a former article in the ***American Dispensatory***:

The first and great use for belladonna in specific doses is for congestion. It is a prompt remedy in throbbing congestive headache, or nervo-congestive headache; or a dull, heavy headache with a feeling of drowsiness, as if, were it not for the pain, the patient would drop off to sleep. When a dull, dusky or livid condition of the surface showing capillary feebleness and hebetude is threatened in typhoid fever or in pneumonia, belladonna is of the greatest importance as a stimulant, and in the latter assists in sustaining the respiratory function. While it is a remedy for blood-stasis in any part of the body, due to dilation of the capillaries, it is perhaps more pronounced in its effects when the impairment of the circulation takes place in the nerve centers. It is the first remedy to be used when there is cerebral or medullo-spinal congestion as evidenced by dullness and coma. Though oftenest demanded in acute diseases, it is of equal value in chronic cerebral disorders with dizziness, drowsiness, and dull heavy aching or fullness in the head. When the eye is dull and the pupil dilated, and drowsiness is marked, and there are other signs of congestion that may lead to engorgement of the brain, a threatened attack of apoplexy may be warded off by the timely use of small doses of belladonna.

Belladonna is a remedy for pain and for spasm. It sometimes relieves

deep-seated pain, as in facial, intercostal, visceral and sciatic neuralgia. If there is an elevation of temperature, it should be associated with aconite if the circulation is much excited. It is better, however, to relieve spasmodic pain of the involuntary muscles of the tubular organs-spasm of the anus, uterine, cystic, urethral, and other visceral spasms. If any of the parts can be reached it is well to apply the drug locally at the time it is given internally, but care must be had not to overdose the patient. Its value in spasmodic dysmenorrhea, when otherwise specifically indicated, is unquestionably great.

Belladonna is conceded one of the best of our remedies for whoopingcough. It will fail here unless otherwise specifically indicated. Spasmodic cough alone does not indicate it; there must be the tendency to congestion and the capillary impairment to make it act beneficially. No remedy, probably, cures pertussis, but many shorten its duration, lengthen the intervals between paroxysms, and render it less severe. Belladonna is one of the best for this purpose. When cough is purely nervous and when due to irritability of the tubular musculature it is an important drug. This is shown in its power to relieve nervous cough from laryngeal irritation and in spasmodic asthma.

Belladonna relaxes spasm. It sometimes overcomes constipation in this manner, has served fairly well in spasmodic constriction of the bowels, and has relieved both pain and spasm in lead colic and spasmodic intestinal colic. When epilepsy is associated with congestive symptoms it has assisted other remedies to lessen the severity and lengthen out the intervals of attack. The same is true in chorea. Little dependence can be placed upon it in puerperal convulsions, a condition for which it has been commended.

Few medicines act better in severe sore throat with redness, rawness, swelling, intense soreness, difficult swallowing, and dryness of the throat, with or without fever. Usually aconite is to be given with it. In such conditions it will promptly do good in tonsillitis, especially of the quinsy type, and in pharyngitis and faucitis. If there is an associated coryza it will relieve it, though it acts more promptly in acute coryza when the throat inflammation is absent and it can be given in slightly larger doses than are required for general specific purposes. Many maintain it valuable in diphtheria and believe that it interferes with the formation of the membranes. We question its value for that purpose,

though it certainly helps to sustain the breathing and circulatory powers in a disease threatened from the very start with a depression of these functions. In acute inflammations, such as nonvesicular erysipelas, with deep redness of the skin, capillary impairment, and sense of burning, belladonna should be given with confidence. It acts best where the inflammation is very superficial and does not subsequently extend deeply into the subcutaneous tissues.

The value of belladonna in the exanthemata ranks with the most certain of therapeutic results. It is practically always indicated in scarlet fever and very frequently in measles. Chicken-pox does not so often demand it; while in the congestive stage of small-pox it is claimed to be a most certain aid for many therapeutic purposes. We rely upon it absolutely in scarlatina, and the more malignant the type the more it is indicated. We do not recall a case of scarlet fever in which we have not employed it, and always with the desired effect. Often no other agent has been required. Its use should be begun early. It then brings out the eruption, re-establishes the secretions of the kidneys and bowels, alleviates the distressing throat symptoms, and protects against congestion and subsequent nephritis. The dose must be small, however. If too large it favors congestion. Never more than teaspoonful doses of a dilution of 5 to 10 drops of the specific medicine in four ounces of water should be given every 1 or 2 hours. More often from 2 to 5 drops in the mixture are preferable. It serves much the same purpose in measles, and helps also to control the cough. After the eruption has appeared it is less often demanded in the latter disease, but in scarlet fever it may be needed from start to finish. When one observes the power of belladonna to arouse the patient from a stupid or drowsy state, or even from unconsciousness, or sees it quiet delirium, bring out the eruption, and incite the kidneys to natural action, the power of small doses of powerful medicines becomes convincing even to the most skeptical who believe only in near-toxic or physiological actions of drugs. The action of belladonna in scarlet fever is one of the strong arguments in favor of specific as compared to gross medication. To accomplish desired results without the least danger with a drug capable of great damage constitutes true or specific medication. Belladonna meets many of the complications attending or following scarlet fever, and is probably a preventive of many unpleasant sequelae. While especially a child's remedy it should be cautiously used. We have observed the scarlatinoid rash from very minute doses of belladonna.

Many physicians believe that minute doses of belladonna are prophylactic against scarlet fever. This view is shared by many good therapeutists, among them Scudder, Fyfe, Ellingwood, and many others. Perhaps it is a matter of faith, but we have never had reason to feel it an established fact. Whether true or not, we do believe, however, that an advantage will have been gained by its early administration should an attack of scarlatina ensue, and certainly it can do no harm if given in infinitesimal doses.

Belladonna stimulates and at the same time relieves the irritability of weakened conditions of the kidneys and bladder. Under its influence both watery and solid constituents are increased. It is the remedy for enuresis in small children when the fault depends upon poor pelvic circulation or chronic irritability of the bladder. It is best adapted to diurnal dribbling of urine. When due to a “cold,” and there is marked pallor, and dullness of the eye so characteristic in children with enuresis, and the patient voids urine every quarter or half hour, belladonna is promptly helpful.

Belladonna is a remedy of power in acute congestion of the kidneys, and in the early or congestive stage of kidney disorders tending to chronicity. It is indicated by the sense of fullness, weight and dragging in the loins. In the early stage of tubular nephritis, and in scarlatinal nephritis, and in fact in renal capillary engorgement accompanying or following any disease, belladonna is a remedy of first importance.

It is one of the best of remedies for polyuria or so-called diabetes insipidus. A belladonna plaster should be applied while giving the remedy internally. Sometimes quite full doses are required to effect results. Full doses are also required to check the colliquative sweating of phthisis pulmonalis and other debilitating diseases, and its well-known quality of causing dryness of the mouth is taken advantage of in mercurial and other forms of salivation, especially the ptyalism of pregnancy.

Spermatorrhoea, with feeble pelvic and genital circulation, is sometimes better treated by belladonna than any other remedy. In such a state pulsatilla is a valuable aid to the belladonna.

It is sometimes effectual in urticaria, especially when sluggish

cutaneous circulation is a prominent feature.

BERBERIS (Mahonia) AQUIFOLIUM.

The root of ***Berberis aquifolium***, Pursh (Nat. Ord. Berberidaceae). Western United States from Colorado to the Pacific coast; cultivated also for ornament among shrubbery.

Common Names: Oregon Grape, Mountain Grape.

Principal Constituents.—***Berberine***, the yellow alkaloid (see Hydrastis) and two white alkaloids—***berbamine*** and ***oxyacanthine***.

Preparation.—***Specific Medicine Berberis***. ***Dose***, 1 to 30 drops.

Specific Indications.—Syphilitic dyscrasia; chronic skin diseases, with blood dyscrasia with or without syphilitic taint; profusely secreting tumid mucous membranes; indigestion, with hepatic torpor.

Action and Therapy.—This agent is alterative, tonic, and probably corrective to syphilitic constitutions, but without any proved specific action upon treponema. It stimulates secretion and excretion, improves digestion and assimilation; it activates the lymphatic system and ductless glands; and augments the renal secretion. It is a corrector and eliminator of depraved body fluids and assists thereby in good blood-making. In this way most likely its good effects are produced in such grave constitutional disorders as syphilis. Certainly the ravages of this disease are lessened under these circumstances and aggravated by general ill-conditions. If then syphilitic dyscrasia is benefited by this drug, and clinical results seem to show that it is, it is probably due to its general alterative effects in maintaining good elimination and good metabolic action of the organs vital to nutrition.

Like hydrastis, Berberis aquifolium is an excellent peptic bitter and tonic to the gastric function, and is, therefore, a drug of much value in atonic dyspepsia, with hepatic torpor. Upon the mucosa its effects are like those of hydrastis controlling catarrhal outpouring and erosion of tissue. For this purpose it is useful in stomatitis and gastric and intestinal catarrh. Remotely it sometimes controls leucorrhoea. If these are associated with syphilis, it helps the latter to the extent that it controls these disorders.

Berberis aquifolium has won its reputation chiefly as a remedy for the syphilitic taint. The more chronic the conditions or results of the disease, the more it has been praised. Some claim that if given early it will abort the tertiary stage, but this of course depends in most cases upon the resisting powers of the body and the care the patient takes of himself. Apparently berberis fortifies the resisting powers by its alterative and reparative action. The bone, mucosa, and cutaneous disorders following in the wake of syphilis seem to clear up under its persistent use, when given in appreciable doses. Whether it has any effect on the nervous damage from this taint is not yet apparent. It does, however, relieve the night pains and the shin pain of syphilitic periostitis. Syphilitic phagedena disappears under its use, and sometimes the anemia of syphilis yields to its nutritional improvement. It should be given freely in syphilitic leucoplakia of the tongue, mouth, and throat, where the mucosa is tumid and secreting excessively, and when emaciation and weakness with yellowish parchmentlike skin are evident. At all events, though probably not a direct antisyphilitic, its general effect upon waste and nutrition is so beneficial that it should invariably be associated with other treatment in chronic syphilitic diathesis.

Other dyscrasiae seem to be influenced by this drug. It aids to some degree to mitigate the miseries of the consumptive, and in chronic skin diseases its internal use has hastened the effects from external medication. Eczema, psoriasis (temporarily at least), and herpetic eruptions have disappeared under its persistent use. The specific medicine should be given in doses of from 10 to 20 drops well diluted, every 3 or 4 hours.

BERBERIS VULGARIS.

The bark of the root and the berries of ***Berberis vulgaris***, Linné (Nat. Ord. Berberidaceae). Europe, Asia, and the United States.

Common Names: Barberry, Common Barberry.

Principal Constituents.—***Berberine*** (see Hydrastis) is the active alkaloid; others are ***oxyacanthine*** and ***berbamine***. The berries contain ***malic*** acid.

Preparation.—***Tinctura Berberidis Vulgaris***, Tincture of Berberis Vulgaris. (Barberry Bark, 8 ounces, Alcohol 76 per cent, 16 ounces.) Dose, 5 to 60 drops.

Action and Therapy.-Barberry may be used for purposes for which berberine medication is needed. It acts much like hydrastis and could be employed for many of the uses of that scarce and high-priced drug so far as the berberine effects are required. The fluid preparations are asserted to act more kindly and more efficiently than berberine itself. It was very early used in domestic medicine for sore eyes, and later by practitioners for chronic catarrhal ophthalmias. The decoction is employed for this purpose, and is equally efficient in aphthous sore mouth. It is decidedly tonic and if pushed, purgative. Used short of its cathartic action it is of value in non-obstructive jaundice and in gastric and intestinal dyspepsia. In renal catarrh, occasioned by the presence of calculi, small doses may be given when there is burning and soreness and excess of mucus in the urinary tract.

BOLETUS.

The fungus ***Polyporus officinalis***, Fries (***Boletus laricis***, jacquin). (Nat. Ord. Fungi.) Asia, Eastern Europe, and Central America.

Common Names: White Agaric, Purging Agaric, Larch Agaric.

Principal Constituents.—***Agaric Acid*** (Agaricin) ($C_{16}H_{30}O_5+H_2O$), resins, 79 per cent and ***agaricol***. The purging constituent is a red resin ($C_{15}H_{24}O_4$).

Preparation.—***Specific Medicine Boletus***. Dose, 1/2 to 5 drops.

Derivative: ***Agaricin***. Dose, 1/10 to 1/3 grain.

Specific Indications.—Ague with alternate chills and flushes of heat; impaired nutrition and feeble cerebral circulation; colliquative sweats.

Action and Therapy.—This fungus is remarkable for the high per cent (79) of resins it contains. It is a decided nerve stimulant and antiperiodic. Boletus is but little used, but occasionally will be needed in irregular intermittents, not reached by quinine medication and presenting alternate chills and flashes of heat, accompanied by a heavy bearing down pain in the back. The patient perspires freely at night and has a yellow-coated tongue, bitter taste, capricious appetite, slight fever, and has for some time been experiencing a dull, languid feeling. It may also be used in cases of impaired nutrition with feeble cerebral circulation. To some extent it controls diarrhea, cough, hectic fever,

rapid circulation, and the profuse night-sweats of phthisis. The dose for these purposes is from the fraction of a drop to 5 drops of the specific medicine. For the last named use that of controlling colliquative sweating, ***agaric acid*** or ***agaricin***, as it is more commonly called, is one of the most effectual of antihydrotics. In 113 grain doses it controls the thirst, cough, and the excessive sweating of consumptives.

BRYONIA.

The root of ***Bryonia dioica***, Jacquin, and ***Bryonia alba***, Linné (Nat. Ord. Cucurbitaceae.) Europe.

Common Names: Bryony, Bastard Turnip, Devil's Turnip, etc.

Principal Constituents.—Probably a colorless, very bitter glucoside, ***bryonin*** is the chief active body in bryonia.

Preparation.—***Specific Medicine Bryonia***. Dose, 1/20 to 5 drops. Usual method of administration: Rx Specific Medicine Bryonia, 5-10 drops; Water, 4 fluidounces. Mix. Sig.: One teaspoonful every 1 to 3 hours. The smaller doses are preferred for specific medication.

Specific Indications.—Sharp cutting pain, or tearing pain from serous inflammation; tenderness on pressure; tearing pain with sore feeling in any part of the body and always aggravated by motion; moderately full or hard wiry vibratile pulse; headache from frontal region to occiput; soreness in eyeballs upon movement; hyperesthesia of scalp or face; irritating, hacking or racking cough or provoked by changes of air; lethargy short of dullness; tired, weary or apathetic feeling, too tired to think; perspiring on slight movement.

Action.—The fresh root of bryonia is a strong irritant, and when bruised and kept in contact with the skin blisters it. When taken internally in overdoses it causes severe gastro-enteritis, and has caused death. The chief symptoms are uncontrollable diarrhea and vomiting, dizziness, lowered temperature, dilated pupils, cold perspiration, thread-like pulse, colic, and collapse. Large but less than fatal doses sometimes cause bronchial irritation with cough, hepatic tenderness, increased urination with vesical tenesmus, cerebral fullness and congestion, jaundice and depressed action of the heart. These effects are never experienced from the small medicinal doses. Tannin is said to counteract the untoward effects of bryonia.

Therapy.—Bryonia, practically unused in the dominant school, and much employed by Homeopathists, is regarded by Eclectic physicians as an indispensable agent. Personally, we use few agents more frequently than bryonia. It is a remedy for debility and the long train of miseries accompanying it, and in acute diseases it is of first importance as a remedy for pain and inflammation in serous membranes. The bryonia patient is weak and perspires readily upon the slightest movement. The stereotyped assertion, "aggravated by motion," and learned by us from the Homeopaths, is a true dictum when applied to bryonia cases. Though not necessarily dull, the patient is lethargic in the sense that he does not wish to move lest he aggravate his condition. There is no dullness or hebetude as with belladonna, but the patient is tired, languid, and torpid, and though much awake has little inclination to move about.

Bryonia patients, except in the acute infections, often display a deficiency of nervous balance and with this may or may not be associated the bryonia headache pain from the frontal region to the occipital base; thinking is an effort and the patient is irritable if disturbed. Temperature may be slightly increased, and the tissues contracted. Pressure elicits extreme tenderness and soreness, especially when the viscera are involved.

Bryonia is of especial value in fevers, and is decidedly a remedy for the typhoid. state. Many cases of severe typhoid fever may be carried through with no other medication than bryonia in very small doses. In fact, it is a medicine that gives the best results from minute doses. In fevers the patient is decidedly apathetic, the secretions are scant and vitiated, the nervous system markedly depressed, and the tendency is toward sepsis and delirium. The victim cares little whether he recovers or dies. There is a dry tongue, sordes, a deepened hue of the tissues, capillary circulation is sluggish, and there may be frontal headache. Chilliness is not uncommon, and there is a tendency to sweat easily. In such cases it proves a mainstay during the prolonged fever, and never does the patient harm.

In diseases of the respiratory tract and pleura, bryonia heads the list of useful remedies. The well-known indications given by the founder of specific medication hold good, to-wit: "A hard, vibratile pulse, flushed right cheek, frontal pain extending to the basilar region, and irritative

cough." It is a splendid agent for cold in the chest. It is the most decidedly efficient remedy we possess for acute pleurisy, being usually given with, or in alternation with, the indicated special sedative-aconite (quick, small pulse), or veratrum (full, bounding pulse). It promptly meets the sharp, lance-like pain, or the cutting or tearing pain, all made worse upon movement. Not only does it subdue pain, but the temperature is lowered and capillary obstruction is overcome, thus freeing the disordered circulation. After the acute symptoms have subsided, it may be continued alone for a long period, to prevent, or to absorb, effusion. In these cases the apathy observed in the febrile diseases is absent, the pain and circulatory excitation throwing the patient into a condition of nervous excitement, which is quite readily controlled by bryonia. While of great value in all forms of pleurisy, it is particularly valuable in that form that comes on insidiously. In pleuro-pneumonia, it should be given to promote absorption of exuded serum. In la grippe, it is one of the best of remedies, both for the cough and the debility. We use it confidently in pneumonia to control pain, when present; but above all, to allay the harsh, harassing cough. Bryonia is an excellent agent for cough brought on by use of the voice, or by motion of any kind, as walking, swallowing food, entering a warm room, and for that form of cough induced by tickling sensations in the throat, or when excited by vomiting. The cough which bryonia relieves is laryngotracheal; it is most frequently dry, hacking, rasping or explosive, showing its origin in irritation or erethism. Tensive or sharp pains are almost always present, and the secretion, if there is any, is small in quantity and of whitish or brown, frothy mucus, sometimes streaked or clotted with blood. It is one of the most efficient remedies in la grippe, for the cough, pain, and the headache, and in bronchitis, bronchopneumonia, and even phthisis, all with blood-streaked expectoration, it is a great aid in relieving the distressing, hacking cough.

Bryonia is an invaluable agent in the treatment of peritonitis. In peritonitis, from septic causes, as in puerperal peritonitis, it will only aid; a surgical or cleansing process will prepare the way for its use. The pain indicating it is colic-like, attended with marked tensive tenderness. Similar conditions indicate its employment in cholera infantum and typhomalarial fever. In synovitis it is one of the most certain drugs to relieve pain and remove effusion. Nor should bryonia be neglected in the treatment of pericarditis, in which it will help to control inflammation and to prevent and absorb effusion. Recent

reports confirm its earlier reputation as a remedy of the first value in cerebro-spinal meningitis.

Disorders of the liver and gall apparatus frequently call for the small doses of bryonia. It is especially serviceable when there is jaundice, deep orange-colored urine, and soreness upon pressure. There may or may not be an accompanying headache. A peculiarity of the tongue that we have seen bryonia clear up in these cases is a semi-transparent coating of the organ, appearing like a wash of buttermilk. When the liver capsule is involved, with sticking or cutting pain, bryonia will materially help to bring about a healthy condition. The prolonged use of bryonia and aconite in small doses has given us better results in cholecystitis than anything we have ever used, and we believe it has often warded off surgical intervention. Bryonia is a strong aid in the medicinal treatment of appendicitis. In indigestion, where the food lies heavily like a stone, bryonia is often very effective. Scudder valued it for relief of abdominal pain and tenderness in typhomalarial and zymotic fevers, and with ipecac or euphorbia in similar conditions in cholera infantum.

For mammitis, aconite, bryonia and phytolacca are our three best remedies. The first two are to be employed when the inflammation is marked, and the glands are swollen and tender and feel knotted. Phytolacca is always indicated in this trouble. Both bryonia and phytolacca are equally effective in orchitis and ovaritis, with tenderness upon pressure.

Bryonia is a remedy of much value in the treatment of acute rheumatism, being best adapted to those cases where the joints are stiff and swollen. Locke declared it the most certain remedy for rheumatic swelling of the finger joints. As a remedy for headache, bryonia has long enjoyed a well earned reputation. There is frontal pain (some claim on the right side chiefly), sometimes rheumatoidal; again, it may be from a disordered stomach, or a hemicrania, with sharp, tearing pains and a tender scalp. Occasionally it relieves facial neuralgia, but ordinarily it can not be relied on in that complaint. All bryonia headaches are made worse by motion. Bryonia is sometimes useful in rheumatic iritis, and in partial deafness from pressure of swollen glands after scarlet fever, or from colds. A very true indication for it is soreness of the eyeballs, upon movement, occurring in any acute disorder. The best bryonia preparation is specific medicine bryonia. For

all the uses mentioned above, from one to ten drops may be added to a half-glass of water, and of this mixture a teaspoonful may be given every one to two hours.

Finally, but in larger doses than are required for the preceding uses, bryonia (up to drop doses) is one of the best agents to overcome infantile constipation due to difficult digestion of cow's milk and in other forms of constipation, where the stools are dry and scybalous.

In former years, when it was the prevailing belief that insanity was caused by indwelling evil spirits, drastic cathartics were invoked for their removal. In England large doses of a syrup of the fresh juice of bryonia were given. Hence the oft-recurring reference to bryonia in literature as a cathartic—a use to which it is never put in Eclectic Therapy.

BUCHU (Barosma).

The dried leaves of (1) ***Barosmabetulina*** (Thunberg), Bartling and Wendland, or of (2) ***Barosmaserratifolia*** (Curtis), Willdenow. (Nat. Ord. Rutaceae.) South Africa. ***Dose***, 5 to 60 grains.

Common Names: Buchu; (1) Short Buchu; (2) Long Buchu.

Principal Constituents.—A volatile oil, with a penetrating peppermint-like aroma, yielding ***diosphenol*** ($C_{14}H_{22}O_3$), or ***barosmacamphor***, which may be obtained in colorless needles, of a peppermint taste.

Preparation.—***Specific Medicine Barosma***. ***Dose***, 1 to 60 drops.

Specific Indications.—Abnormally acid urine, with constant desire to urinate with but little relief from micturition; vesico-renal irritation, with catarrhal secretion; copious mucous or muco-purulent discharges; cystorrhea.

Action.—Buchu increases the appetite, slightly quickens the circulation, and disinfects the urinary tract. It has but slight effect upon the renal organs, but such as it has is to stimulate slightly the output of both liquids and solids. It acts feebly upon the skin, increasing secretion. Large dose may produce gastro-enteritis and strangury.

Therapy.—Buchu is an aromatic stimulant, tonic, and urinary antiseptic. As a diuretic its action is not pronounced, but it is frequently used with other agents, as citrate or acetate of potassium, digitalis, or spirit of nitrous ether, which make it more efficient for the purposes of renal depuration. Buchu disinfects the urinary tract, imparting its aroma to the urine, and is to be used only in chronic conditions when there is an excess of mucus, or muco-purulent and acid urine, with vesico-renal irritation. Acid and muddy urine, loaded with urinary salts, and continual urging to urinate with but little relief from the effort, are the cases in which buchu renders good service. Under these circumstances it may be given in chronic cystitis, pyelitis, urethritis, prostatitis, lithaemia, and chronic vesical irritation. For catarrh of the bladder it is frequently effective, and in long standing irritation of the viscus, particularly in old persons, "buchu and iron" once a popular fad, is really of service. Rx Specific Medicine Barosma, 3 1/2 fluidounces; Tincture of Chloride of Iron, 1/2 fluidounce. Mix. Sig.: One teaspoonful 4 times a day in a wineglassful of infusion of hops, or of sweetened water. Occasionally it is used in dyspeptic conditions and in bronchial catarrh, but for these disorders we have far better remedies. Buchu renders the urine dark, the latter depositing a brownish precipitate. It should never be used in acute disorders.

CACTUS (Selenicereus spp.).

The fresh, green stems and the flowers of ***Selenicereus grandiflorus*** (L.) Britt. & Rose (and other Selenicereus species—MM) (***Cereus grandiflorus***, Miller and DeCandolle.) Native of Mexico and the West Indies; grows also in Italy; cultivated in greenhouses in the United States.

Common Names: Night-blooming Cereus, Large-flowering Cactus, Sweet-scented Cactus.

Principal Constituents.—Cactus has not been satisfactorily analyzed.

Preparation.—***Specific Medicine Cactus. Dose***, 1 to 10 drops.

Specific Indications.—Impaired heart action, whether feeble, irregular, or tumultuous; cardiac disorders with mental depression, praecordial oppression, and apprehension of danger and death; nervous disorders with feeble heart action; tobacco-heart; hysteria with enfeebled circulation; vertex headache; vaso-motor spasms.

Action.—Cactus impresses the sympathetic nervous system, and is especially active in its power over the cardiac plexus. In sufficiently large doses it acts as an intense irritant to the cardiac ganglia, producing thereby irritability, hyperaesthesia, arrythmia, spasm and neuralgia of the heart, and even carditis and pericarditis. According to E. M. Hale, M.D., it acts. upon the circular cardiac fibers, whereas digitalis acts upon all the muscular fibers of the heart. Like the latter, as a secondary effect of over-stimulation, it may induce heart-failure. The tincture, in large doses, produces gastric, irritation, and also affects the brain, causing confusion of mind, hallucination, and slight delirium. In excessive doses, a quickened pulse, constrictive headache, or constrictive sensation in the chest, cardiac pain -with palpitation, vertigo, dimness of sight, over-sensitiveness to noises, and a disposition to be sad or to imagine evil, are among its many nervous manifestations. Melancholia often follows such action. It is contended by many that the mental, cerebral, gastric, and other effects are secondary to and dependent largely upon the primary effects of the drug upon the heart; others believe its action depends chiefly upon the nervous system.

Therapy.—Cactus is the remedy for enfeeblement of the heart. An old school writer of prominence has said of it that cactus is the only remedy that will quicken a slow heart. While there are some who declare cactus totally inert as a medicine, there are others who claim for it great value even in structural alterations of the heart. The verdict of Eclectic practitioners, who are the largest users of the drug, is that cactus is a remedy chiefly for functional disorders of the heart due to nervous origin. It is, therefore, a nerve remedy primarily and a heart remedy secondarily. Eclectics have also noted that it improves the nutrition of the heart muscle and thus is, in a measure, a structural remedy also. By improving the nutrition of the organ it is possible, in some instances, to correct structural abnormalities. Valvular troubles have been noted to gradually disappear under its prolonged administration. Unlike digitalis it does not disorder the stomach nor is it cumulative. Cactus acts upon the vessels through the vaso-motor apparatus.

The peculiar state of the nervous system in cardiac diseases, calling for cactus, is quite characteristic. There is a marked mental depression, often amounting to hypochondria and fear of impending death. Associated with these are praecordial weight and oppression and

difficult breathing. The control over the nervous system is somewhat like that of pulsatilla, and the effects of cactus are usually permanent.

In medicinal doses, cactus diminishes the frequency of the pulse, and increases the renal secretions, and is, therefore, sedative and diuretic. According to Scudder (***Specific Medication***), it neither increases nor depresses innervation; that it is neither stimulant nor sedative. Locke, on the other hand, believes it sedative, but not depressant (***Syllabus of Materia Medica***). In such doses it does not appear to weaken the nervous system in the least.

The special field for cactus is diseases of the heart. Its influence upon the heart is manifested when the disorder is functional; organic conditions are only benefited in a measure. However, some who are antagonists of Eclectic medicine, who are generally skeptical regarding the virtues of plants which do not possess unusually powerful properties, consider cactus as a valuable agent in mitral regurgitation, due to valvular lesions. In our school, however, let us repeat, it is recognized chiefly as a functional remedy, and one of the best of cardiac tonics. There is no doubt but that the continued use of the drug tends to increase cardiac nutrition and waste, and in this way may benefit cases with structural lesions. The influence of cactus is believed to be exerted almost wholly upon the sympathetic nervous system, through the superior cervical ganglia, expending its force in regulating the action of the heart and controlling the cerebral circulation, thus giving increased nutrition to the brain. It is the remedy for most functional cardiac irregularities, as palpitation, pain, cardiac dyspnea, intermission. in rhthym, etc. Even in structural heart-wrongs, the majority of unpleasant symptoms are partly due to disordered innervation, and this condition is corrected by cactus. It does not seem to make any difference whether the heart-action be feeble, violent, or irregular, provided it be due to lack of innervation, associated with mental depression, or in excitable or nervous individuals, the remedy relieves, because its tendency is to promote normal rhythmic action of the cardiac muscle. Aortic regurgitation is nearly always benefited by it and it is useful in progressive valvular weakness, but is contraindicated in stenotic conditions. In spasm of the heart-muscle, and in cardiac pain of a constrictive character, as if the organ were held with a strong band, it is often the most prompt of all cardiac remedies. It is a good remedy in the heart troubles produced by tobacco, probably benefiting oftener than any other

medicine.

Cactus is a valuable remedy for the heart symptoms of neurasthenia. During the menstrual period and at the menopause, nervous women frequently experience unpleasant cardiac disturbances of a functional character. These are relieved by cactus. Few agents excel it in menstrual headache, and headache in women with pressure on top of the head. For nervous menstrual headache, Locke recommends: Rx Specific Medicine Cactus, 10-30 drops; Water, 4 fluidounces. Mix. Sig.: Dose, a teaspoonful 3 or 4 times a day. When the heart is enfeebled from long illness, as in convalescence from typhoid or other fevers, cactus is invaluable. Even in incurable conditions of the heart it seldom fails to give some relief. It rarely relieves angina pectoris, and neuralgia of the heart, and is sometimes useful in endocarditis and pericarditis following debilitating diseases. The heart-debility induced by overwork, strains, over-enthusiastic athletes, soldiers on the march and "hikers", and that accompanying or following masturbation finds relief in cactus. When associated with cardiac weakness and irregularities, and in so far as they depend upon these conditions, cactus has been found useful in cerebral congestion, mental derangements, irritable bladder, renal congestion, edematous condition of the limbs, and anasarca. When a vigorous and healthy action of the heart obtains under its use these troubles pass away.

Cactus is recommended in visual defects of an asthenopic character, and in exophthalmic goitre, due to functional heart disease; tinnitus aurium, from the same cause, is benefited by it. These eye and ear disorders are not benefited by it when the cardiac disorder is of an organic nature.

CAFFEA.

The seeds of ***Caffeaarabica***, Linné (Nat. Ord. Rubiaceae). Native of Arabia-Felix and Ethiopia; and extensively cultivated in Asia and America between the north and south latitudes of 56°.

Common Name: Coffee.

Principal Constituents.-The chief constituents are ***caffeine*** ($C_8H_{10}N_4O_2 . H_2O$); a volatile aromatic oil; ***caffeol*** is also present in minute quantity and upon it depends the aroma of coffee; and ***caffeo-tannic acid.***

Preparations.—1. ***Infusum Caffeæ***, Infusion of Coffee. ***Dose***, 2 to 8 fluidounces.
2. ***Specific Medicine Coffeæ***. ***Dose***, 1 to 60 drops.

Specific Indications.—Feeble circulation, with threatened heart-failure; sense of exhaustion; headache, with cerebral hyperemia or congestion.

Action.—Coffee is a decided cerebral stimulant and energizer. It also increases reflex activity of the spinal cord. Used moderately it is a mild bitter stomachic, stimulating the appetite and facilitating digestion. There is reason to believe that it increases hepatic activity and it promotes peristalsis, thereby favoring a free action of the bowels. Coffee slightly accelerates the circulation. Under its use the intellect is quickened to an extraordinary degree, thinking is facilitated, ideas flow freely, the reasoning faculty is sharpened, and an enormous amount of mental and physical work may be accomplished. The action of hot coffee upon the cerebrospinal system is especially evident when a person is exhausted by mental strain or physical exertion. Coffee removes drowsiness after a heavy meal, and may produce wakefulness that will last for several hours. If coffee be withheld from one who is accustomed to its stimulus, physical and mental exhaustion become so severe as to interfere with intellectual pursuits or bodily endurance under exertion, and a profound headache may be experienced. Coffee probably retards tissue waste, and is, therefore, a conservator of force.

The excessive use of coffee causes irritability, dejection of spirits, muscular weakness and trembling, watchfulness, dizziness, headache, and ringing noises in the ears; and flatulence, sour stomach with heartburn and eructations, and disordered action of the bowels. Probably the hepatogastric symptoms— “coffee biliousness” —is due largely to the empyreumatic oil present in coffee; the nervous symptoms chiefly to the caffeine it contains. Therefore preparations from which the latter has been removed are just as likely to produce stomach disorders as regular coffee.

The stimulating effects of coffee are most largely due to ***caffeine***. This alkaloid is one of the most rapidly acting cerebro-spinal stimulants and probably the nearest of any drug to a physiologic energizer of the intellectual brain. It sharpens the intellect wonderfully, and increases particularly the reasoning faculties rather than the imaginative. It operates without after-fatigue and renders the person capable of great

mental achievement and physical endurance. Workmen do more work under coffee, and soldiers stand long marches under the stimulus of the caffeine it contains. Large doses produce excitation of the spinal cord, and if carried to full action exaggerate the reflexes, making the person exceedingly nervous. No harm, however, is done to any organ by coffee or by caffeine, and no after-fatigue or exhaustion follows, provided neither be given to the extent of interfering with the taking of food nor of preventing rest or sleep. Caffeine excites muscular contractility, and powerfully stimulates respiration. Upon the circulation it heightens blood pressure and quickens the contraction of the heart. These are accomplished through its action upon the vaso-motor control and upon the heart muscle itself, its effects upon the latter taking origin at the veno-auricular junction, and extending from thence to the auricle and the ventricle. Caffeine increases the output of both the solids and the fluids of the urine, by dilating the renal bloodvessels and by direct action upon the renal epithelia. The tissue-waste of the body is thought to be restrained by caffeine, thus making it a conservator of force and energy. Caffeine is believed to be oxidized and destroyed in the body. The common non-alcoholic beverages of mankind (except coca)—coffee, tea, cocoa, kola, maté and guarana—owe their grateful stimulus to caffeine or related alkaloids. The theine of tea is practically caffeine. All of them relieve fatigue, increase mental acuity, endurance and the capacity for exertion without being followed by fatigue or exhaustion.

Therapy.—Coffee in strong infusion is given both by stomach and rectum in opium poisoning. It should be made fresh and as strong as possible. The warmth adds to its efficiency. A cup of strong, hot coffee is often an effectual sobering draught in acute alcoholism. and small and repeated amounts will sometimes ward off an attack of delirium tremens. Coffee is a gratefully refreshing agent for headache due to cerebral hyperaemia or congestion, as shown by red face and injected eyes, but will be likely to aggravate a neuralgic headache when the face is pale. Strong coffee sometimes cuts short an attack of asthma, and checks hiccough. It is the most refreshing stimulant that can be used in the exhaustion of low fevers of a typhoid type and in the debility following other acute disorders, particularly if the patient was previously accustomed to its use as a beverage. In fact, coffee should never be wholly withheld in acute disorders when it has been a factor in the patient's daily dietary. For its stimulating effect in fatigue and nervous exhaustion and calming action in nervous excitation of

debility, coffee should be freshly prepared and drunk hot, preferably without sugar or cream; for use in narcotic poisoning very strong, "black coffee" may be given freely, both by mouth and per rectum.

(I get the impression that the good Dr. Felter was fond of coffee—MM)

CALAMUS.

The rhizome of ***Acorus Calamus***, Linné (Nat. Ord. Acoraceae). Common in wet and muddy grounds everywhere in the Northern Hemisphere. ***Dose***, 5 to 40 grains.

Common Name: Sweet-flag.

Principal Constituents.-Resin, aromatic essential oil, and a bitter glucoside, acorin (C36 H60 0,).

Preparations.—I. ***Specific Medicine Calamus***. ***Dose***, 5 to 30 drops.

2. ***Syrupus Calami***, Syrup of Calamus. ***Dose***, 30 to 60 drops.

Action and Therapy.—Carminative, sialagogue, excitant, and slightly tonic. Useful as 'breath perfume," and in flatulent colic, atonic dyspepsia, feebleness of the digestive organs; and in the form of syrup as an agreeable vehicle for less pleasant medicines. The fresh root shaved thin, transversely, may be candied by boiling in syrup, draining, and allowing it to dry. In this form it is a delicious confection. Calamus may also be given in the form of a syrup or by adding the specific medicine to the required amount of simple syrup.

CALENDULA.

The florets of ***Calendula officinalis***, Linné (Nat. Ord. Compositae). Southern Europe and the Orient; largely cultivated as a garden flower. ***Dose***, 1 to 60 grains.

Common Names: Marigold, Garden Marigold, Marygold.

Principal Constituent.-A tasteless yellow body, ***calendulin***.

Preparations.—1. ***Specific Medicine Calendula***. ***Dose***, 1 to 60 drops. For local use, from full strength to 10 per cent aqueous solutions.

2. ***Borated Calendula*** (Boric Acid, 1 ounce; Specific Medicine Calendula, 1 drachm. Mix). Freely as a dusting powder.

Action and Therapy.—***External***. Calendula is believed to stimulate vaso-motor contraction and selectively to influence the skin and

mucous tissues. After the manner of using arnica it is employed largely as a vulnerary. It is non-irritating and non-poisonous. Its advocates claim that it reduces the probability of gangrene occurring, prevents or lessens the formation of pus, and promotes the prompt healing of wounds, with the least possible cicatrization. It has been applied after the removal of epitheliomata with asserted benefit, and as an application to gangrenous and indolent ulcers, with capillary impairment, it is said to have stimulated replacement by healthy tissues. A wash (1 part of Specific Medicine Calendula to 4 parts of sterile water) has been advised as very effective to promote reconstruction or to reduce tumefaction and discharges, as indicated, in abscess cavities, burns and scalds (to lessen scarring), acne, ulcerative skin diseases, vaginitis, cervicitis, endometritis, vaginal abrasions, erosion of the os uteri, non-specific urethritis, gonorrhea, leucorrhoea, lacerated perineum, and uterine subinvolution. As a rule, in most of these disorders, its internal use has been advised at the time of using it locally. Ecchymoses are reputed to have been quickly removed by it, and it is claimed that it opposes varicoses. Diluted with rose water to suit the purpose, it may be employed in mild conjunctivitis and in some aural inflammations. In purulent otitis media the borated calendula is preferred. The powder should be lightly insufflated but not packed into the canal, so as to insure free drainage. Borated Calendula may be dusted upon excoriations and sore nipples; and an oil solution of calendula (Calendula, 1 or 2 drachms to Liquid Petrolatum, 1 fluidounce) may be sprayed into the nose for the relief of nasal catarrh, with raw and tender membranes, or irritable throat. Thomas cured an inveterate case of crural ulcer in an old man by the use of zinc oxide ointment into which was incorporated Specific Medicine Calendula. Zinc ointment alone failed to achieve results.

Internal. Through its supposed action as a local and general vasomotor stimulant it has been advised internally to reinforce its local action, particularly in old ulcers, varicose veins, capillary engorgement of tissues, and chronic suppurative and catarrhal conditions. Splenic and hepatic congestion are said to have been benefited by it. While of unquestioned value in all of the local conditions named it has been much overrated, and its real medicinal worth obscured by extravagant praise.

CALUMBA (Jateorhiza palmata).

The root of ***Jateorhiza palmata*** (Lamarck), Miers (Nat. Ord. Menispermaceae). A climbing perennial, the Kalumb of the Southeast coast of Africa. ***Dose***, 1 to 30 grains.

Common Names: Columbo, Colombo, Columba.

Principal Constituents.—***Calumbin*** ($C_{42}H_{44}O_{14}$), a bitter principle, ***berberine*** ($C_{20}H_{17}NO_4$) with columbic acid, and columbine, a possible white alkaloid, may be present. No tannin is present.

Preparations.—1. ***Infusum Calumbae***, Infusion of Calumba. ***Dose***, 1 to 2 fluidounces.

2. ***Specific Medicine Calumba***. Dose, 5 to 30 minims.

Specific Indications.—Enfeebled stomach with indigestion, or feeble digestion; anorexia and debility.

Action.—This is a type of the pure, simple bitters which contain practically no oil or tannin, are not astringent and have no general effect, but act reflexly upon the stomachic and salivary functions by first irritating the mucous membrane and taste buds of the tongue. This action is quite transitory, so that in administering bitters they should be given immediately before meals. Their effect upon the stomach is to increase local circulatory dilation, a freer flow of gastric juice, increase of mucus, and increased muscular action. On account of the action upon the flow of mucus they should not be administered for too long a period lest gastric irritability and consequent impaired digestion result.

Therapy.—The least irritating and one of the best of the simple bitters and of especial value in atony of the stomach with poor appetite and feeble digestion. It is especially valuable in convalescence from acute fevers and other disorders in which there is lack of desire for food and poor digestion, with pain or without pain, immediately upon eating. After the active stage of cholera morbus, cholera infantum, acute diarrhoea, and dysentery it may be given to promote the appetite and digestion. When desired calumba may be combined with magnesia, bicarbonate of soda, senna, ginger, and aromatics, to meet special indications, particularly when flatulence and constipation are present.

Calumba and the allied bitters should not be given in acute or subacute inflammatory conditions of the stomach, nor during acute fevers, nor when digestion is merely impaired, but the appetite remains good. It is largely ineffectual also when organic disease of the stomach prevents the normal outflow of gastric juice. When given, the small doses are preferable to large ones; and on account of the absence of tannin, iron salts may be given with calumba, if so desired. In some respects calumba resembles hydrastis in its local action, and indirectly, by favoring better digestion, the quality of the blood is improved, hence its value in anemia during convalescence.

CAMBOGIA.

A gum-resin obtained from ***Garcinia Hanburii***, Hooker filius (Nat. Ord. Guttiferae). Siam, Cochin-China, and Cambodia. ***Dose***, 1 to 3 grains.

Common Names: Gamboge, Camboge.

Description.—Grayish, orange-brown, cylindical fragments, without odor and acrid to the taste. In powder it is light yellow. Soluble partially in alcohol.

Principal Constituent.—A purgative resin (***cambogic acid***).

Action and Therapy.—Gamboge is a drastic hydragogue cathartic. It is never used alone, but in pills, with other substances, chiefly where dropsical conditions prevail and it is desired to treat them by purgation. It is exceedingly active and has caused death by gastro-enteritis. Full doses should never be given, but repeated small doses in pills or in alkaline solutions, until results are obtained. Alkalies best counteract its drastic effects.

CAMPHORA.

A stearopten (having the nature of a ketone) derived from ***Cinnamomum Camphora***. (Linné), Nees et Ebermeier (Nat. Ord. Lauraceae). China and Japan.

Common Names: Camphor, Laurel Camphor, Gum Camphor (it is not a gum).

Description.—Tough, translucent white lumps or granules, having the pungent taste known as camphoraceous, and an aromatic penetrating odor. It dissolves freely in alcohol, chloroform, ether, and fixed and volatile oils; very slightly in water. Camphor is readily pulverized by triturating it with a few drops of alcohol, chloroform, or ether. ***Dose*** (by mouth), 1 to 5 grains; (hypodermatically) 1 to 3

grains.

Preparations.—1. ***SpiritusCamphorae*** (10 per cent), Spirit of Camphor. ***Dose***, 1 to 30 drops.

2. ***Aqua Camphorae***. Camphor Water. ***Dose***, 1 to 4 fluidrachms.

3. ***LinimentumCamphorae***. Camphor Liniment (Camphorated Oil) (Composed Of Camphor, 200 parts; Cottonseed Oil, 800 parts). ***Dose***, 10 to 30 drops. For external use chiefly.

4. ***CeratumCamphorae***. Camphor Cerate. (Composed of Camphor Liniment, White Wax, White Petrolatum, and Benzoinated Lard.) For external use.

Action.—Camphor causes a local dilation of the capillaries of the skin, producing warmth, redness, and sometimes itching. Slight anesthesia follows. It causes smarting and hyperaemia of the mucosa, and if applied strong may cause considerable irritation. In this manner it has produced gastric ulceration. In small doses camphor warms the stomach, stimulates secretion, increases peristalsis, and expels flatus. Large doses may induce vomiting. Camphor is readily absorbed, both from application and inhalation. It is largely changed in the body and is eliminated in the urine as campho-glycuronic acid. In moderate doses camphor directly stimulates the heart-muscle, causing slower and stronger contractions and increased arterial pressure, but after large doses the pressure falls. Respiration is slightly stimulated by it, large doses causing slower and deeper breathing. In general it may be said that small doses of camphor stimulate, while large quantities depress, or even paralyze. This is true of all the functions it affects. The action of small doses upon the nervous system is to produce a feeling of slight exhilaration or contentment. Large doses excite the higher cerebral and medullary centers and then paralyze them; poisonous doses occasioning more or less of the following symptoms: esophageal and gastric pain, vomiting, headache, dizziness, mental confusion, drowsiness, delirium, and stupor; feeble, running, or intermittent pulse, cold skin, cold sweat, and muscular weakness followed by rigidity and epileptiform. convulsions, collapse and death. The type of convulsions shows its effects to be chiefly upon the cerebral cortex, though it acts also progressively on the medulla, causing death by respiratory paralysis. Camphor does not affect all persons alike. Some may pass directly into drowsiness, insensibility, and stupor, followed by death. If taken for long periods, even in moderate doses, camphor gives rise to a state of mental confusion. Opium and repeated small doses of alcohol are the best antagonists of the untoward effects of camphor.

Therapy.—***External***. Camphor is stimulant, rubefacient, antipruritic, and feebly antiseptic. Owing to its agreeable odor and pleasant stimulating effects it is largely used, as a powder, in lotions, and ointments, or rubbed up with other solids to produce anodyne and antiseptic liquids. In this manner, when triturated with chloral hydrate, menthol, phenol, thymol, and similar bodies, ideal liquid antiseptics are obtained for use upon wounds, neuralgic and other painful areas.

Powdered camphor is an ingredient of tooth powders and pastes and dusting powders for skin diseases. Alone or with zinc oxide, talc, or precipitated chalk it may be used upon bed-sores with decided relief. Such combinations are valuable in intertrigo, chronic eczema, urticaria, and zoster. Many snuffs contain powdered camphor, and it is useful to stimulate sluggish ulcers. Sprinkled upon the face it is used to control itching and to prevent pitting in small-pox. The spirit is a household embrocation for the relief of pain and itching, and it is used largely, alone, or in liniments and embrocations, for the relief of pain, stiffness, soreness and swelling, as in myalgia, facial and other neuralgias, and upon rheumatic joints, deep inflammations, chronic indurated glands and other indurations, sprains, contusions, and inflammatory swellings. An ethereal tincture of camphor is said to give relief in erysipelas. Inhaling the spirit, or camphor dropped into hot water, gives relief in nervous headache, and often aborts acute colds, coryza, and influenza, giving respite from the excessive secretion and the accompanying headache. A solution of camphor in liquid petrolatum (usually with menthol) is a popular spray for similar uses, and for laryngitis, pharyngitis, chronic nasal catarrh and hypertrophic rhinitis. The spirit, the liniment, or camphorated oil are favorite applications for tenderness and pain, chilblains, toothache, and acute mastitis: in the latter it tends to suppress the milk. The spirit is in common use as a lotion for headache in nervous individuals with feeble circulation, and tendency to fainting. The oil, by injection, is sometimes effectual in removing seatworms. So-called “camphor-ice” is a soothing, camphorated petrolatum preparation for labial herpes.

Internal. Camphor is used to allay nervous excitement, subdue pain, arrest spasm, and sometimes to induce sleep. It is an important remedy in many disorders of neurotic women and children, being frequently most effective as a nerve sedative, antispasmodic, and carminative in

nervous nausea and vomiting, flatulence, hiccough, and tendency to spasms or fainting. It is especially serviceable in palpitation of the heart due to gaseous distention of the stomach, or to nervous irritability. In occipital headache, from mental strain, or overstudy, small doses of camphor, together with the consentaneous use of it locally, frequently give prompt relief.

Camphor taken and inhaled may abort "cold in the head," or alleviate it when established. It checks the sneezing, copious, watery secretions and lachrymation and relieves the nasal and frontal headache. It similarly benefits in the acute coryza of epidemic influenza, or la grippe. As an ingredient of cough mixtures, such as camphorated tincture of opium, it contributes much toward relieving irritation, pain, oversecretion, and the associated nervous unrest. In very small doses it is useful in the bronchitis of the aged, while it helps greatly when depression attends slowly resolving cases of acute capillary bronchitis.

The most important use for camphor is in adynamic depression attending or following exhausting diseases. In typhoid, typhus, and other low forms of fevers and low grades of inflammation, with a quick irritable pulse, great restlessness, tremor, morbid watchfulness, dry skin, low muttering delirium and subsultus tendinum, it is one of the most active stimulating sedatives in the materia medica. Similar conditions sometimes occur in acute infectious diseases, as the exanthemata, in acute endocarditis and particularly in acute lobar pneumonia. For this profound depression 15 drops of a 10 per cent sterile oil or ether solution (both are sold in sealed ampoules) may be used hypodermatically and repeated as needed. The latter is similarly employed in shock and threatened collapse attending surgical operations.

In addition to the above-named preparations, solutions of camphor in alcohol, as well as a thirty per cent camphorated sesame oil, have been used in shock and collapse, and in lobar pneumonia. Indifferent results attend their use in many instances. In fatal cases, where such stimulation has been attempted, the death throes of the patient seem often to be aggravated. It is a common observation that patients to whom "camphor in oil" has been given, "die hard."

Camphor is largely used, usually with other pain-relieving agents, or with aromatic oils, as cajuput, in serous diarrhea, cholera morbus, and

Asiatic cholera, in all when profoundly depressive. It is also useful (usually with opium, as in the diaphoretic powder, or with morphine, as in Tully powder) for spasmodic dysmenorrhea in nervous women, though the opiate content should not be oft repeated, nor long continued, nor given with the patient's knowledge of its use. Camphor frequently relieves menstrual headache, with great nervous depression. It is also useful to control irritation due to the passing of catheters and the strangury that sometimes results from the use of cantharidal blisters. King believed camphor an antidote to strychnine poisoning, supporting his views by the results he had observed on animals. In combination with bromides, camphor has given relief in the late stages of chordee.

Camphoric Acid, in doses of 15 to 40 grains, preferably in cachet or capsule, given a few hours before bedtime, is one of the most effective drugs for the colliquative night-sweats of phthisis.

CANNABIS.

The dried flowering tops of the female plant of ***Cannabissativa***, Linné, or the variety ***indica***, Lamarck (Nat. Ord. Cannabinaceae). Asia, East Indies, and cultivated in other parts of the world, notably in the United States.

Common Names: Guaza, Ganjah, Gunjah, Ganga; Indian Hemp (Cannabis indica) when derived from the Indian plant.

Principal Constituents.—Not well determined. The following have been noted: Cannabin, an active brown resin, and ***cannabinon***, a soft resin.

Preparation.—***Specific Medicine Cannabis***. ***Dose***, 1/2 to 10 drops.

Specific Indications.—Marked nervous depression; irritation of the genito-urinary tract; burning, frequent micturition; painful micturition, with tenesmus; scalding urine; ardor urinae; wakefulness in fevers; insomnia, with brief periods of sleep, disturbed by unpleasant dreams; spasmodic and painful conditions, with depression; mental illusions; hallucinations; cerebral anemia from spasm of cerebral vessels; palpitation of the heart, with sharp, stitching pain; and menstrual headache, with great nervous depression.

Action.—The principal seat of action of cannabis is upon the intellectual part of the cerebrum. In many respects its effects parallel

those of opium and its chief alkaloid. Without doubt it is the most perfect psychic stimulant known to medicine. Certain Orientals become addicts to it, consuming it in the form they call ***haschisch*** (whence comes the term assassin), and under its influence many crimes and offenses have been committed, as well as with it. Eastern potentates are said to have dosed their fanatic followers with it. It produces an agreeable semi-delirium taking on the character of a sense of well-being and exhilaration-a state highly coveted by its devotees, who call it loftily "the increaser of pleasure," "the laughter mover," "the cementer of friendship," and "the cause of a reeling gait"-all indicative of its physiologic influence. These haschisch debauches are joyful affairs, and while usually devoid of injurious consequences, may be followed by catalepsy and depressive and maniacal insanity, from which, however, the victim recovers fully in time.

In some respects the effects of cannabis on the nervous system are peculiar. It causes an apparently contradictory, consentaneous stage of stimulation and depression-a state somewhat simulated by morphine. The sensations that follow the effects of cannabis vary greatly with the temperament and the peculiarities of the patient, and with his environment. Almost invariably they are pleasurable. An emotional state of happiness even to ecstacy is experienced, with an endless procession of beautiful visions coming and going, and over which the patient indulges in merriment and even hilarity. So pleasurable becomes his sensations that he may break into boisterous laughter and antics of a ridiculous character, the nature of which he fully comprehends, but is wholly unable to prevent. Gradually passing into a dream-like stage, he talks, volubly, brilliantly, with ever-recurring changes of topic, little coherence of thought, and a perverted judgment. His imagination carries him into ludicrous ideas and strange actions, he has notions of grandeur and greatness, and moments are exaggerated into æons of time. He lives a "life-time in a minute." Endless phantasms of beauty and delight pass before his distorted mental vision. A singular peculiarity is a state of "double consciousness" or dual personality which possesses him in which he imagines he is both himself and some one else, and he behaves accordingly. He becomes affectionate to the extreme, both to himself and to others, and altogether he is a very happy individual leading a very full and infinitely extended life.

Finally drowsiness overtakes him and he drops into a heavy sleep,

which may last for hours, and from which he awakens with no other discomfort than a ravenous hunger. In this last stage the pupils are dilated, muscular power in abeyance, and partial anesthesia prevails. While the ultimate effects of the drug in some result in tremor, great weakness, loss of appetite and convulsions, no deaths have been known to occur in man from this drug.

The effect upon Caucasians is less pronounced than that described, which is experienced chiefly by Orientals. In the former the stage of exhilaration and phantasmagoric inebriation may be very brief or entirely absent, the patient passing successively through heaviness and numbness of the limbs, heat in the head, giddiness, a pleasurable pricking of the whole body, drowsiness, and deep sleep. With some individuals pressure upon the skin is said to excite a sense of burning, and the subsequent anesthesia may become so profound that the patient, when standing, is not conscious of contact with the ground.

One young man to whom we administered cannabis amused himself by repeatedly jumping over the foot of his bed, laughing with great glee over his capers.

Therapy.—The therapeutic effects of cannabis vary under different conditions. It stimulates in depression and sedates when there is irritation. It lessens pain-especially spasmodic pain-allays spasm, improves the appetite, causes a feeling of contentment and rest, and produces sleep. If pushed too rapidly or in too large doses, exhilaration of spirits, inebriation with phantasms, illusory delirium, and sometimes strong aphrodisia precede sleep. A peculiarity in many individuals taking cannabis is the voracious appetite induced. The effects of cannabis are far less powerful and less disturbing to the general system than those of opium, and it does not, like the latter, restrain the secretions nor produce itching. If anything the urine is increased by cannabis and constipation does not occur.

The keynote indication for cannabis is marked depression of the nervous system usually with insomnia. Secondly, it allays irritation of the urino-genital tract and relieves pain. For the first condition it is invaluable in more or less painful conditions in which opium seemingly would be indicated, but in which, on account of its tendency to restrain normal secretions, would be inadmissible. In fact, cannabis exerts far less restraining power over the secretions than do

most similar anodynes. Besides, it favors good digestion and dispels gloom and foreboding. As a pain reliever it is more potent than as a sleep producer, as for some unknown reason even good qualities of cannabis often fail in insomnia when they succeed perfectly in blunting pain. As a remedy for pure insomnia without pain it is less valuable than many other hypnotics. It is, however, often useful in the sleeplessness of depressive insanity.

Depressive headache, particularly migraine, is one of the types of pain in which cannabis is exceedingly effective. Its use is often advantageously preceded by gelsemium. These cases are those that come on with much excitability and hyperaemia, followed by depression. It is in the depressive stage that cannabis is useful. Spasmodic neuralgic pains are helped by it. It is particularly indicated in the vague pains of indigestion, in depressive nervous headache, nervous gastralgia, gastric neuralgia, gastric ulcer and carcinoma (in the latter two, when opium disagrees), the pains of irritative diarrhea, neuralgia of the face, neuralgia of the pelvic viscera, so-called chronic rheumatism, endometritis, subinvolution, after pains, and amenorrhea, all with nervous depression and despondency. It is sometimes useful in the painful paroxysms of locomotor ataxia and sciatica, but as a rule is not powerful enough to subdue these and the severe cramp colic induced by the passage of calculi, unless given in doses large enough to produce other unpleasant effects. Morphine is by far the better agent for the relief of pain in renal and hepatic colic. Cannabis gives relief in painful and spasmodic dysmenorrhea, marked by much nervous debility; and it is accredited with having promptly checked functional menorrhagia.

Cannabis is a remedy for convulsive and irritative forms of cough. It is especially comforting in the latter stages of phthisis and for the cough of senility, with senile catarrh. In both instances the cough is harassing, expectoration heavy and difficult, and rest and sleep are disturbed. While effective in whooping cough there are better agents for use in children than cannabis. Cannabis aids in depressive hysteria; quiets excessive movements in paralysis agitans, and in some cases of chorea; and sometimes quiets a palpitating heart. It relieves itching in many skin disorders, and especially the pruritus of the aged.

It is, perhaps, in genito-urinary disorders of a subacute and chronic inflammatory type that the usefulness of cannabis is most strongly

displayed. With the properly-selected sedative it meets the wants of a pain reliever and nerve soother in urethritis, whether idiopathic or specific. Gelsemium, aconite, and cannabis are, perhaps, more frequently indicated than other internal agents in acute gonorrhea. Locke invariably prescribed the following: Rx Specific Medicine Aconite, 10 drops; Specific Medicine Cannabis, Specific Medicine Gelsemium, 1 drachm each; Simple Syrup and Water enough to make 4 fluidounces. Mix. Sig.: One teaspoonful every three hours. This relaxes spasmodic tension, relieves ardor urinae, reduces fever and inflammation, and does much to prevent chordee, and to control it when present. In chronic nephritis cannabis is useful when there is much pain in the back and when blood is passed in the urine. Cannabis is sometimes useful in spermatorrhoea when accompanied by worry, gloomy foreboding, and general mental and physical depression. Having some aphrodisiac action it may be given with strychnine to restore sexual power lost through excesses, but not when due to organic changes. It is of supreme importance in surgical fever due to the passing of the catheter or bougie, or from operations upon the urethral tract. In chronic cystitis, chronic irritation of the bladder, dysuria, painful micturition, and strangury, it is a drug of very great value. In all instances a good preparation of cannabis must be used, for a poor quality is worse than useless.

CANTHARIS.

The dried beetles, ***Cantharis vesicatoria*** (Linné), De Geer. (Ord. Coleoptera.) Southern Europe. Dose, 1 grain.

Common Name: Spanish Fly; Synonym: Cantharides.

Principal Constituents.—Crystallizable ***Cantharidin*** ($C_{10}H_{12}O_4$) and a volatile oil are said to be the active or vesicating principles.

Preparations—1. ***Specific Medicine Cantharis***. ***Dose***, 1 to 10 drops.

2. ***Ceratum Cantharidis***. Cantharides Cerate. (Blistering Cerate.) Epispastic.

3. ***Collodium Cantharidatum***. Cantharidal Collodion, (Blistering Collodion, Vesicating Collodion). Epispastic.

Specific Indications.—Vesical irritation; paresis of the vesical sphincter; dribbling and involuntary expulsion of urine; teasing desire to urinate, accompanied with tenesmus.

Action and Toxicology.—Applied to the skin cantharis first reddens then slowly blisters. Its final action may be so intense as to cause sloughing and gangrene; or by absorption to cause strangury and acute nephritis. Small doses stimulate the excretion of urine; large doses are destructively irritant. The earliest symptom from moderate doses is irritation of the urino-genital tract, with strangury and burning pain. If continued, or the dose is large, blood and albumen appear in the urine. Large doses produce all the intense agonies of a violently destructive gastro-enteritis and acute inflammation of the kidneys and bladder; with final suppression of urine and death from uremia. Intense burning pain, soreness and tenderness of the abdomen, excessive burning thirst, profuse ptyalism, with cadaverous odor of the breath, rapid breathing, small thready pulse, griping and purging, profuse urination followed by suppression, exceedingly painful micturition drop by drop, priapism, violent sexual desire, and seminal emissions are among the awful results of a toxic dose of cantharis. Six (6) grains of powdered cantharides is the smallest amount known to have produced death. Cases of poisoning are almost always confined to those who take cantharis to produce abortion.

There is no known chemical or physiologic antidote to cantharis. Poisoning by it must be treated on general principles, with opiates to control pain. When non-toxic doses have produced strangury it may be relieved by opium and camphor, and large draughts of water.

Therapy.—***External***. As a vesicant cantharis acts kindly as compared with some other agents. It is sometimes used as a derivative in deep-seated inflammation, to absorb inflammatory products, and to relieve local pain, as in intractable neuralgias and persistent headache. In Eclectic therapy the use of blisters is scarcely ever deemed advisable, or even necessary. Certainly they should not be used in states of great debility following grave illness, or the exanthems, nor when renal congestion or inflammation is present. Cantharis has been used in lotions to promote the growth of hair. Howe advised it with bay rum, specific medicine uvedalia, and Fowler's solution, for this purpose. Others have used the cantharidal collodion, painted upon the scalp about every two weeks, to encourage the growth of hair in alopecia circumscripta, with asserted success.

Internal. Cantharis has a limited use in modern specific therapeutics. In very small doses it is a decided stimulating diuretic and special

sedative to the bladder. One must be very careful, however, to avoid irritant doses. It is the remedy for vesical irritation, to allay teasing desire to urinate and the tenesmus accompanying it. It is one of the most certain remedies for the day-time enuresis of women, particularly the middle-aged, when due to a paretic condition of the sphincter vesicae; and in women and children with irritable bladders or weak sphincters, in whom coughing, sneezing, or exertion cause an involuntary expulsion of urine. It is equally effective in men who pass their urine with difficulty or dribbling, and intense scalding heat. In minute doses it may be cautiously used in the late stages of acute desquamative nephritis, where the kidneys are weak and functionate sluggishly, every little exertion seeming to produce an increase of albumen in the urine. It has also been advised for the torpid kidney action in the chronic parenchymatous nephritis of inebriates, in pyelitis, and in chronic cystitis. Used carefully in renal medication it may accomplish great good; but when recklessly employed it is a dangerous medicine, producing or aggravating the very conditions sought to be relieved by it.

Cantharis promotes menstruation in atonic amenorrhoea with marked depression. It also increases the sexual appetite and has been used to strengthen the procreative functions. Old gleet and prostatorrhoea are first awakened and aggravated and then relieved by it. Its internal use has been advised in some chronic skin diseases, such as psoriasis, prurigo, lichen, and eczema; upon what grounds we are not advised.

CAPSELLA.

The freshly dried plant ***Capsella Bursa-pastoris***, Moench (Nat. Ord. Cruciferae). A common weed, native of Europe, but naturalized everywhere.

Common Names: Shepherd's Purse, Shepherd's Sprout.

Principal Constituents.—Resin and a volatile oil.

Preparations.—1. ***Specific Medicine Capsella***. ***Dose***, 1 to 60 drops.
2. ***Infusum Capsellia***. Infusion of Capsella, (Fresh herb, 1 ounce to water 16 fluidounces). ***Dose***, Freely.

Specific Indications.—Passive hemorrhages; irritation of urinary organs with phosphatic deposits; prolonged and oft-recurring menorrhagia with almost colorless flow.

Action and Therapy.—Capsella acts chiefly upon the urinary tract, being a mild stimulating diuretic. The infusion, tincture and specific medicine are all efficient, but the green plant is most active. Owing to its mild astringency it has been employed in hematuria, diarrhoea, bleeding piles, and indigestion and dyspepsia of an atonic type. Slightly stimulant it sometimes aids when simple measures are desired in amenorrhea. In chronic menorrhagia, with a too long or too frequent and almost colorless flow, it is said to have given positive benefit. Its chief value is to relieve irritative and atonic disorders of the urinary tract, with constant desire to urinate, and especially if associated with phosphatic deposits or passive hemorrhage.

CAPSICUM.

The ripe fruit, dried, of ***Capsicumfrutescens***, Linné (Nat. Ord. Solanaceae). Tropical America; also cultivated in most tropical countries. ***Dose***, 1 to 2 grains.

Common Names: Cayenne Pepper, Guinea Pepper, Red Pepper, African Chillies, Bird Pepper.

Principal Constituents.—Fixed oil, resin, fats, and the rubefacient and acrid principle ***capsaicin*** ($C_9H_{14}NO_2$) and a volatile oil, ***capsicin***.

Preparations.—1. ***Specific Medicine Capsicum***. ***Dose***, 1/10 to 2 drops, very largely diluted.

2. ***Tinctura Capsici***, Tincture of Capsicum. ***Dose***, 1/10 to 10 minims.

3. ***Emplastrum Capsici***. Capsicum Plaster (Composed of Oleoresin of Capsicum and Rubber Plaster). Rubefacient.

Specific Indications.—Marked depression and debility, with feeble pulse and repressed secretions; pale membranes with scanty, viscous secretion; tongue dry, harsh, and mouth and salivary secretions suppressed or scanty; atonic dyspepsia of drunkards; alcoholic delirium of the depressive type; congestive chill; colic, with abdominal distention; debility with faulty gastro-intestinal functioning in the aged.

Action.—Locally capsicum is decidedly irritant, causing dermal heat and redness. It does not vesicate, however, unless long and closely applied to the mucosa. The oleoresin is much more active and causes sharp burning pain and may destroy the epidermis.

Capsicum is a pure, energetic and permanent stimulant. In large doses it produces vomiting, purging, pains in the stomach and bowels, gastro-enteritis, giddiness, strangury, and a species of intoxication and enfeeblement of nerve power. Smaller doses give warmth to the stomach and excite a hyperaemic state of the gastric mucosa, with increased secretion and accelerated movement of the musculature of the stomach and bowels. It slightly increases the urine, and is mostly eliminated by the kidneys.

Therapy.—***External***. Tincture of Capsicum is an important topical stimulant, rubefacient and counter-irritant. By its revulsive action it often relieves local pain. Painted upon chilblains it quickly gives relief. The pure tincture alone, or mixed with glycerin or mucilage of acacia, may be used. Applied to an aching tooth it either relieves or aggravates, according to the sensitiveness of the nerve or the degree of inflammation present. We have used it with great satisfaction for pain coursing along the spermatic cord in the lower quadrant of the abdomen. It must not, however, be allowed to come in contact with the tender skin of the scrotum. The tincture has been painted upon the scalp to excite the growth of hair in alopecia. With or without glycerin or mucilage of acacia it may be used to clear up ecchymoses. Dry capsicum in the shoes was one of Scudder's favorite means of warming cold feet. Diluted tincture of capsicum, or capsicum with vinegar, and sometimes with salt, is a common and useful stimulating gargle for sluggish forms of sore throat, and sometimes apparently aborts tonsillitis. Capsicum may be used for many of the revulsant effects required of mustard. It does not blister nor cause strangury when so applied. Either the tincture painted upon the part or the capsicum plaster may give relief to so-called chronic rheumatic pains, and be applied in lumbago, pleurodynia and intercostal neuralgia. A stupe of hot water and capsicum applied to the nape of the neck sometimes relieves the headache of debility.

Internal. Capsicum is a pure stimulant to the heart and circulation, giving increased force and slightly augmented frequency to the pulse. One thoroughly acquainted with the action of capsicum can scarcely comprehend why physicians seek for habit-forming stimulants which do infinite harm when so simple and efficacious and pure a stimulant as capsicum may be had. Used within proper dosage it can scarcely do harm, and generally results in incalculable good. Not merely for

temporary purposes is capsicum efficient, but its effects are more or less permanent. Naturally it should be selected for atonic conditions and avoided where irritation or active inflammation is present. Nevertheless, in low grades of inflammation and fever, with sluggish blood current, it is a most efficient and necessary stimulant when given in small doses.

The infusion of capsicum is a simple domestic remedy for acute colds, sore throat and hoarseness. Small doses of the tincture are of the utmost value in debility with deficient gastric action. When the membranes are pale, relaxed or flabby, and secretion is impaired or scanty and viscous, capsicum will do more than any other agent to rectify the condition and prepare the way for the action of other medicines. Even where the tongue is dry and elongated and parched from lack of secretion, and the glands of the mouth are inactive, no agent is superior nor safer than capsicum. It has, therefore, wide usefulness in disease-acute, subacute, or chronic. For chronic gastric catarrh it may be used occasionally, but should not be long continued lest it increase the malady sought to be improved. It is invaluable in some cases of atonic dyspepsia, with deficient secretion. It is often promptly effective in gastric flatulence, and is an agent of great value to prevent the accumulation of gases in both stomach and intestines. A mixture of capsicum, vinegar, and salt will sometimes prove a good antiemetic if given in small doses diluted with cold water.

Capsicum should be largely used in low forms of fever-the more depressed the type the more it is needed. It is then of great advantage to maintain the equilibrium of the secretions and the circulation. Capsicum stimulates the appetite, aids digestion, facilitates peristalsis, and is, therefore, both stimulant and tonic to the gastro-intestinal tract. It thus maintains the integrity of those functions-an important desideratum during fevers and in convalescence therefrom. In grave cases of typhoid fever, with almost complete suppression of natural secretions, we would be at a loss without capsicum. It sometimes checks a congestive chill, and in intermittent fever it aids the action of quinine and other antiperiodics.

Capsicum is of very great value in alcoholic delirium. If secretions are suppressed and food can not be taken, or if sleep can not be induced in delirium tremens, one faces an extremely dangerous and perhaps fatal issue. But if secretions can be re-established and food be

retained, sleep is very apt to follow. Then the battle against death is won. For this purpose no agent will accomplish so much as capsicum. It may be given at first in frequent small doses in hot water; then as the stomach responds, in larger doses in a good, strong beef broth. While capsicum is best in subacute forms of delirium tremens and not the violent and boisterous type it sometimes is needed after the latter to satisfy the craving for stimulants, to overcome the sinking sensations at the pit of the stomach, to prevent morning nausea and vomiting, to restore tone, and to render the stomach tolerant of food. There is scarcely any danger of giving an overdose of capsicum in dipsomania, as large quantities are swallowed with evident relish and without ill results by confirmed dipsomaniacs. Some cases must have alcohol, but most cases respond to capsicum. Then nux vomica, hydrastis, black haw, hydrochloric acid, and other peptics may follow.

Capsicum is of value in many functional nervous troubles with debility and repressed secretions, and for the aged it is one of the few medicines that should be widely heralded for its power to stimulate and preserve gastric tone and prolong life. In the debility of the young or old, but particularly in old persons, when the body-heat is low, vitality depressed, and reaction sluggish, it is an agent of power for good. Tired, painful muscles, stiffened joints, and relaxation of tissue are common conditions in the elderly that are, in a measure at least, helped by capsicum.

Capsicum in very small doses is said to control irritation and stimulate renal capillary activity in chronic renal congestion. In similar doses it may relieve sluggish hemorrhoids, diarrhea and dysentery, with tenacious muco-bloody stools, with tenesmus and burning, associated with cramplike action of the bladder. These cases are usually encountered in individuals with a lax habit of body. For chronic, non-burning hemorrhoids with torpor and constipation, or relaxation, Locke advised Rx Capsicum, 2 grains; Aloes, 1/4 grain. Mix. Make 1 pill.

Capsicum, internally administered, will frequently check frontal neuralgia, particularly if of malarial origin. It is best to give a few preparatory doses and then follow with quinine associated with it. One of our favorite medicines for masked malarial conditions is an hydrochloric acid solution of quinine with capsicum added.

If called upon to say when capsicum is most valuable, we would limit it

to: (a) An agent to re-establish repressed or suppressed secretion; (b) to a medicament for the gastric incompetence of the aged; (c) and to a saving remedy in most cases of acute alcoholism. The dose of capsicum for most purposes need not be large, from the fraction of a drop of a good tincture to ten drops; or the specific medicine not to exceed 2 drops. Only in extreme conditions, as in delirium tremens, are large doses, even in excess of ten drops, required. Fluid preparations of capsicum are to be preferred to powdered capsicum for internal use on account of the rectal discomfort occasioned by the latter. Food for the aged and debilitated may be well fortified with capsicum, and frequently sauces, catsup, and like preparations containing it will be found grateful to such patients.

CARBO LIGNI.

Charcoal prepared by burning soft wood. It must be kept in tightly-closed vessels.

Common Names: Charcoal, Wood Charcoal; Synonym: Carbo Vegetabilis. (Activated Charcoal—MM)

Description.—A tasteless and odorless non-gritty black powder.

Preparation.- ***Trituration of Carbo Vegetabilis*** (1 to 100). (Carbo Veg.) ***Dose***, 1 to 30 grains.

Specific Indications.—Gaseous fermentation and fetor; pulse feeble; pallid skin with doughy and tumid abdomen; expressionless, pale tongue, with spots of denuded coating; passive hemorrhages, and profuse secretion.

Action and Therapy.—***External***. Absorbent, deodorant and disinfectant, but not antiseptic. It is used very largely to deodorize foul ulcers, carcinomata, and gangrene, possessing the advantage of being an odorless deodorant. It is frequently added to poultices and is an ingredient of some tooth powders. A rectal injection of charcoal has checked hemorrhage from the bowels.

Internal. Its absorbent and deodorant properties make charcoal a splendid agent to absorb putrid gases from the stomach and bowels. It is indicated by offensive breath and disagreeable belching. In acidity of the stomach, gastric distention, nausea and vomiting, sick headache with gaseous belching, fetid diarrhcea, and sometimes in the acid

vomiting of pregnancy, charcoal is a most effective agent. It may be combined, plain or aromatized with oil of peppermint, with sodium bicarbonate in acidity of the stomach, with bismuth subnitrate in marked irritation and diarrhoea, with ginger in the flatulence of atony, and with rhubarb or magnesia when constipated. Though supposed to have no general effects on account of not being absorbed, Scudder strongly advocated it for passive hemorrhage, using the second decimal trituration of carbo vegetabilis. His statement is worth recording.

"The specific use of charcoal is to arrest hemorrhage from the bowels. It has been used in enema, 1/2 to 1 drachm, finely powdered, to 4 ounces of water, thrown up the rectum. Why this checks it I can not tell; that it does it I have the evidence of my own eyes. For several years I have employed the second decimal trituration as a remedy for passive hemorrhage with the most marked benefit. I employ it in threatened hemorrhage during typhoid fever; in menorrhagia, especially when chronic; in prolonged menstruation; the watery discharge that sometimes follows menstruation; hemorrhage from the kidneys; hemorrhage from the lungs; and in some cases of leucocythaemia. A good indication for this remedy is a small pallid tongue with lenticular spots, and with this it may be given in any form of disease." (***Specific Medication***.)

Charcoal, like animal charcoal (***Carbo Animalis***), is sometimes given in alkaloidal poisoning with a view to precipitating and retarding the poison until it can be removed from the stomach. Its effectiveness is doubted. It may also be used in haematemesis, and frequent foul discharges from the intestinal tract. The pulse is feeble, the belly-wall tumid and doughy, the tongue expressionless and pale with little coating and lenticular spots, or the coating may lift in patches.

CARDAMOMI SEMEN.

The dried, recently decapsulated fruit of ***Elettaria Cardamomum***, White et Maton. (Nat. Ord. Zingiberaceae.) Mountainous coasts of Malabar. ***Dose***, 5 to 6O grains.

Common Names: Cardomom Seeds, Cardamom, Cardamon.

Principal Constituents.—A fragrant camphoraceous bitter volatile oil, composed chiefly of terpenes ($C_{10}H_{16}$)

Preparations—1. ***Specific Medicine Cardamon***. ***Dose***, 10 to 60 drops.

2. ***Tinctura Cardamomi Composita***. Compound Tincture of Cardamom (Cardamon, Cinnamon, Caraway, Cochineal, Glycerin, and Alcohol). ***Dose***, 30 to 60 drops.

Action and Therapy.—Carminative. All preparations are useful in flatulent colic, and to flavor tinctures, syrups, and other medicines, particularly alkaline mixtures, the compound tincture imparting to these an agreeable taste and color.

CARTHAMUS.

The florets of ***Carthamustinctorius***, Linné (Nat. Ord. Compositae). Egypt and the Mediterranean countries, but cultivated in Europe and the United States.

Common Names: Safflower, Dyer's Saffron, Bastard Saffron, American Saffron.

Principal Constituents.—Two beautiful coloring principles, Safflor yellow, and a red, carthamin or carthamic acid ($C_{14}H_{16}O_7$). The latter is a valuable dye.

Action and Therapy.—Chiefly employed in domestic medicine in hot infusion as an emmenagogue for amenorrhea due to recent colds; and to determine the eruption in scarlet fever and measles. It is somewhat diaphoretic and laxative, and is little used by physicians.

CARUM.

The fruit of ***Carum Carvi***, Linné (Nat. Ord. Umbelliferae). Europe and Asia and cultivated everywhere. ***Dose***, 10 to 60 grains.

Common Names: Caraway, Caraway Seed, Caraway-Fruit.

Principal Constituent. —A volatile oil (***Oleum Cari***).

Preparations.—1. ***Oleum Cari***, Oil of Caraway. ***Dose***, 1 to 5 drops.

2. ***Specific Medicine Caraway***. Dose, 10 to 60 drops.

Action and Therapy.—An aromatic carminative and gentle stomachic; both the fruit and the oil are of value in flatulent colic and to flavor medicinal compounds.

CARYOPHYLLUS.

The unexpanded flowers (dried flower-buds) of ***Eugenia aromatica*** (Linné), O Kuntze. (***Jambosa Caryophyllus*** (Sprengel) Niedenzu). (Nat. Ord. Myrtaceae.) Cloves Island, Moluccas, and cultivated in Africa, East and West Indies, and Brazil. ***Dose***, 5 to 10 grains.

Common Names: Clove, Cloves.

Principal Constituents.—A pungent acrid and aromatic volatile oil (Oleum Caryophylli), composed principally of eugenol ($C_{10}H_{12}O_2$); eugenin, and caryophyllin, which is isomeric with camphor.

Preparations.—1. ***Oleum Caryophylli***, Oil of Clove. ***Dose***, 1 to 5 drops.
2. ***Specific Medicine Cloves***. ***Dose***, 1 to 10 drops.

Action.—Irritant to the skin and mucosa, causing redness and burning followed by partial anaesthesia. It is typical of the class of volatile oils, most of which act similarly. It excites the salivary secretions and stimulates digestion by impressing the nerves of smell and taste, dilating the gastric vessels, provoking the flow of gastric juice, and inducing increased peristalsis of both stomach and intestines, thus causing eructations of gas and flatus. The latter is no doubt aided by its decided antiseptic qualities. Like all aromatic oils large doses may provoke gastro-enteritis. Oil of clove modifies the griping effects of many medicines. Eugenol acts similarly to oil of clove.

Therapy.—***External***. Oil of Clove obtunds dental pain and sometimes earache. Used pure or in ointments or liniments it relieves local pain, as in neuralgia, and in chronic eczema it allays itching, and is sometimes added to embrocations to give them an agreeable odor. Diluted with alcohol, it may be used to kill pediculi.

Internal. Oil of clove is carminative and stomachic. It often relieves nausea and vomiting, gastric pain, and flatulent distention of stomach or bowels. When cardiac palpitation and pain depend upon gastric distention, oil of clove frequently relieves it.

Eugenol. Derived from oil of clove and other sources may be given in doses of 1 to 3 minims.

CASCARA SAGRADA.

The dried bark of ***RhamnusPurshiana***, De Candolle (Nat. Ord. Rhamnaceae). A shrub of Northern Idaho and the Pacific coast. ***Dose***, 5 to 30 grains.

Common Names: Sacred Bark, Chittem Bark.

Principal Constituents.—Several resins, a volatile oil, and ***cascarin***, a glucoside thought to be identical with ***frangulin*** obtained from Frangula.

Preparations.—1. ***Specific Medicine Cascara***. ***Dose***, 15 to 60 drops.

2. ***Extractum Cascarae Sagradae***, Extract of Cascara Sagrada. ***Dose***, 4 to 8 grains.

3. ***FluidextractumCascaraSagradae***, Fluidextract of Cascara Sagrada. ***Dose***, 10 to 60 minims.

4. ***Fluidextractum Cascarae Sagradae Aromaticum***, Aromatic Fluidextract of Cascara Sagrada. ***Dose***, 10 to 60 minims.

Specific Indications.—Constipation due to neglect or to nervous and muscular atony of the bowels; minor ailments, dependent solely upon constipation, with intestinal atony.

Action and Therapy.—Cascara is a simple and practically non-griping purgative, acting with but little or no prostration and never causing a watery stool. It has, moreover, a tonic action upon the stomach and bowels, and does not produce an after constipation. It is the most popular and most efficient agent for chronic constipation, and may be given for a considerable time without increase of dosage. In fact, the dose may be gradually decreased from day to day often with the result of completely curing the constipation. Cascara is adapted to cases of atony of the intestines. When other simple ailments depend upon constipation they may often be remedied-by cascara. It is an efficient purgative in pregnancy, in hemorrhoids with loss of rectal tone, in atonic dyspepsia with costiveness, and in sick headache due to atonic sluggishness of the bowels. Gastric and duodenal catarrh, with jaundice, are often rectified by cascara, and it has given good results in chronic diarrhea when accompanied by hepatic torpor.

Only preparations of old cascara bark are desirable; the fresh bark is emetic and otherwise disturbing. The taste of cascara is extremely bitter. This may be modified to a large degree by the addition of fluidextract of licorice and spirits of anise and sassafras. The aromatic

fluidextract is a pleasant preparation and has less of a tendency to cause griping. A good laxative is the following: Rx Specific Medicine Cascara (or the Fluidextract of Cascara), 2 fluidounces; Fluidextract of Licorice, 1/2 fluidounce; Essence of Anise, 1 drachm; Simple Syrup,to make 6 fluidounces. ***Dose***: One half to one teaspoonful at bedtime. If a more profound action is desired a half drachm of Specific Medicine Podophyllum may be added.

CASSIA MARILANDICA.

The leaves of ***Cassiamarilandica***, Linné (Nat. Ord. Leguminoseae). An American perennial herb of the eastern half of the United States.

Common Names: American Senna, Wild Senna.

Principal Constituent.—A body resembling ***cathartin***, and thought to contain chrysophan.

Preparation.—***Infusum Cassiae Marilandica Compositum***. Compound Infusion of American Senna (Leaves, 1 ounce; Coriander Seeds, 1 drachm; Boiling Water, 16 ounces. Dose, 4 to 5 fluidounces.

Action and Therapy.—An excellent cathartic that may be used as a substitute for senna.

CASTANEA.

The leaves of ***Castaneadentata*** (Marshall), Sudworth, collected in September or October while still green (Nat. Ord. Fagaceae). Native of Asia Minor, naturalized in Europe and America.

Common Name: Chestnut.

Principal Constituents.—A mucilaginous principle, extracted by hot and cold water, but not by alcohol; an astringent body, a sweet substance, and potassium, calcium, magnesium and iron salts.

Preparations.-1. ***Infusum Castaneae***, Infusion of Castanea. (Leaves, 1 ounce, Boiling Water, 16 ounces.) ***Dose***, 1/2 - 2 fluidrachms.

2. ***Fluidextractum Castaneae***, Fluid Extract of Castanea. ***Dose***, 1/2 - 2 fluidrachms.

Action and Therapy.—The freshly prepared infusion of the leaves is a remedy for paroxysmal or convulsive cough. For some unexplained reason it is sometimes one of the most effective medicines for whooping cough. In many cases it acts remarkedly well, while in others its effects are not so apparent. It is seldom, however, that it does not do some good. The infusion (which is by far the best preparation) may be sweetened if desired, and given freely to the patient several times a day.

CATALPA.

The bark, pod, and seeds of ***Catalpabignonioides***, Walter. (Nat. Ord. Bignoniaceae). A tree of the southern United States.

Common Names: Cigar Tree, Bean Tree.

Principal Constituents.—The seeds contain tannin, resin, and fixed oil.

Preparation.—Specific Medicine Catalpa. Dose, 1 to 20 drops.

Action and Therapy.—Said to be useful in chronic bronchial affections with dyspnoea and asthma, and in functional heart disorders. Its exact therapy has not been determined.

CATARIA.

The leaves and flowering tops of ***NepetaCataria*** (Nat. Ord. Labiatae). A common perennial of Europe, and naturalized in the United States.

Common Names: Catnip, Catmint, Catnep.

Principal Constituents.—An aromatic volatile oil and a bitter body.

Preparations.—1. ***InfusumCataria***, Infusion of Cataria. (Catnip, 1 ounce to Water, 16 fluidounces). ***Dose, ad libitum***.

2. ***Specific Medicine Nepeta***. ***Dose***, 10 to 60 drops.

Specific Indications.—Abdominal colic, with constant flexing of the thighs; writhing and persistent crying; nervous agitation.

Action and Therapy.—A safe and valuable, though simple carminative,

diaphoretic (in warm infusion), and tonic (cold infusion). A splendid quieting agent for fretful babies, and carminative and antispasmodic for abdominal pain with flatulence. When marked nervous agitation precedes menstruation in feeble and excitable women and the function is tardy or imperfect, this simple medicine gives great relief. It is especially valuable for the nervous irritability of dyspeptics, nervous headache, atonic amenorrhoea and dysmenorrhea, and wards off nervous or hysterical attacks. The warm infusion is an admirable remedy to break up “common colds” by diaphoresis, and to determine eruptions to the skin in the exanthemata. If less ridiculed and more used, in place of far less safer remedies, “catnep tea” would be found a very useful medicine for women and children. It should not be sweetened. Where the added effects of alcohol are needed, or when the freshly dried herb cannot be obtained, the specific medicine may be used in place of the infusion.

CAULOPHYLLUM.

The rhizome and roots of ***Caulophyllum thalictroides*** (Linné, Michaux (Nat. Ord. Berberidaceae). In rich woods in the eastern half of the United States.

Common Names: Blue Cohosh, Squaw-root, Pappoose-root.

Principal Constituents.—An indifferent alkaloid ***caulophylline*** (not to be confused with the resinoid "caulophyllin,") and an active glucoside of the saponin type, ***leontin***.

Preparations.—1. ***Specific Medicine Caulophyllum***. ***Dose***, 1 to 10 drops.

2. ***Leontin*** (Lloyd's) , a 1 per cent solution of leontin, the emmenagogue principle of caulophyllum. ***Dose***, 5 to 15 drops in syrup or sweetened water.

3. ***Syrupus Mitchellae Compositus***, Compound Syrup of Mitchella (Compound Syrup of Partridge berry). Dose, 1-4 fluidounces.

Specific Indications.—Uterine pain with weight and fullness and pains in the legs; sense of pelvic congestion; sluggish labor pains; as a partus praeparator.

Action and Therapy.—Caulophyllum was at one time largely used as an antispasmodic, emmenagogue, parturient, diuretic, diaphoretic and expectorant, all of which properties it possesses in greater or less degree, according to its manner of use. It unquestionably acts with some force upon the reproductive organs of women, overcoming pain

and tenderness in debilitated subjects. It seems best adapted to uterine debility arising from chronic inflammatory conditions. In many respects it resembles macrotys (cimicifuga), both upon the reproductive organs and in controlling rheumatoid pain. For many years it was a favorite remedy for false pains and afterpains. It, like macrotys, facilitates child-birth. Both agents produce contractions most like those of the natural labor process. In this respect they were often used to replace tetanic-acting ergot when that agent was so popular and so damaging as an oxytocic. It may be used to assist labor when delay is due to weakness, fatigue, or lack of uterine power, or when the tissues feel full, as if congested. The skillful use of forceps has largely supplanted drugs of this type, yet there are many cases in which they might still be used with greater safety than forceps. As an ingredient of the Compound Syrup of Mitchella (Mother's Cordial), it is still relied upon by some physicians as a good partus praeparator.

Caulophyllum is a good emmenagogue. It may be used where there is congestion with irritation, and the natural functions are badly performed. In troubles dependent upon such irregularities, it has given fair results, though macrotys has supplanted it for most conditions. Metritis, endo-metritis, amenorrhea, dysmenorrhea, ovaralgia, ovaritis, rheumatism of the uterus, menstrual cramps, uterine subinvolution, and spasmodic retention of urine have all been favorably influenced by caulophyllum. It is of some, though minor, value in spasmodic urinary and gastro-intestinal disorders.

Leontin (1 per cent solution of the emmenagogue principle of caulophyllum) has been successfully prescribed for amenorrhea, dysmenorrhea, and chlorosis. The dose of leontin is 5 to 15 drops in syrup or sweetened water.

Compound Syrup of Mitchella may be given for weeks as a uterine tonic preceding labor. It seems to have both a real and a psychic influence that will redound to the benefit of the prospective mother. It is also a good uterine tonic for debility and uterine feebleness in the childless, and assists in the recuperation of strength and rapid involution of the womb following labor. The dose of the syrup is from 2 fluidrachms to 1/2 fluidounce, 2 or 3 times a day.

CEANOTHUS.

The root, root-bark, and leaves of ***Ceanothusamericanus***, Marshall (Nat. Ord. Rhamnaceae.) A small shrub indigenous to the United States, particularly in its western section, growing in barrens and dry woodlands. ***Dose***, 5 to 20 grains.

Common Names: Red Root, New Jersey Tea.

Principal Constituents.—Tannin, a volatile oil, resin, ceanothus-red, and a white alkaloid ***ceanothine***.

Preparation.—***Specific Medicine Ceanothus***. ***Dose***, 1 to 20 drops.

Specific Indications.—Sufficiently given below.

Action and Therapy.—Astringent and sedative. This drug is reputed efficient in gastric and hepatic disorders dependent upon splenic enlargement, especially when caused by malarial influence. It has given good results in splenic hypertrophy, with expressionless countenance and sallow, doughy skin; also in splenic congestion and subacute splenitis, the pain of which is not much aggravated by pressure. Other indications for ceanothus are deep-seated splenic pain, with or without splenic enlargement, and sympathetic painful states depending upon spleen pathology; also non-inflammatory catarrhal conditions with abundant secretions. During the American Civil War the decoction was used by the soldiers for “ague cake” or malarial splenitis.

CERA ALBA.

Yellow wax bleached by exposure to air, light, and moisture. (See ***Cera Flava***.)

Common Name: White Wax.

Description.—A yellowish-white solid, translucent in thin layers, having an insipid taste and a faint but not rancid odor. It dissolves readily in volatile and fixed oils and fuses with fats and resins.

Preparation,—***Ceratum***, Cerate, (Simple Cerate). (White Wax 3, Benzoinated Lard 7.)

CERA FLAVA.

A peculiar concrete substance prepared by melting and purifying the honey-comb of the ***Apis mellifera***, Linné, or Common Honey Bee.

Common Names: Yellow Wax, Beeswax.

Description.—A yellowish to gray-brown solid, of a honey-like odor and faint balsamic taste. It is brittle when cold and breaks with a granular fracture. Soluble in ether, chloroform and fixed and volatile oils.

Uses.—Both white and yellow wax are principally employed in the making of ointments, cerates, and plasters, to impart to them proper consistence and tenacity.

CHELIDONIUM.

The whole plant of ***Chelidoniummajus***, Linné (Nat. Ord. Papaveraceae). Europe naturalized in waste places in the United States. ***Dose***, 1 to 60 grains.

Common Names: Celandine, Great Celandine, Tetterwort.

Principal Constituents- ***Chelerythrine*** (identical with the alkaloid ***sanguinarine***), ***chelidonine*** (stylophorine), and malic and chelidonic acids.

Preparation.—***Specific Medicine Chelidonium***. ***Dose***, 1 to 15 drops.

Specific Indications.-Full, pale, sallow tongue and membranes; skin sallow, sometimes greenish; hepatic congestion; jaundice due to swollen bile ducts; sluggish liver action with light pasty stools; reflex cough from hepatic pain; fullness with tensive or throbbing pain in the right hypochondrium, with dull pain radiating to the right shoulder; melancholia, headache and stomach disorders depending upon imperfect hepatic function.

Action and Therapy.—***External***. The fresh juice of chelidonium applied to the skin produces rubefaction, inflammation and vesication. It will destroy verrucous growths.

Internal. Internally, in full doses chelidonium is a drastic hydragogue purgative, operating much like gamboge. Though reputed to be of some value locally as a stimulant and vulnerary, its present use is confined

almost wholly to disorders hinging on imperfect or faulty hepatic function. It also appears to act somewhat upon the spleen, probably including most of those parts of the splanchnic area supplied by the chylopoietic vessels and the branches of the solar plexus.

Chelidonium is one of the best remedies for biliary catarrh resulting from hepatic congestion and for jaundice occasioned by swelling of the bile ducts, as a result of subacute inflammation. The best guide to its use is the tenderness and tensive or throbbing pain of the hypochondrium with dull pains extending to beneath the right shoulder blade. While there is more or less localized pain, there is no general abdominal pain as a rule. The skin and membranes have the usual appearance of hepatic obstruction, the stools are clay-colored, the urine cloudy and pale with rather high specific gravity, or it may be loaded with bile. Sometimes there is edema of the extremities. Under these conditions we have seen chelidonium clear up distressing conditions and prolong the intervals between attacks of gall-stone colic. In one severe case of gall-stone colic, which was but a repetition of many preceding ones, no other attacks followed the use of chelidonium, the patient being under observation for many years, and occasionally taking a dose of the medicine. It is not a remedy for the paroxysms of hepatic colic, but to prevent or repair the condition upon which they depend.

When hemorrhoids, splenic congestion, dyspepsia, headache, migraine, supra-orbital neuralgias and cough are dependent mostly upon the liver disorders helped by chelidonium, they are proportionately relieved by the action of chelidonium upon the latter. The greatest drawback to chelidonium is its horribly nasty taste.

CHELONE.

The herb, and especially the leaves, of ***Chelone glabra***, Linné (Nat. Ord. Scrophulariaceae). Damp soils in the United States. ***Dose***, 5 to 60 grains.

Common Names: Balmony, Snakehead, Turtlebloom, Turtlehead.

Principal Constituents.—An unnamed glucoside and the usual constituents of plants.

Preparation.—***Specific Medicine Chelone***. ***Dose***, 5 to 60 drops.

Action and Therapy.—A useful remedy for gastro-intestinal debility with hepatic torpor or jaundice. Dyspeptic conditions attending convalescence from prostrating fevers are often aided by it, and it should be studied particularly for vague and shifting pain in the region of the ascending colon, attended with persistent uneasiness and sometimes tormina. We have used it for these conditions with satisfaction. The infusion (1/2 ounce to Water, 16 fluidounces) in small doses, is effective, though disagreeably bitter.

CHENOPODIUM.

The fruit and oil of ***Chenopodium ambrosioides anthelminticum***, Linné (Nat. Ord. Chenopodiaceae). Waste places throughout the United States.

Common Names: American Wormseed, Wormseed.

Principal Constituent.—A volatile oil, ***Oleum Chenopodii***.

Preparation.—***Oleum Chenopodii***, Oil of American Wormseed. A colorless or pale yellowish oil with the disagreeable odor and taste of wormseed. ***Dose***, 5 to 10 drops.

Specific Indications.—Lumbricoid worms; hook-worm.

Action and Therapy.—A safe and certain vermifuge for the removal of the lumbricoid or round worm (***Ascaris lumbricoides***). After proper preparation, by fasting and purging, the powdered seeds (10 to 30 grains) or the oil (10 drops) may be mixed with syrup or emulsion of acacia and syrup, administered on an empty stomach, and followed by a saline Purge or castor oil one or two hours afterward. The oil may be given in capsule to older children and adults. It is not contraindicated by irritation of the bowels. Oil of chenopodium has recently been found to be completely effective in the removal of the hook-worm (***Ankylostoma Uncinaria***, or ***Uncinaria Americana***).

CHIONANTHUS.

The bark of the root of ***Chionanthus virginicus***, Linné. (Nat. Ord. Oleaceae.) United States from Pennsylvania southward. ***Dose***, 5 to 30 grains.

Common Names: Fringe Tree, Old Man's Beard, Snowdrop Tree.

Principal Constituents.—***Chionanthin*** and saponin.

Preparation.—***Specific Medicine Chionanthus***. ***Dose***, 5 to 30 drops.

Specific Indications.—Icteric hue of skin and conjunctiva; dull hepatic pains and tenderness or soreness upon deep-pressure; light claycolored, or frothy yeast-like stools; sallow, dirty-looking skin with hepatic tenderness and expressionless eyes; intense cutting pain from liver to navel, attended by nausea, vomiting, and great prostration; icteric coloration without pain; the urine stains the clothing yellow; colic, with green stools; jaundice, with pale watery alvine discharges and intense itching of the skin; pain simulating colic, extending from liver region over the whole abdomen; tympanites; and presence of sugar in the urine.

Action and Therapy.—Medicines that actually and positively influence the liver and its secretions are not numerous, notwithstanding that for many years much misdirected attention was bestowed upon that greatly abused and usually very innocent organ. "Liver-tapping" virtues, now quite forgotten, were ascribed to mercurials and many other powerful drugs. Those that have weathered the campaign and been found to have a lasting reputation have been vegetable drugs chiefly and of either domestic origin or of Eclectic development. None more deserves a place among these than chionanthus.

There are two prime indications for chionanthus—jaundice as shown by the icteric hue of the skin and conjunctiva, and hepatic colic with soreness in the region of the liver. The pain is dull, heavy, and in the right hypochondrium, with a sense of weight and fullness, there is soreness even on light pressure and deep-seated tenderness on strong pressure, the feces are light in color and float upon water, the urine scanty and orange-tinted, there are occasional hectic flushes, and sometimes diarrhea, with frothy, yeast-like stools.

Chionanthus is the most positive remedy for simple jaundice not dependent upon malignant or other organic changes in the liver and its appendages. It relieves portal congestion promptly, and is therefore a logical remedy for hepatic engorgement. Whether it is a remedy for jaundice associated with gall-stones, or dependent thereon, has been a question of dispute. Practically it seems to act in any instance where

the imprisoned bile can be liberated by reducing the attendant swelling and congestion. In complete obstruction it fails, as do other remedies. One effect of chionanthus is to attenuate the bile, and there can be little doubt that it prevents the formation of biliary calculi. When the concretions are small and pass with a fair degree of ease, we believe it beneficial; but when they are strongly impacted it is doubtful whether chionanthus has any influence upon them or power to dislodge them. But in jaundice depending upon functional inactivity and other forms of mechanical obstruction, it is the first- remedy to be considered. In a single case of Weil's disease that came under our care, it was a most efficient remedy, echinacea being alternated with it to control septic manifestations. For the acute catarrhal jaundice of children and the jaundice of the new born, it acts more favorably than any remedy known to us.

When gastric and duodenal troubles depend upon deficient action of the liver, chionanthus is most frequently indicated. It is useful then in chronic intestinal inflammation, in chronic duodenitis, chronic gastritis, the irritation of stomach and bowels due to high living, and is a remedy of considerable value in the gastro-intestinal and hepatic disorders of dipsomania. It has been asserted by many whose large experience entitles them to credence that chionanthus is a potent and satisfactory medicinal aid in glycosuria, when the glycogenic function of the liver is at fault. While it is believed to have some effect upon the functions of the pancreas, it is probably of little value in that worst form of diabetes mellitus in which the cells of Langerhans are destroyed. It should be given renewed study in the glycosuria of obesity and when sugar intolerance alone, and not starch disturbances, create what so often passes for diabetes. These are rather prediabetic conditions, if tending in that direction at all, but even if untreated might never reach the true diabetic state. There is good reason to believe that the prolonged use of chionanthus will be of much benefit in such cases.

CHIMAPHILA.

The leaves or whole plant of ***Chimaphilaumbellata*** (Linné, Nuttall. (Nat. Ord. Ericaceae.) North temperate region of the Northern Hemispheres, and in the United States, in dry shady woods.

Common Names: Pipsissewa, Prince's Pine, Ground Holly.

Principal Constituents.- Chimaphilin ($C_{24}H_{21}O_4$), and arbutin ($C_{24}H_{32}O_{14}$. H_2O)

Preparations.—1 ***Infusum Chimaphila***, Infusion of Chimaphila (1/2 ounce to Water, 16 fluidounces). ***Dose***, 1 to 4 fluidounces

2. ***Specific Medicine Chimaphila***. ***Dose***, 5 to 60 drops.

Specific Indications.-Scanty urine, but excessive voiding of mucus, muco-pus, or bloody muco-pus; smarting or burning pain upon urination; chronic vesical catarrh, with marked debility.

Action and Therapy.—Chimaphila is both an antiseptic diuretic and a positive alterative. It does not derange but seems to favor digestion, and has a good influence upon the processes of nutrition. In chronic affections of the renal tract with large mucous, muco-purulent or purulent discharges it is of the utmost value. Thick and ropy urine, such as is voided by old people and in cases of chronic cystitis, with a pinkish or reddish sediment of mucus, pus, blood and "brick dust" is an especial indication for it. Sometimes it is of value for the urinary disorders following gonorrhea. Purulent discharges from a pyelitis, or due to calculous irritation, also guide to the selection of this simple but effective urinary antiseptic, sedative, and diuretic. Albumin has disappeared under its use, though the cases were but incipient cases of albuminuria. Not much hope should be expected from it in confirmed nephritis. It is often useful in chronic prostatic irritation and in some cases of prostatitis, particularly those associated with chronic catarrh of the bladder. The agent should be used preferably in infusion and for a continued time. If desired, specific medicine chimaphila may be employed dispensed in water, with some glycerin. However, when used in this way it precipitates and is unsightly, and a better way is to dispense it in bulk with directions to dilute it freely when used. The dose of specific medicine chimaphila is from ten to twenty drops diluted every two, three or four hours, according to the urgency of symptoms. As a tonic and alterative we have used it for a long time with the greatest of satisfaction. A recent writer in the old world has credited chimaphila, in doses as given above, with causing the disappearance of sugar in glycosuria. Chimaphila is a neglected remedy that may well take the place of other agents of questionable safety.

CINCHONA.

I. ***Cinchona***.-The dried bark of ***Cinchona Ledgeriana***, Moens; ***Cinchona Calisaya***, Weddell, and hybrids of these with other species of Cinchona yielding not less than 5 per cent of cinchona alkaloids. (Nat. Ord. Rubiaceae.) South American Andes, wild and to some extent cultivated in South America; cultivated in Java, India, Jamaica, and other countries. ***Dose***, 1 to 30 grains.

II. ***Cinchona Rubra***.-The dried bark of ***Cinchona succirubra***, Pavon, or of its hybrids yielding not less than 5 per cent of alkaloids of Red Cinchona (Nat. Ord. Rubiaceae), Ecuador.

Common Names: (1) Yellow Peruvian Bark; (2) Red Cinchona Bark.

Principal Constituents.—***Quinine***, quinidine, cinchonine, cinchonidine—all important crystalline alkaloids; quinamine, an important alkaloid; kinic (quinic) acid, kinovin (quinovin), cinchotannic acid (astringent); cinchona red (coloring agent); and a volatile oil (aroma).

Preparations.-1. ***Specific Medicine Cinchona***. ***Dose***, 1 to 30 drops. (This preparation is prepared from ***Cinchona Calisaya*** or Calisaya Bark.)

2. ***Fluidextractum Cinchona***, Fluidextract of Cinchona. ***Dose***, 5 to 30 drops.
3. ***Tinctura Cinchona***, Tincture of Cinchona. ***Dose***, 10 to 60 drops.
4. ***Tinctura Cinchonae Composita***, Compound Tincture of Cinchona. (Red Cinchona, Bitter Orange Peel, Serpentaria.) A modern substitute for and sometimes wrongly called “Huxham's Tincture of Bark”. ***Dose***, 5 to 60 drops.

Specific Indications.—Periodicity and, like quinine, effective when the pulse is soft and open, the tongue moist and cleaning, the skin soft and moist, and the nervous system free from irritation. (If opposite conditions prevail, cinchona will be likely to aggravate.) Empyema; gastric debility; anemia and debility from chronic suppuration; afternoon febrile conditions, weakness, with pale surface, loss of appetite, feeble digestion, and deficient recuperative powers.

Action and Therapy.—***External***. Antiseptic and astringent. A poultice of the bark has been successfully used upon fetid and gangrenous ulcers, and where such an application has been thought necessary upon suppurating and sloughing felons.

Internal. Cinchona is tonic, antiperiodic, slightly astringent, and mildly antiseptic. In small doses it is a good stomachic, but must not be long continued. Large doses irritate and cause an unpleasant excitement of the stomach and bowels, with retching and vomiting. It

has occasioned symptoms closely resembling the paroxysms of intermittent fever, and produces a general state known as Cinchonism: Throbbing headache, tinnitus aurium and temporary deafness. Outside of a slight astringent effect, the action of Cinchona is that of its chief alkaloid, quinine, which has completely supplanted the bark in almost all conditions in which the former was once used. While cinchona will accomplish the same results as quinine, the latter is more prompt and direct and more easily administered.

Cinchona is useful in functional derangements of the stomach, improving digestion, and imparting vigor and tone to the nervous and muscular systems in diseases of general debility and in convalescence from exhausting illness. While for some unexplainable reason occasionally acting more advantageously in malarial fevers than quinine itself, in most instances the alkaloidal salts have almost entirely supplanted cinchona in these disorders. Cinchona may be used in preference to its alkaloids when a tonic effect only is required and periodicity is lacking, or after hemorrhages or exhaustive discharges, as in empyema, or when an astringent tonic is needed; in the debility following low and exhausting fevers; in anemia and debility from chronic suppuration; and to arrest profuse and debilitating night sweats in one suffering from general debility with poor recuperative powers.

CINNAMOMUM.

I. ***Cinnamomum Saigonicum***. Dried bark of an undetermined species of ***Cinnamomum***. Chiefly from China.

II. ***Cinnamomum Zeylanicum***. Dried bark of cultivated ***Cinnamomum zeylanicum***, Breyne. (Nat. Ord. Lauraceae.) Ceylon.

Common Names: Cinnamon; (1) Saigon Cinnamon; (2) Ceylon Cinnamon.

Principal Constituents.—A volatile oil (***Oleum Cinnamomi***), tannin, and sugars. (Oil of Cinnamon of medicine is Cassia Oil (***Oleum Cassiae***) derived from ***Cinnamomum Cassia*** (Nees), Blume.)

Preparations.—1. ***Specific Medicine Cinnamomum***. Dose, 5 to 60 drops.

2. ***Oleum Cassiae***, Oil of Cinnamon (Cassia Oil), a yellowish or brownish fluid becoming darker and denser by age and exposure, and having the odor and taste of cinnamon. ***Dose***, 1 to 5 drops.

Specific Indications.-Passive hemorrhages.

Action and Therapy.—Cinnamon is an aromatic stimulant, carminative and astringent. Besides it possesses marked internal hemostatic power. That this is not wholly due to the tannin contained in the bark is shown by the prompt action of the tincture of the oil. Oil of Cinnamon has properties which make it nearly specific for certain conditions. While no tests have been made that convinces one of its power over germ-life, there seems to be no question that some such germicidal action is exerted by it in acute infections, as “common colds,” and as la grippe or epidemic influenza. Aromatic bodies, like cinnamon and camphor, have been overlooked in recent years, though the use of the latter has been revived as an antiseptic stimulant in pneumonia. That they possess antibacterial virtues we believe will be found true should investigations be made of them in that line. Cinnamon imparts a flavor to unpleasant medicines and may be used to preserve them from rapid changes. Medicines dispensed in but few drops in a half glass of water will not keep sweet long at any time and will quickly sour in summer time. A few drops of Specific Medicine Cinnamon added to such mixtures give an agreeable sweetness and aroma and will help the medicine to preserve its balance for several days. Children invariably like the flavor. Even cinnamon can be overdone, however. It should not be added day after day for a long period lest the stomach revolt and the taste recoil. Nor should much be put in mixtures for little children, for if overdone it smarts the mouth severely; nor should it be employed when the mouth is irritated or ulcerated. When too much has been added the oil of cinnamon separates and floats upon the surface, and if thus given it is decidedly irritant. If the medicine to which it has been added in over-amount is too valuable to throw away, the excess of cinnamon may be easily removed by lightly sweeping over the surface with a clean piece of bibulous paperblotting paper or filter paper-or a firm, non-crumbling piece of bread.

Cinnamon is frequently employed as an ingredient of mixtures to restrain intestinal discharges, and the powder with or without chalk or bismuth, or its equivalent in infusion has long figured in the treatment of diarrhea and acute dysentery, though it does not equal in the latter condition other agents which we now use specifically. In diarrhea it should be used in small doses if of the acute type, and in large doses in chronic noninflammatory and non-febrile forms. It warms the gastro-

intestinal tract and dispels flatus, being decidedly useful as a carminative. It has the advantage of preventing griping when given with purgatives, and it enters into the composition of spice poultice, a useful adjuvant in the treatment of some forms of gastro-intestinal disorders.

Cinnamon has been proved in Eclectic practice to be a very important remedy in hemorrhages. It acts best in the passive forms. The type of hemorrhage most benefited is the post-partum variety, though here it has its limitations. If the uterus is empty and the hemorrhage is due to flaccidity of that organ due to lack of contraction, then it becomes an important agent. Then it strongly aids the action of ergot and should be alternated with it. If retained secundines are the provoking cause of the bleeding, little can be expected of this or any other agent until the offenders have been removed. Cinnamon should be frequently given, preferably a tincture of the oil, though an infusion might be useful, but it cannot be prepared quickly enough or be made of the desired strength. Specific Medicine Cinnamon is a preferred preparation. Oil of erigeron acts very well with it. In menorrhagia, even when due to fibroids and polypi, it has had the effect of intermittently checking the waste: but only a surgical operation is the rational course in such cases.

Other hemorrhages of a passive type are benefited by cinnamon. Thus we have found it a very important agent in hemoptysis of limited severity. In such cases we have added it to specific medicine ergot and furnished it to the patient to keep on hand as an emergency remedy. By having the medicine promptly at hand the patient becomes less agitated or frightened, and this contributes largely to the success of the treatment. Rest and absolute mental composure on the part of the patient and the administration of cinnamon have been promptly effective. If not equal to the emergency, then a small hypodermatic injection of morphine and atropine sulphates will usually check the bleeding. When used with ergot in pulmonary hemorrhage probably more relief comes from the cinnamon than from the ergot, for ergot alone is far less effective. We are told that ergot does not act as well in pulmonary bleeding as in other forms of hemorrhage because of the sparse musculature and poor vaso-motor control of the pulmonic vessels. But cinnamon has given results which have been entirely satisfactory. Hemorrhages from the stomach, bowels, and renal organs are often promptly checked by the timely administration of cinnamon.

COCA.

The dried leaves of ***Erythroxylon Coca***, Lamarck, and its varieties. (Nat. Ord. Erythroxylaceae.) South American Andes-Peru, Bolivia, and Chili. ***Dose***, 60 to 240 grains.

Common Name: Coca.

Principal Constituents—Cocaine

Preparation.—***Fluidextractum Coca***, Fluidextract of Coca. ***Dose***, 5 to 30 minims.

Specific Indications.—Defective innervation, with dizziness; impaired digestion; pain in back of the head, and fatigue; gastric pain; inordinate hunger and thirst; exhaustion during convalescence from long illness.

Action and Therapy.—The action of coca depends very largely upon the cocaine it contains, therefore the physiological effects are recorded under that subject. From time immemorial the people of the Andes, particularly in Peru, Bolivia, and Chili, have used coca leaves as other nations use stimulating table beverages; and when undergoing long journeys and hard work the natives are accustomed to chew the leaves with lime or some other alkaline substance, in order to endure hunger and fatigue, which it enables them to do with remarkable certainty. These uses of the plant led to its adoption into medicine as a remedy for neurasthenia and other disorders, with nervous weakness and muscular debility.

Coca is a remedy to be used temporarily only for defective innervation. Though the appetite is apparently normal, digestion is imperfect, and there is an associated occipital and post-cervical pain, dizziness, and inability to stand for any great length of time. The mental faculties are sluggish and tired-brain fag-and thinking is difficult and despondency a common condition. If there is gastric pain or discomfort it is relieved by coca probably through the obtunding power of cocaine upon the nerve filaments of the stomach. As compared with cocaine this power is feeble, as is coca in all its effects, still there is sufficient of the alkaloidal influence exerted to make coca a remedy to be used with great circumspection. In nervous debility it may be carefully employed for a brief period, especially in convalescence from exhausting fevers

and other diseases in which a persistent nervous depression follows. While of some value in chorea and repeated attacks of hysteria, it should not be used when any other agent can be made to serve the purpose. In fact, there is no more wisdom or justification in employing coca preparations for simple functional maladies because of mere nervous discomfort than there would be in prescribing opium for similar purposes. Both lead to pernicious habits, with a train of miseries to which the victim finally succumbs.

An occasional dose of 10 to 15 drops of the fluidextract will sometimes overcome insomnia caused by gloom and worry, and very rarely it helps one over an attack of asthma. It may be used for any length of time desired in gastric carcinoma to relieve the irritability and pain. Its chief use, if employed at all, will be for very temporary exhibition in the debility following fevers, or for a more prolonged use in advanced phthisis, to give rest, quiet gastric irritability, and aid breathing. For all prolonged states of mental depression, as neurasthenia, hypochondria, melancholia, depressive insanity, etc., its administration should not be encouraged, and as a remedy for the opium and other drug habits it has no place in medicine on account of the habit-forming dangers of coca itself.

To sum up some of the beneficial results of temporary coca medication would be to include its influence as a circulatory and respiratory stimulant, a restorative of strength after exhaustive acute diseases or operations, in-sudden nervous exhaustion and insomnia, in painful indigestion, headache from exhaustion, and in migraine. In all of these it should be used for but short periods, and any symptoms of cocainism should be a warning to cease its administration. The fluid medicines may be used in moderate doses. The habit of using coca wines is but a mild form of cocaino-alcoholic tippling.

COCCULUS

The seeds of ***Anamirtφanniculata***, Colebrooke (Nat. Ord. Menispermaceae.) East India.

Common Names: Fishberries, Indian Berries. Synonym: Cocculus Indicus.

Principal Constituent.—Picrotoxin, a neutral and extremely poisonous principle.

Preparation.—***Unguentum Cocculi***, Ointment of Cocculus Indicus. (Cocculus, crushed, 1 ounce; benzoinated lard, 8 ounces; fractionally added until well incorporated.)

Action and Therapy.—***External***. A violent, poisonous parasiticide for animal and vegetable parasites, to destroy head lice and the itch mite, and relieve scald head, sycosis barbae, trichophytosis, tinea versicolor and other parasitic skin diseases. Included in this book chiefly because of the possibility of meeting with cases of poisoning by it, as the berries, in ointment or whisky tincture, are often used by the laity for the destruction of lice. It must not be used on abraded surfaces, nor in any considerable quantity.

Internal. Homeopaths use an attenuation of the tincture of cocculus as a remedy to prevent nausea and sickness incident to travel by rail or upon water (meralgia or sea sickness).

Cocculus is said to be used by the natives of the East Indies to stupefy fish, so as to readily catch them, and it is asserted to be in use among brewers to add bitterness to beer and other malt beverages.

COLCHICUM.

The dried (I) root and (II) seed of ***Colchicumautumnale***, Linné (Nat. Ord. Liliaceae.) England and other parts of Europe. ***Dose***, Corm, 1 to 5 grains; seed, 1 to 5 grains.

Common Names.-I. Colchicum Corm (Colchici Cormus); II. Colchicum Seed (Colchici Semen).

Principal Constituent.—The powerful alkaloid ***Colchicine*** (see below.)

Derivative.—***Colchicina***, Colchicine. A very toxic alkaloid occurring as pale yellow scales or powder, practically odorless. It should not be tasted. Soluble in water. The salicylate is sometimes employed. Dose, 1/300 to 1/100 grain.

Preparation.—***Specific Medicine Colchicum***. ***Dose***, 1 to 10 drops.

Specific Indications.-Acute gout; rheumatism, without much fever, occurring in gouty individuals; tearing pain, aggravated by heat.

Action and Toxicology.—Upon the skin and mucosa colchicum is irritant, causing smarting and redness, sneezing and conjunctival hyperemia. Small doses increase the secretions of the skin, kidneys,

liver, and bowels. Large doses are dangerous, producing gastric discomfort, nausea and vomiting and purging, and violent peristalsis with much intestinal gurgling. Poisonous doses produce a violent gastro-enteric irritation, with symptoms much like those of cholera-agonizing griping, painful muscular cramps in the legs and feet, large but not bloody evacuations of heavy mucus and serum, thready pulse, collapse, and death. Toxic doses are almost sure to kill in spite of efforts to save life, the patient dying a slow, painful, and agonizing death, the final act of which is respiratory paralysis. Consciousness remains to the end.

The reputed antidote is tannin freely administered with plenty of water and followed by the use of emetics or the stomach pump. Opium may be given to relieve pain, atropine to sustain breathing, and artificial heat to maintain bodily warmth.

Therapy.—Colchicum is an extremely dangerous medicine and should be used with the greatest of caution. It is the remedy for acute gout, temporarily giving quick relief if administered short of purgation. For some unknown reason attacks recur more frequently when colchicum has been used, though it almost magically relieves the paroxysms. It is useful for disorders depending upon a gouty diathesis, though it is less effectual in chronic gout than in the acute form. In rheumatism, pure and simple, it usually has little or no value, though we have had excellent results after failure with the usual antirheumatics, in cases where pain persisted in one part for longer periods than usual, in acute articular rheumatism with but little fever. These cases resembled gonorrheal arthritis and were accompanied by a leucorrheal discharge, but were not gonococcic. In most cases the fingers, wrists, and abdomen were the most painful locations. Some have advised it in so-called chronic rheumatism when the patient is known to have occasional gouty attacks. We have seen it do good in rheumatoid arthritis; a condition much more prevalent in this country than genuine gout, a disease rarely encountered in America. In rheumatoid headache and in rheumatic iritis colchicum is sometimes of value when occurring in one with swollen joints, with or without effusion, and attended by tearing, muscular pain, aggravated by heat. Subacute and chronic sciatica are asserted to have been relieved by colchicum when the pain is sharp, shooting, tearing, or dull, from back to hips and down the legs, fever being absent.

In rheumatic conditions colchicine salicylate in doses of the 1/128 grain is often more serviceable than colchicum.

COLLINSONIA.

The fresh root and plant of ***Collinsonia canadensis***, Linné (Nat. Ord. Labiatae.) Damp and rich soils of woods from Canada to Florida.

Common Names: Stone-root, Rich-weed, Horse-balm, etc.

Principal Constituents.—Resins and volatile oil.

Preparations.—1. ***Specific Medicine Collinsonia***. Dose, 1/10 to 30 drops.
2. ***Aromatic Collinsonia*** (prepared from the plant). ***Dose***, 1 to 30 drops.

Specific Indications.—Irritation, with a sense of constriction in the larynx, pharynx or anus; sense of constriction with tickling in the throat, with cough arising from use of the voice; a sensation as if a foreign body were lodged in the rectum, with a painful contraction of the sphincter and perineum; sense of contraction in the rectum, with constipation due to vascular engorgement of the pelvic viscera; scybalous feces; sticking pains in the heart, larynx or bladder; contracted abdomen; vesical tenesmus; hemorrhoids; varicocele; follicular tonsillitis, with chronic hypertrophy of the faucial glands; any condition with ***weight and constriction***, with or without heat.

Action.—Collinsonia affects chiefly the venous system and the mucous membranes, particularly the hemorrhoidal venous circulation. It also stimulates the vagi, relieving irritation of the parts to which they are distributed, and is believed to strengthen the action of the heart. Small doses of the green root produce emesis, and sensible doses of the fluid preparations cause an increase in urine and slightly that of the skin.

Therapy.—Collinsonia is a remedy for ***venous stasis*** and for irritation of the mucosa. Chiefly it meets one prime condition and the many disorders dependent thereon. This is atony of the venous circulation, whether due to relaxation of the blood vessels or to lack of tone in the venous side of the heart. Therefore its best results are obtained in conditions showing feeble or sluggish venous and capillary flow. Under these conditions it specifically improves impairment of the mucous membranes, appearing to be most active in disorders of the throat and rectum, though venous stasis in any organ or part is corrected by it.

Collinsonia is the most effective medicine we have for that form of laryngitis known as “minister's sore throat”—a hyperaemic or congestive state, with tenderness, hoarseness, and cough brought on by intensive speaking or singing. It is common among public speakers, singers, auctioneers, hucksters, and others compelled to use the voice beyond the ordinary. It is also valuable in other forms of laryngitis, with congestion or hyperaemia of the vocal apparatus, in chronic bronchitis, pharyngitis, tracheitis, and aphonia, all depending upon irritation associated with venous debility. Rx. Specific Medicine Collinsonia, 2 fluidrachms to 1 fluidounce; Simple Syrup, to make 4 fluidounces. Mix. Sig.: One teaspoonful every 3 or 4 hours.

Foltz advised it in the early stage of middle ear disorders, with free nonpurulent secretions, and when complicated by follicular pharyngitis and hypertrophied Luschka's glands.

For many of the throat disorders Aromatic Collinsonia is preferred by some prescribers.

The second great use for collinsonia is in rectal venous debility. Here the smaller doses are more effectual. In hemorrhoids it usually does not cure, though it may do so early in their course. It is to be used when there is vascular engorgement of the pelvic viscera, with a sense as if a foreign body were lodged in the rectum, causing constant uneasiness and affecting the nervous system profoundly. There is weight, heat, and dull pain, with or without scybalous constipation, or sometimes with partly semifluid and partly scybalous feces. The only rational procedure is to have the disturbing hemorrhoids surgically removed, but if this cannot be done, or the patient will not consent, then recourse to collinsonia will give us much relief as can be obtained from any safe medicine. Collinsonia relieves, to a lesser extent, subacute proctitis, the tenesmus of mild types of dysentery and diarrhoea and rectal pain following operations, as well as that of fissures, fistulae, and allied conditions, though much reliance cannot be placed upon it for any of these conditions, except in the hemorrhoids of the type described. It does, however, relieve discomfort in the rectum without apparent lesion other than that of vascular engorgement.

Many value collinsonia in gastro-intestinal irritation with torpor of the

portal circulation, irritation of the mucous membranes, and loss of appetite. Indigestion, spasmodic pain, gastric catarrh, and irritative dyspepsia, all with more or less constipation, appear to be benefited by collinsonia. By increasing innervation and relieving irritability it proves useful in atonic dyspepsia, with poor abdominal circulation.

Irritation of parts supplied by the vagi is relieved by small doses of collinsonia. Thus it ameliorates some cases of asthma, chronic cough, and the cough attendant upon disorders of the heart. Some value it in mitral regurgitation and in rheumatism of the heart. In all conditions the dilated capillaries showing passive engorgement will guide to its use. It was formerly regarded a remedy for gravel, but is little valued for that purpose now further than to relieve irritation and discomfort when gravel gives rise to pelvic vascular debility. Cases of varix of the vulva have been reported as modified, but not cured by it; the same is true of varicocele and varicose veins of the legs.

In whatever disorder collinsonia is helpful, there is always a ***sense of weight and constriction***, venous engorgement, dilated capillaries, and muscular atony.

COLOCYNTHIS.

The dried, peeled pulp of the fruit of ***Citrullus Colocynthis*** (Linné,) Schrader. (Nat. Ord. Cucurbitaceae.) Mediterranean basin of Europe, Asia, and Africa. ***Dose***, 1 to 5 grains.

Common Names: Colocynth, Bitter Apple, Bitter Cucumber, Colocynth Pulp.

Principal Constituent.-The bitter active glucoside ***colocynthin*** ($C_{56}H_{34}O_{23}$)

Preparation.—***Specific Medicine Colocynth***. Dose, 1/30 to 5 drops.

Specific Indications.—Pain of a cutting, twisting, boring, or tearing character, and if of the bowels, a desire to go to stool; visceral neuralgia, with cutting pain; dysentery, with tormina, and small passages of mucus, or diarrhoea with mucoid passages . and intense cutting pain; colicky pains anywhere in the abdomen (minute doses); distressing accumulations of gas; constipation with dry scybala and griping pain in the lower bowel (larger doses).

Action.—Colocynth is a decided local irritant. In small doses it is a stomachic bitter, exciting an increased flow of gastric juice. In even moderate doses it is a violent hydragogue cathartic, producing copious watery evacuations, and sometimes violent emesis, tormina, and bloody stools. It may cause death from gastro-enteritis. The powder or the tincture applied to a raw surface or to the abdomen will purge as if given by the mouth. Colocynth, in small doses, increases the renal function.

Therapy.—Colocynth is a powerful hydragogue cathartic, but is seldom employed as such in Eclectic practice. Except in minute doses it should not be given alone, at least never to the extent of causing purging. It is commonly administered with other cathartics in pill form, the compound extract of colocynth being preferred, and its violence controlled by hyoscyamus or belladonna. When so employed it is usually in melancholia and hypochondriasis with sluggish hepatic and intestinal action, with large fecal accumulations; and sometimes to produce local pelvic effects and thereby stimulate menstruation in atonic amenorrhoea. It has been largely employed in ascites from all causes, but while actively cathartic, it is less desirable than some other hydragogue cathartics. It should never be so used in the aged and where there is great debility or gastro-intestinal inflammation. It is very rarely employed in Eclectic therapy for dropsical effusions.

Specifically, colocynth is a remedy for visceral pain of a sharp, colicky character-cutting, darting, cramping, or tearing pain. The fractional dose only should be used. In sharp “belly ache” attending stomach and bowel disorders, colocynth is splendidly effective when the patient feels cold, weak and faint, and the pain is so great as to cause him to flex his body upon his thighs. Even when neuralgic or rheumatoid, such a condition is promptly relieved by colocynth.

In atonic dyspepsia, with bitter taste, bitter yellow eructations, bloating after eating, with sharp, griping or cutting pain in the umbilical region minute doses give excellent results. When gaseous accumulations cause disturbances of breathing, or cardiac palpitation, with loud belching and expulsion of flatus, and nausea and vomiting are present, colocynth should be given with prospects of prompt relief. Rx. Specific Medicine Colocynth (I x dilution), 1-10 drops; Water, 4 fluidounces. Mix. Sig.: One teaspoonful every 3 or 4 hours. Where there is a lack of normal secretion 5 drops of tincture of capsicum may be added to the

mixture.

With similar symptoms minute doses act well in cholera infantum; in chronic diarrhoea with slimy stools and tympanites; in diarrhoea from overeating or improper food; and in dysentery with great tormina, tenesmus and cutting pain, with ineffectual efforts at stool it is one of the most certain of agents to relieve. In intestinal and hepatic torpor, with bloating and dry scybalous stools it should be given in somewhat larger doses (1/4 to 1 drop of Specific Medicine Colocynth). When persistent headache depends upon the stomach and bowel perversions named above it is often corrected by colocynth. In that form of lumbago and sometimes pressure sciatica, due to gaseous accumulations in the bowels, colocynth, capsicum, and bryonia should be considered. The dose should not be large enough to purge.

Colocynth is useful in neuralgia of the viscera in the parts supplied by the splanchnic nerves, as neuralgic colic. Other nerve endings seem to respond to it, for it relieves ovarian neuralgia, orchialgia, and sometimes neuralgia of the fifth nerve, when the characteristic cutting pain prevails. It should be given also when colicky pain precedes or accompanies amenorrhoea.

CONDURANGO.

The bark of ***Gonolobus Cundurango***, Triana (***Marsdenia Condurango***, Reichenbach) (Nat. Ord. Asclepiadaceae). South America, especially Ecuador.

Common Names: Cundurango, Eagle Vine, Mata-peroo.

Principal Constituent.—A supposed glucoside ***condurangin***, giving also alkaloidal reactions.

Preparation.—***Fluidextractum Condurango***, Fluidextract of Condurango. ***Dose***, 5 to 30 drops.

Action and Therapy.—A drug of considerable power, introduced into medicine in 1871 as a cure for syphilis and cancer of the stomach, in both of which it has but an unsustained reputation. It is thought, however, by competent clinicians, to have some retarding effect upon the latter, by its favorable action upon the mucosa. Most probably it is little more than a pain reliever in mild gastralgia and a tonic in gastric debility. It is usually administered in the form of a wine (1/2 to 1

fluidounce), or the fluidextract (5 to 30 drops.); sometimes a decoction (bark, 1/2 ounce to Water, 16 ounces, boiled down to 8 ounces) is given in tablespoonful doses 3 times a day. A little hydrochloric acid is suggested by Hare to be given with it in gastric carcinoma on account of the absence of that acid in the gastric juice under such conditions.

Condurangin acts powerfully upon the nervous system, inducing in animals, impaired appetite, vomiting, ptyalism, muscular weakness, convulsions, and paralysis.

CONIUM

The full grown fruit, gathered green, of ***Coniummaculatum***, Linné (Nat. Ord. Umbelliferae). Europe and Asia; naturalized in the United States.

Common Names: Hemlock, Poison Hemlock, Spotted Hemlock.

Principal Constituents.-Five alkaloids of which the intensely poisonous liquid ***coniine*** ($C_8H_{17}N$) is most important; the others are: ***conhydrine*** ($C_8H_{17}NO$), ***pseudoconhydrine*** ($C_8H_{17}NO$), ***methyl-coniine*** ($C_9H_{19}N$), and ***ethyl-piperidine*** ($C_7H_{15}N$).

Preparation.—***Specific Medicine Conium***. 1/30 to 3 drops.

Specific Indications.—Nervous excitation and excessive motility, with or without pain; neuralgic pain; pain in the aged, and when there are cacoplastic deposits; gastric pain; nervousness and restlessness; mild maniacal excitement; persistent spasmodic or hacking cough; enfeebled state of the sexual organs, with late and scanty menstruation.

Action and Toxicology.—Conium does not affect the intellectual portion of the brain; and it acts but feebly on the spinal cord. It does, however, powerfully depress the peripheral motor endings, and in excessive amounts, the sensory terminals. Only very large doses affect the circulation and the respiration, when blood pressure falls and respiration becomes paralyzed. The latter is the cause of death by conium and is due to the combined results of depression of the respiratory center in the medulla and the nervomuscular paralysis of the muscles of respiration. Involuntary muscles are not affected by conium, nor is the heart-muscle or nerves appreciably affected.

Full doses of conium produce dryness of the throat and thirst, nausea, dizziness, sinking at the stomach, numbness, muscular relaxation, and depression of the circulation. Toxic amounts cause staggering gait, muscular heaviness and prostration, with failure of locomotion, ascending paralysis, difficult and labored articulation, dyspnea, dilated pupils, palpebral ptosis, and convulsions terminating in death. In rare instances coma ensues, but usually consciousness and the intellect remained unimpaired until death. The most marked symptoms of poisoning are the staggering gait, drooping eyelids, and ascending muscular prostration.

In poisoning by conium the emetic may be used, but it is preferable to repeatedly wash out the stomach by means of the stomach pump. Artificial respiration and heat are to be used, and strychnine, atropine and digitalis, as well as the diffusible stimulants, to sustain respiration and the circulation.

Therapy.—***External***. Locally applied extract of conium, or the powdered drug, relieves the pain of cancerous growths and ulcers. Locke advised, Rx. English Extract of Conium, 2 drachms; Petrolatum, 6 ounces. Mix. Apply locally.

Internal. Conium is a remedy for excessive motility and for pain. It also favors sleep, not because it is a hypnotic like opium, but because it relieves pain when that is the cause of the sleeplessness, or when due to an excitable action of the heart. It is also a remedy for the restlessness, with or without pain, associated with reproductive weakness, or due to sexual excesses. With this is a state of apathy, frequently frigidity in the female, and imperfect menstruation and leucorrheal discharges. The mentality is disturbed, often to the verge of mania. In such mild forms of nervous unrest and excitability small doses of conium will render good service.

Chorea is one of the incoordinate disorders that is sometimes relieved by conium, but not all cases respond to it. It has been advised in tetanus, but is insufficient except in doses which would be equally as dangerous as the disorder itself . It is better adapted to control the excessive movements of hysteria and mania, but in the former having little effect upon the psychic phase of the disorder. It has been used in teething, when twitching of the muscles is present, in laryngismus

stridulus, also in whoopingcough, but we have safer and more satisfactory remedies for these affections. Some cases of epilepsy due to masturbation have been relieved by conium, and it lessens the movements of paralysis agitans.

As a remedy for pain conium is fairly efficient, but it takes fair-sized doses to accomplish results. As the terminals of the sensory and motor nerves are directly affected by the drug, it is best adapted to peripheral pain with excessive mobility. Thus it relieves spasmodic neuralgia, neuralgia from carious teeth, ovarian neuralgia, and gastralgia. In gastric ulcer it is quite efficient and safe, while for relief of pain and to give rest it is a most important drug in gastric carcinoma. If there is much destruction of tissues it is less effective, but tends to keep the surrounding part obtunded and muscularly quiet, notwithstanding the statement that it has no control over involuntary musculature. In the intestines, however, it does not seem to lessen peristalsis, and is therefore not constipating, like opium and morphine. Conium has been used for so-called chronic rheumatism, especially in the aged, who complain of muscular soreness and joint pains, with loss of sleep. Given within bounds it may relieve and can do no harm. Sometimes it relieves pruritus, especially the senile form so distressing to old people and preventing rest and sleep.

Conium sometimes reduces glandular swellings. It frequently causes the disappearance of nodular masses in the axillary and mammary glands. By some it has been assumed that these are carcinomatous. There is no evidence of it having been of any service in dissipating ulcerating growths of the breast; therefore it is safe to assume that such nodules as are influenced by conium are probably not cancerous, but more than likely of a strumous character. At any rate we are not justified in delaying necessary measures by a long course of conium medication with uncertain prospects of relief in undoubted scirrhus of the breast. It may, however, be applied and be given to relieve pain even when a cure is not possible. It relieves the pain of swollen mammae during the menstrual periods and mitigates the distress of spasmodic dysmenorrhea.

In acute mania conium sometimes acts with great promptness. While occasionally subduing violent cases it is best adapted to those with mild excitability, great restlessness, with more or less wandering of the mind—much like the low delirium attending prostrating fevers. In fact,

it is often useful, but must be carefully exhibited, in true typhomania, with subsultus tendinum. The field for conium in nervous disorders is still open to exploration, with the prospect of finding it adapted to a wide variety of nervous affections with excitation and muscular impressibility.

CONVALLARIA.

The rhizome and rootlets of ***Convallaria majalis***, Linné (Nat. Ord. Liliaceae.)

Common Name: Lily of the Valley.

Principal Constituents.—Two glucosides: ***convallamarin*** ($C_{23}H_{44}O_{12}$), a bitter, crystalline powder, and ***convallarin*** ($C_{34}H_{62}O_{11}$), the acrid principle.

Preparation.—***Specific Medicine Convallaria***. ***Dose***, 1 to 10 drops.

Specific Indications.—Cardiac irregularities due to mechanical impediments; mitral insufficiency; feeble circulation and low arterial tension; dropsy of cardiac origin; palpitation and vehement heart action, with arrythmic movements, dyspnea, and diminished arterial pressure; feeble, quickened pulse, with capillary obstruction.

Action and Therapy.—In its effects upon the human circulation convallaria closely resembles that of its more powerful congener, digitalis, without, however, causing the unpleasant disturbances occasioned by that drug. Unlike digitalis it is not cumulative, nor is it distinctly poisonous. Moreover, it has a laxative action, and like digitalis, increases diuresis secondarily, by its effects upon blood pressure.

Like digitalis, convallaria may be used where there is feeble circulation and low blood-pressure. While digitalis is the more often indicated, sometimes convallaria is more effective on account of the disturbing extravascular effects of the former. Convallaria appears to act best in those cases of circulatory failure in which there is imperfect circulation within the heart itself and probably due to capillary resistance or peripheral circulatory enfeeblement. By relieving the latter the cardiac embarrassment is removed. Convallaria slows the pulse and gives increased force to the heart-beat. It undoubtedly tones the heart muscle and strengthens its action. By the double action of

augmenting the power of the heart and the tone of the vessels, as well as by its secondary effect of increasing renal activity, it acts extremely well in dropsy of cardiac origin. Palpitation and irregular heart movements, dyspnoea, diminished urinary secretion, albumen, hepatic fullness and engorgement, and edema-symptoms of this form of cardiac insufficiency, gradually disappear under small and continued doses of this drug. Moderate doses calm cardiac excitement, such as is due to overexertion and the excessive use of tobacco. Cardiac arrythmia and hurried action of the heart are especially benefited by it.

The heart irregularities corrected by convallaria are not those due to organic degeneration, but rather those of an obstructive character, due to mechanical causes, as when the mitral valves are involved. Thus it is especially valuable in mitral insufficiency, with its attendant dyspnea and palpitation. When acting favorably the heart action becomes slower and stronger, normal rhythm is established, arterial pressure increased, respiration deepened, and the sense of suffocation, with the distressing and painful desire for air, is dispelled. A drug that will bring about these results and do it kindly is an ideal heart stimulant, and such is convallaria. Convallaria relieves the sense of praecordial oppression and faintness that so frequently follows prostrating diseases. Not alone is it a heart tonic, but a gastric tonic as well. Therefore it is indicated by the cardiac debility that follows typhoid fever, la grippe, acute articular rheumatism, and other heartenfeebling diseases. When a heart stimulant is needed during acute rheumatism, convallaria is, as a rule, preferable to digitalis, and it is often valuable in the early stages of rheumatic carditis and endocarditis, using it in fractional doses. Convallaria is of less service in stenosis of the aorta than in mitral disorders.

CORALLORHIZA.

The rhizome of ***Corallorhiza odontorhiza***, Nuttall. (Nat. Ord. Orchidaceae.) Rich woods in eastern half of the United States. ***Dose***, 1 drachm.

Common Names: Coral Root, Chicken Toe, Crawley, Dragon's Claw.

Principal Constituents.—Has not been analyzed, but probably contains potassium nitrate.

Preparations.-1. ***Tinctura Corallorhiza***, Tincture of Coral Root. (Coral root, 4 ounce; Dilute Alcohol [or Whisky] 16 fluidounces.) Dose, 1 to 2 fluidrachms.

2. ***Infusum Corallorhiza***, Infusion of Coral Root. (Crushed rhizome, 1/2 ounce; Boiling Water, 16 ounces). Dose, 1 to 2 fluidounces.

Specific Indications.—General prostration, malaise, hacking cough, loss of appetite, reduced weight, pleuritic pain, bronchial irritation and low pyrexia.

Action and Therapy.—This is the most perfect diaphoretic we know of, duplicating the natural process of perspiration when given in small doses, and increasing the watery contents when administered in hot infusion. It even excels asclepias, is pleasant to the taste, acts kindly upon the stomach, and lacks the heart depressing qualities of jaborandi. It was once largely used in fevers. Its principal use is in subacute inflammatory disorders of the respiratory tract, being especially valuable in the declining stages of bronchopneumonia, of a low but inactive type, with much depression, prostration after cough or effort, copious, heavy expectoration, and general debility. For convalescence from such states and after bronchitis, la grippe, and pneumonia it is an ideal remedy. In those of a phthisical build-the hippocratic type, much hacking cough, loss of weight, lack of appetite, poor digestion, pleuritic pains, and general prostration yet not actually consumptive, it is one of the best tonics we have ever employed. The appetite is the first to respond, cough and pain cease, there is better action of the kidneys and skin, and general recuperation gradually takes place. For dry bronchial irritation, with wheezing, tightness of the chest, paroxysms of irritable cough, together with a dry or inactive skin, coral root is extremely effective. In respiratory debility corallorhiza acts slowly but surely. A hot infusion promotes menstruation and suppressed lochia and relieves after-pains, but as many other agents operate equally as well this agent is too expensive to use for these purposes. It is to be regretted that its extreme scarcity makes corallorhiza an almost unobtainable drug.

COPAIBA.

An oleoresin derived from species of ***Copaiba*** growing in South America. ***Dose***, 5 to 30 drops.

Description.—A viscid, pale-yellow or brownish-yellow liquid, without or with a faint fluorescence (green), and having a bitter, acrid, and persistent taste, and a distinctive aroma. Soluble in chloroform, ether,

dehydrated alcohol, and volatile or fixed oils; partly soluble in alcohol; insoluble in water.

Specific Indications.—Vesical pressure and tenesmus, frequent urging to urinate, the urine passing in drops; itching, burning or smarting in the urethra after urinating; urethral mucoid discharges; laryngeal irritation; cough, with thick tenacious sputum, accompanied by loud rales.

Action.—Copaiba is a stimulating antiseptic when applied to the skin and mucosa. Small doses taken internally act as a stimulant and antiseptic diuretic. It restrains excessive mucous discharges. When swallowed it causes gastric warmth, unpleasant eructations, and sometimes nausea and vomiting. Continued use impairs the digestive processes. It is readily absorbed, imparting its odor and bitterness to the secretions. While apparently eliminated by all the emunctories, it is chiefly passed in the urine in company with glycouronic acid. Large doses occasion gastroenteritis and haematuria. A transient measles-like eruption on the skin, with unpleasant formication and itching, or an erythematous, urticarial or bullous outbreak may occur from its use. It is not determined whether this is due to elimination-irritation, or to gastric disturbances produced by the drug.

Therapy.—***External***. Copaiba is sometimes applied to frost-bites and chilblains, sore nipples, old ulcers, and anal fissures, and to fistulous tracts to soften hardened edges and surfaces; also in sluggish chronic skin affections when a stimulating antiseptic action is desired.

Internal. Copaiba is a remedy for excessive mucous discharges after the subsidence of acute inflammation. For this purpose it is rarely used in chronic bronchitis, especially when coincident with a catarrhal condition of the bladder. It is of much value in intractable gonorrhea in the male to reawaken a dormant infection and recreate the active symptoms, after which the smaller doses are used to restrain the discharge and antisepticize the membranes. It should never be used in the acute inflammatory stage of gonorrhea, with pronounced urethral irritation and profuse secretion. This stage should be treated with Rx. Specific Medicine Aconite, 10 drops; Specific Medicines Gelsemium and Cannabis, one fluidrachm each; Simple Syrup, enough to make 4 fluidounces. Mix. Sig.: One teaspoonful every 3 hours. Having used the required local application, and rendered the urine bland by the use of

small doses of sodium bicarbonate well diluted, employ the following after the acute phase has subsided: Rx Copaiba, 1 fluidrachm; Alcohol, 1 fluidounce. Mix. Dose, 5 to 10 drops in sugar and water 4 times a day. If chronic or unduly prolonged use the following: Rx. Copaiba and Spirit of Nitrous Ether, 1/2 fluidounce each; Liquor Potassae and Essence of Cinnamon, 1 fluidrachm each; Mucilage of Acacia and Simple Syrup, 1 fluidounce each. Mix. Sig.: One teaspoonful after each meal. Copaiba only helps gonorrhea when brought in direct contact with the parts affected, as it does when passed in the urine. For this reason it is more effectual in the male than the female in whom at least a part of the infection is vaginal. It is also less valuable by injection than when used internally. The foregoing treatment is Locke's method, and is adapted to otherwise unconquerable cases. Most cases of gonorrhea are now readily cured by more modern means.

COPTIS.

The rhizome and rootlets of ***Coptis trifolia***, Salisbury. (Nat. Ord. Berberidaceae.) A plant of dark, cold swamps and sphagnous woods, found in Siberia, Greenland, and Iceland, and in the United States, following the Appalachians as far south as Alabama.

Common Names: Gold Thread, Mouth Root, Canker Root.

Principal Constituents.-Two alkaloids: ***berberine*** (yellow) and ***coptine*** (white). It is devoid of starch, tannin or resin.

Preparations—1. ***Decoctum Coptis***, Decoction of Coptis. (Coptis, 2 drachms, to Water, 16 ounces.) ***Dose***, 2 to 6 fluidrachms. Used freely as a local wash.

2. ***Tinctura Coptis***, Tincture of Coptis. (Coptis, 1 ounce; Diluted Alcohol, 16 ounces) ***Dose***, 30 to 60 drops.

Specific Indications.—Aphthous ulceration; atonic dyspepsia; thrush.

Action and Therapy.—***External***. The most effective application for thrush in infants. The decoction should be freely applied and at the same time given internally. The infusion or the tincture may be used, with or without hydrastis, in aphthous ulcers of the mouth.

Internal. Coptis is a pure bitter and one that ought to be more generally used. It ranks with quassia, calumba, gentian, and similar agents in efficiency and may be used for many of the purposes for which

hydrastis is employed. Its use in the stomachic disorders associated with, preceding or following thrush is the most certain in therapy, and its internal employment hastens the local cure, which it quickly accomplishes. Coptis is a good stimulant for atonic indigestion and dyspepsia, with deficiency in the normal flow of the peptic juices.

CORIANDRUM.

The dried, ripe fruit of ***Coriandrumsativum***, Linné. (Nat. Ord. Umbelliferae) Italy, and cultivated in other parts of the world. ***Dose***, 20 to 60 grains.

Common Names: Coriander, Coriander Fruit, Coriander Seed.

Principal Constituent.—An aromatic oil (***Oleum Coriandri***).

Preparation.—***Specific Medicine Coriander***. ***Dose***, 10 to 60 drops.

Action and Therapy.—Stimulant and carminative; but mostly used as an adjuvant or corrigent to other medicines.

CORNUS.

The bark and root-bark of ***Cornus florida***, Linné. (Nat. Ord. Cornaceae.) A beautiful flowering tree of the United States. ***Dose***, 5 to 60 grains.

Common Names: Dogwood, Flowering Dogwood, Flowering Cornel.

Principal Constituents.—A bitter principle, ***cornine***, and 3 per cent of tannin.

Preparation.—***Specific Medicine Cornus***. ***Dose***, 1 to 60 drops.

Action and Therapy.—Cornus is tonic and feebly antiperiodic. In times of scarcity it has been used in lieu of cinchona, or when cinchona or quinine is not tolerated. Its tonic properties may be utilized after fevers, particularly of the periodic type; and it is said to be useful in headache from quinine, pyrosis, and general exhaustion. It is adapted to cases with feeble, relaxed tissues, with weak pulse and sub-normal temperature. It has been suggested as useful in gastric ulcer. The preferred doses are from 5 to 20 drops.

CORYDALIS.

The tubers of ***Dicentracanadensis***, DeCandolle. (Nat. Ord. Fumariaceae.) Eastern half of the United States, in rich soils of woods. ***Dose***, 10 to 60 grains.

Common Names: Turkey Corn, Squirrel Corn, Wild Turkey Pea.

Principal Constituents.—The alkaloid ***corydaline*** (not the resinoid corydalin), resin, and fumaric acid.

Preparation.—***Specific Medicine Corydalis***. ***Dose***, 10 to 60 drops.

Action and Therapy.—Once a very popular Eclectic medicine, corydalis seems to have fallen into unmerited neglect. It is decidedly alterative and tonic. While not distinctly antisyphilitic, it may be used among other alteratives for the syphilitic dyscrasia and for scrofulosis, and the attendant evils that accompany such debility. In atonic leucorrhoea in strumous subjects it may be exhibited with good effect, and it may be given as a tonic in digestive atony with dysentery or diarrhea in pot-bellied children with foul breath and poor digestion. It should be revived as a remedy to promote waste and repair.

CRATAEGUS.

The ripe fruit and bark of (1) ***Crataegus Oxyacantha***, Linné, and (2) other species of Crataegus. (Nat. Ord. Rosaceae) 1. England and other parts of Europe and in Central and Northern Asia; 2. America.

Common Names: (1) English Hawthorn, May; (2) Haw, Red Haw, Hawthorn, Thorn.

Principal Constituents.—The fresh bark contains a water soluble, crystallizable, bitter body little soluble in alcohol. The flowers of the English hawthorn contain trimethylamine ($N[CH_3]_3$), a circulatory depressant.

Preparation.—***Specific Medicine Crataegus***. ***Dose***, 5 to 60 drops.

Specific Indications.—Tentatively the indications for crataegus may be stated thus: Cardiac weakness, with valvular murmurs, sighing respiration, or other difficult breathing, especially when associated with nerve depression or neurasthenia; mitral regurgitation, with valvular insufficiency; cardiac pain; praecordial oppression; dyspnea;

rapid and feeble heart action; marked anemia, associated with heart irregularity; cardiac hypertrophy; and heartstrain, due to over-exertion or accompanying nervous explosions.

Action and Therapy.—The bark, fruit and leaves of several species of the genus Crataegus have in the past been used as astringents and tonics. Though a well-known wild shrub of thickets and commonly cultivated hedge and ornamental plant, the English hawthorn seems to have largely escaped the exact investigators of medicinal plants until a quite recent date. In fact, crataegus is one of the most recently introduced medicinal agents of plant origin. Furthermore, it is distinctive in occupying almost wholly a position in cardiac therapy, though recognized to some extent as a general tonic. Investigators are divided as to its activity, some claiming it only as a functional remedy, while others go so far as to claim it curative of many heart irregularities, even in the presence of an actual organic disease of that organ. Among the conditions in which crataegus is accredited with good work are angina pectoris, endocarditis, myocarditis, and pericarditis, valvular incompetency with or without enlargement of the rings, rheumatism of the heart, dropsy depending on heart disorders, neuralgia of the heart, tachycardia, and in atheromatous conditions of the vessels. The exact indications are as yet none too well determined, enthusiastic admirers of the drug having unwittingly overestimated its power. There is no doubt, however, of its value in many of the conditions mentioned, especially the functional types; and there can be no question as to its value as a tonic to the heart-muscle. It is not poisonous, has no cumulative effect, and apparently from reports of a large number now using it, may be useful to control many of the symptomatic results depending upon a badly functionating or tired heart. Crataegus has been suggested to rest that organ and thereby guard against arteriosclerosis. It is a new remedy still on trial; and as yet with no rational explanation of its reputed powers. The smaller doses are suggested as more likely to succeed than full doses.

CROCUS.

The stigmas of ***Crocus sativa***, Linné (Nat. Ord. Irideae). Asia Minor; much cultivated in Europe.

Common Name: Saffron.

Principal Constituents.—Contains the glucoside ***crocin*** (polychroit—$C_{44}H_{70}O_{28}$) and ***picro-crocin*** or ***saffron bitter*** ($C_{38}H_{66}O_{17}$)

Preparation.—***Tinctura Croci***. Tincture of Crocus. ***Dose***, 1 to 60 drops.

Action and Therapy.—Reputed diaphoretic and emmenagogue, this agent was formerly used in amenorrhoea, dysmenorrhea, and suppression of the lochia. Five-drop doses of the tincture of crocus is advised for menorrhagia, with dark clotted losses; and the infusion (Saffron, 1 drachm; hot water, 16 fluidounces), in doses of 1 to 3 fluidounces to hasten the appearance of the eruption in measles. It must not be confounded with "Dyer's Saffron" (***Carthamus tinctorius***), which see under ***Carthamus***. It may be used to color tinctures orange yellow, but it is too expensive for that purpose.

CUBEBA.

The unripe, full-grown fruits of ***Piper Cubeba***, Linné, fil. (Nat. Ord. Piperaceae.) Java, Borneo, Sumatra, Prince of Wales Island, and other isles of the Indian Ocean. ***Dose***, 5 to 30 grains.

Common Names: Cubeb, Cubebs.

Principal Constituents.—A volatile oil (***Oleum Cubebae***), ***cubebin*** (inactive), ***cubebic acid***, and ***cubeb resin***, the latter two forming a soft resin with diuretic properties. The irritant, stimulant, and carminative properties are possessed by the volatile oil.

Preparations.—1. ***Specific Medicine Cubeba***. ***Dose***, 1 to 30 drops.
2. ***Oleoresina Cubebaq***, Oleoresin of Cubeb. ***Dose***, I to 15 grains.
3. ***Oleum Cubebae***, Oil of Cubeb. ***Dose***, 1 to 15 minims.

Specific Indications.—Gonorrhea after discharges have almost ceased; enfeebled conditions of the large intestine and rectum; subacute inflammation of the urinary passages; urethral burning and scalding of urine in women; debility with profuse mucous discharges.

Action and Therapy.—Cubeba is mildly stimulant, expectorant, stomachic and carminative. It arrests excessive mucous discharges, particularly those of the urethra. Large doses quicken the pulse and increase its volume, and sometimes elevate the temperature; occasionally it causes nausea, vomiting, burning pain, griping and purging. Not uncommonly it produces a rash-like cutaneous eruption.

It is eliminated by the urine and by the bronchial membranes, increasing normal and restraining abnormal secretions. It imparts its peculiar aromatic odor to the urine and to the breath.

Cubeb is employed to restrain mucous discharges after the subsidence of active inflammation, and usually after active discharge has nearly ceased. In late stages of intractable gonorrhea in which there persists a small amount of flow, and in gleet, 30 grains of the powdered berries may be administered to awaken activity—to produce a substitutive inflammation—after which the case appears to improve. The drug should be pushed until urination is painful, and then lessened from day to day until a cure is effected.

While contraindicated in acute inflammation, cubeba is often of service in so-called chronic inflammations, especially in cystitis, and in chronic inflammatory states of the urethra in women. It first aggravates and then cures. The greater the debility the more it is indicated, and urethral burning is the chief indication for it. The urethral scalding sensations frequently experienced by women upon urinating, especially at the menstrual period, is greatly relieved by it, as is irritation and burning of the vulva. In these cases there is usually constant urging to pass urine, the effort being attended with much pain. Five (5) drops of Specific Medicine Cubeba should be given every 3 or 4 hours. The same dosage will often remedy nocturnal incontinence of urine in children.

Cubeba is useful in chronic sluggish sore throat, with relaxed membranes and over-secretion. From 5 to 10 drops of the specific medicine should be given suspended in syrup, and the same dose upon sugar is useful in chronic atonic respiratory catarrhs, with profuse expectoration, and for nasal catarrh.

Smoking cubebs is a popular method of treating nasal catarrh and hay fever. Care must be had not to blister the roof of the mouth, an untoward effect that is produced by the oil in a good quality of cubeba.

CURCUMA.

The rhizome of ***Curcuma longa***, Linné (Nat. Ord. Zingiberaceae). Southern and eastern Asia, and extensively cultivated in China, Hindustan, and other countries.

Common Names: Turmeric, Curcuma.

Principal Constituent.—***Curcumin***, a yellow coloring matter.

Preparation.—***Specific Medicine Curcuma***. (A coloring agent.)

Action and Uses.—While turmeric is a mild aromatic stimulant, it is almost wholly used as a test for alkalies, and to color ointments and other pharmaceutical products.

CUSSO.

The female inflorescence of ***Hagenia abyssinica*** (Bruce), Gmelin (Nat. Ord. Rosaceae). Abyssinia. ***Dose***, 4 to 5 drachms.

Common Names: Kousso, Kusso, Kooso, etc.

Principal Constituent.—Kousin (brayerin or taeniin).

Preparations.—1. ***Infusum Kousso***, Infusion of Kousso. ***Dose*** (see below.)
2. ***Specific Medicine Kousso***. ***Dose***, 1 to 2 fluidrachms.

Action and Therapy.—Taeniacide and purgative. Kousso is among the rarely used though efficient anthelmintics for the removal of tapeworm. Being more or less irritant to the gastro-intestinal tract it is not always well retained by the stomach. About 4 to 5 drachms of the flowers are to be suspended in water, or made into an infusion, and taken in two or three doses at short intervals upon an empty stomach. Some prefer the fluidextract in doses of 2 to 4 fluidrachms. Kousso is liable to fail unless made fresh and in prime condition.

CYPRIPEDIUM.

The rhizome and rootlets of ***Cypripedium pubescens***, Swartz; and of ***Cypripedium parviflorum***, Salisbury. (Nat. Ord. Orchidaceae.) Rich woods of the United States. ***Dose***, 5 to 60 grains.

Common Names: (1) Ladies' Slipper, Yellow Ladies' Slipper, American Valerian, Yellow Mocassin Flower, Nerve Root; (2) Small-flowered Ladies' Slipper.

Principal Constituents.—A volatile oil, tannin and gallic acids, a volatile acid, resins, and inorganic salts.

Preparation.—***Specific Medicine Cypripedium***. ***Dose***, 5 to 60 drops.

Specific Indications.—Insomnia, nervous irritability, neuralgia and delirium, all from atony; restlessness and muscular twitching, typhomania and tremors in low forms of fever; wakefulness from mental unrest; menstrual irregularities, with despondency; tendency to dementia at the climacteric; mental depression from sexual abuse.

Action and Therapy.—All of the species of Cypripedium resemble valerian in their effects. They are excellent nerve stimulants for weak women and nervous children. They improve a feeble circulation and increase the innervating power of weakened nerve centers. Though comparatively feeble agents, they are nevertheless important medicines, being of that type of drugs which silently do great good without marked physiological disturbance.

Cypripedium is an ideal tranquilizer for states of nervous excitability or irritability depending upon atony. It dispels gloom, induces a calm and cheerful state of mind, and by thus inducing mental tranquillity favors restful sleep. When nervous irritability is caused reflexly by pelvic disorders it is especially a useful drug. If due to organic disease it is less effectual than in merely functional disorders.

We value cypripedium highly for the hypochondria of the menopause. We have been able to accomplish more with it than any drug except pulsatilla in worry, with fear of disaster or insanity, in women passing through this phase of life. It is useful in melancholia and sleeplessness due to menstrual irregularities, after prolonged and severe pain, and in those the result of nocturnal losses. It relieves the nervous unrest attending gleet, and the sexual erethism of debility. In the typhomania and tremors of low fevers it is a safe and often effectual drug, but like all others in these conditions it frequently fails to give relief. It acts well after long sieges of exhausting diseases to give nerve tone and allay the nervous manifestations of general debility. An excellent soothing syrup for irritable children, especially during dentition, was proposed by Scudder: Rx. Specific Medicine Cypripedium and Compound Tincture of Lavender, each 3 fluidrachms; Specific Medicine Lobelia, 1 fluidrachm; Simple Syrup, enough to make 3 fluidounces. Mix. Sig.: Dose, 5 to 20 drops. If nausea occurs lessen the amount of, or omit the lobelia.

DIGITALIS.

The leaves of ***Digitalis purpurea***, Linné (Nat. Ord. Scrophulariaceae), carefully dried and preserved away from light, in close containers. Europe; cultivated in Europe and to some extent in America. ***Dose***, 1 to 2 grains.

Common Names: Foxglove, Purple Foxglove.

Principal Constituents.—The glucosides ***digitoxin*** (very toxic and cumulative), ***digitalin***, ***digitalein***, ***digitonin***, and digitin (inert); digitalic and antirrhinic acids, volatile oil, etc. There are no positively determined alkaloids in digitalis.

Preparations.—1. ***Specific Medicine Digitalis***. ***Dose***, 1/5 to 1 drop.

2. ***Infusum Digitalis***. Infusion of Digitalis. (A cinnamon-flavored, 1 1/2 per cent, infusion). ***Dose***, 1 to 2 fluidrachms.

3. ***Tinctura Digitalis***, Tincture of Digitalis (10 per cent of drug). ***Dose***, 1 to 10 drops.

Doses of Digitalis Glucosides:—Digitoxin, 1/300 to 1/64 grain; digitalin (crystallizable), 1/300 to 1/100 grain, (amorphous and German), 1/100 to 1/30 grain, (digitalin is so variable that it should not be used; it may be very actively poisonous, or may be nearly inert); digitalein (water soluble), 1/200 to 1/100 grain.

Specific Indications.—Weak, rapid, and irregular heart action, with low arterial tension; broken compensation; weak, rapid, flaccid pulse; weak heart sounds; dusky countenance, with dyspnoea, cough, jugular fullness, and weak cardiac action; edema, anasarca, or ascites with scanty supply of dark-colored urine, with weak heart action; renal congestion; irritable heart with weak action; heart made to beat rapidly but feebly by slight excitement; continuous labored breathing with weak pulsation; renal and cardiac dropsy; desquamative nephritis, with weak heart; capillary hemorrhage; poisoning by aconite, muscarine, or the nitrites.

Action.—The dominant action of digitalis is upon the circulation, but it has no perceptible effect upon the blood. Full or even moderate doses may excite nausea and vomiting, and a greenish or yellowish diarrhoea. These effects are preceded by considerable prostration. If the stomach is already irritated, or there is gastro-intestinal irritation, these disturbances are more certain to occur. Only in toxic amounts does digitalis affect the respiration, first slowing and deepening, and

finally accelerating the breathing. Neither do other than poisonous doses impress the nervous system, and then it lessens reflex activity through stimulation of Setschenow's center of inhibition in the medulla, and is followed by depression of the spinal cord and motor nerve trunks and by eventual paralysis of the muscles. These extreme effects on the nervous and respiratory systems have only been noted in animals; apparently they do not take place in man. Therapeutic doses, however, stimulate the cardiac inhibitory and vasomotor centers of the medulla. Digitalis, in moderate doses, has little or no effect upon temperature, but poisonous doses lower it. When fever is present, however, it actively reduces the body heat, yet it is not a good nor safe antipyretic. It has been conclusively proved that high temperature prevents digitalis from slowing the pulse.

In moderate doses digitalis slows the heart-action, increases the force of the pulse, and from these effects chiefly, raises blood-pressure. The diastole is prolonged and the systole is increased in vigor. The result of the stronger systole is to reduce the number of pulsations. Not only does the retarded diastole give more rest to the heart, but it is followed by a better contraction of the heart-muscle and some constriction of the arterioles, so that the blood-current is reduced in size and the quantity of blood sent out through the systemic arteries is lessened. The narrowed arterial resistance and the stronger systolic contraction are the chief causes of increased blood-pressure, though to a limited extent, especially when larger doses are given, the vaso-motor apparatus exerts some control, as does also a direct impression of the drug upon the walls of the vessels. All of the above effects are those of ***stimulation***, never of depression, and digitalis, in such doses, is therefore a heart stimulant and heart tonic. When carried to extremes the tonic effects may be overreached, and then the condition verges into exhaustion from over-stimulation of the heartmuscle and from a failure of the normal impulse conduction from auricle to ventricle. This is particularly evident when a person taking full and repeated doses of digitalis suddenly collapses when raised from a recumbent to a sitting posture. So powerful is the effect upon the heart-muscle that tetanic contraction may occur and prevent a passage of blood through the heart, the tonic spasm resulting in syncope; and the exhaustion and syncope are so great as sometimes to prove fatal.

The effects of digitalis may be conveniently studied under three heads, or stages, representing, however, but continuous action under normal

and increased dosage rather than three actually separate conditions: (1) The therapeutic; (2) the toxic; and (3) the extreme toxic or lethal stages.

(1) In the therapeutic stage the rhythm is slowed and the ventricles empty themselves more perfectly and by their increased force pump more blood into the vessels. The diastole being greatly prolonged and the force of the systole increased, there is produced a larger though less frequent pulse wave. The auricles are less affected than the ventricles, but on the whole the heart does more work, and were it not for the increased resistance in the vessels and lessened number of contractions more blood would be propelled into the body. As it is, the current is carried more completely to the extremities of the capillaries, and altogether the circulation is improved.

(2) The second stage is sometimes absent. It takes place when the drug is given in overdose or for a continuous period without rest. The pulse becomes very slow and irregular. The ventricle dilates more completely, thus prolonging the diastole; the systole becomes erratic in force, the auricular contractions approach failure, or become greatly at variance in rhythm with those of the ventricles. The action is rapidly going through the transitional passage from the therapeutic to the extreme toxic stage. Now follows interference with the normal transmission of impulse and contractile wave from the sino-auricular node by way of the bundle of His. Some or all of the waves fail to pass from the auricles to the auriculo-ventricular junction (heart-block) and thence to the ventricles, the result being that incoordinate action develops. The ventricles, failing to receive the normal impulse, may fail to contract; or if they contract, do so by originating their own impulse. This, then, being at variance, both as to origin and time, with that of the auricle, causes one or more skipped beats (dropped beats), the ventricles usually contracting about half as many times as the auricles. This action progressing and increasing, the third or deeply toxic stage sets in.

(3) The third stage is marked by rapid ventricular action and consequent racing of the pulse, which becomes extremely irregular and often shuttle-like in action. This is due to increased excitability of the heartmuscle to such a degree that centric nervous inhibition no longer has any control over the heart. The arrythmia between auricle and ventricle is exaggerated and double, and triple extra-systoles

spontaneously are developed. The final result is such a disorganized coordination or confusion of action that the circulation cannot be maintained—a state well named ***delirium cordis***—and the heart finally stops in extreme dilation.

The effects of the first stage are due largely to vagal inhibitory activity and to direct action of the drug upon the heart-muscle itself. The second stage is due to excessive inhibition, while the heart-muscle seems to play a minor part; the third stage is attributed solely to spontaneously increased excitability of the heart-muscle, which rapidly increases the arrythmia, occasions the extra-systolic beats, and lastly fibrillation. Throughout digitalis intoxication the ventricles contract in unison, as do also the auricles, but the disparity in action between the auricles and ventricles displays a great variation from each other in rhythm.

Having the foregoing effects of digitalis in view, it is clear that it acts directly upon the heart-muscle, affecting the rate and rhythm of its action. It regulates contractility, irritability, and directs the conductivity of the contractile impulse by way of the aurico-ventricular bundle of His, whenever these functions are faulty. It also influences the nutrition of the heart permanently by allowing a more perfect supply of blood to the walls of the organ itself through the coronary circulation. The slowing of the disastole is due to stimulation of the vagus, both at its origin in the medulla and at its termination in the heart. The increased blood pressure is due chiefly to causes named above and to the vaso-motor control and the effects of the drug upon the vascular walls. Therefore we may sum up the medicinal action of digitalis upon the circulation as one of stimulation, giving both power and rest to the heart by prolonging the intercontractile period, and making its action more deliberate, and in its inhibition of the pneumogastric, slowing and strengthening the pulse.

Digitalis often increases the flow of urine, but many affirm that digitalis has no direct diuretic power. In health it is known to generally lessen the secretion of both the solid and fluid constituents of the urine. Some contend that it slightly increases the flow of urine. It is more than probable that, when diuresis is the result, it is in cases in which a diminished secretion of urine is due to debility or some other form of cardiac embarrassment. Others, however, maintain different views, and Brunton asserts that diuresis produced by it in dropsy is due to a

special action of the drug upon the Malpighian bodies, and not to augmented blood pressure alone. In overdose digitalis may cause spasm of the renal vessels, with consequent anuria and symptoms of cumulation. In woman, digitalis, like ergot, causes contraction of the uterine fibers of an enlarged or gravid uterus, thereby arresting hemorrhage; in man it primarily lessens the supply of blood to the erectile tissues of the penis, preventing or enfeebling erections and consequently diminishing the venereal desires.

The manner of elimination of digitalis is unknown, it being the general belief that it is taken up by some tissue in the body or becomes oxidized. At any rate none can be detected in the urine. Nor is there unanimity as to the question of tissue waste, some declaring it to increase, others to decrease the output of urea.

Digitalin, digitalein, and digitoxin are powerful heart-muscle stimulants; digitalin also stimulates the vagus; all three cause a rise in blood pressure through vaso-motor action. Digitonin seems to oppose these glucosides, acting as a check, for it depresses both the heart-muscle and the vagus.

Toxicology.—In connection with the toxic symptoms above noted, attention may be directed to the special signs of digitalis poisoning. These are, first, a slow, full pulse reduced to about half the number of normal beats, followed shortly by a tumbling or hobbling dicrotic pulse, or a shuttle-like action, with tumultuous heart-beat. In short of lethal doses the pulse may remain full and slow as long as the patient remains recumbent, but immediately upon rising it becomes rapid and irregular. There is nausea, occasionally anxiety and salivation, a sense of weight, or constriction, obtuse pain in the head, giddiness, disordered vision, mental disturbance, and rarely spectral illusions; not unfrequently a huskiness of the voice is present, the result of irritation of the fauces, trachea, etc. The nausea produced by digitalis, and more quickly by digitalin and digitoxin, is preceded by malaise, faintness, and depression, and is exceedingly distressing. Vomiting temporarily relieves it, the vomited material being first darkgreen, afterward yellow. Prostration becomes so great that the individual can not stand without help, and an intense disgust for food is experienced. Familiar objects are unrecognizable a disturbed vision with yellowness or blueness supervening. Persons are recognized only by their voices. These effects, if not fatal, may last several days, the sleep being

disturbed by nightmare and general unrest. Finally sound sleep and a voracious appetite quickly restore the individual to normal health. Exophthalmos occurs in many instances and the sclerotic is said to take on a peculiar bluish, pearl-like appearance. Death, when it occurs, is usually preceded. by coma. Poisoning from cumulative doses early recognized usually clears up upon discontinuing the use of the drug.

Poisoning by digitalis may be produced by 1/16 grain of digitalin (equal to 8 grains of good powdered digitalis leaves), and Taylor (***Medical Jurisprudence***, page 229) states that doses of from 1/4 to 1/2 grain would probably produce death. If a true and uniform digitalin could always be obtained there would be much less uncertainty concerning its strength and value. Cold, belladonna, ergot, etc., increase the activity of digitalis, while aconite opposes its action. The latter is now considered the best and most available physiologic antagonist. According to Bartholow, the most complete antagonist to digitalis, physiologically speaking, is saponin. Strychnine is also a physiological antagonist.

The poisonous effects of digitalis are best counteracted by first evacuating the stomach by the free use of warm liquids and mechanical emetics, if any of it is supposed to remain in the stomach, and then administering brandy, wine, opium, black coffee, ammonia, ammonium carbonate, or other stimulants, with sinapisms to the wrists and ankles. Both external and internal heat should be used. A solution of tannic acid is of service, by forming an insoluble tannate of digitalin. Preparations containing tannin, such as tea, etc., may be given. After death from digitalis the gastric membranes were found partially inflamed and the meninges of the brain much injected (Taylor).

Therapy.—***External***. A poultice prepared from bruised digitalis leaves and warm water, or the tincture incorporated into a warm flax-seed poultice, has given relief in renal congestion and urinary suppression. It is a dangerous procedure, however, as there is no way of determining the quantity absorbed, and death has been known to result from excessive urination and exhaustion.

Internal. William Withering, in 1785, after ten years of experimentation —and clinical uses of digitalis in dropsies—begged leave to submit,

among others, the following “inference”: “That it has a power over the motion of the heart to a degree yet unobserved in any other medicine, and that this power may be converted to salutary ends.” Thus was digitalis prophetically introduced into legitimate practice as a heart medicine.

Digitalis is preeminently the foremost heart medicine of to-day. It slows and strengthens the contractions, prolongs the intercontractile period, and thus gives both rest and power to that organ. It also contracts the capillaries to some degree, and chiefly through a more forceful output raises arterial tension, or as more commonly stated, raises blood pressure. There is also good reason to believe that through the influence of the vagi, which are probably trophic as well as inhibitory nerves, it improves the coronary blood supply and nutrition of the heart-muscle, though in this respect it has little or no advantage over cactus. Digitalis also has some value as a diuretic in disease, but it probably does not so act, to any degree at least, in health. Digitalis is the remedy for rapid and feeble heart action, with lack of propulsive power, lowered arterial tension, and deficiency of the urinary secretion. Therefore it is extremely valuable where there is a loss of, or broken, compensation, in moderate and acute dilatation, with mitral insufficiency, or in dilatation of the right heart, resulting from valvular, (tricuspid) insufficiency, in weakness of the heart due to shock, injury, hemorrhage, aconite or mushroom or other poisoning, and in the heart weakness following low and septic fevers and pneumonia, in mitral stenosis, and regurgitation, and in debility of the heart-muscle.

The true remedial power of digitalis is displayed in the treatment of asthenic heart diseases. It is one of the few drugs that act upon and correct organic changes in the heart structure; for among the other effects it will make the human pump fit its valves. Its power to cause strong and steady contractions of the cardiac muscle with consequent adaptation of the rings, or auriculo-ventricular orifices, its ability to raise blood-pressure, and in many instances its capability of increasing the renal function, make it by far the most generally useful of heart remedies. Locke was right when he declared digitalis “the true opium for the heart.” It sedates (through stimulation) and gives comfort, steadies the heart-action, relieves dyspnea, gives rest and sleep when disturbed by faulty circulation, and in dropsical conditions due chiefly to cardiac inefficiency assists in reducing edema. The indications are distinct and must be followed: the weak, rapid, and irregular heart,

feeble propulsion and low arterial tension. Harm nearly always comes from its use, even when used in ordinary doses, when there is a strong, vigorous heart action, with high blood pressure. Digitalis is therefore a remedy for cardiac asthenia and organic debility. A caution worth mentioning is that physicians often judge heart action merely by "taking the pulse", and are thereby deceived as to the true condition of the heart. There are times when the pulse may be almost imperceptible, and yet, when the ear is placed to the chest wall it will detect a hard-working heart, which has all or more contractile force than it can maintain. Vaso-motor control is at fault and then digitalis will do harm rather than good.

Digitalis is of great value in chronic valvular cardiac disease, with failing or broken compensation, but it must be used with judgment, observing the need in the weak, fast, and irregular pulse, deficient urination, and dropsy. When hypertrophy of the heart overbalances dilatation, and evidences of arterial hyperaemia are present, digitalis is likely to aggravate the condition, or otherwise do harm.

Digitalis medication is most effective probably in mitral insufficiency, with regurgitation, provided there are no pericardial adhesions restraining its effects, or advanced myocardial degeneration. It overcomes the ventricular strain dependent upon pulmonic vascular resistance, and helps, by contracting the ventricle rings, to attain a more perfect closure of the mitral valves.

In mitral stenosis, so often associated, as it is, with degeneracy of the heart structure, digitalis is a less useful remedy and may even cause harmful effects. When a failure of the right ventricle can be ascertained, and there is dropsy with anuria, it may be used, and probably to good effect. Theoretically the drug should do good in mitral stenosis, for it gives, under normal structural integrity, more power to the ventricular contractions, and by prolonging its relaxation allows a greater time for the blood to pass from the upper to the lower chamber, but the diseased myocardium may prevent it doing good work.

In tricuspid stenosis and insufficiency, with regurgitation, it is regarded as less useful than in mitral affections, but when the valves are not diseased and there is simply ventricular dilatation, it may be of use. In these conditions, when the cardiac action is weak and rapid, pressure low, and there is cough, shortness of breath, dusky

countenance, pulsating jugulars, scant, high-colored urine, and general edema, it may be used to advantage. Sometimes it has induced pulmonary hemorrhage.

Digitalis is generally regarded as less useful, rarely indicated, and even generally harmful in aortic stenosis. If, however, there is dropsy and evidence of back pressure in the lungs, it may sometimes do good.

In aortic regurgitation it is generally held to be harmful, but there are conditions which require nice discrimination as to its use. If there is great ventricular dilatation giving rise to mitral insufficiency, and when sudden dilatation with symptoms of venous stasis appears, and there is praecordial pain, dyspnea, and great anxiety, the drug is held by some to do good, though it must be tentatively given and its effects carefully watched. In all varieties of aortic valvular disease, the greatest of care and vigilance should be exercised in the giving of digitalis. The indications of heart weakness and irregular pulse should be strictly observed.

In the treatment of all valvular disorders less therapeutic value is attached to the consideration of valves affected than to the condition of the heart-muscle itself . When so weak as to cause dilatation, and this effect has been brought about by valvular insufficiency, the drug is generally indicated.

Digitalis has long been the best remedy for rapid and unequal circulation, with a confusion of weak and vigorous but rapid pulsations. The cause, however, of this state has only recently been determined. This is now familiar as “auricular fibrillation,” a condition exhibiting an exceedingly irregular and fast pulse, varying greatly in rhythm and power. Some of the ventricular contractions prove too feeble to force the blood-current into the aorta, while others are so vigorous as to cause large and full pulses. All of this occurs in the greatest confusion and without any regulated sequence. A rollicking, tumbling and jumbled irregularity of the radial pulse is the clinical evidence of this state. Fibrillation is caused by a disturbance of conductivity and is the result of the occurrence of a multitude of impulses generated in the auricle, throwing that chamber into a continual condition of incoordination, preventing the normal discharge of blood into the ventricle. These erratic impulses proceed downward into the ventricle with discordant irregularity, and thus

cause an intercharge of weak and strong pulsations and a badly confused action of the whole heart. Not immediately fatal, the general health after some time may become undermined unless relief be given, and sudden and alarming rapidity of the pulse, and grave danger to the circulation and to life ensues.

Digitalis is the best-known remedy for this state, being practically specific, and this control of conditions under the drug is one of the most certain of therapeutic effects. Fibrillation is not due to vagal inhibition, but evidently originates in the cardiac muscle. Most likely it is occasioned by extreme malnutrition of the heart. Full doses of digitalis are required, and under them the pulsations are rapidly reduced to less than half in number, and they become augmented in power and volume and are more uniformly timed. This action of digitalis is one of control and not always curative, for the determining causes of fibrillation may persist through life and the drug must consequently be frequently and long invoked to maintain a fairly regulated circulation. It must be known, however, that over doses of digitalis sometimes bring on a state similar to if not identical with auricular fibrillation, when the heart has shown no such disturbance before the drug was taken. In such cases the dose must be lessened or the drug entirely withdrawn and strophanthus or convallaria substituted for it.

Digitalis is of value in irritable heart with palpitation from overwork, heart strain, and the arrythmia of simple dilatation, in moderate degrees of ventricular dilatation, and cardiac asthenia. It is especially commended for the irritable heart of soldiers brought on by long marches and fighting whereby the inhibitory-control is lost or lessened and exhaustion of the heart-muscle is imminent. When palpitation is purely nervous, it is of little value; cactus is then a better remedy. It also fails often in paroxysmal tachycardia, which is also mostly a nervous phenomenon. In Grave's disease, it is not curative, but sometimes rectifies the cardiac irregularity. In functional palpitation arising from imperfect digestion it sometimes controls the heart symptoms, but gives little or no relief if the trouble is purely nervous, nor does it aid the stomachic disorder.

Cardiologists agree quite generally that digitalis is contraindicated in beginning or partial heart-block, which it tends to increase; that it is useless, and may be harmful in sinus arrythmia; that it is of doubtful

value in pulsus alternans, especially doing harm if there is myocarditis, with sclerosis of the coronary arteries; and in paroxysmal tachycardia, in which, however, it may benefit by retarding conduction if the beats are of sinus node or auricular origin, but is bad medication if they are of ventricular inception. Digitalis is also of questionable value in auricular flutter. In fact, in our own opinion, in all forms of arrythmia great care must be had in the use of this powerful drug, and in most of them it had better be withheld, except in auricular fibrillation, in which its effects are all that may be desired.

The dictum, so much heard at present, to “digitalize your patient”, must be followed with judgment, for digitalis cases, it must be remembered, are those which are helped greatly or moderately, those in which no good effect may be expected, and those in which it is dangerous, or at least harmful. One should not use digitalis indiscriminately, but with rare judgment and according to the specific indications, especially taking into account primarily the condition of the heart-muscle and its ability to meet the conditions imposed upon it.

To sum up its cardiac therapy, digitalis is useful in the following conditions: In structural heart lesions, as dilated heart with mitral incompetence, in mitral stenosis and regurgitation, and in dilated right heart with tricuspid incompetence, and in relative or positive debility of the cardiac muscle. The mechanical trouble in most instances is a state of ischaemia, or lack of sufficient arterial blood in the left heart, while in the right heart and the entire systemic and pulmonic circulation there is venous stasisDigitalis increases the power of the auricles and ventricles to empty them-selves; prolongs the inter-contractile intervals, thus allowing the auricles sufficient time to more perfectly send the blood current into the ventricles. It restores and regulates a mechanical compensation or balance in the circulatory organs. It controls fibrillation by inhibiting conductivity. The general symptoms leading to its selection are a weak, rapid, and irregular pulse, low arterial tension, cough, dyspnoea, pulsation of the jugular veins, a cyanotic countenance, deficient urination, the secretion being high-colored, and edema.

We have herein named many of the faulty anatomic conditions of the heart in which digitalis is useful, but as exact physical diagnosis is not always easy it is better for the practitioner to depend upon the

symptoms of weak action than to attempt hair-splitting anatomic diagnoses. ***Lack of propulsive power due to heart debility*** is the best indication for digitalis. This, together with ***threatened or actual failure of compensation***, covers in brief the great need of digitalis therapy. One should never lose sight of the fact that the ***integrity and relative power of the heart-muscle*** are of paramount consideration over that of the condition of the heart valves.

Digitalis is generally considered contraindicated in simple compensatory hypertrophy, aortic stenosis, extensive fatty, fibrous, or other degenerations of the heart-muscle, aneurism, and atheromatous or other structural changes in the arteries. As a rule it should not be employed in the heart affections of old age, or when dilatation is excessive, and particularly when there is a flabby state of the heart-muscle with suspected degenerative changes.

Cushny (***Pharmacology***) takes issue with some of the usual cautions given above, declaring that, while digitalis often fails in excessive degenerative conditions, it has no deleterious effect upon them. Neither does he fear rupture of the arterial walls or the presence of high blood pressure in renal and arterial diseases. He believes a greatly increased blood pressure is not likely under digitalis, nor is its occurrence to be regarded as a bar to the use of the drug, provided the special indications of "venous stasis, edema, or deficient urine" are present. He presumes that, in some cases, the high blood pressure "arises from excessive activity of the vaso-constrictor center inducing mesenteric contraction in an attempt to maintain the blood supply to the brain; this involves an abnormal resistance to the circulation and imperfect nutrition of various organs. Digitalis by increasing the efficiency of the heart improves the blood supply of the brain, and the activity of the vaso-constrictor center is abated, leading to a more normal state of the circulation and often to a lower arterial tension." Notwithstanding this optimistic reasoning, physicians will do well to be extremely careful in the administration of digitalis in myocardial and vascular degenerations.

Bastedo (***Materia Medica***, etc.) declares that "the drug's efficiency is not to be estimated by its effects on arterial pressure", and that it is not contraindicated in aortic aneurysm, aortitis, or arteriosclerosis, but that "its use would depend upon the needs of the heart."

Under some circumstances digitalis proves a most certain but slow diuretic. It is most generally held that the diuretic effect of digitalis is the result of its secondary action. If, however, the view entertained by some that it has also a special action upon the renal glomeruli be true, the reason for its well-earned reputation as a remedy in dropsy will be more apparent. Digitalis has long been known as an efficient eliminant where the dropsical condition was dependent upon cardiac irregularities and upon renal congestion. When the trouble is cardiac in origin, it relieves by strengthening the heart action and producing capillary contraction. When of renal origin, obstructing the circulation, it relieves at least the tension of the renal capillaries, thus lessening engorgement and bringing about absorption and diuresis. In general dropsy it is indicated by the distressing dyspnea, especially when in the recumbent posture, fullness and pulsation of the jugulars, pale or dusky countenance, scanty and high-colored urine, and quick, feeble, fluttering, and irregular pulse. When known to be associated with the cardiac lesions in which digitalis is indicated, it seldom fails to remove the dropsical effusion. It relieves chronic nephritis by lessening vascular tension in the renal capillaries, and in granular degeneration of the kidneys it is said to benefit by lessening the proportion of solids excreted, while the quantity of fluid is increased. While of doubtful utility in scarlatina, it is very serviceable in the anasarcous condition sometimes following that disease. Many, however, regard it of doubtful safety in nephritis, and this is probably true of chronic nephritis without great cardiac impairment, but when the heart is greatly at fault and contributing to the intensity of the malady then digitalis should be of some service. Digitalis has no influence for good upon dropsy of hepatic origin, or in pleural effusion.

Rheumatism, with threatened heart failure, is sometimes relieved by digitalis. Owing to its power of preventing erections, by limiting the supply of blood to the erectile tissues, it has rendered good service in nocturnal seminal pollutions, particularly when the extremities are cold, the erections feeble, and the emissions oft-occurring.

Digitalis is not valued by us as a febrifuge. Its effect upon the gastrointestinal tract is so unpleasant as to make it of doubtful value to lower temperature. As a sedative, therefore, in fevers and inflammations, its use is not to be commended. It has been claimed that it is of great service in scarlatina, both for the purpose of producing sedation and keeping the kidneys active, thus tending to avert post-

scarlatinal dropsy and uremia. That it will do this without some heart debility being present also, is by no means well established, while, on the contrary, its unpleasant, nausea-provoking properties make it an undesirable remedy. It is better after dropsy has set in. The same is true of it in typhoid and other fevers, though it may be used to strengthen a weak heart following these infections.

Digitalis is of value in the second stage of lobar pneumonia to preserve the integrity of the heart and circulation, when through swelling and exudation in the respiratory tract venous stasis is set up in the capillaries and the right heart dilates and the ventricle is incapable of forcing the blood current through the pulmonic vessels. Signally useful when this stage attains, it is a mistake to give it before such an accident occurs on the presumption that it will forestall the catastrophe. No drug, and certainly no potent drug, should be administered for any purpose until the indications show the need of it. Under similar conditions it is sometimes of value in acute bronchitis and bronchopneumonia in children.

As an antihemorrhagic digitalis has no special advantages, while it is open to the objection of forcibly pumping the blood; though in capillary bleeding from large surfaces it is sometimes said to be useful.

Digitalis is useful as an antidote to aconite poisoning, but is very slow in action, having to be first preceded by rapidly acting stimulants. It may also be used to antidote the nitrites, and with atropine in muscarine (agaricin) poisoning.

Administration.—When given in large or in overlapping doses, digitalis may suddenly precipitate alarming conditions. This is due to inequality in the rate of absorption and elimination or destruction of the drug in the body. This state is the much feared "***cumulative action***," the possibility of which should never be forgotten when administering digitalis. The moment the appetite fails and the urinary secretion becomes diminished and the pulse becomes very slow and irregular, and headache, faintness and extreme prostration supervene, with sometimes nausea and vomiting, the drug at once should be discontinued. To avoid cumulative effects of digitalis it is customary to skip a day or two out of every week in its administration. Digitalis is slowly absorbed, and often much of it is destroyed in the gastro-intestinal tube. When through failure to be largely destroyed, or when

through irritation of the tract more is absorbed than is apparent, the balance between absorption and the usual slow elimination is overweighted and cumulation occurs. When full doses of digitalis are being administered the patient should be kept recumbent in bed and not allowed to arise even to respond to the calls of nature. Failure to observe this precaution has resulted in sudden death from syncope.

When the desire is both to impress the heart and eliminate dropsical effusion the infusion of digitalis is the preferred preparation, as it is also in auricular fibrillation. Sometimes, however, a good digitalin, which should be employed only subcutaneously, is preferred when a quicker action is desired, but the variability of this product should always be taken into consideration.

Digitalis contains no alkaloid. At least five glucosides are present, some of which are intensely poisonous; some relatively negative; while one, so far as the matter is understood, antagonizes the other four. Besides two acids, the other constituents are those of plants in general.

Under the name digitalin, the glucoside said to most nearly resemble in action the whole plant, several preparations have appeared in the drug mart from time to time which have little agreement either in action or qualities. Discordant views of the value of such preparations, or of such preparations of the whole plant as are standardized to contain a certain percentage of certain of its active glucosides, illustrate forcibly that the experiences of careful clinicians should weigh more in the selection of a preparation of digitalis than should the dictum of the laboratory man with test-tube and guinea pig records, valuable as they may be in some directions. That preparation of digitalis which gives the desired therapeutic results with the least toxic impression is the safest and most sensible agent to employ, regardless of its glucosidal constituents and percentage.

Only such digitalins as are prepared by the processes of Schmiedeberg are favored by the best clinicians; the so-called German and French digitalins are unreliable, as they are all more or less mixtures of digitalin and other glucosides while the first is probably devoid of digitalin altogether, and is said to be in reality digitonin (saponin). Homolle's and Nativelle's digitalins are no longer favored by the majority of physicians. It is asserted that the "digitalone" devised by Houghton is a fat-free, standardized composite of all the properties of

digitalis; each ampule for hypodermatic use, equaling 16 minims, and each tablet from 3 to 16 minims, of tincture of digitalis. Digifolin, also representing the whole drug, acts very effectively in some cases when the tincture or infusion cannot be employed. However, for most purposes the crude drug in infusion, and the tincture, are the preferred preparations; in Eclectic medicine the specific medicine is most largely used and is fully representative of the best therapeutic virtues of good digitalis leaves, though less toxic than some other alcoholic preparations of the drug. The tincture made from the green drug, though less toxic than that made from the dried drug, is preferred by some.

DIOSCOREA.

The rhizome of ***Dioscorea villosa***, Linné (Nat. Ord. Dioscoreaceae). A vine found throughout the United States. ***Dose***, 5 to 60 grains.

Common Names: Wild Yam, Colic Root.

Principal Constituents.—An acrid, alcohol-soluble resin, and a substance closely allied to saponin.

Preparations.—1. ***Decoctum Dioscoreae***, Decoction of Dioscorea (Dioscorea, 1 ounce; Water, 16 fluidounces). ***Dose***, 2 to 6 fluidounces.

2. ***Specific Medicine Dioscorea***. ***Dose***, 5 to 60 drops.

Specific Indications.—Bilious colic; other spasmodic colicky contractions; skin and conjunctivae yellow, with nausea and colicky pain; tongue coated, stomach deranged, and paroxysmal pain in the abdomen; twisting or boring pain, radiating from the umbilical region, with spasmodic contraction of the belly-muscles; colic with tenderness on pressure, which gives relief to the spasmodic action.

Action and Therapy.—The decoction of dioscorea has been wonderfully effective in some cases of bilious colic and has signally failed in others. If it does not give relief in a half hour it is not likely to succeed. The specific medicine administered in hot water has the same effect. Dioscorea is probably less anodyne than antispasmodic, and it is due to the latter action that colic is relieved. Not alone does it succeed in cases of bilious colic, but it acts similarly in paroxysmal pain, with contraction of the muscular tissues, in cholera morbus, indigestion, and dysenteric tenesmus. Ovarian neuralgia and

spasmodic dysmenorrhea sometimes yield quickly to it. In all disorders it seems best adapted to irritable and excitable conditions and is less efficient when due to atony. Though dioscorea has been used largely for nearly a century, its true place in therapeutics is still undetermined, probably because so many impossible claims have been made for it. Hepatic colic depends upon so many different conditions that it may help some cases quickly while others are unaffected by it. When large gall-stones are attempting to pass it is probably without power to relieve. Morphine is a better relaxant and is anodyne. Dioscorea seems best adapted to paroxysmal pain due to contraction of the nonstriated musculature of tubular organs, when brought on by any irritant or form of irritation. It does not dissolve calculi. Usually, while there is much tenderness in cases requiring dioscorea, the distress is gradually relieved by pressure.

DRACONTIUM (Symplocarpus).

The rhizome, roots and seeds of ***Symplocarpusfoetidus***, Linné (Nat. Ord. Araceae). A peculiar plant found in moist grounds in the United States. ***Dose***, 10 to 40 grains.

Common Names: Skunk Cabbage, Skunk Weed, Pole Cat Weed, Meadow Cabbage.

Principal Constituents.—A peculiar evanescent volatile substance, resin and volatile oil.

Preparation.—***Tinctura Dracontii***, Tincture of Dracontium (fresh root, 8 ounces; Alcohol, 16 fluidounces). ***Dose***, 1/2 to 2 fluidrachms.

Action and Therapy.—In large doses dracontium will cause nausea and vomiting, dizziness, headache, and impaired vision. In small doses it is a stimulant, expectorant, and antispasmodic. It very markedly relieves nervous irritation with tendency to spasmodic action, making it a remedy of some value in nervous irritability, asthma, and whooping cough, and in chronic coughs and catarrhs. The drug needs restudy from a therapeutic standpoint, for it undoubtedly possesses a marked action upon the nervous system. Only preparations from the fresh root are of any value. Skunk cabbage was an ingredient of many early Eclectic medicines, and is still a constituent of ***Acetous Emetic Tincture***, ***Compound Emetic Powder***, and ***Libradol***, the magma representing the latter compound.

DROSERA.

The herb ***Droserarotundifolia***, Linné (Nat. Ord. Droseraceae). A small plant of the fly-trap family found in boggy situations of Eastern North America and Europe.

Common Names: Sundew, Round-leaved Sundew.

Principal Constituents.—Probably citric acid and a ferment capable of converting albumens into peptones.

Preparation.—***Specific Medicine Drosera***. ***Dose***, 1/10 to 10 drops.

Specific Indications.—Expulsive or explosive spasmodic cough, with dryness of the air passages; cough of measles; whooping cough; uncontrollable, irritating cough.

Therapy.—Drosera, preferably in small doses, is of great value in the spasmodic dry cough characteristic of measles, and to a lesser extent for that of whooping cough and the irritability of the larynx following the latter. There may be simple irritation, particularly centered in the larynx, or inflammation may be present. It also relieves the tickling sensation in that organ giving rise to spasmodic cough. To a lesser extent it is useful in the coughs of bronchitis, incipient phthisis, spasmodic asthma, and in nervous or sympathetic cough occurring reflexly from other diseases. It probably acts upon the vagus.

DUBOISINA.

Duboisine.
The alkaloid obtained from the leaves of ***Duboisia myoporoides***, Robert Brown (Nat. Ord. Myoporaceae), the Corkwood elm or Ngmoo of Australia and New Caledonia. ***Dose***, 1/100 to 1/50 grain.

Preparations.-1. ***Duboisinae Sulphas***, Duboisine Sulphate. Dose, 1/100 to 1/50 grain.

2. ***Duboisina Hydrochloridum***, Duboisine Hydrochloride. ***Dose***, 1/100 to 1/50 grain.

Action and Therapy.—External. The sulphate of this alkaloid is sometimes used as a substitute for atropine as a mydriatic. Like

atropine, it is contraindicated by glaucoma and diseases of the fundus of the eye on account of its power to increase intraocular tension. It is a more rapid mydriatic and paralyzes accommodation more quickly than atropine and is less irritant to the conjunctivae.

Internal. Duboisine is very similar to, if not identical with, hyoscyamine, and the physiological effects of it are practically the same as those of the alkaloids of belladonna, hyoscyamus and stramonium. Sulphate of duboisine is an effective antagonist of muscarine and has been successfully employed in poisoning by mushrooms. It also checks colliquative sweating. It is reported prompter in action than atropine, and is said to be a better calmative and hypnotic in states of mental excitement. The morphine habit, paralysis agitans, and especially the excitability and insomnia of the insane have been treated with it. Administered in the smaller doses twice a day it is said to produce quiet, refreshing sleep. It frequently causes gastric disturbances, especially vomiting without previous nausea, and undoubtedly decreases the secretion of urine, hence it should be used with care and judgment.

DULCAMARA. (Solanum dulcamara)

The young branches of ***SolanumDulcamara***, Linné (Nat. Ord. Solanaceae). A vine common in Europe and the United States. ***Dose***, 1 to 30 grains.

Common Names: Bittersweet, Woody Night-Shade, Scarlet-Berry, Violet-Bloom.

Principal Constituents.—The alkaloid ***solanine*** and the glucoside ***dulcamarin***.

Preparation.—***Specific Medicine Dulcamara***. ***Dose***, 1 to 30 drops.

Specific Indications.—Scaly skin affections; acute disorders due to cold and dampness; deficient capillary circulation; depressed secretions of the skin with urinous odor; coldness and blueness of the extremities; fullness of tissues with tendency to edema.

Action and Therapy.—Dulcamara is an active agent capable of producing poisonous effects. These are those of the belladonna type, differing only in minor particulars. Cutaneous redness and congestion of the kidneys are especially apt to result from immoderate doses. Children are sometimes poisoned by eating the berries of the plant. Scudder suggested dulcamara in small doses in “cases of chronic

disease in which the circulation is feeble, the hands and feet cold and purplish, with fullness of tissues and tendency to edema." Locke advised it in acute disorders brought on by cold, dampness, and exposure. Using it in fractional doses he suggested its value in acute catarrhal disorders proceeding from cold or suspended cutaneous function; in suppression of the menses with nausea, headache, and chilly sensation, the flow having been arrested by a cold; in vesical catarrh, aggravated by dampness; catarrhal headache from acute colds; nasal catarrh; retrocession of eruptions, or primarily to develop the eruptions; and in dyspnoea, cough and pain in the chest due to exposure. Those who dwell or work in damp or cold quarters, especially children, are frequently the victims of catarrhal diarrhoea, and acute and chronic rheumatism. Such patients are benefited by dulcamara given in fractional doses. Larger doses (medium) are effective in some cases of acute mania, nymphomania and satyriasis, acting as do the more powerful of the group of solanaceous drugs. It will be observed that the therapeutic uses of dulcamara are closely allied to those of belladonna, minus the profound impression derived from atropine.

Dulcamara should be remembered as a possible remedy in chronic skin diseases of a pustular, vesicular or scaly type, particularly the latter. It may also be tried in pudendal itching.

ECHINACEA.

The dried root of ***Brauneria angustifolia***, Linné (***Echinacea angustifolia*** [DeCandolle], Heller). (Nat. Ord. Compositae.) In rich prairie soils of western United States, from Illinois westward through Nebraska and southward through Missouri to Texas.

Common Names: Narrow-leaved Purple Coneflower, Purple Coneflower, Coneflower.

Principal Constituents.—Minute traces of an unimportant alkaloid and an acrid body (1/2 to 1 per cent), probably of a resinous character linked with an organic acid. The latter is the chief active principle of the drug.

Preparations.—1. ***Specific Medicine Echinacea***. ***Dose***, 1 to 60 drops, the smaller doses being preferred. Usual method of administration: Rx. Specific Medicine Echinacea, 1-2 fluidrachms; Water, enough for 4 fluidounces. Mix. Sig.: One teaspoonful every 1 to 3 hours.

2. ***Echafolta***. (A preparation of Echinacea freed from extractive and most of the coloring matter. It also contains a small added quantity of tincture of iodine.

The label states that is iodized). ***Dose***, 1 to 60 drops. Usually administered the same as the specific medicine; except when iodine is contraindicated, or is undesired.

3. ***Echafolta Cream***. An ointment for external use.

Specific Indications.—"Bad blood"; to correct fluid depravation, with tendency to sepsis and malignancy, best shown in its power in gangrene, carbuncles, boils, sloughing and phagedenic ulcerations, and the various forms of septicemia; tendency to formation of multiple cellular abscesses of a semi-active character and with pronounced asthenia; foul discharges with emaciation and great debility; dirty-brownish tongue; jet-black tongue; dusky, bluish or purplish color of the skin or mucous tissues, with a low form of inflammation. It is of special value in typhoid states, in which it is indicated by the prominent typhoid symptoms—dry tongue, sordes on tongue and teeth, mental disturbances, tympanites and diarrheal discharges—and in malignant carbuncle, pyosalpinx, and thecal abscesses.

Action.—The physiological action of echinacea has never been satisfactorily determined. It has been held to increase phagocytosis and to improve both leukopenia and hyperleucocytosis. That it stimulates and hastens the elimination of waste is certain, and that it possesses some antibacterial power seems more than probable. Upon the mucous tissues echinacea causes a quite persistent disagreeable tingling sensation somewhat allied to, but less severe, than that of prickly ash and aconite. It increases the salivary and the urinary flow, but sometimes under diseased conditions anuria results while it is being administered. In the doses usually given no decided unpleasant symptoms have been produced; and no reliable cases of fatal poisoning in human beings have been recorded from its use. Occasionally bursting headache, joint pains, dry tongue, reduced temperature and gastro-intestinal disturbances with diarrhea are said to have resulted from large doses of the drug.

Therapy.-***External***. Echinacea is a local antiseptic, stimulant, deodorant, and anesthetic. Alcoholic preparations applied to denuded surfaces cause considerable burning discomfort, but as soon as the alcohol is evaporated a sense of comfort and lessening of previous pain is experienced. Its deodorant powers are remarkable, especially when applied to foul surfaces, carcinomatous ulcerations, fetid discharges from the ears, and in gangrene. While not wholly masking the odor of

cancer and gangrene it reduces it greatly, much to the comfort of the sick and the attendants. Echinacea is useful as an application where decay is imminent or taking place, reparative power is poor, and the discharges saneous and unhealthy. It is especially valuable in sluggish ulcers, bed sores, stinking tibial ulcers, and ulcers of the nasal mucosa, due either to ozaena or to syphilis. The greater the tendency to lifelessness and dissolution of the tissues and the more pronounced the fetid character of the discharges, the more applicable is echinacea. Used by spray it is effective to remove stench and to stimulate repair in tonsillitis, the angina of scarlatina, and though not alone capable of curing diphtheria, either by external or internal use, it stimulates the near-necrosed tissue to activity and overcomes the fetid odor, thus contributing in a large measure to aid more specific agents. A 10 to 50 per cent solution may be used to cleanse abscess cavities, to apply to ragged wounds from barbed wire, tin, and glass, wounds which for some reason are very painful and heal sluggishly. For this purpose we prefer Rx. Echafolta (or Echinacea), 1 fluidounce; Asepsin, 15 grains; Tincture of Myrrh, 2 fluidrachms; Sterile Water, enough to make 4 fluidounces. Mix. Apply upon sterile gauze, renewing at reasonable periods. This also makes a good mouth wash for foul breath and to remove odor and stimulate repair in pyorrhea alveolaris, spongy and bleeding gums, and aphthous and herpetic eruptions. Echinacea is sometimes of value in eczema, with glutinous, sticky exudation, and general body depravity; to give relief to pain and swelling in erysipelas, mammitis, orchitis, and epididymitis; to allay pain and lessen tumefaction in phlegmonous swellings; and to dress syphilitic phagedena. As a local application to chilblains it has done good service, and in poisoning by Rhus Toxicodendron is relied upon by many as one of the best of local medicines. We have found it especially useful in dermatitis venenata after denudation of the cuticle when ulcers form and the neighboring glands swell. Echinacea has a greater record for success than any single medicine for snake bites and insect bites and stings, and it may be used full strength to relieve the intolerable itching of urticaria. Some have asserted that it will abort boils. For the treatment of carbuncle, after thoroughly incising, a 50 per cent solution to full strength echinacea or echafolta may be freely used, syringing the channels with it. This gives great relief from pain and insures a quicker recovery.

For all the above-named purposes either echinacea or echafolta may be used: the latter is usually preferred where a cleanlier appearance is

desired. Moreover, in most of the conditions named repair takes place much sooner and in better form if the remedy is given internally concomitantly with its external use.

Internal. Echinacea is stimulant, tonic, depurative, and especially strongly antiseptic; it is in a lesser degree anesthetic and antiputrefactive. The necessity for remedies that possess a ***general antiseptic property*** and favor the elimination of caco-plastic material is most marked when one is treating diseases which show a depraved condition of the body and its fluids. Such a remedy for "blood depravation," if we may use that term, is echinacea. No explanation of its action has even been satisfactorily given, and that a simple drug should possess such varied and remarkable therapeutic forces and not be a poison itself is an enigma still to be solved, and one that must come as a novelty to those whose therapy is that of heroic medicines only. If there is any meaning in the term alterative it is expressed in the therapy of echinacea. For this very reason has a most excellent medicine been lauded extravagantly and come near to damnation through the extravagant praises of its admirers.

Echinacea is a remedy for autoinfection, and where the blood stream becomes slowly infected either from within or without the body. Elimination is imperfect, the body tissues become altered, and there is developed within the fluids and tissues septic action with adynamia resulting in boils, carbuncles, cellular tissue inflammations, abscesses, and other septicaemic processes. It is, therefore, a drug indicated by the changes manifested in a disturbed balance of the fluids of the body resulting in tissue alteration: be the cause infectious by organisms, or devitalized morbid accumulations, or alterations in the blood itself. It is pre-eminently useful in the typhoid state, and many physicians administer it regardless of any other indication throughout enteric fever as an intercurrent remedy. Echinacea is especially to be thought of when there are gangrenous tendencies and sloughing of the soft tissues, as well as in glandular ulcerations and ulcers of the skin. It is not by any means a cure-all, but so important is its antiseptic action that we are inclined to rely largely on it as an auxiliary remedy in the more serious varieties of disease-even those showing a decided malignancyhence its frequent selection in diphtheria, small-pox, scarlet fever, typhoid fever and typhoid pneumonia, cerebro-spinal meningitis, la grippe, uremia, and the surgical and serpent and insect infections. Foul smelling discharges

are deodorized by it and the odor removed from foul smelling ulcers and carcinomata, processes not alone accomplished by its topical use but aided greatly by its internal exhibition. In puerperal fever, cholera infantum, ulcerated sore throat, nasal and other forms of catarrh and in eczema and erysipelas it fulfills important indications for antisepsis.

Echinacea was introduced as a potent remedy for the bites of the rattlesnake and venomous insects. It was used both externally and internally. Within bounds the remedy has retained its reputation in these accidents, it probably having some power to control the virulence of the venom, or to enable the body to resist depression and pass the ordeal successfully; nevertheless fatalities have occurred in spite of its use. For ordinary stings and bites its internal as well as external use is advisable.

In the acute infectious diseases echinacea has rendered great service. Throughout typhoid fever it may be given without special regard to stated periods, but wherever a drink of water is desired by the patient, from 5 to 10 drops of Specific Medicine Echinacea may be given in it. Having no toxic power, and acting as an intestinal antiseptic, this use of it is both rational and effective. Cases apparently go through an invasion of this disease with less complications and less depression when the drug is so employed. The same is true of it in typhoid, pneumonia, septicaemia, and other septic fevers. It has the credit of regulating the general circulation, and particularly that of the meninges in the slow forms of cerebrospinal meningitis, with feeble, slow, or at least not accelerated pulse, temperature scarcely above normal, and cold extremities; with this is headache, a peculiar periodic flushing of the face and neck, dizziness, and profound prostration (Webster). It is evidently a capillary stimulant of power in this dreaded disease, in which few remedies have any saving effect. Echinacea has aided in the recovery of some cases of puerperal septicemia. Obviously other measures are also required. In non-malignant diphtheria, echinacea, both locally and internally, has appeared to hasten convalescence, but in the light of present day therapeutics it is folly to expect echinacea to cure the malignant type. A wide experience with the drug in such cases convinces us that we are leaning upon a slender reed when we trust alone to such medicines as echinacea and lobelia in malignant diphtheria. As many non-malignant cases tend to quick recovery, the use of good remedies like echinacea undoubtedly hastens the process. But to assume that it will cure every type of the

disease because it succeeds in aiding the milder forms to recover is to bring a good medicine into unmerited discredit. Moreover, when these claims were originally made, and probably in good faith, there was no exact means of establishing the bacterial nature of the disease, hence many tonsillar disorders were called diphtheria. The latter were, of course, benefited by it, for in tonsillitis, particularly the necrotic form with stinking, dirty-looking ulcerations, it is an excellent remedy. Echinacea is said to be a good agent in a malignant form of quinsy known as “black tongue”; and in “mountain fever”, closely allied to and often diagnosed as typhoid fever.

Echinacea is justly valued in catarrhal conditions of the nasal and bronchial tracts, and in leucorrhoea, in all of which there is a run-down condition of the system with fetid discharge, and often associated with cutaneous eruptions, especially of an eczematous and strumous type. Chronic catarrhal bronchitis and fetid bronchitis are disorders in which it has been used with benefit, and it is said to ameliorate some of the unpleasant catarrhal complications of pulmonary tuberculosis, and particularly to render easier expectoration in that form known as “grinder's consumption”. Patients suffering from common nasal and bronchial catarrhs have been greatly improved by echinacea when taking the drug for other disorders. Its stimulating, supporting and antiseptic properties would make echinacea a rational remedy for such disorders, particularly if debility and general tissue depravity were coexistent with the catarrh.

As a rule echinacea is of little or no value in agues, yet physicians of malarial districts assert it is of benefit in chronic malaria when of an asthenic type. Altogether likely its value, if it has any, lies in the betterment of the asthenia, rather than to any effect it may have upon the protozoal cause of the disease. In so-called typho-malarial fever it does good just in proportion as the typhoid element affects the patient. Both it and quinine would be rational medication.

Echinacea possesses no mean anti fermentative power, and by its local anaesthetic effect obtunds pain. When an offensive breath, due to gaseous eructation, and gastric pain are present, it proves a good medicine in fermentative dyspepsia. The symptoms are aggravated upon taking food. It is also serviceable in intestinal indigestion with pain and debility and unusually foul flatus, and has been recommended in duodenal catarrh. We can see no reason why it

should not have some salutary effect in both gastric and duodenal ulcer, for it antagonizes putrefaction, tissue solution, and pain. In ulcerative stomatitis and nursing sore mouth, in both of which it is very effectual, it should be used both internally and locally. When dysentery, diarrhea, and cholera infantum occur in the debilitated and the excretions are more than commonly foul, both in odor and shreds of tissue, echinacea is a serviceable adjunct to other treatment.

The dose of either specific medicine echinacea or echafolta ranges from 1 to 5 drops; larger doses (even 60 drops) may be employed, but small doses are generally most efficient if frequently repeated. They may be given in water or syrup, or a mixture of water and glycerin, as: Rx Specific Medicine Echinacea, 1-2 fluidrachms;Water, to make 4 fluidounces. Mix. Sig.: Teaspoonful every 1/2 or 1 hour in acute cases; every 3 or 4 hours in chronic affections. If these preparations are to be dispensed in hot weather, or are to be used in fermentative gastro-intestinal disorders, the substitution of 1/2 ounce of pure glycerin for 1 fluidounce of the water is advisable.

‡‡***Echafolta*** (now iodized) should be given internally only when iodine is not contraindicated, or is desirable. Formerly, before being iodized, it was used internally in the same manner and for the same purposes as Echinacea. The Echafolta should be reserved for external use.

Echafolta Cream is an admirable form in which to use Echafolta, where an ointment is desired, being a useful unguent in the various skin disorders in which Echafolta or Echinacea is indicated.

ELATERIUM.

The feculence of the juice of the fruit of ***EcballiumElaterium*** (Linné), A. Richard. (Nat. Ord. Cucurbitaceae.) A trailing vine of southern Europe.

Common Names (of fruit): Squirting Cucumber, Wild Cucumber, Wild Balsam Apple.

Description.—Light, brittle, flat flakes, pale-gray with a greenish or yellowish tinge, a tea-like odor, and an intensely bitter taste.

Principal Constituent.—The neutral purgative principle elaterin ($C_{20}H_{28}O_5$) present to the extent of 20 to 25 per cent.

Preparation.—***Specific Medicine Elaterium***. ***Dose***, 1 to 20 drops.

Derivative.—***Elaterinum***, Elaterin. (Odorless, very bitter, and slightly acrid, white scales or crystals; permanent in the air. Very soluble in chloroform; sparingly in alcohol, and almost insoluble in water.) Dose, 1/40 to 1/8 grain. Of the ***Trituratio Elaterini*** (elaterin, 1; sugar of milk, 9), 1/4 to 1/2 grain.

Specific Indications.—Chronic cystitis with pain in the neck of bladder, the urine passes in a torrent, and after micturition there is violent cramplike aching extending from the bladder into the pelvis and thighs; deep soreness or tenderness in the bladder, perineum, or throughout the pelvis, with tenesmic voiding of mucus or muco-pus-laden urine; dropsies of plethora; cerebral congestion; pulmonary edema.

Action and Therapy.—Elaterium is the most powerful and the best of the hydragogue cathartics. As such it is indicated only in individuals strong enough to stand depletion, and is always contraindicated in the weak and feeble. Overdoses-even a few grains-may produce a diffuse gastro-enteritis, with violent vomiting, cramps, and watery purgation. In medium doses only copious watery stools are produced, but with considerable depression. The treatment for excessive action of elaterium is that for gastro-enteritis in general.

In medium doses elaterium has been, and is still to a lesser extent, used as a dehydrating cathartic in chronic dropsies of hepatic or abdominal origin, and in chronic nephritis. When the liver is involved, with congestion or torpor, it may be given with podophyllin; if there are heart complications, with digitalis. It is quite certain to reduce the ascites; but when the latter is dependent on destruction of tissue, it does not, of course, cure the disease, of which the dropsy is but a symptom. It is often useful in dropsy after scarlet fever, if the patient is not greatly exhausted; and it is more especially indicated when uremic convulsions threaten or are present. Elaterium is a useful purgative when a revulsive is needed in cerebral congestion.

The small dose of elaterium is preferred for other specific purposes. Elaterium is ***the*** remedy for chronic inflammation of the bladder, as first announced by King. When indicated the urine rushes from the urethra as in a torrent and is accompanied by constant pain radiating from the neck of the bladder to the surrounding tissues, and micturition is followed by violent pelvic and femoral cramps. This

condition is frequently associated with general pelvic dragging and tenderness, and the urine is characteristic of chronic subacute inflammation-ropy with mucus or mucopus. The dose should be small enough not to provoke emesis or catharsis. The usual prescription is: Rx Specific Medicine Elaterium, 10-20 drops; Water, enough to make 4 fluidounces. Mix. Sig.: One teaspoonful 3 or 4 times a day.

For hydragogue purposes ***Elaterin*** is preferred by some physicians, though elaterium, notwithstanding its impurities, seems to be more generally efficient than its derivative.

EPIGÆA.

The leaves of ***Epigaea repens***, Linné (Nat. Ord. Ericaceae). A small, trailing, shrubby plant of the eastern half of the United States. ***Dose***, 5 to 60 grains.

Common Names: Trailing Arbutus, Gravel Weed, Gravel Plant, Ground Laurel, Mayflower.

Principal Constituents.—The glucosides ***arbutin*** ($C_{12}H_{16}O_7$), ***urson*** ($C_{20}H_{52}O_2$), and ***ericolin*** ($C_{26}H_{30}O_3$); and tannin.

Preparation.—***Specific Medicine Epigaea***. ***Dose***, 5 to 60 drops.

Specific Indications.—Uric and lithic acid deposits; debilitated and relaxed bladder, with mucus in the urine; irritable vesical membrane; voiding of urine containing blood or muco-pus.

Action and Therapy.—Trailing arbutus is a useful diuretic when the urine is loaded with deposits of red, sandy material, mucus or muco-pus. It renders the urine less irritating, and is valuable to relieve irritation of the mucous membranes, vesical tenesmus, dysuria, and strangury. The urine is of higher than normal gravity and may contain, besides deposited salts, lithic acid gravel and broken down blood. It is especially useful where the bladder wall becomes dense and irritated and the condition easily lapses into a chronic muco-purulent cystitis. The specific medicine or the fluidextract may be given in hot water.

Trailing arbutus is one of the plants fast disappearing from our flora, owing to its reckless gathering by wood-despoiling vandals. Thus a

beautiful wild flower, as well as a good medicine, is threatened with extermination.

EPILOBIUM.

The leaves and tops of ***Epilobiumangustifolium***, Linné, and Epilobium palustre, Linné (Nat. Ord. Onagraceae). North America. ***Dose***, 10 to 60 grains.

Common Names: 1. Willow Herb, Great Willow Herb, Rose Bay, Wickup. 2. Wickop, Swamp Willow Herb, Marsh Epilobium.

Principal Constituents.—The plants have not been satisfactorily examined.

Preparations.—1. ***Infusum Epilobii***, Infusion of Epilobium (1 ounce to water, 16 fluidounces). ***Dose***, 2 fluidrachms to 1 fluidounce.

2. ***Specific Medicine Epilobium***. ***Dose***, 10 to 60 drops.

Specific Indications.-"Diarrhoea with colicky pain; feculent discharges with tenesmus; diarrhoea with contracted abdomen; chronic diarrhoea with harsh, dirty-looking, contracted skin"; diarrhoea of typhoid fever; typhoid dysentery.

Action and Therapy.—Epilobium is a remedy for the diarrhoea of debility and irritability of the intestinal mucosa. It is the most certain and kindly remedy we have ever used to control the diarrhoea of typhoid fever; and the experience covers a period of years. The diarrhoea does not entirely cease, but becomes reduced to fewer movements and of an increased consistence.

It has long been recognized as a valuable agent in "camp or army diarrhoea"; and in domestic practice it is in common use in some parts of the country to check the summer diarrheas of young children—mucoenteritis, enterocolitis, gastro-enteritis, and cholera infantum. The experience of physicians justifies these claims. The indication is greenish discharges of half-digested food and mucus. It is equally useful in chronic dysentery and in that of a typhoid type. In most cases of intestinal irritation it acts well, and is indicated by a slick, contracted tongue with nearly effaced papillae and pinched emaciated features. It is also of service in impaired digestion with uneasy sensations in the abdomen, sometimes amounting to pain and even colic, and accompanied by a persistent diarrhea. The infusion is the best preparation. It may be prepared in the usual way, and aromatized

with essence of peppermint and preserved with a small quantity of glycerin.

EQUISETUM.

The plant, ***Equisetumhyemale***, Linné (Nat. Ord. Equisetaceae). A peculiar leafless plant found throughout the northern and western parts of the United States in damp and wet situations. ***Dose***, 5 to 60 grains.

Common Names: Scouring Rush, Horse Tail, Shave Grass.

Principal Constituents.—A large amount of silica, a soft green resin, and ***equisetic acid*** (aconitic acid).

Preparation.—1. ***Specific Medicine Equisetum***. ***Dose***, 5 to 60 drops.
2. ***Infusum Equiseti***. Infusion of Equisetum. ***Dose***, 1 to 2 fluidounces.

Specific Indications.—Cystic irritation; tenesmic urging to urinate; nocturnal urinal incontinence; renal calculi.

Action and Therapy.—Equisetum is diuretic and astringent. It is asserted to greatly relieve irritation due to the presence of gravel and the tenesmic urging to urinate in acute inflammations of the genito-renal tract. When the bladder becomes so irritable that the patient, upon dropping to sleep, loses control over the urine it is said to be specially serviceable. It has restrained hematuria and is of service in acute prostatitis and in the prostatorrhea which follows it. The infusion (1 ounce to Water, 16 fluidounces) is the preferred preparation.

ERECHTITES.

The entire plant and oil of ***Erechtites hieracifolia***, Rafinesque (Nat. Ord. Compositae.) A rank weed throughout the United States.

Common Name: Fireweed.

Principal Constituent.—A volatile oil (***Oleum Erechtitis***).

Preparation.—***Oleum Erechtitis***, Oil of Fireweed. ***Dose***, 5 to 10 drops.

Specific Indications.—Catarrhal states and passive hemorrhages; “albuminurea, dropsy, pale waxy skin, swelling of the feet, scanty urine” (Watkins).

Action and Therapy.—True oil of fireweed (much that is sold is oil of fleabane) improves the appetite and digestion, stimulates the functions of the gastro-intestinal glands and pancreas, and causes free and full alvine evacuations, rendering it useful in chronic constipation, especially when acid fermentation and flatulence are present. Its ultimate effect upon the circulation is to raise vascular tension. It is eliminated most largely by the lungs, and to a lesser extent by the kidneys and skin. The class of disorders it benefits are those attacking the bronchial and renal mucosa, it being effective in relieving chronic bronchitis, pulmonic catarrhs with cough, and genito-urinary catarrh, pyelitis, and cystitis. It has been suggested in chronic nephritis, with pale, waxy skin and pedal edema. For this purpose the dose should not be over one drop of the oil, in emulsion, well diluted. Usually the oil is administered on sugar.

ERIGERON.

The whole plant of ***Erigeroncanadense***, Linné (Nat. Ord. Compositae). A common and troublesome weed through the northern and central parts of the United States.

Common Names: Canada Fleabane, Colt's Tail, Pride Weed, Scabious.

Principal Constituents.—A volatile oil (***Oleum Erigerontis***), and tannic and gallic acids.

Preparations.—1. ***Specific Medicine Erigeron***. ***Dose***, 1 to 60 drops.
2. ***Oleum Erigerontis***, Oil of Erigeron. ***Dose***, 5 to 30 minims, on sugar.

Specific Indications.—(Oil) capillary or passive hemorrhages, hematuria, hemoptysis, epistaxis, hematemesis, and metrorrhagia; “painful diseases of the kidneys and bladder, and in diseases of the mucous membranes attended by free discharges” (Scudder). Infusion, choleraic discharges, sudden, gushing, and watery, attended with thirst and cramping pain, and sometimes streaked with blood.

Action and Therapy.—Erigeron restrains excessive bowel and kidney discharges. An infusion is a deservedly popular remedy for profuse summer diarrheas of infants, especially that of cholera infantum and gastroenteritis. It is indicated by the suddenly gushing and copious evacuations, with cramps, or with but little pain, but often with the

presence of slight amounts of blood. The infusion is better than alcoholic preparations for these purposes; besides it supplies water to take the place of the natural fluids so greatly depleted by the discharges. It is also useful in dysentery with passages of mucus and blood. As a remedy for slight hemorrhages, as from the bowels and kidneys, it is rather weak, but sometimes effectual; the oil is a much surer acting hemostatic. Both may be used as a diuretic in gravelly conditions as well as in chronic nephritis, when the urine is tinged with blood, or even where passive hemorrhage is present. It has restrained the pathologic flow of urine in polyuria, or so-called diabetes insipidus.

The oil of erigeron is a good internal hemostatic. It sometimes checks quite severe uterine hemorrhages, and for very small oozings of blood it is one of the very best agents to control the flow. It is also indicated in epistaxis and moderate bleeding from the stomach, bowels, and kidneys. Given in syrup it is useful as a cough medicine when there is bloody expectoration.

ERIODICTYON.

The dried leaves of ***Eriodictyoncalifornicum*** (Hooker and Arnott), Greene (Nat. Ord. Hydrophyllaceae). A shrubby plant of California and northern Mexico. ***Dose***, 5 to 30 grains.

Common Names: Yerba Santa, Mountain Balm.

Principal Constituents.—Resin, volatile oil, the glucoside ***ericolin***, and ***eriodictyonic acid***.

Preparation.—***Specific Medicine Yerba Santa***. ***Dose***, 5 to 30 drops.

Specific Indications.—"Cough with abundant and easy expectoration" (Scudder). "Chronic asthma with cough, profuse expectoration, thickening of the bronchial membrane, loss of appetite, impaired digestion, emaciation" (Watkins).

Action and Therapy.—A stimulating expectorant having a kindly and beneficial action upon digestion. It is to be employed where there are excessive catarrhal discharges of the bronchial and renal tracts. It may be used where there is chronic cough with free secretions, as in chronic bronchitis, bronchorrhea, humid asthma, and the cough of

phthisis. Some cases of chronic catarrh of the stomach and catarrhal cystitis have been successfully treated with it.

ERYNGIUM.

The rhizome of ***Eryngiumyuccifolium***, Michaux (Nat. Ord. Umbelliferae). A swamp and wet prairie plant found from Virginia to Texas. ***Dose***, 10 to 40 grains.

Common Names: Eryngo, Water Eryngo, Button Snakeroot, Rattlesnake's Master, Corn Snakeroot.

Principal Constituents.—(Has not been analyzed.)

Preparation.—***Specific Medicine Eryngium***. ***Dose***, 5 to 40 drops.

Specific Indications.—Burning pain, with renal, vesical or urethral irritability; painful micturition, with frequent urging to urinate; frequent, scanty and scalding urination; scanty urine, with frequent and ineffectual attempts to urinate; deep-seated pain in bladder extending into the loins; profuse mucous discharges.

Action and Therapy.—The root of eryngium, when chewed, causes a profuse flow of saliva; in large doses it is emetic. Its chief properties are those of a diuretic and expectorant. While of considerable value in chronic laryngitis and bronchitis with free and abundant secretion of muco-pus, it is of most service in irritation of the bladder and urethra, with itching, burning, and constant urging to urinate. It is also useful in dysuria with tenesmus. For that condition in women during or following menstruation, or during the menopause, when sudden chilling throws the burden of excretion upon the kidneys, it is invaluable to control the bladder symptoms—as fullness, burning, itching, frequent attempts at urination, or when every movement of the body is accompanied by the involuntary passing of urine. We know of no remedy that acts so promptly and satisfactorily in such conditions. In the male it relieves uneasy sensations, with burning and itching throughout the vesical, prostatic, and urethral tracts, especially when following gonorrhea or gleet. It is not contraindicated by inflammation and is of great value in acute cystitis, with deep-seated, burning pain, and where normal secretion is scanty and pathologic catarrh is more abundant. It acts well with apis or gelsemium, with the latter especially when there is a hyperaemic state of the bladder. It relieves the burning pain of urination in gonorrhea. It is indicated to relieve the difficulties

of voiding urine from the presence of gravel and of chronic nephritis; and it restrains the excessive discharges of chronic cystitis. When spermatorrhea. is provoked by urethral irritation, eryngium serves to limit the frequency of losses.

Sometimes eryngium will be found useful in digestive disorders, with persistent gastric irritation and mucous diarrhoea. In these cases the tongue is red and tender, nausea is marked, and there is a strong for food.

EUCALYPTUS.

The leaves of ***Eucalyptus Globulus***, Labillardiere. Collected from the older parts of the tree. (Nat. Ord. Myrtaceae.) A native tree of Australia; cultivated elsewhere.

Common Name: Blue Gum Leaves.

Principal Constituents.—A volatile oil (***Oleum Eucalypti***) composed largely of ***eucalyptol*** (cineol) ($C_{10}H_{18}O$), and a resin.

Preparations.—1. ***OleumEucalypti***, Oil of Eucalyptus (contains a large proportion, not less than 70 per cent, of eucalyptol). it is colorless or pale yellow, aromatic and pungent, and has a spicy, cooling taste. ***Dose***, 1 to 10 drops.

2. ***Eucalyptol***, a neutral body derived from the oil. It is a colorless, spicy, aromatic fluid, with a cooling taste. ***Dose***, 1 to 10 drops.

3. ***Specific Medicine Eucalyptus***. ***Dose***, 5 to 30 drops.

Specific Indications.—Cold extremities and cold perspiration; perspiration during chill; sense of coldness and weight in the intestines; chronic mucous or muco-purulent discharges; pus in the urine; pasty, bad-smelling tongue; fetid excretions; fetid sore throat; fetid catarrhal states of the broncho-pulmonary tract; chronic ague with exhaustive discharges.

Action.—Eucalyptus, and its oil and derivative, are gentle stimulants when given in small doses. Large doses are irritant and may cause gastrointestinal inflammation and renal congestion. Muscular prostration occurs from overdoses. Blood pressure is lowered by full doses. All the secretions are stimulated when these agents are given in medicinal amounts. All preparations of Eucalyptus are considered antiperiodic and the planting of groves and trees in miasmatic swamps

and low grounds is thought to render the air free from malarial miasm. The probabilities are that the enormous quantities of water absorbed by these trees does good by drying the swamps and thus making them poor breeding places for malaria-bearing insects. It is said that a part of the deadly Roman Campagna has been rendered habitable by the introduction of Eucalyptus groves.

Therapy.—***External***. Eucalyptus preparations are antiseptic and disinfectant. They may be sprinkled or sprayed upon offensive material and used to disinfect and deodorize the sick room. They also may form an ingredient of antiseptic poultices and ointments. Dropped upon hot water, or used in suitable oil dilution in sprays, they are useful as throat and pulmonary antiseptics and stimulants. Eucalyptol is especially much employed in subacute inflammations and chronic diseases of the bronchopulmonic tract, with fetor, relaxation and abundant secretions. Used upon cancerous surfaces they mask the fetid odor and give some relief from pain. The following is an ideal vaginal wash for offensive leucorrhea: Rx. Sea Salt, 1 lb.; Fluidextract of Eucalyptus or Specific Medicine Eucalyptus, 1/2 fluidounce. Mix in a glass or tin container. Sig.: One tablespoonful to 1 pint of hot water, and inject with a glass syringe. All preparations of eucalyptus may be used from full strength to any desired dilution upon old ulcers, wounds, gonorrhoeal discharges, ozoena, septicemia, and gangrene; all with free but fetid discharges. Inhalations of them are especially useful in pulmonary gangrene.

Internal. Eucalyptus is a fine stimulating expectorant for bronchopulmonary catarrhal disorders, when no very active inflammation is present. It restrains discharges, facilitates expectoration, and deodorizes and antisepticizes the sputum. Chronic bronchitis, bronchorrhea, and the debility, with difficult expectoration, lingering in the wake of bronchopneumonia and lobar pneumonia are conditions in which it is of very great value.

Agents of this type, which may be compared to the turpentines, and which influence the respiratory membranes, usually are valuable for similar uses in the urino-genital tract. Thus we find eucalyptus an alterative and antipyic in pyelitis and in catarrhal and purulent cystitis, particularly in the aged. Being eliminated by all the mucous surfaces, it exerts its antiseptic influence upon them in all parts of the body. While the oil and eucalyptol are popular with many, we prefer the

specific medicine or the fluidextract for most purposes.

Eucalyptus is a stimulating antiseptic for the angina of scarlatina, for which by some it is administered internally. This should be done with great care, however, for the drug is liable to produce congestion of the kidneys, one of the dreaded complications which is easily provoked in the acute exanthemata. If acute desquamative nephritis is present it should not be employed; in the advanced stage of chronic nephritis with very marked fetor in the urine, and scanty secretion of urine, very small doses of eucalyptus may be cautiously tried. Eucalpytus and its preparations are distinctly contraindicated when acute inflammation of any part exists.

The antimalarial properties of eucalyptus are taken advantage of in cases of malarial infection that do not respond to quinine or in which the quinine has an otherwise undesired effect. The more chronic the cases—without distinct cycles—the better the drug seems to act. It is also naturally used for many of the complications or results of chronic malarial cachexia, as periodic headache and neuralgia. It is only in occasional cases of malarial fever that it does a great deal of good, especially acting best if there are exhaustive discharges, but it is never without some beneficial power. It is not to be compared to cinchona medication in the ordinary run of malarial fevers. Used according to indications as given above, eucalyptus is a very satisfactory and pleasant medicine. It is best given in syrup or glycerin.

EUONYMUS.

The bark of the root of ***Euonymusatropurpureus***, Jacquin (Nat. Ord. Celastraceae.). A small shrub or bush of the United States. ***Dose***, 5 to 60 grains.

Common Names: Wahoo, Indian Arrow-wood, Burning Bush, Spindle Tree.

Principal Constituents.—A bitter glucoside ***euonymin***, closely resembling digitalin; ***asparagin***, and euonic acid. (Euonymin should not be confounded with the resinoid of the same name employed by the early Eclectics.)

Preparation.—***Specific Medicine Euonymus***. ***Dose***, 5 to 60 drops.

Specific Indications.—Yellow-coated tongue; anorexia; indigestion and constipation, due to hepatic torpor; prostration with irritation of the nerve centers; periodic diseases, to supplement the action of

quinine.

Action and Therapy.—Wahoo sharpens the appetite, improves digestion, stimulates the hepatic function, and increases nutrition. It has decided laxative properties and is to some extent antiperiodic. Locke declared it one of the few good stomach tonics. Its antimalarial influence is best displayed after the chill has been broken by quinine. It may then be given as a tonic, and it materially assists in preventing a recurrence of the paroxysms. However, it is not a major remedy in intermittents, and general tonic effects are chiefly to be expected. It acts much better in the gastric debility following intermittent fevers than during the active attacks. Euonymus is a good stomachic bitter in atonic dyspepsia with malarial cachexia, or when due to faulty and torpid action of the liver. Many value it in so-called chronic ague, and in the constipation and gastric debility associated with or following it. Euonymus is a neglected bitter.

EUPATORIUM PERFOLIATUM.

The flowering tops and leaves of ***Eupatorium perfoliatum***, Linné (Nat. Ord. Compositae). Swamps and low meadows throughout the United States. ***Dose***, 5 to 60 grains.

Common Names: Boneset, Thoroughwort, Indian Sage, Ague Weed, Through-Stem, Thorough-Wax, Crosswort, Vegetable Antimony.

Principal Constituents.—Volatile oil, tannin, and a soluble, bitter glucoside—***eupatorin***.

Preparations.—1. ***Specific Medicine Eupatorium***. ***Dose***, 5 to 60 drops.
2. ***Infusum Eupatorii***, Infusion of Boneset. ***Dose***, 1 to 4 fluidrachms.

Specific Indications .—Large full pulse, the current showing little waves; skin hot and full, with a tendency to become moist, even during the progress of fever; deep-seated aching pain (so-called “bone pains”) in muscles and periosteum; cough, embarrassed breathing, and pain in the chest; urine turbid and urination frequent; influenzal cough and aching pain.

Action.—Eupatorium, in small doses, acts as a simple bitter; in large doses it is emetic. Given in hot infusion it causes both emesis and profuse diaphoresis; sometimes catharsis also results. In cold infusion,

or small doses of the alcoholic preparations, it is tonic and aperient. It also has marked but unexplainable antimalarial properties.

Therapy.—Eupatorium is an old American drug that has found its way into general medicine through aboriginal and domestic usage. Formerly it was a favorite emetic and was successfully used at the outset of fevers of the bilious remittent and intermittent types. Its antiperiodic properties were well known and used to advantage in ague districts many years ago. Its property of relieving deep-seated pain was also early recognized, obtaining for it the vulgar name of "Boneset". It is now seldom, or never, used as an emetic chiefly because emetics are not often employed, and also on account of the bitterness of the drug and the quantity of infusion required. Its thoroughness as such, however, cannot be questioned, and it has no poisonous or depressing qualities. Eupatorium is now used in malarial affections of the irregular and masked types, and particularly those not benefited by quinine. The chill and succeeding fever are slight, the skin dry, and not, as a rule, followed by perspiration; there is deep-seated, aching pain, as if "in the bones", praecordial oppression, and great thirst. If, however, the fever lasts all day, slight sweating may occur at night. An added indication in ague is vomiting, especially of much bile. Formerly the hot infusion was given to emeto-catharsis, and followed during the intermission with tonic doses of the cold infusion. This is now known to be unnecessary, full doses, short of nausea, of the alcoholic preparations being fully as efficient. Malarial headache, with irregular intermittence, is also relieved by small doses of the drug.

Eupatorium is an admirable remedy "to break up a common cold," especially when accompanied by deep-seated, aching pain and slight or no fever. If there are pleuritic pain and hoarseness, it is also valuable. In every epidemic of influenza it has been used with great advantage. During the severe pandemic of 1918-19 it was one of the safest and most successful remedies employed and contributed much to the successful management of the disease under Eclectic treatment. By many it came to be used as a prophylactic, persons taking it freely apparently escaping attack. Notwithstanding this, its prophylactic power, if it has any, is as yet unexplained and should not be seriously relied upon. That cases were rendered milder, deep-seated pain promptly relieved, cough and respiratory irritation lessened, and recovery expedited under the liberal administration of eupatorium is a matter of record. It is especially valuable to relieve the intolerable

backache and pain in the limbs. Eupatorium often relieves periosteal pain of a neuralgic type, particularly if associated with malarial infection, but it renders no service in that caused by inflammation or by syphilitic or other organic changes in the periosteum.

In respiratory affections boneset is efficient to relieve cough, acting best in that occurring in the aged and debilitated, where there is an abundance of secretion, but lack of power to expel it. It also relieves hoarseness, and sometimes benefits in humid asthma. It is one of the best of medicines to relieve the irritable cough of measles, but care must be taken not to push its effects to nausea and vomiting. For children it is best administered in an aromatized syrup. In pneumonia it relieves chest pains and cough, and for these purposes may be employed in the early stage of acute lobar, but more effectually in broncho-pneumonia. After the active stages have passed it again becomes useful to allay the irritable after-cough and to assist in expectoration when bronchorrhea occurs. Being tonic and stomachic, when given in small doses it improves the appetite and digestion and thus favors a more rapid and perfect convalescence.

EUPATORIUM PURPUREUM.

The root of ***Eupatorium purpureum***, Linné (Nat. Ord. Compositae). Low meadows and woods of the United States. ***Dose***, 5 to 60 grains.

Common Names: Queen of the Meadow, Gravel Weed, Gravel Root, Joe Pye Weed.

Principal Constituents.—Volatile oil and a resin (***eupatorine***).

Preparations.—1. Specific Medicine Gravel-Root. ***Dose***, 1 to 60 drops.

2. ***Decoctum Eupatorii Purpureii***, Decoction of Gravel Root (1 ounce to Water, 16 fluidounces). ***Dose***, 1 to 3 fluidounces.

Specific Indications.—Vesical irritation; incontinence of urine, painful and frequent urination; pain and weight in loins extending to the bladder; scant and milky urine with admixture of blood and mucus.

Action and Therapy.—While of some value in chronic gastro-intestinal irritation, with catarrhal secretion, and in some forms of cough, with free expectoration, the chief use of gravel-root is to relieve chronic

irritation of the urinary passages. For this purpose it is one of the most satisfactory of medicines. It is adapted to cases in which there is constant urging to pass urine, accompanied by a sense of obstruction, and the excretion is mixed with mucus and blood. Though not curative, it is often invaluable in chronic nephritis, to meet many of the unpleasant urinary symptoms. For the uric acid diathesis gravel-root is one of the best of drugs. It will not, as has been claimed, dissolve gravel, but by its diuretic action it eliminates those particles which may form the nuclei of larger concretions. Besides, its effects upon irritated or inflamed parts due to such deposits when present is to soothe and heal them. It especially relieves the deep-seated pelvic perineal aching common to sufferers from cystitis and subacute prostatitis, For passive hematuria it is one of the best drugs we possess. When hydragogues have been used to deplete the body in ascites, gravel-root, by stimulating diuresis, greatly retards the reestablishment of the effusion.

Gravel-root relieves the urinary disturbances of pregnancy so far as difficulty in voiding urine is concerned. It is also very useful in prostatitis, acting best after the acute inflammatory condition has been subdued.

Gravel-root is a neglected drug and often should be employed in urinary disorders where less efficient and more harmful agents are displayed. High-colored urine, with blood and solids and voided with pain, and milky-looking urine, should lead one to hope for good results from its use. If the specific medicine is administered it should be given in hot water. The decoction is often the best form of administration. It acts well with the special sedatives, and if fever is present or the skin is hot, dry, and constricted it may be given with aconite or gelsemium.

EUPHORBIA COROLLATA.

The bark of the root of ***Euphorbiacorollata***, Linné (Nat. Ord. Euphorbiaceae). Dry fields and woods of Canada and the United States.

Common Names: Large Flowering Spurge, Blooming Spurge, Milk Purslane, Snake Milk.

Principal Constituents.—Resin, caoutchouc, and probably ***euphorbon***.

Preparation.—***Specific Medicine Euphorbia***. ***Dose***, 1/10 to 10 drops.

Specific Indications.—Persistent gastric irritation; irritative diarrhea of catarrhal discharges, with debility; long-pointed tongue, with prominent papillae; uneasy sensation in the stomach; cholera infantum, with hot, tumid abdomen and constant desire to defecate, the stools being greenish and irritating; irritation of the respiratory tract, especially the glottis, with persistent cough and tough and tenacious secretion.

Action and Therapy.—In full doses euphorbia is a comparatively mild emetic; in overdoses it causes drastic emeto-catharsis. It was formerly used to fulfill the purposes of an emetic and purgative in dropsical conditions. It is now used chiefly in small doses for irritation of the gastrointestinal and respiratory tracts. It often relieves diarrhea and dysentery, with full and tenesmic passages. It is especially useful in cholera infantum, with hot, tender abdomen and constant desire to go to stool, the discharges being greenish and irritating. Euphorbia is a good gastrointestinal sedative and tonic, and is most effective when the tongue is red, long and pointed, and there is persistent vomiting. In moderate doses it may be used in obstinate constipation, with evidence of gastric irritation. Euphorbia is contraindicated by active inflammation.

Bowles (***Eclectic Medical Journal***, 1921, page 459) praises Euphorbia as an excellent sedative for persistent, irritative cough following influenza, and that due to chronic catarrhal inflammation of the larynx and pharynx. The glottis seems especially irritable and the cough is exasperating—worse from riding or walking in the cold air, or is aggravated by exertion after a full meal. There is but little secretion, and that is tough, tenacious, and glutinous, and requires persistent hawking to aid in its expectoration. One or two drops may be taken upon the tongue and slowly swallowed; or 40 drops of Specific Medicine Euphorbia may be added to 4 ounces of water, and of this a teaspoonful may be taken every 2 hours. Bowles also used it, with phytolacca and phosphate of hydrastin, to reduce enlarged tonsils following tonsillitis.

The American species of Euphorbia furnish a rich field for restudy. Formerly some of them were quiet extensively used as medicines, but seem to have been crowded out by similarly-acting foreign drugs.

The chief indications for Euphorbia are: profuse mucous discharges, whether from the pulmonic, gastro-intestinal, or urino-genital mucosa; or the tough, glutinous tracheo-broncho-pulmonic secretions, with irritation.

EUPHORBIA HYPERICIFOLIA

The entire plant ***Euphorbia (Chamaesyce) hypericifolia***, Linné (Nat. Ord. Euphorbiaceae). A common weed in rich soils of gardens and waste places throughout the United States.

Common Names: Large Spotted Spurge, Garden Spurge.

Principal Constituents.—Tannin, gallic acid, and a caoutchouc-like body.

Preparation.—***Specific Medicine Spotted Spurge***. ***Dose***, 1 to 10 drops.

Specific Indications.—Gastro-intestinal irritation with greenish and irritant passages.

Action and Therapy.—True, testing this plant upon himself, found the infusion to produce a full frontal headache, similar to but less severe than that caused by macrotys, with an unpleasant fullness with oppression at the epigastrium, and a sense of languor and drowsiness. Intense constipation followed. He concluded that it is a cerebral stimulant, and secondarily a sedative to the brain and sympathetic nervous system.

The drug is valuable in gastro-intestinal irritation with watery and mucoid discharges, having been used most successfully in cholera infantum, cholera morbus, muco-enteritis and dysentery, after the acute inflammation has subsided. For the first-named child's disorder it is one of the most certain of sedative-astringents.

EUPHORBIA IPECACUANHA.

The bark of the root of ***Euphorbidpecacuanha***, Linné (Nat. Ord. Euphorbiaceae) A perennial found in dry sandy soils on the Atlantic seaboard from Long Island south and west to the Middle States.

Common Names: American Ipecac, American Ipecacuanha, Wild Ipecac, Ipecac

Spurge.

Principal Constituents.—An active resin and ***euphorbon***.

Preparations.—1. ***Fluidextractum Euphorbiae lpecacuanhae*** Fluidextract of Euphorbia Ipecacuanha. ***Dose***, 1 to 10 drops.

2. ***TincturaEuphorbiaeIpecacuanhae***, Tincture of Euphorbia Ipecacuanha (8 ounces to Alcohol, 76 percent 16 fluidounces). ***Dose***, 1 to 10 drops. (***Usual form of Administration***.—Tincture of Euphorbia Ipecacuanha, 20 drops, Water to make 4 fluidouncesounces. Mix. Sig.: One teaspoonful every 2 or 3 hours.)

Action and Therapy.—This is an old American medicine that was formerly employed as a substitute for ipecac. It is less active than Euphorbia corollata, but like it produces emeto-catharsis. In small doses it quiets irritation of the mucous membranes, proving useful in both gastrointestinal and bronchial disorders. The indications and uses are practically the same as those given for Euphorbia corollata, which see. Besides, it has been advised in irritative dyspepsia, and jaundice with obstinate hepatic torpor. For the latter purposes the larger doses are to be employed.

EUPHORBIA PILULIFERA.

The whole plant ***Euphorbia pilulifera*** (***Chamaesyce hirta***), Linné (Nat. Ord. Euphorbiaceae). A plant of tropical climes and throughout the gulf states of the United States.

Common Names: Pill-bearing Spurge, Cat's Hair, Queensland Asthma Weed.

Principal Constituents.—Resins of a glucosidal character, tannin, and salts of potassium, sodium, magnesium, and silica.

Preparation.—***Specific Medicine Asthma Weed***. ***Dose***, 1 to 30 drops.

Specific Indications.—Spasmodic and dyspneic breathing with bronchial irritation.

Action and Therapy.—A remedy for spasmodic asthma and coughs of a convulsive character due to recent colds. It is somewhat anodyne as well as antispasmodic and expectorant, and is asserted useful in the irritative, teasing, and paroxysmal coughs of the chronic bronchitis of old persons and consumptives. It is also said to relieve dyspnea of cardiac origin and to be of some use in emphysema. It may be

administered in syrup, if desired.

EUPHRASIA.

The plant ***Euphrasia officinalis***, Linné (Nat. Ord. Scrophulariaceae). Europe and America. ***Dose***, 1 to 30 grains.

Common Name: Eyebright.

Principal Constituents.—An acrid, bitter principle and a volatile oil.

Preparation.—***Specific Medicine Euphrasia***. ***Dose***, 1 to 60 drops.

Specific Indications.—Acute catarrhal diseases of the eyes, nose, and ears; fluent coryza with copious discharge of watery mucus. "Secretion of acrid mucus from the eyes and nose with heat and pain in the frontal sinus" (Scudder).

Action and Therapy.—An admirable remedy for acute catarrhal inflammations of the nasal and ocular membranes, with profuse, watery secretion or abundant flow of acrid mucus, and attended with heat, pain, burning, and sneezing. It is one of the most certain agents in acute coryza and in mucous ophthalmia, with abundant lacrimation. It is equally effective when acute catarrhs extend to the ears through the Eustachian passages, and are attended by earache, headache, sneezing, and coughing. Euphrasia is useful both to prevent and to relieve, in the early stages, acute frontal sinusitis. During or following measles it controls the distressing catarrhal symptoms. In all disorders its most direct indication is profuse watery discharge with acute inflammation or irritation. It is less valuable in the catarrhal disorders of the gastro-intestinal tract.

Euphrasia is a striking example of a simple drug that has acquired a great and exaggerated reputation in folk-medicine. Euphrasia means "good cheer, or delight," and refers to its reputed "effects upon the spirits through its benefits to the sight" (Millspaugh). It once enjoyed a great but unsustained reputation as a cure for all diseases of the eye, even becoming the theme of the poet's pen—Milton referring to it in Paradise Lost, as purging "the visual nerve." It came into Eclectic medication from Homeopathic sources, but with some modifications of symptomatology. The characteristic symptom calling for it is acridity of the discharges, and this is emphasized by Homeopathic writers. It

matters little whether the discharges be thin and watery, or thick and yellow—they are free, biting and excoriating, making the lids red and sore. It is essentially a remedy for catarrhal states and for superficial, not deep, eye disorders. Accumulation upon the cornea of sticky mucus befogging vision is a euphrasia indication. With such ocular disorders is usually more or less coryza, which may be far less hot and biting, or may be bland. The drug has proved especially useful in the epidemics of la grippe in recent years to control the profuse lachrimation. Euphrasia sometimes proves serviceable in hay fever, having the characteristic discharges above mentioned.

FABIANA.

The leaves and branches of ***Fabianaimbricata***, Ruiz and Pavon (Nat. Ord. Solanaceae). A Chilean tree-like shrub.

Common Name: Pichi.

Principal Constituents.—Resin, ***fabianine*** (?), a supposed alkaloid, and an aesculin-like body.

Preparation.—***FluidextractumFabianae***, Fluidextract of Fabiana. ***Dose***, 5 to 60 drops.

Action and Therapy.—A remedy for functional catarrhal diseases of the stomach, kidneys, and bladder. Like all the terebinthinates when given in small doses, it is of some value in vesical pain with frequent urination, cystic irritation, with dysuria and vesical tenesmus, and in nocturnal urinal incontinence. It is asserted useful in acute albuminuria, with blood in the urine, and due chiefly to renal hyperemia, but should be avoided in chronic nephritis. Pichi has no curative effects upon pathologic tissues, but is a remedy for functional defects alone.

FARINA TRITICI.

The sifted flour of the grain of ***Triticum sativum***, Lamarck (Nat. Ord. Graminaceae).

Common Names: Wheat Flour, Common Flour.

Principal Constituents.—Starch, vegetable albumin, and proteids of gluten, (glutenfibrin, mucedin, and gliadini), and a small amount of allantoin.

Derivative.-***Furfures Tritici***, Bran.

Action and Therapy.—***External***. Bread made of wheat flour is an excipient of some pills, and forms the basis of the bread and milk poultice. Wheat-flour paste well thinned is emollient and may be used per rectum for the administration of medicines in colitis. Rarely wheat flour is used as a dusting powder for burning and itching surfaces, as in urticaria, erysipelas, sunburn, and mixed with molasses promptly relieves the pain in burns and scalds. Infusion of bran is a useful emollient for rough skin, and assists in removing the odor of such agents as iodoform.

Internal. A thinned paste of wheat flour is demulcent and may be used to protect an irritated stomach and esophagus in cases of irritant and corrosive poisons. In the absence of starch it may be used to antidote poisoning by iodine. Bran, mixed with stewed fruits or baked in a biscuit or cake, is a common mechanical laxative for habitual constipation, often proving more effective than medicines.

FEL BOVIS.

Oxgall, Oxbile. The fresh bile of ***Bos Taurus***, Linné (Family, Bovidae), the Common Ox.

Description.—A brown-green or dark-green, disagreeably bitter, and somewhat viscous liquid, having a peculiarly unpleasant taste. Neutral or slightly alkaline in reaction. Used in preparing Extract of Oxgall.

Principal Constituents.—Bile acid salts (***glycocholates*** and ***taurocholates***), and bile pigments (***bilirubin***, ***biliverdin***, ***bilifuscin***, etc.), and ***cholesterin***.

Preparation.—***Extractum Fellis Bovis***, Extract of Oxgall, (Powdered Extract of Oxgall). ***Dose***, 1 to 5 grains.

Action and Therapy.—Common oxgall is used by the laity for the gallstone diathesis, and the purified form by physicians whenever there is a deficient supply of normal bile, particularly in chronic constipation with clay-colored stools, in jaundice and in intestinal dyspepsia, due to hepatic torpor.

FICUS.

The fleshy receptacle of ***Ficus Carica***, Linné bearing fruit on its inner surface. (Nat. Ord. Moraceae.) Persia and Asia Minor; cultivated in all mild latitudes.

Common Name: Fig.

Action and Therapy.—***External***. Emollient. A roasted, boiled, or raw fig is exceedingly efficient to hasten suppuration in gum boil, boils in the nose or ears and elsewhere, and in buboes and carbuncles. The great surgeon, Billroth, employed a poultice of dried figs and milk to overcome the stench of cancerous and fetid ulcers.

Internal. Nutritive, demulcent, and aperient. Figs are frequently resorted to by individuals inclined to constipation. An elegant aperient confection is employed by the laity under the homely name of "fruitcake." It is prepared by pounding together in a mortar equal quantities of figs, dates, raisins, prunes, and senna leaves. This is wrapped in tinfoil, and sliced off and eaten according to the requirements of the individual.

FOENICULUM.

The ripe fruit of ***Foeniculumvulgare***, Miller (Nat. Ord. Umbelliferae). ***Dose***, 10 to 30 grains.

Common Names: Fennel, Fennel Seeds, Sweet Fennel.

Principal Constituent.—A sweet volatile oil.

Preparations.—1. ***Infusum Foeniculi***, Infusion of Fennel (60 grains [approx. 4 grams] to Water, 8 fluidounces). ***Dose*** (infants), 1 fluidrachm; (adults), 2 fluidounces.

2. ***Specific Medicine Fennel***. ***Dose***, 10 to 60 drops.

Action and Therapy.—A splendid carminative and stimulant for flatulent colic in babies. It should not be sweetened with sugar, as it is sufficiently sweet in itself, while added sugar defeats the purpose for which it is being administered. Hot fennel tea is not an unpleasant remedy for amenorrhoea, and for suppressed lactation. Fennel is often used as a corrigent of unpleasant medicines. It is an ingredient of

Compound Licorice Powder.

FRANCISCEA.

The root and stem of ***Brunfelsia(Franciscea)uniflora***, Pohl (Nat. Ord. Solanaceae). A tropical American shrub.

Common Names: Manaca, Vegetable Mercury.

Principal Constituents.—A weak alkaloid ***manacine***, and probably gelsemic acid.

Preparation.—***FluidextractumFranciscea***, Fluidextract of Franciscea. ***Dose***, 10 to 60 drops.

Action and Therapy.—Diuretic and probably alterative. It is employed along the Amazon for rheumatism and syphilis. It is capable of producing gastro-enteritis and death. Manaca has been proposed for rheumatism confined more to the muscles and tendons than to the articular forms, acting best when there is dull, heavy pain, soft skin and the absence of fever. It is thought to act somewhat like guaiac.

FRANGULA (Rhamnus frangula).

The dried bark of ***RhamnusFrangula***, Linné (Nat. Ord. Rhamnaceae). Collected at least one year before being used. A shrub of wet situations in Europe, Siberia, and Northern Africa. ***Dose***, 2 to 60 grains.

Common Names: Buckthorn, Alder Buckthorn.

Principal Constituents.—The glucoside ***frangulin*** (***rhamnoxanthin***) and ***emodin***, both only found in old bark.

Preparations.—1. ***Specific Medicine Frangula***. ***Dose***, 20 to 60 drops.

2. ***ElixirFrangula***, Elixir of Frangula (Fluidextract of Frangula, 1 part; Elixir of Orange, 4 parts). Dose, 1 to 2 fluidrachms.

Action and Therapy.—Fresh frangula bark causes emeto-catharsis and colicky pain. The dried bark is purgative only. A remedy for chronic constipation, a dose of 20 drops of the fluidextract, or a fluidrachm of the elixir, being repeated three times a day.

FRANKENIA.

The plant ***Frankeniasalina***, Chamisso and Schlectendal (Nat. Ord. Frankeniaceae) Native of California and sandy soils of adjacent Pacific Coast.

Common Name: Yerba reuma.

Principal Constituent.—Tannin (6 per cent).

Preparation.—***FluidextractumFrankenia***, Fluidextract of Frankenia. ***Dose***, 5 to 25 drops.

Action and Therapy.—Used both internally and by injection or spray, for catarrhal diseases and other discharges from the mucous membranes, diarrhea, vaginal leucorrhea, gonorrhea, and gleet, and the different types of catarrh. It is little used.

FRASERA.

The dried root of ***Fraseracarolinensis***, Walter (Nat. Ord. Gentianaceae). A striking plant found in the Middle and Southern States, west of the Alleghenies. ***Dose***, 5 to 60 grains.

Common Name: American Columbo.

Principal Constituents.—***Gentiopicrin***, ***gentistic acid***, and berberine. (?)

Preparation.—***Specific Medicine Frasera***. ***Dose***, 5 to 60 drops.

Action and Therapy.—The recent root is reputed cathartic and emetic. When dried it is a simple, mild tonic to be used like the simple bitters. Scudder regarded it as a stimulant to the circulation and to the vegetative functions. Its persistent use in moderate doses is said to have overcome obstinate constipation; like the other simple bitters, it may be of some value in chronic catarrhal dyspepsia. From 5 to 60 drops of Specific Medicine Frasera, well diluted, may be given every four hours.

FRAXINUS.

The dried bark of ***Fraxinussambucifolia***, Lamarck, and ***Fraxinusamericana***, Linné (Nat. Ord. Oleaceae.) Forest trees of northern United States and Canada. ***Dose***, 10 to 60 grains.

Common Names: 1. Black Ash, Elder-leaved Ash. 2. White Ash.

Principal Constituent.—A bitter alkaloid in minute quantity.

Preparation.—***Specific Medicine Fraxinus***. ***Dose***, 10 to 60 drops.

Action and Therapy.—Probably of some value in uterine subinvolution, with pelvic heaviness and dragging pain, and soreness and headache at the vertex and occipital base of the skull. That it will cure uterine tumors, as has been claimed, is extremely doubtful and lacks sufficient proof to be given credence. Its relative, the White Ash, is said to be cathartic.

FUCUS.

The marine plant ***Fucus vesiculosus***, Linné (Nat. Ord. Moraceae). A perennial seaweed.

Common Names: Bladder-wrack, Sea Wrack, Kelp-ware, Black-tang, etc.

Principal Constituents.—Sodium and potassium salts of iodine, bromine and chlorine.

Preparation.—***Specific Medicine Fucus***. ***Dose***, 5 to 30 drops.

Action and Therapy.—Fucus, once exploited as a remedy for obesity, is no longer relied upon for that purpose. It has, however, alterative properties, probably due to the haloid elements it contains, and deserves study for its influence upon waste and nutrition. It is somewhat diuretic, and is believed to give tone to lax muscular fibers. Fatty degeneration of the heart has been benefited by it, and it relieves irritation and chronic inflammation of the bladder. Its power of lessening irritation and congestion has led to its successful use in acute desquamative nephritis. From 5 to 20 drops should be taken every 3 or 4 hours.

GALIUM.

The herb ***Galium aparine***, Linné, and other species of Galium (Nat. Ord. Rubiaceae). Common in moist grounds in Europe and the United States.

Common Names: Cleavers, Goose-Grass, Catch-Weed, Bedstraw.

Principal Constituents.—Rubichloric, gallitannic, and citric acids.

Preparations—1. ***Infusum Galii***, Infusion of Galium (1 ounce to Water, 16 fluidounces). ***Dose***, 1 to 4 fluidounces.
2. ***Specific Medicine Galium***. ***Dose***, 5 to 60 drops.

Specific Indications.—Dysuria and painful urination in febrile and inflammatory states; renal and cystic irritation with burning; "nodular growths or deposits in skin or mucous membranes" (Scudder).

Action and Therapy.—Galium is a useful refrigerant diuretic in fevers and inflammations, and to relieve dysuria with pain and scalding or burning in the urethra or neck of the bladder. It may be used as a sedative diuretic in scarlet fever. It is undoubtedly alterative and may be exhibited in scrofulous disorders, but has been unwisely claimed as a remedy for carcinomatous growths.

Galium tinctoria is aromatic and has been recommended in the spasmodic cough of asthma and chronic bronchitis. The best use for these drugs is as diuretics.

GALLA.

An excrescence on ***Quercusinfectoria***, Olivier, and other allied species of Quercus (Nat. Ord. Fagaceae), caused by the punctures and deposited ova of the ***Cynips tinctoria***, Hartig.

Common Names: Nutgall, Galls.

Principal Constituents.—Tannin (24 to 80 per cent) and gallic acid (1 1/2 per cent).

Preparations.—1. ***Pulvis Gallae***, Pulverized Galls. ***Dose***, 5 to 20 grains.
2. ***Unguentum Gallae***, Ointment of Nutgall (20 per cent nutgall).

Action and Therapy.—Galls are astringent and owe this property to the large quantity of tannic acid they contain. As an internal medicine and largely for external purposes they have been supplanted by gallic and tannic acids, which see. Galls, however, are considered especially effective in hemorrhoids, being preferred by many as a local application, in ointment, in preference to the acids named. They are commonly associated with opium for the same purpose.

GAMBIR.

An extract prepared from the leaves and twigs of ***OurouparіaGambir*** (Hunter), Baillon (Nat. Ord. Rubiaceae). Sumatra, Ceylon, and countries bordering the Straits of Malacca. ***Dose***, 1 to 30 grains.

Common Names: Gambir, Gambeer, Terra Japonica, Pale Catechu.

Description.—Irregular masses or cubes, reddish-brown, pale brownish-gray or light brown, friable, crystalline, and breaking with a dull earthy fracture, bitterish with sweetish after-taste, no odor and great astringency. ***Dose***, 15 grains.

Principal Constituents.—***Catechutannic acid*** (35 to 40 per cent) the active astringent; ***catechin*** (catechuic acid) probably inert; and ***pyrocatechin***.

Preparations.—1. ***Trochisci Gambir***, Troches of Gambir (Gambir about 1 grain, Sugar, Tragacanth, and Orange-flower Water).

2. ***Tinctura Gambir Composita***, Compound Tincture of Gambir (Gambir and Cinnamon). ***Dose***, 1 fluidrachm.

Action and Therapy.—***External***. Gambir is powerfully astringent. It restrains excessive discharges, overcomes relaxation and congestion, and checks local hemorrhages. Gambir is now used in place of catechu (extract of wood of ***Areca Catechu***) as it carries practically the same bodies in more available form, though it contains less tannin than that extract. It may be used in relaxed sore throat, relaxed uvula, and the relaxation and congestion of the fauces common to speakers and singers. A gargle or the troches may be employed. It is rarely used, by injection, in leucorrhoea, and in powder or tincture to control epistaxis. It is a good astringent for congested and spongy gums.

Internal. The powerfully astringent properties of gambir are utilized in the control of serous diarrheas. If there is much mucus present a purge of castor oil is advised, to be followed by the gambir alone, or with camphorated tincture of opium. It is seldom used in modern Eclectic practice.

GAULTHERIA.

The leaves of ***Gaultheriaprocumbens***, Linné (Nat. Ord. Ericaceae). Damp woods and sandy soils of eastern third of the United States.

Common Names: Wintergreen, Teaberry, Mountain Tea, Boxberry.

Principal Constituents.—An aromatic volatile oil (***Oleum Gaultheriae***); ***arbutin***, ***ericolin*** and ***urson***.

Preparations.—1. Oleum Gaultheriae, Oil of Wintergreen. True Oil of Wintergreen; composed of about 96 per cent of methyl salicylate. ***Dose***, 5 to 15 drops.

2. ***Specific Medicine Gaultheria***. ***Dose***, 5 to 20 drops.

3. ***Spiritus Gaultheriae***, Spirit of Gaultheria (Essence of Wintergreen—5 per cent of oil in alcohol). Chiefly a flavor essence.

Related Oil.—***Methylis Salicylas***, Methyl Salicylate or Artificial Oil of Wintergreen. This is prepared synthetically and sold under the name of Oil of Wintergreen. Its source must be stated on the label. It ranges from colorless to yellowish or reddish and has the odor and taste of wintergreen. ***Dose***, 5 to 15 drops.

Specific Indications.—Irritation of the bladder and prostate gland; undue sexual excitement, and early stage of renal inflammation.

Action.—Oil of wintergreen has identically the same physiological action as salicylic acid except that in poisonous doses it is more certain to produce coma. The symptoms of toxic doses are drowsiness, cerebral congestion with throbbing of the carotids, delirium, contracted or dilated pupils, visual disturbances, tinnitus aurium, paresis, somnolence, and coma preceding death. Autopsy reveals congestion of the stomach, duodenum, and the kidneys.

Therapy.—***External***. Oil of wintergreen in full strength may be applied to carious teeth to relieve toothache. In full strength, or in suitable dilution with olive oil or cottonseed oil, it provides a good painrelieving application for acute articular and chronic rheumatism and in gonorrheal arthritis. If used very strong the skin may subsequently exfoliate. Applied to denuded surfaces it is readily absorbed and may produce toxic effects.

Embrocations containing oil of wintergreen are valuable for local inflammatory swellings, neuralgic pain, pleurodynia, myalgia, itching, and swelling and stiffness of the joints. The following are a few of many such liniments: (1) Oil of Gaultheria, 3 fluidrachms; Oil of Olive, enough to make 6 fluidounces. Mix. (2) Oil of Gaultheria, 3 drachms; Salicylic Acid, 20 grains; Alcohol, 2 fluidounces; Oil of Olive, enough to make 6 fluidounces; Mix. Shake when used. Especially useful upon

rheumatic joints. (3) Oil of Gaultheria, 3 fluidrachms; Chloroform Liniment and Soap Liniment, 2 fluidounces each. Mix. Shake when used. For painful surfaces. (4) Oil of Gaultheria, 2 fluidounces; Asepsin, 15 grains; Echafolta and Alcohol, 2 1/2 fluidounces each. Mix. Valuable for application to cuts, bruises, and diluted with water as a mouth wash.

Internal. Specific Medicine Gaultheria, or an infusion (Leaves, 1 ounce to Water, 16 fluidounces), has a specific action upon the urino-genital tract, relieving irritation and subacute inflammation. This action is especially exerted upon the neck of the bladder and in the prostatic urethra. It does not greatly increase the secretion of urine, but renders its voiding easier by alleviating the sphincteric irritation. It is, therefore, a remedy for dysuria. In incipient renal inflammation it sometimes does good, and in acute tubal nephritis it is asserted to have given benefit even where blood and tube casts are passed. Considerable good has been accomplished with it when spermatorrhea and sexual excitement are caused by urethral irritability and prostatic fullness. The specific medicine may be administered in 5 to 15 drops doses in water 3 or 4 times a day. Some physicians have advised both gaultheria and its oil for the relief of hepatic congestion and in sluggish vascularity and engorgement of the intestinal glands, as well as to relieve hemorrhoids by overcoming congestion of the portal vessels.

Oil of gaultheria has aromatic and antiseptic properties. It consists most largely of methyl salicylate, over 90 parts at least, and is therefore analogous to salicylic acid and the salicylates in its effects. Large doses depress the heart just as the salicylates do; large doses also cause nausea and vomiting. Used within bounds, short of sufficient to induce gastric derangement, it is very useful where an anti-rheumatic is demanded and in cystic disorders with putrescent urine. Too long continued, however, it may induce renal irritation, and this must be carefully guarded against. Urine that was ammoniacal and putrescent a few hours after passage has been followed, after the administration of twenty drops of the oil, by an output that remained free from putrefaction for twelve days. One part of the oil in about two hundred of urine has preserved the latter from change for eighteen days. Hence the value of this oil in cystitis with putrescent urine. While few agents should be administered with digitalis, oil of wintergreen is a grateful adjuvant and does not impair the usefulness of the foxglove. If for any

reason sodium salicylate disagrees with rheumatic patients, oil of wintergreen, which is less likely to contain deleterious by-products, may be given. It is useful in all types of acute rheumatism in which salicylic acid or the salicylates are effective. Those most benefited are the acute inflammatory rheumatism and so-called gonorrheal rheumatism, a specific gonorrheal arthritic infection. Small doses have relieved facial neuralgia and tic douloureux; and sometimes it exerts a soothing and antiseptic effect in acute gonorrhea. The oil may be administered in olive oil or in the form of the spirit (essence) mixed with sweetened water.

The essence is of service in dry, persistent bronchial cough, and the specific medicine in cough with considerable bronchial secretion. It is also useful in the colic of infants.

Gaultheria is an agent of special value as a flavoring agent and preservative for water-dispensed medicines in the summer season. For this purpose it should be widely used. The spirit (50 parts of oil of gaultheria to 950 parts of alcohol) is the preferred form for this purpose.

GELATINUM.

Gelatin.

A purified glue prepared by boiling gelatinous animal tissues in water and purifying, evaporating and drying the product.

Description.—A non-crystalline solid in sheets, flakes, shreds, or powder; without color or slightly yellowish, and having a feeble characteristic taste. Unalterable in dry air, but readily decomposes when moist or in solution. Insoluble in alcohol, fixed or volatile oils, ether, chloroform or cold water, but swelling and softening in the latter, 5 to 10 per cent of which it absorbs; soluble in hot water, glycerin, and acetic acid. It is largely employed in making gelatin capsules for the tasteless administration of medicines.

Preparation.—***Gelatinum Glycerinatum***, Glycerinated Gelatin.

Action and Therapy.—Styptic and protective. Gelatin may be used in the treatment of some forms of eczema and nasal catarrh; and as a soothing protective in rectal affections. It enters into the pharmacal preparation of capsules, lozenges, wafers, suppositories, court plasters, and as a coating for pills. Its intravenous or hypodermoclytic use (of

about 3 ounces of a 1 per cent sterile solution) to increase blood coagulation in aneurism or hemorrhage is less in favor than formerly, now that coagulin and similar ready prepared biological preparations are available.

Internal. Gelatin is demulcent and may therefore be used as a lenitive after cases of irritative poisoning. While having some antidotal power over iodine and bromine and the alums, it is undesirable on account of the length of time required to prepare it properly for use. As a proteid food it is prepared largely in various ways for feeding the sick, and owing to its freedom from the formation of indol it has been advised as a part of the diet in intestinal putrefaction showing marked indicanuria.

GELSEMIUM.

The dried rhizome and roots of ***Gelsemiumsempervirens*** (Linné,) Aiton (Nat. Ord. Loganiaceae). ***Dose***, 1/10 to 1 grain.

Common Names: Yellow Jasmine, Yellow Jessamine, Carolina Jasmin.

Principal Constituents.—Two bitter alkaloids—crystallizable ***gelsemine***, the paralyzing agent, and amorphous ***gelseminine***, a very toxic and tetanizing principle, and a volatile oil. There is also present ***gelseminic acid*** (***beta-methyl-aesculetin***).

Preparation.—***Specific Medicine Gelsemium***. ***Dose***, 1/10 to 10 drops. Usual method of administration: Rx Specific Medicine Gelsemium, 10 drops to 1 fluidrachm; Water, enough to make 4 fluidounces. Mix. Sig.: One teaspoonful every 1 to 3 hours.

Specific Indications.—***Hyperemia***; bright eyes, contracted pupils, great heat, and nervous unrest; mental irritability; insomnia, with nervous excitation; pain over the whole head; tremulousness, with great nervous excitement and high temperature; irritation of urinary tract; dysuria, with scant secretion of urine; arterial throbbing, with exalted sensibility; pinched, contracted tissues; convulsions, with hyperaemia; thin, dry, unyielding os uteri, with dry and hot vaginal walls.

Action.—Gelsemium acts chiefly upon the spinal cord, first impressing the sensory tract, even to the extent of producing complete anesthesia; later, its dominant action occurs, that of expending its force on the motor neurons, causing paralysis of motion. Sometimes this sequence

is reversed. Upon the higher brain it has but slight effect, but upon the motor filaments of the nerves of the head, particularly the third and sixth cranial pairs, its action is profound. This is well shown by the resultant palpebral ptosis and relaxation of the jaw. Respiration is first stimulated, then depressed. Moderate doses do not appreciably disturb the circulation. Toxic doses, however, depress both the pulse rate and the blood pressure. In man convulsions do not occur. Both gelsemium and gelsemine, when dropped into the eye, cause violent dilation of the pupil, with accompanying paralysis of accommodation. The mydriasis is not so lasting as that from atropine. Gelsemium is quickly absorbed and spends its force in about three hours. The alkaloid gelsemine, correspondingly more active, is eliminated unchanged by way of the kidneys. Death from gelsemium is due to asphyxia. Gelsemium does not affect all human beings alike, some' being but slightly influenced by it while others are profoundly impressed. The smallest active doses (ranging from 5 to 15 minims of the specific medicine or fluidextract, according to susceptibility) occasion a languid sense of ease and slight lowering of the force and frequency of the pulse. Larger doses induce a desire to lie down, and cause vertigo, disturbed sight, and sometimes orbital pain. Continued small doses may, after several hours, provoke vomiting; otherwise it has little or no effect upon the stomach or bowels.

Toxicology.—Toxic doses produce extreme muscular relaxation and prostration, double vision (sometimes blindness), widely dilated and immovable pupils, internal squint, and the eyelids droop and are raised with difficulty, or complete paralytic palpebral ptosis occurs. Often the patient sinks in his tracks, or if he stands he staggers. Sensibility is greatly impaired, the jaws drop and speech fails. Breathing becomes slow, labored, and shallow; the pulse rapid, weak, and thready; the skin is wet with cold sweat, and the body-heat markedly depressed. Drowsiness may be felt, but consciousness is usually retained until just before death, evidence that the higher cerebral centers are but slightly involved. Death takes place from centric respiratory paralysis, and almost simultaneous arrest of the action of the heart.

The cardinal symptoms of poisoning by Gelsemium, therefore, are ***ptosis, diplopia, dropping of the lower jaw, and absolute muscular prostration***.

In poisoning by gelsemium or its alkaloids, the emetic or stomach pump should be used if the patient is not too weak. Tannic acid (or strong infusion of store tea) should be administered, external heat applied, and artificial respiration attempted as soon as breathing shows signs of failure. Stimulation of the respiratory function should be enforced by the hypodermatic use of atropine, and that of the heart by ammonia, ether, alcohol and digitalis, the first three in the order named, to sustain the organ until the digitalis, which should be given at once, can act.

It has been asserted that morphine completely antidotes the poisonous effects of gelsemium. As gelsemium poisoning is quite rare the antidotal treatment is none too well established and is, therefore, based mostly on general principles.

Therapy.—Gelsemium is primarily the remedy for ***acute hyperemia of the brain and spinal centers.*** All through the woof and warp of its therapy runs the thread of nervous excitation and unrest; and often fever, spasm, and pain. In proper doses it relaxes high nervous and muscular tension. By diminishing the velocity of the blood current to the head and spinal tract it prevents spasmodic action. It is, therefore, a remedy for hyperaemia; never a remedy for congestion. It is the specific agent for relief in the nervously excited and highly feverish state, for the child with hot head and tremulous and jerky muscles, for great restlessness with elevation of temperature; for the touchy and grouchy but feverish individual who magnifies his ailments; and for those who dread even the simple ordeals and trials of life. The most direct indication for its employment is ***exaltation of nervous function***. It is contraindicated by a weak heart and feeble circulation. As an antispasmodic it stands unrivaled save by lobelia and bromide of potassium, with both of which it acts kindly and harmoniously. “The flushed face, bright eye, contracted pupil, increased heat of head, great restlessness and excitation” are the classic indications for it as first formulated by Scudder, and these stand among the truest of specific guides ever recorded for the use of a medicine.

Though not classed as an antipyretic, gelsemium softens blood pressure, slowly reduces the pulse, and overcomes hyperaemia associated with exalted nervous action, thus making it indispensable in some kinds of inflammation and fevers. This period of excitement usually obtains early in the febrile state. When this nervous tension

has been relieved by the drug, then its usefulness is practically at an end. To continue with it would imperil the integrity of the heart, which, while apparently but little affected during health, appears to be readily endangered by it during the advanced stages of febrile process. Only in sthenic fevers is it indicated; never when the heart is weak or degenerate or the patient is prostrated by debility. A soft, open pulse, moist skin, cleaning moist tongue and nerve calm being essential to the effective use of quinine, gelsemium is administered in the febrile stage of malarial or intermittent fevers to produce these effects and prepare the way for the kindly action of that great antiperiodic. This it does with directness and dispatch. Even before this preparatory use gelsemium alone was employed in these diseases with asserted success by early Eclectic practitioners, and in doses which we of to-day would hesitate to administer. In other forms of fever, as remittent and so-called bilious types, which tip the balance one way or the other toward malarial fever or typhoid fever, the drug is efficient if the indications above noted are strictly observed. For the febricula of children, with great and tremulous agitation, high fever, headache, and near spasmodic explosiveness, it is unsurpassed both to allay the fever and to give rest and sleep. Scudder remarks that in fevers "we find many times that its influence is very decided; it causes relaxation of the system; the pulse is less frequent and softer; the respiration is slower; the skin becomes cooler, soft and moist; there is less determination of blood to the head, and if there is pain in it, it is reduced or entirely ceases, while at the same time we frequently notice an increased secretion of urine." In typhoid or enteric fever its use should be more guarded. When of the robust type with vigorous onset, it is serviceable if used early, but when the slightest evidence of enfeeblement of the heart or disintegration of the blood is apparent it should be withheld at once. Under such circumstances we have seen a rapidly dicrotic and irregular pulse and prostration ensue, even though but small doses were being administered. By no certain means can this result be wholly attributed to the drug, yet surely the stage for gelsemium medication has then passed. In puerperal fever it is useful as long as exalted nervous tension calls for it.

As stated gelsemium is a remedy of marked usefulness in the sthenic fevers of childhood. The more these tend to convulsive complications the stronger becomes the indication for this agent. Infants, however, are quite susceptible to the drug and the dose for them should be minute—even fractional. In inflammatory bowel disorders of children,

particularly during dentition, it is one of our most direct medicines, and is then most potent in enteritis, gastro-enteritis, cholera infantum, and diarrhoea and dysentery, both with tenesmus—all of which derangements are so often the blight of the child's second summer. Here the direct guide will be the exalted nervous tension, the increased heat of head and body, the brilliant, shifty eyes, great restlessness, and the near explosive state. If convulsion occur, then larger doses will control the spasms.

Observing the indications undeviatingly gelsemium will be found one of the best remedies for the spasms of childhood, or infantile convulsions. Though single remedies are preferred in Eclectic practice, the following combination is the most effectual we have used for such attacks: Rx Specific Medicine Gelsemium and Specific Medicine Lobelia, 1 fluidrachm each; Potassium Bromide, 1 drachm; Water enough to make 4 fluidounces. Mix. Sig.: One teaspoonful every five minutes until the spasms cease. Then administer one teaspoonful of the solution every two hours for one or two days. The bowels should be thoroughly emptied by a copious enema of soapy water and the child immersed in a warm bath (tested by the attendant's bare elbow), with a cold pack to the head. If the convulsions are due to gastro-intestinal abuse, the spasms are soon controlled; if they are the precursors of infectious or other diseases, and centric in origin, an advantage will have been gained by the early use of the gelsemium.

Gelsemium is an important sedative in the early stage of acute bronchitis, broncho-pneumonia, lobar-pneumonia, and pleurisy. In pneumonia it is less often required than veratrum, but in all acute respiratory inflammations, of a sthenic type, it may be required to meet the nervous manifestations and to give rest. In acute febrile and inflammatory diseases it is frequently effective in quieting delirium and overcoming insomnia. This is particularly evident in la grippe. Of the few remedies that offer any therapeutic hope in acute cerebro-spinal meningitis and acute poliomyelitis gelsemium has been favorably considered. Its administration should not be continued in the former when effusion takes place, nor in the latter when paralysis is established.

Gelsemium is a remedy for pain, provided it is dependent upon or associated with nervous tension. For pain in the weak and apathetic it has no value. It has fully justified its reputation in simple neuritis and

various types of neuralgia when there is hyperaemia, nervous irritability and sharp, muscular twitching. Under these conditions it may be used in intercostal neuralgia (often the precursor of herpes zoster), ovarian neuralgia, and is sometimes effectual in sciatic neuritis or neuralgia, though too much reliance must not be placed upon it in this affection. If sciatic and other forms of neuritis are purely nervous and hyperaemic, it is most likely to be of service, but if dependent upon sugar toxemia, pressure, injury, loaded caecum, or pelvic sublaxation, other measures must be resorted to. The best results from gelsemium in neuralgia are obtained in trigeminal or facial neuralgia, dependent upon cold, dental caries, or peridental inflammation. Toothache in apparently sound teeth, but with violent throbbing from active circulation, frequently yields to this drug. Liberal doses of gelsemium are required to ease neuralgic pain. It gives relief in recent tic douloureux with active circulation in the head, but when the Gasserian ganglion becomes permanently impaired it fails, as do other medicines. Surgical relief is then the only rational procedure. In acute inflammatory rheumatism gelsemium is serviceable chiefly to allay excitement and to some extent alleviate the pain. It is adapted only to the initial stage and when sthenic conditions prevail, and then only as an aid to the more direct antirheumatic remedies. It is one of the commonest and best remedies for myalgia due to the strain of muscular exertion, or to recent colds from exposure to inclement weather.

Various forms of headache yield to gelsemium. It is best adapted to nervous headache with active circulation and throbbing pain. Occasionally it serves well in migraine, but is less effectual than the synthetic analgesics. It is more efficient when headache is caused by eye-strain.

Limited to the indications of nervous excitement with increased vascularity and spasmodic or colicky pain, gelsemium is of very great utility in dysmenorrhea in robust subjects, as it is also in so-called uterine colic. Full doses are required. It acts favorably, when similarly indicated, in ovaritis and metritis, and in salpingitis before suppuration sets in; after that it is of no other value than to quiet the nervous phenomena.

Scanty urine, with hyperaemic irritation of the renal organs and urinary passages, is a direct indication for gelsemium. It should then

be given preceding or with the desired diuretics. Renal suppression is then promptly relieved by it, but not when there is congestion, for which belladonna is far more effectual. For the dysuria of spasmodic urethral stricture it is the remedy. It allays the irritation and temperature excited by the passage of catheters, bougies, and divulsors. We rely upon it in cystic irritation from cold when the urging to pass urine is frequent and the passage difficult. For this purpose, together with apis or eryngium, it gives the happiest results in this annoying complaint in women. It may also be satisfactorily employed for suppression of urine in hysterical women. In acute nephritis it is one of the surest remedies, and is just as serviceable in acute cystitis when due to colds and not dependent upon the retention of putrid urine. Its relaxant powers sometimes facilitate the passage of small renal calculi and cystic gravel.

In the inflammatory stage of gonorrhea no agent is more salutary than gelsemium. It prevents and relieves chordee, eases urination, and gives comfort when burning and irritation are pronounced. For this purpose it may well be combined with cannabis and aconite as follows: Rx Specific Medicine Gelsemium, 1 fluidrachm; Specific Medicine Aconite, 10 drops; Specific Medicine Cannabis, 1 fluidrachm; Water, enough for 4 fluidounces. Mix. Sig.: One teaspoonful every two or three hours.

Obstetric therapy would be impoverished without gelsemium. One should not be reckless with it, however, as many believe that it favors hemorrhage. Our experience does not verify this view. It is the remedy to relax rigid os when the rim is thin and unyielding, holding the head as in a vise, and there is dryness of the parturient canal. It very promptly removes this impediment, favors normal secretion, and facilitates labor. In fact, all sphincters acutely contracted are relaxed by full doses of gelsemium. During labor it is most valuable to overcome the great restlessness, fear, and excitement experienced by nervous women, and by its calmative power rectifies jerky and ineffectual contractions. It also mitigates the severity of the pain and relieves the sense of heat and dryness complained of by the patient. Indeed, this is one of the most praiseworthy effects of this drug. It also controls after-pains and the nervous agitation that follow a few days after parturition. For puerperal convulsions it is inferior only to veratrum and shares with this drug and morphine and chloroform in being the most generally effective remedies in this form of eclampsia.

In no way does it interfere with the recently introduced Fischer's alkaline intravenous treatment.

GENTIANA.

The dried rhizome and roots of ***Gentianalutea***, Linné (Nat. Ord. Gentianaceae.) Common in the mountainous regions of southern and central Europe. ***Dose***, 10 to 30 grains.

Common Names: Gentian, Gentian Root.

Principal Constituents.—***Gentiopicrin***, an active, bitter glucoside, associated with gentisic acid or gentisin ($C_{14}H_{10}O_5$). No tannin is present but a coloring matter which is darkened by iron compounds.

Preparations,—1. ***InfusumGentianae***, Infusion of Gentian. ***Dose***, 1 fluidrachm to 1 fluidounce.

2. ***Specific Medicine Gentiana***. ***Dose***, 5 to 30 drops.

3. ***TincturaGentianaeComposita***, Compound Tincture of Gentian. (Contains Gentian 10 percent, Bitter Orange Peel, and Cardamon.) ***Dose***, 1/2 to 1 fluidrachm.

Specific Indications.—Sense of epigastric depression, with physical and mental weariness; atony of stomach and bowels, with imperfect digestion.

Action and Therapy.—Gentian is one of the best of the simple bitter tonics, for the action of which compare ***Calumba***. In large doses, however, it is capable of deranging digestion, with the production of nausea, vomiting, and diarrhoea, and fullness of the pulse, with headache. It is contraindicated in gastric irritability or inflammation.

The chief use of gentian is to promote the appetite and improve digestion in states of chronic debility. This it does when given in moderate doses. For atony of the stomach and bowels, with feeble or slow digestion, it is an ideal stimulating tonic; and after prolonged fevers and infections, when the forces of life are greatly depressed and recovery depends upon increased power to assimilate foods, gentian may be used to improve gastric digestion and thus hasten the convalescence. Gentian is especially useful in anorexia, in the dyspepsia of malarial origin, and in subacute gastritis and intestinal catarrh. The infusion and the compound tincture of gentian may be

used alone or as vehicles for other medicines.

GERANIUM.

The rhizome of ***Geraniummaculatum***, Linné (Nat. Ord. Geraniaceae). Common in the rich soils of woods and low grounds in the United States. ***Dose***, 5 to 60 grains.

Common Names: Cranesbill, Wild Cranesbill, Crowfoot, Spotted Geranium.

Principal Constituents.—***Tannin*** (10 to 28 per cent, according to season) and ***gallic acid*** (in dried root).

Preparations.—1. ***DecoctumGeranii***, Decoction of Geranium (1/2 ounce to Water, 16 fluidounces). ***Dose***, 1 to 2 fluidounces.

2. ***Specific Medicine Geranium***. ***Dose***, 5 to 60 drops.

Specific Indications.—Relaxed mucous tissues with profuse debilitating discharges; chronic mucous diarrheas; chronic dysentery; diarrhoea with constant desire to defecate; passive hemorrhages; gastric ulcer.

Action and Therapy.—Geranium is one of the simple and much neglected of the early Eclectic medicines. It is an ideal astringent and for conditions requiring such an action it is preferable to many other constringing drugs. Geranium is indicated in subacute and chronic bowel disorders when the evacuations are abundant and debilitating. It is especially adapted to relaxation of the mucosa following inflammation. For the summer diarrheas of older children, and especially the cholera infantum of infants, it is splendidly effective after the bowels have been thoroughly cleansed of undigested and decomposed contents. For infantile use we prefer the decoction in milk. If that does not agree, small doses of the specific medicine in water may be employed. When dysentery tends to chronicity, the thorough use of magnesium sulphate followed by geranium will render good service.

Geranium is of some value in passive hemorrhages, as haematuria, hemoptysis, and menorrhagia. It is only useful in the first two when the blood lost is small in amount, and in the latter when bleeding is prolonged, but merely oozing. Though a useful agent in relaxed conditions with catarrhal discharges other than those of the bowels, as chronic pharyngeal catarrh, relaxed uvula, leucorrhea, etc., it is no

more valuable than other tannin-bearing drugs, and is often inferior to tannic acid itself.

Geranium is of specific value where long saturation of the mucosa with unhealthy catarrhal secretions favor a tendency to destruction of tissue. We have found it to quickly cure aphthous ulceration of the mouth attended by gastric acidity and acid diarrhea. For gastric ulcer it is one of the best therapeutic means we possess. Geranium, hydrastis, mangifera, bismuth subnitrate and mangesium oxide, singly, or in indicated association, have proven the most effective agents in our experience for the medicinal relief of curable cases. They restrain hypersecretion, correct excessive acidity, check hemorrhage, and relieve pain; sometimes healing appears to progress rapidly under their influence.

GLUCOSUM.

Glucose, Liquid Glucose, Syrupy Glucose.

A syrupy liquid, composed chiefly of dextrose (dextro-glucose) and dextrin. It is obtained by the incomplete hydrolysis of starch.

Description.—An odorless or nearly odorless, sweet, syrupy liquid, of a little or no color. It is sparingly dissolved by alcohol, but water dissolves it freely, the aqueous solution being neutral or slightly acid to litmus paper. Dose, 2 to 6 fluidounces of 6 to 30 per cent solutions of glucose.

Specific Indications.—Shock; acidosis.

Action and Therapy.—Glucose is an easily digested nutrient, fermentable, and comparing in food value closely to sugar. Diuretic properties have been ascribed to it, and it is said to protect against fatty degeneration produced by the administration of general anesthetics. Glucose, in 6 to 10 per cent solutions, has proved serviceable, given by enteroclysis, in dropsical effusions, provided the kidneys are not badly damaged, and in uremic eclampsias, and other affections with faulty elimination of urine. Intravenously administered, in solutions of 10 to 30 per cent, it has been very successful in surgical shock. One of its most important fields of usefulness is in infant feeding (2 to 3 fluidounces of 6 per cent solution per rectum), and in the same strength solution (6 ounces) intraperitoneally to prevent acidosis in malnourished infants. Acetone quickly disappears under such use of

it.

GLYCERINUM.

Glycerin, Glycerol.

A liquid composed most largely of a trihydric alcohol ($C_3H_5(OH)_3$) obtained by the processes of hydrolysis and distillation of fats, both animal and vegetable, or of fixed oils.

Description.—A thick, syrupy, colorless liquid having a sweet and warming taste and a faint but agreeable odor. It has a great avidity for moisture, becoming appreciably thinner upon long exposure to the atmosphere. It mixes with water or alcohol; and is insoluble in ether, chloroform, and fixed and essential oils. ***Dose***, 1/2 to 2 fluidrachms.

Preparation.—***Suppositoria Glycerini***, Suppositories of Glycerin.

Action.—Glycerin is a powerful hygroscopic. So great is its avidity for water that it will readily abstract moisture from the tissues to which it is applied. It is also slightly irritant to the skin and mucous surfaces, and considerably so to abraded surfaces. The discomfort quickly subsides, however, and it then acts as an antiseptic and protective emollient to the skin. It is a demulcent to mucous tissues. Applied to the rectum it provokes evacuation, both by its irritating and dehydrating effects. Glycerin kills parasites, both cutaneous and intestinal, and allays itching, probably by its protective, antiseptic, and hygroscopic powers. Glycerin is rapidly absorbed by the intestines and is mostly oxidized in the body. By some it is thought to be, in some measure at least, a food, and indirectly a conservator of fats through its effects of increasing the non-nitrogenous reserve of the body. It is also believed to increase energy. Upon the glycogenic function its effects are still in doubt, many contending that it reduces the sugar when in excess in the body. Glycerin is laxative and in very large amounts acts not unlike alcohol, producing a similar intoxication and like gastric effects. It is also said to favor the elimination of uric acid.

Therapy.—***External***. The bland and practically unirritating character of pure glycerin, in the presence of a little water, its permanence when exposed to the air (except absorption of moisture), and the completeness with which it shields the parts make it the most largely used external application in a great variety of local disorders. Its

protective unctuousness without being greasy, its splendid and extensive solvent powers, its ability to hold in close contact to the tissues powders and other medicines that would dry and fall off if applied with alcohol or water, its antiseptic and emollient properties, and its antipruritic qualities, make it an indispensable vehicle. It is freely miscible with water and most ointment bases, and dissolves or holds in suspension the most commonly used external medicines. It should never be applied full strength, however, except where its dehydrating effects chiefly are desired. Through its great greed for water it readily removes moisture from the tissues, leaving them hardened and more likely to crack. A little water should be added to it for local use, or the parts may be moistened and left wet before its application. Only pure glycerin should be used.

Equal parts of glycerin and water, or preferably rose water, form an elegant and emollient cosmetic lotion for chapped hands, lips, and face cracked or sore nipples, excoriated and chafed surfaces, and swollen hemorrhoids. A few grains of borax sometimes add to its efficiency. Compound tincture of benzoin and glycerin is also a pleasant application. For those exposed to winds and storms, and who have their hands much in water, the following is splendidly effective: Rx Glycerin, 2 fluidounces; Carbolic Acid, 10 grains; Tincture of Arnica Flowers, 1/2 fluidounce; Rose Water, enough to make 4 fluidounces. Mix. Sig.: Apply after thoroughly washing and rinsing the hands, and while they are still wet. Sometimes lobelia may be used in place of the arnica.

Glycerin, added to poultices, renders them soothing and keeps them moist. It forms a good application to boils, carbuncles, small abscesses, and to local edemas, as of the prepuce. Here it may be used pure for its antiseptic and dehydrating effects. Mixed with alcohol (1 part), glycerin (3 parts), it makes a useful and “drawing” application for boils, and an antiseptic stimulant for foul ulcerations. A mixture of glycerin and water in proportions to suit the case may be used as a toilet wash for the mouth in fevers, to keep the tongue and lips soft and pliable, and to remove sordes and other viscous secretions. It also reduces the thirst occasioned by the dryness of the mouth.

Glycerin may be used as a vehicle for lime water for application to small burns, erythema, and slight excoriations; for menthol for the relief of itching in urticaria, chronic eczema, and other pruritic conditions; for boric acid in the mild forms of facial dermatitis; for

lactic acid in freckles, sunburn, and other pigmentations; for bismuth, borax, salicylic acid, phenol, boric acid, or sodium or potassium bicarbonate when their long-continued local effects are desired, especially in ulcerations and various skin diseases. A small portion of liquor potassae (1/2 per cent) may be added to it for use upon rough skin and in chronic eczema. Among the skin disorders in which it is especially useful as a vehicle may be mentioned impetigo, lichen, porrigo, psoriasis, pityriasis, herpes, and tinea versicolor (with mercuric chloride) and other parasitic affections.

Glycerin (diluted) is one of the best agents to soften hardened and impacted cerumen prior to removing it by gently syringing with warm water. Any irritation caused by the hardened mass or the means of removal may be overcome by the following: Rx Colorless Hydrastis (Lloyd's), 1 fluidrachm; Glycerin, 20 drops; Distillate of Hamamelis, enough to make 1/2 fluidounce. Mix. Sig.: Apply warm to the parts by means of cotton. Glycerin is sometimes useful in otorrhea. A 5 per cent solution of phenol in glycerin upon cotton may be used for insertion into the aural canal after rupture of the membrana tympani when tenderness around the ear persists. It acts by dehydration, reducing the swelling and facilitating a more complete drainage from the middle ear.

Either glycerin or the glycerite of boro-glycerin are favorite agents for the depletion of the tissues in congestive and subacute inflammation of the womb.

It should be applied upon tampons so as to remain in contact for several hours, and then be followed by a hot (not warm) douche. The same treatment gives good results in uterine subinvolution. A small quantity of pure glycerin, or the glycerin suppository, is very effective in provoking a movement of the bowels when the feces are below the sigmoid flexure. For a small child it is one of the most effectual methods for overcoming constipation, with lack of rectal response to the calls of nature. Care should be had to see that the syringe tip is perfectly smooth, and any irritation caused by the glycerin may be due to using the enema too frequently or to the use of an impure glycerin. As a rule, 1/2 drachm properly and carefully injected is followed at once by a fecal evacuation. Diluted glycerin is sometimes useful to prevent bed-sores.

Glycerite of Starch is a useful application in ichthyosis, and glycerin pastes are more cleanly and effective than those made with petrolatum or fats. Montgomery advises a paste made as follows: Starch, Zinc Oxide, of each 1 part; Glycerin, 2 parts. Prepare without boiling. This forms a white paste of paint-like consistence, adherent, non-greasy and pliable, and may be applied by spreading with the hand. It holds the parts like a splint, allowing discharges free egress, while it does not interfere with the natural secretions. It is especially designed for papular skin eruptions.

A large proportion of the good derived from the magma-poultices, such as "Antiphlogistine", etc., are due to the antiseptic and dehydrating qualities of the glycerin they contain.

Internal. Only pure glycerin should be used for internal use. Glycerin is invaluable as a flavoring and sweetening preservative for water-dispensed medicines. Especially is it demanded in the summer season. From 1 to 2 drachms are sufficient for most four-ounce mixtures, depending somewhat upon the quantity of alcohol or other preservative agents present. In special cases of diabetes it may be used as a substitute for sugars. While somewhat laxative it is seldom so used in Eclectic practice, and if selected would be indicated only where either constipation or diarrhea is dependent upon fermentative changes. There are, however, cases of hemorrhoids, both bleeding and non-bleeding, in which it may be used as a laxative; and these are accompanied by fermentative action in the stomach and bowels. Glycerin is sometimes useful in fermentative dyspepsia, with flatulence and constipation, relieving largely by its antiseptic and dehydrating effects. Glycerin, well diluted with iced water, makes a fairly good drink for low forms of fever, where putrefaction is shown by the dry tongue, foul breath and sordes. Its value as a nutritional measure, in place of cod-liver oil and other fats, is open to grave doubt, with the probabilities in favor of its uselessness. Its employment as a food for diabetics, and in phthisis and other wasting diseases, has practically lost prestige, though in the first named many believe it useful to check, in some degree at least, the excretion of sugar. The common custom of taking glycerin, rock candy, and whisky for common coughs and colds is nothing less than a popular form of mild alcoholic tippling.

GLYCYRRHIZA.

The dried rhizome and roots of ***Glycyrrhiza glabra typica***, Regel et Herder (Spanish Licorice), or of ***Glycyrrhiza glabra glandulifera***, Regel et Herder (Russian Licorice), (Nat. Ord. Leguminosae). Southern Europe and western Asia; cultivated. ***Dose***, 5 to 60 grains.

Common Names: Licorice, Licorice Root, (1) Spanish Licorice Root, (2) Russian Licorice Root.

Principal Constituents.—The sweet glucoside ***glycyrrhizin*** ($C_{24}H_{36}O_9$), ***asparagin***, ***glycyramarin*** and an acid resin.

Preparations.—1. ***Specific Medicine Glycyrrhiza***. ***Dose***, 5 to 60 drops.
2. ***Fluidextractum Glycyrrhizae***, Fluidextract of Glycyrrhiza. ***Dose***, 30 drops.

Derivative: ***Glycyrrhizinum Ammoniatum***, Ammoniated Glycyrrhizin. Very sweet, odorless, dark-brown or red-brown scales; soluble in alcohol or water. It is derived from glycyrrhiza and combined with ammonia. ***Dose***, 1 to 8 grains.

Action and Therapy.—Glycyrrhiza root is demulcent, laxative, and expectorant. It acts upon mucous surfaces, lessening irritation and relieving coughs, catarrhs, and irritation of the urinary tract. The powdered extract is sometimes used to give solidity to pills, and the powdered root as a dusting powder for the same. The fluidextract is an agreeable flavoring agent for other medicines and soothing to irritated bronchial surfaces. The bitterness of cascara, quinine, aloes, quassia, the acridity of senega, guaiac, and the taste of ammonium chloride and sodium salicylate are more or less masked by the fluidextract. Licorice root is an ingredient of ***Compound Licorice Powder***. (See Senna).

GOSSYPIUM.

The bark of the root and the hairs of the seed of ***Gossypium herbaceum***, Linné, and of other species of ***Gossypium*** (Nat. Ord. Malvaceae). An Asiatic plant extensively cultivated, especially in southern United States. ***Dose***, 5 to 60 grains.

Common Names: (1) Cotton-Root Bark; (2) Cotton, Cotton Wool.

Principal Constituents.—The root-bark yields a red resin called ***gossypic acid*** (8 per cent) and volatile oil and tannin.

Preparations.—1 ***Specific Medicine Gossypium***. Dose, 5 to 60 drops.

2. ***GossypiumPurificatum***, Purified Cotton (Absorbent Cotton). (Cotton freed from impurities and deprived of fatty matter.)

3. ***Oleum Gossypii Seminis***, Cottonseed Oil. A pale, yellow, odorless or nearly odorless oil, having a bland taste; slightly dissolved by alcohol and miscible with ether, chloroform, petroleum, and benzin. ***Dose***, 1/2 to 2 fluidounces.

Specific Indications.-(Uterine inertia; preparations of fresh root-bark - large doses.) Tardy menstruation with backache and dragging pelvic pain; fullness and weight in the bladder, with difficult micturition; sexual lassitude with anemia; hysteria, with pelvic atony and anemia.

Action and Therapy.-***External***. Absorbent cotton is of mechanical use only in practice. A cotton jacket is preferred by many to poultices and magmas for use in acute lung diseases. It maintains an even protection from changes of temperature, and slight moisture usually accumulates under it, thus making it serve the purpose, without the weight and dangers, of the poultice. Cotton is widely used in surgical practice for sponging and dressings, to take up secretions, to protect painful surfaces in burns and scalds, and to prevent the ingress of atmospheric microbic invasion. It is a comforting application to rheumatic joints, usually being applied over some oleaginous application. Upon raw surfaces oils or some lubricant should be first applied and then the parts encased in cotton. If allowed to become stiff and hard it acts as any other foreign body. Cotton is used for vaginal tampons, but they should be removed after a few hours use, as they become exceedingly foul and veritable hotbeds of infection. For packing wounds and cavities and similar surgical uses gauze is preferred to cotton. Cotton is a good medium by which to apply antiseptic and dusting powders.

Internal. Fresh cotton-root bark is emmenagogue. It is useful in tardy menstruation, with much backache and dragging pelvic pain. Owing to its undoubted power upon the uterine musculature it is of value in uterine subinvolution and is asserted to have reduced the size of fibroids. It probably acts much in the same manner as ergot, though far less powerfully. It has the advantage, however, of being practically non-poisonous. In uterine inertia during labor it is said to act well, though it is seldom brought into requisition. The reputed use of the decoction as an abortifacient by the cotton-district negresses is common knowledge. Fortunately the fresh root is not everywhere available, if it really possesses ecbolic properties, for old bark is said to be valueless

for any purpose.

Webster employs gossypium in hysteria in children and adults. He reports it efficient in screaming children, morose women, and girls with uncontrollable laughter, as well as in those assuming muscular rigidity. These adult cases undoubtedly depend upon menstrual derangements.

Cotton Seed Oil. This is a bland, nutritious, and wholesome digestible oil, used as a food and emollient; and employed in pharmacy, medicine, and surgery for many of the purposes for which olive oil is used. (See ***Oleum Olivae***.)

GRANATUM.

The dried bark of the stems and roots of ***PunicaGranatum***, Linné (Nat. Ord. Punicaceae). India, southwestern Asia, and the Mediterranean shores; naturalized and cultivated in warm latitudes. ***Dose***, 30 grains.

Common Names: Pomegranate, Pomegranate Root Bark.

Principal Constituents.—***Pelletierine*** or ***punicine*** (1/2 per cent), methyl-, pseudo-, and isopelletierine, all alkaloids, and punico-tannic acid (20 per cent).

Preparations.-1. ***PelletierinaeTannas***, Pelletierine Tannate. (Contains in varying proportions, in admixture, the four alkaloids mentioned above.) A pale-yellow, noncrystalline powder, without odor, and an astringent taste. Soluble in alcohol and less readily in water. ***Dose***, 4 grains.

2. ***Decoctum Granati***, Decoction of Pomegranate Bark (see below).

Specific Indications.—Taeniacide and taeniafuge for the destruction and expulsion of tapeworm.

Action.—Pomegranate preparations, in large doses, causes nausea and vomiting, flatulence and intestinal pain. Notwithstanding the large amount of tannin it contains, such action is frequently followed by diarrhea. Other effects are tremors, muscular weakness, and cramps in the extremities, dizziness, mental confusion, drowsiness, diplopia and mydriasis, and other ocular disturbances. The tannate kills the tapeworm easily, but has far less effect upon other intestinal parasites. The associated alkaloids, sold as pelletierine, constitute an exceedingly active combination, capable of producing paralysis of the

motor nerves. The tannate, probably owing to its slow solubility, is less liable to disturb the system, but is equally effective as a taeniacide.

Therapy.—When pomegranate decoction can be retained by the stomach it is a certain specific for the destruction and expulsion of tapeworm. When this preparation cannot be used, the tannate, which is far more easily administered, may be substituted. A semi-proprietory preparation called “granatin” is a salt of pelleterine in solution, and is a very effective destroyer. It is sold ready for administration as a single dose. Locke's method of treating tapeworm is popular with Eclectic physicians. The decoction he advised is prepared as follows: Press 8 ounces of the coarse bark into a vessel and pour upon it three pints of boiling water; boil, strain, and then boil again until but one pint remains. A brisk cathartic should be given at night and a light breakfast allowed in the morning. In the middle of the forenoon four ounces of the decoction should be administered. In order that this may pass quickly into the intestines and its absorption be prevented, as far as possible, a fluidrachm of fluidextract of jalap aromatized with oil of anise or oil of cinnamon should be given with the dose. In two or three hours the dose should be repeated. When the bowels begin to move administer a copious enema, and remove the worm in a vessel filled with warm water so that it may float freely and not be broken. If nausea and vomiting occur upon first giving the decoction, lemon juice should be given and the recumbent position maintained.

When pelletierine preparations are administered a light milk diet in the evening is followed in the morning by a saline purge, and then the combined alkaloids administered. In about one hour another dose of the purgative should be given. Epsom salt, fluidextract of jalap, or castor oil may be used as the cathartic. If the tannate is employed it may be administered in capsule.

GRINDELIA.

The dried leaves and flowering tops of one or several species of Grindelia—as ***Grindelia camporum***, Greene; or ***Grindelia squarrosa*** (Pursh), Dunal. (1) Marshes of California; (2) Western plains. ***Dose***, 5 to 40 grains.

Common Name: Grindelia.

Principal Constituents.—A saponin-like resin (***grindelin***), volatile oil, and an alkaloid ***grindeline***.

Preparation.—***Specific Medicine Grindelia***. ***Dose***, 5 to 40 drops.

Specific Indications.—Asthmatic breathing with sense of soreness and rawness; harsh, dry cough; dyspnea with cyanosed countenance. Locally, rhus poisoning; old indolent ulcers. Grindelia squarrosa: malarial cachexia with splenic congestion.

Action.—The grindelias have a bitter, acrid taste, leaving an unpleasant, persistent, acrid sensation in the mouth and cause an increased flow of saliva. The kidneys are excited by them and diuresis is increased, while upon the bronchial membranes they produce a primary increase of secretion followed by a lessened expectoration and diminution of the rate of breathing. They are eliminated by the bronchi and the kidneys. Marked relaxation of the bronchi is produced by grindelia.

Therapy.—External. Grindelia promotes reparation in damaged conditions of the epithelium. It is especially valuable in chronic skin diseases with feeble circulation and tendency to ulceration. For indolent ulcers a lotion of the specific medicine (2 fluidrachms to Water, 16 fluidounces) may be applied freely upon compresses. It stimulates growth and heals the ulcers. Grindelia similarly applied is one of the best of applications in rhus dermatitis. Applied to chronic eczema of the vesicular type it has been credited with many cures. Webster asserts it is of value in malignant ulceration, as epitheliomata of the mucosa and the skin. This is claiming much and awaits confirmation from the experience of others.

The leaves of grindelia, smoked alone or mixed with stramonium, lobelia, or potassium nitrate, have been used successfully to relieve the paroxyms of spasmodic asthma.

Internal. Grindelia is a remedy for asthmatic breathing, with pectoral soreness and a sense of rawness. The accompanying cough is dry and harsh and the breathing labored, causing in plethoric individuals a dusky coloration of the face. In some cases it promptly stops the paroxysms of asthma, and in others apparently has no effect. It is useful in subacute and chronic bronchitis, especially in old persons, and in bronchorrhea and emphysema.

Grindelia squarrosa is credited with antimalarial properties and to relieve splenic congestion and hypertrophy of malarial origin. The indications are dull pain with fullness over the spleen, sallow skin, debility and indigestion, with gastric distress.

The bitter taste of grindelia is best disguised by chloroform.

GUAIACUM.

The resin of the wood of ***Guaiacum officinale***, Linné, or of ***Guaiacum sanctum***, Linné (Nat. Ord. Zygophyllaceae). West Indian trees. ***Dose***, 5 to 30 grains.

Common Names: Resin of Guaiac, Guaiac.

Description.—Greenish, gray-brown fragments, masses or tears of a balsamic odor and slightly acrid taste. Usually admixed with fragments of vegetable tissues. Easily soluble in alcohol, ether and chloroform. ***Dose***, 5 to 15 grains.

Principal Constituents.—Three resins: ***guaiaconic acid*** (70 per cent), ***guaiacic acid***, and ***guaiaretic acid***.

Preparations.—1. ***Specific Medicine Guaiacum***. ***Dose***, 5 to 30 drops.
2. ***Tinctura Guaiaci Ammoniata***, Ammoniated Tincture of Guaiac (Guaiac, 20 per cent, in Aromatic Spirit of Ammonia). ***Dose***, 10 to 30 drops.

Specific Indications.—Dryness and stiffness of the throat with tumid, swollen tonsils, painful deglutition and dribbling of saliva; incipient tonsillitis (early); rheumatic pharyngitis.

Action and Therapy.—***External***. The ammoniated tincture or the dilution of the specific medicine (1 to 3 of alcohol), added to water, acts efficiently as a gargle or preferably a wash, for the forms of sore throat mentioned below.

Internal. Guaiaic once had considerable vogue as a remedy for syphilis, but is practically out of use in that disease at the present day. It was also much used in rheumatism, in which it has a better claim to efficiency. Guaiac is laxative, expectorant, and diaphoretic. When it fails to act upon the skin it usually stimulates the kidneys. Large doses may occasion gastro-intestinal inflammation. It has somewhat of an antiseptic action, which is extended to the secretions caused by it.

The chief uses for guaiac are in rheumatic pharyngitis or rheumatic sore throat and incipient tonsillitis, with angry, red, raw-looking surfaces, where the parts appear to be severely inflamed or greatly congested. The latter may be the type which is the forerunner of an attack of acute inflammatory rheumatism—the tonsils being the foci of infection. In such cases it acts better than in other forms of amygdalitis. While seemingly indicated in active conditions in sore throat and in chronic rheumatism, it is best adapted to passive conditions-cold hands and feet, feeble circulation, and vital depression. In general plethora or inflammation of the gastroenteric tract it is usually contraindicated. Guaiac has been much employed in chronic sore throat of syphilitic origin. The best form of administration is a fourfold dilution of specific medicine, mixed with syrup and water. Stronger preparations than this diluted tincture precipitate heavily.

GUARANA.

A dried paste, chiefly consisting of the crushed or pounded seeds of ***Paullinia Cupana***, Kunth (Nat. Ord. Sapindaceae), yielding not less than 4 per cent of caffeine. A shrubby vine of northern and western Brazil.

Common Name; Guarana.

Description.—Cylindrical, dark reddish-brown sticks, paler internally, and admixed with fragments of seeds and integuments. Slight odor, and feeble astringent, bitter taste. Partly soluble in water and in alcohol. ***Dose***, 15 to 30 grains.

Principal Constituents.—***Caffeine***, volatile oil, saponin, and tannin.

Preparation.—***Specific Medicine Guarana***. ***Dose***, 10 to 30 drops.

Specific Indications.—Headache with pallor, weak circulation, the pain aggravated by exertion; sick headache (migraine), with cerebral anemia; menstrual headache, with cerebral anemia; mental exhaustion or depression; headache from dissipation.

Action and Therapy.—Guarana is a gentle excitant acting very much like tea and coffee. It is valuable where the brain becomes exhausted or depressed through mental overwork, or when the body is fatigued or exhausted. It must be carefully used as it sometimes causes difficult urination. Neither should it be employed in neuralgias that are

aggravated by stimulation of the heart. It is indicated only in atonic conditions.

Guarana is a remedy for the relief of nervous headache, or those forms following menstruation or drunkenness. The face is pale, the pulse feeble, the eyes dull and expressionless, and nausea is prominent. Every movement causes an aggravation of the pain, the patient is mind-weary, and cerebral anemia is always present. It sometimes relieves lumbago, and while contraindicated in sthenic neuralgias it sometimes relieves occipital neuralgia when the indications are as given above. Temporary paralysis of the motor oculi nerve, followed by headache, has been relieved by it. In headaches the doses of 20 to 30 drops of the specific medicine should be given.

GYNOCARDIA.

The seeds and oil of ***Hydnocarpusodorata***, Lindley). (Nat. Ord. Flacourtiaceae). An East Indian tree.

Common Names: Chaulmoogra, Chaulmugra.

Principal Constituent.—A granular oil (***Oil of Chaulmugra***) containing gynocardic acid. It has an acrid taste. ***Dose***, 2 to 3 drops.

Action and Therapy.—Oil of chaulmugra has given surprisingly good results in leprosy; and it has often failed. The dexterity with which it has been adulterated has probably stamped the medicine with an uncertain reputation. It is used both locally and internally. Many other uses, chiefly local, are ascribed to it, but the agent is seldom employed in this country, though it is of interest to physicians going to countries where leprosy abounds.

HAEMATOXYLON.

The heart-wood of ***Haematoxylon campechianum***, Linné (Nat. Ord. Leguminoseae). Jamaica and the West Indies.

Common Name: Logwood.

Principal Constituents.—Tannin and ***haematoxylin***, an alkaloidal indicator.

Preparations.—1. ***Decoctum Hamatoxyli***, Decoction of Logwood (Logwood, 1 ounce;

Water, 16 fluidounces). ***Dose***, 1 to 2 fluidounces.

2. ***Extractum Hamatoxyli***, Extract of Hxmatoxylon. ***Dose***, 5 to 30 grains.

3. ***Specific Medicine Logwood***. ***Dose***, 5 to 30 drops.

Action and Therapy.-A mild, unirritating astringent and tonic formerly much used in chronic diarrhoea and summer complaint of children, and in passive hemorrhages, and colliquative sweats. It is now seldom employed.

HAMAMELIS.

The leaves, bark and twigs of ***Hamamelis virginiana***, Linné (Nat. Ord. Hamamelidaceae), collected in the autumn. Common in the United States. ***Dose***, 5 to 60 grains.

Common Names.—Witch-Hazel, Snapping Hazelnut, Winterbloom.

Principal Constituents.—A bitter body, tannin, and a volatile oil.

Preparations.-1. ***Aqua Hamamelidis***, Hamamelis Water, (Distillate of Hamamelis, Distilled Witch-Hazel, Distilled Extract of Witch-Hazel). ***Dose***, 5 drops to 2 fluidrachms.

2. ***Specific Medicine Hamamelis***. ***Dose***, 5 to 60 drops.

Specific Indications.—Venous debility, with relaxed and full tissues; pallid mucosa or occasionally deep red from venous engorgement, or deep blue from venous stasis; excessive mucous flow, with venous relaxation; passive hemorrhages; prehemorrhagic states, with venous fullness; varicoses; hemorrhoids with weight and fullness; rectal prolapse; dull aching pain in pelvis, genitalia, or rectum, with perineal relaxation and fullness; relaxed or engorged and painful sore throat; gastro-intestinal irritability, with venous weakness and mucous or muco-bloody passages. Locally to inflamed, ulcerated or wounded skin or mucosa, especially where venous circulation is debilitated; contusions, bruises, and muscular soreness from exertion or exposure.

Action and Therapy.—***External***. Witch-hazel bark and its fluid preparations are astringent. The distillate and the specific medicine are sedative and slightly astringent. The latter two form agreeably grateful and soothing applications to the skin and mucous surface in irritated and inflamed conditions and where venous relaxation is present. The specific medicine is an elegant and heavy distillate,

carrying a large proportion of the oil, as compared to the ordinary distillate, and is much to be preferred where a bland and soothing yet astringent effect is required. Where more alcoholic stimulation is permitted or desired the ordinary distillate may be used. As a rule, the specific medicine is best for use upon mucous, and the distillate upon the cutaneous surfaces.

Witch-hazel distillates are splendid applications for sprains, contusions, wounds and inflamed swellings, and for sunburn, tan, freckles, and dilatation of the capillaries of the skin. They are cooling and relieve smarting and pain. Used alone or combined with an equal quantity of bay rum they form an elegant face wash to remove excess of soap and heal abrasions after shaving. Witch-hazel is one of the most comforting applications for painful hemorrhoids. It may be used ice cold or hot, as preferred. Applied to the tender parts after the parturient toilet, it removes soreness of the tissues from childbirth. Rubbed upon the skin, or applied by means of compresses, it is an efficient lotion for muscular soreness and aching after severe exertion; from cold, exposure, or when due to bruises and strains. Its use should be accompanied with gentle massage. Compresses wetted with witch-hazel give marked relief in acute cutaneous inflammations, chafing, and especially in mammitis.

Incised wounds, ragged cuts from glass or tin, barbed wire injuries, and crushed fingers are quickly relieved of pain and heal rapidly when the following is applied: Rx Echafolta, 1/2 fluidounce; Asepsin, 15 grains; Specific Medicine Hamamelis and Water, enough to make 4 fluidounces. Mix. Apply upon gauze. A similar preparation, with but two drachms of the echafolta, or the distillate with menthol, makes a good dressing for burns and scalds. Glycerin and hamamelis, equal parts, or equal parts of Specific Medicine Hamamelis and Lloyd's Colorless Hydrastis give excellent results in irritation and inflammation of the aural canal due to inspissated cerumen, or to efforts to remove the latter.

Sprayed upon the throat the specific medicine or the distillate, suitably diluted, is a useful and sedative astringent for angry and deep red sorethroats, with relaxation of membranes; or in pharyngitis, faucitis, and tonsillitis, with hyperaemia or congestion. The specific medicine is especially soothing and astringent in congestive nasal catarrh. Few local washes give greater relief in the angina of scarlet fever than those

of which witchhazel forms a part. They relieve pain, cleanse the parts, and constringe the relaxed tissues and dilated vessels. It may also be added to local washes for use in diphtheria.

Together with colorless hydrastis, or other non-alcoholic hydrastis preparations, with or without a grain of alum or of zinc sulphate, it is a most effective collyrium for acute conjunctivitis, with dilated conjunctival vessels. Especially is it effective in vernal conjunctivitis. The same combinations are exceedingly useful as an injection in gonorrhea, after the acute symptoms have subsided and a catarrhal state has supervened.

Internal. Hamamelis has an important tonic effect upon venous debility, acting upon the coats of the veins throughout the body. Unlike some vascular remedies its action is not merely local, but extends throughout the whole venous system. It is therefore a remedy of much value in varicoses, hemorrhoids, and passive hemorrhages. When indicated, the tissues are pallid and relaxed, and in some instances deep red, due to venous engorgement. There is a sense of fullness or thickening and weight and congestion. These are especially prominent in the type of hemorrhoids benefited by hamamelis. It is of some value in oozing of blood from the mucosa, in passive bleeding from the nose, lungs, and stomach, but is a better remedy for the venous relaxation that precedes these hemorrhages and which renders their occurrence easy. It is of less value in hemoptysis than lycopus, and is adapted to such cases as are benefited by geranium and erigeron.

Hamamelis is a decidedly useful remedy in congestive conditions with marked tissue debility. It should be given a fair trial in congestion of the ovaries, with dull aching pain and sense of weight and fullness; in chronic congestive conditions of the uterus, with soft and flabby cervix and patulous os; in uterine subinvolution; and in leucorrhea, with sponginess of the vagina and tendency to prolapsus of the womb; and in prolapse of the rectum, with venous fullness. It frequently relieves in varicocele, with sense of weight and dragging.

Hamamelis should also be given in nasal catarrh and ozaena, with congestion and tendency to recurring epistaxis, and thickened and relaxed mucosa, with abundant mucous or muco-purulent discharge; and in chronic inflammation of the fauces, pharynx, and larynx with sluggish venous circulation, and greatly relaxed tissues. For chronic

diarrheal, and sometimes acute bowel disorders, as cholera infantum and dysentery, it is promptly curative when much mucus is passed, and especially if the passages are tinged with blood. In all cases in which it is indicated there is debility of the venous circulation and relaxation of the mucosa; and where possible it should be used concurrently internally and locally.

HEDEOMA.

The leaves and tops of ***Hedeomapulegioides*** (Linné,) Persoon (Nat. Ord. Labiatae). Common in American woods and waste places. ***Dose***, 5 to 60 grains.

Common Names: Pennyroyal, American Pennyroyal, Squawmint, Tickweed.

Principal Constituent.—A fragrant volatile oil (***Oleum Hedeomae***).

Preparations.—1. ***Specific Medicine Pennyroyal***. ***Dose***, 5 to 60 drops.
2. ***Oleum Hedeomae***, Oil of Pennyroyal. ***Dose***, 2 to 10 drops.
3. ***Infusum Hedeomae***, Infusion of Pennyroyal (1 ounce to Water, 16 fluidounces), ***ad libitum***.

Specific Indications.—Amenorrhea of long standing, with pallor and anemia and dark circles around the eyes; the patient complains of languor, lassitude, takes cold easily, has pain in back and limbs, and exhibits full, prominent veins (Hennell); suppressed lochia.

Action.—Oil of pennyroyal produces toxic effects when given in overdoses. A drachm caused severe headache, difficult swallowing, intense nausea, severe retching without emesis, intolerable bearing down, laborlike pains, abdominal tenderness, constipation, dyspnea, semiparalysis of the limbs, and nervous weakness and prostration.

Therapy.—***External***. Oil of Pennyroyal is rubefacient and relieves the itching of insect bites. It is useful in embrocations for rheumatic pain. It is sometimes applied to the hands and face to protect against mosquitoes, fleas, and other insects. A cloth saturated with oil of pennyroyal may be hung in sleeping apartments to repel such insects.

Internal. Oil of Pennyroyal is useful in nausea, stomach cramps, flatulent colic, and amenorrhea in debilitated subjects. It is frequently used to prevent griping from other medicines. It may be given upon sugar or in emulsion. It and the dilution in alcohol are also credited

with calmative properties in spasmodic cough, whooping cough, and in hysteria from menstrual debility. A drachm of the specific medicine given in hot water is the most certain agent we possess to restore suppressed lochia. The infusion is a popular and pleasant remedy for acute colds. It acts chiefly as a diaphoretic, and for this effect it is one of the most certain of medicines; and a relic of domestic methods once in favor among physicians, as well as the laity.

HELLEBORUS.

The root of ***Helleborus niger***, Linné (Nat. Ord. Ranunculaceae.) Subalpine woods of central and southern Europe. ***Dose***, 1 to 10 grains.

Common Names: Black Hellebore, Christmas Rose.

Principal Constituents.—Two toxic glucosides, ***helleborin*** (acting upon the heart and as a drastic cathartic), and ***helleborein*** (narcotic).

Preparation.—***Specific Medicine Helleborus***. ***Dose***, 1/10 to 3 drops.

Action and Therapy.—Hellebore is a powerful gastro-intestinal and nerve poison, and produces death by convulsions and exhaustion. Small doses stimulate the heart. Large doses are drastically cathartic, and in this way it exerts also emmenagogue effects. Helleborus was once largely used as a revulsive in various types of insanity, but is no longer employed for such a purpose. In minute doses it may be employed to increase cardiac power and arterial tension and slow rapid action of the heart. It increases renal activity and has caused rapid disappearance of noncompensatory symptoms in heart disorders. It is also suggested when there are jelly-like passages in bowel affections. Scudder advised it as an emmenagogue when the patient is annoyed by flashes of heat, burning of the surface of the thighs and nates, and sensitiveness of the pelvic and perineal tissues. Properly used it might prove of advantage in hypochondria dependent upon reproductive atony. The dose should be fractional. Rx Specific Medicine Helleborus, 5 drops; Water, 4 fluidounces. Mix. Sig.: One teaspoonful every two to four hours.

HELONIAS.

The rhizome of ***Chamaeliriumluteum***, Gray (***Helonias dioica***, Pursh)-(Nat. Ord. Liliaceae). Abundant in woodlands, meadows, and wet places in some parts of the

United States. ***Dose***, 10 to 30 grains.

Common Names: Blazing Star, Unicorn Root, Starwort, Drooping Starwort, Devil's Bit.

Principal Constituent.—A yellowish, bitter principle, ***chamaelirin***.

Preparation.—***Specific Medicine Helonias***. ***Dose***, 10 to 30 drops.

Specific Indications.—Sense of weight, congestion, or expulsion of the pelvic contents, with mental torpor, despondency, or irritability; gastric and other disturbances reflexly due to pelvic relaxation; strong, sticky leucorrhea; pelvic fullness with discharge.

Action and Therapy.—Tonic, diuretic, and vermifuge. (For relation to Aletris, compare Aletris.) Helonias is a valuable uterine tonic, specifically adapted to uterine weakness in which relaxation of tissue is so great as to give the sensation of downward pressure, dragging or expulsion-or as the patient expresses it, “a sensation as if everything in the pelvis would fall out or be expelled.” Marked irritability and despondency are often associated with such disorders, and when menstruation occurs there is a feeling of undue fullness, as if the womb and rectum were distended with blood, and about to be pushed out of the body. There is associated aching and propulsive pain. In anemic cases the drug is useful in amenorrhea, and in leucorrhea should be given internally, while hot antiseptic and astringent injections are used locally. Helonias is said to correct sexual lassitude in both sexes, and to have checked nocturnal losses due to excesses and associated with enfeebled body, impaired memory, and mental apathy. In chlorotic anemia dependent in a measure upon uterine and ovarian weakness, it is also asserted to be very serviceable, and reputed to improve loss of appetite, indigestion, and malassimilation when aggravated by sexual weakness. It is also said to relieve the nausea and vomiting of pregnancy, to prevent miscarriages, and to correct gastric complications of albuminuria.

HEPATICA.

The leaves of ***Hepatica nobilis var. acuta*** (***Anemone acutiloba***) (Pursh) Steyermark, and of ***Hepatica nobilis var. obtusa*** (***A. hepatica***) (Pursh) Steyermark (Nat. Ord. Ranunculaceae). Common in rich woods in the United States. ***Dose***, 5 to 60 grains.

Common Names: Liverleaf, Liverwort, American Liverleaf, Kidney Liverleaf (A. Hepatica), Heart Liverleaf (A. acutiloba).

Principal Constituents.—Tannin, mucilage, and a bland oleoresin.

Preparation.—Specific Medicine Hepatica. ***Dose***, 1 to 60 drops.

Specific Indication.—Irritation and hypersecretion of mucous membranes.

Action and Therapy.—A mild, mucilaginous astringent, used sometimes to allay bronchial irritation, with free secretion and similar conditions of the gastro-intestinal tract. It may be exhibited when there is subacute or acute inflammation, and in cough with expectoration of bloody mucus. It is one of the negative medicines that occasionally meets special conditions when more energetic agents, seemingly indicated, would aggravate. It came into use under mistaken identity for another plant and acquired a great reputation for virtues it did not possess. The infusion may be given liberally.

HIPPOCASTANUM (Aesculus Hippocastanum).

The bark and fruit of ***AesculusHippocastanum***, Linné (Nat. Ord. Sapindaceae). Asia and Europe; planted in United States. ***Dose*** (bark), 1 to 60 grains; (rind of nut) 1 to 10 grains.

Common Name: Horse Chestnut.

Principal Constituents.—***Aesculin***, the glucoside giving fluorescence to watery and alkaline solutions, ***argynaescin***, and a sternutatory, saponin (***aphrodaescin***).

Preparation.—***Specific Medicine Horse Chestnut***. ***Dose***, 1/10 to 10 drops.

Specific Indications.—Vascular engorgement, with dull, aching pain and fullness, throbbing of the vessels, and general malaise; visceral neuralgia; disturbances reflex from vascular congestion of the rectum.

Action and Therapy.—The action and therapeutic uses of hippocastanum are closely similar to those of ***Aesculus glabra***, which see. By some it is believed to have a somewhat stronger action upon the venous circulation. It is often a remedy of value in neuralgia of the abdominal and pelvic viscera, when there is plethora. It is a remedy for

congestion and engorgement, and not for active conditions. Uneasy and throbbing sensations, with dull, aching pain in any part of the body, but especially in the hepatic region, is an indication for it. It may be used for non-bleeding piles when full, purple and painful, with a feeling as if a foreign body is in the rectum; there may also be itching and heat, or simply a sense of uneasiness or discomfort. When proctitis and neuralgic pain come from this engorged hemorrhoidal state it is effective, as it is also in reflex disorders depending upon the rectal involvement-such as headache, spasmodic asthma, dyspnea dizziness, and disturbed digestion.

HORDEUM.

The decorticated seeds of ***Hordeumdistichon***, Linné (Nat. Ord. Graminacee). Native of central Asia; cultivated in all tropical and temperate climes.

Common Name: Barley.

Principal Constituents.—Maltose, dextrin, fatty matter, starch and proteids. It contains no gliadin, as does wheat, hence no gluten can be obtained from it. After germination it yields ***diastase*** (maltine), a starch-digesting body.

Preparation.—***Decoctum Hordei***, Decoction of Barley (Barley Water). ***Dose, ad libitum***.

Action and Therapy.—Outside of its food value in broths, barley is useful as a demulcent and drink for fever patients and those suffering from diarrheal complaints. Barley flour, made into a thin pap, is useful in infant feeding, and a decoction of barley provides a soothing injection for rectal inflammations and a medium for the conveyance of medicines into the bowels in dysentery. It is also a good gastric lenitive after acute poisoning by irritants.

HUMULUS.

The strobiles of ***Humulus Lupulus***, Linné (Nat. Ord. Urticaceae). Europe and Asia; common in cultivation.

Common Names: Hops, Hop.

Principal Constituents.—***Lupulin*** (see Lupulinum), hop-bitter acid, humuli-tannic acid, resins, volatile oil and asparagine, trimethylamine, and choline.

Preparation.—***Specific Medicine Humulus***. ***Dose***, 1 to 60 drops.

Specific Indications.—(See ***Lupulinum***.)

Action and Therapy.—***External***. A “hop-pillow” is a favorite device for procuring sleep. The odor of the hop has a decidedly sedative influence upon some individuals, relieving headache and producing sleep; in others it produces intense headache, with nausea and vomiting. Probably the psychic effect has much to do with its value in insomnia. A hot "hop bag" applied to the face is a favorite domestic cure for neuralgic face ache, and a “hop poultice” has anodyne properties.

Internal. This is a remedy to relieve nervous excitability in fevers and to induce sleep. It also checks fermentation of the stomach contents and thus proves useful in fermentative dyspepsia with acid eructations. For other uses see ***Lupulinum***, which has superseded hops largely as an internal medicine.

HYDRANGEA.

The root of ***Hydrangeaarborescens***, Linné (Nat. Ord. Saxifragaceae). A handsome shrub along streams and in damp, rocky situations in the southern and middle-west states of this country. ***Dose***, 5 to 60 grains.

Common Names: Wild Hydrangea, Seven Barks.

Principal Consitituents.—The glucoside ***hydrangin*** ($C_{34}H_{25}O_{11}$), saponin, resins, and fixed and volatile oils.

Preparation.—***Specific Medicine Hydrangea***. ***Dose***, 5 to 60 drops.

Specific Indications.—Vesical and urethral irritation, with gravel; difficult urination; deep-seated renal pain; bloody urine; irritation of the bronchial membranes.

Action and Therapy.—Hydrangea is diuretic and sedative to cystic and urethral irritation, with passage of gravelly urine. It does not dissolve gravel, but is believed to be of value in preventing their formation, especially alkaline and phosphatic concretions. It should be administered in hot water. Hydrangea may be used in any renal disorder with dysuria, blood in the urine, or deep-seated pain in the region of the kidneys. It is not contraindicated by inflammation and

may be employed with safety in acute nephritis. It is especially serviceable in alkaline urine and in bladder irritation of the aged with tendency to catarrh. Unquestionably hydrangea has a kindly action upon the mucosa of the urinary organs and it has alterative properties making it useful in strumous diseases.

HYDRASTIS.

The dried rhizome and roots of ***Hydrastis canadensis***, Linné (Nat. Ord. Ranunculaceae) United States and Canada in rich, shady woods. (Chiefly Ohio, Indiana, Kentucky, and West Virginia.)

Common Names: Golden Seal, Yellow Root, Yellow Puccoon, Orange Root.

Principal Constituents.—Three alkaloids: ***berberine*** (yellow); and ***hydrastine*** and ***canadine***, both white.

Preparations and Derivatives.—1. ***Specific Medicine Hydrastis***. ***Dose***, 1 to 30 drops.

2. ***Colorless Hydrastis*** (Lloyd's). ***Dose***, 1 to 15 drops. Largely employed locally.

3. ***HydrastineMuriate*** (Hydrochlorate of Berberine). A yellow powder. ***Dose***, 1 to 5 grains.

4. ***Hydrastin*** (Resinoid), not now used.

5. ***Hydrastin*** (Combined Hydrastin). Only substance now sold as hydrastin.

6. ***Hydrastina***, Hydrastine. (Alkaloid, both natural and synthetic.) Permanent white or creamy crystals or powder, almost insoluble in water; soluble in chloroform; less so in alcohol. ***Dose***, 1/12 to 1/3 gr.; average dose, 1/6 grain.

7. ***Hydrastinae Hydrochloridum***, Hydrastine Hydrochloride (Hydrastine Chloride). White or cream-colored powder, odorless, hygroscopic, very soluble in alcohol and water. ***Dose***, 1/12 to 1/3 grain; average dose, 1/6 grain.

8. ***HydrastininaeHydrochloridum***, Hydrastinine Hydrochloride (Hydrastinine Chloride). Odorless, light-yellow crystals or powder, very soluble in water and alcohol. ***Dose***, 1/4 to 1 grain; average dose, 1/2 grain

9. ***Liquid Hydrastis*** (nonalcoholic). ***Dose***, 1 to 20 drops.

Specific Indications.—Catarrhal states of the mucous membranes unaccompanied by acute inflammation (except in acute purulent otitis media); relaxed tissues, with profuse secretion of thick and tenacious yellowish or greenish-yellow muco-pus; relaxation and ulceration of tissues of mouth and throat; imperfect recovery from diarrhea or dysentery, with mucous discharges and relaxation; aphthae, ulceration, or erosion of mucous surfaces; atonic gastric irritability; irritation of mucous surfaces, with feeble circulation; muscular soreness aggravated by pressure;. passive hemorrhages from the pelvic

organs; ice water dyspepsia; skin diseases depending upon gastric wrongs which also indicate hydrastis.

Action.—Extensive experiments by pharmacologists show that Hydrastis alkaloids, particularly hydrastine, are actively poisonous to certain animals, producing spinal convulsions followed by paralysis, lowered blood pressure succeeded by a marked rise, and death. Upon man, however, no so-called physiological effects of any moment have been observed. In the ordinary medicinal doses it certainly is not a poison to human beings. No cerebral effects have been observed in either animals or man; and judging from clinical effects it probably increases contraction of special nonstriated muscles, as it controls uterine hemorrhage in women and has an ecbolic effect upon the lower mammals. Schatz explains this by asserting its power upon the unstriped fibers of the arteries and denying its effects upon other tubular muscular structures. It has also been assumed, but not experimentally proved, that it slightly increases hepatic secretion in man.

Therapy.—***External***. Hydrastis is one of our most efficient topical medicines when applied in disorders of the mucous membranes; and is occasionally of service upon the skin. It is of most importance perhaps in ophthalmic practice, being a thoroughly effective subastringent and soothing agent in acute and subacute catarrhal and follicular conjunctivitis. For this purpose, and indeed for most topical effects, the colorless preparations are preferred. Lloyd's Colorless Hydrastis in particular is to be commended, for it is both non-staining and non-alcoholic and has almost completely replaced the formerly used hydrastin and berberine preparations. The same medicament may be used in superficial corneal ulcer, ciliary blepharitis, and in simple trachoma. While signally useful in these affections of the eye appendages, hydrastis is of no value in intraocular disorders.

Inspissated cerumen may be readily softened by colorless hydrastis, thus facilitating its removal by water. It also controls the irritation of the aural canal when due to the presence of hardened wax. Eczema of the external auditory canal has been cured by it. In both acute and chronic otitis media it may be employed hopefully when there is a purulent or mucopurulent discharge and granulations do not exist.

Hydrastis preparations are among the most successful remedies in

catarrhs of the nose and throat. It should be used both locally and internally in catarrhal and follicular pharyngitis, subacute forms of simple catarrhal sore throat following tonsillitis, subacute rhinitis, naso-pharyngeal and retro-pharyngeal catarrh, and in ulcerated naso-pharyngeal passages. It sometimes aids in the cure of syphilitic ulceration of the upper breathing tract. For catarrhal hypertrophy and engorgement of the turbinates it is often effective. The abundant discharge and thickened Schniederian membranes will guide to its selection. Locke advised it for nasal catarrh with thick, tenacious mucus and almost constant frontal headache. When thick gelatinous masses from the pharyngeal vault constantly drop into the throat, causing hacking cough and nausea, hydrastis given internally and as an ingredient of a local wash gives very satisfactory results. In all catarrhal affections of the upper respiratory tract, hydrastis should be administered for a prolonged period to obtain the best results. Hydrastis is valued by some as a topical reducer for chronically enlarged tonsils, but. like most medicines recommended for that purpose it fails far oftener than it succeeds.

Hydrastis is universally admitted to be a most valuable topical agent in gonorrhea. It is best adapted after the first and acute stage has passed, though it is not contraindicated at any time during the course of the infection. The preparation preferred is the colorless, though other hydrastis preparations, particularly berberine and hydrastin salts are useful, but objectionable on account of their staining qualities. Zinc sulphate increases the usefulness of the drug and quicker results can be obtained by instituting the treatment with a single irrigation with some mild silver salt, in order to destroy the gonococci. Care should be had not to use either the silver or zinc compounds too strong or too freely lest stricture be produced. The great advantage of the hydrastis treatment alone is that, while perhaps slower, it never produces and probably prevents stricture. Hydrastis is especially valuable in the late stage of gonorrheal urethritis, popularly known as gleet.

Leucorrhea, both vaginal and uterine, is well treated with washes containing hydrastis, with or without the addition of indicated cleansing and astringent agents. It heals cervical erosion, which is frequently the source of the abnormal secretion. Jeançon valued it locally for this purpose and to remove light papillary vegetations. As there is usually relaxation and debility, some form of hydrastis should be given internally at the same time. Locke praises hydrastis as a wash

for ulceration of the bladder due to chronic cystitis.

Hydrastis preparations are effective in skin disorders depending upon gastro-intestinal debility, with imperfect digestion. Here the local use should be accompanied by its internal exhibition. Such disorders as sluggish cutaneous ulcers, acne, eczema of the scrotum, and eczema of the anus and marginal area, and other orifices of the body come under its influence when used in this manner. It is commonly employed locally to give tone to the rectal tissues, being especially useful in prolapse of the rectum and sometimes relieves non-ulcerating hemorrhoids. In fissures of the anus, rectal ulcers, and proctitis it is a very painful application, and unless very carefully used and in small amounts it may provoke the very conditions sought to be relieved by it. Such conditions readily rebel against continuous stimulating and tonic treatment when irritability and sensitiveness are pronounced.

In most conditions, save those of the conjunctiva, hydrastis gives the best topical results when also administered internally.

Internal. Clinically hydrastis is known to stimulate the salivary, gastric, and intestinal secretions, and, to a slight extent, that of bile. It certainly has a most decided action on mucous surfaces, and is one of the most effective of bitter tonics. It sharpens the appetite and promotes digestion. Disorders of a subacute character and atonic states with increased flow of mucus are the types benefited by hydrastis. It is preeminently a mucous membrane remedy, allaying irritation when present, toning relaxation and correcting catarrhal tendencies. It should be considered when subacute and chronic inflammation with free secretion are present. For aphthous stomatitis it is equaled only by coptis and phytolacca; and is then to be used in the less active forms bordering on chronicity. For gastric irritability it is one of our best remedial resources, but should -not be used when the stomach is acutely inflamed. The more the tendency toward chronic debility with oversecretion the more effective is hydrastis. It first relieves the irritation, then restrains the secretions, and finally gives tone to the gastric membranes. Without question it is our best single drug for chronic gastric catarrh, or so-called chronic gastritis. In that form due to alcoholic abuse, in which occurs the morning vomiting of drunkards, with disgust for food and craving for stimulants, hydrastis, with or without capsicum and nux vomica, gives incomparable results.

In this aftermath of chronic alcoholism success attends this treatment in just so far as the patient may be prepared to take and assimilate nourishment. Usually the hydrastis is more efficient with capsicum, and the latter may be given in liberal quantities of beef soup or other easily digested food regularly administered. Bartholow, one of the great therapeutic authorities of his time, and one who was largely responsible for the introduction of hydrastis and other Eclectic medicines into the materia medica of the regular school, went so far as to declare that in sufficient doses of the tincture or fluidextract hydrastis is probably the best substitute for alcoholic beverages when it is desired to abandon the use of spirituous stimulants. Small doses of specific medicine hydrastis are indicated in that form of dyspepsia accompanied by the belching of putrescent gases, and followed by weakness or sense of "goneness" at the pit of the stomach. It also relieves an unpleasant distress just below the sternum, amounting almost to an internal itching and causing one to constantly shift or contract the muscles of the epigastric region. This condition is largely due to gastric irritation with distention by gases, and is promptly relieved best by colorless hydrastis, although the specific medicine is effective. When irritability is marked in stomachal debility small doses of the fluid preparations are to be preferred, but when there is but little irritability larger doses may be used, or hydrastin or berberine salts may be given immediately after meals. Specific medicine hydrastis, or Lloyd's colorless hydrastis, both in doses of 10 drops before meals and at bedtime, are the best agents we have employed in icewater dyspepsia, a peculiarly American complaint due to the immoderate use of iced drinks and ices. For gastric ulcer no treatment should be considered without a fair and generous trial of hydrastis, geranium, and bismuth subnitrate. In the treatment of stomach disorders with hydrastis or its derivatives, the fact must be kept prominently in mind that it is only in conditions of atony, with gastric irritability or subacute inflammatory symptoms, with increased secretion, that the drug is of any benefit. Acutely inflamed tissues, so far as the gastro-intestinal tract is concerned, absolutely prohibit its employment.

Hydrastis, though most effective in gastric disorders, is valuable in certain affections of the accessory digestive organs. It is of unquestioned worth in catarrhal states of the intestines and gall duct, in duodenal catarrh aggravated by neighboring biliary concretions, and in chronic constipation due to debility and imperfect action of the intestinal glands. Its use must be persisted in for a long period. It is a

serviceable tonic for enfeeblement of the gastro-enteric tract of infants and children, as well as adults, and offers support in convalescence from severe and depleting intestinal discharges, debilitating stomach and bowel disorders, the prostration occasioned by fevers and other acute affections, and hemorrhage. It is asserted of value in hepatic congestion. It is a question, however, whether it has any marked specific action upon the liver proper, and that benefit, if any, derived from it in hepatic disorders is largely due to its salutary effect upon the duodenum and bile duct and its properties of a general tonic.

Hydrastis controls passive hemorrhage. It is not adapted to copious active hemorrhages, as gastric and post-partum hemorrhages, but in those forms only of renal, uterine, or pulmonary bleeding in which small quantities of blood are passed at a time and are recurrent in form. It is adapted to and is successful in rare cases to restrain bleeding and to reduce the size of uterine fibroids, and similarly in uterine subinvolution. In passive hemorrhages occurring in virgins and during the climacteric it is distinctly useful. Good results have followed its intercurrent use in congestive dysmenorrhea, menorrhagia, and metrorrhagia, chiefly functional in character. It is a comparatively slow-acting drug in most forms of hemorrhage, but its effects are permanent.

Hydrastis, locally to relieve pain and retard growth, has been advised in carcinomata, particularly mammary cancer. While its general alterative and tonic properties and control over circulatory engorgement may make it a desirable general or supporting agent in carcinomatous cachexia, it is folly, in the light of present-day knowledge of this malignant scourge, to hope for any appreciable results from hydrastis, certainly not for a cure.

HYOSCYAMUS.

The leaves and flowering or fruiting tops of ***Hyoscyamus niger***, Linné (Nat. Ord. Solanaceae). Europe; naturalized in waste places in the United States. ***Dose***, 2 to 10 grains.

Common Name: Henbane.

Principal Constituents.—Two alkaloids: ***Hyoscyamine*** ($C_{17}H_{23}NO_3$), probably identical with duboisine (from Duboisia) and daturine (from Stramonium); and

hyoscine (***scopolamine***) ($C_{17}H_{21}NO_4$)

Preparation.—***Specific Medicine Hyoscyamus***. ***Dose***, 1/10 to 20 drops.

Derivative. ***Hyoscyaminae Hydrobromidum***, Hyoscyamine Hydrobromide (Hyoscyamine Bromide). ***Dose***, 1/200 grain.

Specific Indications.—Nervous irritability, with unrest and insomnia; dilated pupils and flushed face, accompanied by debility; fright and restlessness in sleep; night terrors; loquaciousness; garrulousness; destructiveness; busy muttering delirium, or singing, talkativeness, amusing hallucinations and illusions, particularly in fevers; choking sensations; the insomnia of debility, exhaustion, or insanity; the excitability of the insane; urethral irritation in the feeble, with urging to urinate; rapid, palpitating heart action; muscular spasms; spasmodic pain; sharp, dry nervous cough, aggravated by the recumbent position. A remedy to relieve pain, spasm, and nervous unrest in the aged and the infant, and in the anemic and the debilitated.

Action.—The physiological actions of hyoscyamus, belladonna, stramonium, and duboisia are quite similar, differing chiefly in degree and less in quality. They produce the same dryness of the throat, flushing of the face, dilatation of the pupils, quickening of the respiratory and heart action, illusions, hallucinations and delirium. While the alkaloids of these drugs also act in the same general manner, there are shades of difference which make some variation in effects. Thus hyoscine (scopolamine) acts somewhat as a check upon its associated hyoscyamine in the parent drug, the latter alkaloid being more closely allied to atropine in action. This check upon the latter makes hyoscyamus less excitant and less furiously deliriant than its congeners and it is less likely to cause cerebral hyperaemia. Under hyoscyamus the primary stimulation observed under belladonna and stramonium and their alkaloids may be absent, or at least it is of very much shorter duration and subdued character, so that under its influence sleep is induced without much previous excitement. This is of great advantage in the treatment of the insane.

There is little observable difference between atropine and hyoscyamine upon the mechanism of ocular accommodation, but the latter sometimes fails to produce mydriasis. There is also but little variation in their effects upon the heart or breathing. Scopolamine (hyoscine),

however, is said to cause stronger mydriasis and more quickly than atropine, though it is of shorter duration. Hyoscyamine is more hypnotic and less deliriant than atropine, but this is probably due to the presence of hyoscine in commercial hyoscyamine. It is well-established knowledge that scopolamine is more depressant to the higher cerebral centers than either hyoscyamine or atropine, and that even smaller amounts act decidedly as a hypnotic. Hyoscyamine acts more powerfully upon the peripheral nerves, hence hyoscyamus is a better agent than belladonna to combine with cathartics to lessen griping and tormina. Moreover, it does not restrain secretion and is likely to prove more or less laxative.

Great care must be observed, however, in the use of hyoscine and hyoscyamine. The former, in particular, in large doses dangerously depresses respiration, and if in any case it must be given in full doses its effects upon breathing should be closely watched.

The symptoms of poisoning by hyoscyamus and its alkaloids are sufficiently similar to those named under belladonna for diagnosis, and the treatment is the same as there recommended.

Therapy.—According to the dose in which it is administered hyoscyamus is a cerebral stimulant or a cerebral sedative. It is largely used under conditions in which opium would be indicated, but is not acceptable on account of the constipation, nausea, and headache induced by it. Hyoscyamus does not, like opium, restrain secretion, and proves laxative rather than constipating. Hyoscyamus is a safer drug for old persons and children than belladonna or opium. As a remedy for pain it is relatively far weaker than the latter, but should be preferred in mild attacks and especially in such when associated with spasmodic tubular contractions.

Hyoscyamus is the remedy for nervous irritability and irritation (small doses), and mental excitation with great motility (large doses).

Hyoscyamus allays spasm and relieves pain. It is a better agent for spasmodic disorders and peripheral pain than belladonna, but less effective than opium. Where it can be made to control the pain, however, it should always be preferred to the latter. Hyoscyamus is a better remedy for spasm, especially tubular and sphincteric spasm, than for pain, but if the latter is caused by the former it is doubly

efficient. It cannot be relied upon, however, for very severe paroxysms of either pain or spasm such as attend bad cases of calculi colic—either biliary or renal. But it does very well in the milder attacks. In all painful and spasmodic conditions it takes rather full doses, except in states characterized by nervous irritation with feeble circulation—in other words, in nervous depression rather than in nervous excitability—; then small doses act specifically. Properly selected according to this depression or the contrary, and in doses to meet each condition, it is extremely useful in spasmodic dysmenorrhea, flatulent colic, gastrodynia, spasmodic bowel disorders, painful hemorrhoids, spasmodic cystic pain, spasmodic asthma, and whooping cough. As a remedy for pain it will usually be found to meet depressed conditions best. Hence its value in nervous headache, the headache of debility, the vague pains of so-called chronic rheumatism, idiopathic neuralgia, visceral pain, urethral pain, and that of herpes zoster. The more these cases show nervous irritation, weak circulation, tendency to anemia, and constant but not violent unrest, the better they are helped by small doses of the drug.

Hyoscyamus quiets that form of irritability akin to pain but not amounting to actual pain, such as irritation of the bladder and urethra with tendency to sphincteric spasm. Here nerve force is low and under similar conditions it relieves the ever-annoying urging to urinate accompanied by tenesmus that is so often associated with diurnal as well as nocturnal incontinence of urine, and in the cystic troubles of the aged and women during the menopause. In combination with camphor it has long held a reputation for the relief of nervous erethism produced by the passage of instruments into the urethra.

Cough, whether occurring in acute or chronic disorders, is controlled by hyoscyamus. The more spasmodic or convulsive the better it acts, though for some reason it is not as effective in whooping cough as stramonium, solanum, or belladonna. Probably none of these agents act any too well because there is some causative factor other than spasm, probably of a bacterial character. It relieves the short, dry, explosive cough of bronchitis. It relieves most irritable dry coughs, nervous cough, and harassing bronchial cough, caused or made worse upon lying down. It may be given for long periods, preferably in syrup of wild cherry, to relieve the cough and nervousness and thus promote rest in phthisis. In most of the forms of cough mentioned medium doses must be employed, except where nervous and physical depression is

very marked. Hyoscyamus, in the small dose, is often the best agent to use in pneumonia, with dry cough and sub-delirium with widely dilated pupils.

Hyoscyamus is one of the most important agents in nervous and mental diseases. In the small doses it meets the depressive types; in full doses the excitable and furious manias. One of the chief uses of the drug (usually in this instance, hyoscyamine, or preferably hyoscine) is to produce sleep in acute mania. If of the violent, furious and destructive type, with great mental and motor excitability, full doses of hyoscine should be given. But if of the sub-delirious or mildly aberrative form, the smaller doses of hyoscyamus are to be preferred. Often both drugs fail to overcome the insomnia, in which instance wider wakefulness ensues and the patient paces the floor until the effect of the drug is spent. Full doses are usually required in delusional insanity, epileptic mania, recurrent mania, and puerperal mania—all with sleeplessness and great mental excitement. On the contrary when in such disorders as nymphomania following childbirth, and due more to delirium than to passion, and in puerperal mania, in both of which there is a feeble pulse, exhaustion, continuous but mild mental agitation, and nervous unrest, then small doses of the parent drug give the best results. Small doses of hyoscyamus are also to be preferred in the insanities, and in the delirium of acute diseases, when the patient indulges in singing, continuous talking, or low muttering delirium, or when garrulous and quarrelsome, but not violent.

When insomnia depends upon mere excitability, or when it is needed to relieve restlessness and unpleasant dreams during sleep, small doses of hyoscyamus are splendidly effective. These conditions often occur during the acute diseases of children and are promptly met by the drug. For the wandering delirium of exhaustion-the typhomania of typhoid fever, it is often the best calmative we can employ. The patient feels that he is away from home and friends and constantly asks and makes an effort “to go home”. In hysteria with frequent voiding of small quantities of urine hyoscyamus should be given in fractional doses.

If it is borne in mind that all of the solanaceae in true therapeutic doses produce effects opposite from those of their gross physiologic action, it will not be difficult to apply them specifically. If strong sedation is needed, the large doses are to be given; if stimulation, the small doses. For violent maniacal excitement the alkaloids are

preferable: for mild forms, hyoscyamus.

Hyoscine is sometimes used in attempts to cure the opium habit. For the violent excitement following the complete withdrawal of the drug it is useful, but it should not be given continuously. It should be regarded here as an emergency remedy and so employed. It is an easy matter to permanently damage the intellect with the powerful solanaceous alkaloids.

HYPERICUM.

The leaves and flowering tops of ***Hypericum perforatum***, Linné (Nat. Ord. Hypericaceae). Europe and America.

Common Name: St. John's Wort.

Principal Constituents.—Volatile oil, a resin, tannin, and hypericum red, a resinous red coloring principle.

Preparation.- ***Tinctura Hyperici***, Tincture of Hypericum (herb, 8 ounces; Alcohol, 76 per cent, 16 fluidounces). Dose, 1/4 to 30 drops.

Specific Indications.—Spinal injuries, shocks, and concussions; throbbing of the body without fever; spinal irritation, eliciting tenderness and burning pain upon slight pressure; spinal injuries and lacerated and punctured wounds of the extremities, with excruciating pain; hysteria. Locally as a vulnerary.

Action and Therapy.—***External***. St. John's Wort is valued by many practitioners as a vulnerary, much as arnica is employed. Therefore it has been used extensively as a local application to bruises, contusions, sprains, lacerations, swellings, ecchymoses, and in acute mammitis.

Internal. Hypericum is said to be diuretic and sedative, and as such has been used in chronic urinary disorders, particularly suppression of urine. It undoubtedly has a strong influence upon the nervous system. Used according to the indications named above, many physicians believe it useful to relieve the painful effects of spinal concussion, shocks, etc., and to prevent tetanic complications. It will take pretty strong proof to convince most practitioners of the present day of any such virtue as true antitetanic properties in this simple drug. The internal uses as given above are based chiefly upon homeopathic

symptomatology, and the drug has gained little favor in the Eclectic school of practice. It has, without question, a value in nervous disorders and should be more fully studied and tested, but miraculous powers should not be hoped for from it.

IGNATIA.

The seed of ***StrychnosIgnatia***, Lindley (Nat. Ord. Loganiaceae). Philippine Islands. ***Dose***, 1 to 2 grains.

Common Name: St. Ignatius Bean.

Principal Constituents.—***Strychnine*** and ***brucine***, the former predominating; and ***igasuric acid***.

Preparation.—***Specific Medicine Ignatia***. 1/20 to 5 drops. (Usual method of administration: Rx Specific Medicine Ignatia, 5-15 drops; Water, 4 fluidounces. Mix. Sig.: One teaspoonful every 1 to 3 hours.)

Specific Indications.—Atony and nervous debility; (see also below.)

Action and Therapy.—Ignatia acts very much like nux vomica and may be used in conditions similar to those benefited by it. As it contains a considerable amount of brucine, it is thought to have a distinctive field in medicine. The specific guide for ignatia is atony and nervous debility. From the views of those who believe it superior to and even different in action from nux vomica we have outlined the following conditions in which it is said to be effective: General nervous atony; disposition to grieve; congestive headache; deep-seated, dull, dragging pain in the loins and back, or right hypochondrium; hysterical, choreic, epileptoid, or hypochondriacal manifestations arising from general nervous and muscular debility; muscular twitchings, particularly of the face and eyelids; dullness of the special senses, particularly asthenopia, and of hearing; wandering pelvic pains; sexual frigidity; dysmenorrhea, with colic-like pain and heaviness of the womb; coldness of the extremities, with burning of the soles of the feet. It will be observed that many of these symptomatic guides are derived from homeopathy. Observing the indications applicable it is believed useful in atonic dyspepsia, gastralgia, sick headache, disorders of the female reproductive organs, and nervous depression with pain. Though the composition of ignatia is similar to that of nux vomica, there may be a different molecular constitution in

the two drugs, accounting for the varying shades of therapeutic activity ascribed to the two medicines.

IMPATIENS.

The plants ***Impatienspallida***, Nuttall; and ***Impatienscapensis***, Meerb., (Nat. Ord. Balsaminaceae). Moist shady places and rich soils in the United States.

Common Names: Balsam jewel Weed, Balsam Weed, Jewel Weed, (1) Pale TouchMe-Not, (2) Speckled Touch-Me-Not.

Preparation.—The bruised, fresh plant.

Action and Therapy.—***External***. Refrigerant and sedative. The fresh juice of the crushed Impatiens gives prompt relief in the dermatitis of rhus poisoning if used early. It also quickly relieves the intolerable stinging produced by nettles. As these plants usually grow contiguously the balsam can be procured and applied at once. The relief is almost magical. The bruised plants may also be used to relieve the pain of acute engorged hemorrhoids.

INULA.

The root of ***InulaHelenium***, Linné (Nat. Ord. Compositae). A common roadside and pasture weed in Europe and America. ***Dose***, 1 to 60 grains.

Common Names: Elecampane, Scabwort.

Principal Constituents.—Resins, ***inulin*** (30 to 40 per cent), a starch-like body, and ***helenin*** (Alant camphor).

Preparations.—1. ***Specific Medicine Inula***. ***Dose***, 1 to 60 drops.

2. ***Syrupus Inula***, Syrup of Inula, (Specific Medicine Inula, 1 fluidrachm; Syrup, 16 ounces). ***Dose***, 1 to 4 fluidrachms.

Specific Indications.—"Cough of a teasing and persistent character accompanied by substernal pain and profuse excretion; atony of abdominal viscera with engorgement and relaxation; catarrhal discharges." (***AmericanDispensatory***, 1900.)

Action and Therapy.—Inula is an aromatic, stimulating expectorant and tonic. It is one of the old but neglected remedies of early domestic and eclectic development, and has recently been revived as a remedy of promise in chronic pulmonic disorders. As it acts kindly upon the

stomach, it proves tonic and favors digestion and assimilation. It seems especially adapted to chronic disorders with excessive mucous discharges. It has long been valued in chronic catarrhal states of the bronchi, bladder, and vagina, and particularly in chronic endometritis with discharge of glairy mucus. It relieves some cases of humid asthma and controls night sweats.

Inula is of greatest service in bronchial irritation, with cough of a persistent, teasing character, with copious expectoration. We have for many years used and valued the syrup advised by Locke, and prepared as follows: Take Elecampane, 1 ounce; Boiling Water, 16 fluidounces. Boil until but 8 ounces remain; add 1/2 pound of white sugar. This is especially useful in chronic bronchitis, with profuse excretion of mucus or muco-pus, and in the cough persisting after la grippe and the severest forms of colds.

From time to time reports have come to press that helenin and other constituents of inula are fatal to the tubercle bacillus. In 1900 we recorded in the ***American Dispensatory*** the statement that "helenin is accredited with a fatal action upon the tubercle bacillus by Korab, Blocq, and others." Locke, in his lectures, emphasized the value of Inula in phthisis, and noted particularly its value to control the night sweats of that disorder. This was recorded in Locke's Syllabus in 1895. More recently, since hypodermatic and intravenous medication have come into vogue, inula, together with echinacea, has been reinvestigated and advised as a potent drug for its influence upon pulmonary tuberculosis. This work is still in the experimental stage, but with promise at least of amelioration of symptoms and gain of weight in some cases and a marked lessening of cough and secretion. Over-enthusiastic reports must be received with judgment, and not too much hoped for until more complete knowledge of its power over tuberculosis is proved or disproved. The value of the drug, internally administered, so far as amelioration of distressing symptoms is concerned, is unquestioned, but so far we are skeptical concerning its power to destroy the tubercle bacillus within the body.

IPECACUANHA (Cephaelis Ipecacuanha).

The root of (1) ***CephaelisIpecacuanha*** (Brotero), A. Richard, or of (2) ***Cephaelis acuminata***, Karsten (Nat. Ord. Rubiaceae). Brazil and other parts of South America. ***Dose***, 1 to 20 grains.

Common Names: Ipecac, (1) Rio Ipecac, (2) Cartagena Ipecac.

Principal Constituents.—The alkaloids ***emetine*** ($C_{30}H_{44}N_2O_4$), ***cephaeline*** ($C_{28}H_{33}N_2O_4$), ***cephaelic*** (ipecacuanhic) acid, volatile oil, tannin, etc.

Preparations.-1. ***PulvisIpecacuanha***, Powdered Ipecac. ***Dose***, 1 to 20 grains. (Usual emetic dose, 10 to 15 grains.)

2. ***Specific Medicine Ipecac***. ***Dose***, 1/30 to 20 drops (for specific purposes the fractional dose is employed).

3. ***SyrupusIpecacuanha***, Syrup of Ipecac. ***Dose***, 1 to 20 minims (expectorant); 2 to 4 fluidrachms (emetic).

4. ***Alcresta Ipecac***. ***Dose***, 1 tablet daily.

Specific Indications.—Irritation with long and pointed tongue, with reddened tip and edges, and accompanied by nausea and vomiting, with or without fever; irritation with increased secretions; irritation of stomach, bowels, bronchial tubes, bronchioles, and pulmonic air cells, and nervous system; irritative diarrhoea; dysentery, with the ipecac tongue; acute bowel disorders with increased secretion; hypersecretion of bronchial fluid with mucous rales (minute dose); diminished expectoration (medium doses); irritative cough, with or without dyspnea; hoarseness from coughs and colds; hemorrhage; menorrhagia (medium doses); as an emetic when the stomach is overloaded or in foul condition, with broad, flabby and slimy tongue (full doses).

Action.—Ipecac, in material amounts, is irritant to the skin and mucosa. Applied by inunction it excites irritation, and produces vesicular and pustular eruptions and sometimes ulcers. When inhaled it causes heat and violent sneezing. In susceptible individuals the powdered drug excites pronounced attacks simulating asthma, the chief symptoms being great dyspnea, with wheezing respiration and cough, and marked anxiety and prostration. This is often accompanied by violent and prolonged sneezing and spitting of blood, and followed usually by a free expectoration of mucus. In doses of less than 1 grain, ipecac is a gastric tonic and hepatic stimulant. Large doses (15 grains or more) are emetic. If emesis fails catharsis may result; or both emesis and purgation may be produced by it. Ipecac feces are peculiar-bilious and mush-like. From 3 to 10 grains of the powdered drug will cause nausea, with more or less depression of the pulse, languor, diaphoresis, and increase of mucous secretion. As an emetic it is fairly slow (15 to

20 minutes), active and thorough, causes much nausea and muscular straining, and the ejection of a large quantity of mucus. A state of tolerance may be established by the prolonged use of ipecac. Though said to have no appreciable effect upon the circulation, the therapeutic action of small doses seems to controvert this statement, a stimulating effect accepted in Eclectic therapy as special sedation resulting.

Emetine has produced death by gastro-intestinal inflammation and cardiac paralysis.

Therapy.—The field of therapeutic activity of ipecac is restricted chiefly to the digestive and respiratory tracts, and to some extent to the blood vessels, acting as a hemostatic. It is decidedly irritant to mucous surfaces, particularly that of the nasal passages, and in some individuals will precipitate an attack simulating spasmodic asthma. It increases biliary activity, is expectorant in small doses, and emetic in full doses, and there is evidence that it possesses antiseptic qualities.

Ipecac is used chiefly for five great purposes: (1) In full doses as an emetic; (2) in small doses as a nauseant expectorant; (3) to check active hemorrhage; (4) to check vomiting; (5) and as employed mostly in Eclectic therapy, to control ***irritation*** and inflammation of the mucous passages of alimentation and respiration.

The chief specific indications are: (1) The full, broad tongue, heavily coated, with constant nausea or vomiting. Here it should be used in full doses as an emetic; (2) irritation of digestive tract, with long, pointed, reddened tongue and tendency to nausea, vomiting, diarrhea or dysentery; (3) scanty expectoration, with irritative cough and hoarseness; (4) active hemorrhage.

The conditions demanding the specific use of ipecac are those showing ***irritation***, ***capillary engorgement***, and ***hypersecretion***.

As an emetic ipecac is not suited for emergency cases, such as poisoning, if other more suitable and more rapid emetics can be procured. Zinc sulphate or apomorphine is more prompt and more certain in poison cases, especially narcotic poisoning. But for the purpose of relieving the stomach of its contents when overloaded, or when food is fermenting and undergoing faulty digestion, and the tongue is heavily coated, the breath foul, and nausea, or vomiting

imminent, a full emetic dose of ipecac is justifiable and efficient. In this way it often relieves gastric distress and pain, being of very great value in acute indigestion, and checks bilious attacks with sick headache due to the causes mentioned.

One of the therapeutic facts long ago recognized by those whose eyes are not otherwise open to the utility of specific medication is that ipecac (though a common emetic), in very small doses, is one of the best of antiemetics. This is most easily accomplished when the tongue is red and pointed and shows evidence of irritation. There are other cases, however, in which the nausea depends upon foul accumulations in the stomach. The tongue is then broad, flabby, and slimy, and nausea is pronounced. In such instances a full emetic dose may be given, and if nausea and vomiting then persist it may be followed by minute doses. This usually is effective. Ipecac in small doses is one of the recognized agents of value in the nausea and vomiting of pregnancy.

Ipecac is often lost sight of as a remedy for active hemorrhage. Of course, it operates best where the quantity of blood lost is small. We have seen most excellent results follow its use in hemoptysis and in the hemorrhage from gastric ulcer. It should not be given in doses large enough to cause emesis. In typhoid fever it is less valuable than carbo-vegetabilis or gallic acid, but may be used for the bloody discharges of dysentery. It may also be exhibited in nosebleed, haematuria and in menorrhagia, in the latter case often doing excellent service when given in a single full dose.

The greatest value of ipecac lies in its beneficient effect upon irritation of the gastric and intestinal mucosa. The long, pointed tongue, with reddened tip and edges, the uneasiness and pain, the tendency to diarrhea and particularly to dysentery, and the disposition to nausea are so completely met by it as to give it prominence among the specific medicines for acute diseases of stomach and bowels. If there is fever, it should be given with the indicated sedative, usually aconite. It is especially a remedy for summer disorders of children. It, together with aconite and magnesium sulphate, forms the best treatment for acute dysentery with muco-sanguineous passages. For this purpose we have used it invariably and always with complete success.

Ipecac in large doses (20 to 60 grains), administered after a preceding

dose of opium to produce sedation, is considered one of the most certain methods of meeting amebic or tropical dysentery and preventing the subsequent formation of hepatic abscess. This is followed every four hours with twenty-grain doses, tolerance having become established until the peculiar mush-like ipecac stools are produced.

Ipecac finds a prominent place in acute gastric irritation, in gastric inflammation, in acute hepatitis, in enteritis, and particularly in cholera infantum of the irritative type. It is especially useful in acute mucous diarrhea and in the diarrhea of dentition. In all abdominal conditions requiring ipecac there is the characteristic tongue—long, with reddened tip and edges, and prominent papillae. There is tenderness upon pressure, and the patient is noticeably irritable, and easily disturbed by noises. There is vascular irritability and marked hyperaesthesia. All the faculties are preternaturally acute and the patient extremely sensitive. In such cases no remedy will render better service than ipecac, given in small doses. Often there is the white line around the mouth, contraction of tissue, with pinched countenance; and even if there is no fever, there is a suggestion of approaching nervous explosion, so great is the hyperaesthesic condition of the little patient. In such instances it is decidedly calmative, relaxant and soothing; but the dose must be guarded to keep it below the nauseant point.

A new field for ipecac and its alkaloid particularly is the endamebic infection, pyorrhoea alveolaris. The specific medicine may be used around the teeth or emetine injected; and it has been suggested that ipecac preparations form a part of the daily mouth wash. The use of alcresta ipecac has produced some remarkable results in pyorrhea. However, it has become established that there are different types of pyorrhea, and that the emetine treatment often fails, and its early reputation as a specific has not been sustained. Still it is the most useful treatment so far advised, and will be used until a better one can be devised.

Ipecac is used less, perhaps, as an expectorant in Eclectic practice than by members of the dominant school. Still, where there is a short, irritative cough, with lack of secretion (nauseant doses), and in cases with excessive secretion (stimulant doses), small doses of ipecac are decidedly useful. It is also valuable in harsh, croupal cough and in

explosive cough and in irritable conditions brought on by too frequent or violent use of the voice. Thus it finds a place in the treatment of common colds, bronchitis, broncho-pneumonia and pneumonia, la grippe, and in the cough of measles. Taken internally and sprayed locally, it is one of the greatest remedies for hoarseness due to atony of the vocal cords, and for aphonia due to either irritation or atony of the vocal apparatus. It must not be expected to cure such conditions when due to a tubercular larynx, but many such cases may be temporarily ameliorated by such treatment. It is less valuable in croupous conditions than lobelia, but if used in the various forms of croup, emesis should be gradually (not suddenly) provoked by repeated moderate doses.

The dose of ipecac as an emetic is 15 to 20 grains, in plenty of warm water. For other purposes the following usual prescription may be used: Rx Specific Medicine Ipecac, 5-15 drops; Water, 4 fluidounces. Mix. Sig.: One teaspoonful every 2 or 3 hours, as indicated.

IRIS.

The rhizome and roots of ***Iris versicolor***, Linné (Nat. Ord. Iridaceae). Common in wet places in the United States. ***Dose***, 5 to 20 grains.

Common Names: Blue Flag, Larger Blue Flag, Fleur de Luce.

Principal Constituents.—Volatile oil, a whitish-yellow resin, a trace of an alkaloid, and a comphoraceous body.

Preparation.—***Specific Medicine Iris***. ***Dose***, 1 to 20 drops.

Specific Indications.—Enlarged, soft and yielding lymphatic enlargements; thyroid fullness; splenic fullness; chronic hepatic disorders, with sharp, cutting pain, aggravated by movement; clay-colored feces, with jaundice; nausea and vomiting of sour liquids, or regurgitation of food, especially after eating fats or rich pastry, or ice cream; watery, burning feces; rough, greasy skin, with disorders of the sebaceous follicles; abnormal dermal pigmentation.

Action.—Iris stimulates the glands of the body to increased activity and impresses the nervous system. In large doses it is emeto-cathartic, acting violently, the vomitus being acid and the catharsis watery and persistent and accompanied by colic and rectal heat. Iris increases the

hepatic and pancreatic secretions, as well as those of the intestines. Iris also salivates, but without injury to the gums and teeth. Salivation from vegetable sialagogues may be differentiated from that caused by mercury by the absence of mercurial fetor and lack of sponginess of the gums or loosening of the teeth. Neuralgic pain is said to be produced by iris when given in large doses; and when even moderately full therapeutic doses are administered it produces a more or less persistent belly-ache and mild catharsis. Iris is capable of causing gastro-enteritis resulting in death. To be effective iris preparations must be made from prime, heavy, resinous root-stocks; when old and light, like tan-bark, iris produces neither physiologic nor therapeutic effects.

Therapy.—***External***. Specific Medicine Iris has been painted upon goitre with good results, though it is effectual in but few instances, and the type is not as yet well defined. It is also advised as an efficient local treatment for psoriasis, chronic itching eczema, various types of tinea, prurigo, and crusta lactea. In all of the preceding disorders the drug should be given internally while being applied externally.

Internal. Iris is alterative and cholagogue. It exemplifies as fully as any drug the meaning of the term alterative as used in Eclectic therapy. Perhaps this is best expressed to-day by saying that it corrects perverted metabolism. Iris, in small doses preferably, quietly stimulates the glandular structures of the body, both the glands with outlets and the ductless glands. It promotes waste and excretion, two processes necessary before repair can well take place. In broad terms it is a remedy for “bad blood” and imperfect nutrition. The term “bad blood” or blood dyscrasia has, as a rule, little relation to the blood itself, but pertains chiefly to imperfect lymphatic elimination and faulty retrograde metamorphosis. Iris impresses the thyroid function, is of great value in the adenopathies of syphilis and skin affections, with imperfect functioning of the lymphatic system resulting in enlarged lymph nodes. Hepatic torpor, splenic fullness, and jaundice, with clay-colored stools are influenced for good by it, the drug acting quietly as an alterative when given in small and repeated doses.

Iris should be used in the various cachexias—lymphatic, scrofulous and syphilitic. It proves more or less useful in some cases of goitre or enlarged thyroid, whether the enlargement be constant, or merely the temporary fullness associated with the menstrual function, normal or

abnormal. When it does good it is chiefly in reducing enlargement, and appears to have but little influence upon the tachycardia and other disturbances of hyperthyroidism. As a rule, soft glandular enlargements are best treated with iris, and hard enlargements with phytolacca. However, iris is sometimes surprisingly effective in goitre, while more often it seems to fail completely. The exact type most benefited has never been clearly defined. In order to obtain satisfactory results at all, the use of the drug must be continued over a period of several months. In exophthalmic goitre it may be given early, but without great hope of doing more than to affect the bodily glandular functions, thereby improving the general health of the patient. The same may be said for it in Addison's disease, in which it has sometimes benefited, but has not, of course, cured. Iris is often useful in splenic fullness, and ovarian and uterine turgescence in cachectic individuals.

Minute doses of iris relieve gastric irritation, with nausea, vomiting, and gastralgia. In like doses it is sometimes useful in cholera infantum, and in either diarrhea or dysentery, both with large, slimy evacuations, repeated small doses have proved very effectual. Still for all these bowel troubles it is far inferior to ipecac. It is quite certain, however, to relieve sick headache dependent upon indigestion, and bilious headache, with nausea and sour and bitter vomiting, and clay-colored stools. In fact one of the most important uses for iris is in that complex condition included in the elastic denomination “biliousness”. For regurgitation of fatty foods or pastries it is especially effective. In hepatic congestion, with constipation, and sharp-cutting pains, increased by motion, iris frequently gives relief. When constipation depends upon hepatic and intestinal torpor and in duodenal catarrh, with jaundice and clay-colored feces, iris should be considered as a possible remedy. Aching pain, with pressure beneath the scapulae, usually dependent upon hepatic wrong, is relieved by 1 to 5 drop doses of specific medicine iris.

JACARANDA.

The leaves of ***Jacarandaprocera***, Sprengel (Nat. Ord. Bignoniaceae). A tree of Guiana and Brazil.

Common Names: Carob Tree, Caroba, Caaroba.

Principal Constituents.—***Carobin***, ***carobic acid***, several resins, a balsam, and tannin.

Preparation.—***Specific Medicine Jacaranda***. ***Dose***, 5 to 20 drops.

Action and Therapy.—In its native habitat carob is reputed antisyphilitic, but has attained no such reputation in this country. A few, however, have used it for the late manifestations of syphilis, as eruptions and ulcerations. Watkins suggested its use in the epilepsy of masturbators and in those of feeble mentality with voracious appetite.

JALAPA (Ipomea jalapa)

The dried tuberous root of ***Ipomoea jalapa***, Nuttall; (***Ipomoea purga***, Hayne; ***Exogonium jalapa***, Baillon; ***Exogonium purga***, Bentham). Nat. Ord.Convolvulaceae. A vine of Eastern Mexico. ***Dose***, 10 to 30 grains.

Common Name: jalap.

Principal Constituents.—A resin (***Resina Jalapae***) composed chiefly of ***Jalapurgin*** ($C_{62}H_{100}O_{32}$) (convolvulin or jalapin) and a soft acrid resin.

Preparations.—1. ***Resina Jalapae***, Resin of jalap. Yellowish-brown or brown masses or fragments, or a yellowish-gray or yellowish-brown powder, permanent, of a faint but peculiar odor, and somewhat acrid to the taste. Soluble in alcohol. ***Dose***, 2 grains.

2. ***Pulvis Jalapae Compositus*** (U. S. P.), Compound Powder of jalap. (jalap, 35; Potassium Bitartrate, 65.) ***Dose***, 20 to 60 grains. (Locke advises Ginger, 3 drachms, in 8 ounces of this preparation to prevent griping.)

3. ***Pulvis Jalapae Compositus*** (Eclectic), Compound Powder of jalap (Eclectic), or ***Antibilious Physic***. (Senna, 2 ounces; Jalap, 1 ounce; Cloves or Ginger, 1 drachm.) ***Dose***, 60 grains (in hot water allowed to cool and then sweetened).

4. ***Specific Medicine Jalap***. ***Dose***, 5 to 20 drops.

Specific Indications.—Intestinal torpor and constipation from deficient secretion of the intestinal glands; pain and griping in the lower bowel.

Action and Therapy.—Jalap is an irritant cathartic operating energetically and producing large liquid stools. It gripes considerably and sometimes causes nausea and vomiting. Large doses produce violent hypercatharsis, sometimes resulting in death. It is a safe and thorough cathartic when no inflammation of the gastro-intestinal tract

exists, and may be used where a derivative action, with full stools, is indicated. In small doses (5 grains daily) it may be employed to relieve constipation due to inactivity of the intestinal glands or where hard fecal masses are impacted in the rectum. Movements are facilitated by the secretion induced. It is a useful revulsive in cerebral congestion, and may be used in hemorrhoidal conditions with constipation when a stimulating cathartic cannot be employed.

The chief use of jalap is for the relief of dropsy from any cause. It is commonly used with cream of tartar, which increases both the cathartic and diuretic effects. It should not be given for any great length of time, for the depletion finally has a depressing effect upon the heart. Though contraindicated in inflammation of the intestinal tube, it may be used when there is inflammation of the biliary apparatus, and when a cathartic is needed at the onset of fevers. The Antibilious Physic and that modification of the compound powder as advised by Locke are desirable forms in which to use jalap. Jalap alone purges in about 3 to 4 hours.

JEFFERSONIA.

The rhizome of ***Jeffersoniadiphylla***, Barton (Nat. Ord. Berberidaceae). A handsome, vernal, flowering plant throughout the eastern half of the United States.

Common Names: Twinleaf, Rheumatism Root.

Principal Constituents.—A large proportion of an undetermined white alkaloid, saponin, and a trace of berberine.

Preparation.—***Tinctura Jeffersoniae***, Tincture of Jeffersonia. (jeffersonia, 8 ounces; Alcohol (76 per cent), 16 fluidounces.) ***Dose***, 10 drops to 1 fluidrachm.

Action and Therapy.—As indicated by one of its trivial names this plant has been used in chronic forms of rheumatism. Its exact status is not well determined, but it is undoubtedly alterative and has some effect upon the general nervous system, allaying excitability and irritability. Watkins declared it efficient in pain in the head with dizziness and feeling of tension. Locke mentions it as useful where rheumatism is located chiefly in the muscles of the back, and in bronchitis and constitutional chronic catarrh, especially in the aged.

JUGLANS CINEREA.

The bark of the root of ***Juglans cinerea***, Linné, collected in the autumn (Nat. Ord. juglandaceae). A forest tree of North America.

Common Names: Butternut, White Walnut.

Principal Constituents.—A fixed oil, and orange-yellow ***juglandic acid***, a body closely resembling chrysophanic acid.

Preparations.—1. ***Specific Medicine Juglans***. ***Dose***, 1 to 30 drops.
2. ***Extractum Juglandis***, Extract of Butternut. ***Dose***, 1 to 30 grains (usually 1 to 5 grains).

Specific Indications.—Chronic constipation; gastro-intestinal irritation, with sour eructations, flatulence, and either diarrhoea or constipation dependent thereon; diarrhoea and dysentery with tenesmus and burning and fetid discharges; hepatic torpor; chronic pustular or vesicular skin disease, discharging freely; eczema.

Action and Therapy.—In small doses juglans is a mild intestinal stimulant and laxative; in large doses it is emeto-cathartic. It also possesses alterative properties. As a laxative its action is kindly, rarely producing griping or after-debility, and resembling that of rhubarb, but it does not produce subsequent constipation. Being a mild gastric stimulant it is often of service in gastric irritation and atonic dyspepsia, and in indigestion with deficient glandular secretion, sour eructations and flatulent distention. These conditions are often accompanied by a burning and tenesmic diarrheal or dysenteric discharge. Laxative doses of juglans relieve the latter annoyances. A full laxative dose of extract of butternut was a favorite early-day treatment of malarial infection or “ague” in the western States, where the pioneers also used it successfully for rheumatic pain in the back-probably lumbago due to overloaded intestines. For these purposes it is now a neglected medicine.

Juglans has a specific action upon skin disorders of a pustular or vesicular type, and especially those that are eczematous or related in any measure to a strumous diathesis. The dose need not be sufficient to produce free bowel action, but should be large enough to induce some intestinal secretion. Small doses of the specific medicine (1 to 5 drops) are best for this purpose. As a laxative the extract is preferable, in

doses of 1 to 5 grains; sometimes up to 30 grains.

JUNIPERUS COMMUNIS.

The fruit (berries) of the ***Juniperuscommunis***, Linné (Nat. Ord. Cupressaceae). An evergreen tree of Europe and America.

Common Names: Juniper, Juniper Berries.

Principal Constituents.—A volatile oil (***OleumJuniperi***) and an amorphous body, ***juniperin***.

Preparations.—1. ***InfusumJuniperi***, Infusion of Juniper (Berries, 1 ounce; Boiling Water, 16 fluidounces; let stand one hour). ***Dose***, 2 to 4 fluidounces.

2. ***OleumJuniperi***, Oil of Juniper. Colorless, faintly green or yellow oil of the juniper taste and odor. It should be kept protected from light in amber-hued bottles and in a cool place. Dose, 2 to 15 minims.

3. ***Spiritus Juniperi***, Spirit of juniper (5 per cent oil). ***Dose***, 5 to 60 minims.

4. ***Spiritus Juniperi Compositus***, Compound Spirit of Juniper (Oils of juniper, Caraway, Fennel, Alcohol, and Water). ***Dose***, 1 to 4 fluidrachms.

Specific Indications.—Renal atony with catarrhal and pus discharges; non-inflammatory irritability of the neck of the bladder.

Action and Therapy.—Juniper is a gastric stimulant and a stimulating diuretic to be used in atonic and depressed conditions, usually in chronic affections of the kidneys and urinary passages with catarrhal or pus-laden discharges. It is especially valuable in renal atony in the aged, with persistent sense of weight and dragging in the lumbar region. In uncomplicated renal hyperaemia or congestion, when the circulation is weak and no fever or inflammation is present, the careful use of juniper will relieve, and if albumen is present it may disappear under its use. It is often of great value in chronic nephritis, catarrh of the bladder, and chronic pyelitis to stimulate the sluggish epithelia and cause a freer flow of urine to wash away the unhealthy secretions. It is sometimes of value after scarlet fever or in the late stages when the kidneys are not yet inflamed, and after acute nephritis when the renal tone is diminished and secretion of urine is imperfect. Under no circumstances should it be used when there is active inflammation. The infusion is extremely useful in irritation of the bladder with recurrent attacks of distressing pain and frequent urination in women during the menopause and apparently due to taking cold. The infusion of juniper is the best preparation for most purposes. A pint may be

taken in a day. When an alcoholic stimulant is needed in the above-named condition the spirit or compound spirit may be used. The oil is often efficient in non-inflammatory prostatorrhea and gleet. Juniper preparations are frequently exhibited in chronic structural diseases of the heart, liver, and kidneys, to stimulate the sound tissues to functionate and relieve the attendant dropsy. Usually they are combined with agents like citrate or acetate of potassium or with spirit of nitrous ether. In these conditions they must be used with judgment and caution. No preparation of juniper should be given in doses larger than recommended above, as suppression of urine, strangury, hematuria, or even uremic convulsions may result from its use.

KALMIA.

The leaves of ***Kalmialatifolia***, Linné (Nat. Ord. Ericaceae). A beautiful shrub of mountains and damp situations in the United States.

Common Names: Mountain Laurel, Laurel, Sheep Laurel, Lambkill, etc.

Principal Constituents.-A neutral, poisonous principle, ***andromedotoxin*** ($C_{31}H_{51}O_{10}$), ***arbutin***, resin, and tannin.

Preparation.—***Specific Medicine Kalmia***. ***Dose***, 1 to 20 drops.

Specific Indications.—Fugitive rheumatic pains; aching pain in the back; pain upon movement of the eyeballs; excited circulation; cardiac palpitation reflex from gastro-intestinal irritation; chronic syphilitic cachexia.

Action and Therapy.—King valued kalmia in constitutional syphilis, with excited heart-action and rapid circulation. Being a sedative it is said to allay fever and inflammation, and it is credited with power to relieve symptoms due to cardiac hypertrophy. It is also a remedy for aching pain, shifting rheumatic pain, aching pain in the back during menstruation, and ocular pain upon movement of the eyes. Palpitation of the heart excited reflexly by gastro-intestinal disturbances is sometimes relieved by it. It is said to be most valuable when the disorders above mentioned are associated with a syphilitic taint. Kalmia has never obtained a very important place in medicine, though it possesses strongly toxic properties.

KAMALA (Mallotus philippiensis).

The glands and hairs from the capsules of ***Mallotus philippiensis*** (Lamarck), Müller Arg. (Nat. Ord. Euphorbiaceae). A small Asiatic, African, and Australian tree. ***Dose***, 30 to 60 grains.

Common Names: Kamala, Kameela, Spoonwood.

Principal Constituent.—***Rottlerin*** or kamalin, a crystalline principle.

Preparation.—***Specific Medicine Kameela***. ***Dose***, 30 to 60 drops.

Action and Therapy.—In doses of 2 to 4 drachms kamala purges, with griping, nausea and vomiting, and the production of four to fifteen evacuations. The alcoholic preparations act more kindly and uniformly. Its chief use is that of a taenicide expelling the tape-worm entire, but with such force that the head sometimes remains. Full doses of the specific medicine should be given every three hours until five or six doses have been taken. It also expels lumbricoids and ascarides.

KINO.

The self-dried juice of ***PterocarpusMarsupium***, Roxburgh (Nat. Ord. Leguminosae). A tree of the mountains of the Malabar coast of Hindustan. ***Dose***, 10 to 30 grains.

Common Names: Kino, Gum Kino. Synonym: Resina Kino.

Principal Constituents.—***Kinotannicacid*** (75 per cent), ***kinoin***, ***Pyrocatechin***, ***kino-red***, and gum.

Preparation.—***Tinctura Kino***, Tincture of Kino. ***Dose***, 1 to 2 fluidrachms.

Action and Therapy.—***External***. Sometimes used as an astringent wash in soreness and relaxation of the uvula and the pharynx, and as an injection in leucorrhea and gonorrhea also as a stimulating application to indolent ulcers.

Internal. A good astringent for pyrosis and chronic serous diarrhoea and that occurring in opium habitues, and in the diarrhoea of phthisis.

KOLA (Cola spp.).

The seeds of ***Cola verticillata, C. anomala and C. nitida*** (Nat. Ord. Sterculiaceae). A tree of western Africa. ***Dose***, 5 to 30 grains.

Common Names: Kola, Kola Nut, Female Kola, Cola, Bissy-Bissy.

Principal Constituents.—***Caffeine*** (theine) 3 per cent, and a small amount of ***theobromine***, ***kola-red***, and ***kolatannic acid***.

Preparation.—***Fluidextractum Kolae***, Fluidextract of Kola. ***Dose***, 5 to 30 drops.

Specific Indications.—Nervous and muscular depression with cerebral anemia.

Action and Therapy.—The physiological action of kola closely duplicates that of caffeine and the caffeine-bearing drugs. It is, therefore, a remedy for muscular and nervous depression due to cerebral and spinal anemia. It is useful in hysteria, mental gloom, neurasthenia, and the diarrhea of debility. It may be used in acute alcoholism, but is of no value in chronic inebriation, and it sustains one attempting to break away from the tobacco-habit. It relieves nervous irritability of the stomach, often checking the nausea of pregnancy and the vomiting of seasickness. Its action in chronic diarrhea must be due to its power over irritation, as there is not sufficient tannin in the drug to cause much astringency. Like caffeine it is useful in the neuralgia of debility, in migraine, smoker's heart, and cardiac irritability. These are all cases needing stimulation and of the cerebral anemic type. The chief indications for it are difficult breathing, irregular heart action, and valvular insufficiency. After long spells of illness it may be used when there is mental depression, tendency to faint, poor appetite and digestion, great nervous irritability, and profound muscular debility.

KRAMERIA.

The root of ***Krameria triandra***, Ruiz et Pavon, and of ***Krameria dixina***, Linné (Nat. Ord. Krameriaceae). Small suffruticose plants of South America and the West Indies. ***Dose***, 10 to 30 grains.

Common Names: Rhatany, Ratanhia.

Principal Constituent.—***Ratanhia-tannic acid*** (krameria-tannic acid), an amorphous red powder present to the extent of 8 to 18 per cent.

Preparations.—1. ***Specific Medicine Krameria***. ***Dose***, 10 to 60 drops.

2. ***Extractum Krameriae***, Extract of Krameria (Extract of Rhatany). ***Dose***, 10 to 20 grains.

Action and Therapy.—***External***. Astringent and hemostatic. A splendid agent alone or with myrrh, for spongy and bleeding gums and to preserve the teeth. In ointment it is a good application for bleeding piles, and in ulcer of the rectum and fissure of the anus.

Internal. Tannin-bearing drugs often act better as astringents than tannin itself. Rhatany is one of these agents. It is powerfully astringent and somewhat tonic. Immoderate doses may induce constipation with slight dyspeptic symptoms. Internally it has been used in passive hemorrhage, mucous and serous diarrheas, incontinence of urine, leucorrhea, prostatorrhea and colliquative sweating. It has been advised in the diarrhea of opium habitues and in dyspepsia and gastric catarrh with full, relaxed skin.

LACTUCARIUM.

The dried or concrete milk-juice of ***Lactuca virosa***, Linné (Nat. Ord. Compositae). South and Central Europe. ***Dose***, 5 to 20 grains.

Common Name: Lettuce Opium.

Principal Constituents.—***Lactucin*** ($C_{11}H_{14}O_4$), ***lactucerin*** (lactucone), ***lactucopicrin***, ***lactucic acid***, and a comphoraceous volatile oil.

Preparations.—1. ***Tinctura Lactucarii***, Tincture of Lactucarium, (50 per cent strength). ***Dose***, 30 to 60 drops.

2. ***Syrupus Lactucarii***, Syrup of Lactucarium (prepared from Tincture). ***Dose***, 1-3 fluidrachms.

Action and Therapy.-A non-constipating calmative and feeble hypnotic, sometimes proving useful in insomn ia from mental overwork and, as a syrup, in the cough of phthisis. Even garden lettuce (***Lactuca sativa***) relieves irritation of the broncho-pulmonic membranes and has a tendency to induce drowsiness. Lactucarium is often inert; when a good preparation can be obtained it is fairly sedative for irritable children.

LAPPA (Arctium lappa).

The root and seeds of ***ArctiumLappa***, Linné (Nat. Ord. Compositae). Europe, Asia, and America. ***Dose***, 5 to 60 grains.

Common Name: Burdock.

Principal Constituents.—The glucoside ***lappin***, fixed oil, ***inulin***, and an altered tannin called ***phlobaphene***.

Preparations.—1. ***Specific Medicine Lappa***. ***Dose***, I to 60 drops.
2 . ***TincturaLappaeSeminis***, Tincture of Lappa Seeds. (Seed, 4 ounces; 75 per cent Alcohol, 16 fluidounces.) ***Dose***, 1 to 60 drops.

Specific Indications.—Feeble cutaneous circulation; dry, scaly skin eruptions; aphthous ulcers; recurrent boils and styes; urinary irritation; psoriasis.

Action and Therapy.—Lappa is a potent but neglected alterative and diuretic. It relieves urinary and bronchial irritation, favors the elimination of waste material, and secondarily proves tonic. Lappa is especially valuable in psoriasis, crusta lactea, stubborn eczema, obstinate ulcers, and in catarrhal and aphthous ulcerations. It is one of the best of agents for recurrent boils and styes. Bronchial cough, with much irritation of the pulmonary tract, is relieved by it, and it is sometimes beneficial in dyspepsia due to irritation of the stomach in cachectic individuals. As it gently stimulates the kidneys and promotes waste it should be largely used in strumous and cachectic conditions, with tendency to dry, scaly, cutaneous eruption and low grades of cellular inflammation, with feeble circulation in the skin.

LAVANDULA.

The flowers of ***Lavandulavera***, De Candolle (Nat. Ord. Labiatae). Dry sterile soils of mountainous elevations in southern Europe and northern Africa; cultivated in the United States.

Common Names: Lavender, Lavender Flowers.

Principal Constituents.—A volatile oil (***OleumLavandulae***) containing ***linaolool acetate***, ***linalool*** ($C_{10}H_{18}O$) and ***cineol*** or ***eucalyptol***.

Preparations.—1. ***SpiritusLavandulae***, Spirit of Lavender (5 per cent oil). ***Dose***, 10 to 60 minims.

2. ***Tinctura Lavandulae***, Composita, Compound Tincture of Lavender. (Compound Spirit of Lavender.) (Contains Oil of Lavender, Oil of Rosemary, Clove, Myristica, Saigon Cinnamon, Red Saunders, Alcohol, and Water.) ***Dose***, 10 to 60 drops.

Action and Therapy.—***External***. Spirit of lavender is an agreeable and soothing lotion for the headache of debility and in fevers. The compound tincture is frequently added to carbonate of ammonium, and constitutes "smelling salts" for the relief of headache and tendency to fainting.

Internal. Oil of lavender, the spirit and the compound tincture are delightful stimulants and carminatives. They are extensively employed to allay gastric uneasiness and nausea, in flatulent colic, hysteria, nervous debility, general languor and tendency to fainting. For nervous and weak individuals, who faint easily and are prone to hysterical seizures, they are simple and safe preparations. The compound tincture is added to many mixtures to give color, and all of the lavender preparations are used as corrigents and adjuvants of less agreeable medicines. Scudder valued the compound tincture in nervous irritability in children, and incorporated it in a "soothing syrup" described under Cypripedium, which see.

LEONURUS.

The tops and leaves of ***Leonurus Cardiaca***, Linné (Nat. Ord. Labiatae). Asia, Europe, and common in the United States.

Common Name: Motherwort.

Principal Constituents.—Resins, a bitter principle, and probably an alkaloid.

Preparation.—***Infusum Leonuri***, Infusion of Leonurus. (1 ounce to Water, 16 fluidounces). ***Dose***, 2 to 4 fluidrachms.

Action and Therapy.—A simple emmenagogue and antispasmodic, evidently having considerable control over the nervous system. It has been advised in nervous debility with irritation and unrest, tendency to choreic movements or spasms, pelvic and lumbar uneasiness and pain, and in bearing-down pains and the discomforts incident to

debility of the female reproductive organs. A warm infusion may be used in amenorrhea, and King praised it for the restoration of suppressed lochia. It deserves restudy to determine its value in nervous affections.

LEPTANDRA (Veronicastrum virginicum).

The rhizome and rootlets of ***Veronicastrum virginicum*** (L.) Farw., (***Leptandra virginica***, Nuttall), (Nat. Ord. Scrophulariaceae). A tall perennial plant indigenous to the eastern half of the United States. ***Dose***, 10 to 60 grains.

Common Names: Culver's Root, Black Root, Culver's Physic, Bowman Root, Tall Speedwell, etc.

Principal Constituents.—A resinoid called ***leptandrin***, formerly used but now largely discarded by Eclectic practitioners, and a bitter principle.

Preparation.—***Specific Medicine Leptandra***. ***Dose***, 1 to 60 drops.

Derivative.—Leptandrin (Resinoid). Dose, 1/4 to 2 grains.

Specific Indications.—Tenderness and heavy pain in the region of the liver, with drowsiness, dizziness, and mental depression; skin, yellow; tongue coated white; bitter taste, nausea, frontal headache and cold extremities; thirst with inability to drink; diarrhea with half-digested passages, or clay-colored stools; enfeebled portal circulation, with lassitude, gloom, and mental depression.

Action and Therapy.—Leptandra is a gastro-hepatic and intestinal stimulant. The fresh root is viciously cathartic and has produced bloody stools and abortion. Drying, however, deprives the drug of its drastic quality and it becomes a safe cholagogue, laxative, and cathartic. Apparently in ordinary doses it strengthens the functional activity of the intestinal glands, does not debilitate nor produce large stools, and if the circulation is feeble, with a tendency to stasis, it has a decidedly tonic effect.

Leptandra is a remedy for intestinal atony—especially duodenal atony associated with hepatic torpor. It has been employed in dysentery and chronic diarrhoea, dependent upon constipation of the upper bowel, or upon imperfect elaboration of the food. These cases are accompanied by dizziness, headache, visceral pain, mental depression and cold

extremities. In atony of the stomach and liver with the preceding and the following symptoms it is decidedly stimulant and tonic. There is a dry, hot skin, with cold feet, abdominal plethora, pale, white coated or furred broad and thick tongue, heavy or dull aching in the hepatic region and the left shoulder, and a bitter, disagreeable taste. In fact with any of the preceding symptoms—and yellowness of the skin and conjunctiva and nausea, leptandra will prove very useful in atonic dyspepsia, acute hepatitis, acute duodenal catarrh, diarrhea of half-digested aliment, muco-enteritis, and chronic enteritis. It will be evident from the guides given that leptandra, is a remedy for the complex known as "biliousness". It aids chionanthus, and sometimes podophyllin to dissipate jaundice. In the early period of Eclectic medicine it was valued in typhoid fever, when ushered in with constipation and before marked involvement of Peyer's patches had become established. It is questionable whether any laxative should be resorted to in such conditions—an enema is to be preferred. But for pre-typhoid symptoms, not amounting to enteric fever, its use is justifiable and even beneficial. Leptandra is better as a laxative in malarial fever and prepares the system for the more kindly reception of antiperiodic medication. It is no longer employed in anasarca and ascites, better agents having supplanted it. It is a good medicine and its field of usefulness has narrowed down to gastro-hepato-duodenal atony, and attendant or resulting disorders, in which it proves an admirable stimulant and corrective. It acts well with hydrastis, podophyllum, chionanthus, dioscorea, or chelidonium when these are also indicated. It is especially valuable in the diarrhoea of dentition. The nervous irritability may be controlled with matricaria and the following administered: Rx Compound Syrup of Rhubarb and Potassa, 3 fluidrachms; Specific Medicine Leptandra, 1 fluidrachm. Mix. Ten to 20 drops every hour until the diarrhea ceases. Glyconda may be substituted for the neutralizing cordial, if sugar is contraindicated.

LEUCANTHEMUM.

The whole plant of ***Leucanthemumvulgare*** Lam. (***Chrysanthemumleucanthemum***, Linné) (Nat. Ord. Compositae.) Introduced into America from Europe.

Common Names: Ox-eye Daisy, Field Daisy.

Principal Constituents.—Probably an acid, aromatic, volatile oil, and a bitter principle.

Preparation.—***Infusum Leucanthemi***, Infusion of Leucanthemum. ***Dose***, freely.

Action and Therapy.—An infusion of leucanthemum is tonic and should be considered in cases of colliquative sweating in which it is not desirable to use the active antihydrotics, as atropine, muscarine, or camphoric acid.

LIATRIS.

The rhizomes of several species of ***Liatris*** (Nat. Ord. Compositae). Middle and southern United States. Dose, 10 to 60 grains.

Common Names: Button Snake Root (***L. spicata***); Blazing Star (***L. squarrosa***); Gay Feather (***L. scariosa***); Deer's Tongue (***Carphephorus odoratissimus*** [***L. odoratissima***]).

Principal Constituents.—Resins, volatile, bitter principle, and in some ***coumarin*** ($C_9H_6O_2$), a principle having a vanilla odor.

Preparation.—***Infusum Liatridis***, Infusion of Liatris (1 ounce to 16 fluidounces). ***Dose***, 1 to 4 fluidounces.

Action and Therapy.—This drug is stimulant, bitter tonic, diuretic, and emmenagogue. It is sometimes used as a gastric tonic in dyspeptic conditions associated with renal inactivity. Rarely it is used to relieve pain in spasmodic bowel complaints and colic in children, in backache in adults, and to relieve dysmenorrhea. It is seldom employed. Button snake root derives its name from its traditional Indian reputation as a local alexipharmic (freshly-bruised root) for rattle-snake bite, a myth, it is needless to say, as yet unverified.

LIGUSTRUM.

The bark and leaves of ***Ligustrum vulgare***, Linné (Nat. Ord. Oleaceae). A beautiful shrub in woods and thickets in the eastern half of the United States; also cultivated. ***Dose***, 10 to 60 grains.

Common Names: Privet, Privy, Prim.

Principal Constituents.—The glucoside ***ligustrin*** (syringin), a bitter crystalline body, ***ligustron***, and an amorphous bitter, ***syringopikrin***.

Preparation.—***Decoctum Ligustri***, Decoction of Privet (1 ounce to Water, 16 fluidounces). ***Dose***, 1 to 4 fluidounces.

Specific Indications.—Aphthous sore mouth; relaxed sore throat.

Action and Therapy.—***External***. Next to coptis the most useful application for thrush in infants and of value in pallid sore throat with tissue relaxation, and in aphthous sore mouth.

Internal. An astringent tonic of much value in ulcerative and catarrhal conditions of the mucous membranes of the stomach, bowels, and renal tract.

LILIUM.

The whole plant of ***Lilium tigrinum*** (Nat. Ord. Liliaceae). Native of Japan and China, but largely cultivated.

Common Name: Tiger Lily.

Preparation.—***Specific Medicine Tiger Lily***. Dose, 1 to 10 drops.

Action and Therapy.—This remedy has been acquired from Homeopathy and is reputed slowly effective in controlling uterine irritation and congestion, being employed also to allay the nausea of pregnancy and of uterine irritability, in congestive dysmenorrhea, and chronic ovarian neuralgia with darting, burning pain in the ovaries. It is also said to be of service when pelvic weight and prolonged lochia accompany a tardy recovery from parturition and in the bearing-down discomfort incident to prolapsus uteri.

LIMON.

The juice and outer rind of the fresh ripe fruit of ***Citrus medica Limonum*** (Risso), Hooker filius (Nat. Ord. Rutaceae). Northern India, and cultivated in subtropical countries.

Common Name: Lemon.

Principal Constituents.—A pale-yellow or greenish-yellow, fragrant oil (***Oleum Limonis***); and a bitter principle, ***hesperidin*** ($C_{22}H_{26}O_{12}$)

Preparations.—1. ***Limonis Succus***, Lemon juice. This may be prepared by slightly

boiling strained lemon juice to remove mucilage, etc., and pouring it into previously sterilized bottles filled to the neck; fill the neck with pure olive, sweet, or almond oil, and cork tightly. Keep the bottle in an upright position. This, while slightly bitter, will keep for several weeks. Another method is to add 10 per cent of brandy to the strained juice. ***Dose***, 1/2 to 4 fluidounces.

2. ***Limonis Cortex***, Lemon Peel. A flavoring agent only.

3. ***Oleum Limonis***, Oil of Lemon. Pale-yellow or greenish, having the taste and odor of lemon peel. If it has the odor of turpentine it should not be used. ***Average Dose***, 1 to 5 minims.

Specific Indications.—Elongated, reddened tongue with prominent papillae; scorbutus; fevers with red, long tongue; excessively red, inflamed surfaces in inflammatory rheumatism, with alkaline urine and long, red tongue, thinly coated white.

Action and Therapy.—Lemon juice and citric acid are the best known prophylactics and curative remedies for scurvy (scorbutus). The juice may be given in doses of 1/2 to 2 ounces a day as a preventive, and in doses of 2 to 4 ounces, three times a day, as a cure. The action of lemon juice and citric acid is not exactly identical, probably owing to the presence in the former of mucilage and citrate of calcium, but for most purposes requiring the acid, lemon juice is used and preferred. For preparation of the juice for long voyages, see above (Preparations). Diluted lemon juice may be used in obstinate hiccough, hepatic torpor and acute jaundice when the tongue is red and the urine alkaline. Under like conditions it is useful in acute articular rheumatism when the parts inflamed are deeply red and the general indications for acids are present. Lemon juice upon sugar will alleviate distressing cough, especially a persistent explosive cough, with spasmodic contraction of the throat upon lying down; when relief comes a slight translucent, jelly-like mass is expectorated. Lemonade is a delightfully refreshing refrigerant drink for fever patients when acids are indicated and bowel conditions will permit the use of large quantities of acidulated fluid. It also sometimes relieves sick headache, and a hot lemonade is a popular remedy to break up a “cold”.

LINUM.

The ripe seeds of ***Linumusitatissimum***, Linné (Nat. Ord. Linaceae). Levant and southern Europe; cultivated.

Common Names: Flaxseed, Linseed.

Principal Constituents.—Mucilage, a fixed, viscid oil (***Oleum Lini***), proteids (25 per cent), and a minute trace of amygdalin.

Preparations.—1. ***Oleum Lini***, Linseed Oil, (Oil of Flaxseed, Raw Lipseed Oil). A yellowish oil of a bland taste and peculiar odor, gradually thickening and darkening in the air and acquiring a strong taste and odor. ***Dose***, 1/2 to 1 fluidounce. Raw (not boiled) oil only should be used.

2. ***Farina Lini***, Linseed Meal, (Flaxseed Meal). For poultices.

Action and Therapy.—***External***. Flaxseed and its oil are emollient. A flaxseed poultice (***Cataplasma Lini***) applied early upon inflamed and painful surfaces will relieve pain, cause relaxation, and sometimes resolution. If applied after pus begins to form it will hasten suppuration. Deepseated inflammation can often be aborted by the judicious use of a flaxseed poultice. The danger of favoring sepsis when used upon open or abraded tissues should be borne in mind. Equal parts of linseed oil and lime water form ***Carron Oil***, the best primary dressing for burns and scalds. Linseed meal added to the wash water will assist in removing the odor of iodoform from the hands.

Internal. An infusion of the seeds (1/2 ounce to Boiling Water, 16 fluidounces) is an excellent demulcent forming a pleasant mucilaginous drink for inflamed or irritated membranes. It is especially useful in gastro-intestinal and renal inflammations, and as a lenitive after acute poisoning by irritants. The addition of licorice root or lemon juice and sugar makes of the foregoing an agreeable linctus for irritative coughs and acutely inflamed bronchial mucous membranes. Linseed oil is a good laxative and is sometimes used as an enema to remove ascarides. Hemorrhoids have been cured by the laxative influence of linseed oil given in daily repeated doses of 1 to 2 ounces. Linseed oil may be given freely in poisoning by alkalies, when other bland oils are not at hand.

LIQUIDAMBAR.

The balsamic exudate or concrete juice of ***Liquidambar styraciflua***, Linné (Nat. Ord. Hamamelaceae). The sweet-gum tree of the United States, Mexico, and Central America.

Common Name: Sweet Gum.

Description.—An opaque, almost black, soft, adhesive, resinous mass, or hard

masses breaking with a resinous fracture, of the pleasant odor of benzoin, and a bitterish, pungent, benzoinic taste. It softens in warm weather; becomes hard in cold weather. Soluble in alcohol, ether, chloroform, and fats and oils. ***Dose***, 1 to 15 grains.

Principal Constituents.—The resin ***styrol***, ***cinnamicacid***, ***styracin***, and ***storesin***, a complex alcohol.

Action and Therapy.—***External***. King highly valued an ointment of liquidambar and lard or tallow, equal parts, as a softening and antiseptic application to ulcers and in anal fistulae with indurated edges, and especially for indolent ulcers and old sores upon the legs. Like many balsamic preparations it is said to benefit in parasitic skin diseases, as ringworm of the scalp and porrigo scutulata. It is also reputed to give relief in hemorrhoids. It should be tried in anal fissure, as it acts without causing pain. To render it more efficient, though probably at the risk of causing some pain, we would suggest the addition of a small amount of salicylic acid.

Internal. Like most balsams it is effectual in chronic coughs and catarrhs.

LOBELIA.

The leaves, tops, and seeds of ***Lobelia inflata***, Linné (Nat. Ord. Lobeliaceae). Abundant in the United States. ***Dose***, 1 to 60 grains.

Common Names.—Lobelia, Indian Tobacco, Wild Tobacco, Puke Weed, Emetic Weed, Emetic Herb, Vomit Weed, etc.

Principal Constituents.—The unstable liquid alkaloid ***lobeline***, combined with ***lobelic acid***; fixed and volatile oil, and an unimportant nonbasic substance, ***inflatin***. The so-called ***lobelacrin*** of Enders is probably lobeline lobeliate.

Preparations.—1. ***Specific Medicine Lobelia***. ***Dose***, 1/10 to 60 drops. (Usual form of administration: Rx Specific Medicine Lobelia, 5-30 drops; Water, enough to make 4 fluidounces. Mix. Sig.: One teaspoonful every 1 to 3 hours.)

2. ***Subculoyd Lobelia***. ***Dose***, 1 to 30 drops. Designed chiefly for hypodermatic use.

3. ***Pulvis Lobelia Compositus***, Compound Powder of Lobelia (Emetic Powder). Contains Lobelia (6), bloodroot (3), skunk cabbage (3), ipecac (4), capsicum (1). Dose, as an emetic, 2 drachms in broken doses of 1/4 to 1/2 drachm, in warm water, every 15 minutes. Used chiefly locally.

4. ***Tincturaloberia Composita***, Compound Tincture of Lobelia, (Acetous Emetic

Tincture, Expectorant Tincture). ***Dose***, 1/2 to 3 fluidrachms.

5. ***Libradol***. For external use.

Specific Indications.—Fullness of tissue, with full veins and full arterial flow; full labored and doughy pulse, the blood current moving with difficulty; short, labored breathing; sense of suffocation; dyspnea with praecordial oppression; pain in chest of a heavy, sore, or oppressive character; pulmonary apoplexy (full dose); mucous accumulations in the bronchi; dry croupal cough, with scant or oversecretion; asthmatic seizures; short, lancinating pain radiating from heart to left shoulder and arm; spasmodic muscular contraction; muscular rigidity; infantile convulsions from irritation of the bowels, or from respiratory obstruction; hysterical convulsions; rigid os uteri with thick doughy and unyielding rim; perineal and vaginal rigidity during labor; angina pectoris (full doses).

Action.—Lobelia apparently acts upon the central nervous system, the myoneural junction of the muscles of volition, and the sympathetic nerve ganglia, and by some is classed with the nicotine group in pharmacological effects. It is a powerful gastro-intestinal irritant, producing emesis. Should it fail to vomit, which is rare, purgation may result. In large doses a state of near-collapse is induced. Small doses act upon the cardiac inhibitory apparatus, slowing the heart action, but this is followed by a more or less accelerated pulse. During the depressive stage bloodpressure is lowered, but subsequently becomes increased. Small doses stimulate, and large doses paralyze the respiratory centers and the vagal terminals and ganglia in the bronchi and lungs, death, when it occurs (in animals), resulting from respiratory paralysis (asphyxia). Lobelia is most largely eliminated by the kidney, though some is thought to be excreted by the skin.

If lobelia be chewed it causes an acrid, prickling, and persistently pungent sensation in the throat and fauces, accompanied by slight nausea and a feeling of warmth and distention along the esophageal tract and in the stomach. The sensation is not very unlike that produced by tobacco. The salivary glands and those of the mouth are impressed, pouring out saliva and mucus in abundance. A sense of epigastric depression succeeds, followed by profound nausea, and if the amount chewed be large enough, severe and thorough emesis results. The gastric mucus is secreted in great abundance and ejected with the contents of the stomach. The emetic action of lobelia is

extremely depressing, and is usually accompanied by profuse perspiration. Oppressive prostration, relaxation of the muscular system, and a languid pulse accompany the emetic stage. The depression, however, is of short duration, and is immediately followed by a sense of extreme satisfaction and repose. Under its action the mental powers are unusually acute, and the muscles are powerfully relaxed. The circulation is enfeebled by large and strengthened by small doses, and the bronchial secretions are augmented.

Lobelia, in the ordinary sense of the term, is not a lethal poison. Undoubtedly its injudicious use has and might produce death, but the same is true of many other drugs that are not ordinarily considered as poisons. That the alkaloid lobeline will kill animals has been fully demonstrated. A drop of the alkaloidal solution placed upon the tongue of a strong, healthy man instantly vomited him. To this property of its alkaloid is undoubtedly due the failure of lobelia to act upon man as a lethal agent. Its emetic action is so prompt and decided that the contained alkaloid does not, under ordinary circumstances, produce fatal results. Given in cases in extremis, the resulting exhaustion from repeated emesis would very likely hasten death, but death would be more likely due to the act of vomiting exhausting the patient than to any poisonous effect of the lobelia.

Therapy.—***External***. Infusion of lobelia, or the alcoholic preparations diluted and constantly applied by means of compresses, are among the most efficient applications in rhus poisoning. A lotion or a poultice (with flaxseed or elm) often relieves insect bites and stings, articular pain, the pain of bruises and sprains, and sometimes causes relaxation in strangulated hernia, and relieves the discomfort of erysipelatous inflammation. Powdered lobelia sprinkled upon a larded cloth and applied warm, or the compound emetic powder similarly used, is an invaluable local application to the chest in acute thoracic diseases, and gives marked relief from pleural and muscular pains and alleviates the sense of suffocation and fullness accompanied by a feeling of soreness within the chest. Libradol is a more cleanly application and owing to the presence of glycerin is more or less dehydrating, thus making it a preferable application in swellings, bunions, and inflammatory affections of the joints. Libradol, or a lotion of equal parts of glycerin and the specific medicine, provides a grateful application to relieve pain and reduce tumefaction in orchitis and epididymitis; the lotion is the more easily applied.

Libradol is an exceedingly efficient local application in many disorders, to relieve pain and reduce local inflammations. It is not a cure-all, but covers two definite fields of action-the relief of disease conditions presenting:

(1) Pain and inflammation, with or without exudation, as occur in pneumonia, broncho-pneumonia, bronchitis, croup, pleurisy, acute pharyngitis, tonsillitis, orchitis, ovaritis, arthritis, synovitis, inflammatory rheumatism, boils, and bunions.

(2) Localized pain, along nerve courses, in joints, and in the muscular structures, as in some forms of rheumatism (subacute, non-inflammatory, articular, etc.), lumbago, facial, subscapular, and intercostal neuralgia, pleurodynia, and neuritis.

The specific indications for Libradol are: Pain with or without swelling or inflammation; inflammation with serous or mucous exudation; sharp, lancinating pain in the chest, aggravated by respiratory or other movements; congestion and engorgement of parts; dyspnea; soreness in the pectoral region; dull, aching pain; subcutaneous and thecal inflammations; pain of syphilitic nodes and lymphatic swellings.

Pulvis Lobeliae Compositus or ***Compound Emetic Powder*** is seldom used for the purpose indicated by its name a purpose for which it was originally intended and which it admirably fulfills. It is for its effects when applied locally in broncho-pulmonic affections that it is so highly valued and that has caused it to outlive many other old Eclectic compounds. How it acts—how it can produce the results it does—remains yet a mystery and can not easily be explained scientifically, but that it does act, and very decidedly, is a well attested clinical fact, and its certainty makes it a remedy that we will not be likely to part with. It is the first application thought of by many when desiring an outward application in acute bronchitis, pleurisy, pneumonia, pleurodynia, and soreness of the pectoral walls. A well-larded cloth is sprinkled with the powder. This is then well warmed and applied directly to the chest. Goose fat probably is the best penetrating medium for its exhibition, and singularly recent scientific tests of the penetrability of fatty bodies has yielded the highest place to goose fat. Once more has science recognized the wisdom of the domestic medicationists, whose only claim to skill rested on their

discriminatory clinical observation. The emetic powder may be freely used without danger of unpleasant consequences. It takes the place of the heavy poultices and thus gives little or no discomfort to the patient. If a cotton jacket (best prepared by lining an undershirt or waist with a uniform layer of cotton) be worn over the larded cloth the effects are all that can be desired from external applications. Petrolatum is substituted for other greases by some physicians.

Internal. From the early days of Eclecticism lobelia, through Thomsonian introduction, has been a valued medicine. Many properties were once ascribed it of which little note is now taken. Its chief uses, however, were as an emetic, expectorant, and antispasmodic, fulfilling all of these offices to the admiration of its prescribers. As an emetic it was regarded as not only prompt but efficient, but in order to render it safer and more efficacious, it was often combined with other substances, notably capsicum and ipecacuanha. Either as an expectorant or emetic, as the urgency of cases required, it was in free use in croup, whooping cough, asthma, dyspnea simulating asthma, and pneumonia. In fevers it was used as a relaxant and to modify the circulation. When used as an expectorant it was usually combined with tincture of bloodroot, syrup of senega, wine of ipecac, or oxymel of squill. Doses of lobelia sufficient to excite nausea and relaxation were employed in epilepsy, chorea, cramps, hysteria, tetanus, strychnine poisoning, and other convulsive attacks. Internally, or by enema, it was largely employed to overcome rigidity of the uterus during labor, but its specific applicability, as now known, was not then differentiated. As a relaxant, when employed by rectal enema and in fomentations, it was highly regarded in treating strangulated hernia and other intestinal obstructions; and to release muscular contracture in tedious labors, and to facilitate the setting of fractures and reducing of dislocations. In extreme cases, oil of lobelia was employed and entered into liniments for severe neuralgic and rheumatic complaints. The infusion was used in ophthalmia; the tincture locally in sprains, bruises, rheumatic pains, erysipelatous and similar inflammations, eczema and other cutaneous diseases, and in poisoning by ivy. Poultices of lobelia were similarly employed. These were the days prior to the advent of specific medication through which a better understanding of the use of lobelia was acquired. Of these uses only the occasional employment still survives for the same purposes in croup, asthma, whooping cough, dyspnea, children's convulsions, rigid os, and the local surface disorders named.

Lobelia is nauseant, emetic, expectorant, relaxant, antispasmodic, diaphoretic, sialagogue, sedative, and, secondarily, occasionally cathartic and diuretic and astringent. It is in no sense a narcotic. As an emetic lobelia is now seldom employed. In selected cases where a systemic emetic effect is desired it may still be employed with benefit. By a systemic emetic we mean one which, like lobelia, not only causes emesis, but reacts profoundly upon the nervous, circulatory, and secretory apparatus of the whole body, so that marked relaxation takes place and the stomach yields up a great quantity of thick, ropy mucus. Such an effect is sometimes desirable as a preparatory treatment for the better receptivity of medicines that would otherwise remain unabsorbed by the stomach, or when antiperiodics act indifferently or irritatingly unless a good cleaning of the stomach and relaxation of nervous tension are first insured. This is notably true of quinine, and often of the special or arterial sedatives. Though momentarily depressing, the reaction is decidedly beneficial, and it may well be used when depression is not too great to begin with, and the tongue is expressionless and foully coated at the base. In such instances we believe it should still be used in emetic doses in some chronic disorders of the stomach, and especially in the incipient stage of intermittent and other allied fevers. We have seen it arouse from a general sluggish condition of atony those who have been ill for months and start them on the way to better health. When the emetic action of lobelia is desired, small doses of specific medicine lobelia, or of the powder in warm water, should be frequently administered until profound nausea is induced; then the medicine should be pushed rapidly to emesis. Large draughts of warm (not hot) water will hasten its action and render the act of vomiting easier. Lobelia should never be given to children or the old and feeble as an emetic; nor is it admissible in ordinary cases of poisoning, where depression may be increased by it. Such are to be treated with stimulating emetics.

The powerfully relaxant properties of lobelia make it an efficient drug where the spasmodic element is a factor. As of old, nauseant doses may be given to relax hysterical convulsions, worm convulsions, the convulsions of dentition, and other convulsive disorders of children. When mildly asthenic, lobelia may be used alone; when sthenic, bromide of potassium or gelsemium may be given with it. Usually, however, the indications are present for all three medicines. The best combination of drugs we have personal knowledge of for the relief of

convulsions of childhood caused by errors of diet, such as the ingestion of half-comminuted bananas, nuts, or shredded cocoanut cakes, or of fresh flour dough, is the following: Rx Specific Medicine Lobelia, and Specific Medicine Gelsemium, 1 fluidrachm each; Potassium Bromide, 1 drachm; Water, enough for 4 fluidounces. Mix. Sig.: One teaspoonful every five minutes until complete relaxation is insured; then every two hours for a day. The warm bath and the enema should not be neglected. If convulsions are due to dentition or to the onset of infectious diseases, good will have been accomplished by placing the system in repose and giving a better receptibility for other medication. Lobelia is of little value in epileptic convulsions, and is rarely of service in tetanus. It has been used in strychnine poisoning, but is not to be commended, especially if given late, lest attempts at emesis provoke the already greatly excited reflexes and precipitate repeated paroxysms; and less than emetic doses would have absolutely no value. In puerperal eclampsia, in which it has also been advised, it is not to be compared with veratrum, gelsemium and chloroform in efficiency. When intestinal obstructions are due to a spasmodic state of the intestines it may be of service, as in intussusception and fecal impaction; and it may relax and relieve a strangulated hernia. Too much time must not be consumed in attempts at medication in these serious disorders, and an early resort to surgery is advisable. Spasmodic colic in both adults and children is sometimes quickly relieved by lobelia. In fact very small doses prove the very best treatment in colic of very young infants. For spasmodic croup and spasmodic asthma lobelia in nauseant doses is without a peer in drug therapeutics.

Lobelia is ***the*** drug for angina pectoris, neuralgia of the heart, and pulmonary apoplexy. Though evanescent in its action, large doses of specific medicine lobelia (about 20 drops) may be administered with the expectation of relieving the patient. The dose may be repeated as necessary. Lobelia is a cardiac stimulant, therefore we class it with the sedatives, for all arterial or special sedatives in medicinal (small) doses are heart stimulants. When the circulation exhibits a markedly slow pulse-wave it will be better corrected by lobelia than by any other drug. In fact the most prominent indication for lobelia is the full, oppressed, sluggish, doughy pulse. Associate this with praecordial oppression, thoracic pain, difficult breathing, soreness or bruised feeling within the chest, nausea with tongue heavily coated at the base, fullness of tissue, and we have before us a fair range of the action of the drug. It is

a good remedy in cardiac congestion.

Lobelia is of specific value in obstetrical practice. It powerfully subdues muscular rigidity. It is one of the remedies to overcome a rigid os, during parturition, and at the same time it relaxes the perineal tissues, thus defending the parts against lacerations. This specific effect of lobelia has won many converts to specific medication. This it does when there is fullness of tissue—a thick, doughy, yet unyielding os uteri; when, however, the edge of the os is thin and closely drawn, sharp like a knife edge, full doses of gelsemium are indicated. For this antispasmodic action lobelia may be given in nauseant doses, preferably in hot water, by mouth and by rectum.

Lobelia is a stimulant to the sympathetic nervous system. It improves innervation of the parts supplied by both the pneumogastric and sympathetic nerves. The appetite and digestion are augmented by it and peristalsis of the whole gastro-intestinal tube greatly stimulated. All this it does best in small and repeated doses; and for these specific purposes it should be so employed and not for its nauseating and emetic effects, which it causes by pushing this stimulation to its limit. The conditions in which such violent and disturbing action is desired are sufficiently set forth above. Specific medication has proved that lobelia is indicated by the full, slow, labored, and doughy pulse, showing that the blood current moves with difficulty. Over the chest, and particularly in the praecordium there is a sense of oppression and weight and often a dull, heavy pain or soreness of an oppressive character and always associated with difficulty in breathing. Mucous rales in the bronchi are prominent and the cough is aggravating, but followed by free and full expectoration. The tongue is full, pallid, broad and flabby-expressionless, nausea is a common indication, and sick headache with nausea frequently encountered. The sympathetic and the vagus are always below par when lobelia is indicated. With any or several of these indications lobelia proves most valuable in the gastric and respiratory disorders named below. Even in this specific field comes partly its beneficent action in angina pectoris, though relaxation even to nausea apparently intensifies its ameliorating effects.

The small dose of lobelia is of distinct value in atonic types of indigestion and dyspepsia. In similar doses it may relieve sick headache due to gastric derangement, and is then indicated by a

feeling of “qualmishness” and nausea. Though sometimes overlooked when we are seeking a drug to overcome intestinal atony, experience has proved lobelia, continued for some time in moderately small doses, to be one of the best agents at our command to gradually relieve habitual constipation. Rx Specific Medicine Lobelia, 1 or 2 drops, every 2 or 3 hours. This is accomplished by improving the innervation and peristalsis, and stimulating the secretions of the intestinal glands, as lobelia is in no sense a laxative in such doses. Administered with podophyllin and other cathartics it tends to prevent the after-constipative results that frequently follow the use of “bowel persuaders” when given in purgative amounts.

Lobelia is of value in common colds with a dry, irritative cough. It ranks with the best of antiasthmatics, and is equally serviceable in spasmodic asthma and in humid asthma, with scanty secretion in the first and over-secretion in the latter. In asthma, which is but a symptom of some grave body wrong, the urine should be examined for albumin, which, together with the asthmatic paroxysms, are sometimes the only early evidence pointing to nephritis. Nasal obstructions and deformities requiring removal by the nasal specialist should also be taken into account, as well as other causes for reflex excitation. With these absent lobelia is signally effective; it often fails in part or altogether when these abnormalities remain uncorrected. Lobelia is an equally certain remedy for the relief of spasmodic croup and the asthmatic form of acute laryngitis in children. In lobar pneumonia and in broncho-pneumonia it renders good service when there is much congestion and breathing is greatly oppressed. In chronic respiratory disorders it is valuable either to increase or decrease secretion, accordingly as the fuller or lesser doses are used, and to relieve cough. For coughs, when dry, barking, or hacking, or when loud mucous rales are heard, but there is difficulty in raising the sputum, lobelia may be employed alone, or in mixtures or syrups as indicated. For chronic coughs requiring lobelia a good form is the compound liniment of stillingia (which see), which contains the so-called oil of lobelia. For the cough of measles, when a sluggish circulation and imperfect eruption are factors, it proves useful in quieting the laryngeal irritation, controlling the catarrhal features, and more perfectly bringing out a tardy efflorescence. In both scarlet fever and measles, lobelia, by causing determination of blood to the skin, promotes the eruption when tardy and re-establishes it when retrocession occurs. It modifies many cases of whooping cough where abundant secretions of

a stringy character almost strangle the sufferer. In short lobelia is a most admirable respiratory stimulant when the mucous membranes are dry, or when relaxed and secretion is free but difficult of expectoration. It should not be forgotten as one of the most valuable medicines in all stages of la grippe and epidemic influenza, as a vital stimulant, to regulate an imperfect circulation, and to control cough and expectoration. It is an admirable drug in post-grippal catarrhs, following the specific indications as given. Lobelia is seldom indicated, nor is it well borne, in advanced pulmonary tuberculosis.

It has been assumed by some that lobelia possesses the properties of an antitoxin in the sense that that term is now employed in biologic medication. This assumption we believe to be unwarranted without definite and exact biological experimentation. Such unsupported vagaries bring into discredit otherwise good and efficient drugs. That quite remarkable results have been obtained from its use in grave blood -disorganizing and specific diseases seem probable. But lobelia is essentially a vital stimulant, and this property, more than an antitoxic action as now understood, better explains its beneficent effect in diphtheria and other depressing septicaemic diseases.

Hypodermatic Use. For the so-called antitoxic and other general action, lobelia, hypodermatically administered, has come into prominent use in late years in many of the disorders for which the drug is given internally. In this manner the probability of nausea and vomiting is lessened, while its relaxant properties seem not to be diminished. In spasmodic asthma it sometimes gives prompt relief, and we have observed its effects most beneficially in gall-stone colic of a continuously nagging, though not very severe, type. We have also observed a remarkable increase of urine from the drug used in this way. To catalogue the conditions in which many have obtained asserted good effects would be to restate all the uses of lobelia given in this article, except that of emesis.

The subject of hypodermatic medication, involving a large number of vegetable medicines, has been purposely omitted from this work. The author is unalterably opposed to this too general practice because of the dangerous reactions that occur often enough to make one cautious. Thoughtless, and often unscrupulous, commercialism in medicine on the part of a few has brought about a demand from physicians for these hypodermatic forms of medicines, and to meet this

demand reputable manufacturers of drugs have unwillingly yielded and have supplied a score or more of such preparations. Realizing that such preparations under the best of pharmacal care are liable to deleterious change or disintegration, or to the development of toxic material, the thoughtful manufacturer is unwilling to continue the supply of such drugs. Certain vegetable proteins may, and often do, become as obnoxious and dangerous as some animal proteins, and may produce allergic, or anaphylactic effects, as well as direct poisoning; and occasionally the most unhappy and near fatal consequences have resulted. Apparently lobelia and ergot are the safest of these preparations and they should not be recklessly or unnecessarily used, when other methods of medication may be just as effectually employed.

Acetous Emetic Tincture. Like the Compound Emetic Powder, this agent is now seldom employed as an emetic. On the contrary its reputation rests on its value as a remedy in coughs, colds, and broncho-pulmonic complaints. It is of service when the indications are present for both lobelia and sanguinaria. These drugs are more effective when tinctured with a certain proportion of vinegar, hence the superiority of this compound over the plain tinctures. Emetic tincture added to syrup will often render good service when a cough mixture for irritative cough, with deficient secretion, is desired. The dose of the tincture is from 20 to 60 drops.

RELATED MEDICINE.

Tobacco (***NicotianaTabacum***, Linné) and ***Nicotine***. Tobacco was once used to a considerable extent upon painful inflammatory swellings and to relax strangulated hernia. It is seldom employed as a drug at the present day. When unaccustomed to its use in chewing and smoking it acts profoundly, causing vomiting and great depression; toleration is soon established. Nicotine is of toxicological interest chiefly, but rarely it is used to subdue pain. A solution of the combined alkaloids of tobacco, containing 1 per cent of nicotine, is on the market as ***Dynamyne***, a preparation devised by Lloyd and Howe. It is a green-colored hydro-alcoholic liquid designed for external use only, a solution of 1 to 4 fluidrachms in a pint of water being applied by means of a compress upon localized inflammations, and to relieve the pains of neuralgia, pleurodynia, rheumatism, felons, abscesses, etc. Some persons are very susceptible to nicotine, hence this preparation must be used with great caution, and care should be had in handling or inhaling it. A combination of tobacco alkaloids is an ingredient of Libradol.

LUPULINUM.

Lupulin.

The glandular powder separated from the strobiles of ***Humulus Lupulus***, Linné (Nat. Ord. Cannabaceae), the common Hop. (See ***Humulus***.)

Description.—Brownish-yellow (becoming yellowish-brown), resinous granules, having the aromatic odor and bitter taste of hops. It is readily inflammable, and deteriorates upon long keeping. Dose, 5 to 20 grains in capsule or pill.

Preparation.—***Specific Medicine Lupulin***. Dose, 5 to 30 drops.

Specific Indications.—Nervousness, irritability, disposition to brood over trouble, delirium, insomnia, cerebral hyperemia; genital and mental irritability associated with spermatorrhea; fermentative dyspepsia, with acid eructations.

Action and Therapy.—Lupulin is administered in disorders for which infusion and tincture of hops were formerly given. It is a remedy for nervousness, to allay irritation and to produce sleep. It gives a sense of mental tranquillity which makes it a valuable agent in nervous unrest due to nocturnal seminal emissions, and relieves irritation of the genital tract when associated with the latter. It relieves irritation of the bladder, with frequent urination, and is quite efficient in chordee. When delirium tremens is accompanied by cerebral hyperemia it is of considerable service. Insomnia due to nervous debility or to worry, or headache associated with active cerebral circulation, is benefited by lupulin; while for painful conditions it may be employed when they depend upon nervous debility. For the latter reason it has been given with success in dysmenorrhea, and other painful conditions of the uterus and in after-pains. Lupulin checks fermentative changes in the stomach, thus proving useful in yeasty indigestion with acid eructations and dilation of the stomach, and in the headache due to such gastric disturbance.

LYCOPODIUM.

The spores of ***Lycopodium clavatum***, Linné (Nat. Ord. Lycopodiaceae) or Club Moss, a creeping perennial found in most parts of the earth; gathered mostly in Germany, Russia, and Switzerland.

Description.—An odorless and tasteless, very mobile, light-yellow powder, impervious to but floating on cold water, sinking when boiled with water, and burning with a sudden flash when in contact with flame.

Principal Constituents.—Nearly 50 per cent of greenish-yellow fixed oil; sugar, 2 to 3 per cent, and a trace of ***monomethylamine*** (CH_3NH_2)

Preparation.—***Specific Medicine Lycopodium***. ***Dose***, 1/10 to 30 drops.

Specific Indications.-Extreme sensitiveness to the touch; urine deposits red sandy or phosphatic particles and readily stains the clothing; water-brash; borborygmus.

Action and Therapy.—***External***. Lycopodium forms a good protective and absorbent dusting powder for irritated and inflamed surfaces, for which purpose it is largely used in excoriations, intertrigo, herpes, erysipelas, dermatitis, eczema, ulcers, etc. Possessing moisture-repellant qualities it is used in preparing pills of hygroscopic chemicals, to facilitate the manipulation of pill masses, and to keep pills from adhering to each other. It is also employed as the pulverulent base of many insufflations.

Internal. According to Scudder, lycopodium is adapted to disorders showing "extreme sensitiveness of the surface; sensitiveness of a part and care to prevent it being touched; slow, painful boils; nodes or swellings; external sensitiveness of the organs of special sense, with pale, livid, or dirty complexion."

Lycopodium is of much value in obscure forms of malarial fever, with afternoon exacerbations, and deep-red, scanty urine, which readily stains the garments. The fever is not active, but very depressing and intractable, and may be accompanied by sore throat, colic, diarrhoea, dysentery, or constipation. Used according to the specific indications, it is a useful gastric sedative, when in addition there is a sense of fullness and tenderness of the stomach. It often proves effective in pyrosis and fermentative indigestion, with borborygmus.

Lycopodium frequently relieves renal disorders with blood in the urine, and is of service in catarrh of the bladder in adults with painful micturition and gritty concretions. It should be given a fair trial in the lithic acid diathesis, when the passage of urine is attended by pain and red, sand-like particles are voided. The small dose, from the fraction of

a drop to five drops of the specific medicine, is the most advantageous form of administration.

LYCOPUS.

The whole herb ***Lycopus virginicus***, Linné (Nat. Ord. Labiatae). Common in shady, moist and boggy places throughout the United States. ***Dose***, 1 to 60 grains.

Common Names: Bugle Weed, Sweet Bugle, Paul's Betony.

Principal Constituents.—Tannic and gallic acids, a crystallizable glucoside, resin, and a volatile oil.

Preparation.—***Specific Medicine Lycopus***. ***Dose***, 1 to 60 drops.

Specific Indications.—Vascular excitement, with rapid, tumultuous action of the heart, but lacking power; hemorrhage, passive and in small quantities, resulting from determination of blood to the lungs, kidneys, or gastro-intestinal canal; chronic debilitating cough, with weak and rapid heart action and expectoration of mucus or muco-pus; morbid vigilance and wakefulness, with inordinately active but weak circulation; albuminuria with the above characteristic circulatory disturbances; polyuria and some cases of diabetes with rapid heart action.

Therapy.—Lycopus is sedative, subastringent, and tonic. No other drug exactly duplicates its value in circulatory disturbances. Apparently gits force is chiefly expended on the vascular structures and the sympathetic nervous system. Its sedative action is most certain when the circulation is excited-even tumultuous-with lessened cardiac power. This evident want of heart-energy, with quickened velocity, is the most direct indication for lycopus. For this purpose especially it is greatly valued in the advanced stages of acute diseases with great debility, and in chronic diseases with frequent pulse. Its action upon the stomach is kindly, and being a mild gastric tonic the appetite is sharpened and digestion facilitated. Normal secretion is favored by it, and blood-making and nutrition improved. Upon the cardio-vascular system it has been compared in action to digitalis, though it is far less powerful than that drug, and besides is non-poisonous and not cumulative. The influence of lycopus extends to all parts under control of the vegetative chain of nerves.

Lycopus is preeminently useful in passive hemorrhage, when the bleeding is frequent and small in amount. Thus it has acted well in epistaxis, hematemesis, hematuria, metrorrhagia, and intestinal bleeding. Its greatest utility, however, is in passive pulmonary hemorrhage (hemoptysis). It probably acts by controlling the rapidity of the blood-current. In the first-named hemorrhages it may also act upon the unstriped muscular fibers, but in the pulmonary form these smooth fibers are largely absent in the small vascular terminals where the bleeding is most likely to occur. Therefore the control over the velocity of the circulation, and not its vaso-motor effects, seems the most rational explanation of its control in bleeding from the lungs. Whatever the cause of its action, it is nevertheless most decidedly effective.

Lycopus, by lessening irritation, allaying nervous excitement, and slowing and strengthening the heart, and consequently reducing fever and pain, is often successfully used in acute pulmonic complaints. It is more valuable, however, in chronic lung affections, to fulfill the same purposes, besides controlling or tending to prevent hemorrhage. In chronic bronchitis, with copious expectoration, and in chronic interstitial pneumonia, it has rendered good service. While by no means to be rated as an antitubercular agent, its cardio-vascular control and antihemorrhagic power make it an agent of unrivaled worth in those who show every evidence of tending toward a phthisical end, and we believe it will do as much as a medicine can do to stay the distressing ravages of pulmonary tuberculosis. When established it aids in relieving cough, pain, fever and the rapid and excited heart action. In pulmonary hemorrhage we have frequently used with it specific medicines ipecac and cinnamon with the happiest of results. The chief guides to its selection in respiratory therapeutics are the hemorrhage and circulatory excitability.

In heart disorders, both functional and organic, lycopus should not be disregarded. It may be used where digitalis cannot be employed on account of its offensive action upon the stomach. Administered to patients suffering from endocarditis and pericarditis it has sometimes subdued the inflammation. It is a good remedy in cardiac palpitation, dependent upon irritation of the cardiac nerve centers, or when arising from organic lesions. It is best adapted to those forms of heart disease characterized by irritability, irregularity, and weakness, with dyspnea and praecordial oppression. Lycopus powerfully increases the contraction of the non-striated muscular fibers, particularly those of

the heart and arteries, hence its value in cardiac dilatation and hypertrophy—conditions which have been known to undergo marked improvement under its administration. It quickly relieves the suffering and anxiety nearly always experienced in heart diseases; and is of especial value to relieve the rapid heart action of excessive smokers.

Lycopus is a remedy for morbid vigilance and insomnia attendant upon either acute or chronic diseases; and is especially serviceable when sleep is prevented by the exaggerated force of the heart. It has been ill-advised, and is largely over-rated, for the cure of diabetes and the relief of chronic nephritis. The most it can do in these conditions is to allay unpleasant heart symptoms and quiet nervous unrest. It has favorably influenced the circulatory aberrations in exophthalmic goitre, but far more often it has failed. Painful and distressing forms of indigestion are sometimes relieved by it, and it has been employed with advantage in simple diarrhea (lientery), dysenteric diarrhea, and especially in the diarrhea of phthisis, and the gastric disturbances of the drunkard.

MACROTYS (Cimicifuga racemosa).

The rhizome and rootlets of ***Cimicifugaracemosa*** (Linné), Nuttall (Nat. Ord. Ranunculaceae). A conspicuously handsome perennial widely found in rich woodlands of the eastern half of the United States. ***Dose***, 1 to 20 grains.

Common Names: Black Snakeroot, Black Cohosh, Rattleweed.

Principal Constituents.—No alkaloidal principles have been isolated from the drug, but it yields a mixture of resins upon which, according to some, the virtues of the plant depend. An impure mixture of the resins is variously known as cimicifugin, macrotin, or macrotyn, and was one of the early Eclectic resinoids. Though not without value, the latter is now scarcely ever employed.

Preparation.—***Specific Medicine Macrotys***. ***Dose***, 1/10 drop to 20 drops.

Specific Indications.—Heavy, tensive, aching pain (Scudder); pain characterized as rheumatic-dull, tensive, intermittent, drawing, and seeming as if dependent upon a contracted state of the muscular fibers; soreness of muscular tissues, as if one had been pounded or bruised; the so-called rheumatoid pain; stiff neck; aching of whole body from colds, the onset of fevers, or from muscular exertion; lumbago; bruised feeling of muscles of the forehead, with stiffness of

the ocular muscles; soreness and stiffness of the throat with sense of muscular drawing in the pharynx and fauces; muscular pains in the loins, thigh, or back, of a drawing character; deepseated boring and tensive pains; rheumatoid dyspepsia, associated with rheumatism of other parts, and in those having a rheumatic diathesis who experience dull, aching pain and tenderness in stomach and bowels, with tendency to metastasis, and aggravated by food and drink, the stomach feeling as if painfully contracting upon a hard body or lump; the soreness and aching intestinal pains of abdominal grip, when of rheumatoid type; sore, bruised sensation in the respiratory tract; chronic muscular rheumatism; ovarian pains of a dull aching character; dragging pains in the womb, with sense of soreness; the dull tensive pains incident to reproductive disorders of the female, as well as the annoying pains accompanying pregnancy; false pains; after-pains; weak, irregular uterine contractions during labor; irregular, scanty, or delayed menstruation, with dull pain and muscular soreness; chorea, with absentio mensium; and rheumatism of the uterus.

Action.—Upon man moderate doses of cimicifuga give slowly increased power to the heart and a rise in arterial pressure. Large doses impress the cerebrum decidedly, and probably other parts of the nervous system not yet definitely determined—occasioning vertigo, impaired vision, pupillary dilatation, nausea, and vomiting of a mild character, and a reduction in the rate and force of the circulation. A condition closely resembling delirium tremens is said to have been produced by it. Full doses cause a severe frontal headache, with a dull, full or bursting feeling. This headache is the most characteristic effect observed when giving even therapeutic doses. While large amounts may poison, no deaths have been known to occur from its use. The physiological action has been well determined upon animals, but it gives no hint as to the possible relationship of the drug to its practical therapy and clinical worth, admitted as valuable by practitioners of all schools of medicine.

In small doses cimicifuga increases the appetite and promotes digestion. Larger amounts augment the gastro-intestinal secretions. It is excreted by both the skin and kidneys, imparting to the urine the peculiarly earthy odor of the drug. It also stimulates the bronchial secretion, making it a serviceable though not pronounced expectorant. That it acts upon the uterine, and possibly other smooth muscular fibers of the tubular organs or the nerves supplying them, is evident

from its known power of increasing and normalizing weak and erratic contractions during labor. It also stimulates the function of menstruation and is said to increase the venereal propensity in man.

Therapy.—Macrotys is primarily a remedy for rheumatoid and myalgic pain and in disorders of the reproductive organs of women. It apparently possesses sedative, cardiac, anodyne and antispasmodic properties, and is an ideal utero-ovarian tonic. Macrotys was introduced into Eclectic medicine by King in 1844 as a remedy for acute rheumatism and neuralgia with such success that it gradually came to be recognized as a leading medicine for these disorders. The extensive list of indications given at the beginning shows sufficiently its general scope of application. While many still regard it as one of the first of antirheumatics, others, and we are among the number, regard it as less fully an antirheumatic than as an anodyne for pain simulating rheumatism, or the so-called "rheumatoid pain". The original indication as enunciated by Scudder is "heavy, tensive, aching pain". This is essentially different from the exquisitely sensitive and acute pain of acute articular rheumatism. It is not to be understood that it is of no value in this affection, but that it is of greater worth as an associate remedy. It assists in relieving the pain, but rheumatism is, without doubt, an infectious disorder and needs something more directly antagonistic to the infecting agent, and the salicylates prove better than any others for this purpose. As a matter of fact, the indications for both macrotys and sodium salicylate are usually present. As they do not interfere with each other, they may be judiciously given together, and administered in this manner aid the action of each other so that lesser doses of the salicylates are required. Rx Sodium Salicylate, 2 drachms; Asepsin, 10 grains; Specific Medicine Macrotys, 1-2 fluidrachms t; Fluidextract of Licorice, 2 fluidrachms; Water enough to make 4 fluidounces. Mix. Sig.: One teaspoonful every two or three hours as seems to be demanded.

When pain persists in spite of this medication, and fever is active, aconite, veratrum or gelsemium, particularly the first named, produces a marked change in the activity of the disease. Fever subsides, secretion becomes reestablished, pain is markedly decreased, and sleep, that has been impossible, is permitted. That it protects the heart and strengthens it during rheumatic invasions seems established. In so-called rheumatism of the heart and rheumatic endocarditis it may be given with expectation of relief, and in diaphragmatic rheumatism,

pleurodynia, intercostal and other neuralgias its pain-relieving effects are apparent. Gastralgia, enteralgia, mediastinal pain, tenesmic vesical discomfort, pain in the orbits and ears, when acute and rheumatoid in character, derive quick relief from macrotys. When diseases of the ear are associated with rheumatism, macrotys aids in giving relief, as it does in neuralgia in the same area when accompanied by stiffness of the faucial and pharyngeal muscles. It is the remedy in acute muscular pain, such as occurs in the myalgias of the chilly seasons of the year, in torticollis, and in the pains, tensive and contractive, due to changes of weather and muscular exertion. Here macrotys is often the only agent needed. If febrile reaction occurs, either aconite or veratrum, as indicated, or possibly gelsemium, may be alternated with it.

According to Webster cimicifuga is a remedy for dyspeptic manifestations when due to rheumatoid states of the gastro-intestinal canal, or when associated with rheumatism of other parts of the body. It should be remembered in those cases where there is a dull or aching pain and tendency to metastasis, made worse by taking food or drink, and when the walls of the stomach seem to be contracting upon a hard lump, the patient having a rheumatic tendency or history.

In the acute infectious and non-infectious diseases it is a most important drug to relieve the muscular discomfort. Macrotys and eupatorium in liberal doses are the best remedies for the intense muscular aching and bone-breaking pains experienced at the onset of the rheumatoid type of influenza, and in other forms of la grippe. In the respiratory forms they also relieve cough and bronchial soreness. The amelioration of pain is prompt and enduring, and unlike aspirin and the coal-tar products, the drug is absolutely without danger to the heart or nervous system. Should a sense of fullness in the frontal region or a bursting headache be occasioned by full doses, it quickly subsides, with no after-effects, upon withdrawal of the drug.

For headache, whether congestive or from cold, neuralgia, dysmenorrhea, or from la grippe, macrotys is often promptly curative. In eye strain from over-use of the eyes, giving rise to headache, and associated with a sensation of stiffness in the ocular muscles, or a bruised feeling in the muscles of the frontal region, macrotys is one of the most successful of remedies. As a palliative agent in phthisis pulmonalis, good results are obtained, in that it lessens cough, soothes

the pain, especially the “aching” under the scapulae, lessens secretions and allays nervous irritability. In the cerebral complications of the simple and eruptive fevers, especially in children, its action is prompt and decisive. It uniformly lessens the force and frequency of the pulse, soothes pain, allays irritability, and lessens the disposition to cerebral irritation and congestion. In febrile diseases especially, it induces diaphoresis and diuresis. In the exanthemata it is a valuable agent, controlling pain, especially, it is asserted, the terrible “bone aches” of smallpox, rendering the disease much milder. In scarlatina and measles it relieves the headache and the backache preceding the eruptions.

Macrotys is a very important drug in the therapeutics of gynecology It is a remedy for atony of the reproductive tract. In the painful conditions incident to imperfect menstruation its remedial action is most fully displayed. By its special affinity for the female productive organs, it restores suppressed menses. It is even a better remedy in that variety of amenorrhea termed “absentio mensium”. In dysmenorrhea it is surpassed by no other drug, being of greatest utility in irritative and congestive conditions of the uterus and appendages, characterized by tensive, dragging pains, resembling the pains of rheumatism. If the patient be despondent and chilly, combine macrotys with pulsatilla, especially in anemic subjects. In the opposite condition associate it with gelsemium. It is a good remedy for the reflex “side-aches” of the unmarried woman; also for mastitis and mastodynia. Macrotys relieves soreness and tenderness of the womb when aggravated by walking or jarring of the organ when descending steps; and through its tonic power helps to reduce uterine subinvolution. It should be remembered in so-called rheumatism of the uterus, and in uterine leucorrhea, with a flabby condition of the viscus. When there is a disordered action or lack of functional power in the uterus, giving rise to sterility, cimicifuga has been known to do good. Reflex mammary pains during gestation are relieved by it, and in rheumatic subjects it promptly relieves ovaralgia and ovarian neuralgia, the pain being of an aching character. For the latter condition it is one of the best remedies known.

Orchialgia and aching sensations of the prostate are conditions sometimes relieved by macrotys, and as a tonic and nerve sedative it is not without good effects in spermatorrhea. Its effects are less apparent upon the male reproductive organs, however, than those of the female.

Macrotys has proved a better agent in obstetrical practice than ergot except for the control of hemorrhage. It produces natural intermittent uterine contractions, whereas ergot produces constant contractions, thereby endangering the life of the child, or threatening rupture of the uterus. Where the pains are inefficient, feeble, or irregular, macrotys will stimulate to normal action. For this purpose full doses should be given in hot water; many still prefer a decoction of the root for this purpose. Unfortunately it is less employed than formerly since pituitrin has come into use. Its simulation of normal parturient efforts, however, makes it still the ideal regulator of uterine contractions during labor. It is an excellent "partus praeparator" if given for several weeks before confinement. It is a diagnostic agent to differentiate between spurious and true labor pains, the latter being increased, while the former are dissipated under its use. It is the best and safest agent known for the relief of after-pains, and is effectual in allaying the general excitement of the nervous system after labor.

Macrotys has a powerful influence over the nervous system, and has long been favorably known and accepted as the best single remedy for chorea. It may be used alone or with valerian, equal parts. More especially is it useful when the incoordination is associated with amenorrhea, or when the menstrual function fails to act for the first time. Its action is slow, but its effects are permanent. It has been used successfully as an antispasmodic in hysteria, and as an aid to treatment in epilepsy when due to menstrual failures: and in spasmodic asthma and kindred affections, nervous excitability, and pertussis. In the latter it sometimes proves better than any other drug, and especially if the child is one subject to periodic choreic seizures. As the heart is never injured, but on the contrary is strengthened and toned by macrotys, the drug is very valuable as an auxiliary to other agents in nervous affections, particularly when the latter depend upon, or are associated with chorea.

The usual form of administration is: Rx Specific Medicine Macrotys, 10-30 drops; Water, enough to make 4 fluidounces. Mix. Sig.: One teaspoonful every two hours. In most instances the fuller doses, short of producing headache, are the most effective, and the maximum amount given in this prescription may be considerably increased (1-2 fluidrachms) for adults.

MANGIFERA

The inner bark of the root and tree of ***Mangifera indica***, Linné (Nat. Ord. Anacardiaceae). A native East Indian fruit tree; naturalized in the West Indies. ***Dose***, 5 to 60 grains.

Common Name: Mango.

Principal Constituents.—Tannic acid (17 per cent) and an acrid oil.

Preparation.—***Specific Medicine Mangifera***. ***Dose***, 5 to 60 drops.

Specific Indications.—Feeble, relaxed tissues; mucous discharges; chronic dysentery with muco-purulent discharges; red, congested or inflamed fauces.

Action and Therapy.—***External***. Mangifera forms a soothing, astringent gargle for acute or chronic inflammation of the fauces, especially when full, red and congested and intensely painful. It may be used also to alleviate inflammatory conditions of the mucosa of any part of the body or upon excoriations of the skin. Especially is it effective in acute pharyngitis and the follicular and phlegmonous forms of tonsillitis. Too much has been claimed for it in diphtheria, though its use as an adjuvant is not inappropriate, especially if there is either much redness and pain, or relaxation of tissue. In acute rhinitis it may be used as a douche; and in acute inflammation of the uterine cervix it has been employed with advantage. For use upon the nose and throat about two drachms of specific medicine mangifera may be added to two ounces of water.

Internal. Owing probably to its tannic acid, and somewhat to other inherent principles, mangifera is a useful drug in relaxation of mucous tissues, associated with catarrh and diarrhea and feeble capillary circulation. It appears to be best adapted to entero-colitis and watery diarrhoea. Many value it in passive hemorrhages from the nose, uterus, stomach, intestines, and lungs; and some good therapeutists have declared it of value in hemophilia. One should not, however, expect much in the latter disorder from a drug whose hemostatic properties are evidently mostly due to its tannin. Mangifera is one of the pleasantest forms of administering the latter, which may be of a special type, as there are many tannins. It agrees well with the stomach and seems to promote the appetite and digestion, and apparently is non-

constipating. When not contraindicated syrup is a fairly good vehicle for mangifera in throat affections.

MANNA.

The concrete saccharine exudation of ***Fraxinus Ornus***, Linné (Nat. Ord. Oleaceae). A tree of southern Europe. ***Dose***, 1 drachm to 2 ounces.

Common Name: Manna.

Description.—Irregular, flattened, longish pieces, of a yellowish-white exterior and nearly white interior, somewhat porous and crystalline-like, having a peculiar odor, a taste sweet followed by feeble bitterness and acridity. It should not contain more than four-tenths part of irregular, yellowish-white, resin-like fragments.

Principal Constituents.—Mannite (90 per cent) with sugar (10 per cent).

Action and Therapy.—Nutritive in small doses and mildly laxative in larger amounts. In doses of one to three drachms for infants and one to two ounces for adults it makes a very pleasant laxative when administered in milk. It is suitable for the constipation of pregnancy. It sometimes causes flatulency and griping. This may be obviated by giving with it any warm aromatic.

MARRUBIUM.

The leaves and tops of ***Marrubium vulgare***, Linné (Nat. Ord. Labiatae). Europe; naturalized in America. ***Dose***, 5 to 60 grains.

Common Names: Horehound, Hoarhound.

Principal Constituent.—A bitter principle marrubiin ($C_{30}H_{43}O_6$)

Preparations.—1. ***Specific Medicine Marrubium***. ***Dose***, 1 to 60 drops.
2. ***Syrupus Marrubii Compositus***, Compound Syrup of Hoarhound. ***Dose***, 1 to 4 fluidrachms.

Specific Indications.—Chronic irritation of the bronchial membrane with cough and catarrh.

Action and Therapy.—Hoarhound is a stimulating expectorant and tonic, and is adapted to both acute and chronic irritation of the larynx

and bronchial tract, and gives added power to respiration. In small doses it is a gastric tonic of considerable value, but given too freely it will act as an emetic and cathartic. A hot infusion is diaphoretic; a cold infusion, diuretic. Hoarhound, usually in the form of a syrup, is useful in hoarseness, coughs, and colds that do not clear up rapidly, chronic bronchial catarrh, and humid asthma. The specific medicine may be used in atonic dyspepsia, especially when associated with bronchial debility. The compound syrup is an agreeable and efficient expectorant for chronic cough. Hoarhound candy is a popular remedy for irritation of the throat with cough.

MATICO.

The leaves of ***Piperangustifolium***, Ruiz et Pavon (Nat. Ord. Piperaceae). A Peruvian shrub.

Common Names: Matico, Matico Leaves.

Principal Constituents.—A bitter principle, ***maticin***, and an aromatic camphoraceous volatile oil.

Preparation.—***Tinctura Matico***, Tincture of Matico (2 1/2 ounces to Diluted Alcohol, 16 fluidounces). ***Dose***, 1 to 2 fluidrachms.

Action and Therapy.—An aromatic, bitter stimulant of reputed value in catarrhal states, particularly of the stomach and genito-urinal tract. It is seldom used.

MATRICARIA.

The dried flower-heads of ***MatricariaChamomilla***, Linné (Nat. Ord. Compositae). Wastes of Europe, Asia, and Australia. ***Dose***, 1 to 60 grains.

Common Names; German Chamomile, Wild Chamomile.

Principal Constituents.—A dark-blue, aromatic, volatile oil (***Oleum Chamomillae Aethereum***) and possibly a crystallizable, bitter, anthemic acid, and a crystalline alkaloid anthemidine.

Preparations.—1. ***Specific Medicine Matricaria***. ***Dose***, 1 to 60 drops.

2. ***InfusumMatricaria***, Infusion of Matricaria (1/2 ounce to 16 fluidounces). ***Dose***, 1 to 4 drachms.

Specific Indications.—Nervous irritability, with fretfulness, peevishness, impatience, and discontent; morbid sensitiveness to pain and external impressions; sudden fits of temper when menstruating; muscular twitching; fetid, greenish feculent alvine discharges, or when the stools are green and slimy, or of mixed whitish curds and green mucus, associated with flatulence, colic, and excoriation of the anal region; if a child, the head sweats easily and the discomforts of teething, flatulent colic, etc., are transient and intermitting, and the nervousness is relieved by being carried about in the arms.

Therapy.—According to dose and manner of use, matricaria is a stimulant diaphoretic and nerve sedative. Its calmative action is so satisfactory that even the skeptic in therapeutics becomes a convert to the fact that there is great therapeutic energy in some simple agents which, by usual tests, fail to show decided so-called physiological action. Matricaria, simple and safe as it is, is remedially potent. Could it more generally have taken the place of “soothing syrups”, so largely destructive to infant life, the history of baby mortality might have been a less appalling story. No child need be laid in its grave because of its administration.

Matricaria, better known to some as chamomilla, is pre-eminently a child's remedy, especially for the very young child. It has two well-marked, specific fields of action—(1) on the nervous system, subduing irritability; and (2) on the gastro-intestinal tract, allaying irritation. Its influence is well seen upon the infant during the period of dentition. In such conditions it is adapted to the restless, peevish, irritable, discontented, and impatient infant, who is only appeased when carried about in order to quiet its nervousness and unrest. The child needs both sympathy and matricaria, both sound measures in infant therapeutics. In such children it may be equally a remedy for constipation or diarrhea. In the former case, there is usually hepatic tenderness. In the latter, the discharges may be variously characterized-watery and greenish, slimy, green and slimy, or yellow and white lumps of undigested curds, giving them the wellknown name of “eggs and greens”. Such stools usually excoriate the child severely, and are accompanied by colicky pain of greater or less severity. The urine is passed with difficulty, and there is more or less bloating of the abdomen. Flatulence is often marked, and the surface is alternately flushed and pale. Under such irritable conditions it proves a useful remedy in infantile dyspepsia, and when teething the child

cries out in sleep and there is sometimes a tendency to convulsions. This condition it may ward off by controlling the nervous excitation, but it is of little value after convulsions occur. Sometimes a gently laxative dose of sodium phosphate preceding or accompanying the matricaria will enhance the efficacy of the latter. Matricaria is useful for the swelling of the breasts in the newborn (usually with phytolacca), and in the involuntary passage of urine in the young. For the flatulent colic of early infancy it is one of the safest and most effectual medicines. For this purpose it should not be sweetened.

Matricaria is invaluable in some affections of nervous women, a field in which it is too frequently neglected, perhaps not being considered a powerful enough medicine. In woman or child it is a nerve sedative, and adapted to irritation and not to atony. In the latter months of pregnancy it frequently allays false pains, cough, nervous muscular twitching, and other unpleasant nervous phenomena. In amenorrhea and dysmenorrhea, with weighty feeling in the uterus and tympanites, it often relieves, as it does in cases presenting sudden explosions of irascibility, and in those having cramping or labor-like pains and meteorism. The hot infusion is particularly useful in suppressed menstruation from colds, and often controls earache and facial neuralgia from the same cause. The matricaria patient is extremely and morbidly susceptible to pain, is hyperesthetic, and the nervous apprehension is all out of proportion to the actual pain suffered. This remedy should be resorted to when one is tempted to employ opiates and other more powerful pain relievers.

MEL.

A saccharine substance deposited in the honey comb by the ***Apis mellifera***, Linné or Honey Bee (Family Apidae).

Common Name: Honey.

Description.—A thick, viscous, syrupy, yellowish or yellow-brown fluid, clear when fresh, but losing its translucence with age and depositing crystals. It has an intensely sweet, feebly acrid taste, and a distinctive odor.

Principal Constituents.—Laevulose (fruit sugar), dextrose (grape sugar or glucose), and sucrose (cane sugar), with the first named predominating; also a trace of ***formic acid***.

Preparations.—1. ***Mel Depuratum***, Clarified Honey.

2. ***Mel Boracis***, Borax Honey (Borax, Glycerin, Honey).

3. Mel Rosa, Rose Honey (Fluidextract of Rose mixed with Clarified Honey). ***Dose***, 1-2 fluidrachms.

Action and Therapy.—***External***. Honey is sometimes incorporated in poultices for mammitis, fissured nipples, boils and carbuncles, and is added to gargles for irritated conditions of the fauces. Honey of borax and honey of rose are preparations frequently recommended for aphthous ulcers of the mouth and female genitalia. Our experience has led us to regard honey as a barbarous application in sore mouth of infants and young children on account of the vicious smarting it causes. The borax, in weak solutions, is equally as efficient.

Internal. Honey is nutritious, demulcent, diuretic and antiseptic; sometimes it proves laxative. Though extensively used as a food it sometimes occasions unpleasant symptoms, as pyrosis, a peculiar and persistent bellyache, flatulent colic, head symptoms and occasionally diarrhea and urticaria. It is sometimes incorporated in cough mixtures as an agreeable demulcent, and is occasionally used to allay irritation of the urinary passages.

MELILOTUS.

The leaves and flowering tops of ***Melilotus officinalis***, Willdenow (Nat. Ord. Leguminosae). A common weed found everywhere in the United States. ***Dose***, 1 to 30 grains.

Common Names: Yellow Sweet Clover, Yellow Melilot, Yellow Melilot Clover.

Principal Constituents.—An active substance of a vanilla-like odor, ***coumarin***, associated with ***melilotic acid***; orthocoumaric acid, and a volatile oil, ***melilotol***.

Preparation.—***Specific Medicine Melilotus***. ***Dose***, 1 to 20 drops.

Specific Indications.—Idiopathic, atonic headaches and chronic neuralgias; coldness, tenderness, lameness or marked soreness of tissues; painful menstruation or menstrual colic with soreness and coldness; ovarian neuralgia.

Action and Therapy.—Melilotus is a remedy for pain associated with a sensation of coldness of the extremities and marked tenderness,

lameness, or soreness to the touch. With these indications it is very effectual in some cases of ovarian neuralgia and dysmenorrhea. Though it may relieve headache due to gastric disorders, it is best adapted to painful states not resulting from reflexes, but rather those of an idiopathic type. Following the specific indications it has proved a remedy of worth in menstrual and intestinal colic, gastralgia, neuralgia of the stomach, visceral neuralgia, painful dysuria, and sciatic neuritis. It frequently cuts short recurrent neuralgia when induced by cold, and benefits in rheumatoid lameness or soreness.

MENISPERMUM.

The rhizome and roots of ***Menispermum canadense***, Linné (Nat. Ord. Menispermaceae). In woods and hedges in the eastern half of the United States. ***Dose***, 5 to 60 grains.

Common Names: Yellow Parilla, Canadian Moonseed, etc.

Principal Constituents.—***Berberine*** in small quantity and a large amount of a bitter, white alkaloid, ***menispine***; tannin, gum, and resin.

Preparation.—***Tinctura Menispermii***, Tincture of Menispermum (Rhizome, 8 ounces; Alcohol (76 per cent), 16 ounces). ***Dose***, 5 to 60 drops.

Specific Indications.- "Skin brown, tongue coated at the base, tip red, irregular appetite, constipation" (Scudder).

Action and Therapy.—Yellow parilla is little used, though possessing decidedly active tonic properties. Full doses increase the volume of the pulse, sharpen the appetite, and prove laxative. Excessive doses cause emeto-catharsis. It is a good laxative, bitter and alterative, and may be used with benefit in strumous and chronic arthritic inflammations, when accompanied by fullness of the lymphatic nodes and weak digestion. Its possible value in leucocythemia has been suggested.

MENTHA PIPERITA.

The leaves and tops of ***Mentha piperita***, Smith ***(Mentha X piperita L.)*** (Nat. Ord. Labiatae). Europe and the United States. ***Dose***, 60 to 120 grains.

Common Names: Peppermint.

Principal Constituents.—A volatile oil (Oleum Mentha, Piperitae) and menthol. (See Menthol.)

Preparations.-1. ***OleumMenthaePiperitae***, Oil of Peppermint. (A clear, colorless oil having the strong odor and taste of peppermint and giving a sensation of cold when air is drawn into the mouth or water is drunk; soluble in alcohol.) ***Dose***, 1 to 10 drops.

2. ***Aqua Menthae Piperitae***, Peppermint Water. ***Dose***, 1 fluidrachm to 1 fluidounce.

3. ***SpiritusMenthaePiperitae***, Spirit of Peppermint (Essence of Peppermint-10 per cent oil). ***Dose***, 5 to 60 drops.

Derivative.-Menthol. (See Menthol.)

Specific Indications.—Gastrodynia, flatulent colic, difficult digestion.

Action and Therapy.—***External***. Oil of Peppermint is rubefacient and anodyne. It is used alone or in combination with other oils for the relief of neuralgia and toothache, in both of which it is often very efficient. Its external use has been somewhat superseded by menthol, the camphoraceous body to which oil of peppermint owes most of its virtues. Still it is used largely to relieve local pain, especially that of burns and scalds.

Internal. Peppermint infusion is a very grateful agent to allay nausea and vomiting, and to break up a cold. It forms a part of the well-known Neutralizing Cordial. The essence is a common and unexcelled carminative for gastrodynia and the flatulent colic of children, and is used extensively to modify the action and mask the taste of other medicines. Applied by atomization, essence of peppermint and alcohol, equal parts, frequently eases the pain of tonsillitis and gives relief in the cough of acute bronchitis and pneumonia.

MENTHA VIRIDIS.

The leaves and tops of ***Menthaspicata***, Linné (***Mentha viridis***, Linné). (Nat. Ord. Labiatae.) Wild in Europe, and introduced into. the United States, growing abundantly in damp grounds; cultivated. ***Dose***, 60 to 120 grains.

Common Name: Spearmint.

Principal Constituents.—A volatile oil (***Oleum Mentha Viridis***), resin, and gum.

Preparations.—1. ***Oleum Menthae Viridis***, Oil of Spearmint. ***Dose***, 1 to 10 drops.

2. ***Spiritus Menthae Viridis***, Spirit of Spearmint (Essence of Spearmint). ***Dose***, 5 to 60 drops.

3. ***Aqua Menthae Viridis***, Spearmint Water. ***Dose***, 1/2 to 1 fluidounce.

4. ***Infusum Menthae Viridis***, Infusion of Spearmint (Spearmint, 1 ounce to Water, 16 ounces). ***Dose***, ad libitum.

Specific Indications.—Scanty secretion of high-colored urine; simple nausea.

Action and Therapy.—Spearmint is used much like peppermint. though it is somewhat inferior as a carminative. It is especially valuable to allay nausea, particularly that following a sick headache. The warm infusion is a very agreeable and simple medicine for an acute cold. Spearmint is one of the surest and kindliest diuretics if given in cold infusion; or the essence may be used well diluted with cold water. We frequently employ it to render acetate of potash more effective as well as pleasanter to take. The spearmint increases the watery flow; the potash salt the solids of the urine. Spearmint may be used in strangury, suppression of urine, and scalding of urine, with difficult micturition.

MENTHOL.

Menthol.

A secondary alcohol obtained from the oil of ***Menthapiperita***, Linné, or from other oils of mints. It should be kept in well-stoppered bottles, and in a cool place.

Description.—Colorless needle or prismatic crystals with a strong odor and taste characteristic of peppermint, very soluble in alcohol, ether, and chloroform, and slightly soluble in water. It gives a feeling of warmth when tasted, followed by a sensation of cold when air is inhaled or water is drunk. ***Dose***, 1/8 to 2 grains.

Specific Indications.—Pruritus; nausea and vomiting.

Action and Therapy.—***External***. Menthol is a local antiseptic, anaesthetic and antipruritic. It is used with great success in various disorders attended with itching and pain. It may be used alone or rubbed up with camphor, chloral hydrate, or phenol in combinations desired, and painted upon painful surfaces or employed to obtund the pain in a carious tooth. In alcoholic or oil solution it is an unexcelled

application for the itching of hives, pruritus vulvae et ani, eczema, ringworm, or herpes zoster. For pain and cellular inflammations it is very effectual in burns and scalds, insect bites and stings, earache, neuralgia, boils, carbuncles, and the surface pains of sciatica. The pain of local and superficial neuralgias and of arthritis, simple, rheumatic, or gonorrheal, may be relieved by painting upon the affected surface a combination of hydrated chloral, thymol, and menthol. A 20 per cent mentholated petrolatum may be used as a stimulating agent when there is a lack of cerumen in the auditory canal, and for boils in that passage a 20 per cent oil solution is very comforting. A 10 to 20 per cent solution in liquid petrolatum or olive oil gives relief in coryza and hay fever, or may be sprayed into the larynx for the relief of the distressing pain of laryngeal tuberculosis. An albolene spray of menthol is largely employed in inflamed and irritable conditions of the nose and throat—ozaena, catarrhal sore throat, asthma, chronic bronchitis, and whooping cough. The vapor is useful to allay harassing and irritable bronchial cough.

Internal. Minute doses of menthol relieve nausea and vomiting, as of pregnancy and seasickness. It is sometimes of value in hiccough. It should not be used in large doses internally because of the profound nervous disturbances it may occasion.

MITCHELLA.

The whole plant of ***Mitchella repens***, Linné (Nat. Ord. Rubiaceae). Dry woods, hemlock forests, and damp places in the United States. ***Dose***, 5 to 60 grains.

Common Names: Partridgeberry, Squawberry, Squaw-vine, Checkerberry, Deerberry, One-berry.

Principal Constituent.—An undetermined saponin-like body. No alkaloid, glucoside, nor volatile oil present.

Preparations.—1. ***Specific Medicine Mitchella***. Dose, 5 to 60 drops.

2. ***Syrupus Mitchellae Compositus***, Compound Syrup of Partridgeberry (Mothers' Cordial). (Contains Mitchella, Helonias, Viburnum Opulus and Caulophyllum, Brandy, Sugar and Essence of Sassafras.) ***Dose***, 2 to 4 fluidounces, 3 times a day.

Specific Indication.—As a partus praeparator.

Action and Therapy.—Based upon the practice and traditions of the American Indians this plant was eagerly adopted into domestic and early botanic and Eclectic therapy. It is believed by some to have a salutary influence upon the pregnant woman, easing many of the distresses incident to her condition, giving a sense of well-being and strengthening her for the ordeal of child birth. If it has any virtue it lies in quieting nervous irritability and giving a psychologic balance throughout the latter months of pregnancy. There seems to be reliable testimony to the effect that it assists in sustaining against miscarriages where such accidents have previously occurred. As a female regulator it has also had many devoted advocates. The Mother's Cordial is a popular and more rational preparation.

MONARDA.

The leaves and flowering tops of ***Monardapunctata***, Linné (Nat. Ord. Labiatae). Indigenous to the greater part of the United States, in sandy fields and barrens.

Common Name: Horsemint.

Principal Constituent.—A volatile oil (***Oleum Monarda***,), a pungent, aromatic, yellowish to yellowish-red or brown oil; soluble in alcohol, and depositing the stearopten ***thymol*** ($C_{10}H_{13}OH$) (monardin) (25 to 56 per cent).

Preparations.—1. ***Oleum Monardae***, Oil of Monarda. ***Dose***, 2 to 5 drops, on sugar.

2. ***Infusum Monarda***,, Infusion of Horsemint, (1 ounce to Water 16 fluidounce.) ***Dose***, 1/2 to 2 fluidounces to

Derivative.-***Thymol***. (See ***Thymol***.)

Action and Therapy.—***External***. Locally applied the oil is rubefacient, and if too closely or long applied painfully vesicant. It has been successfully used in local neuralgias

Internal. Infusion of monarda has long been a popular remedy for retarded menstruation from cold. Both the plant and its oil, which is sharply pungent and diffusive, are stimulating, carminative, antiemetic, and diuretic; in hot infusion diaphoretic. Both may be used to relieve nausea and vomiting even when there is diarrhoea, in flatulent distention of the bowels, in the tympanites of typhoid fever, and the catarrhal vomiting of the drunkard. It checks the serous diarrhoea of debility, and tends to promote rest and sleep from

exhaustion when associated with nervous excitation. Monarda has recently come into renewed prominence as an available source of thymol, now largely used as the most generally effective agent against hookworm. Oil of Monarda is an ingredient of domestic preparations lauded for their asserted effectiveness in pertussis.

MYRICA.

The bark and wax of ***Myricacerifera***, Linné (Nat. Ord. Myricaceae). Dry woods and open fields from Canada to Florida. ***Dose***, 5 to 60 grains.

Common Names: Bayberry, Waxberry, Candle Berry, Wax-Myrtle.

Principal Constituents.—Tannic and gallic acids, resins, bayberry tallow (from fruit), 32 per cent; ***myricinic*** and lauric acids.

Preparation.—Specific Medicine Myrica. ***Dose***, 1 to 60 drops.

Specific Indications.—Profuse mucous discharges, with atony of the circulation; sore mouth and sore throat.

Action and Therapy.—***External***. Bayberry, in powder, decoction, or specific medicine, may be applied for the relief of spongy, flabby, and bleeding gums, the sore throat of scarlatina with enfeebled and swollen tissues, and to aphthous and indolent ulcerations. As an injection it is valued by some in atonic leucorrhea.

Internal. Bayberry is a stimulating astringent. In full doses it is emetic. It is a remedy of considerable value in relaxed and flabby conditions of tissues with hypersecretion. In small doses (2 to 5 drops of specific medicine) it stimulates the gastro-intestinal glands, favors digestion and imparts tone, thereby increasing blood-making and nutrition. In doses of 5 to 20 drops it is a decided gastric stimulant, and as such may be used in chronic gastritis. It is also of value in chronic catarrhal diarrhea, mucoenteritis, and typhoid dysentery, though the latter is not encountered as much as in former years. It may be given internally, as well as used locally upon the throat, in scarlet fever, in the latter stages, when a flabby and enfeebled rather than highly inflammatory condition exists. As a rule bayberry should not be employed in active conditions, but rather in debility of the mucosa, with feeble venous flow and full, oppressed pulse.

MYRISTICA.

The ripe seeds of ***Myristica fragrans***, Houttuyn, deprived of their testa (Nat. Ord. Myristicaceae). Molucca Island; and cultivated in the tropics. ***Dose***, 5 to 15 grains.

Common Name: Nutmeg.

Principal Constituents.—A fixed (25 to 30 per cent) and a volatile oil (***Oleum Myristicae***, 2 to 8 per cent). ***Dose*** of volatile oil, 1 to 5 drops.

Preparation.—Specific Medicine Nutmeg. Dose, 1 to 15 drops.

Action and Toxicology.—An aromatic stimulant and carminative in small doses; larger doses produce nervous sedation and are soporific. Death has resulted from large doses (more than three drachms), the chief symptoms being headache, coldness, and collapse, drowsiness and indisposition to muscular movements. Diuresis is apt to be increased, though in one case it was entirely suppressed.

Therapy.—***External***. An ointment containing the finely powdered nut, or the volatile oil sometimes proves obtundant to painful piles. Grated upon a larded cloth and applied warm we have found it to give prompt and grateful relief in soreness of the chest attending an acute cold or the beginning of acute respiratory inflammation. It may also be used as a spice poultice to the abdomen in painful bowel affections from cold. A liniment of oil of nutmeg (1) and olive oil (3) is regarded by some as an efficient parasiticide for mild types of ringworm.

Internal. Both the powdered nut and the oil are good carminatives and may be used to allay nausea, vomiting, and gastric pain, and to check flatulent colic and serous diarrhea. The grated nut is in frequent domestic use to flavor foods for the sick, and it and the oil in prescription pharmacy to aromatize sleeping mixtures.

MYRRHA (Commiphora spp.)

The gum-resin obtained from one or more varieties of ***Commiphora*** (Nat. Ord. Burseraceae). Region of Gulf of Aden and the Red Sea, Africa, and Arabia. ***Dose***, 1 to 15 grains.

Common Names.-Myrrh, Gum Myrrh.

Description.—Brownish-yellow or reddish-brown tears or masses, covered with a brownish-yellow dust; taste: bitter, acrid, and aromatic; odor: balsamic. Soluble in alcohol; forms an emulsion with water. ***Dose***, 1 to 30 grains.

Principal Constituents.—A resin, ***myrrhin***, 23 to 40 per cent; a volatile oil, ***myrrhol***, 2 to 8 per cent; gum, 40 to 60 per cent, and a bitter principle.

Preparation.—***Tinctura Myrrhae***, Tincture of Myrrh (Myrrh, 20 per cent). ***Dose***, 1 to 30 drops.

Specific Indications.—Mucous membrane pale and lax; tonsils enlarged and spongy; throat pale and tumid; chronic bronchitis with profuse secretion of mucus or muco-pus, difficult to expectorate; soreness and sponginess of the gums; ptyalism; weight and dragging in pelvis in females; leucorrhea; muscular debility.

Action and Therapy.—***External***. Myrrh is the best local application for spongy and bleeding gums and is effective in mercurial and other forms of salivation. The tincture may be diluted with about 6 to 10 parts of water. It may also be used with benefit when the throat is sore and exhibits aphthous or sloughing ulcers, and in chronic pharyngitis with tumid, pallid membranes and elongated uvula. In spongy, enlarged tonsils it is an ideal topical medicine. After the removal of tonsils the following gives great relief from pain and deodorizes the fetor: Rx Tincture of Myrrh, 1/2 fluidrachm; Asepsin, 10 grains; Echafolta, 2 fluidrachms; Glycerin, 2 fluidrachms; Water, enough to make 4 fluidounces. Shake. This may be applied by means of an atomizer. This combination is also a good mouth wash and dentifrice and minimizes the possibility of pyorrhea alveolaris. Myrrh, in powder, is often added to dentifrices.

Internal. Myrrh is a stimulant to mucous tissues and should not be used, as a rule, in active inflammatory conditions. Small doses promote digestion and prove antiseptic to the intestinal canal. Large doses quicken the pulse, raise the temperature, cause gastric burning, great sweating and prostration; vomiting and purgation may follow. Myrrh is a remedy for enfeebled conditions with excessive mucous secretion, exhibiting its restraining power especially upon the bronchial and renal mucosa. It is of much value in chronic bronchitis with relaxation of tissues, profuse, unhealthy and exhausting secretion and difficulty in raising the sputa. Locke advised the following: Rx Compound Tincture of Myrrh and Capsicum, 2 fluidrachms each;

Syrup of Wild Cherry, Syrup of Senega, 2 fluidounces each. Mix. Sig.: One teaspoonful every three hours. This acts kindly upon the stomach and sustains the strength of the patient. The same combination often relieves the asthma of the aged.

Myrrh is useful in chronic gastritis and atonic dyspepsia, with full, pale tongue and membranes, and frequent mucous stools accompanied by flatulence. It acts well with the simple bitters, especially gentian.

Myrrh is probably emmenagogue, though much of its reputation as such has been acquired in anemic states in which it has been administered conjointly with iron and aloes. It is used in diseases of women when there is weight and dragging in the pelvis and leucorrhea; and in suppression of the menses in anemic girls. For the type of amenorrhea dependent upon uterine torpor and constipation Locke advised the following: Rx Myrrh, 30 grains; Aloes, 10 grains; Macrotin, 10 grains. Mix. Make into #20 pills. Sig.: One or two pills, three times a day. Myrrh is an ingredient of the celebrated Griffith's Mixture (Mistura Ferri Composita) for the amenorrhea of chlorosis and other forms of anemia; and of the Compound Pills of Rhubarb (Pilulae Rhei Compositae).

NUX VOMICA.

The dry, ripe seeds of ***Strychnos Nux vomica***, Linné (Nat. Ord. Loganiacae). 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*** ($C_{21}H_{22}O_2N_2$) and ***brucine*** ($C_{23}H_{26}N_2O_4$) 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 amenorrhea. 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 leucorrhea 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 ***Oenanthecrocata***, 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.—***Fluidextractum Oenothera***, 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 gonorrhea for this purpose.

OLEUM CADINUM.

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

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

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***) ($C_{10}H_{16}O$) (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. Masseuers 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 taeniacides. 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 ($C_{15}H_{26}O$)

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 gonorrhea 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 $C_{10}H_{16}$. 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.—***Emulsum 0lei 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, gastro-enteritis, 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 ***Theobroma Cacao***, 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*** ($C_7H_8O_2N_4$) 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*** ($C_6H_8O_2$) is the chief; fatty acids free and combined; a non-purgative but vesicant resin, ***crotonol*** ($C_{18}H_{28}O_4$).

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 ***Papaveris somniferum***, 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*** ($C_{17}H_{19}NO_3.H_2O$), anodyne and narcotic; (2) ***Codeine*** ($C_{18}H_{21}NO_3.H_2O$); (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: rhoeadine, 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. ***Opii 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 Opii Pulvis (see above). ***Dose***, 1/4 to 2 grains (average, 1 grain).

3. ***Opium Granulatum***, Granulated Opium. Same morphine content as Opii

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 Opii***, 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 Opii 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 Opii***, 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 Opii 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 Opii 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 pow der, 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, catherization 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 gonorrhea. 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 unstriped 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 onefourth 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 ingredientopium. 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.

PANAX.

The root of ***Panaxquinquefolia***, Linné (Nat. Ord. Araliaceae). Middle and northern United States in rich woods; becoming exceedingly scarce; also cultivated. ***Dose***, 5 to 60 grains.

Common Name: Ginseng.

Principal Constituents.—Not well determined; resinous and probably an amorphous yellow principle which has been named panaquilon.

Preparation.—***Specific Medicine Panax***. ***Dose***, 1 to 60 drops.

Specific Indications.—Nervous dyspepsia; mental and other forms of nervous exhaustion from overwork.

Action and Therapy.—A mild, stimulating tonic whose effects are observed only after quite a long period of administration. It is a feeble nerve stimulant and as such is adapted to nervous exhaustion of a mild type from too close application to work, and to mild forms of

nervous dyspepsia and slight stomachic debility. As a medicine it acts kindly and quietly, giving a grateful sense of comfort to the stomach.

PAREIRA (Chondodendron).

The root of ***Chondodendrontomentosum***, Ruiz et Pavon (and others...MM) (Nat. Ord. Menispermaceae). A vine of Brazil and Peru. ***Dose***, 5 to 30 grains.

Common Names: Pareira-brava, Pareira Root.

Principal Constituents.—Tannin, and a white and a yellow alkaloid, the latter similar to ***berberine***. The white alkaloid ***pelosine***, found in undetermined species and in false pareira-brava, is identical with ***berberine*** and ***buxine***.

Preparation.—***Specific Medicine Pareira***. ***Dose***, 1 to 30 drops.

Specific Indications.—Irritation of the urinary tract, with abdominal tenderness; frequent desire to urinate with pain in urethra and glans upon urinating; chronic cystitis and pyelitis.

Action and Therapy.—Pariera is mostly employed as a tonic diuretic, in chronic inflammation of the bladder, and of the kidneys with excretion of pus. The indications, as given above, should be observed in its use. It is not often employed.

PASSIFLORA.

The root and stem-base of ***Passifloraincarnata***, Linné (Nat. Ord. Passifloraceae). Southern United States. ***Dose***, 5 to 120 grains.

Common Names: Passion Flower, May Pop.

Principal Constituent.—Traces of an alkaloid.

Preparation.—***Specific Medicine Passiflora***. ***Dose***, 1 to 120 drops.

Specific Indications.—Irritation of brain and nervous system, with atony; insomnia from worry or overwork, or from febrile excitement; sleeplessness in the young and the aged; convulsive movements; hysteria; infantile nervous irritability; dyspnea palpitation of the heart from excitement or shock.

Action and Therapy.—Passiflora is used chiefly in spasmodic affections and as a rest-producing agent. While somewhat hypnotic but acting slowly, it is better as a nerve calmative, rest resulting from its quieting influence, and sleep following in consequence of this rest rather than through any narcotic effect of the drug. It is one of the best agents we possess to allay restlessness and overcome wakefulness, when the result of exhaustion, with cerebral fullness, or due to the nervous excitement of debility. It is admirably adapted to young children and old persons to promote rest and sleep, and it acts similarly when sleeplessness is caused by worry, overwork-physical and mental-or due to the exhaustion of fevers. Few remedies are better to produce sleep during typhoid fever. The sleep induced by the restful influence of passiflora is a quiet, peaceful slumber, undisturbed by any unpleasantness, and the patient awakens calm and refreshed. Our experience with passiflora has shown it to be slow in producing sleep, and usually more effective in the second twenty-four hours than the first. Even small doses of it may cause nausea and vomiting. When this occurs its use should be discontinued. For the nervous phenomena and unrest accompanying la grippe, passiflora is a safe and often effectual remedy.

When due to atony, passiflora may relieve pain though its anodyne properties are not marked. It is occasionally useful in nervous forms of headache due to debility, and in certain neuralgic pains associated with the process of menstruation. Reflex pains during pregnancy and the menopause may be relieved by it.

Passiflora is antispasmodic. If given when the aura is felt it may ward off or mitigate an attack of epilepsy, but is of no value when the seizure takes place. It is a better remedy to limit spasms of childhood, and has thus been successfully exhibited in trismus nascentium, and convulsions from dentition, or the presence of worms. It may be used with some degree of success in preventing spasm during meningeal disorders, in chorea, and hysterical convulsions. While more or less effectual in most varieties of spasm when established, except in epilepsy, it is a far better agent for intercurrent use to control the irritability which precedes and often provokes the convulsive explosions. It has been greatly lauded in tetanus, but little reliance should be placed upon so feeble an agent in so grave a condition. Whooping-cough is often mitigated by passiflora, and for spasmodic asthma it frequently proves one of the most effective of remedies.

PENTHORUM.

The whole herb of ***Penthorum sedoides***, Linné (Nat. Ord. Crassulaceae). A perennial herb in wet situations in the United States and Canada. ***Dose***, 1 to 60 grains.

Common Names: Virginia Stone-crop, Ditch Stone-crop.

Principal Constituent.—Tannin.

Preparation.—***Specific Medicine Penthorum***. ***Dose***, 1 to 60 drops.

Specific Indications.—Chronic pharyngeal and nasal disorders, with dryness, fullness, and irritation and a purplish, congested appearance; catarrhal inflammations with profuse secretions; gastric catarrh, catarrhal diarrhea; sponginess of the gums.

Action and Therapy.—***External***. A wash for catarrhal surfaces, producing an astringent effect but no corrugation of the tissues.

Internal. While of some value in catarrhal diarrhea, this is a remedy best adapted to chronic catarrhal and congested states of the posterior nares and pharyngeal vault. It should be used locally while it is being administered internally; and quick results are not to be expected.

PEPO (Cucurbita pepo).

The dried, ripe seed of the cultivated varieties of ***Cucurbita Pepo***, Linné (Nat. Ord. Cucurbitaceae). A native of the Levant; extensively cultivated. ***Dose***, 1 ounce.

Common Name: Pumpkin Seed.

Principal Constituents.—A large amount of fixed oil (over 40 per cent) and a taeniafuge principle—a greenish-brown, acrid resin—; fatty acids and two proteids—myosin and vitellin.

Specific Indications.—Tape-worm; round worm; ardor urinae.

Action and Therapy.—An emulsion of pumpkin seeds prepared by rubbing one ounce of the crushed seeds with eight fluidounces of water, taken husks and all, after preparatory catharsis and fasting, is a safe and often efficient agent for the expulsion of tape-worm. A dose of

castor oil should follow the administration of the emulsion. Sometimes oleo-resin of malefern is given with it, the concoction being sweetened if desired. Pepo will also remove round worms. The ethereal oil, in two drachm doses, has been similarly employed, but is less efficient than the whole seeds.

An infusion of pumpkin seed is useful as a lenitive and diuretic in scalding of urine, strangury and other irritative urinary disorders.

PETROSELINUM.

The dried, ripe fruit and root of ***Petroselinum sativum***, Hoffman (Nat. Ord. Umbelliferae). Native of Europe; cultivated in all moderate climes.

Common Names: (1) Parsley Fruit, Parsley Seed; (2) Parsley Root.

Principal Constituents.—(Root.) An essential oil containing ***Apiol***; (Fruit) Fatty oil (22 per cent), volatile oil (oil of parsley) containing ***apiol*** and ***laevo-pinene***.

Preparation.—***Decoctum Petroselini***, Decoction of Parsley. ***Dose***, 1 to 4 fluidounces.

Action and Therapy.—Decoction of parsley root is an active diuretic, as is also the oil (three or four drops). Both relieve urinary irritation, and have been extensively employed to relieve dropsical effusions when the kidneys are in a condition to respond, especially when the edema follows scarlet fever.

Apiol is an active emmenagogue. When of good quality, doses of seven to fifteen grains are capable of producing effects similar to those of coffee—cerebral excitement with feeling of vigor and composure, and warmth in the stomach. Large doses (thirty to sixty grains) occasion intoxication, giddiness, flashes of light, ringing in ears, and headache similar to that resulting from cinchona. It is used almost entirely for the treatment of amenorrhea, due to ovarian inactivity. It should be administered in doses of seven to ten grains, three times a day for a week or so previous to the expected time of menstruation, and given oftener when the menses appear. It relieves pain by increasing the flow when menstruation is scanty. Owing to the uncertain quality of apiol preparations they frequently fail to produce any emmenagogue effects. A liquid apiol (***Oleoresina Petroselini***) is to be preferred, given in doses of eight to twelve minims.

PHYSOSTIGMA.

The dried, ripe seed of ***Physostigma venenosum***, Balfour (Nat. Ord. Leguminosae). A climbing perennial, native of Calabar, in the Gulf of Guinea, on the western coast of Africa, and around the sources of the river Coma, near Gabon. River banks. ***Dose***, 1 to 3 grains.

Common Names: Calabar Bean, Ordeal Bean, Ordeal Bean of Calabar.

Chief Constituents.—***Physostigmine*** or ***eserine***, a very poisonous base; ***calabarine***, less, poisonous and probably a decomposition product of the former; ***eseridine***, ***eseramine***, all of which are alkaloids; and ***phytosterin***, closely resembling animal cholesterin.

Preparation.—***Specific Medicine Physostigma***, 1/30 to 5 drops. (For specific purposes in nervous disorders the small fractional doses are preferred.)

Specific Indications.—Feeble and tremulous pulse, cool surface, cold. extremities, and contracted pupils; or pupils dilated, with small, rapid pulse; mental torpor in cerebro-spinal meningitis; difficult breathing with sense of constriction; meteorism.

Action and Toxicology.—Calabar bean is a spinal paralyzant, the brain being apparently unaffected by it. It is also probably a direct muscle poison, though this is doubted by Wood. The motor and reflex centers of the cord are depressed, and finally paralyzed by it when given in poisonous doses. It also acts upon some of the medullary centers. The nerves are apparently not much affected by it, though some contend that it first stimulates and then destroys the excitability of their terminals in the muscles. Unstriped muscular tissue and the glands are stimulated by it, and peristalsis greatly exaggerated and intestinal secretion increased. It lengthens the diastolic pause, thus slowing the heart-beat and increasing its power, probably through its action upon the heart-muscle itself, or by stimulating the vagal terminals and the cardiac ganglia. Arterial tension is first raised by it; then lowered. When dyspnea occurs it is thought to be due to the tetanic action of calabarine, which is present in variable proportions in commercial extracts of physostigma, thus rendering the latter undesirable preparations. Phygostigma and its alkaloids are eliminated chiefly in the urine, the latter being then capable of producing poisonous effects when tested upon the eyes of animals. Physostigma kills by centric respiratory paralysis.

Physostigma (and physostigmine [eserinel more powerfully) reduces intraocular tension and strongly contracts the pupils, the myosis taking place in a few minutes and lasting from six to twelve hours, and sometimes to a lesser degree for several days. It temporarily increases the power of accommodation for close vision, which action may be followed by spasm of accommodation. These effects often cause severe pain, which may continue for hours. Much diversity of opinion prevails as to the manner in which the drug acts upon the eye. Wood believes its ocular effects are caused by “local peripheral influence;” “that there is a simultaneous stimulation of the oculo-motor nerve-ending and paralysis of the peripheral sympathetic nerve-ending.” As the pupil is known, in overwhelming doses, in human poisoning, to dilate he concludes: “that when the alkaloid is in sufficient amount the primary oculo-motor stimulation is followed by oculo-motor palsy”. The view that the drug acts by constricting the vessels of the iris, or the view of Schmiedeberg, that eserine acts directly by stimulation of the iris muscle, is no longer generally held, though Hare still maintains the latter view. In fact, the whole range of physiological action of physostigma and its alkaloids is discordantly voiced by experimental investigators.

Full doses in man produce extreme prostration and muscular weakness, loss of mobility, dizziness, slow, feeble and irregular pulse, nausea, and sometimes vomiting. Severe diarrhea often takes place and the pupils are usually contracted. If the alkaloid or the extract be applied to the conjunctiva close contraction takes place, even though atropine has previously produced dilatation; and the effects are confined only to the eye so treated. Poisonous doses increase the foregoing symptoms, with the addition of muscular tremors or fibrillary twitchings (confined only to portions of the muscle), the reflexes are abolished, respiration and circulation are extremely depressed and the victim dies of paralysis of the medulla-center of respiration.

The treatment of poisoning by physostigma and its alkaloidal salt consists in the hypodermatic administration of a full dose of atropine sulphate, the best-known physiologic antidote (prompt emesis and tannic acid if the poison has been swallowed), the application of external heat, and respiratory and cardiac stimul ation by means of alcohol, ether, ammonia, digitalis, and strychnine. Wood suggests the availability of the antagonizing effect of pilocarpine (which by some is

regarded equally as antidotal as atropine) in doses proportionate to the quantity of poison ingested.

Therapy.—***External***. Extract of physostigma for local use in ocular diseases has been entirely replaced by physostigmine.

Internal. Physostigma, in medicinal doses, has scarcely any effect upon the circulation, and but little on breathing. The secretions of the salivary, sweat, intestinal and mammary glands are increased by it. (See also Physostigminae Salicylas.) The drug is employed chiefly to reduce spasm and give tone to relaxed muscular walls of the stomach and bowels, and in the smaller doses in inflammatory diseases of the meninges. It has failed to sustain the reputation once accorded it in chorea, epilepsy, trismus neonatorum, and puerperal convulsions and reflex paralysis. In traumatic tetanus it has failed more often than it has benefited, but charity is held out in the view that probably inert preparations have been responsible for its failure, and the drug has not therefore had a fair trial. It is one of the suggested antidotes for strychnine poisoning, the alkaloid being preferred. For all of the above purposes the physiological doses have been advised.

In minute doses, however, physostigma gives favorable results in certain diseases of the brain and spinal cord. The usual prescription for this purpose is: Rx Specific Medicine Physostigma, 5 drops; Water, 4 fluidounces. Mix. Sig.: Dose, one teaspoonful every two to four hours. The indications are a cool skin, cold extremities, feeble tremulous pulse, and contracted pupils. Occasionally the dilated pupils will guide if associated with a rapid, small and tense pulse. It is one of the few agents which has exerted a favorable influence in cerebro-spinal meningitis, the dull intellect, pupillary contraction, and small, weak pulse leading to its selection.

Physostigma, in the form of the extract or the specific medicine, may be used in weakened states of the gastro-intestinal canal, when giving rise to dilatation, visceral ptosis, and flatulence. Thus it is indicated in gastric and intestinal dilatation, fecal accumulation, and sometimes in tympanites, catarrh of the intestines and bladder, and constipation, with hard, dry feces. Nux vomica aids its action in intestinal atony, a state present in all of the above-named disorders. On account of its action upon the smooth muscular fibres of the intestines it is sometimes an ingredient of pills for the treatment of constipation.

Owing to its stimulant action upon the bronchial muscular fibres it may be used in chronic bronchitis with bronchial dilation, with dyspnea, bronchial asthma and emphysema, to assist by its contractile force in expelling mucus. For the respiratory disorders quite full doses are required, and other agents, more kindly in action, are preferred in Eclectic practice as stimulating expectorants. From 1/20 to 1/10 grain of the extract is sufficient for the effect upon the bronchial and intestinal musculature. The same, or eserine (1/60 grain) has been used for excessive sweating, as in the night sweats of phthisis. Wood reports a case of phantom tumor, associated with intestinal dyspepsia, asserted to have been cured by it.

PHYTOLACCA.

The recently dried root and fruit of ***Phytolaccaamericana***, Linné (Nat. Ord. Phytolaccaceae). North America, along roadsides and fences, and in clearings and uncultivated fields; grows also in northern Africa, southern Europe, China, the Azores, and Sandwich Islands. ***Dose***, 1 to 20 grains.

Common Names: Poke, Poke-root, Poke Weed, Garget, etc.

Principal Constituents.—***Root***: A remarkably large amount of potassium, a body closely resembling ***saponin***, and the alkaloid ***phytolaccine***. ***Berries***: A purplish-red powder (the coloring body), indifferent phytolaccin, and phytolaccic acid.

Preparations.—1. ***Specific Medicine Phytolacca***. (Prepared from the root.) Dose, 1 to 20 drops. (Usual form of administration: Rx Specific Medicine Phytolacca, 10-30 drops; Water, enough to make 4 fluidounce. Mix. Sig.: One teaspoonful every one, two or three hours.

2. ***Tinctura Phytolaccae Recentium***, Green Tincture of Phytolacca. (Fresh, recently dried root, 8 ounces (This should read: Fresh root, 8 ounces [the customary definition of "Green Tincture"]...MM); Alcohol (76 per cent), 16 fluidounces.) ***Dose***, 1 to 30 drops.

Specific Indications.—Pallid mucous tissues with ulceration; sore mouth, with small blisters on buccal mucous surfaces and tongue; sore lips, pallid and with separated epidermis; fauces full and mucous surfaces pallid, sometimes livid, with swollen tonsils and whitish or ashen-gray tenacious exudate; aphthae; imperfect glandular secretion; faucial, tonsillar or pharyngeal ulceration; secretions of mouth impart a white glaze over mucous membranes and tongue; white pultaceous sloughs at angles of mouth or lining the cheeks; hard painful glandular enlargements; pallid sore throat with cough and difficult

respiration; mastitis; orchitis; parotitis; soreness and swelling of mammary glands; diphtheroidal sore throat; and fatty degeneration .

Action.—Physiologically, phytolacca acts upon the skin, the glandular structures, especially those of the mouth, throat, sexual system, and very markedly upon the mammary glands; also upon the fibrous and serous tissues, and mucous membranes of the digestive and urinary tracts. It is principally eliminated by the kidneys. Applied to the skin, either in the form of juice, strong decoction, or poultice of the root, it produces an erythematous, sometimes pustular, eruption. The powdered root when inhaled is very irritating to the respiratory passages, and often produces a severe coryza, with headache and prostration, pain in chest, back, and abdomen, conjunctival injection and ocular irritation, and occasionally causes violent emeto-catharsis. Upon the gastro-intestinal tract doses of from 10 to 30 grains of it act as an emetic and drastic cathartic, producing nausea which comes on slowly, amounting almost to anguish, finally after an hour or so resulting in emesis. It then continues to act upon the bowels, the purging being prolonged for a considerable length of time. It is seldom used for emeto-cathartic purposes, on account of its tardy action, which, when established, continues for some time. It rarely causes cramps or pain. Large doses produce powerful emeto-catharsis, with loss of muscular power -occasionally spasmodic action takes place, and frequently a tingling or prickling sensation over the whole surface. Dimness of vision, diplopia, vertigo, and drowsiness are occasioned by large doses not sufficient to produce death. Phytolacca slows the heart's action, reduces the force of the pulse, and lessens the respiratory movements. It is a paralyzer of the spinal cord, acting principally on the medulla. In poisoning by this agent tetanic convulsions may ensue. Death results from carbonic acid poisoning, the result of respiratory paralysis.

The treatment of poisoning by phytolacca is that of gastro-enteritis.

Therapy.-***External***. A poultice of poke root has given relief to felons and mammary inflammation. If used early resolution may take place; if suppuration occurs it will hasten that process. Locke advised the specific medicine with glycerin (2 fluidrachms to 1 fluidounce) for external use in mammitis. The same preparation occasionally heals sore nipples, and an ointment has been used successfully in scaly forms of eczema, in glandular engorgement, and may give relief in

some cases of hemorrhoids, and in goitre. In most instances its local use should be accompanied by its internal exhibition.

Internal. Medicines which act directly upon the glandular structures are not numerous. Among those that do so act, none is more direct than phytolacca. Phytolacca belongs to that class of remedies which is denominated alteratives. Whether such terms as the latter are justifiable in the light of present-day progress may be open to question. The experience of many years with phytolacca with success in what has been understood to be alterative effects, is a matter of Eclectic record. That it powerfully impresses the glands of the skin, lymphatic system, buccal, faucial, nasal, and sexual systems, and particularly the tonsils, ovaries, testicles, and mammary glands, we are well satisfied. The periosteal and other fibrous tissues are also acted upon by it, and there is no doubt but that it has more or less influence over the deposition of fats, its favorable action in fatty degeneration of the heart entitling it to consideration.

Phytolacca is pre-eminently a remedy for swollen or engorged glands and adenitis. It is of undeniable value in conditions which might be conveniently classed as the dyscrasias-scrofulous, syphilitic, and rheumatic. It is not a direct antisyphilitic in the sense that it will destroy treponema, but for the train of ills due to the ravages of that disease as shown in the glandular and skin involvement it is among the most useful of drugs. When ulcerations result from the same cause it is particularly effective. It has long been used in various mixtures designed as antisyphilitics, which are, of course, but general alteratives. In those vague conditions, with pain and swellings at the joints, probably arthritic, and associated with swellings of the lymph glands, passing current under the elastic name of chronic rheumatism, phytolacca has acted most satisfactorily. It is, however, of little or no value in acute articular rheumatism.

Without phytolacca we should be at a loss to know how to treat glandular affections undergoing swelling or inflammation. Its most direct indication is hard, painful enlargement of the glands with associated pallid mucous membranes. It is not so direct a remedy for suppurating glands. It is of signal value in mumps, and inflammation of cervical, axillary, and inguinal glands, when not due to tuberculosis. Even then its influence is often shown by its power to reduce the glands more or less, but exceedingly slowly; while in those

enlargements due to syphilis its effects are more prompt and decided. Its beneficial control over tonsillitis and swelling of the submaxillary glands is well known. In acute mastitis phytolacca is by far our best remedy, and its action is hastened by its conjoint administration with aconite and bryonia. This treatment, with mechanical support, gentle withdrawal of the milk, if possible, or sometimes strapping of the gland with adhesive plaster may avert suppuration. After surgical measures for the liberation of pus the use of phytolacca should be continued to reduce any remaining engorgement of the organ. Sore nipples and mammary tenderness, and morbid sensitiveness of the breasts during menstruation are relieved by phytolacca, and it is decidedly useful in the mammary swelling which sometimes occurs in infants.

Though its action upon the reproductive glands is less decided than upon other specialized glands and upon the lymphatic nodes, it is not without value sometimes in orchitis and ovaritis. It is most effectual in the former when the inflammation is occasioned by the metastasis of mumps. Phytolacca has aided in the reduction of goitre, but ordinarily it is little to be relied upon for that purpose; iris is more effective, and that fails far oftener than it succeeds, except in the soft varieties.

Phytolacca is important in dermatological practice. It destroys the “itch” insect, consequently it is of value in scabies, though it is by no means as effectual as sulphur. The condition which calls for it internally in skin diseases is one of indolent action of the skin, usually associated with vitiated blood and hard glandular enlargements. There may be scaly, vesicular, pustular, or tuberculous eruptions, and lymphatic enlargements with pain. The skin may be inflamed, but does not itch because there is not activity enough in the part. It is often indicated in chronic eczema, syphilitic eruptions, psoriasis, tinea capitis, favus, and varicose and other ulcers of the leg. Associated with iris, it is a valuable agent in fissures, boils, carbuncles, dermal abscesses, and ulcerations of the outlets of the body. For skin diseases it should be employed internally and locally. Rx Specific Medicine Phytolacca, 1/2 fluidrachm; Water, 4 fluidounces. Sig.: Teaspoonful every three hours. Locally: Rx Specific Medicine Phytolacca, 2 fluidrachms; Glycerin, 1 fluidounce. Mix. Apply.

Phytolacca is useful in acute and chronic mucous affections, as in tracheitis, laryngitis, chronic catarrh, and especially in those affections where there is a tendency to the formation of false

membrane. There is a pallid, somewhat leaden-colored tongue, with but little coating, being a slick, glutinous coat, if covered at all. The mucous membranes present whitish erosions, or vesicular patches. With these conditions it may be employed in follicular tonsillitis, follicular pharyngitis, stomatitis, aphthae, nursing sore mouth, or ordinary sore mouth, and syphilitic faucial ulcerations. It should be taken internally and used locally as a wash. It is one of our most valuable agents in sore throats resembling diphtheria, but is not curative in genuine diphtheria showing the presence of the Klebs-Leoffler bacillus. It may be and should be used conjointly with antidiphtheritic measures, however, to stimulate the mucous membranes, promote glandular activity and assist in loosening the membrane. Phytolacca acquired a reputation at one time as a positive remedy for diphtheria. That was before the presence of the bacillus was determinable by laboratory methods. It is largely possible that many border-line cases were then called diphtheria, as some streptoccoccic inflammations are now until bacteriological investigations prove otherwise. Even in true malignant types its use was an improvement over old-time treatment and the claims of those who advocated it for diphtheria were reasonably just. But time has clarified the situation, and now we use it as a valuable auxiliary remedy for sore throat with exudation.

Phytolacca has been suggested to prevent and to cure gastric ulcer, and the suggestion seems fairly reasonable provided the general specific indications are observed, and the case is one long preceded by debility and catarrhal hypersecretion. It has relieved headache due to gastric acidity. Its usefulness in nephritis with the voiding of albuminous urine is open to question, if not exceedingly doubtful, and the reputation of an extract of the juice of the berries for the reduction of obesity has not been sustained. Single results from the use of any remedy in any of the difficultly curable diseases do not justify the too common practice of asserting its wholesale utility for such disorders. We prefer a tincture prepared from the freshly dried root for internal administration.

PILOCARPUS.

The dried leaflets of (1) ***PilocarpusJaborandi***, Holmes; or (2) ***Pilocarpus microphyllus***, Stapf (Nat. Ord. Rutaceae). Brazil and Paraguay. ***Dose***, 20 to 60 grains.

Common Names: Jaborandi, (1) Pernambuco Jaborandi, (2) Maranham Jaborandi.

Principal Constituents.—The powerful liquid alkaloid ***pilocarpine*** ($C_{11}H_{16}N_2O_2$); a colorless, viscid oil, isopilocarpine; a volatile oil chiefly pilocarpene ($C_{10}H_{16}$); and pilocarpidine ($C_{10}H_{14}N_2O_2$) in Pilocarpus Jaborandi only.

Preparation.—***Specific Medicine Jaborandi***. ***Dose***, 1 to 60 drops.

Derivatives.—***PilocarpinaHydrochloridum***, Pilocarpine Hydrochloride. Translucent, colorless and odorless crystals of a feebly bitter taste; hygroscopic in the air. Very soluble in water and alcohol, less soluble in chloroform, and not at all in ether. Dose, 1/12 to 1/6 grain by mouth; 1/24 to 1/8 grain (hypodermatically).

PilocarpinaeNitras, Pilocarpine Nitrate. Permanent, shining, odorless crystals, very soluble in water and less so in alcohol; insoluble in chloroform and ether. Dose, 1/12 to 1/4 grain (by mouth); 1/24 to 1/8 grain (hypodermatically).

Specific Indications.—Deficient secretion; marked dryness and heat of skin and mucosa; muscular pain; muscular spasms; pain with puffiness of tissues; urinal suppression, the urine being of high specific gravity and deep color; pulse full, hard, sharp and strong, with deficient secretion; increased temperature with dry skin and membranes; sthenic forms of fever; marked restlessness due to lack of secretion; ptyalism, with stomatitis; inflammatory rheumatism, with swollen and painful parts, and dry membranes and skin; soreness and stiffness of joints in subacute rheumatism; dry, harsh cough; tenacious sputum; renal dropsy with deficiency of urine; uremia; uremic poisoning, with convulsions; itching, with jaundice; increased ocular tension; deafness due to deficient aural secretion; alopecia; poisoning by atropine or belladonna; colliquative sweating (minute dose).

Action and Toxicology.—Jaborandi and its alkaloid, pilocarpine, are the most powerful excitants of the secretions of the peripheral secretory glands known. In full doses they cause an enormous outpouring of sweat and saliva, and to a lesser degree stimulate the lachrymal, nasal, faucial, and bronchial secretory apparatus, and to a still lesser extent those of the stomach and intestines. Even the modified secretory organs of the aural canal are indirectly affected by them and the quantity of cerumen increased. The growth of hair and intensification of its color are stimulated by their internal action as well as when locally applied. By most pharmacologists the effect of these drugs upon peripheral secretion is attributed to the direct action upon the

terminals of the peripheral nerves and not to any impression ***per se*** upon the epithelial secretory cells. This they prove by completely checking them with atropine, known to act upon the same parts but in exactly an opposite manner. Cushny declares that both act upon an intermediary receptor interposed between the nerve and cells at the myocellular junction, and that neither the nerve nor the cells are directly impressed. These bodies are stimulated by pilocarpine and muscarine (agaricine) and depressed or paralyzed by atropine. It is generally conceded that while atropine is the complete antagonist of pilocarpine, which chiefly acts in the manner described and to a very limited extent upon the central nervous system, on the other hand pilocarpine is, therefore, not a complete antagonist of atropine. The action of pilocarpine upon the involuntary muscles is caused in the same manner as upon the sudoriferous glands—by impressing the myo-neural receptors.

Moderate doses of these drugs have scarcely any effect upon the central nervous system, and pilocarpine is less apt than jaborandi to cause gastric and intestinal discomfort. Both, however, appear to increase peristalsis and in full doses may cause a persistent watery diarrhea, with straining or tormina after the diarrhea ceases. Upon the eye myosis is produced by both the local and internal use of them, and spasm of the accommodation also occurs. In large doses they are cardiac depressants, probably affecting the heart muscle and to some degree vagal inhibition. The extent to which the vaso-motor system participates in first causing increased and then lowered blood pressure is not satisfactorily known. Full doses cause cardiac arrythmia, and increase the number of heartbeats greatly, but render them weaker. The uterus, spleen, and bronchi contract under the influence of these drugs. Temperature, though at first considerably increased, falls when sweating has become well established. This action is more marked during fevers than in health. After the termination of sweating temperature regains its normal status, usually at once, but is sometimes delayed for several hours. As a rule, the secretion of milk is believed to be unaffected by pilocarpine, but contrary to what might be anticipated, where there is a diminished lacteal secretion, it apparently increases the supply.

One or two drachms of powdered jaborandi infused in a cupful of boiling water and taken at one dose will in about ten to twenty minutes cause a tingling of the skin with marked redness of the

surface. This sensation is first experienced in the face, but soon extends to the whole surface of the body, and is quickly followed by an abundant perspiration, which is apt to last for four or five hours. Almost simultaneously with the sweating the secretion of saliva increases to such an extent as to greatly embarrass speech, the person being obliged to assume an inclined position that the escape of saliva may be facilitated. During this stage from one to two pints of saliva and even more may be secreted, and usually there will be in addition an augmentation of the bronchial and lachrimal flow. The saliva contains an abundance of ptyalin and salts and readily converts starch into sugar. At times the mucous glands of the intestines are so stimulated and peristalsis so increased as to cause diarrhoea, and it is not a rare circumstance that the submaxillary glands enlarge and become painful. Nausea and vomiting (less likely with pilocarpine), vertigo, hiccough, heaviness of the head, and contraction of the pupils may take place. From the commencement of perspiration the face becomes pale, the pulse temporarily fuller and more frequent; the pulsations become irregular, and with persons laboring under cardiac affections, a kind of asystole is observed. The effects of these drugs occur more readily in adults than in children, the latter in fact standing their action much better than adults. In using these medicines to produce diaphoresis it is not necessary to use warm drinks or other usual aids toward facilitating the sweating. During the sudorific action of jaborandi the quantity of urine is lessened, to a greater or lesser extent, and micturition frequently proves painful. As urea exists to a large extent in the saliva and sweat caused by jaborandi (no uric acid being found), a diminution of it occurs in the urine voided; but, after sweating, it gradually returns to its normal figure in the urine. It would appear that the drug does not increase combustion in the body. Dryness of the mouth and throat, with a sense of fatigue and depression, most usually follows the cessation of its active effects. Administered in divided doses, jaborandi, instead of acting as a diaphoretic and sialagogue, becomes an active diuretic. The conclusions then are that jaborandi and its alkaloid exert a strong special influence upon the sudoriferous and salivary glands, and (in small doses) upon the renal glomerules, which stimulates their functional activity.

Pilocarpine, the active principle of jaborandi, has an action nearly identical; however, it causes less salivation, less vomiting, and is more certain in its effects. The hydrochloride and the nitrate of this alkaloid

are used; they may be employed internally, or by subcutaneous injections. In poisoning by jaborandi or pilocarpine, death is not apt to result except where an existing grave cardiac disease renders the patient a victim to exhaustion. Atropine is the physiologic antagonist to its sudoriferous and muscular effects; morphine overcomes the nausea and diarrhoea and pain; strychnine, caffeine and digitalis may be required to support the heart.

Therapy.—***External***. Externally applied pilocarpus and pilocarpine are accredited with the rather singular effect of causing the hair to become darker in color, and to stimulate the growth of that appendage it is frequently employed in alopecia. The specific medicine, fluidextract, or the alkaloid, may be used in lotions with soap liniment and cologne; or the latter, with or without cantharides, may be incorporated with a lanolin base. The specific medicine may be applied in dry eczema, and to allay inflammation in erysipelas, mumps, mastitis, orchitis, epididymitis, and swollen and painful joints. Pilocarpine, being a strong myotic, is coming to be preferred to physostigmine (eserine) in eye affections, though acting slower and less profoundly than the latter, but with less irritation. In fact, it is a most valuable myotic in all conditions of the eye in which there is increased intraocular pressure. Locally used pilocarpine lessens pain from excessive use of the eyes, and alleviates congestive conditions. By some it is preferred to eserine in glaucoma. After traumatism, with increased ocular tension, the latter as well as pain is relieved by the local use of pilocarpine hydrochloride. Instilled in the eye it is also useful in keratitis and phlyctenular conjunctivitis, both in the early stage.

Internal. Jaborandi is diaphoretic, sialagogue, myotic, sedative, diuretic and antispasmodic, according to the manner of employing it. The keynote to its therapy is arrest of secretion whether it be of the glands of the skin, the glands of special ferments, or the glands of the mucous tracts. Oversecretion due to weakness of the glands is also corrected by it, and the debilitating or unhealthful outpour controlled. In other words, like many other drugs having a single though apparently a double action, it tends to stimulate normal secretion by correcting faulty functioning as manifested in either deficiency or hypersecretion. It is also of value in the early stage of acute inflammations, particularly of the skin, respiratory organs, and in acute rheumatism. When given too freely in the latter it may produce vomiting and excessive sweating. Then it should be discontinued. As

the regulation of abnormal secretion has ever been a cardinal feature of Eclectic therapeutics, the adoption of pilocarpus has given us a remedy capable of great good, but one which, on account of its depressing action on the heart and the debility occasioned by excessive diaphoresis, must be used with judgment and care.

Pilocarpus was once used for many purposes for which it is now discarded. Among these were dropsies of various origin. At the present day its eliminative powers are sought only in dropsy of renal origin, not to cure the disease producing it, but to unburden the system of watery accumulation and to some extent of poisonous and convulsive irritants. Occasionally it is used in the attempt to remove pleural effusions, but other agents are better. Owing to its depressing action upon the heart and the danger of inducing pulmonary edema it should not be employed in dropsies of cardiac origin. Such deaths as have occurred from pilocarpus and its alkaloid have been caused by these two accidents. While it is generally advised that it is safe in the early stages of acute Bright's disease, most clinicians are extremely cautious or do not use it at all in chronic parenchymatous nephritis nor in any advanced form of nephritis, especially in those past middle life. Pilocarpine is the one great theoretical and apparently practical drug for uremic convulsions, relieving the kidneys of their burden by placing it upon the skin, whereby a large amount of fluid together with urea and toxins are eliminated. In this condition it is expedient to quicken its action by hot drinks, heat to the surface of the body, and the aid of enveloping blankets. One-twelfth to one-sixth grain of pilocarpine nitrate may be given hypodermatically.

Since these earlier and still established uses for pilocarpus the drug has come into prominence in Eclectic practice chiefly through the writings of Webster, Ketchum, and Foltz. Added to its diuretic and sudorific qualities, jaborandi is sedative and antispasmodic, many preferring it to veratrum for the former purpose, and to lobelia or gelsemium for the latter. The indications for this drug, specifically considered, may be summed up as follows: It is a remedy for sthenic conditions, and must be avoided, or its use carefully guarded, in weakened conditions of the heart. Jaborandi is efficient in disorders exhibiting a dry, hot skin, with febrile reaction, especially when accompanied by acute suppression of the secretions; dry, parched mouth; full, strong, hard, and sharp pulse; deficient renal activity with deep-red urine, scanty in quantity and of high specific gravity;

restlessness, and, with any of these symptoms, pain. jaborandi is claimed by Webster to be adapted to almost any febrile or inflammatory condition, sthenic or asthenic, with or without a dry skin. Most observers, however, prefer to limit its use to sthenic conditions only.

As a remedy for pain and inflammation jaborandi has been highly endorsed in mammitis, with dry skin and suppressed lacteal secretion, in acute articular inflammation and acute articular rheumatism, the joint being extremely painful and swollen. In erysipelas with dry skin and elevation of temperature it is especially valued, and is also locally applied. Webster declares that in cerebro-spinal meningitis it has no equal. This view has not been universally endorsed. In rheumatic affections its value is enhanced by its power to eliminate urea and uric acid from the system. Jaborandi is indicated by stiffness, soreness, and swelling of the joints, whether the parts show redness or pallor. Many declare it one of the most important agents to use in the early stage of acute inflammatory rheumatism. One of its chief indications in such disorders is puffiness of the tissues. Its action should not be carried to extremes, however, and the ever-present danger of cardiac depression should be kept in mind. Jaborandi has proved a useful drug in exanthematous diseases with tardy appearance or tendency to retrocession of the eruption, and by this action has been thought to avert the danger of post-scarlatinal dropsy. For acute (preferably) or chronic muscular pain, pleurodynia, lumbago, and muscular spasm, it sometimes proves a most efficient drug. The specific indications must, of course, be observed.

Jaborandi is recommended for cough when the throat is very dry and secretion checked. It is well recommended in bronchial asthma and whooping-cough with dryness of the respiratory passages. Small doses relieve “winter cough,” and the cough of chronic bronchitis with lack of secretion, and dry, irritable, hoarse cough. In the early stage of bronchitis, and in the congestive stage of pneumonia, it rapidly relieves the local inflammation, and reduces the fever if it be given in diaphoretic doses. Some employ it in the attempt to abort acute lobar and lobular pneumonias, and sometimes it is effective at least in limiting the damage done by a violent sudden invasion. Here again the caution concerning the heart depression and the danger of pulmonic edema must be remembered, and the drug used with extreme good judgment. In respiratory troubles it does best service when associated with other indicated remedies, as bryonia, asclepias, lobelia, etc. In

acute tonsillitis with secretion of tenacious pharyngeal mucus it serves an excellent purpose. Foltz valued it highly in pharyngitis sicca. When exudation has taken place in pleurisy, jaborandi is one of the best agents to effect the removal of the fluid and promote resolution. Some value it to increase secretory activity. It finds also a place in the treatment of dry croup and laryngismus stridulus. In laryngeal diphtheria (so-called membranous croup), if the child is strong, jaborandi may be administered in doses sufficient to increase the secretions of the throat, and thus loosen the false membranes. Many, however, cannot stand its action, and only in the sthenic cases, and never in the debilitated, should it be attempted. The well-known toxic effect of diphtheria in inducing cardiac and vaso-motor paralysis renders the use of any possible circulatory depressant inadvisable. And this is true of jaborandi in the doses necessary to induce free secretion.

Jaborandi has given good service in metastatic and gonorrheal orchitis, ovaritis, and metritis, the specific indications for it being present. Both internally and locally it sometimes alleviates in parotitis (mumps).

Jaborandi is one of the most useful of agents in properly selected cases of la grippe or epidemic influenza, and of catarrhal fever. In fact the drug acts admirably as a non-stimulating diaphoretic and sedative in many inflammatory and febrile conditions, provided the stomach is not too irritable to retain the medicine. It is sometimes used like gelsemium to prepare the system for the kindly action of quinine in intermittent fevers. It should never be used in adynamic fevers, such as typhoid fever.

Small doses of pilocarpus restrain excessive secretion. This is well exhibited in its successful use in controlling some cases of polyuria (diabetes insipidus), colliquative night sweats, and ptyalism and the consequent aphthous stomatitis induced by the latter. In the first named its action is enhanced by ergot.

Acting upon the theory that the act of parturition is favored by free diaphoresis, jaborandi and its alkaloid have been successfully used in cases of tedious labor due to a rigid, hard os uteri. In these cases the pains are severe yet ineffectual, the skin dry, pulse full, sharp, and hard, and there is some febrile reaction. These conditions are rectified

by diaphoretic doses of the drug. They are, however, rarely employed for this purpose.

Rarely in diaphoretic doses, it may do good in the albuminuria of pregnancy.

Many skin disorders of a dry character appear to be benefited by the internal (and external) use of jaborandi. Among these are eczema, pruritus, particularly when occurring in a jaundiced skin, prurigo, hyperhydrosis pedum and psoriasis. (See also ***External Uses***.)

The late Dr. Foltz was an enthusiastic advocate of the use of jaborandi in eye, ear, nose, and throat disorders, particularly where there is a lack of the natural secretions of these parts. Full doses of jaborandi contract the pupils, impair accommodation, diminish intraocular tension, and increase secretion. Locally applied, the action is similar, the effects upon the pupil, however, being much less pronounced when the drug is internally administered. Foltz praised it in rheumatic iritis, and for the absorption of "non-organized vitreous opacities". In iritis he always used it, and believed that it shortened the duration of the disease, and if adhesions were present, assisted in their absorption. Optic neuritis, retinal detachment, choroiditis, episcleritis, tobacco and alcoholic amblyopia, and atrophy of the optic nerve are also conditions in which he advised its use. Others have advised it in hemorrhages and plastic exudations of the retina, hemorrhage into the vitreous humor, floating bodies in the vitreous, glaucoma, and corneal opacities. For ocular affections Foltz advised as a dose from three to ten drops of specific medicine jaborandi, every two or three hours; and as a collyrium, one to two grains of pilocarpine hydrochloride to two fluidounces of water. In ear disorders jaborandi improves by increasing the secretions of the aural cavities and canals. Unhealthy cerumen is frequently restored to its natural condition by the continued use of small doses of jaborandi. Jaborandi is the best remedy in non-suppurative inflammation of the middle ear, of the proliferous type (Foltz), and it proves a good drug for nervous deafness, deafness following scarlet fever and diphtheria, and with appropriate adjunct specific treatment, in inner ear diseases of syphilitic origin (Foltz). The alkaloidal salts (1/3 to 1/6 grain subcutaneously) have been employed in these disorders, but the specific medicine jaborandi is to be preferred in doses of three to ten drops every three or four hours.

Pilocarpus and its alkaloidal salts have been used to counteract the poisonous effects of belladonna, atropine, stramonium, daturine, and poisonous bites or stings, and in ptomaine poisoning from canned fish and meats. In the latter instances it has no antidotal power, but favors elimination of the offending material. While failing to completely counteract the toxic effects of atropine, it nearly always relieves the unpleasant dryness of tissues following the use of that alkaloid or of belladonna.

Where depressing effects are produced by jaborandi, as sometimes occurs where there is valvular disease or fatty degeneration of the heart, or morbid pulmonic circulation, strychnine hypodermatically may sustain the heart-action. Digitalis, cactus, caffeine, or strophanthus may also be used. The profuse sweating may be checked by atropine. When pilocarpine acts like atropine, such effects are probably due to contaminating jaborine. In cases where the internal exhibition of jaborandi by mouth occasions nausea or vomiting, this may be avoided in giving the dose by rectal enema. Coffee is also said to prevent its nauseating effect.

The dose of jaborandi in infusion (45 grains to 2 fluidounces of water) is 1 fluidounce, which may, if necessary, be repeated every ten or fifteen minutes; of the fluidextract, from 10 drops to 1 drachm; of specific medicine jaborandi, 1 to 30 drops; of pilocarpine or its salts, internally, from 1/4 to 3/4 grain; by subcutaneous injection, 1/20 to 1/4 grain, in solution.

Pilocarpine.—The alkaloid pilocarpine is used in the forms of hydrochloride and nitrate in the same diseases as the infusion and alcoholic preparations of the leaves. The effects of the alkaloid are said to be more certain than when the leaves are used, and the tendency to nausea and vomiting is greatly diminished. Pilocarpine may be used in many of the aforementioned disorders, although jaborandi is generally preferred by the Eclectic physicians.

PIMENTA.

The nearly ripe fruit of ***Pimentaofficinalis***, Lindley (Nat. Ord. Myrtaceae). South America and West Indies, particularly Jamaica. ***Dose***, 10 to 30 grains.

Common Names: Allspice, Pimento, Jamaica Pepper.

Principal Constituents.—An essential oil (***Oleum Pimenta***) and an aromatic green resin.

Preparation.—***Specific Medicine Pimenta***. ***Dose***, 2 to 30 drops.

Action and Therapy.—A pungent, aromatic stimulant and carminative, but used chiefly as a flavoring agent. The oil, in doses of two to five drops, is sometimes given in flatulence and other conditions in which essential oils are usually displayed.

PIPER NIGRUM.

The unripe berries of ***Piper nigrum***, Linné (Nat. Ord. Piperaceae). East Indies. Dose, 1 to 15 grains.

Common Names: Pepper, Black Pepper.

Principal Constituents.—***Piperine*** ($C_{17}H_{19}NO_3$); oil of pepper, the chief constituent of which is laevo-phellandrene; and the alkaloid ***chavicine***.

Preparation.—***Tinctura Piperi***, Tincture of Pepper (8 ounces to Alcohol, 16 fluidounces). Dose, 1 to 30 drops.

Derivative.—***Piperinum***, Piperin. (A neutral principle derived from Pepper and allied plants.) Dose, 1 to 8 grains.

Specific Indications.—Gastric atony; congestive chills.

Action and Therapy.—Black pepper may be used as a corrigent of griping medicines. Combined with quinine it is frequently of service in intermittents, especially when congestive chill takes place. Piperin was once advised for the same purpose, but is less effective than the tincture of pepper; and even this frequently fails. Black pepper has carminative properties, and is useful in flatulence, and rarely may be used in gastric atony in those unaccustomed to the free use of pepper as a condiment.

PIPER METHYSTICUM.

The root of ***Piper methysticum***, Forster (Nat. Ord. Piperaceae). South Sea Islands. ***Dose***, 5 to 60 grains.

Common Names: Kava-Kava, Ava, Ava-Pepper Shrub, Intoxicating Long Pepper.

Principal Constituents.—Starch (50 per cent), ***methysticin*** ($C_{15}H_{14}O_5$), the methyl ester of methysticic acid; ***kavahin*** (methylene protocatechuic aldehyde, identical with heliotropin or piperonal); and the chief active principle, an acrid resin (2 per cent) separable into the local anesthetic ***alpha-resin*** and the less active ***beta-resin***.

Preparation.—***Specific Medicine Piper Methysticum***. ***Dose***, 5 to 60 drops.

Specific Indications.—Irritation, inflammation, or debility of the urinary passages; chronic catarrhal inflammations; vesical irritation and inflammation; vesical atony; painful micturition, strangury, and dysuria; gonorrhea, slow and intractable; gleet; anorexia; gastric atony; pale and edematous tissues, with scanty or irregular flow of urine, and indisposition to exertion; dizziness and despondency; neuralgia, idiopathic or reflex.

Action.—Piper Methysticum stimulates the salivary but not the cutaneous glands, and strongly excites the kidneys to watery diuresis, proportionately less solid material being voided in the urine. Upon the stomach it acts much like the stimulant bitters, increasing the appetite, and produces neither diarrhea nor dysentery. The central nervous system is stimulated by it to a species of intoxication, somewhat resembling but differing, however, from that caused by ethylic inebriation. Large doses will cause a drowsy and reserved intoxication, with confused dreams. The taste being agreeable, it is said one easily becomes a proselyte to its seductive qualities. The intoxicating drink prepared from it by the natives of certain Pacific islands induces an intoxication of a reserved drowsy character attended with confused dreams. Its long-continued use by them has caused more or less obscuration of vision and a dry, cracked, scaly and ulcerated skin, and lesions closely allied to leprosy.

Therapy.—Piper methysticum, “the intoxicating long pepper”, is not an old medicine, though under the name of kava-kava and closely similar appellations it has been used in the preparation of a disgusting ceremonial drink among certain South Sea Islanders from early times. As a medicine it has the fourfold quality of being stimulant, sialagogue, tonic, and anaesthetic. Its field of action is upon the sensory nerves and mucous tracts of the body, more especially those of the genito-urinal and gastro-intestinal tubes.

Piper methysticum is an appetizer and tonic to the gastro-intestinal organs, this influence being especially marked when associated with urinary disorders. The patient is pale, the urinary product inconstant in quality; the tissues, especially of feet and legs, are edematous patient is indisposed to exertion, and has the general appearance of one with Bright's disease, yet there is no albumen nor evidence of any particular disease. Such symptoms clear up quickly under this remedy, and the appetite is quickly restored. Piper methysticum augments digestion and promotes better assimilation. The glandular activity of the digestive tract is increased, natural secretion and excretion favored, constipation is overcome, and hemorrhoids, if present, are reduced. It also exerts a marked curative influence in chronic intestinal catarrh.

The best known remedial action of this drug is upon the genito-urinal tract, in which, through presumably decreasing the blood supply by contracting the capillaries, it allays irritation with its consequent pain in urination, difficult micturition, and inflammation with discharges of mucus or muco-pus. Its reputation as a blennostatic in gonorrhea is well sustained, but, as with all remedies, the specific condition must be present for its best results. It relieves in that form of acute gonorrhea which is sluggish, tardy in responding to treatment, and tending toward the establishment of gleet. It is also a good agent in gleet. In the more acute cases it favorably assists the action of gelsemium, belladonna, and macrotys; while if there is marked debility it may be given with nux vomica or strychnine. Piper methysticum increases the power to urinate and, through its anaesthetic qualities, alleviates pain in the bladder and urethra, hence its value in debilitated and irritated conditions of those organs. It thus becomes an effective remedy sometimes in dysuria, painful micturition, strangury, chronic inflammation of the neck of the bladder, acute urethritis, nocturnal enuresis of old and young when due to muscular atony, and old feeble cases of catarrh of the bladder. It is also of some value in acute vaginitis, chronic bronchitis, rheumatism, and dropsy due to renal inefficiency.

Piper methysticum is a remedy for neuralgic pain, especially of the branches of the 5th nerve. It sometimes relieves ocular and aural neuralgia, toothache when not due to dental caries, neuralgia of the stomach and intestines, and neuralgic and spasmodic dysmenorrhea.

Such reflex neuralgias as abdominal neuroses due to prostatic, urethral, or testicular diseases, or pectoral neuralgia arising reflexly from nervous dyspepsia are cases for the exhibition of Piper methysticum.

PISCIDIA.

The bark of the root of ***Piscidia piscipula***, Jacquin (Nat. Ord. Leguminosae). West Indies and rarely in Florida. ***Dose***, 5 to 60 grains.

Common Name: Jamaica Dogwood.

Principal Constituent.-The chief active body is ***piscidin*** ($C_{29}H_{24}O_8$), a neutral principle.

Preparation.—***Fluidextractum Piscidiae***, Fluidextract of Piscidia. ***Dose***, 10 to 60 drops.

Specific Indications.—Insomnia and nervous unrest; spasm, pain, and nervous irritability; migraine, neuralgia.

Action and Toxicology.—Jamaica dogwood controls pain and produces sleep by its narcotic action. It increases salivary and cutaneous secretion, slows the pulse, first increases then lowers arterial tension (due to the heart weakening), dilates the pupils, reduces reflex activity, may induce convulsions, and proves narcotic to man and animals. Nausea, vomiting, and convulsions have followed a half-drachm dose of the fluidextract. Death, in animals, is caused by either heart failure or respiratory paralysis.

Therapy.—***External***. Reputed to relieve toothache due to exposed dental pulp, alveolar abscess, or peridental inflammation, and has been advised locally for the relief of pain in hemorrhoids.

Internally. Jamaica dogwood is used to relieve pain, overcome spasm, allay nervous excitability, and produce sleep. It may be cautiously used in the insomnia of the aged and in those of an excessively nervous temperament. By many it is advised where opium would be used to control pain, but for any good reason is not desirable—in neuralgias, painful spasms, ticdouloureux, sciatica, enteralgia, dysmenorrhea, and the pains of fractures and carcinoma. It has aided some cases of spasmodic and reflex cough. In whooping-cough, in

which it has been advised, it should be used with great caution. Foltz advised it in neuralgia of the eyeball and in supraorbital neuralgia, and others speak well of results with it in inflammatory and painful affections of the eye and ear. It has never been used to a great extent by Eclectic physicians; and in children and the feeble it should be employed with caution on account of its tendency to produce convulsions, even though it may satisfactorily relieve pain.

PIX LIQUIDA.

Tar, Pine Tar.

A liquid obtained by the destructive distillation of the wood of ***Pinus palustris***, Miller, and other species of ***Pinus*** (Nat. Ord. Pinaceae).

Description.—A blackish-brown, viscid, semiliquid, amorphous substance, but gradually becoming granular and opaque; odor empyreumatic and terebinthinate, taste sharp and tarry. Slightly soluble in water, with a brownish color and acid reaction. Mixes with alcohol, ether, chloroform, and oils. Upon distillation it yields ***oil of tar*** and pyroligneous acid. ***Dose***, 5 to 15 grains.

Principal Constituents.—Oil of turpentine, creosote, phenol, catechol, xylol, toluol, acetic acid, acetone, methyl alcohol, and at least ten resins.

Preparations.—1 ***Oleum Picis Liquidae*** Rectificatum, Rectified Oil of Tar. ***Dose***, 3 to 5 minims.

2. ***Aqua Picis Liquida***, Tar Water. ***Dose***, 1 to 3 fluidounces every four to six hours.

3. ***Syrupus Picis Liquida***, Syrup of Tar. ***Dose***, 1 to 2 fluidrachms.

Action.—Tar is irritant and antiseptic. Upon prolonged application tar acne may ensue, and in some instances it has produced poisoning similar to that of phenol. Internally it excites the circulation and the secretions, especially of the kidneys and lungs, and acts as an antiseptic to those tracts, thus proving diuretic, disinfectant and expectorant. Overdoses produce headache, indigestion, black vomit and stools, and blackish urine with blood and albumen and a decided tar-like odor.

Therapy.—***External***. Tar is chiefly used as an antipruritic and antiparasitic. It is of use in scaly skin diseases, and in various preparations it has been applied in psoriasis, chronic eczema, prurigo, porrigo, lichen, sycosis, lupus vulgaris and erythematosus, pemphigus,

tinea capitis and other forms of ringworm, scabies, and boils. Some persons are very susceptible to tar, an erythema following the application of even dilute preparations of it.

Internal. Tar water, or syrup of tar, may be used in bronchial cough, and to prevent the recurrence of boils, in chronic urinary catarrhs, and in eczema and psoriasis (together with its external use). Tar should not be given to those having a disposition to hemorrhages. Syrup of wild cherry added to tar water or the syrup of tar makes a useful cough remedy for chronic bronchitis.

PLANTAGO.

The whole plant of ***Plantago major***, Linné (Nat. Ord. Plantaginaceae). A very common weed everywhere, especially in lawns and along roadsides, growing in rich soils.

Common Names: Plantain, Rib Grass, Ribwort.

Principal Constituents.—Resin, and citric and oxalic acids.

Preparation.—***Specific Medicine Plantago***. ***Dose***, 1 to 60 drops.

Action and Therapy.—***External***. The crushed leaves very promptly relieve the distressing symptoms caused by punctures from the horny appendages of larvae of lepidoptera and the irritation produced by certain caterpillars, as well as the stings of insects and bites of spiders. The promptness with which it relieves the burning pain of wounds caused by the first named and dissipates the rapidly spreading erythema, as we have personally experienced, leads us to believe it may be of value in erysipelas, and should be tried when that disease occurs in the summer season when the fresh plant can be obtained. The alcoholic preparations have been advised as topical applications in toothache, when due to a sensitive pulp, and in earache.

Internal. Plantago is reputed useful in bed wetting in children, due to relaxation of the vesical sphincter, with copious discharge of pale urine.

PODOPHYLLUM.

The dried rhizome and roots of ***Podophyllum peltatum***, Linné (Nat. Ord. Berberidaceae). Rich woods and thickets of North America. ***Dose***, 5 to 30 grains.

Common Names: May Apple, Mandrake, Lemon Apple, Wild Lemon, Raccoon Berry.

Principal Constituents.—***Resin of podophyllum*** (see below) and podophyllic acid, a coloring substance; ***podophyllotoxin***, the purgative principle of the resin exists free in the rhizome.

Preparations.—1. ***Specific Medicine Podophyllum***. ***Dose***, 1/10 to 30 drops; fractional doses preferred.

2. ***Elixir Podophylli***, Elixir of Podophyllum. ***Dose***, 1/2 to 1 fluidrachm.

Derivative.—***Resina Podophylli***, Resin of Podophyllum (Podophyllin). A light brown to greenish-yellow, amorphous powder turning darker when heated above 77° F, or when exposed to light. It has a faint peculiar odor and feebly bitter taste. It is very irritating to the conjunctivae and to other mucous membranes. Soluble in alcohol, chloroform and ether. It consists chiefly of the purgative principle ***podophyllotoxin*** mixed with ***podophyllic acid*** (80 per cent), other minor resins, and a yellow, coloring body, podophylloquercitin. Resin of podophyllum was first isolated and used by Dr. John King. ***Dose***, 1/30 to 1/2 grain.

Preparation.—***Trituratio Podophylli***, Trituration of Podopohyllin (1 to 100). ***Dose***, 5 to 10 grains.

Specific Indications.—***I. Podophyllum***. Podophyllum is specifically indicated by fullness of tissues, and particularly by fullness of superficial veins; oppressed full pulse; dirty yellowish coating of tongue and dizziness. It is contraindicated by pinched features and tissues, contracted skin and tongue.

II. Resin of Podophyllum (Podophyllin). Podophyllin is specifically indicated by fullness of tissues, fullness of veins, sodden, expressionless countenance, dizziness, tongue coated dirty yellowish-white, heavy headaches, indisposition to bodily exertion, intestinal atony, with sense of weight and fullness, full open pulse; "pain deep in ischiatic notches;" and as an ideal cholagogue; clay-colored stools, floating upon water; stools, hard, dry, and accompanied by distended abdomen and colicky pain. It is contraindicated by pinched features, and small, wiry pulse, or when the pulse has a sharp stroke.

Action and Toxicology.—Applied continuously podophyllum and its

resin cause irritation and suppuration of the skin and subcutaneous tissues; inhaled they provoke sneezing and violent coryza, and drug workers handling either are sometimes affected with conjunctival inflammation. The green rhizome or large doses of the dried drug (30 to 60 grains), or its resin, produces vioIent emeto-catharsis and gastro-enteritis. Smaller doses are cathartic; and doses short of catharsis induce ptyalism. Hence the names once applied—"vegetable mercury" and "vegetable calomel". Both undoubtedly increase the secretion of bile, notwithstanding the many state ments to the contrary. This is most apt to occur from the small dose which stimulates, and less likely from a drastic dose which hurries the drug through the intestinal canal. Even the latter is said to cause a flow of biliary secretion, probably by emptying the duodenum and producing a derivative effect. All the intestinal glands are stimulated by podophyllum; and the catharsis, like that from jalap, is slow, sometimes from ten to twelve hours (podophyllin, four to ten), and even a day elapsing before purgation takes place. Then it is likely to persist several days and if the dose be large to occasion debilitating hydro-catharsis. Very little tormina is caused by them compared with the thoroughness of their action. This may be prevented, in a measure, by administration with leptandra, hyoscyamus or belladonna and aromatic carminatives, such as ginger, cloves, etc. When the resin is precipitated by alum in its preparation, it is more apt to gripe; common salt intensifies its action and cream of tartar increases the hydragogue effect; alkalies favorably modify or check its activity. ***Podophyllin*** (***resin of podophyllum***) is correspondingly more energetic than the parent drug. The evacuations of podophyllum purgation are copious, prolonged, and dark or bile-stained in color.

Overdoses of podophyllum, or its resin, produce hyper-emesis, drastic hyper-catharsis, with griping and tormina, and large doses have caused death by gastro-enteritis. Even moderate doses, when contraindicated, occasion painful and griping irritation and inflammation.

Therapy.—***I. Podophyllum***. Podophyllum is a certain but slow cathartic; it is also. alterative. Unlike most strong cathartics the effects are quite permanent and the tone of the intestines improved. It may be used in nearly all cases in which podophyllin is useful, though there are some conditions where the former gives better results than the latter. (Compare to ***Resina Podophylli***). These conditions we will briefly notice.

It is conceded that as an alterative it is infinitely more decided in its action than the resin. It exerts a strong influence upon the glandular system. Associated with proper hygienic measures and the indicated tonics and other alterative drugs, it will give good results as an aid to elimination of broken-down products in the secondary phase of syphilis, in so-called chronic rheumatism and in scrofula. The dose should be small, not sufficient to produce any marked intestinal activity. In stomach troubles, podophyllum is often superior to podophyllin. It acts as a gentle stimulant tonic, improves the appetite, and is particularly valuable in atonic dyspepsia, gastric and intestinal catarrh, and atonic forms of indigestion, when the patient complains of dizziness, loss of appetite, and heavy headache. There is indisposition to exertion, the movements being heavy and sluggish, the tongue is dirty and flabby, and the superficial veins, abdomen, and tissues in general are characterized by fullness. Its action on the liver renders it particularly serviceable where gastric disturbances are due to hepatic torpor. In stomach disorders, hydrastis, nux vomica and other tonics and peptics may also be indicated and associated with this drug. Podophyllum, iris, chionanthus and chelidonium are excellent agents for that rarely occurring affection, chronic hepatitis. By its slow and thorough action, yet permanent in its effects in restoring and maintaining the normal hepatic and intestinal secretions, podophyllum is one of the very best agents to overcome habitual constipation, and more especially if it be due to portal engorgement. The small dose should be given and continued until the evacuations become regular and normal. Formerly this drug was much employed in bilious, remittent and intermittent fevers. Cathartic and sometimes emeto-cathartic doses were employed with the result of producing so profound an impression on the hepatic function and on the portal circle and general glandular system that, it is asserted, the disease was often aborted, or at least rendered milder and of short duration. It is never so employed at the present day. When at the inception of fevers a cathartic is needed, which, however, is not often, specific medicine podophyllum may be combined with compound syrup of rhubarb and potassa (neutralizing cordial), or to render it milder, lobelia, ipecac, leptandra, hyoscyamus or belladonna may be administered with it. Though rarely now used as a cathartic in dropsy, if selected at all, it should be given with cream of tartar. Further uses of this drug are identical with those of podophyllin, some preferring to employ interchangeably one for the other for the purposes named here and under Podophyllin. The usual medicinal dose of specific medicine

podophyllum ranges from one to ten drops. Dose of the powdered root (almost never used), as a cathartic, from ten to thirty grains; of the tincture, from ten to sixty drops; as a sialagogue and alterative, from one to five grains of the powder, or from one to ten drops of the tincture.

II. Resin of Podophyllum (Podophyllin). Podophyllin possesses the cathartic properties of the crude drug in an exalted degree. While it is slow in action, it is certain in its results. Some persons are so susceptible to the action of the drug, that a dose of one-half grain will actively purge them. The ordinary cathartic dose of this resin generally requires from four to ten hours to act, but this action is quite persistent, often producing copious alvine discharges for one to two days, and when over leaves the intestines in a normal condition, seldom being followed by the afterconstipation so common from the use of ordinary purgatives. As with the crude drug the cathartic action of podophyllin is increased by common salt. From four to eight grains operate as an active emeto-cathartic, with griping, nausea, prostration, and watery stools; from two to four grains, as a drastic cathartic, with nausea and griping; from one-half to two grains generally operate as an active cathartic, leaving the bowels in a soluble condition; in very small doses, it is gently aperient and alterative. In doses of one-half or one grain, it is one of our most valuable cholagogue cathartics, operating mildly, yet effectually and very persistently arousing the biliary and digestive apparatus to a normal action. It also exerts a favorable influence on the cutaneous functions, producing and maintaining a constant moisture on the skin. In doses of from one-eighth to one-half grain, or rather in doses insufficient to purge, it is strongly but quietly alterative, and will induce ptyalism in some persons. This drug should not be given in bulk, but should be combined with ginger, hyoscyamus, leptandra, or some form of alkali, which renders it less liable to nauseate or gripe. Should catharsis be too severe, an alkaline solution, with aromatics, by mouth, will check it. A popular and good method of preparation is that of triturating it with milk sugar (lactin). This not only obviates, to a certain extent, its irritant action, but singularly increases its purgative qualities. During its administration, all articles of food difficult of digestion should be avoided. According to Locke podophyllin prepared by alum water is apt to gripe. Eclectics long made use of this resin in cases where mercurials were used by other practitioners, and found the result vastly in favor of resin of podophyllum. It appeared to fulfill all the purgative indications, at least, for which mercurials were

recommended and used.

It is not, however, for its cathartic use that podophyllin is most valued by the Eclectic profession, but rather for its specific effect when given in small doses. Properly administered it is a stimulant to the sympathetic nervous system, acting principally upon the parts supplied by the solar plexus. It improves digestion and blood-making and stimulates normal excretion. For its action upon the liver, repeated small doses of the trituration (1 to 100), or a daily pill of podophyllin (1/20 grain) and hydrastin (1/4 grain) is much to be preferred to its cathartic dose. It should be given in the same manner when its action on the pancreas and spleen is desired.

The value of podophyllin in small doses, in gastric and intestinal disorders, has not been as well appreciated as it deserves to be. It has a specific action on forms of stomach and bowel trouble with atony, characterized by full and relaxed tissues, with mucous discharge. The case is never one of loss of function from irritability, but from atony. In the summer disorders of children, especially cholera infantum, it often will be indicated, and is quick to restore normal action when the bowels are loose, with passages of mucoid, slimy material. The movements of the child are sluggish, the tongue is coated a dirty yellowish-white, the superficial veins are full, and the countenance is dull and expressionless. In chronic types of disease, associated with feeble digestive power, which is but little improved by the ordinary stomach tonic, this drug renders excellent service. The trouble is usually atony of the upper part of the small intestines, and the stimulant dose of triturated podophyllin corrects the difficulty. Podophyllin is a favorite anti-constipation remedy. It is equally valuable in costiveness of the young child and in the aged. In very young babies this trouble will yield to: Rx Podophyllin (2 x trit.), 30 grains; Brown Sugar, 2 drachms; Water, 4 fluidounces. Mix. Sig.: Teaspoonful four times a day. For adults the daily use of from one to two of the podophyllin and hydrastin pills (1/20 and 1/4 grain) will generally be sufficient to gradually overcome the trouble. The cathartic dose should never be employed for the relief of constipation, or when a cholagogue action is required. When the stools are hard and grayish-white or clay-colored, and float upon water, the remedy is especially effective, as it is also in dry stools, with tympanitic abdomen and wandering, colicky pains. Flatulent colic of children, when associated with constipation, will readily yield to small doses of this drug, while

as a remedy for dysentery and both acute and chronic diarrhea, all of the recurring type and accompanied by portal sluggishness and hepatic torpor, few remedies will excel it. Dyspepsia, with atony and thickened mucous membranes secreting abundantly, calls for stimulant doses of podophyllin. The head feels full, the tissues and veins appear full and doughy, the skin is sodden, and a dirty coating covers the tongue from tip to base. Rx Podophyllin, 1/20 grain, three times a day. Cardialgia, accompanied by constipation, sometimes yields to the trituration (1 to 100).

This drug has been justly valued in hepatic disorders. In that state ordinarily known as "biliousness," this drug or specific medicine iris can usually be depended upon. Indeed, they act well in combination. There is dizziness, a bitter taste, the stools show an absence of bile, and greenish, bitter material is vomited. Podophyllin is often indicated in both acute and chronic hepatitis, though usually contraindicated in inflammations of the gastro-intestinal tract. Fullness—in the region of the liver, with aching under the scapulae and in the back of the neck, with dizziness, usually calls for this drug. In catarrhal jaundice with clay-colored stools it may be alternated with chionanthus. In the unpleasantness attendant upon the retention or passage of biliary calculi, and in mild forms of cholecystitis a purge of podophyllin may assist in relieving distressing symptoms or in aiding the passage of the concretions. It is not, however, a drug to be relied upon unaided, either for a cure or to remove the calculi, but rather to improve the secretion and elimination of bile. When indicated there is great pain in the region of the gall bladder coursing to the left and downward. Sometimes there is constipation, as often diarrhea. There is a bad taste, and the patient is jaundiced. Rx Podophyllin, 2 grains, at night, followed in the morning with a large quantity of olive oil. In hemorrhoids, dependent on biliary insufficiency with portal inactivity, it may be given in alternation with sulphur, the podophyllin being particularly desired when there is constipation with tenesmus. The small dose alone is required, from 1/20 to 1/10 grain, three or four times a day.

Podophyllin may give good service in cough accompanied by bronchorrhea, especially if it be associated with gastric catarrh. Here minute doses of sulphur are also valuable. In heart disease, when aggravated by hepatic inactivity and portal torpor, the cardiac remedy may be rendered more efficient if associated with minute doses of this

drug. It has long been recognized as serviceable in the rheumatic diathesis, when the patient is sallow and inactive, presents fullness of tissue, and complains of dull pain and heaviness in the right hypochondrium. In renal disorders, when the general specific indications for its use are present, it will usually restore the secretory power of the kidneys.

Podophyllin has long enjoyed the reputation of exerting a powerful action upon the lymphatic glandular system. It acts quietly but effectively as an alterative, one of the best in the whole domain of medicine, at the same time aiding and improving the digestive process. It was formerly, and is still with many, a favorite remedy in secondary and tertiary syphilis as an eliminant of broken-down material. Ellingwood declares it a good remedy for persistent pustular conditions, eczema, and cracked or fissured skin.

Podophyllin is a remedy for pain, according to Scudder--deep-seated pain in the ischiatic notches. It has served a good purpose in inflammations (when not of the digestive tract), accompanied by great constipation. Here the cathartic action is required, as it is also in the forming stage of febrile diseases, with the exception of typhoid fever, in which it is not to be commended, notwithstanding it was a prominent medicine in the so-called Woodbridge and other supposed abortive forms of treatment for enteric fever. In malarial cachexia, small doses of podophyllin may be alternated, or given with cinchona or quinine. For all of the preceding uses medicine podophyllum may also be used, but the dose must be correspondingly larger. For the gastric disorders many prefer it to the resin. Younkin advises cathartic doses (1/6 grain, every two hours, ten grains of potassium bitartrate) for the relief of gonorrheal epididymitis. The dose of podophyllin, as a cathartic, is from 1/2 to 2 grains; as an alterative and stimulant, 1 /100 to 1/10 grain; as a cholagogue, 1/20 to 1/10 grain. A good form in most disorders requiring the small dose, is the following: Rx Podophyllin Trituration (1 to 100), 5-30 grains; Water, 4 fluidounces. ***Dose***, one teaspoonful every one to three hours.

POLYMNIA.

The root of ***Polymnia Uvedalia***, Linné (Nat. Ord. Compositae). Central United States to Florida. ***Dose***, 5 to 30 grains.

Common Names: Uvedalia, Bear's Foot, Leaf Cup.

Principal Constituents.—A dark-brown, acrid resin and a straw-colored, balsam-like resin.

Preparations.—1. ***Specific Medicine Polymnia. Dose***, 1 to 30 drops.

2. ***UnguentumPolymnia***, Ointment of Polymnia (Uvedalia Ointment). Fresh Polymnia, 8; Lard or mutton tallow, 16. Light green in color.

Specific Indications.—Full, sodden, inelastic, flabby tissues; splenic and hepatic enlargement, with fullness, weight and burning in the hypochondriac and epigastric regions; congestion and impairment of the functions of the organs supplied by the celiac axis; impaired blood-making with tumid abdomen; low, inflammatory deposits.

Action and Therapy.—***External***. Uvedalia stimulates the growth of hair. Scudder advised the following hair tonic: Rx Specific Medicine Polymnia, 2 fluidounces; Bay Rum, 6 fluidounces. Mix. Sig.: Rub thoroughly into the scalp once or twice a day. Howe added to this lotion Tincture of Cantharis, 2 fluidrachms, and Fowler's Solution of Arsenic, 2 fluidrachms. Uvedalia ointment may be used, rubbed warm and well into the abdomen, for the reduction of engorged spleen (ague cake); the specific medicine must be administered internally at the same time. Its discutient powers have been taken advantage of in other painful swellings due to low inflammatory deposits and in mammitis particularly, scrofulous enlargement of the lymphatic glands, and spinal irritation.

Internal. Polymnia is one of the best of the spleen remedies reducing engorgement of that organ best when due to malarial cachexia. To a lesser degree it has a similar effect upon the liver. Its special field of activity is upon the parts supplied with blood by the celiac distribution. It is thought to favor a better splenic participation in blood-making; and may well be further studied for its influence upon all the ductless glands. In atonic dyspepsia and chronic gastritis depending upon a general cachexia, most often malarial, with a sluggish gastric and hepatic circulation, and attended by full, heavy, burning sensation it is often of signal benefit. It is still undetermined whether it exerts a specific influence upon leucocythemia; but it is certain that the correction of splenic and hepatic wrongs by this drug cannot but exert a beneficial effect. To be of any service in affections of the ductless glands it should be administered for a prolonged period. Scudder

valued it for uterine subinvolution and hypertrophy of the cervix, when indicated by the sodden inelastic condition, pallid tissues and impaired circulation above referred to. Large doses of polymnia are said to produce painful emeto-catharsis, gastro-intestinal inflammation, convulsions and death.

POPULUS TREMULOIDES.

The bark of the ***Populus tremuloides***, Michaux (Nat. Ord. Salicaceae). Lower Canada and northern and middle United States. ***Dose***, 1 to 30 grains.

Common Names: American Poplar, American Aspen, Quaking Aspen.

Principal Constituents.—***Populin*** and ***salicin***.

Preparation.—***Tinctura Populi***, Tincture of Populus (saturated). ***Dose***, 1 to 30 drops.

Specific Indications.—Marked debility with digestive impairment; tenesmic action after urination.

Action and Therapy.—A neglected remedy of considerable value in debility of the urinary tract and of the digestive organs. It acts best in small or fractional doses. When so given it is of value in tenesmic action of the bladder immediately following urination. Owing to the salicin and populin present it has had a considerable reputation in malarial fevers and should be more generally employed as a post-febrile tonic.

PRINOS.

The bark and berries of ***Ilex verticillata*** (L.) Gray, (***Prinos verticillatus***, Linné) (Nat. Ord. Aquifoliaceae). Moist woods and streams throughout the United States. ***Dose*** (bark), 5 to 60 grams.

Common Names: Black Alder, Winterberry.

Principal Constituents.—Resin, tannin, and an amorphous, bitter principle.

Preparation.—***Tinctura Prini***, Tincture of Prinos (Bark, 8 ounces to Alcohol (76 per cent), 16 fluidounces). ***Dose***, 5 to 60 drops.

Action and Therapy.—Black alder is tonic, astringent and alterative,

and especially effective as the latter. Many alterative syrups contain black alder. The berries are cathartic and vermifuge. Tincture of black alder and specific medicine hydrastis form an excellent tonic in atonic dyspepsia, when debility is marked and there is a tendency to diarrhea.

PRUNUS VIRGINIANA.

The stem-bark of ***Prunus serotina***, Ehrhart or ***Prunusvirginiana***, Miller, collected in the autumn and carefully dried (Nat. Ord. Rosaceae). Woods of eastern half of the United States. ***Dose***, 5 to 60 grains.

Common Names: Wild Cherry, Wild Black Cherry Bark.

Principal Constituents.—***Amygdalin*** (acted upon by water yields hydrocyanic acid, oil of bitter almond, and glucose); ***emulsin*** (destroyed by heating), and tannic acid.

Preparations.—1. ***Specific Medicine Prunus***. ***Dose***, 5 to 60 drops.
2. ***Syrupus Pruni Virginianae***, Syrup of Wild Cherry. ***Dose***, 1 to 2 fluidrachms.

Specific Indications.—Weak, rapid circulation; continuous irritative cough, with profuse muco-purulent expectoration; cardiac palpitation from debility; cardiac pain; dyspnea; loss of appetite and gastric irritability.

Action and Therapy.—Wild cherry is an excellent sedative and tonic, quieting irritation of the mucosa, terminal nerves, and lessening violent cardiac action dependent upon weakness. When a tonic and sedative is desired that will not unduly excite the circulation, wild cherry is a most useful drug. As such it may be used in atonic dyspepsia, and in convalescence from fevers and inflammations, especially after pleurisy, pneumonia, and la grippe. While the syrup is an effectual and popular preparation, the cold infusion is better for these purposes.

Wild cherry in syrup is an admirable sedative for cough, acting much like hydrocyanic acid and even better, besides it is more controllable. For the cough of phthisis it is one of the most satisfactory agents, and the syrup is in common use as a vehicle for other cough remedies. In phthisis it not only relieves irritation and cough, but it gives a certain amount of power, and restrains colliquative sweating and diarrhoea.

Wild cherry may be used in most cases of irritation of the mucosa with or without hypersecretion in any part of the body—pulmonic, gastro-intestinal and renal.

Wild cherry is very efficient in uncomplicated palpitation of the heart, and where digitalis is required it lessens the irritative action of the latter upon the stomach. Wild cherry would be more valued if properly prepared. The cold infusion (sweetened, if desired) should be preferred; boiling temporarily destroys its value, and unless a good quality of bark, carefully preserved, is used, the syrup may have little value.

PTELEA.

The bark of the root of ***Ptelea trifoliata***, Linné (Nat. Ord. Rutaceae). A common shrub of the United States, especially west of the Alleghenies. ***Dose***, 5 to 30 grains.

Common Names: Wafer Ash, Shrubby Trefoil, Wing Seed, Hop Tree.

Principal Constituents.-Resins, a volatile oil, a berberine-like bitter, and ***arginine*** ($C_6H_{14}N_4O_2$).

Preparation.—***Specific Medicine Ptelea***. ***Dose***, 1 to 30 drops.

Specific Indications.-Asthmatic dyspnea; chronic diseases with constriction of chest and short breathing.

Action and Therapy.—Ptelea is regarded by some as second only to hydrastis as a tonic. It acts as a sedative to irritated membranes, and is said to be tolerated by the stomach when other tonics might aggravate. The field in which it has been mostly used is in convalescence from fevers, debility resulting from gastro-intestinal irritation, and in asthmatic seizures accompanied by a sense of constriction in the thorax.

PULSATILLA.

The recent herb of ***Anemone Pulsatilla***, Linné, and of ***Anemone pratensis,*** Linné, collected soon after flowering (Nat. Ord. Ranunculaceae). Southern Europe and Asia.

Common Names: Pasque-Flower, Passe-Flower, Meadow Anemone, Wind Flower.

Principal Constituents.—A yellow, acrid oil, yielding anemone camphor, a vesicating principle easily decomposing into ***anemonin*** ($C_{10}H_8O_4$) and ***isoanemonic acid***.

Preparation.—***Specific Medicine Pulsatilla***. Dose, 1/10 to 10 drops. (The usual form of administration: Rx Specific Medicine Pulsatilla, 5-30 drops; Water, enough to make 4 fluidounces. Mix. Sig.: One teaspoonful every 2 or 3 hours.)

Specific Indications.—Nervousness with despondency, sadness and disposition to weep, without being able to tell why, or to weep while asleep; unnatural fear; fear of impending danger or death; morbid mental excitation associated with physical debility; marked depression of spirits; insomnia, with nervous exhaustion; pain, with debility; headache, with nervousness, not dependent on determination of blood to the head; neuralgia in anemic nervous subjects; mental depression and gloom over reproductive wrongs and disturbances, as spermatorrhea, and tardy and insufficient menstruation (with sense of fullness and weakness in back and hips); nervous collapse, due to overwork, sexual indulgence, masturbation, or to the excessive use of tobacco; amenorrhea with chilliness and mental depression; dysmenorrhea, with gloomy mentality and chilliness; pain from exposure to winds; epiphora; styes; deep-seated heavy pain in the globe of the eye; jumping toothache from abscess near the dental pulp; stomach disorders from indulgence in pastries and fats; pasty, creamy, or white coating upon the tongue, with greasy taste; thick, bland, and inoffensive mucous discharges; alternating constipation and diarrhea, with venous congestion.

Action.-Topically applied, the fresh plant of pulsatilla is irritant, and, if kept long in contact with the skin, may vesicate. When chewed, it produces a benumbing sensation and tingling formication, somewhat like that produced by aconite or prickly ash. Taken internally in overdoses, it is a gastric irritant, producing a sense of rawness, burning pain in stomach, with endeavors to vomit, all accompanied by marked prostration. A sense of constriction and tightness of the chest, with chilliness, marked weakness, and some congestion, has been produced by large doses. Full doses depress the action of the heart, lower arterial tension, and reduce temperature. Sensory and motor paralyses have followed very large doses of pulsatilla, while toxic doses may produce mydriasis, stupor, coma, and convulsions. In medicinal doses, pulsatilla increases the power and regulates the action of the

heart, and gives a better character to the pulse rate, particularly slowing the irritable, rapid and feeble pulse due to nervous depression. It improves the sympathetic system and cerebral functions, and especially strengthens sympathetic innervation, this action being very marked in troubles of the reproductive organs of the male and female.

Therapy.—***External***. The value of pulsatilla has been emphasized in "jerking" or "jumping" toothache, usually due to the formation of a pus cavity near the nerve. Full strength specific medicine pulsatilla, or diluted one-half with water, is applied besides giving the drug internally. This treatment is also commended as "especially useful in inflammations caused by dead teeth, and the inflammatory, painful, and unpleasant conditions of the pulp cavity in those in which the nerve has been destroyed."

Internal. Though not of Eclectic origin, pulsatilla is one of the most important medicines in Eclectic therapy. For certain nervous phases, both in acute and chronic diseases, no remedy can exactly duplicate its action. It is most largely employed in nervous conditions of the debilitated, particularly women and children, in mental disorders, and in stomach derangements and disorders of the reproductive tract with debility and faulty nutrition of the nerve-centers. All through the indications for pulsatilla run depression and irritability with melancholy and sadness, and a disposition to look upon the dark side of life. With this gloomy mentality there is more or less of restlessness. The patient is easily inclined to weep, is unsettled and the mind wanders. Thought is concentrated with difficulty, the pulse is soft, open, and weak, and altogether the patient is miserable and despondent. Scudder, who introduced it into Eclectic practice, declared its most important use is to allay irritation of the nervous system in persons of feeble health, thus giving sleep and rest, preventing unnecessary expenditure of nerve force, and by this means facilitating the action of tonics and restoratives. He found it to be most certain in its action in feeble women and men who have become nervous from sedentary habits or mental overexertion, as well as in the nervousness and restlessness of masturbators, or persons addicted to the excessive use of tobacco. He also declared it the remedy for nervous women when there is debility and faulty nutrition of the nerve centers.

Pulsatilla, though a remedy of wide applicability, is particularly adapted to conditions in which the depressed mind is a prominent

factor. A gloomy mentality, a state of nerve depression and unrest, a disposition to brood over real or imagined trouble, a tendency to look on the dark side of life, sadness, mild restlessness, and a state of mental unrest generally denominated in broad terms "nervousness", are factors in the condition of the patient requiring pulsatilla. As stated before, the pulsatilla patient weeps readily, and the mind is inclined to wander-to be unsettled. The pulse requiring pulsatilla is weak, soft, and open, and the tissues have a tendency to dryness (except when the mucous tissues are discharging thick, bland material), and about the orbits the parts appear contracted, sunken, and dark in color. The whole countenance and movements of the body depict sadness, moroseness, despondency, and lack of tone. Hysteria of the mild and weeping form may be a symptom. The complex is one of nervous depression, the nutrition of the nerve centers is at fault. With such symptoms, pulsatilla may be confidently prescribed in the conditions and disorders enumerated in this article.

Pulsatilla may be given to induce sleep when there is great exhaustion and opiates are inadmissible. If the insomnia depends upon determination of blood to the brain, pulsatilla will not relieve, but when due to nervous exhaustion it is a prompt remedy to give rest, after which sleep obtains. Where sleep is disturbed by unpleasant dreams, and the patient awakens sad and languid, pulsatilla should be given.

Pulsatilla has a large field of usefulness in troubles incident to the reproductive organs of both sexes. As an emmenagogue, it serves a useful purpose in amenorrhea in nervous and anemic subjects, with chilliness a prominent symptom. When menstruation is suppressed, tardy or scanty from taking cold, or from emotional causes, pulsatilla is the remedy. In dysmenorrhea, not due to mechanical causes, and with the above-named nervous symptoms, few remedies are more effective. leucorrhea, with a free, thick, milky or yellow bland discharge and pain in the loins, and particularly in scrofulous individuals, calls for pulsatilla. It is useful in mild forms of hysteria, where the patient is weak and weeps, has fears of impending danger, and passes large quantities of clear, limpid urine, and menstruation is suppressed. The long-continued use of pulsatilla as an intercurrent remedy is accredited with curative effects in uterine colic, but it is of no value during an attack. Pulsatilla frequently relieves in ovaritis and ovaralgia with tensive, tearing pain. Sluggish, ineffectual, and weak labor-pains are sometimes remedied by this drug, though it is seldom

used for this purpose since more active agents have come into use. It frequently alleviates pain when dependent on or associated with debility, and sometimes when due to acute inflammation. In epididymitis and orchitis, whether due to gonorrheal infection or to metastasis from mumps, it is quite universally employed by practitioners of all schools of medicine. Here the dose should be large. The dark-red, congested, enlarged, and sensitive testicle indicates it. It relieves the pains of orchialgia, and subdues mammary swelling from the metastasis of mumps. Pulsatilla increases sexual power, but lessens morbid sexual excitement. It is especially valuable in relieving urethral irritation and consequent spermatorrhea and prostatorrhea. In these troubles it overcomes the nervous apprehension so frequently a troublesome feature. It also alleviates the nervous irritability accompanying or produced by varicocele. In gonorrhea, particularly of the chronic type, pulsatilla is of value when the urethral membrane is swollen. Many unpleasant conditions of the urinary apparatus are relieved by pulsatilla, as frequent but ineffectual attempts at urination, the bladder giving a sensation as if bloated; dribbling of urine from movement, the dysuria of pregnancy, and in involuntary micturition from colds or from nervous debility.

Pulsatilla is a useful remedy in headache of various types. It relieves frontal headache from nasal catarrh; nervous headache, particularly when due to gastric disturbances, with greasy taste; menstrual headache, with chilliness and suppressed menses; bilious and gastric headaches, of a dull and heavy character, with greasy taste and nausea; and headache due to uterine irregularities or to a rheumatic diathesis. These headaches are all of anemic character—the opposite of those relieved by gelsemium. Constipation in the hysterical female sometimes yields to nux vomica and pulsatilla, and the latter has a pleasing action in some forms of indigestion and dyspepsia. These are the cases in which there is a thick, creamy paste upon the tongue and a greasy taste. Such troubles are frequently brought about by indulgence in pastries and fatty food. Pain is not marked, but there is pyrosis and greasy eructations, gastric distention, uneasy gnawing sensations in the stomach, and chilliness may be a pronounced symptom. The patient is nervous, sad, and may have a soft, yellow diarrhea. For such cases pulsatilla is an excellent remedy. It is also said to relieve alternating constipation and diarrhea with venous congestion.

Though ordinarily not a remedy for acute inflammations (contraindicated in gastro-intestinal inflammation), there are some conditions where small doses of pulsatilla are beneficial when the usual symptoms calling for the drug are present. These are acute inflammation of the nose, fauces, larynx, or bronchi. It is especially effective in the secondary stage of acute nasal catarrh, when the naso-pharynx is affected and there is a sense of rawness and moisture, and an abundant discharge of thick, yellow, bland, inoffensive mucus or muco-pus. Pulsatilla often serves a good purpose in asthma superinduced by pregnancy, or by suppressed menses, and it favorably influences whooping-cough in properly selected cases. So-called "stomach cough" is frequently cured by pulsatilla. For the secondary stage of common colds, when the Eustachian tubes feel stuffed and occluded, with a moderate degree of deafness, pulsatilla alternated with gelsemium provides a most beneficial treatment.

Pulsatilla is a very important remedy to control the catarrhal symptoms of the exanthemata; it also allays the irritability frequently accompanying these disorders. In measles, it has done good service in checking the coryza and profuse lachrimation, as well as the dry, tight, painful cough, and when retrocession of the eruption has taken place, it has reversed this unpleasant condition. It relieves the nervous irritability in varicella.

Pulsatilla is a most efficient drug in real and imaginary cardiac affections. It has proved useful in cardiac hypertrophy and in dilatation of the venous heart. It is especially effective in functional heart disorders with giddiness, imperfect voluntary motion, impaired vision, and with a symptom described as a sense of pressure over the larynx and trachea, with imperfect respiratory movement, and sense of impending danger; these symptoms are not unfrequently associated with functional heart disease, dyspepsia, uterine disease, or over-excitation of the sexual system, and are generally very unpleasant and annoying. It often relieves that form of venous congestion which stops short of inflammation, as in threatened ovaritis, orchitis, varicocele, and crural phlebitis. Varicocele and other varicoses are sometimes improved by its administration with other indicated remedies. Its chief advantage, outside of some control over the venous structure, is the relief it gives from the nervous complications. It has been used to good advantage for the relief of the nervousness attending hemorrhoids, and has some control over the venous congestion causing them. Pulsatilla

gives prompt relief in earache, brought on by cold, wet, and exposure to winds. For this purpose it is the best drug we have used. There is an absence of fever, the pulse is open and soft, the child sobs, the face is pale, the tissues full and waxen, the pain is intense and frequently paroxysmal and tearing in character—evidently a neuralgic condition, for physical signs of local disturbance are seldom observed. In purulent otitis media, with thick, yellow, bland discharge, and impaired hearing and tinnitus aurium, pulsatilla is the indicated remedy.

One of the earliest uses of pulsatilla was for the relief of “amaurosis, cataract, and opacity of the cornea”, conditions in which the reputed value of pulsatilla is very much overrated. There is a condition, sometimes known as "nervous blindness", which has been benefited by pulsatilla, and this is probably that formerly referred to under the elastic term amaurosis. Pulsatilla has an excellent record as a remedy for hordeolum or “stye”. It also relieves promptly when the conjunctiva is hyperaemic and vision weakened, especially after reading, or from sexual abuse or sexual excesses, and in profuse lachrimation from exposure to winds or when in the wind. It should be used locally (10 drops to water, 2 fluidounces) and also given internally in small doses. In chronic conjunctivitis, with bland, yellow discharges, in scrofulous individuals, or due to the exanthemata, and in ophthalmia with like discharge, pulsatilla has been used with success. It relieves deepseated, heavy pain in the globe of the eye, and has been recommended in inflammation of the lachrymal sac.

Pulsatilla has been used with varying degrees of success in rheumatism, when the pains were shifting and relieved by cold and aggravated by warmth. Depression of spirits is here a prominent feature. It has also aided in restoring the flow of milk in agalactia in nervous and fear-depressed women, whose breasts were painful and swollen. The dose of specific medicine pulsatilla is from a fraction of a drop to ten drops, administered in water; of anemonin, 1/20 to 1/4 grain.

PYROLA.

The whole plant of ***Pyrola rotundifolia***, Linné (Nat. Ord. Ericaceae). Damp and shady woods in the United States. ***Dose***, 5 to 60 grains.

Common Names: Canker Lettuce, Shin Leaf, False Wintergreen.

Principal Constituents.—***Ericolin***, ***arbutin***, ***urson***, tannic, gallic and malic acids, etc.

Preparations.—1. ***Infusum Pyrolae***, Infusion of Pyrola (1 ounce to Water, 16 fluidounces). ***Dose***, 1 to 2 fluidounces.

2. ***Tinctura Pyrola***, Tincture of Pyrola (8 ounces to Alcohol (76 per cent), 16 fluidounces). ***Dose***, 1 to 60 drops.

Specific Indication.—Irritation of urinary tract.

Action and Therapy.—***External***. A splendid but much neglected agent in infusion, as a wash for sore throat and aphthous ulcerations of the mouth.

Internal. As it has similar properties to uva ursi and chimaphila and exerts a similar antiseptic action, it is of much value in urinary disorders with irritation and tendency to ulcerations and sepsis. The urine contains much mucus and sometimes blood.

QUASSIA.

The wood of ***Picrasmaexcelsa*** (Swartz), Planchon (Nat. Ord. Simarubaceae). A tall tree of Jamaica and neighboring islands. ***Dose***, 10 to 30 grains.

Common Names: Quassia, Quassia Wood, Bitter Wood.

Principal Constituent.—The bitter substance ***quassiin*** (quassin).

Preparations.—1. ***InfusumQuassiae***, Infusion of Quassia (1 drachm to 7 ounces of cold water). Dose, 1/2 to 2 fluidounces.

2. ***Specific Medicine Quassia***. Dose, 1 to 30 drops.

Action and Therapy.—Quassia is a bitter stomachic and tonic. A cold infusion (1 to 100 of cold water) used as an injection is one of the most useful agents to remove ascarides. An acidulated infusion may be employed to lessen the craving for alcoholics. For this purpose the wood may be extracted with vinegar and administered in drachm doses in a glass of water. Specific medicine quassia may be given in doses of one to thirty drops, in water, for impairment of the appetite in feeble and emaciated persons. Cold infusions of the chips are to be preferred to hot, as less extractive matter is drawn out.

Quassia is not without danger, and established doses must not be exceeded. Even rectal injections of it have caused collapse in a child. Having no tannin, quassia may be given with iron, if desired.

QUERCUS.

The bark of ***Quercus alba***, Linné (Nat. Ord. Fagaceae). Indigenous. Dose, 5 to 20 grains.

Common Names: Oak Bark, White Oak Bark.

Principal Constituent.—Tannic Acid (quercitannic acid).

Preparations.—1. ***Decoctum Querci***, Decoction of Oak Bark (Quercus 1 ounce, Water 16 fluidounces). Dose, 1 to 2 fluidounces; used chiefly locally.

2. ***Specific Medicine Quercus***. ***Dose***, 5 to 20 drops.

Specific Indications.—Relaxation of mucosa, with unhealthy discharges; ulcerations with spongy granulations.

Action and Therapy.—***External***. Oak bark depends chiefly for its virtues upon the tannin it contains. However, it sometimes proves more agreeably effectual than the acid when used in decoction or poultice upon ill-conditioned ulcers, with stinking, spongy granulations, in gangrene, as an astringent for relaxed uvula, with flabby or ulcerated sore throat, and as an injection for leucorrhea, prolapsed rectum and hemorrhoids. The bark of ***Quercus tinctoria***, Bartram (Black Oak), has similar properties, but is objectionable on account of its staining quality.

Internal. Oak bark is astringent. Combined with aromatics, as cinnamon or nutmeg, the decoction is often an effectual means of checking serous diarrhea and intestinal hemorrhages. In small doses it is a general tonic for debility, with tendency to relaxation of tissue and looseness of the bowels. In dysentery with a tendency to chronicity and not yielding readily to ordinary treatment the bowels may first be flushed by means of castor oil or magnesium sulphate, after which the decoction of oak bark may complete the cure.

RESINA.

Rosin, Colophony.

The residue left after distilling the volatile oil from the concrete oleoresin derived from ***Pinus palustris***, Miller, and other species of ***Pinus*** (Nat. Ord. Pinaceae). United States and Europe.

Description.—Amber-colored, brittle, sharp, angular, translucent fragments, usually covered with a yellow dust, and having a slight terebinthinate taste and odor. Freely soluble in alcohol, ether, benzene, glacial acetic acid and oils, both fixed and volatile; also by the dilute solutions of the hydroxides of the alkalies.

Preparations.—1. ***CeratumResinae***, Rosin Cerate (Basilicon Ointment). (Rosin, Yellow Wax, and Lard.)

2. ***EmplastrumResinae***, Rosin Plaster (Rosin Adhesive Plaster). (Rosin, Lead Plaster, and Yellow Wax.)

3. ***EmplastrumElasticum***, (Rubber Plaster, Rubber Adhesive Plaster). Rubber, resins, and waxes with a farinaceous absorbent filler, mixed and spread upon cloth or other fabric.

Therapy.—***External***. Rosin is used chiefly in ointment or plaster, and seldom internally. Rosin cerate is a useful application in sluggish ulcers, promoting granulation and healing.

RHAMNUS CALIFORNICA.

The bark of ***Rhamnuscalifornica***, Eschscholtz (***Frangulacalifornica***, Gray), (Nat. Ord. Rhamnaceae). Sparingly in northern California and more abundant southerly in the Sierras, and easterly, especially in Mexico and Arizona.

Common Names: California Buckthorn, California Coffee Tree.

Principal Constituents.—Probably similar to those of Cascara Sagrada.

Preparations.—1. ***Specific Medicine Rhamnus Californica***. ***Dose***, 10 to 30 drops.

2. ***DecoctumRhamniCalifornici***, Decoction of Rhamnus Californica (1/2 ounce to 16 fluidounces). ***Dose***, 3 to 6 fluidrachms every 3 or 4 hours.

Action and Therapy.—Rhamnus californica is cathartic and antirheumatic. It sometimes is indiscriminately gathered with cascara sagrada (***Rhamnus Purshiana***) and is known to coast dealers as “thin cascara bark.” As a domestic medicine it has long been used in rheumatic disorders, and its introduction into Eclectic medicine for

that purpose is due to Webster, who regards it as one of the best of antirheumatics. Given short of producing a laxative effect, he employs it (in the decoction, tincture, and the specific medicine) as the most positive remedy he has ever used for rheumatism and muscular pain of rheumatoid character. He also advises it in longstanding and obstinate dysmenorrhea, not requiring surgical rectification. The remedy may be administered for months, provided it is used short of catharsis.

RHEUM.

The denuded and dried rhizome and roots of ***Rheum officinale***, Baillon; ***Rheum palmatum***, Linné, and var. ***tanguticum***, Maximowicz, and probably other species of Chinese and Thibetan ***Rheum*** (Nat. Ord. Polygonaceae). Western and central portions of China and in Thibet. ***Dose***, 5 to 30 grains.

Common Names: Rhubarb, Rhubarb Root.

Principal Constituents.—***Chrysarobin*** ($C_{35}H_{26}O_7$) (the yellow coloring glucoside, chrysophan or rhein) yielding chrysophanic acid ($C_{15}H_{10}O_4$); the anthracene cathartic body ***emodin*** ($C_{15}H_{10}O_5$); erythroretin, phaeoretin, aporetin, and the astringing principle rheotannic acid ($C_{28}H_{26}O_{14}$); and quite a proportion of oxalate of calcium giving to rhubarb its grittiness.

Preparations—1. ***Specific Medicine Rheum***. ***Dose***, 1/10 to 60 drops.

2. ***Syrupus Rhei***, Syrup of Rhubarb. ***Dose***, 1 to 4 fluidrachms.

3. ***Syrupus Rhei A romaticus***, Aromatic Syrup of Rhubarb. ***Dose***, 1 to 4 fluidrachms.

4. ***Syrupus Rhei et Potassa***, Compositus, Compound Syrup of Rhubarb and Potassa (Neutralizing Cordial). ***Dose***, 1/2 to 4 fluidrachms.

5. ***Pulvis Rhei Compositus*** (Eclectic), Eclectic Compound Powder of Rhubarb. (Equal parts of powdered rhubarb, peppermint and bicarbonate of potassium). ***Dose***, 1/2 to 2 drachms.

6. ***Pulvis Rhei Compositus***, Compound Powder of Rhubarb (Gregory's Powder). (Rhubarb; Magnesium Oxide, and Ginger). ***Dose***, 5 to 60 grains.

7. ***Beach's Neutralizing Mixture***, Neutralizing Cordial, or Physic.-Take of rhubarb, pulverized, salaeratus, pulverized, peppermint plant, pulverized, equal parts. To a large teaspoonful add half a pint of boiling water; when cool, strain, sweeten with loaf sugar, and add a tablespoonful of brandy. (The original formula from Beach's ***American Practice***.) ***Dose***, 1 to 4 fluidrachms.

8. ***Locke's Neutralizing Cordial***. (Formula.) Take of coarsely ground rhubarb, peppermint herb, and potassium bicarbonate, of each three ounces; boiling water, four pints; diluted alcohol, one pint; essence of peppermint, one-half ounce; white sugar, two pounds. Macerate the rhubarb, peppermint, potassium bicarbonate in the boiling water for two hours (do not boil) in a warm place. Strain

and while still warm add the sugar; after the sugar is dissolved and the liquid is cold, add the diluted alcohol and the essence of peppermint (Locke). ***Dose***, 1 to 4 fluidrachms. (We have found that by adding the potassium salt to the strained infusion of the rhubarb and peppermint a clearer preparation is obtained.)

9. ***Glyconda***.—A sugarless preparation of Neutralizing Cordial, in which glycerin is the sweetening and preservative agent. Dose, 1 to 4 fluidrachms.

Specific Indications.—Gastric irritation, with elongated, reddened tongue, and nausea and vomiting; irritative diarrhea, with tenderness of abdomen on pressure; light-colored fecal discharges; gastro-intestinal irritation, with marked nervousness and restlessness, and screaming and convulsive muscular contractions. Sour-smelling discharges are relieved by small doses of neutralizing cordial or glyconda, while larger doses of either, or of specific medicine rheum or powdered rhubarb, are indicated for the relief of constipation with a sense of intestinal constriction and muscular contraction.

Action.—Rhubarb is stimulant to the gastro-intestinal tract, in sufficient doses increasing muscular contraction, and thus, rather than by increase of secretion, causing a cathartic action. This is probably due chiefly to the anthracene body, emodin. It affects the whole intestinal tract, especially the duodenum, and acts most certainly in the presence of bile, the secretion of which it probably promotes. The latter property, however, is still a point in dispute. Rhubarb usually purges in from four to eight hours and the stools are papescent and not watery, and of a yellowish-brown color (due to chrysophan). Their passage is attended with mild griping. The rapid absorption of the coloring matter imparts to the urine a yellow (if acid) or a carmine (if alkaline) color; the serum of the blood and mother's milk are stained yellow, and the sweat has a tawny hue. The cathartic effect of rhubarb is succeeded by a mild astringency due to the rheo-tannic acid, thus making the drug a calmative after a preliminary stimulating catharsis.

Therapy.—Rhubarb is an ideal laxative and cathartic according to the dose administered. In smaller amounts it is a gastro-intestinal stimulant and tonic, promoting the gastric secretions and insuring good digestion. As a laxative it is one of the best that can be used for children and womene—specially the pregnant woman. As the evacuations produced by rhubarb are neither watery nor debilitating, when a tonic laxative is required for the feeble and for old people, rhubarb cannot be improved upon.

In severe febrile or inflammatory affections of the alimentary canal it is usually contraindicated, but where there are enfeebled digestion and irritation, or where food causes distress and irregular bowel action, either diarrheal or constipating, its use is attended with excellent results. Aromatics mitigate its griping tendency. In lienteric diarrhea, and where fecal accumulations are to be removed, and as a laxative following parturition, rhubarb is perfectly safe and effective.

In the summer diarrheas of children, when necessary to clear the intestinal canal of slimy, acid, or other irritating material, whether there is diarrhea or not, and there is both stomachic and intestinal indigestion, laxative doses of syrup of rhubarb, or the aromatic syrup or, preferable to either, the neutralizing cordial, have a most happy effect, and where other laxatives might leave an irritable condition and prolonged diarrhea, rhubarb, through its mild after-astringency, calms the excited intestinal tract. Sometimes castor oil, which also cleanses and afterwards checks the bowels, may be given with these preparations if so desired. For the constipation of dyspeptics, with hepatic torpor, it may be given with podophyllin or aloes; and in ordinary constipation it is sometimes effective if administered in pill with soap, which, in a measure, prevents its after-constringing effect. Ten-drop doses of specific medicine rheum in a glass of cold water, taken before breakfast, may be effective in overcoming constipation. Locke advises the following during convalescence from delirium tremens: Rx Rhubarb, Leptandra, Gentian, each 1 drachm; Ginger, 2 drachms; Diluted Alcohol, 16 fluidounces. Macerate. Sig.: ***Dose***, One teaspoonful as required. Rhubarb is not a suitable agent where depletion is desired.

Rhubarb is an ideal summer gastro-intestinal remedy when not used as a laxative. It frequently is demanded in the practice of the specific medicationist to restrain bowel activity when the drug is administered in small doses. It thus controls diarrheal discharges due to gastro-intestinal irritation. When the tongue is red, long, narrow, and pointed, and the tip and edges reddened and the organ shows in its every fiber the signs of irritation—whether it be during summer complaint or in the papescent diarrhea of indigestion—it is a remedy of first importance. Here the dose should not exceed two grains of powdered rhubarb or two drops of specific medicine rheum every one-half or one hour until the character of the stools changes. An excellent

medium for such conditions is the neutralizing cordial or, when sugar is contraindicated, glyconda may be substituted.

Neutralizing Cordial.—Neutralizing Cordial is one of the very best correctives yet devised for disorders of stomach and bowels, caused by overfeeding or change of water. It has three especial qualities: Rhubarb, through its specific adaptability to irritation of mucous surfaces, makes the cordial the ideal gastric sedative, for in such cases there is marked irritation, as shown by the reddened and pointed tongue. With most of these cases there is a fermentative state, with sourish and burning eructations, and often the bowel discharges contain sour and fermented material. For this condition there is no more pleasing antacid and corrective than potassium bicarbonate, though should the tongue show more pallor than redness, sodium bicarbonate may answer a better purpose. The aromatic qualities of the cordial derived from the peppermint oil and herb make it grateful as a carminative, and render it especially pleasant for children. Full doses (4 fluidrachms) act as a laxative, smaller doses as a corrective of irritation and acidity.

The physician who has not an intimate acquaintance with Neutralizing Cordial, or the Compound Syrup of Rhubarb and Potassa, has failed to realize the richness and fullness of the therapeutic allies handed down by the fathers of our school. This preparation has been prepared under various formulas, but as we have stated many times, we prefer that based upon Beach's original formula. That which we employ with greatest confidence is Locke's formula, which contains rhubarb, potassium bicarbonate, peppermint herb, peppermint essence, alcohol, and sugar. However, all of the preparations known as neutralizing cordial are of high order and possess similar properties. In sufficient dose, usually a tablespoonful, all of them are efficient agents to clear the intestines of undigested and irritating material. In Eclectic practice they have largely supplanted the use of such agents as castor oil. They are useful to cleanse the intestinal tract in indigestion, both gastric and intestinal-and in fermentative and irritative conditions of the stomach and bowels. The remedy should be given freely until the color of the stools shows the characteristic color of the medicine. Then to tone the bowels and allay irritation it may be continued in smaller doses at less frequent intervals. On the other hand, if the cathartic effects are not desired no remedy will be oftener indicated to control irritative diarrhea. Here the dose should not be larger than one drachm. Neutralizing Cordial finds a useful field in diarrhea of

undigested aliment, in watery, copious diarrhea, in muco-enteritis, and in dysentery. Many physicians employ it as a vehicle for the administration of indicated remedies in stomach and bowel disorders. It is an ideal tonic to the stomach in the disorders of childhood, creates an appetite, and gives relief from pain and flatulence. The headache of indigestion, with sourish eructations, so common to children, is often cut short, as if by magic, by a laxative dose of Neutralizing Cordial. It is the most efficient remedy we have ever employed for diarrhea induced by change of drinking water and diet when travelling. Neutralizing Cordial is one of the best of the compounds handed down to us from early Eclectic pharmacy.

The representative sugarless substitute for neutralizing cordial is Glyconda, which many employ, not alone for the purposes named above, but as a vehicle for compatible medicines. For those who object to the presence of sugar in medicines, and particularly for those who are diabetically inclined, a glycerin preserved preparation has advantages. Where the tendency, even in the presence of the bicarbonate, is toward fermentation of the gastric contents, the glycerin preparation is sometimes to be preferred.

RHUS TOXICODENDRON.

The fresh leaves of ***Toxicodendronradicans*** (L.) Kuntze (***Rhusradicans***, Linné, ***Rhus Toxicodendron***, Linné) (Nat. Ord. Anacardiaceae) A common indigenous plant in fields, woods, and fence rows.

Common Names: Poison Ivy, Poison Vine, Poison Oak.

Principal Constituents.—A volatile ***toxicodendric acid***, and the poisonous ***toxicodendrol***, a non-volatile oil soluble in alcohol, and forming an insoluble lead compound with lead acetate, hence the use of an alcoholic solution of the lead salt to remove it and prevent poisoning or its extension. It is allied to cardol found in cashew-nut.

Preparation.-***Specific Medicine Rhus***. ***Dose***, 1/20 to 5 drops.

Specific Indications.—The chief and most direct indication is the long pointed tongue with prominent papillae, associated with burning heat, and redness and great unrest. Others are: The moderately quick, small, sharp pulse, sometimes wiry, sometimes vibratile; great restlessness with or without vomiting; child starts from sleep with a shrill cry as if

from fright; tongue red and irritable, exhibiting red spots; strawberry tongue; pain over left orbit; burning pain; rheumatic pain aggravated by warmth; pinched countenance; burning pain in the urethra with dribbling of urine; acrid discharges from the bladder or bowels; tympanites; brown sordes; bright, superficial redness of the skin with burning, itching, or tingling; red glistening erysipelas, with burning pain; redness of mucous surfaces; conjunctival inflammation with pain, photophobia, and burning lachrimation; inflammation with bright-red tumid surfaces and deep-seated burning pain; tumid red swellings; inflammation with ichorous discharges, the tissues seemingly melting away; old ulcers with shining red edges; induration of the submaxillary glands.

Action and Toxicology.—Internally, administered in small doses, Rhus Toxicodendron is slightly stimulant, increasing the renal and cutaneous secretions, and proving feebly laxative. Employed in paralytic states it is reputed to have effected a return of sensation and power of movement, the good effects being ushered in with a sensation of pricking and burning, with twitchings of the affected parts. Large doses occasion stupefaction, or a sort of intoxication, exhibited by vertigo, impairment of the special senses, pupillary dilatation, chilliness, sickness at the stomach with thirst and burning pain, and a feeling of constriction in the temporal regions. The pulse becomes slow, irregular and small, the activity of the skin and kidneys increases, weakness, trembling, and fainting occur, and sometimes convulsions ensue. A pint of rhus berries induced drowsiness, stupor, delirium, and convulsions in two children who partook of them. The infusion of the root taken internally is asserted to have produced the characteristic local eruptions, besides producing a harsh cough, scanty urine, and severe gastrointestinal symptoms.

Locally, rhus is a powerful irritant poison. The toxic manifestations produced by the different species are of precisely the same nature, differing only in degree of intensity. Rhus Toxicodendron ranks next to poison dogwood (***Rhus venenata***) in point of virulence. While locally poisonous to some persons, others are totally unaffected by it. Many are but mildly poisoned by it; many more, however, show serious evidence of its great activity. Contact is not always necessary to obtain its effects. Indeed, many individuals apparently are poisoned merely by exposure to an atmosphere contaminated with the toxic exhalations of the plant. This is especially true when the air is heavy and humid, or when the

susceptible individual is freely perspiring. Alcoholic solution of the toxic principle retains its virulence for many years (Johnson). The dried leaves are, as a rule, inert.

A singular feature connected with rhus poisoning is its recurrence from month to month, and from year to year, even when the affected individual is far remote from all exhalations of the plant. This was early noted by Barton, who personally experienced such recurrence for five successive years-a portion of which time was passed in Europe far from proximity to the plant in question. We have also observed this phenomenon. The smoke from burning rhus wood was noticed as early as 1720 by Sherard, Wangenheim, and Kalm, to produce poisonous effects. It appears that horses eat the plant with impunity (Barton). According to William Bartram, they are very fond of the leaves. Cows are wholly unaffected by the ingestion of the plant. Thunberg observed that sheep ate of the leaves of ***Rhus lucidum***, a similar species, without harm. To dogs and guinea pigs, on the other hand, poison vine is fatal. The statement that the infusion of the leaves was administered to consumptives with non-poisonous results may seem contradictory, but we cannot but believe that a portion of the poisonous principle is volatile, in spite of the assertion that non-volatile toxicodendrol is the toxic agent, and consequently driven off in heating.

The nature of poisoning by rhus has always partaken somewhat of the mysterious, and it has been the subject of much speculation. Various reasons have been assigned as to why it poisons at all, and as to why it affects only certain individuals. It has been customary to attribute the deleterious effects to emanations from the living plant. Later, Prof. Maisch announced a volatile substance of acid character as the offender, and named it toxicodendric acid. Still later, a bacterium was charged with creating the mischief. The latter cause, however, has now been satisfactorily disproved. An oil has now been isolated, and this, even when purified, excites exactly the same form of dermatitis as the growing plant. This discovery was made in 1895 by Dr. Franz Pfaff, of Harvard University. It is present in every part of the ivy plant, and even the dried wood is said to retain it. It has been named toxicodendrol, and is asserted to be in reality the only tangible substance found thus far to which may be attributed the toxic effects of the vine. Still, this does not explain why individuals are poisoned when not in contact with the plants. Alcohol freely dissolves this oil, but water, as with oily bodies, does not, nor does it wholly remove it from the skin; hence the

reason why washing after contact with ivy does not prevent the appearance of the characteristic eruption. Experimentation (see V. K. Chestnut, ***United States Yearbook of Department of Agriculture***, 1896, p. 141) has shown that if the oil be placed upon the skin, and immediately removed with alcohol, but slight effects are observed. The longer the interval, however, the more pronounced the effects become. In all, the effects were less marked than when no such treatment was given. From the fact that several portions of the skin could be impressed without coalescence of the areas, it has been concluded that the action of the oil is wholly local, and that the poison does not enter the blood. We are not, however, satisfied with this view of the matter, for if so, how are we to explain the recurrence of the trouble after weeks and months, and even years, in persons who for some time have not been near the plants or in the neighborhood of their growth?

The local effects of rhus are well known. Briefly stated, it occasions an eczematous, sometimes erysipelatoid, inflammatory eruption, characterized by intense itching, redness, and tumefaction, followed by burning pain, sympathetic febrile excitement, and vesication. The vesicles are at first small, closely aggregated in characteristic patches, and filled with a watery fluid; sometimes they become yellow, as if pus were present. Finally, as they mature, they rupture, when a yellow scab forms. The tongue is coated white, and headache and delirium are often symptoms. The effects are observable a short time after exposure to the poison, the affection usually spending its force in the course of four to five days, and is followed by desquamation of the cuticle. The face and genitalia seem to be favorite localities for the most pronounced swelling to appear. One case of poisoning by Rhus venenata came under our observation, in which the swelling of the face was so great as to wholly obliterate the features, giving to the individual a swine-like, rather than human, appearance.

Treatment.—Domestic medication, in the shape of bruised ***Impatiens pallida*** and ***fulva*** (jewel weeds) gave prompt relief. Lack of space forbids more than the partial enumeration of the many remedies that have been extolled for the cure of this malady. The chief, however, are lobelia (infusion), veratrum, gelsemium, hamamelis, grindelia, stramonium, eupatorium, serpentaria, lindera, sassafras bark, dulcamara, oak bark, tannic acid, alnus (boiled in buttermilk), carbolized olive oil, sodium bicarbonate, borax, alum curd (especially to be used near the eyes), and, perhaps the best of all, solution of

ferrous sulphate (green vitriol) . Sugar of lead (lead acetate) has long been a favorite agent for the relief of this trouble, but as it has most frequently been applied with water, it has very often failed to give relief. It has now been shown that a solution in weak alcohol (50 to 75 per cent) often gives immediate and permanent relief. Occasionally, zinc and copper sulphates, oxalic acid, potassium chlorate, and other salts are effectual. Sodium carbonate, sodium sulphate, chlorinated lime, weak ammonia solution, and lime-water have been similarly employed. Echafolta has recently been extolled in this affection.

In our opinion, the following are among the best:

Aqueous solution of sodium salicylate and colorless hydrastis, freely applied. Aqueous solution of specific medicine lobelia., to which is added a little glycerin. An alcoholic solution of lead acetate sometimes relieves promptly. An aqueous solution of ferrous sulphate is excellent. It has the disadvantage of staining. A weak aqueous solution of potassium permanganate often relieves remarkably, but it, too, stains the skin and linen.

If obtainable, fresh alder bark (***Alnus serrulata***) in decoction gives quick relief in many cases.

Another effective application is the so-called “Eclectic Wash” composed of lobelia, baptisia and zinc sulphate, a preparation which is now marketed under the name “Citcelce”.

In every instance, if much skin is involved, the diet should be light and cooling, and the bowels should be kept well opened to relieve the kidneys of some of the extra work put upon them through insufficient cutaneous action. In fact all treatment should be accompanied by a light, cooling diet, and cooling laxatives or diuretics.

Therapy.—Rhus is a medicine for nervous irritation, nervous tension, and the typhoid state. Its range of application is wide but distinct. Acting primarily and most pronouncedly upon the nervous system, it proves secondarily an ideal sedative to control excited circulation. The action of rhus is best understood, as with other well-worked-out specific medicines—by its fitness for conditions rather than for disease-condition groups which we know as particular diseases. It is especially of great value in children's diseases, and as far as our

observations go is less required in patients past fifty years of age, except as a stimulant after paralytic attacks. Its value in irritative conditions of the brain and sympathetic nervous system, as well as in disorders of the gastro-intestinal tract, is very apparent, especially 'in the summer bowels affections of the young. It is a remedy best adapted for infants, young children, adolescents, and for those in the prime of manhood and womanhood.

The patient requiring rhus has a small, moderately quick and vibratile pulse, especially showing sharpness of stroke and associated with burning sensations. There is always a peculiar state of erethism which indicates it. The tongue is long and narrow, with marked redness, or reddened edges and tip, and prominent papillae, clearly disclosing a state of decided irritation and involvement of the brain centers. There may be only gastric irritability, there may be headache, there may be a jerky condition bordering closely upon a convulsive state, there may be delirium. The most noticeable symptom, however, is the great nervous unrest displayed, the little patient being excessively nervous and explosive. In this respect it somewhat resembles the great unrest which gelsemium relieves, but the latter is usually accompanied by bright eyes and contracted pupils and high temperature. The gelsemium patient is hot and agitated and the mental excitement is great. With rhus the nervousness takes on the form of twitching, jerking, and seems motor rather than -mental alone. The rhus patient sleeps fretfully and disturbedly, frequently starting suddenly from out its slumbers, and uttering a sharp, shrill cry, as if in fright—the brain cry (***cry encephalique***)—which, once heard, will never be forgotten. For the condition which this cry announces no agent is equal to rhus. Brain cry is often heard in grave disorders, as typhoid fever and meningitis. The rhus patient may have some elevation of temperature, or have normal or subnormal heat. He is jerky, apprehensive, but when very ill, apathetic. His secretions, unless it be a diarrhoea, are in abeyance. His mouth is dry and the tongue is long, narrow, red at tip and edges, and inclined to dryness. In grave disorders indicating a dissolution of the blood there is a marked glutinous character to the secretions of the mouth, or they may be nearly absent and replaced by dry, black and fetid sordes. In this will be recognized the "typhoid state".

The circulatory disturbance requiring rhus upon which the nervous phenomena chiefly depend is usually localized and not general; small

areas of the brain or n erve centers only may have a disturbance of the blood supply. As a rule the marked restlessness is all out of proportion to the apparent circulatory derangement. Frontal pain, sharp in character, is a prominent indication for this drug. The rhus tongue is reddened on the tip and edges, and even may take on the strawberry character, typical of gastric irritability, typhoid, and scarlatinal states. Associate this with the kind of pulse mentioned, and with tympanites, brown sordes, and reddened mucous surfaces, and the indication is still more direct. Discharges of an acrid character, and ichorous flow from tissues which seem to disappear by mere drainage, are further guides to its use. It is a certain remedy for vomiting when the tongue is of the kind above referred to. In fact, great unrest with vomiting is one of the most direct indications for its selection.

Rhus is of value in gushing diarrhoea, with or without vomiting. It has served well in cholera infantum with copious gushing, watery stools, both to control the discharges and to relieve irritability. In muco-enteritis it may be used to alleviate nervous disquietude, and to some extent to restrain the evacuations. During dentition it is extremely useful when the nerve stress borders upon the convulsive, but for the fretful and peevish and worn-out, teething patient matricaria is the better drug.

Rhus is a drug of the very greatest value in typhoid fever. We have successfully carried many cases of enteric fever through with no other medicine than rhus-the indications being the dry tongue, low muttering delirium, sordes on the lips and teeth, and diarrhoea. Should the urine become suppressed its use should be stopped until renal activity is improved. In typhoid dysentery, fortunately now rare, it is often serviceable when associated with the head symptoms indicating rhus. Nor should rhus be overlooked in the treatment of remittent and intermittent types of fever showing a typhoid element.

Rhus is frequently a remedy for pain. The more burning in character the better it relieves. Thus it relieves deep and superficial neuralgic and neuritic pains, the pain of pleurisy, and that of cystitis. Rhus is an aid, seldom a master, in acute rheumatism, but it helps to control pain when of a burning character, and the surfaces present an erysipelatoid redness. There is swelling, tension, and a glistening skin. When rheumatism is aggravated by the warmth of the bed, rhus appears to be indicated. Acute cases are more benefited than so-called chronic

rheumatism, though it is especially useful in both to control restlessness. In toothache not due to caries, occurring in a rheumatic subject, rhus often relieves. These cases are said to be aggravated by warmth or by warm liquids. There are two forms of rheumatism especially benefited by rhus, whether they are acute or chronic. One is that induced by dampness and having pain of a subacute type; the other, so-called rheumatic involvent of the fibrous tissues of the body-the tendons, fasciae, ligaments, and muscle sheaths. The latter cases are probably not rheumatic, but due to toxic impression through retained poisons which impress the nervous system and produce pain. Only indifferent results attend its use in lumbago-though it should be tried when general rhus indications are present. Administered for a long period in small doses, rhus is one of the most satisfactory drugs for the articular stiffness resulting from rheumatic inflammation.

Rhus is frequently administered to relieve headache. That occurring in the frontal region is most amenable. Many contend that left-sided headache is that in which it is indicated, but we have never been able to verify this contention. With the rhus tongue and sharp stroke of the pulse and nervous tension present, we have found it to act equally well on either side of the head, or for that matter, upon any part of the body. The same may be said in neuralgia, whether in sciatic, facial, inter-costal, or other forms. When it does relieve headache and neuralgia it usually acts promptly.

Rhus is a valuable aid in pneumonia, bronchitis, la grippe, and phthisis, when the patient is extremely irritable and suffers from gastric irritation. With the small wiry pulse as a guide it often controls restlessness and delirium in these disorders and in adynamic fevers, which are probably caused by irritation and local hyper-vascularization of limited areas in the cerebral and other nerve centers. It is indicated in typhoid pneumonia, with red, glazed tongue, and offensive muco-purulent expectoration. Uncontrollable, dry, spasmodic, and tickling cough is frequently relieved by it.

In the exanthemata rhus appears to exert a special antagonizing influence, for which it may be given in scarlatina and measles where the vital powers are greatly depressed, and in variola, with livid color of the surface and foul discharges.

Rhus has been employed successfully in paraplegia without marked

organic lesion, and in paralysis of the bladder and of the rectum. In paralytic states, however, it is usually of little value except in those conditions which follow attacks of rheumatism. We have, however, found it of great value in restoring power after hemiplegia and paraplegia. It should be given in liberal doses for a continued length of time. Its efficiency in sciatica, however, is admitted by some who think the drug practically valueless as a medicine.

Rhus is a remedy in the various disorders of the skin presenting the characteristic rhus indications—redness, intumescence, and burning. For vivid, bright-red, glistening erysipelas, especially when confined to the upper part of the face, with marked puffiness, it is one of the most successful of remedies. In fact in acute inflammations of the skin it is often more serviceable than aconite and veratrum. It is of great value in herpes where there are burning, itching, and exudation of serum. Eczema, pemphigus, and many irritable and inflammatory skin affections are relieved by it when redness, intumescence, and burning are prominent symptoms. It frequently proves the indicated drug in urticaria and functional pruritus. Erythematous and erysipelatous inflammation of the vulva, with burning pain, and the itching and vulval irritation following micturition, are often permanently relieved by rhus. Tumid, reddened, and glistening enlargements, and ulcerations with red glistening margins, syphilitic or nonsyphilitic, likewise call for rhus. In the ulcerative forms the parts seem to melt away without sloughing. It is of much value in parotitis, and in swelling of the submaxillary gland with great induration few remedies are better (Locke). Its constitutional effects are often manifested in slowforming carbuncle and carbunculous furuncles. By some rhus has been used internally to hasten the cure of cutaneous rhus poisoning. Of this antitoxic power over poisoning by itself we have never been satisfactorily convinced.

In ocular therapeutics rhus is considered by many Eclectic oculists as an important drug. It is sometimes administered to prevent inflammatory action after cataract operations. Palpebral edema with marked redness is said to be relieved by it, while neuralgic and other pains in the globe of the eye, and aggravated by motion and warmth, often vanish under its use. Acute and subacute forms of conjunctivitis are relieved by it on account of its special affinity for the blood vessels of the orbit. In the catarrhal ophthalmia of scrofulous children with strongly inflamed palpebral edges and conjunctivae and marked

photophobia and burning lachrimation, the action of the remedy is decided and prompt. There is usually a sensation as of foreign particles, such as sand, etc., in the eye.

The proper dose for specific effects, and it is scarcely employed in any other manner, is the fraction of a drop of specific medicine rhus, thus; Rx Specific Medicine Rhus, 5-15 drops; Water, 4 fluidounces. Mix. ***Dose***, One teaspoonful every hour in acute disorders; four times a day in chronic affections. Rhus should, as a rule, be given unmixed with any ingredient but water.

RHUS AROMATICA.

The bark of the root of ***Rhusaromatica***, Aiton (Nat. Ord. Anacardiaceae). A small shrub of the rocky regions of eastern United States. ***Dose***, 5 to 60 grains.

Common Names: Fragrant Sumach, Sweet Sumach.

Principal Constituents.—Volatile and fixed oils, tannin, and several resins.

Preparation.—***Specific Medicine Fragrant Sumach***. ***Dose***, 5 to 60 drops.

Specific Indications.— "Stools profuse, skin cool and sallow, pulse small and feeble, loss of flesh, abdomen flabby, tongue pale, trembling and moist, trembling in lower limbs; general sense of lassitude and languor" (McClanahan). Painless diarrhea nocturnal enuresis, from weakness of sphincter vesicae; and malarial hematuria.

Action and Therapy.—Rhus aromatica is a remedy for excessive discharges of urine and painless but profuse forms of diarrhoea. It is also serviceable in some forms of passive hemorrhage, particularly malarial hematuria, a disorder quite prevalent in the Southern States. Occasionally it will serve a useful purpose in purpura hemorrhagica and in very mild cases of hemoptysis of phthisis, but is a better agent for the diarrhea and night sweats of that disease.

The principal use of fragrant sumach is to control bedwetting in children with weak bladder. In some instances its action is more satisfactory than that of any other drug; in others it fails. When irritability of the urinary passages is due to sphincteric weakness it is usually successful; when due to colds, worms, and various other extraneous causes it is likely to prove ineffectual. Polyuria is one of the

conditions markedly-improved by this drug, and some have thought it to have a restraining effect both upon the hypersecretion of urine and the output of sugar in diabetes. Apparently it is only in exceptional cases that it displays this power, and too much reliance should not be placed upon it in severe cases. As an aid to control some of the phases of diabetes, as excessive urination, it should be used in conjunction with other approved methods. While chiefly of value in the enuresis of children, it sometimes proves of service in that of the elderly, and especially when there is much irritation, occasional passages of bloody urine, and evident relaxed habit of the urinary tract. It is sometimes useful in chronic, painful, vesical catarrh. It is also useful in chronic bronchitis with profuse blood-streaked expectoration.

Fragrant sumach often restrains diarrhoea of the free and painless type, notably in cholera infantum. In all disorders fragrant sumach should not be used where there is inflammation. The drug is best dispensed in glycerin as follows: Rx Specific Medicine Fragrant Sumach, 1/2 fluidounce; Glycerin, 3 1/2 fluidounces. Mix. Sig.: From one-half to one teaspoonful, in water, every three or four hours.

RHUS GLABRA.

The fruit, leaves and root bark of ***Rhus glabra***, Linné (Nat. Ord. Anacardiaceae). Common in thickets in the United States and Canada. ***Dose***, 1 to 30 grains (bark).

Common Names: Smooth Sumach, Upland Sumach, Pennsylvania Sumach.

Principal Constituents.—A large amount of tannin abounds in the bark and leaves; resin (bark); tannic and gallic acids, malic acid and malates, volatile oil, and red-coloring matter (fruit).

Preparation.—***Fluidextractum Rhois Glabrae***, Fluidextract of Rhus Glabra. ***Dose***, 5 to 60 drops.

Specific Indications.—Relaxed mucosa, with unhealthy discharges; mercurial ulcerations; aphthous stomatitis; spongy gums; flabbiness and ulceration of tissues; ulcerative sore throat with fetid secretion.

Action and Therapy.—***External***. All parts of the smooth sumach are astringent and antiseptic and of much value in flabbiness of tissue, with tendency to ulceration and unhealthy secretion. An infusion of the fruit provides an excellent gargle for fetid sore throat and a wash for

aphthous ulcerations. It is a useful drug in decoction of the bark, infusion of the berries, or in fluidextract wherever a mild and deodorant astringent is required; especially is it serviceable in the spongy bleeding gums of scorbutic patients and that of hemophiliacs.

RUBUS.

The bark of the root of ***Rubus villosus***, Aiton; ***Rubuscanadensis***, Linné; and ***Rubus trivialis***, Michaux (Nat. Ord. Rosaceae). Wild and cultivated in the United States. Dose, 5 to 60 grains.

Common Names: (1) Blackberry; (2) Low Blackberry; (3) Low-bush-Blackberry.

Principal Constituents.—Tannin. Fruits contain citric and malic acids; the glucoside ***villosin*** (in ***Rubus villosus***) a body similar to saponin, and about 20 per cent of tannin.

Preparations.—1. ***Specific Medicine Rubus***. ***Dose***, 5 to 60 drops.
2. ***Syrupus Rubi***, Syrup of Black Raspberry. ***Dose***, 1 to 2 fluidounces.

Specific Indication.—Gastro-intestinal atony, with copious watery and pale feces.

Action and Therapy.—The decoction of rubus is a mild and agreeable astringent in watery diarrheas, especially in children, when the stools are clay-colored or pale. There is marked enfeeblement of the stomach and bowels, and the child is fretful, has no appetite, and there is marked pallor of the skin. The syrup or a spiced cordial of the bark and another of the fruit have been used largely in domestic practice to control intractable diarrheas. They act best after a thorough purging with castor oil or similar cathartic has been resorted to. ***Rubus strigosus*** (Red Raspberry) has similar uses.

RUBUS IDAEUS.

The fruit of ***Rubus Idaeus***, Linné (Nat. Ord. Rosaceae). Cultivated.

Common Name: Raspberry.

Principal Constituents.—Malic and citric acids, laevulose, 4.6 per cent and dextrose (2.5).

Preparation.—***Syrupus Rubi Idaei***, Syrup of Raspberry (chiefly a vehicle).

Action and Therapy.—An infusion of the leaves is useful in the diarrhea of relaxation, with copious watery discharges. The fruit as prepared in a syrup—Syrupus Rubi Idaei—is highly prized as a flavored vehicle for medicines and for the beautiful color it imparts to pharmaceutical mixtures. Diluted and iced it forms an agreeable acidulous drink for fever patients. A refreshing fever drink is also prepared by mixing equal parts of syrup of raspberry and vinegar and diluting with water to taste.

RUMEX.

The root of ***Rumex crispus***, Linné (Nat. Ord. Polygonaceae). A common weed introduced from Europe, and found abundantly in this country in waste places, among rubbish, and in cultivated grounds. ***Dose***, 5 to 60 grains.

Common Name: Yellow Dock.

Principal Constituents.—Yellow Dock has not been satisfactorily analyzed.

Preparation.—Specific Medicine Rumex. Dose, 1 to 60 drops.

Specific Indications.—Vitiated blood with chronic skin disorders; low glandular and cellular deposits with tendency to indolent ulcers; feeble recuperative power; chronic sore throat, with glandular engorgement and hypersecretion; cough, with shortness of breath and praecordial fullness; dry, irritative laryngo-tracheal cough; stubborn, dry summer cough; nervous dyspepsia, with epigastric fullness and pain extending into the chest.

Action and Therapy.—Rumex is decidedly alterative and might be used more extensively for that purpose. It should especially be brought into requisition in depraved states of the body fluids with tendency to chronic skin disorders, with glandular engorgement, tendency to ulceration, and slow recuperative powers. It is especially valuable in strumous patients with low deposits in the cellular and glandular tissues which break down easily but are very slow to repair. In small doses the specific medicine is also useful in nervous dyspepsia with epigastric fullness, and pectoral pain from gaseous distention of the stomach. It is also serviceable in laryngeal irritation, with cough of the types alluded to under Specific Indications.

RUTA.

The leaves and unripe fruit of ***Rutagraveolens***, Linné (Nat. Ord. Rutaceae). A half shrubby perennial introduced into American gardens from Europe. ***Dose***, 1 to 10 grains.

Common Names: Rue, Garden Rue.

Principal Constituents.-A volatile oil (***Oleum Ruta***), ***coumarin***, the yellow glucoside ***rutin*** (rutic acid), and a volatile alkaloid.

Preparations.—1. ***Oleum Rutae***, Oil of Rue. ***Dose***, 1 to 6 drops.
2. ***Tinctura Rutae***, Tincture of Rue (fresh herb, 8 ounces; Alcohol, 16 fluidounces). ***Dose***, 1 to 10 drops.

Action and Therapy.—Rue is a gastro-intestinal irritant and a poison to the nervous system, capable, in large doses, of causing death. It is emmenagogue and anthelmintic. Acting strongly upon the uterus, it may be given in amenorrhea due to atony, but the dose must be small lest an inflammatory action be induced. It is a good vermifuge, though its disagreeable taste is a decided obstacle to its use. It has been suggested as a remedy for irritability of the urinary tract when due to atony, and in nervous disorders of a spasmodic type. On account of its ecbolic qualities it should not be administered during pregnancy.

SALIX NIGRA.

The bark and aments of ***Salix nigra***, Linné (Nat. Ord. Salicaceae); United States, particularly along streams in New York and Pennsylvania.

Common Names: Black Willow, Pussy Willow.

Principal Constituents.—The ***bark*** contains tannin and ***salicin***.

Preparation.—***Specific Medicine Salix Nigra Aments***. ***Dose***, 10 to 60 drops.

Specific Indications.—Sexual erethism, irritability, and passion; libidinous thoughts; lascivious dreams; nocturnal emissions; mild nymphomania, erotomania and satyriasis; cystitis, urethral irritation, prostatitis, and ovaritis, and allied disorders following in the wake of sexual abuse or excesses.

Action and Therapy.—Salix nigra is a remedy of great value in a

restricted field in therapeutics. While the bark and its preparations have long been recognized as possessing antiseptic and detergent properties, the use of the aments is of more recent date and confined almost wholly to the generative organs. To be of value, however, only the freshly gathered aments should enter into its preparations to insure medicinal results. Above all other uses, its greatest value is in that form of sexual erethism and irritability due chiefly to an irritative condition of the urethra resulting in spermatorrhea, and less in such sexual perversions as give rise merely to physiological losses; nor can it take the place of the knife when losses are due to conditions requiring surgical correction. In well indicated cases it proves a decided and valuable anaphrodisiac and tonic. The mental emotions play a lesser part in the disorders requiring salix nigra, but when the genital tract is sensitive, when the bladder becomes involved, and when sexual excesses and masturbation are the causal factors, it is a remedy of first importance. Secondarily, it is not without value where the mentality of the victim is at fault, but will be found to moderate passion and strengthen the reproductive tract when pollutions are the result of sexual intemperance, libidinous thoughts by day, and lascivious dreams by night.

SALVIA.

The leaves of ***Salviaofficinalis***, Linné (Nat. Ord. Labiateae). A native of Europe, but cultivated extensively in kitchen gardens. ***Dose***, 5 to 30 grains.

Common Names: Sage, Garden Sage.

Principal Constituents.—An aromatic, volatile oil (oil of sage), the chief principle of which is thujone (50 per cent).

Preparation.—1. ***Tinctura Salviae***, Tincture of Sage (Sage, 8 ounces; Alcohol (76 per cent), 16 fluidounces). ***Dose***, 1 to 60 drops.

2. ***Infusum Salviae***, Infusion of Sage (1/2 ounce to Water, 16 fluidounces). ***Dose***, 1 to 4 fluidounces.

Specific Indications.—Skin soft and relaxed; extremities cold and circulation feeble; urine of low specific gravity; colliquative sweating.

Action and Therapy.—Sage is a feeble tonic, astringent, and diaphoretic. The infusion provides a good gargle for ulcerated and

inflamed throat and for relaxation of the uvula. Taken warm, it produces free sweating, while cold sage tea, by strengthening the cutaneous functions, restrains excessive sweating, and for this purpose is highly valued in phthisis and other wasting diseases. It acts best when the skin is soft and relaxed, the extremities cold, and the circulation weak. It is of considerable value in gastric debility with flatulence and has proved a good tonic in spermatorrhea. A good indication for salvia is urine of low specific gravity.

SAMBUCUS.

The flowers and the fresh inner bark of ***Sambucuscanadensis***, Linné (Nat. Ord. Caprifoliaceae). An indigenous shrub growing in low, damp grounds and waste places. ***Dose***, 5 to 60 grains (bark).

Common Names: Elder, American Elder.

Principal Constituents.—***Valeric acid***, tannin, volatile oil, and a resin.

Preparation.—***Specific Medicine Sambucus***. ***Dose***, 1 to 60 drops.

Specific Indications.—In skin diseases when the tissues are full, flabby, and edematous, the epidermis separates and discharge of serum is abundant, forming crusts; indolent ulcers, with soft edematous edges; mucous patches with free secretions; post-scarlatinal dropsy; low deposits in or depravation of tissues.

Action and Therapy.—***External***. An ointment of sambucus has been successfully used in weeping eczema, and in old ulcers as a stimulant when the tissues are full and flabby and attended with a discharge of serum.

Internal. Sambucus is stimulant; the flowers in warm infusion are diaphoretic; the cold infusion, diuretic and alterative. Preparations of the green inner bark are excellent agents in edematous conditions, especially in skin diseases showing a tendency to ulceration, with watery discharges and boggy edges. The epiderm separates easily and the weeping secretions form crusts. Probably its most direct indication is depravation of tissue, with edema and deposits of cacoplastic material. Sambucus is useful in catarrhal nasal obstruction in infants and in the dropsy following scarlet fever. It deserves further study in edematous conditions. A strong decoction of the fresh inner bark of the

root (bark 1 ounce, water 32 fluidounces, boiled down to 16 fluidounces) in doses of two to four fluidounces, will sometimes promptly empty the tissues of dropsical effusion and act slightly upon the bowels.

SANGUINARIA.

The rhizome and roots of ***Sanguinariæ canadensis***, Linné (Nat. Ord. Papaveraceae), gathered in autumn after the leaves and scape have died to the ground. Found in woods and clearings and along old fences in North America from Canada to the Gulf of Mexico and from the Atlantic to the western boundary of the States bordering the west bank of the Mississippi. It is one of our most beautiful vernal flowers and is rapidly becoming scarce on account of the ravages of despoilers of our native flora. ***Dose***, 1 to 5 grains (expectorant); 15 to 20 grains (emetic; not used).

Common Names: Bloodroot, Red Puccoon, Puccoon, Indian Paint, Tetterwort, etc.

Principal Constituents.—***Chelerythrine*** (forming yellow salts with acids), ***sanguinarina*** (forming red salts with acids), ***gamma-homochelidilonine*** and ***protopine***, all of which are alkaloids; alcohol soluble resin and ***sanguinarinic acid***.

Preparations.—1. ***Specific Medicine Sanguinaria***. Dose, 1 to 10 drops, well diluted. Usual form of Administration: Rx Specific Medicine Sanguinaria, 5-10 drops; Water, 4 fluidounces. Mix. Sig.: One teaspoonful every two or three hours.

2. ***Tinctura Sanguinaria Acetata Composita***, Compound Acetated Tincture of Bloodroot (Acetous Emetic Tincture). An acetated tincture of Sanguinaria, Lobelia and Dracontium. ***Dose***, 20 to 60 drops (expectorant); 1 to 4 fluidrachms (emetic).

Specific Indications.-"Burning and itching mucous membranes, especially of fauces, pharynx, Eustachian tubes, and ears; less frequently of larynx, trachea, and bronchi, occasionally of stomach and rectum, and rarely of vagina and urethra; mucous membrane looks red and irritable; nervousness, redness of nose, with acrid discharge, burning, and constriction in fauces or pharynx, with irritative cough and difficult respiration" (Scudder). "Feeble circulation, with coldness of extremities" (Locke).

Action.—The physiological action of sanguinaria is pronounced. The powder, when inhaled, is exceedingly irritating to the Schneiderian membrane, provoking violent sneezing, and free and somewhat prolonged secretion of mucus. To the taste, bloodroot is harsh, bitter, acrid, and persistent, and, when swallowed, leaves an acridity and

sense of constriction in the fauces and pharynx, and induces a feeling of warmth in the stomach. In small doses, it stimulates the digestive organs, and increases the action of the heart and arteries, acting as a stimulant and tonic; in larger doses it acts as a sedative to the heart, reducing the pulse, causing nausea, and, consequently, diaphoresis, increased expectoration, and gentle diuresis, at the same time stimulating the liver to increased action. If the dose be large, it provokes nausea, with violent emesis, vertigo, disordered vision, and great prostration. It also increases the broncho-pulmonary, cutaneous, and menstrual secretions. It is a systemic emetic, very depressing, causing increased salivary and hepatic secretions, and hypercatharsis may result. When an emetic dose has been taken, the heart's action is at first accelerated, and then depressed. Poisonous doses produce violent gastralgia of a burning and racking character, which extends throughout the gastro-intestinal canal. The muscles relax, the skin becomes cold and clammy, the pupils dilate, there is great thirst and anxiety, and the heart's action becomes slower and irregular. Spinal reflexes are reduced and paralysis of the spinal nerve centers follows. Lethal doses produce death by paralysis of medullary, respiratory, and cardiac centers, death being sometimes preceded by convulsions.

Therapy.—***External***. Sanguinaria is sternutatory, but is no longer used, as formerly, in snuff to excite secretion or to reduce polypi and other nasal growths and turgescence; to alleviate headache, neuralgia, or chronic nasal catarrh. A cataplasm of slippery elm and blood root is a favorite domestic remedy for frozen feet and chilblains; and an acetated decoction has received professional endorsement for some forms of eczema, ringworm, and warts. An ointment has also been successfully used in tinea.

Internal. Sanguinaria fulfills a variety of uses according to the size of the dose administered. Minute doses relieve irritation, whereas large doses provoke such an effect. Though decidedly emetic it should never be used alone as such, but in combination, as in the acetous emetic tincture, it may, in rare cases, be used as a systemic evacuant where it is thought necessary to thoroughly cleanse the stomach, and to excite to activity sluggish hepatic and general glandular function. Such a course is one of the oft-neglected means once employed in prefebrile states, and was effectual sometimes in preventing the onset of continued and intermittent fevers. An occasional emetic of this type also acts well in chronic stomach disorders, with arrest of function and

gaseous eructation, and succeeds in emptying the stomach of a great quantity of ropy mucus, thus preparing the way for the kindly reception of other needed remedies.

Sanguinaria has a gentle but reliable cholagogue action, and may be used in hepatic torpor, congestion of the liver, and subacute and chronic hepatitis. In hepatic debility, where the bile is deficient or vitiated and the general circulation feeble, with cold extremities and in sick headache, catarrhal jaundice, and duodenal catarrh depending upon a like condition, small doses of sanguinaria are efficient. Nor should it be overlooked for gastric catarrh and atonic dyspepsia associated with hepatic torpor and circulatory enfeeblement. Drop doses of the specific medicine (well diluted), every two or three hours, best meet these functional derangements. The alterative properties of sanguinaria are not to be underestimated.

Bloodroot is useful in amenorrhea in anemic and chlorotic patients who suffer with chills and headache, and in dysmenorrhea in debilitated subjects. When due to vicarious menstruation, hemorrhage from the lungs is said to have been controlled by it. It may be used also for sexual debility, seminal incontinence and impotence dependent upon such conditions and relaxed genital organs.

One of the most important fields for sanguinaria is in disorders of the respiratory organs. It resembles lobelia somewhat in action. It is a useful stimulating expectorant, but should be employed only after active inflammation has been subdued, and in atonic conditions. It favors normal secretory activity, restoring the bronchial secretions when scanty and restraining them when profuse. It is specifically indicated when chilliness is a dominant feature of respiratory disorders, and is further indicated by burning and itching of the naso-laryngeal tract, tickling or burning in the nasal passages, with super-abundant secretion, irritation and tickling provoking cough; and when secretions are checked it relieves dry cough by promoting normal moisture. Keeping the specific guides in mind it will be found exceedingly effective in acute and chronic bronchitis, laryngitis, sluggish types of pharyngitis and faucitis, with deep red and irritable dry membranes, and in acute and chronic nasal catarrh. Too much must not be hoped for from its use alone in the latter, for catarrh of the nose and throat is not readily amenable to medication, unless the patient has the courage to persist in treatment in the face of many

conditions disturbing to the nasal tract. In all such cases the general systemic treatment is a most important desideratum, and it is almost certain that without such care local treatment seldom effects a cure. Bloodroot, in decoction, has served well in the sluggish form of scarlatinal angina with tendency to destruction of tissue. It has been advised in whooping cough, but is too harsh in the doses required to use upon young children, and in mucous croup the same objection holds good. Its use as an emetic, once popular, in pseudomembranous croup is also inadvisable, such a condition now being recognized as almost always a laryngeal diphtheria, and it should, therefore, be treated by the more approved antidiphtheritic measures. After pneumonia, when debility persists and cough and viscid secretion continue and it is difficult to expectorate, specific medicine sanguinaria, with or without lycopus, wild cherry, or eucalyptus, in syrup, is one of the most efficient of medicines. The dose should be regulated so that the patient receives about one or two drops of the sanguinaria every two to four hours. It similarly benefits phthisical cough with difficult expectoration, but should be withheld if it provokes gastric irritation or nausea. It has no effect whatever upon the tubercular state.

SAPO.

Soap, Hard Soap, White Castile Soap.

Soap prepared from Sodium Hydroxide and Olive Oil.

Description.—White or whitish, hard bars, easily cut when fresh; or a fine, yellowishwhite powder, having a faint, non-rancid odor, and an unpleasant alkaline taste. Soluble in water and alcohol—, more readily by the aid of heat.

Preparation.—***LinimentumSaponis***, Soap Liniment (Opodeldoc), (Soap, Camphor, Oil of Rosemary, Alcohol, and water). This liniment is an ingredient of Linimentum Chloroformi (Chloroform Liniment).

Action and Therapy.—***External***. Soap enters into the formation of some pills, as of aloes, rhubarb, gamboge, podophyllin, and other resinous cathartics, and asafoetida, and those of compound extract of colocynth. Soap is detergent and with water may be used, as indicated, to remove scales and crusts in cutaneous diseases, but is less useful than soft soap for this purpose. It is to be preferred, however, where a very mild action is necessary, being less irritant than the softer preparation.

Internal. Soap is irritant to the stomach, but in small doses may be used as an antacid, and in cases of poisoning by the corrosive mineral acids.

SAPO MOLLIS.

Soft Soap, Green Soap.

Made by heating Hydroxide of Potassium and Cotton Seed Oil, Water, and Alcohol.

Description.—A soft, yellowish-white to brownish-yellow, unctuous mass, having an alkaline taste and a slight but distinctive odor. Soluble in water. ***Dose***, 5 to 30 minims, well diluted.

Preparation.—***Linimentum Saponis Mollis***, Liniment of Soft Soap (Tincture of Green Soap). (Soft Soap, Oil of Lavender, Alcohol.)

Action and Therapy.—***External***. Soft soap is detergent and more irritating than hard soap, being more alkaline and containing some free caustic potash. It may be used in the preparation of enemas for the removal of seat worms and to cause an evacuation of feces. Owing to its softening and cleansing properties it is employed to remove dirt, crusts and scales, epithelia, etc., in the treatment of skin diseases. Soap liniment is a good vehicle for the application of other medicines to sprains, stiffened joints, and contusions and other swellings.

Internal. A solution of soft soap may be administered freely in poisoning by the mineral acids, and in smaller amounts (5 to 30 minims, well diluted) in acidity of the stomach.

SARSAPARILLA.

The dried root of (1) ***Smilax medica***, Chamisso and Schlechtendal; or (2) ***Smilax officinalis***, Kunth, or an undetermined species; or (3) ***Smilax ornata***, Hooker filius (Nat. Ord. Liliaceae). Tropical America, Mexico to Brazil. ***Dose***, 30 grains.

Common Names: Sarsaparilla; (1) Mexican Sarsaparilla; (2) Honduras Sarsaparilla; (3) Jamaica Sarsaparilla.

Principal Constituents.—The acrid glucoside ***parillin*** (***smilacin***, ***salseparin***, or ***parillic acid***) closely resembling saponin; resin and a volatile oil; and calcium oxalate, etc.

Preparations.—1. ***Specific Medicine Sarsaparilla***. ***Dose***, 1 to 30 drops.

2. ***Fluidextractum Sarsaparillae Compositum***, Compound Fluidextract of Sarsaparilla (contains Sarsaparilla, Licorice, Sassafras, Mezereum). ***Dose***, 10 to 60 minims.

3. ***Syrupus Sarsaparillae Compositus***, Compound Syrup of Sarsaparilla (contains Fluidextracts of Sarsaparilla, Licorice, Senna, Oil of Sassafras, Oil of Anise, and Methyl Salicylate, Alcohol, Sugar, and Water). ***Dose***, 2 to 6 fluidrachms.

Action and Therapy.—Sarsaparilla once held a high reputation as an alterative; it is now considered practically valueless. Almost the only use made of it at present is as a vehicle for iodides and other alteratives. For this purpose the compound syrup is largely preferred. Sarsaparilla is not wholly inert and its long-continued use may cause ulceration of the mucosa of the intestines. Some believe it also to possess an active cardiosedative principle, probably sarsaponin.

SASSAFRAS.

The bark of the root of ***Sassafras albidum*** (Nutt.) Nees (Nat. Ord. Lauraceae). Woods of eastern half of North America. ***Dose***, 1 to 3 drachms.

Common Name: Sassafras.

Principal Constitutents.—A volatile oil (***Oleum Sassafras***), sassafrid, a decomposition product of tannic acid, resin, and tannin.

Preparations.—1. ***Sassafras Medulla, Sassafras*** Pith. (Insipid, light, spongy, white and odorless, cylindrical pieces.)

2. ***Oleum Sassafras***, Oil of Sassafras. Yellow or reddish-yellow liquid having the taste and aroma of sassafras; soluble in alcohol. ***Dose***, 1 to 15 drops, on sugar or in emulsion.

3. ***Specific Medicine Sassafras***. ***Dose***, 5 to 30 drops, in syrup or on sugar.

Action and Therapy.—***External***. Oil of sassafras is rubefacient and obtundant, and has been used to discuss wens, and to relieve rheumatic and other painful conditions, as bruises, sprains, and swellings. A mucilage of the pith (2 drachms to Water, 16 fluidounces) was formerly much used in acute ophthalmias. An infusion of the bark is a domestic remedy for rhus poisoning.

Internal. Sassafras tea is a popular alterative, diaphoretic, and carminative. It and the oil are decidedly stimulant. The latter, like

other aromatic oils, has been used with more or less success in cystitis with much mucoid flow, and in so-called chronic gonorrhea. The mucilage of the pith may be used as a demulcent. From ten to fifteen drops of the oil, administered in hot water or upon sugar, will sometimes relieve the pangs of dysmenorrhea. The chief use of sassafras oil is to flavor pharmaceutic syrups and other preparations.

SCILLA.

The inner, fleshy scales of the bulb of the white variety of ***Urgineamaritima*** (Linné), Baker (Nat. Ord. Liliaceae), cut into fragments and carefully dried. Coast of Mediterranean Basin and in Portugal and France. ***Dose***, 1 to 3 grains; average, 1 1/2 grains.

Common Names: Squill, Squills, Sea Onion.

Principal Constitutents.—***Scillitoxin***, the most active principle, insoluble in water, soluble in alcohol, and a heart poison; ***scillipicrin***, a bitter body, sparingly soluble in water; ***scillin***, soluble in water, causing vomiting and numbness; and a bitter glucoside ***scillain***.

Preparations.—1. ***Specific Medicine Squill***. ***Dose***, 1 to 5 drops.

2. ***Acetum Scillae***, Vinegar of Squill (Squill, 10 per cent). ***Dose***, 5 to 20 minims.

3. ***Syrupus Scillae***, Syrup of Squill. ***Dose***, 10 to 60 minims.

4. ***Syrupus Scillae Compositus***, Compound Syrup of Squill (Hive Syrup). (Contains Fluidextracts of Squill and Senega, and Antimony and Potassium Tartrate.) ***Dose***, 5 to 40 minims.

5. ***Tinctura Scillae***, Tincture of Squill (Squill, 10 per cent). ***Dose***, 5 to 30 minims.

Specific Indications.—Chronic cough with scanty, tenacious expectoration; dropsy dependent upon a general asthenic condition and without fever; scanty, high-colored urine, with sense of pressure in the bladder; renal overactivity with inability to retain the urine.

Action and Toxicology.—Squill is a powerful drug acting much like digitalis upon the heart muscle, and probably with greater force upon the peripheral vessels, increasing arterial tension. It is a violent gastrointestinal irritant and it disturbs the stomach more than does digitalis. Even small doses cause nausea and vomiting; and some individuals are so susceptible to its action that it cannot be taken by them in any dose. Squill likewise stimulates the kidneys to increased

diuresis, both by acting upon the epithelial cells and by increasing the blood pressure within those organs. Bronchial secretion is increased by it. Fresh squill, when rubbed upon the skin, is rubefacient, and if the surface be denuded it may be absorbed with poisonous consequences.

Large doses of squill are violently poisonous, causing severe and painful vomiting and purging, gastro-intestinal inflammation, decreased, and sometimes bloody and albuminous urine, with strangury, and not infrequently complete suppression due to the acute nephritis induced. Dullness and stupor or intermittent paralysis and convulsions ensue. Death usually takes place in from ten to twenty-four hours. Some contend that squill acts more powerfully upon the heart muscle than foxglove, and that by overstimulation with excessive doses cardiac arrythmia and heartblock may be induced. Squill, therefore, while usually causing death by gastro-enteritis, may establish a fatal nephritis, or cause a sudden stoppage of the heart.

Therapy.—Squill is a stimulating diuretic and expectorant, and if given in small doses when there is general atony and special lack of tone in the renal and respiratory tracts it is a good medicine. It must be used, however, with care and judgment. If there is the least reason to suspect, or evidence to show, undue renal irritation or inflammation its use should be stopped at once. In very small doses squill allays irritation of mucous membranes and lessens excessive secretion. It was at one time very largely employed for the elimination of dropsical effusion; and still is used for the absorption and removal of pleural, pericardial, and especially peritoneal effusion, but with more care than formerly. In large ascitic collections in curable conditions paracentesis is a more rational measure than long and harsh medication by drastic renal hydragogues.

Squill is one of the most certain remedies for dropsy of cardiac origin, or from congestion (not inflammation) of the kidneys; and is proportionately less valuable where dependent upon structural changes in the renal glands. Nevertheless it frequently is used in chronic nephritis to excite the surviving cells to activity and thus increase the output of urine. When renal dropsy depends upon general atony of the system-the kidneys included and the disorder is one of functional weakness, squill may be used with good effect. Its diuretic action is increased by digitalis and the alkaline diuretics, notably

acetate and citrate of potassium. Squill, in powdered substance, is usually more effective than any of its preparations; therefore the best form of administration is by pill or capsule. When there is a feeble circulation the following is advisable: Rx Pulv. Scillae; Pulv. Digitalis, 10 grains each. Make into Pilulae, No. 10. Sig.: One pill after meals. Squill is contraindicated, even in dropsy, by a dry, hot skin, rapid circulation, elevated temperature, or any evidence of renal irritation or inflammation. But the greater the atony of the general system the more salutary its action. In dropsy requiring urgent relief two or three grains of squill may be given every three hours, withholding the medicine upon the slightest indication of nausea. When it acts strongly as an expectorant it frequently fails to cause increased diuresis. Neither should it be expected to cure when anasarca or ascites is caused by malignant disease or renal destruction. Locke employed for cardiac dropsy, with feeble heart action and weak rapid pulse, teaspoonful doses of infusion of digitalis to which is added two (2) grains of squill, or one (1) drop of specific medicine squill.

Squill has been quite generally used by some physicians for subacute and chronic bronchitis when secretion is scanty and viscid and expectorated with difficulty, and oppositely when the secretions are profuse and debilitating. The dosage should be regulated according to the condition, the fuller doses short of nausea for the former, and minute doses for the latter. These results are attributed to its power to regulate normal equilibrium in the bronchial mucosa. When fever is absent and the sputum scanty and tenacious, the following is useful: Rx Syr. Scillae, 1 fluidounce; Syr. Pruni virg., 3 fluidounces. Mix. Sig.: One teaspoonful four (4) times a day (Locke); and in chronic bronchial catarrh: Rx Syr. Scillae, Syr. Senegae, 1 fluidounce each, Syr. Pruni virg., 2 fluidounces. Mix. Sig.: One teaspoonful every three hours. Syrup of squill has been largely used and is still popular in the domestic treatment of croup, people little realizing the danger invited. We have seen it cause convulsions and prostration in a young child when thus employed. It has also been advised by physicians for emphysema. While of unquestionable value in bronchial affections, one must be guarded in its employment lest more damage be done to the kidneys than good to the respiratory tract.

SCOPARIUS.

The tops of ***Cytisus Scoparius*** (Linné), Link (Nat. Ord. Leguminoseae). Europe and

the United States. Cultivated. ***Dose***, 5 to 15 grains.

Common Names: Broom, Broom Tops, Irish Broom.

Principal Constituents.—The volatile, oily, alkaloid ***sparteine***, and ***scoparin***, a diuretic and purgative yellow coloring body.

Preparations.—1. ***Infusum Scoparii***, Infusion of Scoparius. ***Dose***, 1 to 2 fluidounces.

2. ***Decoctum Scoparii***, Decoction of Scoparius (1/2 ounce to Water 16 fluidounces, boiled down to 8 fluidounces). ***Dose***, 1 to 2 fluidounces.

Action and Therapy.—Excessive doses of broom have produced impaired vision, staggering gait, and profuse vomiting and purging. The effects of broom are in milder degree practically those of its chief alkaloid, sparteine. When the latter is not desirable, aqueous preparations of the crude drug may be used; and indeed, they often succeed in causing profound diuresis when the alkaloid fails. As a heart tonic and stimulant sparteine sulphate should be preferred.

Infusion of broom and to a greater degree the decoction, in doses of one ounce every three hours, are decided and certain diuretics for use in dropsies of cardiac origin. The action of scoparin has not been fully determined, but is believed to be both diuretic and purgative. Some believe it to be the real diuretic in scoparius.

SCUTELLARIA.

The fresh green herb of ***Scutellarialateriflora***, Linné (Nat. Ord. Labiatae). Common in damp situations throughout the United States. ***Dose***, 5 to 30 grains.

Common Names: Scullcap, Skullcap, Madweed.

Principal Constituents.—A volatile and a fixed oil and an unnamed, bitter, crystallizable glucoside.

Preparation.—***Specific Medicine Scutellaria***. ***Dose***, 5 to 30 drops.

Specific Indications.—Nervousness attending or following illness, or from mental or physical exhaustion, or teething; nervousness with muscular excitation; tremors; subsultus tendinum; hysteria, with inability to control muscular action; functional heart disorders of a purely nervous type, with intermittent pulse.

Action and Therapy.—Scutellaria is calmative to the nervous and muscular systems and possesses feeble tonic properties. By controlling nervous irritability and muscular incoordination it gives rest and permits sleep. It may be exhibited to advantage during acute and chronic illness to maintain nervous balance, control muscular twitching and tremors, and is sometimes effectual in subsultus tendinum during grave prostrating fevers. Too much, however, must not be expected from it in the latter condition; nor can it be expected to aid much in delirium tremens, and not at all in epilepsy and paralysis agitans, in both of which it has been injudiciously advised. It appears to be most useful in chorea when reinforced by the addition of macrotys and valerian; in restlessness following prolonged sickness; and in functional heart disorders of a purely nervous character, with intermittent pulse whether accompanied or not by hysterical excitement. When insomnia is due to worry, or nervous irritability or even exhaustion, relief may be expected from it. It once had a great reputation as a cure for hydrophobia, based upon the reports of New Jersey physicians, a claim which time has totally failed to sustain.

SENECIO.

The whole plant of ***Senecio aureus***, Linné (Nat. Ord. Compositae). Northern and western parts of the United States. ***Dose***, 5 to 60 grains.

Common Names: Golden Senecio, Life Root, Ragwort, Female Regulator, etc.

Principal Constituents.—Probably an acrid resin and a bitter and tannin; it has not been satisfactorily analyzed.

Preparation.—***Specific Medicine Senecio***. ***Dose***, 5 to 60 drops.

Specific Indications.—Atony and relaxation of the pelvic contents, with dragging painful sensations; uterine enlargement, with uterine or cervical leucorrhea and impairment of function; vaginal prolapse; slight uterine prolapse; pelvic weight and vascular engorgement; increased flow of mucus or muco-pus from weakness; suppressed or tardy menstruation; pain, soreness, and bearing down of the uterus; vicarious menstruation; difficult and tardy urination in both sexes. In the male tenesmic micturition, testicular dragging, and pelvic weight. In both sexes, dyspepsia, with flatulence after meals; cardialgia, associated with sour stomach and increased flow of gastric juice.

Therapy.—Senecio is a remedy of decided value in the treatment of diseases of women. It was formerly much employed, but in the onward movement of therapeutics seems for some reason to have passed into unmerited neglect. Without doubt this is due to failure to observe and prescribe it according to its specific indications, and somewhat to its tardy action. To get results from senecio it must be given in appreciable doses for a long period, and while slow, its results justify its use. A general relaxed condition of the female generative tract, with or without mucous or mucopurulent discharge, or vaginal or uterine prolapse, is the direct indication for its selection. Atony is the key to its use. The parts lack vigor and tone, or may be irritable and hyperaemic; at any rate, the pelvic circulation is poor and the whole pelvic floor seems about to let the pelvic contents escape. The uterine ligaments are lax, and the prolapses benefited are those partial displacements due to the weakening of the ligaments and surrounding tissues. Senecio is an ideal emmenagogue and the best single remedy for the amenorrhea of debility. As such for amenorrhea in the young in whom the menstrual function is not yet well established, we know of no better or more prompt agent than senecio. We select it with as great certainty as we would macrotys for muscular pain, or bryonia for pleuritic stitches. It matters little, however, what the non-surgical female disease, so long as one is guided by the indications, senecio will not be found wanting in power to improve or to cure. It is with certainty a leader in gynecic therapy. It relieves irritation, imparts tone and vigor, and restrains undue and vitiated secretions. Atony of the ovaries with impairment of function is always present in cases requiring senecio. There is also perineal weight and fullness, and in chronic cases an enlargement of the womb, with cervical leucorrhea. dysmenorrhea, menorrhagia, metrorrhagia, chlorosis, functional sterility, leucorrhea, dyspepsia, and the capillary bleeding of haematuria and the bloody discharges of albuminuria are the cases in which it is also especially indicated and in which more or less success may be expected from it. While holding the greatest reputation in diseases and disorders of the female, it is of some, though relatively less, usefulness in functional aberrations of the male reproductive organs, sometimes relieving pelvic weakness, with sense of dragging and testicular pain, and frequent and painful urination. The dose of specific medicine senecio, the best preparation of it, is from five to sixty drops in water, three or four times a day.

SENEGA.

The root of ***Polygala Senega***, Linné (Nat. Ord. Polygalaceae). Indigenous to the United States. ***Dose***, 5 to 20 grains.

Common Names: Senega, Senega Snakeroot, Seneka Root, Seneca Snakeroot. Principal Constituent.-Saponin (Senegin).

Preparation.—***Specific Medicine Senega***. Dose, 1 to 20 drops.

Specific Indications.—Relaxed respiratory mucosa and skin, with deep, hoarse cough, excessive secretion; mucous rales, nausea and vomiting; cough of chronic bronchitis; bronchorrhea.

Action and Therapy.—Senega has an acrid taste and leaves a disagreeable sensation when swallowed. In ordinary doses it is sialagogue, stimulant, diuretic, expectorant, and is reputed emmenagogue. It may be used in subacute forms of cough as is found in chronic bronchitis with profuse secretion. It is contraindicated in active febrile conditions. Dropsy of renal origin has been benefited by it, but it is of no value when due to cardiac lesions. It is little used, and then chiefly in syrups containing other medicaments. It is an ingredient of the once celebrated Coxe's Hive Syrup, a vicious preparation now represented by compound syrup of squill, and containing also squill and tartar emetic.

SENNA.

The dried leaflets of (1) ***Cassiaacutifolia***, Delile, or of (2) ***Cassiaangustifolia***, Vahl (Nat. Ord. Leguminosae). (1) Eastern and central Africa; (2) cultivated from eastern Africa to India. ***Dose***, 60 to 120 grains.

Common Names: Senna, (1) Alexandria Senna, (2) India or Tinnivelly Senna.

Principal Constituents.—An amorphous, water-soluble, sulphurated glucoside—***cathartinic acid*** (which may be split into cathartogenic acid and glucose), ***emodin***, sennacrol and sennapicrin (water-insoluble glucosides), and chrysophanic acid.

Preparations.—1. ***Specific Medicine Senna***. ***Dose***, 5 to 60 drops.

2. ***InfusumSennaCompositum***, Compound Infusion of Senna (Black Draught). (Senna, Manna, Magnesium Sulphate, Fennel, Boiling Water.) ***Dose***, 2 to 8 fluidounces.

3. ***Pulvis Glycyrrhiza Compositus***, Compound Powder of Glycyrrhiza

(Compound Licorice Powder), (Senna, Glycyrrhiza, Oil of Fennel, Washed Sulphur, Sugar). ***Dose***, 1 to 2 drachms.

4. ***Pulvis Jalapa Compositus***, Compound Powder of jalap (Antibilious Physic). Contains Senna. See Jalapa.

Specific Indications.—Flatulence and colic; a laxative for non-inflammatory conditions of the intestinal tract.

Action and Therapy.—Senna is a manageable and useful cathartic producing copious yellowish-brown evacuations, and causing considerable griping when used alone. While it influences the whole intestinal tract, exciting peristalsis as it passes along, the greater action is exerted upon the colon. This renders it a certain purgative, for by this sequence the whole canal is the more readily emptied. It does not produce after-constipation, as does rhubarb and some other laxatives; and it may purge a nursing infant when administered to the mother. Senna is neither sedative nor refrigerant, but if anything somewhat stimulant, and is, therefore, not to be given in irritated or acutely inflamed conditions of the alimentary tube nor when there is great debility, or hemorrhoids, or prolapse of the rectum. Notwithstanding, it is effectual and safe to cleanse the bowels at the beginning of fevers, when such an effect is desired. It may be used as a laxative or more complete cathartic in children and adults when a severe action is not indicated. In most individuals it occasions nausea, tormina and flatulence when given alone, as in senna tea, but these effects may be mitigated by infusing it with coffee, or by the addition of cloves, ginger, peppermint, cinnamon, or other aromatic corroborants. Cream of tartar added to it increases its action, producing a hydragogue and refrigerant effect, while bitters in general seem to increase its action. Senna is one of the anthracene group of cathartics, and its action is largely, though not wholly, due to the presence of cathartinic acid. The latter taken up by the blood, or injected, is emptied into the intestinal canal, thereby causing or prolonging catharsis.

Compound Powder of Jalap. A most thorough action may be obtained from the Antibilious Physic, especially in auto-intoxication, and intestinal toxemia, giving rise to a violent, burning, diffuse rash, such as sometimes follows prolonged constipation, or the ingestion of tainted foods—particularly sea foods and fruit. This preparation is less irritant than senna alone, and unless there is very marked gastro-

intestinal inflammation, it is seldom contraindicated. The physicing dose is one drachm, in hot water, cooled and sweetened; or milk, lemonade, or coffee may be used as a vehicle. It may also be given in large-sized gelatin capsules.

Compound Licorice Powder. A pleasant and efficient laxative in doses of 30 to 120 grains (average 60), given in plenty of water, at bedtime, for the general cleansing of the bowels of undigested material, relieving headache arising therefrom; and an admirable laxative for the pregnant and parturient woman, and for children. It may be given in water, or the readyprepared lozenges may be used, the patient partaking also of plenty of water.

SERENOA.

The fruit of ***Serenoaserrulata***, Bentham and Hooker (Nat. Ord. Palmacae). Atlantic Coast from Florida to South Carolina. ***Dose***, 10 to 60 grains.

Common Name: Saw Palmetto.

Principal Constituents.-An aromatic oil (***Oil of Saw Palmetto***) and sugar.

Preparation.—***Specific Medicine Saw Palmetto***. ***Dose***, 10 to 60 drops.

Specific Indications.—Relaxation with copious catarrhal secretion; lark of development or wasting of testicles, ovaries, or mammae; prostatic irritation with painful micturition, and dribbling of urine, especially in the aged; tenderness in the glands and other parts of the reproductive organs.

Action and Therapy.—Saw Palmetto is a nerve sedative, expectorant, and a nutritive tonic, acting kindly upon the digestive tract and tending to improve the appetite, digestion, and assimilation. Its most direct action appears to be upon the reproductive organs when undergoing waste of tissue; in some nutritional way it is asserted to enlarge the breasts, ovaries, and testicles, while the paradoxical claim is also made that it reduces hypertrophy of the prostate. This can only be explained, if, indeed, it has such opposite effects, by assuming that it tends toward the production of a normal condition, increasing parts when atrophied, and reducing them when unhealthily enlarged. Evidence is forthcoming that it alleviates much of the prostatic suffering of the aged, and this is probably due to its relieving urethral

irritation, thereby reducing a swollen condition not really amounting to hypertrophy. It is asserted to increase the tonus of the bladder, and help to better contraction and more perfect expulsion of the contents of that viscus. Tenesmic pain especially is relieved. It is further, and rationally, indicated to relieve dull aching, throbbing pain in the prostatic urethra and to control excessive mucoid and prostatic discharges. The gleety results of a badly treated gonorrhea sometimes yield to it. As it tones relaxed tissue this probably explains its asserted value in socalled uterine hypertrophy, the latter being more properly a large, loosely relaxed and flabby organ, actively leucorrheal. It has been recorded also that it increases the sexual appetite and restores lost power from excesses, in both man and woman; and to have given relief in ovaritis, ovaralgia, orchitis, orchialgia, and epididymitis. Its best action is that of a nutritive tonic to wasting organs and to control irritation and mucoid discharge.

SERPENTARIA (Aristolochia serpentaria).

The rhizome and roots of (1) ***Aristolochia serpentaria***, Linné, and of ***Aristolochia reticulata***, Nuttall (Nat. Ord. Aristolochiaceae). Eastern half of the United States; the latter chiefly in the southwest. ***Dose***, 1 to 30 grains.

Common Names: (1) Virginia Snakeroot; (2) Red River or Texas Snakeroot.

Principal Constituents.—A volatile oil containing ***borneol*** ($C_{10}H_{18}O$) and a ***terpene*** ($C_{10}H_{16}$), and resins.

Preparation.—***Specific Medicine Serpentaria***. ***Dose***, 1 to 30 drops.

Specific Indications.—Renal torpor, the result of cold; fullness of chest with dyspnea; sensation of weight and dragging in the loins, with scanty renal secretion; severe sore throat, with tendency to destruction of tissue; cutaneous torpor.

Action and Therapy.—In small doses Virginia snakeroot stimulates the appetite and promotes digestion; long continued it tends to derange digestion producing nausea, emesis and intestinal griping and tenesmus. In full doses it stimulates to a considerable degree, but may occasion gastrointestinal discomfort with nausea, vomiting, headache, and drowsiness, but with disturbed sleep. The warm infusion is decidedly diaphoretic. Under the latter action it is

sometimes useful to hasten the eruption in tardy exanthemata. Small doses, given for a brief period, are beneficial in atonic dyspepsia. After periodic fevers it may be administered with cinchona or quinine to overcome depression and give tone to the debilitated system. When renal torpor or menstrual tardiness is due to cold, serpentaria will act as a stimulant diuretic and as an emmenagogue. The best use for serpentaria, in our opinion, is for the severely congested but sluggish and very sore angina of scarlatina. It may be used both as a gargle and internally. As a rule, serpentaria is contraindicated by active fever or severe inflammation; but is a remedy of much value in atonic states.

SINAPIS ALBA.

The ripe seeds of ***Brassica alba*** (Linné), Hooker filius et Thompson (***Sinapis alba***, Linné) (Nat. Ord. Cruciferae). Asia and South Europe; cultivated. ***Dose*** (emetic), 1 to 3 drachms, with plenty of water.

Common Names: White Mustard, Yellow Mustard.

Principal Constituents.—A bland, fixed oil, average of 25 per cent; the glucoside ***sinalbin***, the most important constituent, and myrosin, an enzyme which converts sinalbin into an acrid, and other bodies. Volatile oil of mustard is not obtained from white mustard.

Description.—A yellowish or light, brownish-yellow powder, odorless and mildly pungent and acrid to the taste. ***Dose***, 1 to 3 drachms (as an emetic).

SINAPIS NIGRA.

The ripe seeds of ***Brassica nigra*** (Linné), Koch (Nat. Ord. Cruciferae). Asia and southern Europe; cultivated. ***Dose*** (emetic), 1 to 3 drachms.

Common Names: Black Mustard, Brown Mustard.

Principal Constituents.—Fixed oil of mustard (average of 35 per cent); ***sinigrin*** (a glucoside) and myrosin, which in the presence of water and distillation converts the former into glucose, a potassium salt, and Volatile Oil of Mustard (***Oleum Sinapis Volatile***), (see below) an oil not derived from white mustard.

Description.—A pale-brown or greenish-brown powder, having an acrid, pungent taste, and developing, when moistened, a pungent and irrespirable odor. ***Dose***, 1 to 3 drachms (as an emetic).

Preparation.—***Emplastrum Sinapis***, Mustard Plaster. Powdered black mustard

deprived of its fixed oil mixed with solution of rubber and spread upon paper or other fabric. It is to be moistened with tepid water before being applied.

Derivative.—***Oleum Sinapis Volatile***, Volatile Oil of Mustard. An oil derived from black mustard or prepared synthetically and consisting largely of Allyl Isothiocyanate. A colorless or pale-yellow liquid having a very pungent and irrespirable odor and an acrid taste. The greatest caution should be taken when smelling this liquid; and it should not be tasted except when greatly diluted. ***Dose***, 1/12 to 1/4 drop. There is no justification for its internal use.

Specific Indications.—***External***. Deep-seated pain and inflammations; vomiting from gastric irritability; and repressed secretion.

Internal. Emetic for poisoning by narcotics.

Action and Toxicology.—Volatile oil of mustard is an extremely diffusible and penetrating irritant, quickly exciting heat and burning pain through its dilating action upon the peripheral vessels and irritation of the sensory nerve endings. If too long applied it will blister, and cause inflammation, sloughing and deep ulceration; and not infrequently gangrene. To a degree local anesthesia is produced in some instances and the patient is then not aware of the possible destruction of tissue. Removed in time only induration is caused, followed sometimes by desquamation. Mustard applied in the same manner acts similarly but more slowly and with gradually increased intensity, as the volatile oil is but slowly formed from the moistened powder by the action of its ferment myrosin. The local action of mustard may stimulate reflex cardiac and respiratory activity in sufficient force to arouse one from an attack of fainting. Internally, mustard is a stimulating condiment and appetizer, and excites gastric activity and promotes digestion. If the amount be large, however, it is intensely irritant and promptly causes vomiting. This is not attended by depression, however, owing to the fact that both the breathing and circulation are stimulated by its reflex action upon the respiratory centers and the heart. Overdoses may induce acute gastritis, and if long continued chronic gastric catarrh. The volatile oil is an intense irritant poison, producing intense burning pain and destruction of tissue. Profound depression, renal hyperaemia, and insensibility precede death.

Therapy.—***External***. The mustard plaster and the sinapism (mustard poultice) are popular with physicians and the laity as rubefacients and

counterirritants to relieve deep-seated pain and inflammation, check vomiting, reestablish suppressed urine, excite and restore menstruation, to arouse from insensibility in narcotic poisoning, syncope and asphyxia, and as a derivative generally. For this purpose they should be applied ***temporarily*** only and their effects carefully watched. Sometimes they act best when applied a little remote from the actually involved tissue, and they are necessarily so used when the internal organs are the seat of disease. For the purposes named the mustard plaster or sinapism may be applied to the chest and the abdomen in acute inflammation of the viscera, to the epigastrium and spine to check persistent vomiting from gastric irritability, and in gastralgia, gastritis, flatulence, to the abdomen in colic, over the loins in suppression of urine, lumbago and backache, to the nape of the neck in congestive headache and cerebral congestion, to the spine, legs, and soles of the feet to arouse from apoplexy, stupor, and coma, to the praecordial region in syncope, and locally to the areas involved in myalgia, neuralgias, muscular rheumatism, and inflammations of the joints. They should be used with great care upon children and debilitated individuals. Never more than one fourth mustard and three fourths white or rye flour should be employed in either, and the strength of the poultice can be regulated better in this manner than by using the ready prepared plaster. However, for general purposes the plaster, mustard leaves or papers, are most convenient, always ready for immediate use, and quickly and cleanly applied, first dipping them in water. It must be remembered that they are exceedingly energetic and usually stronger than a domestically prepared poultice. When necessary to use extra precaution, and in children, it is best to interpose a moistened layer of thin fabric between the skin and the application. When long and gentle action is desired, about one-twentieth part of mustard may be incorporated into flaxseed or other poultices. A blanket wrung from hot mustard water is sometimes used to restore retrocession of eruption in the exanthems, but special care should be had in scarlet fever, lest the already endangered kidneys be damaged. It should only be used as a last resort in this disease, but is less liable to do harm in measles. Warm water increases the activity of mustard applications; and the smarting sensation arising from the local use of mustard may be mitigated by sponging the parts with cold water, or spraying with ether.

Internal. The only rational use for mustard internally is to cause emesis in cases of narcotic poisoning. Besides acting as a prompt

emetic, there is the added value of reflex stimulation of the heart and breathing organs, and consequently no depression. It should not be used for irritant or corrosive poisons. Its employment would seem rational in food poisoning (bromatotoxism) when there is depression of the nervous system and no irritation or gastro-intestinal inflammation present, provided there is still poisonous food in the stomach. As an emetic, from one to four teaspoonfuls may be administered in plenty of luke-warm water. It acts promptly and thoroughly, except in cases where the vomiting apparatus is paralyzed. In such instances the stomach pump or lavage tube should be used.

SOLANUM CAROLINENSE.

The root and fruit of ***SolanumCarolinense***, Linné (Nat. Ord. Solanaceae). Waste places and fields in eastern half of the United States. ***Dose***, 10 to 30 grains.

Common Names: Horse-Nettle, Bull-Nettle, Sand Brier, Treadsoft.

Principal Constituents.—Solanine, solanidine, solanic acid, and solnine, a crystallizable alkaloid isolated by John Uri Lloyd, and physically resembling hydrastine.

Preparation.—***Specific Medicine Solanum***. ***Dose***, 10 to 30 drops.

Specific Indications.—Epileptiform convulsions of iodiopathic origin; hystero-epilesy; spasmodic cough.

Action and Therapy.—Solanum is antispasmodic, and for this effect has been extolled as a remedy for iodiopathic epilepsy, in which extraordinary claims are made for it; and of lesser value, in petit mal. As large doses are required its effects may border upon the poisonous. Hare asserts that he has reduced the force and frequency of epileptic attacks with it; and most observers claim that it acts best when the attacks are severest at or when provoked by or occurring in the menstrual period. It has been used also in chorea, but not with marked benefit. We have found it a good modifier of the paroxysms of whooping cough. Altogether its virtues are much overrated .

SPIGELIA.

The dried rhizome and roots of ***Spigeliamarilandica***, Linné (Nat. Ord. Loganiaceae). Southern United States; less plentiful in northern parts of eastern half of the

Northern States. ***Dose***, 1 to 2 drachms for adults; less for children.

Common Names: Pinkroot, Maryland Pink, Carolina Pink, Worm-grass.

Principal Constituents.—A volatile alkaloid, ***spigeline*** (resembling coniine and nicotine), volatile oil, resin, and a bitter body.

Preparations.—1. ***Specific Medicine Spigelia***. ***Dose***, 5 to 60 drops (full dose as anthelmintic).

2. ***Fluidextractum Spigelia et Senna***, Fluidextract of Spigelia and Senna. ***Dose***, 30 to 60 drops.

Specific Indication.—Lumbricoids.

Action and Toxicology.—In large doses spigelia is toxic, causing increased cardiac action, cerebral disturbances, as dizziness, dimness of vision, dilated pupils, facial and palpebral spasms, general convulsions and stupor. Purgation often results from such quantities. Catharsis minimizes the danger of unpleasant symptoms, therefore it is usually administered with a cathartic, as senna.

Therapy.—Pink root is an active and very certain vermifuge, removing the round or lumbricoid intestinal worm. The powdered root (5 to 20 grains for a young child; 1 to 2 drachms for an adult) or the fluidextract, or specific medicine in equivalent dosage may be given twice a day, together with or followed by an active purgative. Senna is usually preferred. Ellingwood advises Rx Fluidextract of Spigelia, 2 fluidrachms; Santonin (powdered), 15 grains; Simple Elixir, enough to make 2 fluidounces. Mix. Sig.: One teaspoonful every night and morning, followed on the third day by a non-irritating laxative. Many who are old enough will recall the days of domestic medication when pink and senna (popularly pronounced seeny) tea was a regular feature of child raising.

Interest has been attracted to spigelia, chiefly of homeopathic origin, as a remedy in heart affections, particularly endocarditis of rheumatic origin and to guard against relapses of cardiac rheumatism. Cardiac neuralgia with palpitation and pain extending along the arm is also said to be relieved by it. For these purposes the fractional dose is to be preferred. Rx Specific Medicine Spigelia, 10-15 drops; Water, 4 fluidounces. Mix. Sig.: One teaspoonful every two hours. Large doses are said to debilitate the heart.

SPONGIA USTA.

Burnt Sponge, Spongia Tosta.

The skeleton of ***Spongiaofficinalis***, Linné, Class: Poriphera; Order: Ceratospongia, roasted brown in a closed vessel and reduced to powder. ***Dose***, 30 to 180 grains.

Preparation.—***Specific Medicine Spongia***. ***Dose***, 1 to 10 drops.

Specific Indications.—Croup; enlarged thyroid.

Action and Therapy.—Spongia is believed by some to have alterative properties depending upon iodine and bromine and associated compounds derived from the sea. For this purpose it has been quite largely used in cases in which iodine is apparently indicated, as goitre. It is thought to act better than iodine in some forms of the latter. Spongia is much employed also as a remedy for laryngeal irritation, and it seems to have been remarkably effective in croup and croupal types of cough.

STAPHISAGRIA.

The ripe seeds of ***DelphiniumStaphisagria***, Linné (Nat. Ord. Ranunculaceae). Mediterranean Basin; cultivated. ***Dose***, 1 to 2 grains.

Common Name: Stavesacre.

Principal Constituents.—Fixed oil; a poisonous crystalline alkaloid, ***delphinine*** ($C_{22}H_{35}O_6N$), acting like aconite; an amorphous narcotic alkaloid delphinoidine ($C_{42}H_{68}O_7H_2$), delphisine ($C_{27}H_{46}O_4N_2$), a crystalline alkaloid, a slightly water-soluble alkaloid, staphisagrine ($C_{22}H_{32}O_5N$), and the alkaloid staphisagroine ($C_{20}H_{24}NO_4$). The first three alkaloids are soluble in alcohol, chloroform and ether.

Preparation.—***Specific Medicine Staphisagria***. ***Dose***, 1 to 5 drops.

Specific Indications.- “Irritation and chronic inflammatory conditions of the genito-urinal tract; painful, scalding micturition; prostatorrhea; urinal incontinence in aged men; urethral irritation, with a sensation of in complete urethral evacuation-a sensation as if a drop of urine

were rolling along in the canal; menstrual derangements, with long intermenstrual intervals and prolonged flow; spermatorrhea in anemic subjects; depression of spirits; hypochondriasis; hysteria, with uterine or ovarian irritation, despondency, moroseness, and violent outbursts of passion; black specks before the eyes in reading; mental irritability and restlessness in painful and exhaustive diseases; uterine disorders, with feeble pelvic circulation; deep-seated soreness, dragging and bearing-down pains; leucorrhea; and painful urination." (***American Dispensatory***.)

Action and Toxicology.—In small doses staphisagria quiets nervous irritation. In large doses it is a depressive poison, acting very much like aconite to which it has a close botanic relationship, but does not produce such intense benumbing and tingling effects as the latter. It causes decided gastro-intestinal irritation and depresses the heart and circulation, and the motor tracts of the cord. Its topical use has proved fatal to a child, and its toxic symptoms are closely analogous to those of poisoning by aconite. It kills by paralyzing the respiratory centers (asphyxia). One of its alkaloids has narcotic properties; and another, delphinine (dose 1/60 to 1/10 grain), has an acrid and benumbing taste and an action much like aconitine, an action which is possessed in greatest force by the combined alkaloids of stavesacre. It is exceedingly poisonous.

Therapy.—***External***. Locally staphisagria seeds are parasiticide and analgesic. Delphinine, though it should not be employed, acts upon painful areas like veratrine. The powdered seeds may be mixed with fats and applied for the destruction of pediculi. An ointment (4 parts in 20 of benzoinated lard) is a good form. Equally effectual and more manageable is an equivalent dilution of the specific medicine with vinegar, dilute acetic acid or ether. It must not be used unless the skin is intact, and then with caution as to quantity. It is also said to be fatal to the itch mite which causes scabies.

Internal. Staphisagria is sedative and a remedy of limited power in irritation of the mucous membrane of the genito-urinary tract and some phases of nervous disorders. It is contraindicated by active inflammation. From a very early date its local application has been credited with the destruction of pediculi. As Scudder recorded some years ago, the nervous conditions best met with staphisagria are those shown by hysteria and hypochondriasis with depression of spirits,

despondency, moroseness, and violent outbursts of passion. As a rule, the sexual disorders benefited by staphisagria are those accompanied by nervous depression, or at least by marked irritability. When properly indicated, it proves useful in the treatment of prostatorrhea, spermatorrhea resulting from masturbation, in chronic irritation or inflammation of the genito-urinary tract resulting from gonorrhea or from cold, and in prostatitis, gonorrheal or otherwise, all of these conditions being associated with depression of spirits and a sense of restlessness and irritation along the course of the urethra. It is especially useful in renal incontinence of old men with teasing desire to urinate frequently, and in the urinary annoyances attendant upon uterine disorders. It will not relieve all cases of spermatorrhea, but if carefully prescribed, according to indications it will prove beneficial in the majority of cases. The best marked indication we have found for staphisagria is a sense of incomplete urination with a feeling as if a drop of urine were constantly attempting to pass along the urethral canal. The indications for staphisagria, as concisely stated by us in the ***American Dispensatory***, are given here under ***Specific Indications***.

STICTA.

The lichen ***Sticta Pulmonaria***, Linné (Nat. Ord. Lichenes). Found upon tree trunks and rocks in England and the eastern United States, mostly in mountainous districts.

Common Names: Lungwort Lichen, Lung Moss, Oak Lungwort, Tree Lungwort.

Principal Constituent.—Stictic acid, allied to cetraric acid from Iceland moss.

Preparation.—***Specific Medicine Sticta***. ***Dose***, 1/10 drop to 10 drops.

Specific Indications.— "Pain in the shoulders, back of neck, and extending to the occiput" (Scudder). Soreness and dull pain in the pectoral muscles, increased by deep breathing; irritation of the medulla, and parts supplied by the vagus; irritative cough; persistent dry, rasping wheezing, or short, hacking cough, with quick-darting pains in the thoracic walls; hay fever with headache; catarrhal disorders with frontal tension, sneezing, coryza and conjunctival hyperaemia or inflammation.

Action and Therapy.—Sticta relieves pain and muscular soreness confined chiefly to the neck, head, and chest, and irritation in parts

supplied by the vagus. Thus it proves useful in so-called subacute rheumatic pain extending from the shoulder to the base of the occiput, or in the chest walls, or the smaller joints. Muscular pain accompanying catarrhal fever and epidemic influenza is relieved by it. Over the various types of cough described under specific indications it has a controlling force, provided there is atony and the pneumogastric is involved. When these conditions prevail it has aided in the reduction of fever, and checked chills and night sweats, thus giving comfort in pulmonary tuberculosis. Sick headache, acute catarrhal disorders, whooping cough, summer colds, etc., accompanied by cough and muscular soreness, have been reported benefited by it. The pulse in sticta cases while soft, has a peculiar wire-like vibration or thrill. The chest soreness relieved by it simulates lameness, is increased by taking a deep breath, and feels like that arising from a bruise or muscular overexertion.

STILLINGIA.

The dried root of ***Stillingia sylvatica***, Linné (Nat. Ord. Euphorbiaceae). Southern United States growing in sandy soils. ***Dose***, 5 to 60 grains.

Common Names: Queen's Root, Queen's Delight, Silver Leaf, Yaw Root.

Principal Constituents.—Tannin, sylvacrol, an acrid resin-volatile oil; doubtfully an alkaloid, stillingine.

Preparations.—1. ***Specific Medicine Stillingia***. ***Dose***, 1 to 30 drops.

2. ***Linimentum Stillingia***, Compositus, Compound Stillingia Liniment (Stillingia Liniment). (Contains Oil of Stillingia, 1 fluidounce; Oils of Lobelia and Cajuput, each, 1/2 fluidounce; Alcohol and Glycerin, each, 2 fluidounces.) ***Dose***, 1 to 5 drops.

Specific Indications.—Feeble tissues, with tardy removal of brokendown material, and slow reconstruction of tissues; mucosa red, glistening and tumid, with scanty secretion; skin lesions, with irritation and ichorous discharge; periosteal pain and nodes; syphilitic and strumous cachexia; laryngeal irritation with paroxysmal hoarse croupal cough; post-faucial irritation with cough; irritative winter cough.

Action and Therapy.—Stillingia is an important alterative when a good preparation can be procured. Much of the failure to achieve results

with it has come from the use of medicines prepared from old and worthless material. Large doses of an active preparation will cause increased cardiac activity, excessive bronchial secretion, vomiting and bilious purging, with a peculiar gastro-intestinal burning sensation, and more or less resultant prostration. For a long time it has been praised as a remedy for syphilis, and discordant views are expressed by clinicians as to its value as such. We do not believe it antisyphilitic, but it is one of the best alteratives that can be exhibited in syphilitic and strumous cachexias, greatly aiding other and more powerful agents, as the iodide of potassium. In all phases of secondary syphilis—cutaneous syphilides, mucous patches, ulcers, and periosteal pain and nodular and glandular enlargements—it renders good auxiliary service through its depurative action. It must not be misunderstood, however, that any claim to a cure of syphilis by stillingia can be justified by past experience. Nevertheless, it is one of the best of remedies to modify the disease and assist other agents to cure. The best indication for it is the red, shining or glistening mucous membranes with scanty secretion, and the presence of retained debris of tissue waste with tardy repair of structure.

While sometimes used early in syphilis, during the primary stage, we can see no reason for its use before broken-down products begin to appear as it is not ***per se*** an antisyphilitic; and experience has shown the drug to be of the greatest value in the secondary stage of the disorder.

Stillingia is valuable, though less so than Stillingia Liniment (see below) in laryngeal irritation and cough, and other irritative states of the bronchi and faucial arch, with repressed secretion. Thus it may be used in chronic laryngitis, chronic bronchitis, the chronic coughs of the strumous individual, where glandular swelling and scanty elimination are evident. It is one of the most effectual drugs we have ever used for the irritable winter cough of the middle-aged and old. Stillingia may be used in chronic periosteal rheumatism, so-called, of unproved origin, but probably syphilitic; and in skin diseases having a remote syphilitic history.

Hare advises its use in chronic constipation to increase intestinal secretion, and for hemorrhoids depending upon “hepatic engorgement and intestinal atony. Likewise for ‘pasty-looking’, white, ‘putty-faced’ children, who are anemic or strumous, and who never have any

appetite, or are subject to middle-ear trouble and general debility"; the remedy to be used for some time.

Compound Stillingia Liniment. This compound produces both stimulation and relaxation. Locally applied to the throat and chest and given internally on sugar or in syrup this is one of the most perfect remedies for spasmodic and catarrhal croup of young children. A cloth wet with cold water applied around the neck and covered with a dry binder enhances the value of the treatment. Many cases of acute cold and sore throat are speedily arrested by the same treatment. We would be at a loss to treat croup and croupal coughs without this admirable heritage from the Eclectic pioneer physicians. Sometimes spasmodic asthma is promptly checked by it. Pushed too far stillingia liniment causes nausea and vomiting, but it is never necessary to carry it to such a stage. A few drops upon sugar, or in glycerin or syrup, promptly relieve dry, rasping, laryngeal cough, and in chronic bronchial cough with either scant or profuse expectoration it gives splendid results. Stillingia liniment is sometimes used like other embrocations for lame, rheumatic, inflamed, and otherwise painful parts; and with very gentle massage it gives relief to the soreness of the chestwalls from difficult breathing experienced by consumptives, as well as the pains in the limbs so frequently a torture to this class of sufferers.

STRAMONIUM (Datura spp.).

The dried leaves of ***Datura Stramonium***, Linné, or of ***Datura Tatula***, Linné (Nat. Ord. Solanaceae). A common weed everywhere in the United States, especially the latter. ***Dose***, 1 to 2 grains.

Common Names: Jamestown Weed, Jimson Weed, Thornapple. h

Principal Constituents.—The chief datura alkaloids are ***hyoscyamine***, and some ***atropine***, and ***hyoscine***. ***Daturine*** is probably a mixture of the first two. (See also ***Hyoscyamus*** and ***Belladonna***.)

Preparations.—1. ***Specific Medicine Stramonium***. ***Dose***, 1/30 to 5 drops.

2. ***Unguentum Stramonii***, Ointment of Stramonium. Best preparation is that carefully prepared by simmering fresh stramonium leaves with petrolatum, on a water bath, so that burning cannot take place. The official ointment is prepared from extract of stramonium.

Specific Indications.—Cerebral irritation; furious raging and destructive delirium; face deeply congested, red, and bloated; loquaciousness; restlessness and fearfulness; superficial and localized pain; spasms with pain; convulsive cough; purely spasmodic asthma; the opium habit.

Action and Toxicology.—The action of stramonium is closely similar to that of belladonna. If anything, it has a more profound effect upon the sympathetic system and upon the vagus. If the dose be large enough it will disturb the rhythm of the heart action and induce delirium, exerting these effects more readily and more powerfully than does belladonna. Stramonium is probably the most violent deliriant of the solanaceae. Its alkaloid daturine is closely akin to, if not identical with, hyoscyamine. American manufacturers are now utilizing stramonium for the preparation of atropine from daturine, and during the year 1917 of the great World War this source practically prevented an atropine famine in the American drug markets.

Therapy.—***External***. Fomentations of stramonium leaves, or the bruised fresh leaves may be applied to inflamed and painful parts to reduce swelling and relieve pain. In this manner it is often useful in mammitis, orchitis, swollen joints, and painful external hemorrhoids. An ointment of stramonium, carefully prepared without burning it, is an excellent application for painful and engorged piles, or as the ointment basis for other agents to be used for the same purpose. It is also soothing in cutaneous hypertrophy around the anus with intolerable itching and sometimes semipurulent secretion. It is rendered more effective by incorporating with it 5 to 10 per cent of salicylic acid. Stramonium leaves, alone, or with tobacco, lobelia, grindelia, and nitrate of potassium are universally employed as an "asthma powder". It is used by igniting the powder and inhaling the vapors, or by smoking it in a pipe or in the form of cigarettes. It is among the most prompt of measures for the temporary relief of the paroxysms of purely spasmodic asthma.

Internal. The specific indications for stramonium are those indicating impaired innervation. The face is red and bloated and of a deeper congestive appearance than that for belladonna; there is continual talking and the patient is uneasy, cannot rest well in any position, and is possessed of an ungrounded fear. There may or may not be furious, enraged, or destructive delirium. Localized and superficial pain, or

spasm with pain, is experienced. It is also indicated by convulsive cough, and purely spasmodic asthmatic attacks. When the dyspnea is dependent upon respiratory or cardiac lesions it is less useful. In all stramonium cases there is ***cerebral irritation***—causing most often violent excitability or less frequently depressive irritability. The dose, therefore, should be governed accordingly; medium doses for the former, minute doses for the latter. In no instances are the full physiologic doses necessary except in the cure of the opium habit, when the drug may be pushed to the full limit of endurance. It remains to be seen whether permanent damage may be done to the intellectual faculties from such dosage, as is the case with atropine.

In medicinal doses stramonium is an anodyne antispasmodic, without causing constipation or lessening of the excretion of urine, and will prove serviceable in many instances where opium cannot be given. Unlike hyoscyamus it does not readily produce sleep, but if sleep results from its administration, it is generally due to the fact that the stramonium alleviates the pain, or allays the nervous irritability upon which the insomnia depends. It is quite remarkable that a plant so closely allied to belladonna chemically should be so different in some of its therapeutical effects, and particularly in regard to alleviating pain. Thus for deep-seated pain, as of neuralgia, it is far less effective than belladonna, but for superficial neuralgia, and especially when locally applied, it is more effective than the former. It illustrates well the fallacy of claiming certain effects from a medicine because of the known physiological action of the drug—the therapeutical effects often being widely at variance. Bartholow well expressed the situation and unconsciously forecast collodial therapy when he observed: “Identity of chemical constitution does not always mean identity in physiological action and in therapeutic power. Differences in molecular arrangement, not appreciable by chemical analysis, may influence to a great extent mode of action”.

Stramonium is useful for the relief of pain, but less so in general than belladonna. When pain is due to irritability, as in enteralgia, gastritis, and enteritis, neuralgic dysmenorrhea, spasmodic intestinal pain, tic douloureux, sciatica, and the pains of chronic rheumatism, it is useful but does not compare with either belladonna or hyoscyamus, either of which are incapable of subduing severe pain. Stramonium serves well, however, in headache, with dizziness and hyperacidity of the stomach, and in gastric headache when associated with nervous erethism and

unsteadiness.

Like hyoscyamus, stramonium meets two classes of nervous and mental disorders—the mentally excited, with furious delirium and motor-excitability; and the depression of nervous debility. The first requires medium doses; the last the small dose. In the acute delirium of acute mania it quiets the violent, boisterous and angry patient bent upon destruction of everything and everybody, including himself. Equally effective is it in the quieter and busy delirium of acute fevers. It finds a use in delirium tremens, nymphomania, in epilepsy followed by maniacal excitement, in hysterical mania with alternate fits of weeping and laughter, and in globus hystericus.

Stramonium has been revived in recent years as a remedy to assist in breaking away from the opium habit, and considerable success has attended its use. This is now possible since the nature of the alkaloidal contents of this and the allied solanaceous drugs are better understood. Many years ago Locke advised the following formula: Rx Specific Medicine Stramonium, 1/2 fluidounce; Tincture of Cardamom, 3 1/2 fluidounces. Mix. Sig.: Begin with ten drop doses and increase as may be necessary.

Stramonium is invaluable in convulsive forms of cough and should have wider recognition for this purpose, in which it is fully equal to hyoscyamus. It is the best agent we have used to control whooping cough where the paroxysms are severe and bleeding from the mouth or nose occurs. As a general cough medicine it is better and safer than opium, because it does not restrain the excretions. Like atropine it is useful in hemoptysis brought on by fits of coughing or during spasms.

STROPHANTHUS.

The dried ripe seeds of ***StrophanthusKombé***, Oliver, or of Strophanthus hispidus, DeCandolle, deprived of their long awns (Nat. Ord. Apocynaceae). West and east coast of tropical Africa. ***Dose***, 1 to 2 grains.

Principal Constituents.—***Strophanthin*** ($C_{31}H_{48}O_{12}$—8 to 10 per cent), a bitter glucoside yielding glucose and strophanthidin (see below), kombic acid, inert alkaloid ineine and tanginin.

Preparation.—***Tinctura Strophanthi***, Tincture of Strophanthus. ***Dose***, 1 to 10 drops.

Derivative.—***Strophanthinum***, Strophanthin. Commercial strophanthin is a glucoside or mixture of glucosides occurring as a permanent white or yellowish powder, readily soluble in water and diluted alcohol; less soluble in absolute alcohol; and almost insoluble in ether and chloroform. It should not be tasted except in very dilute solution. ***Average Dose***, 1/60 grain (by mouth); 1/80 grain (intravenously).

Specific Indications.—Weak heart, due to muscular debility; muscular insufficiency; rapid pulse, with low blood pressure; cardiac pain, with dyspnea.

Action.—Externally applied, strophanthus preparations appear to exert no special effects unless mixed with hydrous wool fat, when the action of the drug is said to be apparent. The seeds, however, applied to the cornea produce prolonged anesthesia (Steinbach). Three or four drops of a solution of strophanthin (1 to 1000) applied to the cornea also produce total anesthesia, including insensibility to heat and cold (difference from cocaine), these sensations being the last to yield and the first to revive after its application. De Schweinitz and Hare found that ocular anesthesia occurs only in dogs, not in man. A disagreeable irritation of the conjunctiva has been produced by this use of strophanthin; it has no effect on intraocular pressure or upon vision - accommodation. Strophanthus is a muscle poison. When taken internally it acts primarily upon the voluntary muscles, increasing their contractility, and if the dose be poisonous it causes tetanic paralysis, the muscles being unable to regain their former normal flexibility. Under its toxic influence the muscles first become enfeebled, then somewhat rigid, fibrillary twitchings, which are spontaneous, non-rhythmical and increasing contractions, somewhat similar to those of chorea, are observed, and finally the muscles become pallid, non-contractile and hard. It is these effects that render strophanthus an efficient arrowpoison, the muscular paralysis produced rendering the animal an easy prey to its pursuer. When the muscles are in extreme paralysis, lactic acid has been observed to replace the normal alkaline condition. Strophanthus muscular paralysis consists chiefly in diminishing the ability of the muscles to relax, and then in destroying this capability, producing a condition difficult to distinguish from rigor mortis.

Strophanthus does not appear to affect either the spinal cord or to act upon its nerve trunks. Its specific action upon the heart is due to direct contact (through the blood) with the muscular fibres of that organ, and

not to any effect upon the cardiac nerves. A large dose so increases contractility that a more perfect, energetic, and prolonged systole is the result, and the capability of the muscle to relax is lost, or so diminished that diastole can not take place; after death the ventricle is so completely contracted as to almost efface the cavity, the heart passing from life directly into ***rigor mortis***. According to some it may cease either in systole or diastole. The caliber of the blood vessels is but little influenced by strophanthus, it having no effect upon the vaso-motor control. It is strongly diuretic in so far as lack of secretion depends upon low blood pressure, i. e., it increases diuresis in so far as increased blood pressure produces an increased urinary product. It is also thought by some to act especially upon the renal secreting structures. When one is in good physiological condition it is said to have little or no diuretic action; but in diseased conditions, with low blood pressure, it is asserted to excel digitalis in diuretic power.

If strophanthus be given in large doses it produces gastro-intestinal irritation with vomiting and diarrhoea. Small doses, however, act as a bitter tonic, improve the appetite, augment gastric action, and promote digestion. In proper doses it strengthens the heart-muscle, slows cardiac action, increases the interval between beats, reduces the pulse-rate, and powerfully increases arterial tension (but less so than digitalis), not by any effect (to any extent at least) upon the vessels, but by strengthening the heart-muscle, giving increased power. Whether or not the drug is cumulative is still an unsettled question, though it probably is not unless given too freely in overlapping doses. The action of a good strophanthus upon the heart is probably greater than that of any other drug, and its active principle, when pure, is of far greater potency than the digitalis derivatives.

Therapy.—Strophanthus is a remedy for ***weak heart*** from debility of the cardiac muscle, with lack of proper contractile power, as shown by a rapid, weak pulse, and very low blood pressure. The disordered action of the heart is due to lack of tonicity and not from weak walls due to deposition of fat, in which case the drug must be used with extreme circumspection, though in small doses it has been recommended by some as a remedy for cardiac fatty degeneration, as it has also in atheroma of the arteries in the aged. It is also a remedy for praecordial pain and for cardiac dyspnea. It has been strongly endorsed in heart affections with disorders of compensation. Strophanthus is useful in valvular heart disease only so far as there is muscular insufficiency,

where the compensatory increase of muscular action is not sufficient to offset the valvular insufficiency. “It has been reported useful in cases of mitral regurgitation with dilatation; mitral stenosis with regurgitation; regurgitation with edema, anasarca, dyspnea, etc.; mitral insufficiency with palpitation, praecordial pain, cyanosis, dyspnea, etc.” (***Annual of Eclectic Medicine and Surgery***, Vol. I, page 25.) Schiller (***ibid***., page 40) says: “When the balance in the circulation has become impaired, as a result of insufficiency of the valves of the heart from organic disease with a general dropsical condition, strophanthus, although affording temporary relief in some cases, has failed in every case in my hands to reestablish the compensation. The result was the same whether the mitral, the tricuspid, or the semilunar valves were most involved.” These are the cases of heart disease in which digitalis is the remedy. However, evidence is strong to show that when the muscular insufficiency can be corrected in these cases then the remedy will do good service. Schiller looks upon the drug as a remedy for what is ordinarily termed functional heart disease, when not sympathetic. The heart-action is rapid or abnormally slow, or the rhythm is bad, a condition common in school children at puberty when forced to overstudy. Strophanthus is well endorsed as a remedy for the irritable heart of tobacco smokers, masturbators, and those addicted to the use of alcoholics and narcotics.

Acute endocarditis and the reflex palpitation of neurasthenic, hysterical, and chlorotic subjects have been signally benefited by strophanthus, while it appears to give better cardiac power during or after typhoid and other adynamic fevers, when heart failure threatens. It should be remembered as a remedy for threatened cardiac failure in any disease. Full doses should be given for the relief of angina pectoris, and the remedy should be continued for a period after the attack. It is less efficient, because slower in action, than amyl nitrite or nitroglycerin, but may be given for more permanent effects after the evanescent action of these agents has passed off. In pulmonary congestion and in acute bronchitis or acute pneumonia it may be employed when there is deficient heart power.

Strophanthus has been praised for prompt results in cardiac asthma and bronchial asthma, with edema; in whooping cough it has many advocates. Goitre is asserted to have been cured with it, and large doses (8 to 25 drops of the tincture several times a day) have been said to cure a large proportion of cases of exophthalmic goitre, with irregular

cardiac action. Schiller reported great relief to the heart symptoms in two cases of exophthalmic goitre, with disappearance of the bronchocele in one case (***Annual of Eclectic Medical and Surgery***, Vol. I, page 40). Strophanthus has also been lauded as a remedy for chronic nephritis, with albuminuria, in anasarca, and in ascites from hepatic cirrhosis. It is of little value in edema and other forms of dropsy or kidney affections unless dependent upon cardiac disorders.

Strophanthus does not take the place of digitalis, each having its own field of action. It may, however, follow the use of other heart tonics, and particularly those evanescent in action, as amyl nitrite and nitroglycerin. As it does not affect the caliber of the vessels, it may be used in preference to digitalis when it is not desirable to add extra work to the heart. It is well borne by the aged and by children. Wilcox (***Materia Medica***) sums up the advantages of strophanthus over digitalis as follows: "Greater rapidity, modifying pulse-rate within an hour or two; less marked vaso-constrictor effects; greater diuretic powers; no disturbance of digestion from properly made preparations; absence of so-called cumulation; greater value in children; great safety in the aged." He further summarizes its uses as follows: "It should, therefore, be the remedy of choice for all patients in whom we wish to establish compensation; for arterial degeneration in which a remedy which causes more energetic cardiac contraction is required; for cardiac disease when a diuretic is necessary; for weak or irritable hearts; and for the treatment of cardiac disease in childhood or old age." These we would qualify by adding when the heart-muscle is at fault.

Strophanthus should be avoided or very cautiously used in advanced muscular degeneration, in pronounced mechanical defects of the heart, and in fully and over-compensated hearts. Strophanthus is also contraindicated in aneurism, advanced myocardial degeneration, and in well developed atheroma and arteriosclerosis. Unfortunately there is a great variation in strength in various batches of tincture of strophanthus owing to lack of uniformity in the crude drug employed. The dose of tincture of strophanthus is from one to ten drops; of strophanthin, 1/500 to 1/60 grain, all of which should be cautiously administered.

SUMBUL (Ferula sumbul).

The dried rhizome and roots of ***Ferula Sumbul*** (Kauffmann), Hooker filius (Nat. Ord

Umbelliferae). Northeastern and central Asia, coming into market through Russia. ***Dose***, 5 to 60 grains.

Common Names: Sumbul, Musk-Root, Jatamansi.

Principal Constituents.—A musk-odored volatile oil, aromatic resin, balsam, and angelic, valeric, and sumbulic acids.

Preparation.—***Fluidextractum Sumbul***, Fluidextract of Sumbul. ***Dose***, 10 to 60 drops.

Action and Therapy.—Sumbul is a stimulating tonic to the nervous system, and for that purpose is employed chiefly with associated nervines, in asthenia and nervous depression. It is particularly adapted to neurasthenia and nervous exhaustion of anemic or chlorotic women to allay nervous unrest and impart tone. Many physicians employ it as a nervetonic and reconstructive in convalescence from prolonged illness.

SYMPHYTUM.

The root of ***Symphytum officinale***, Linné (Nat. Ord. Boraginaceae). Europe; naturalized in the United States.

Common Name: Comfrey.

Principal Constituents.—Mucilage in quantity, tannin and asparagine.

Preparation.—***Tinctura Symphyti***, Tincture of Symphytum (recent root, 8 ounces; Alcohol, 16 fluidounces). Dose, 1 to 10 drops.

Action and Therapy.—This drug is chiefly mucilaginous and used, therefore, as a demulcent in pulmonary, gastric, and renal irritation and inflammations. With many it is a favorite for irritative cough, with bloody expectoration; and in mucous disorders with a tendency to hemorrhage. In ancient days it was lauded as a vulnerary, even to promoting the quick healing of fractured bones, a myth that was more recently revived in England because of the discovery of a principle (allantoin) found in the plant.

TANACETUM.

The leaves and tops of ***Tanacetumvulgare***, Linné (Nat. Ord. Compositae). Europe;

naturalized and cultivated in the United States. ***Dose***, 5 to 60 grains.

Common Name: Tansy.

Principal Constituents.-A volatile oil (***OleumTanaceti***), and an amorphous, bitter ***tanacetin***.

Preparations.-1 ***Oleum Tanaceti***, Oil of Tansy. ***Dose***, 1 to 10 drops.
2. ***TincturaTanaceti***, Tincture of Tanacetum (fresh herb, 8 ounces, to Alcohol, 76 per cent). ***Dose***, 1 to 30 drops.

Action and Toxicology.—Oil of tansy is a gastro-intestinal and nerve poison, and in overdoses has caused epileptiform convulsions, profound coma, and death by paralysis of the breathing organs (asphyxiation). Lesser doses may increase the pulse rate, dilate the pupils, and cause severe vomiting and purging with colicky pain. Doses above fifteen drops are dangerous. Most deaths have occurred from its use in attempts at abortion.

Therapy.-***External***. In use in domestic medicine as a fomentation to sprains and injuries, and to the abdomen in dysmenorrhea.

Internal. Tansy is a uterine stimulant and emmenagogue, and is a popular but unsafe remedy to restore arrested or delayed menstruation. An infusion is generally employed for this purpose by the laity. The cold infusion and the tincture (8 ounces to Alcohol, 16 fluidounces; dose, 5 to 10 drops) are sometimes useful as a gastric bitter in convalescence from exhausting diseases and in dyspeptic conditions with flatulence.

TARAXACUM.

The root of ***Taraxacumofficinale***, Weber, gathered in the autumn (Nat. Ord. Compositae). Native of Greece and a wayside weed in Europe and the United States. ***Dose***, 5 to 60 grains.

Common Name: Dandelion.

Principal Constituents.—***Inulin***, sugar, ***laevulin***, and an amorphous, bitter ***taraxacin***.

Preparation.—***Specific Medicine Taraxacum***. ***Dose***, 1 to 60 drops.

Specific Indications.—Anorexia, weak digestion, hepatic torpor, and constipation.

Action and Therapy.—If prepared from recent root, taraxacum preparations may be classed with the simple bitters, having in addition a slight laxative, diuretic and alterative action. In association with other indicated remedies they may be used in catarrhal jaundice, with hepatic torpor, chronic constipation, and in catarrhal gastritis; also as a laxative-alterative in autointoxications giving rise to skin disorders and aphthous ulcers. It is contraindicated in weak and irritable or inflammatory conditions of the stomach and bowels, causing flatulence, pain, indigestion, and diarrhea. The best preparation is an extract of the fresh root.

THUJA.

The branchlets and leaves of ***Thuja occidentalis***, Linné (Nat. Ord. Cupressaceae). Indigenous to Canada and the United States, on the rocky borders of streams and lakes, and in swamps.

Common Names: Arbor Vitae, Yellow Cedar, False White Cedar, Tree of Life.

Principal Constituents.—***Oleum Thuja***, (Oil of Arbor Vitae), having a camphoraceous odor and tansy-like taste, and composed of dextro-pinene, laevo-fenchone, and dextro-thujone; a bitter glucoside, ***pinipicrin***, and thujin($C_{20}H_{22}O_{12}$), an astringent, yellow glucoside closely related to quercitrin.

Preparations.—1. ***Specific Medicine Thuja***. ***Dose***, 1 to 30 drops.
2. ***Aqueous Thuja***. Dose, 1 to 40 drops; chiefly used locally.
3. ***Long's Thuja***, An Ointment of Thuja.

Specific Indications.—Vesical irritation and atony; enuresis due to atony; urinal incontinence in children due to a weak bladder; dribbling of the urine in the aged, not due to paralysis or growths; urine expelled upon exertion as coughing, etc.; catarrhal flow from bladder or genitalia of male or female; chronic prostatitis; warty excrescences, and dry forms of eczema. Locally: fissured anus, prolapsus ani, pruritus in mucous membranes; venereal discharges; trachoma; warts; naevi; urethral caruncles; and hydrocele.

Action.—In small doses thuja is tonic and increases the activities of the kidneys. Large doses may provoke the irritant effects common to

the turpentines and balsams. It has been asserted to have caused abortion, a doubtful effect, but attributed secondarily to violent gastric and intestinal irritation, resulting from excessive amounts of the drug. In many respects it resembles the activities of savin; though unlike the latter it is not a poison.

Therapy.—***External***. Locally thuja is stimulant, subastringent, deodorant and antiseptic. It is especially useful for the restraint and reduction of hypertrophic changes in the mucous and cutaneous tissues. It will deaden and repress fungous granulations, and for this purpose may be applied to "Proud flesh" and "ingrown nail" (both overgrown granulations). Alcoholic preparations of thuja may be employed to retard fungoid granulation and ulceration in epithelioma (does not cure), bed sores, sloughing wounds, fistulae, and to overcome the stench of senile and other forms of gangrene. It has a good record in curing papillomata and condylomata (upon the nates) when soft and there is foul exudation; and often succeeds in controlling venereal or genital warts. Alcoholic preparations of thuja are generally conceded to be the best local and kindly acting vegetable medicines for the dispersal of common warts or verruccae on any part of the body. It is applied locally and with reputed greater success hypodermatically into the base of the growth. Our personal experience with it for the removal of warts has been negative. Rarely it controls bleeding and ameliorates in hemorrhoids and prolapsus ani. Persisted in, though at first painful, it has cured fissure of the anus. Howe valued it for bulging naevi, and his once famous method of curing hydrocele with it is now little practiced. As compared with tincture of iodine or with carbolic acid it is less painful, but unlike the latter free from poisonous consequences through absorption. Howe's method was as follows: Tap and drain the tunica vaginalis testis, and inject two drachms of a solution of specific medicine thuja (one part) in warm sterile water (seven parts). Knead the tissues thoroughly so that the fluid is made to penetrate every part of the sac. More or less burning pain ensues, together with a greater or less degree of swelling; after sub sidence of the latter, if the procedure has been carefully executed, adhesion of the contact surfaces from the inflammation provoked results. Specific medicine thuja has been used to remove urethral caruncle and for the relief of chronic dry eczema of a furfuraceous character. Dropped upon hot water and inhaled it is of benefit in fetid sore throat, chronic and fetid bronchitis, bronchorrhea, and chronic nasal and retro-nasal catarrh. In all of the foregoing conditions the alcoholic preparations may be employed from full

strength to such a dilution as the individual cases demand.

Aqueous thuja is invaluable to relieve pain and promote quick healing in soft pultaceous chancroids. It quickly allays pain, checks the discharge and odor, prevents lymphatic engorgement, and stimulates healing. It has no effect upon hard chancre, nor is it in any sense to be regarded as antisyphilitic. Wherever upon sensitive tissues the alcoholic preparations are inadvisable, the aqueous preparation may be substituted. It has been especially useful in catarrhal granulation of the cervix uteri (tampon); its use being preceded by a hot douche. For acute gonorrhea the following injection is most valuable: Rx Colorless Hydrastis; Aqueous Thuja, each 1 part; Warm Water, 4 parts. Mix. Sig.: Inject every three hours. If there is much soreness add one part of Specific Medicine Hamamelis. The same mixture gives good results in subacute and chronic proctitis, following dysentery. Locally applied alone, or in the above-named combination, it may be used upon balanitis, herpetic ulcers, and abrasions and excoriations of the glans penis. As a local wash for mucous erosions in the mouth, for sore nipples, and for chapped hands it is pleasant and often efficient.

Ointment of Thuja is the preferred thuja preparation for granular ophthalmia or simple trachoma. When the granules are soft and pultaceous a wetted alum pencil may be quickly passed over the everted lid, making but one sweep at each treatment. The parts are then dried, especially if the subconjunctival tissue is much infiltrated; and the ointment applied by means of a camel's-hair pencil. This should be done once a day. Fleeting pain is experienced. Absolute cleanliness should be insisted upon when home treatment is carried out, and constitutional remedies administered when conditions warrant them.

Internal. Thuja is stimulant, subastringent, and antiseptic. Internally its effects resemble those of the terebinths, particularly savin, though it is less energetic than the latter. It is employed chiefly for its effects upon the mucous tracts—particularly the broncho-pulmonic and genito-urinary. While it has been advised (by inhalation from hot water) for hemoptysis, we have far better agents for this purpose; but in bronchial affections with excessive and fetid expectoration it is of considerable value and ranks well with other terebinthinates. Its most specific action is upon the bladder controlling urinal incontinence in all forms except those excited by urinary concretions, paretic

conditions, worms, or malignant growths. A most marked effect for good comes from its use for the relief of dribbling of urine in the aged and the young, provided paralysis does not exist in the former, or preputial adhesion or phymosis is not present in the latter. Doses of five to ten drops of the specific medicine often relieve nocturnal enuresis in children, when merely functional. Lack of tone in the muscularis mucosae appears to be the indication for it. The bladder seems too weak to prevent leakage, and for this debility it is especially useful when coughing or straining at stool, or the lifting of weighty objects causes an expulsion of urine. The doses mentioned also aid the local use of aqueous thuja in gleet when accompanied by granular urethritis. In habitual bed wetting the following is sometimes more effectual than thuja alone: Rx Specific Medicine Thuja, 30 drops; Specific Medicine Belladonna, 20 drops; Water, enough to make 4 fluidounces. Mix. Sig.: One teaspoonful four times a day. Thuja gives comfort and relief in that unfortunate condition in old men with enlarged prostate in which the urine constantly dribbles, entailing much discomfort and misery, and producing unsightly stains upon the clothing. Whether it has any power to reduce an enlarged prostate has not been determined, but that it relieves weakness of the neck of the bladder is well established. Some claim that thuja is especially serviceable in cystic irritability when associated with eczema or with gout. Like most products of the conifers, thuja sometimes proves emmenagogue and stimulates in atonic amenorrhea when the genital tissues are flabby and lifeless.

TRIFOLIUM.

The blossoms of ***Trifolium Pratense***, Linné (Nat. Ord. Leguminosae). Cultivated everywhere.

Common Name: Red Clover.

Principal Constituents.—Resins and Tannin.

Preparation.—Specific Medicine Trifolium. ***Dose***, 1 to 60 drops.

Specific Indications.—Irritability of the respiratory passages, with dry, explosive cough; carcinomatous cachexia.

Action and Therapy.—Trifolium is alterative and antispasmodic. It relieves irritability of the respiratory tract, alleviating dry, irritable and

spasmodic cough. Whooping cough is especially moderated by it, and it is frequently effective in lessening the distressing cough of measles, though in both disorders it fails as often as it succeeds. It also modifies cough in bronchitis and laryngitis. Its alterative powers are underrated, and it should be given where a general deobstruent effect is desired in chronic skin diseases, and unquestionably has a retarding effect upon malignant neoplasms. Though by no means curative in carcinoma, patients who have been operated upon for cancer are slower in redeveloping the growths when given tincture of trifolium daily.

TRITICUM (Agropyron repens).

The dried rhizome and roots of ***Agropyron repens*** (Linné), Beauvois (***Triticum repens***, Linné); (Nat. Ord. Gramineae). A native of Europe and naturalized in the United States, where it has become a nuisance. ***Dose***, 120 to 240 grains.

Common Names: Couch-Grass, Quick-Grass, Quitch, Dog-Grass.

Principal Constituents.—A hygroscopic, gummy, inulin-like principle, ***triticin*** (8 to 11 per cent), ***lavulose*** (2 to 4 per cent), and acid malates.

Preparations.—1. ***Infusum Tritici***, Infusion of Triticum (Triticum, 1 ounce; Water, 16 fluidounces. Infuse one hour.) ***Dose***, 2 to 4 fluidounces several times a day.

2. ***Specific Medicine Triticum***. ***Dose***, 1 to 60 drops.

Specific Indications.—Irritation of urinary passages; pain in the back; frequent and difficult or painful urination; gravel; discharges of mucus and blood from the urethra.

Action and Therapy.—A mild diuretic with slightly aperient properties, and a demulcent of value in irritated conditions of the genito-urinary organs. It is of special value to lessen the frequency and pain of urination—a remedy for dysuria and strangury. It may be used when inflammation is present, and is highly valued in chronic cystic irritability, cystitis, pyelitis, incipient nephritis, prostatitis, and in any condition in which an excess of mucus, pus, or blood is passed in the urine. Indirectly it acts as an alterative by washing away broken-down material by way of the renal organs.

TUSSILAGO.

The leaves and flowers of ***TussilagoFarfara***, Linné (Nat. Ord. Compositae). Europe, Asia, East Indies, and the United States. ***Dose***, 10 to 120 grains.

Common Name: Coltsfoot.

Principal Constituents.—Acrid volatile oil, a bitter glucoside, resin, tannin, ***saponin*** and mucilage (3 to 4 per cent).

Preparation.—***Infusion Tussilago***, Infusion of Tussilago. ***Dose***, 1 to 4 fluidounces.

Action and Therapy.—A demulcent to allay irritation of the bronchial and gastric mucous membrane, and of considerable value in coughs, laryngitis, bronchitis, asthma, pharyngitis, whooping cough, and gastric and intestinal catarrh. A coltsfoot candy is a popular confection for cough and sore throat.

ULMUS.

The dried, inner bark of ***Ulmus fulva***, Michaux (Nat. Ord. Ulmaceae). Eastern half of the United States, in woods.

Common Names: Slippery Elm, Elm, Elm Bark.

Principal Constituents.—Chiefly mucilage.

Preparation.—Mucilago Ulmi, Mucilage of Elm. ***Dose, Ad libitum***.

Action and Therapy.—***External***. Elm bark forms a good emollient poultice of lighter weight than many others and is useful where such applications are permitted, as upon inflamed surfaces, hemorrhoids, and forming abscesses. As a rule, poultices should not be applied to open surfaces.

Internal. Elm bark is nutritive and demulcent. A mucilage of elm of good quality should be prepared with very cold water. Take shredded elm bark, bundle the shreds together after the manner of making a whisk broom, by tying one end with a long string. Suspend the bundle of bark in a vessel of ice water, from a support placed across the top of the container. A thick, ropy, mucilaginous preparation will result

which is far more serviceable than those prepared on a water bath, the common method of preparing mucilage of elm.

Mucilage of elm is a splendid demulcent for irritable and irritated or inflamed mucous membranes, and to relieve dryness of the tissues of the mouth and throat, and to alleviate cough. It is one of the best agents to use after poisoning by irritants, to allay the distress and protect the inflamed tissues.

URTICA.

The leaves and root of ***Urtica dioica***, Linné (Nat. Ord. Urticaceae). Common in Europe and the United States. ***Dose***, 20 to 40 grains.

Common Names: Nettle, Stinging Nettle.

Principal Constituents.—A volatile oil, tannic and gallic acids, and probably formic acid.

Preparation.—***Specific Medicine Urtica***. ***Dose***, 1/2 to 20 drops.

Specific Indications.—Excessive mucous discharges; choleraic discharges; profuse gastric secretion, with eructations and vomiting; eczema of infants.

Action and Therapy.—***External***. Contact with growing nettle produces an intense stinging, probably due to an unorganized ferment in the hairs of the plant, though by some formic acid is believed to be the irritating substance. A lotion of Specific Medicine Urtica, 2 fluid-rachms; Rose Water, enough to make 2 fluidounces, is reported to have been effective in stubborn eczema of the face and scalp. The crusts should first be removed by means of olive oil and asepsin soap. Its internal use should accompany its external application.

Internal. Profuse choleraic and excessive mucous discharges, as in cholera infantum and dysentery, are reputed to have been controlled by urtica, while it also has a restraining effect in gastric affections with excessive gastric secretion, and eructations, and vomiting. Chronic cystitis, with large mucous diuresis, is also asserted to have been benefited by it.

USTILAGO.

A parasitic fungus, ***Ustilago segetum*** Bull (Ustilago Maydis), developed on the fruit of ***Zea Mays***, Linné, or Indian Corn (Nat. Ord. Fungi-Ustilagineae). ***Dose***, 1 to 20 grains.

Common Names: Corn Smut, Corn Ergot, Corn Brand.

Principal Constituents.—An alkaloid ***ustilagine***, trimethylamine, and ***sclerotic*** (maizenic) ***acid*** (probably not identical with that of ergot).

Preparations.—***Specific Medicine Ustilago***. Dose, 1 to 60 drops.

Specific Indications.—Feeble spinal and sympathetic innervation; feeble capillary and venous circulation; impaired circulation of cerebrum, with dizziness and unsteadiness; uterine derangements with excessive flow of blood or other discharges; lax genital tissues, with uterine pain; pain in top of head; uterine inertia; post partum and passive hemorrhages.

Action.—This fungus unquestionably possesses power, acting as a spinal excitant and producing convulsions and destroying life either by tetanus or exhaustion. It dilates the pupils. Upon animals it acts as an abortifacient and produces a shedding of hair, hoofs and horns. Its action has been compared to that of ergot and nux vomica combined.

Therapy.—Ellingwood is authority for the statement that ustilago is preferable to ergot as a parturient because it produces intermittent (clonic) instead of tonic contractions; and decreases after-pains, conduces to better uterine involution, and controls hemorrhage. Neither, however, is scarcely used by practitioners of the present day for parturient purposes. Scudder advised it to relieve false pains during the latter months of pregnancy, and other unpleasant sensations in the pelvic regions. It is also claimed that it arrests a too prolonged lochial flow by giving tone to the uterine wall. Observing the specific indications noted above, it may sometimes give relief to the disorders arising from masturbation and nocturnal pollutions, much as ergot and belladonna do, and in the ovarian and menstrual derangements, (chiefly of excessive discharges) in women with lax pendulous abdomen, weak and flabby enlarged uterus, and full toneless perineal and vaginal tissues. It is little used, but undoubtedly could be restudied with advantage.

UVA URSI.

The dried leaves of ***Arctostaphylos Uva-ursi*** (Linné), Sprengel (Nat. Ord. Ericaceae). A perennial evergreen common in the northern part of Europe and North America. ***Dose***, 30 to 60 grains.

Common Names: Uva Ursi, Bearberry, Upland Cranberry.

Principal Constituents.—A bitter glucoside ***arbutin*** ($C_{12}H_{16}O_7$), yielding ***hydroquinone***, ***methyl-hydroquinone***, and glucose; ***ericolin*** ($C_{10}H_{16}O$), ***ursone***, tannic and gallic acids.

Preparation.—***Specific Medicine Uva Ursi***. ***Dose***, 5 to 60 drops.

Specific Indications.—Relaxed urinary tract, with pain and bloody or mucous secretions; weight and dragging in the loins and perineum not due to prostatic enlargement; chronic irritation of the bladder, with pain, tenesmus, and catarrhal discharge.

Action and Therapy.—Uva Ursi is a true diuretic acting directly upon the renal epithelium. Owing to the presence of arbutin it is decidedly antiseptic and retards putrescent changes in the urine, and acts as a mild disinfectant of the urinary passages. It is to be used where the tissues are relaxed and toneless, with dragging and weighty feeling, and much mucoid or muco-bloody discharge. There is always a feeble circulation and lack of innervation when uva ursi is indicated. It is especially valuable in chronic irritation of the bladder, in vesical catarrh, strangury, and gonorrhea with bloody urination. It is claimed that when cystic calculi are present uva ursi, by blunting sensibility, enables their presence to be more comfortably borne. Pyelitis and mild renal haematuria sometimes improve under the use of uva ursi. Arbutin, in its passage through the system, yields hydroquinone, and this body, further changed by oxidation, renders the urine dark or brownish-green. This should be explained to patients taking the drug in order to allay any unnecessary fears the phenomenon may excite.

VALERIANA.

The dried rhizome and roots of ***Valeriana officinalis***, Linné (Nat. Ord. Valerianaceae). A native of Europe, but cultivated in England and the United

States. ***Dose***, 30 grains.

Common Names: Valerian, Great Wild Valerian.

Principal Constituents.—A volatile oil (***Oleum Valeriana***) composed chiefly of borneol and pinene, from 1 to 2 per cent, and valeric acid.

Preparations.—1. ***Specific Medicine Valerian***. ***Dose***, 1 to 30 drops.
2. ***Tinctura Valeriana***, Tincture of Valerian. ***Dose***, 1 to 2 fluidrachms.
3. ***Tinctura Valeriana Ammoniata***, Ammoniated Tincture of Valerian. ***Dose***, 1 to 60 drops.

Specific Indications.—Cerebral anemia; hysteria; chorea; hemicrania, all with mental depression and despondency; mild spasmodic movements.

Action and Therapy.—Valerian is a good cerebral and spinal stimulant. It also stimulates the gastro-intestinal secretions and favors digestion, unless given in too large doses or too long continued. It is one of the best of calmatives for that collective condition termed "nervousness". To act well it should be given when the brain circulation is feeble and there is mental depression and despondency. With such symptoms it proves useful in hysteria and hypochondria, nervous headache, and hemicrania. It is one of the best medicines we possess in the treatment of chorea. It should be given with an equal quantity of specific medicine macrotys, about ten to fifteen drops of each, three or four times a day. It controls hyperaesthesia better than actual convulsive attacks; therefore, it is of little value in epilepsy, for which it has sometimes been suggested; and in chorea it should be persisted in when the movements are mild, in order to prevent more pronounced muscular incoordination. In mental depression, due to worry or imaginary wrongs, valerian is an admirable drug. Owing to its volatile oil it is a good carminative in flatulence, with nervous unrest, and relieves the disagreeable sense of fullness felt after a meal by causing a rifting of gas. The oil and the ammoniated tincture are useful agents in fainting and nervous palpitation of the heart.

VANILLA.

The fruit of ***Vanillaplanifolia***, Andrews (Nat. Ord. Orchidaceae). A native Mexican vine, grown in many tropical countries, but on a commercial scale in Guadaloupe.

Dose, 1 to 10 grains.

Common Name: Vanilla.

Principal Constituents.—The fragrance of vanilla is due to ***vanillin*** ($C_8H_8O_3$) and to the presence of a small quantity of balsam.

Preparation.—***Tinctura Vanilla***, Tincture of Vanilla. ***Dose***, 1 to 10 drops.

Derivative—***Vanillinum***, Vanillin, is methylprotocatechuic aldehyde, occurring naturally in vanilla beans, or may be produced synthetically from several orthodihydroxy-benzene derivatives. It forms fine white or very pale yellowish, needle crystals having the characteristic taste and odor of vanilla; soluble in water and freely in alcohol, glycerin, ether and chloroform. It forms the whitish "frost" observed on vanilla. ***Dose***, 1/4 to 1 grain.

Action and Therapy.—Vanilla is an aromatic stimulant, but is seldom used as a medicine. It is said to promote wakefulness, increase muscular energy, and to powerfully stimulate the sexual appetite. It is used chiefly as a flavoring agent for medicinal syrups and tinctures, confections, and pastry.

VERATRINA.

Veratrine, Veratria.

A mixture of alkaloids obtained from the seeds of ***Schoenocaulonofficinale***, Asa Gray (***Sabadilla officinarum***, Brandt; ***Asagrea officinalis*** (Chamisso and Schlechtendal) Lindley; (Sabadilla seeds) (Nat. Ord. Liliaceae). Tropical regions from Mexico to Venezuela.

Description.—A white or grayish-white, non-crystalline powder, without odor, but causing violent irritation and sneezing when even a minute quantity comes in contact with the nasal mucosa. ***It should not be tasted***. Veratrine is slightly hygroscopic, though very sparingly dissolved by water (1,760 parts). It is very soluble in chloroform, alcohol and ether.

Action.—Locally, veratrine (or its salts) is a violent irritant closely resembling aconitine in action. Applied in alcoholic solution, ointment, or oleate, it excites a singular sense of heat and tingling, or prickling pain, which, however, does not last long, but is followed by coolness and more or less numbness; there is seldom redness or vesication unless the preparation is strong and applied with brisk friction. Inhaled, even in minute quantity, it occasions severe coryza

and excessive sneezing. Muscular twitching has resulted from its application in ointment to the face, and sometimes it gives rise to headache, nausea, griping, slight diarrhea, and depression of the action of the heart. When swallowed it is a violent, irritant poison, causing great acrimony in the parts over which it passes, salivation, peculiar prickling numbness of tongue and mucous membranes, violent vomiting, profuse and sometimes bloody, and bilious diarrhea (sometimes constipation); weak, irregular and quick pulse; cardiac depression; pallor of face and great faintness; cold sweats; muscular twitching and aching pain along the spine; contracted abdomen and pupils; and occasionally extreme pruritus and tingling which may persist for weeks. In so-called medicinal doses it produces a feeling of warmth in the stomach and bowels, which extends to the chest and extremities. In poisoning by it, the stomach should be thoroughly evacuated, and tannin solutions freely given and pumped out. Stimulation should be resorted to to overcome the depression; for this purpose alcoholics, aromatic spirit of ammonia, ammonium carbonate, artificial respiration, etc., may be employed.

Therapy.—***External***. Veratrine should be used only as an external application, and then rarely, in superficial functional neuralgia, myalgia, herpes zoster, chronic arthritis, acute gout, and other painful local inflammations. It is less effective than aconitine, but both are equally dangerous and great care should be exercised that it is not applied where the epiderm is denuded, nor should it be allowed to come into contact with or even be used near the eye, on account of the violent conjunctivitis caused by it. A 2 per cent solution in equal quantities of olive oil and oleic acid is usually employed.

Internal. Veratrine should not be used as an internal medicine.

VERATRUM VIRIDE.

The dried rhizome and roots of ***Veratrum viride***, Aiton (Nat. Ord. Liliaceae). An indigenous plant of swamps, low grounds, and moist meadows. ***Dose***, 1 grain.

Common Names: American Hellebore, Swamp Hellebore, Green Hellebore, Indian Poke.

Principal Constituents.—A powerfully toxic alkaloid ***veratrine*** ($C_{32}H_{49}NO_9$), or ***cevadine***, ocurring in both crystalline and amorphous forms; ***protoveratrine***

($C_{32}H_{51}NO_{11}$), also extremely poisonous; ***jervine***, ***vertroidine***, ***pseudojervine***, ***rubijervine*** (sternutatory) and resin.

Preparation.—Specific Medicine Veratrum. Dose, 1/20 to 5 drops.

Specific Indications.—Pulse full, frequent, and bounding; pulse full, rapid, corded or wiry; pulse full, strong, and intense, with throbbing of the carotids; pulse rapid and beating so forcibly that sleep is prevented; tissues full, not shrunken, and surface flushed with blood; increased arterial tension, with bloodshot eyes; erysipelas resembling an ordinary inflammation; cerebral hyperaemia; sthenic fevers and inflammations; irritation of nerve centers due to an excited circulation; convulsions, with great vascular excitement, full pulse, and cerebral hyperaemia; puerperal eclampsia; red stripe down center of the tongue; weight in the epigastrium, with forcible circulatory pulsations.

Action and Toxicology.—Veratrum is a powerful circulatory depressant. The exact action of the individual alkaloidal constituents is yet undetermined, as well as the effect each produces in the sum total of the effects of the root. According to Wood, the drug is a spinal and arterial depressant having no direct action upon the spinal centers; the direct action of jervine upon the heart-muscle, and the stimulation of the inhibitory nerves by veratroidine lower the pulse-rate; the force of the heart-beat is lowered by the direct action of jervine upon the heart-muscle, while the same constituent, according to dose, produces a more or less complete vaso-motor paralysis. The depression of the spinal motor centers is attributed to jervine. The emetic action of veratrum is said to be due to the combined action of veratroidine and the resin. All vaso-motor depressants and all agents which diminish the vital force, favor the action of veratrum. Nausea is always the signal for suspension of the administration of the drug. Death from veratrum is caused by asphyxia.

Veratrine and cevadine are identical. The veratrine of commerce, however, is variable in composition, but its action is probably mostly due to the amount of true cevadine present. Late investigations show that most of the action of veratrine is that of cevadine, though veratrum does not furnish the veratrine of commerce (see ***Veratrina***). One of the peculiar effects of veratrine is that of muscular contracture produced when in contact with the heart and the voluntary muscles. It is

exhibited in a prolongation of relaxation following the contraction of the muscle, appearing almost like a tetanic effect, but it is free from any rigidity or spasmodic quality—in reality a prolonged contraction in which there is a long and gradual relaxation several times longer in duration than that occurring in the unpoisoned muscle.

American hellebore exerts an influence upon the system quite similar to that of White Hellebore (Veratrum album). Veratrine does not represent the action of this plant, which contains but a small proportion of this body. Applied to the skin, veratrum is rubefacient; and to the nose, excites sneezing. Small doses of veratrum appear at first not to affect the frequency of the pulse, but to lower its force; it afterwards slows the pulse, it becoming moderately full and soft, and remaining so, unless the patient, during this stage of depression, attempts to rise or make any exertion, when the pulse becomes very rapid, small, thready, and sometimes almost imperceptible. During the stage of depression there is marked muscular weakness and relaxation, and nausea and vomiting take place, the contents of the stomach being evacuated first, and then those of the gall-bladder. Occasionally a watery diarrhea is caused by veratrum, sometimes amounting to hypercatharsis, but as a rule purging is not produced. The nausea produced by veratrum is intense, and the vomiting severe and often persistent, making it, therefore, an unsafe emetic. The most characteristic action of veratrum is its effects upon the movements of the heart and upon vascular tonus. The pulse-rate has been lowered to thirty-five beats -a minute with this agent, a corresponding depression of force accompanying this action. When such depression is reached, it is seldom that emesis can. be prevented. In large doses it is a very dangerous agent, yet, singularly, fatalities from its use are rare. Toxic doses produce an exceedingly weak heart-action, almost indistinguishable, running pulse, reduced temperature, cold, clammy sweat, extreme retching and incessant vomiting, dizziness, faintness, failure of sight, pupillary dilatation, complete muscular prostration, slow, shallow breathing, sleepiness, coma, and unconsciousness, with sometimes stertorous breathing. The prompt emesis induced by this agent undoubtedly prevents lethal effects.

In poisoning by veratrum, withdrawal of the drug and free stimulation will quickly overcome the depression. Large draughts of warm water may be given to encourage and assist emesis until the stomach has been thoroughly washed out. This should be followed by undiluted

whiskey or brandy to check the vomiting. Opium or morphine may be given by mouth or otherwise, ammonia and alcoholics may be used by enema or hypodermatically, and strychnine or digitalis may be given by the latter method. External heat, sinapisms, friction, etc., must be utilized, and under no circumstances must the patient be allowed to rise from the recumbent position, not even to raise the head to vomit.

Therapy.—***External***. Painted upon boils, felons, carbuncles, abscesses, inflamed acne, cellulitis, and other local inflammations, veratrum will frequently ease pain and facilitate resolution, or hasten suppuration. For erysipelas showing much tumefaction and redness, and appearing much like an ordinary inflammation, veratrum is one of the best topical applications. It should be given internally at the same time. Similarly used, it sometimes relieves herpes labialis and herpes zoster. It is one of the local medicines that occasionally relieves the dermatitis of rhus poisoning. Used by means of a spray it may abort acute tonsillitis and modify it after it is established. But small quantities should be used.

Internal. Veratrum is a remedy of great value and power, though quite transient in its effects. Small doses do good work when indicated, but they must follow each other at short intervals, so that a continuous action may be kept up. Owing to its tendency to induce gastric irritability, with nausea, large doses are not tolerated, and small doses are contraindicated when the tongue becomes long and pointed and reddened at the tip, and nausea and other unpleasant gastric phenomena are present. Veratrum increases secretion from the lungs, kidneys, and liver, but depresses the circulatory system. It is not adapted to asthenic troubles, but proves an admirable remedy in ***sthenic conditions***, with the full, bounding pulse.

Therapeutically veratrum is one of the chief special or arterial sedatives. The so-called sedative action of this group of remedies, so important in specific medication, is in reality that of gentle stimulation of the nerves controlling the heart and circulation, and depends wholly upon the manner of using them. In the smallest medicinal doses they are arterial or special sedatives; in the large doses they are cardiac and circulatory depressants, and are then dangerous remedies. To this group belong the trinity—veratrum, aconite, and gelsemium. Each has its own special field, and no one of them will exactly duplicate the effects of the others. Aconite and veratrum have

been said to act similarly. In a measure only is this true, and there are many properties peculiar to each. To do the kindly therapeutic work that veratrum accomplishes in small and safe doses would require a dangerous dose of aconite. Full doses of aconite will bring down the full, strong pulse in sthenic disorders, but it does so only in a dose which imperils the patient. So long as aconite is reserved for use in small doses for the small frequent pulse, without capillary resistance one need have no cause to fear its action in the least. But one must hesitate at the large dose required to reduce a full, vigorous pulse, for there he is taking an unsafe risk; besides, we have in veratrum a drug that will meet the condition better and do it without the least danger to the patient's health or life. A long experience has convinced us fully of the confirmation of the truth that the great specific indication for veratrum is the ***full, bounding pulse with or without inflammation or elevation of temperature***.

Veratrum is a remedy for ***sthenic conditions***, whether it be a fever of any of the commoner types, an inflammation, iodiopathic or traumatic, or puerperal septicemia, or puerperal convulsions. The prime indication is the full, bounding, rapid pulse, hard and rope-like in character, with or without fever or inflammation. It is the remedy where there is free action of the heart, with active capillary circulation; serous inflammation with hard and full pulse, or full and bounding pulse; or even with wiry or corded pulse. It should not be administered freely when there is gastric irritability, but fortunately, as a rule, when veratrum is indicated this irritability is not often present. The effects of veratrum are of short duration; therefore, it should be frequently administered in small doses for its continuous effects.

The winter season is particularly a time when veratrum is likely to be needed most. The majority of cases of acute infectious pneumonia, which prevail most largely during the cold months, come on suddenly with the full, bounding pulse. Veratrum wonderfully controls the circulatory and febrile conditions and aids in checking the inflammatory ravages of the disease. It should be given in the early stages only and in the cases markedly sthenic. The dose should be small and frequently repeated until the temperature and circulation respond, when the pain will be found to have been lessened, nervous excitation allayed, secretion reestablished, and cough controlled. It is probably oftener indicated in acute pneumonia than any other agent except bryonia. In pleurisy, veratrum sometimes acts like magic, and

in la grippe (epidemic influenza) it is, perhaps, the safest of all the circulatory sedatives and the most frequently indicated. At the onset of tonsillitis the conditions are usually sthenic and indications prominent for veratrum.

Painting veratrum upon the tonsils, or using it diluted by means of a spray, is often a great aid in controlling the inflammation, allaying pain and aborting abscess (quinsy). In all acute sthenic sore throats it is a most valuable agent. The facility with which veratrum controls the situation in acute respiratory disorders of a sthenic type, is a striking confirmation of the truth of specific medication—the pulse slows and softens, the temperature comes down without shock, expectoration is facilitated, pain is allayed, cough is lessened, and the nervous unrest gives way to peace and comfort, and in curable cases the battle is half won at the beginning. In chronic lung disorders we occasionally find veratrum of use when acute exacerbations occur and the circulation is augumented and temperature heightened. But as a remedy for other purposes, except occasionally to control nervous unrest, we have not found it so valuable in chronic pulmonary troubles as others have reported it to be. Veratrum should not be overlooked in hemoptysis, when there is great excitement of the circulation, the pulse being full and bounding. Here it justifies the claims made for it.

Veratrum is a most important agent in acute inflammatory disorders. Acute articular rheumatism of a sthenic type is well treated when veratrum forms a part of the medication, and if endocardial or myocardial inflammation accompanies or follows, we have never known it to do harm, but rather to be of benefit. In hypertrophy of the heart, accompanied or not with fever or inflammation, it is an ideal and safe agent. Erysipelas of the violent type, with full, bounding pulse and vivid redness, will find in veratrum one of the best medicines, using it both internally and locally. In peritoneal inflammation, due to blows upon the abdomen, veratrum is the best remedy known, and in septic peritonitis it assists greatly in controlling the circulatory excitement and inflammatory process, and contributes as much as any medicine can to a favorable termination of the disease. In any visceral inflammation, particularly pelvic, it is often indicated to control the blood current and modify the inflammatory action. Occasionally it proves valuable in gonorrhea and to prevent or alleviate mastitis, orchitis, and ovaritis.

We have used veratrum with great satisfaction in individuals whose lives have been such as to task the circulation to its utmost, and who have before them the probability of a future chronic nephritis and arteriosclerosis. In these prenephritics, we will call them, a correction of vicious habits and the judicious use of small doses of veratrum will often avert disaster. If arteriosclerosis has not already obtained it may be warded off, the integrity of the kidneys maintained, and the life current guided past the point of danger. Small doses of specific medicine veratrum should be given for a prolonged period.

A remarkable instance of the therapeutic power of veratrum in high blood pressure was in that of a man bleeding from the gums. The patient, a blacksmith of middle age, indulged in occasional sprees and drank more or less all the time. The pulse was hard and full as a rope and whipping along vigorously and fast, nervous agitation was extreme, and blood was oozing from the spongy gums around every tooth in his head. The carotids were pulsating strongly, the eyes bulging and injected, and the head felt and looked as if it would burst. Veratrum, in the ordinary dose, completely relieved this man in less than two hours, with no return of the trouble—though the patient still continued his devotions at the shrine of Bacchus. Veratrum may be employed in small doses for the relief of a certain form of nervousness. The patient has a full circulation, throbs, feels the beating of the heart, the abdominal aorta and the carotids. When retiring to rest, sleep is prevented by the throbbing pulsations in the head and ears, so distressing that sleep is prevented or delayed. Small doses of veratrum do wonders for these badly-shaken patients.

In the treatment of the common fevers, except the febricula, we have not found veratrum of much service; in fact, not often indicated. In our experience it has rarely been needed in typhoid fever, but occasionally is indicated in acute malarial intermittents. In the threatened attacks of sunstroke (not in heat exhaustion with pallor, cool skin, and weak pulse, but in the robust, full blooded, overheated individual, with bounding pulse and rope-like circulation), a few small doses of veratrum should be given at intervals of ten or fifteen minutes.

We are among those who believe that veratrum has some virtues outside of its power over the circulation, for it has alterative powers of great value. Just how it acts is not known; possibly its circulatory control aids also lymphatic elimination. While not prepared to go as far

as did Howe in claiming it the only alterative in tubercular conditions, we believe it could be profitably restudied for its power of eliminating morbid products in many chronic ailments depending upon faulty elimination. Some have valued it in chronic bronchitis and so-called chronic pneumonia. As an alterative in chronic broncho-pulmonary disorders small doses of veratrum may be given for several days; and then omitted for a few days; or it may be administered every other day, syrup of lactophosphate of calcium being given on the days when the veratrum is ornitted.

When convulsive disorders depend upon an excited circulation, veratrum may prove a useful anticonvulsive. It is sometimes of value in spinal irritation, with spasms, and in acute mania and cerebro-spinal meningitis, all with violent circulatory excitement. If accompanied by fever and there is hyperaemia, it may relieve neuralgic headache; otherwise it fails. When the pulse is full and bounding, the eyes bloodshot and suffused, and with a state bordering upon inflammation, it may restore quiet and allow sleep in delirium tremens.

Veratrum is our most important agent to control puerperal convulsions. We have injected a half drachm of specific medicine veratrum every half hour for three hours in a case of post-partum eclampsia, with puerperal mania, with the result of being complete master of the situation. In this disorder the full pulse must be subdued and kept subdued until the convulsions cease. It is the one instance in which the large or extreme physiologic (near toxic) dose of veratrum is absolutely demanded.

For the purposes above named, except where otherwise directed, veratrum should be given to control indications as revealed by the pulse, and then its administration should be stopped; and the fractional dose (15 to 20 drops in four ounces of water; dose, a teaspoonful every fifteen, thirty, or sixty minutes, as required) is much more satisfactory than large doses at long intervals. Veratrum will slow the pulse down to a very few beats. Usually, however, emesis will then take place. This is why veratrum seldom or never poisons. Only in exceptional cases are the large doses permissible, as in puerperal eclampsia, in which, singularly, it seldom occasions vomiting.

“Veratrum is less valuable than aconite in simple cardiac hypertrophy, though it quiets palpitation when blood pressure is high and the

trouble is not due to valvular incompetency. It sometimes relieves the irritable heart of excessive tobacco users, especially when the heart action is strong and erratic. By retarding the velocity of the blood current and reducing vaso-motor tonus it does some good in aneurism. In all heart and circulatory disorders, especially in hypertrophy, it does good when the pulse is full, strong, and intense, the carotids beat forcibly, the eyes are bloodshot, and there is cough, headache, and weight in the upper epigastrium, while the heart may beat so violently as to shake the bed, and sleep is entirely prevented. It relieves the excitement, the heart-action approaches the normal, the cough is allayed, and the patient is in every way better." (Locke.)

VERATRUM ALBUM.

The rhizome and roots of ***Veratrum album***, Linné (Nat. Ord. Liliaceae). Europe, especially in the Alpine and Pyrenean districts.

Common Names: White Hellebore, White Veratrum.

Principal Constituents.—***Protoveratrine*** ($C_{32}H_{51}NO_{11}$), intensely poisonous; ***protoveratridine***, ***jervine*** (the most abundant principle), ***pseudo-jervine***, and ***rubijervine***. No cevadine (veratrine) is present.

Preparation.—***Homeopathic Mother Tincture of Veratrum Album***. Dose, fractional (see below).

Specific Indications.—Gushing, watery diarrhea, with spasmodic or cramp-like action of the intestines and belly-walls; cold face, sunken eyes, and body covered with a cold sweat.

Action and Therapy.—Though closely resembling ***Veratrum viride*** in effects, this agent is used for entirely different purposes, based upon Homeopathic usage. These are choleraic diarrhea, cholera morbus, cholera infantum, and Asiatic cholera, to control the gushing discharges and check vomiting. The Homeopathic mother tincture in 3x dilution in the proportion of thirty drops in four ounces of water is the usual form of administration, the dose being a teaspoonful of this mixture every fifteen to thirty minutes. It is not often used in this country.

VERBASCUM.

The leaves and tops of ***VerbascumThapsus***, Linné (Nat. Ord. Scrophulariaceae). A biennial common in the United States. ***Dose***, 5 to 30 grains.

Common Name: Mullein.

Principal Constituents.—A volatile oil, a bitter principle, mucilage and resins.

Preparation.—***Specific Medicine Verbascum***. ***Dose***, 5 to 30 drops.

Specific Indications.—Nervous and bronchial irritation, with cough; and urinary irritation with painful micturition.

Action and Therapy.—Mullein is demulcent, diuretic and sedative. It is also thought to have feeble anodyne properties. A syrup of mullein, prepared with the addition of lemon juice, is a fairly good sedative for irritation of the trachea and bronchi with persistent cough. It is applicable to dry, hoarse coughs which annoy the patient when lying down, as well as to cough associated with abundant catarrhal discharges. The specific medicine may be used for the same purposes. A so-called oil of mullein, or rather mulleinized oil, prepared by steeping the blossoms in oil in the sun, has a fabulous reputation of being curative in earache from otitis media. A truer preparation is prepared by exposing the blossoms alone in a bottle to the heat of the sun. Owing to the small yield and the consequent high price it is seldom used, and probably is no more efficient than mulleinized oil, a concoction of very doubtful utility.

VERBENA

The whole plant of ***Verbenahastata***, Linné (Nat. Ord. Verbenaceae). A common wayside and field weed in the United States.

Common Names: Vervain, Common Vervain, Wild Hyssop, Simpler's joy.

Principal Constituents.-No satisfactory analysis has been made.

Preparation.—***FluidextractumVerbenae***, Fluidextract of Verbena. ***Dose***, 10 to 60 drops.

Action and Therapy.—This drug is said to relieve gastro-intestinal

irritation and stimulate menstruation. In recent years it has been lauded as a remedy for epilepsy characterized by cerebral anemia, instead of congestion, and therefore applicable to conditions contraindicating bromide medication. Its value remains to be established.

VIBURNUM OPULUS.

The bark of ***Viburnum Opulus***, Linné (Nat. Ord. Caprifoliaceae). A shrub of Northern United States and Canada.

Common Names: Cramp Bark, High Cranberry.

Principal Constituents.—A bitter, neutral principle, ***viburnin***, and ***valeric acid***.

Preparation.—***Specific Medicine Viburnum***. ***Dose***, 5 to 60 drops.

Specific Indications.—Cramps; spasmodic uterine pain; pain in thighs and back; bearing-down, expulsive pain; neuralgic or spasmodic dysmenorrhea.

Action and Therapy.—Like black haw, this species of Viburnum is a uterine sedative and tonic and may be used where there is a predisposition to abortion, or as a partus praeparator. It is believed to have stronger antispasmodic properties than the black haw, and the special indication is cramps or cramp-like contraction of the hollow viscera, as well as of the voluntary musculature. It allays uterine irritation with a tendency to excite hysteria, and for spasmodic dysmenorrhea it is highly regarded by competent practitioners. Briefly, the therapeutic scope of the drug covers cramps, especially of the calf of the leg, spasmodic uterine pain, bearingdown or expulsive pain, difficult, spasmodic or neuralgic dysmenorrhea, spasmodic contraction of the bladder, hysteria, and some mild forms of convulsions.

VIBURNUM PRUNIFOLIUM.

The dried bark of the root of ***Viburnumprunifolium***, Linné. The U.S.P. admits the dried bark of this and also of the ***ViburnumLentago***, Linné, or Wayfarer's Tree (Nat. Ord. Caprifoliaceae). Beautiful shrubs found in thickets of the eastern half of the United States. ***Dose***, 5 to 60 grains.

Common Names: (1) Black Haw, Sloe, Sloe-leaved Viburnum, Stag Bush; (2) Wayfarer's Tree, Nanny Berry, Sheep Berry.

Principal Constituents.—A brown, bitter resin; greenish-yellow, bitter, ***viburnin***, ***valeric acid***, tannic acid, citrates, malates, oxalates, sulphates, and chlorides of calcium, magnesium potassium, and iron.

Preparations.—1. ***Specific Medicine Black Haw***. ***Dose***, 5 to 60 drops.

2. ***Black Haw Cordial*** (Howe's). (Contains Black Haw, Wild Cherry, Aromatics, Brandy and Syrup). ***Dose***, 1/2 to 2 fluidrachms.

Specific Indications.-Uterine irritability and hyperaesthesia; uterine colic; threatened abortion; dysmenorrhea, with cramp-like pelvic pain, and scanty flow; severe lumbar and bearing-down pelvic pain; painful contraction of the pelvic tissues; false pains and after-pains; obstinate hiccough.

Action and Therapy.—Black haw is a remedy of Eclectic development and is praised by practitioners of all schools of medicine for its virtues in disorders of women. It is both tonic and antispasmodic, well-sustaining the time-honored meaning of those terms. While a tonic to the gastrointestinal tract and a good one, black haw is better adapted to atonic states of the female reproductive organs, and as a sedative for spasmodic pain and weakness in diseases of women. As a tonic it acts kindly and is pleasant to take. It causes no constitutional symptoms, such as sometimes come from the use of cinchona, nux vomica, and the more energetic tonics. It is agreeable to the stomach and tends to restrain unhealthy discharges. It allays the nervous unrest so commonly associated with pelvic weakness; and its effect upon cramp-like contraction of both the tubular organs and the voluntary musculature of the body is similar to that of cramp bark or Viburnum Opulus.

As a uterine sedative and tonic, black haw is used, perhaps, oftener than any other drug. It seems to improve the uterine and ovarian circulation, giving better innervation and more perfect functioning, and evidently promotes pelvic nutrition. In relaxation of pelvic tissues, with more or less congestion, or tendency to undue discharges and passive hemorrhage, it is one of the best of medicines. For painful menstruation, whether due to debility with relaxation, or to engorged tissues with cramp-like pain, the physician will find almost daily use for black haw. Sometimes the menstrual flow is scanty, but more often

it is profuse and accompanied by severe bearing down, intermittent and expulsive pains. Few agents give greater relief in such conditions. In cases in which the menses are imperfect in function and pale in quality, and there is an associated cardiac disturbance, usually palpitation; and in some cases of amenorrhea, in anemic girls with pallor and subject to intermittent cramping pain, the action of the drug is very positive. It is equally valuable in chronic uterine inflammation, in subinvolution, in boggy, congested uterus, and for the associated leucorrheal discharges. As a remedy for passive hemorrhage its use will be governed largely by the cause. If due to polypi, fibroid or carcinomatous tumors, but little can be expected from it or any other medicine. But even here, in combination with cinnamon, it sometimes restrains the flow. Such cases are surgical and should be surgically treated. Many a good medicine, like black haw, has been brought into discredit because of its failure to do what a careless or faulty diagnosis has led one to hope for from its exhibition or to attempting physical impossibilities with such medication. Black haw is a good tonic during pregnancy, and through such action proves a fairly good partus praeparator. It is one of the most certain remedies for nocturnal cramping of the muscles of the leg. It does not act so well when due to pregnancy, as that is a pressure condition that can only be relieved by supporting the abdomen or a change of position in reclining.

Many practitioners, whose opinions we value and whose experience has been wide, report success with black haw in restraining the expulsion of the product of conception. Our own experience leads us to doubt its reputed value in that condition, but this in no way disparages the statements of others who may have been more successful with it. Rest in bed and quieting agents, I such as Dover's powder, may enable the product to be retained; perhaps black haw may aid. But we have utterly failed in every attempt to prevent miscarriage with the agent where there was any considerable hemorrhage or where enforced and prolonged rest was not insisted upon. If any results are to be expected from it in habitual abortion it must be in cases of functional debility of the reproductive organs, and not in those due to inherited taints or syphilitic infections, or criminal operative interference. We believe, however, that much may be done with black haw to strengthen conditions in cases having had a previous miscarriage, and in uneasy, cramp-like sensations occurring during pregnancy, but with no considerable hemorrhage. It will, however, be of service in controlling the nervous phenomena associated with such threatened accidents

and aid psychologically in preventing that which undue nervous agitation might precipitate. It is a good agent for false pains and for ovarian irritation and congestion. Black haw cordial is an ideal sedative for spasmodic dysmenorrhea.

Black haw is of very great value in treating those having a craving for alcoholic drinks. The specific medicine black haw, with essence of cinnamon or of cloves, or preferably Howe's Black Haw Cordial may be given. It relieves the discomfort experienced in the throat and the gnawing distress in the stomach, from which these unfortunates suffer.

For most purposes the specific medicine black haw is given in doses ranging from five to sixty drops, two, three, or four times a day as indicated; the black haw cordial in doses of one half to two fluidrachms.

VISCUM.

The leaves and branches of ***Viscum flavescens***, Pursh (Nat. Ord. Loranthaceae). A parasitic plant found upon forest trees, especially the oaks in America.

Common Names: Mistletoe, American Mistletoe.

Principal Constituent.—***Viscin***, a viscous substance also known as bird glue or bird lime.

Preparation.—Specific Medicine Mistletoe. ***Dose***, 1 to 30 drops.

Specific Indications.—Determination of blood to the brain, flushed face and oft-recurring headache; paroxysms of tearing, rending neuralgic or rheumatic pains; weak, irregular heart-action, with cardiac hypertrophy, valvular insufficiency and shortness of breath.

Action and Therapy.—Viscum has toxic properties. Vomiting and bloody and tenesmic catharsis, prostration, contraction of the pupils, muscular spasm, convulsions and coma have been reported from eating the plant and berries. Its action would suggest its possible value in nervous disorders, and it has been used like strychnine in heart disorders with feeble pulse, dyspnea, edema, and inability to lie down. It is also asserted to possess parturient properties, but they do not compare with those of ergot, and the drug is almost never used for these purposes. It should be reserved for the conditions mentioned

under “Specific Indications”, and even in these it needs further study.

XANTHIUM.

The whole plant of ***Xanthium spinosum***, Linné (Nat. Ord. Compositae). An introduced weed common along the coasts of the United States. ***Dose***, 5 to 30 grains.

Common Name: Spiny Clot-Bur.

Principal Constituents.—Possibly an evanescent alkaloid and considerable nitrate of potassium.

Preparation.—***Specific Medicine Xanthium Spinosum***. ***Dose***, 1 to 60 drops.

Specific Indications.—Ague, with profuse sweating; prophylactic against malaria, and to prevent the recurrence of chills; nervous excitation, with profuse sweating; bloody urine, with urination painfully tenesmic and frequent; urine heavily loaded with mucus and gravelly deposits.

Action and Therapy.—Clotbur is used chiefly as a soothing diuretic, to allay irritable conditions of the bladder, and is especially recommended in chronic cystitis and haematuria. It is frequently used in conjunction with tincture of red onion, for irritation of the urinary tract with bloody, painfully voided urine loaded with mucus and gritty deposits. Its other uses cover the indications given above, unnatural sweating being an especial indication for the drug.

XANTHIUM STRUMARIUM.

The whole plant of ***Xanthium strumarium*** Linné (Nat. Ord. Compositae). Waysides in the United States.

Common Name: Broad Bur-Weed.

Preparation.—***Fluidextractrum Xanthii Strumarii***, Fluidextract of Xanthium Strumarium. ***Dose***, 5 to 60 drops.

Action and Therapy.—This agent acts much like clotbur, and has been used with advantage in painful urination, with scalding, and marked sensitiveness of the urethra and bladder, with frequent micturition. It

is also said to be of service in hemorrhages, as passive hemorrhage from the bowels and the epistaxis of purpura hemorrhagica. For the last-named disorders it is probably of little value, though it should be tried where other means are unavailing.

XANTHOXYLUM.

The bark and berries of (1) ***Xanthoxylum americanum***, Miller, and (2) ***Xanthoxylum Clava-Herculis***, Lamarck (Nat. Ord. Rutaceae). Shrubs of North America. ***Dose***, 5 to 60 grains.

Common Names: Prickly Ash; (1) Northern Prickly Ash; (2) Southern Prickly Ash.

Principal Constituents.—A green acrid oil, a white crystallizable resin, a soft acrid resin, tannin, and a bitter substance thought to be an alkaloid.

Preparation.—***Specific Medicine Xanthoxylum***. ***Dose***, 5 to 60 drops.

Specific Indications.—Hypersecretion from debility and relaxation of the mucosa (small doses); atony of the nervous system (larger doses); capillary engorgement in the eruptive diseases; sluggish circulation; tympanites in bowel disorders; intestinal and gastric torpor, with deficient secretion; dryness of mouth and fauces, with glazed surface; flatulent colic; Asiatic cholera; uterine cramps and neuralgia.

Action.—Prickly ash impresses the secretions and the nervous and circulatory systems. The bark, when chewed, imparts a sweetish aromatic taste, followed by bitterness and persistent acridity; the berries act similarly. The drug has remarkable sialagogue properties, inducing a copious flow of saliva and mucus. Swallowed, it warms the stomach and augments the secretion of the gastric and intestinal juices, and probably increases hepatic and pancreatic activity. The action of the heart is strengthened by xanthoxylum, the pulse slightly quickened, and the glands of the skin are stimulated to greater activity. The urine is decidedly increased by prickly ash.

Therapy.—Preparations of prickly ash bark are to be preferred when stimulant, tonic, sialagogue, and alterative properties are desired; that of the berries when a carminative stimulant and antispasmodic is needed, especially in disorders of the stomach and bowels.

Xanthoxylum is particularly grateful in stomach disorders. It is an

ideal gastric stimulant, and as a remedy for simple gastric atony it ranks well with capsicum. When food ferments readily and gaseous accumulations distend the stomach, and there is much belching, from five to fifteen drops of specific medicine xanthoxylum may be given, preferably in hot water, one hour before and one hour after meals. Both hydrastis and capsicum, or each of them, may be given with it, if indications are clear for them, and together the three agents offer comfort to those who suffer the distress of so-called flatulent dyspepsia. It is a remedy of much worth in atonic dyspepsia and in gastric catarrh, when there is enfeeblement and relaxation of tissues and hypersecretion. It is also of value in constipation when due to deficient secretion (small doses). Formerly it was greatly valued in spasmodic conditions of the bowels with colic, and in cholera morbus in weak individuals, and to restore tone and normal secretion after attacks of epidemic dysentery, a disease once more prevalent than at the present time. King introduced the tincture of the berries as. a remedy for Asiatic cholera, in which it proved phenomenally successful; and for tympanitic distention of the bowels arising during peritonitis. As a rule, however, it should not be given in inflammatory conditions.

As a stimulant to sluggish membranes prickly ash may be given internally (and used locally) in dry, glazed pharyngitis with crusts of adherent, dried mucus. Of its alterative power there is no question, and prickly ash is an ingredient of a popular compound known as “Trifolium Compound”, which has been extensively used in chronic syphilitic dyscrasia. It is not to be assumed that it has antisyphilitic virtues, but it exerts a favorable alterative action which renders syphilitics more amenable to reparation of tissues. Sometimes a tincture of prickly ash berries is the best drug that can be given in so-called chronic muscular rheumatism; and it is not without value in lumbago and myalgia. Chewing prickly ash bark is a domestic custom for the relief of toothache.

Xanthoxlum should also be remembered where nerve force is low and in the recuperative stage from attacks of neuritis or other forms of nerve involvement in which function is greatly impaired but is yet capable of restoration. Xanthoxylum deserves further study, chiefly as an alterative.

ZEA.

The styles and stigmas of ***Zea Mays***, Linné (Nat. Ord. Gramineae). The common Indian corn of America.

Common Name: Corn Silk (***Stigmata Maydis***).

Principal Constituents.—Volatile oil and ***maizenic acid***.

Preparations.—1. ***Infusum Zea***, Infusion of Corn Silk. (Silk, 2 ounces; Boiling Water, 16 fluidounces). ***Dose, Ad libitum***.

2. ***Specific Medicine Stigmata Maydis***. ***Dose***, 1/2 to 2 fluidrachms.

Action and Therapy.—Zea (***Stigmata Maydis***) is diuretic, slightly anodyne, and is said to exert a stimulant effect upon the heart and blood vessels. The infusion, the best preparation, is an efficient stimulating diuretic in urinary irritation and inflammation, pyelitis, and catarrh of the bladder. It is especially valued when the urine contains phosphatic and uric acid concretions, and there is a disposition to dropsical accumulations. Its action is quite positive in pyelitis, chronic cystitis and to relieve ardor urinae in gonorrhea. For the bladder affections of children it is one of the most valued of urinary sedatives, and may be freely administered where there is a disposition to decomposition of the urine while still in the bladder. The virtues are attributed mostly to the maizenic acid present.

ZINGIBER.

The dried rhizome of ***Zingiber officinale***, Roscoe (Nat. Ord. Zingiberaceae). Southern Asia; cultivated in tropical regions of Asia, Africa and America. ***Dose***, 10 to 30 grains.

Common Names: Ginger. (There are many kinds and grades: Jamaica Ginger, African Ginger, Calcutta Ginger, Calicut Ginger, Cochin Ginger, and Japanese Ginger.

Principal Constituents.—An aromatic volatile oil (Oil of Ginger), 2 to 3 per cent giving to ginger its flavor; resin, and ***gingerol***, the pungent principle.

Preparations.—1. ***Specific Medicine Zingiber***. ***Dose***, I to 30 drops.

2. ***Oleoresina Zingiberis***, Oleoresin of Ginger. ***Dose***, 1/2 to I grain.
3. ***Tinctura Zingiberis***, Tincture of Ginger. ***Dose*** 5 to 60 minims.
4. ***Syrupus Zingiberis***, Syrup of Ginger. ***Dose***, 1 to 4 fluidrachms.

Specific Indications.—Anorexia; flatulence; borborygmus; gastric and intestinal spasms; acute colds; painful menstruation; cold extremities; cool surface in children's diseases.

Action.—Ginger is a local irritant and rubefacient. It causes an increased flow of saliva and gastric juice and increases muscular activity of the stomach and intestines. It is much used to conceal the taste of nauseous medicines and to prevent tormina. Ginger is sometimes used as an ingredient of so-called “spice poultices”.

Therapy.—Ginger is an admirable local stimulant, sialagogue, diaphoretic and carminative. Powdered ginger in a large quantity of cold water, taken upon retiring, will frequently “break up” a severe cold, and a hot infusion or ginger tea is a popular remedy for similar use and to establish sluggish menstruation or mitigate the pains of dysmenorrhea. Ginger is an excellent agent in gastric atony, and good results may be had from it in atonic states of the digestive tube, with loss of appetite, rolling of gases in the bowels, and painful spasmodic contractions of the stomach and intestines. In acute dysentery and diarrhoea, and in cholera morbus and sometimes in cholera infantum with atony and nausea, vomiting and cold extremities and surface, small doses of ginger preparations are extremely valuable. Cramps in the stomach and bowels due to undigested food or to cold are speedily relieved by small doses of ginger. Ginger combined with magnesium oxide or sodium bicarbonate is a good gastric stimulant and corrective in persistent flatulency with sour stomach, and given alone is useful for old people with feeble digestive powers and enfeebled and lax habit.

Rarely, tincture of ginger or specific medicine zingiber is serviceable in fevers, when the salivary secretions are scanty and there is pain and movement of gases in the intestines. It relieves by stimulating secretion, the ultimate effect being sedative. In such states it acts much like capsicum, but is not so efficient. Oleoresin of ginger may be added to pills to prevent griping and tormina; and the syrup is an agreeable vehicle for stomachic and sometimes for expectorant mixtures.

DEFINITIONS OF THERAPEUTIC TERMS.

Abortient. Same as Abortifacient, which see.

Abortifacient. A drug which causes expulsion of the fetus (abortion).

Abortive. Same as Abortifacient, which see.

Absorbent. A drug that promotes absorption.

Absorbifacient. Same as Absorbent, which see.

Abstergent. A cleansing or purifying medicine.

Acidifier. A drug which imparts acidity to the fluids, especially to the blood (more correctly lessens alkalinity here), and to the urine.

Alkalinizer. A drug which increases alkalinity of the body fluids, especially the blood, or the urine.

Alterative. A drug which causes a favorable change or alteration in the processes of nutrition and repair, probably through some unknown way improving metabolism.

Analgesic. Same as Anodyne. An agent that relieves pain.

Anaphrodisiac. A drug that lessens sexual desire or depresses sexual power.

Anesthetic (anaesthetic). An agent which temporarily abolishes sensation, producing insensibility to contact and pain. There are local and general anesthetics, the latter being administered by inhalation.

Anhydrotic. An agent which prevents or checks excessive sweating (same as Antihydrotic).

Anodyne. An agent that relieves pain, but does not necessarily produce unconsciousness.

Antacid. An agent that will correct acidity by neutralization, chiefly acidity of the stomach.

Antagonist. An agent which opposes the action of some other medicine, and especially the toxic effects of alkaloidal poisons.

Anthelmintic. A remedy against intestinal worms.

Antiarthritic. A remedy employed to subdue inflammation of the joints.

Antidote. A remedy to counteract poisons. It is (a) chemical, destroying the poison ; (b) mechanical, preventing absorption; (c) physiologic, opposing the elect upon the system after absorption of the poison.

Antiemetic. A remedy that prevents or stops vomiting (emesis).

Antigalactagogue. An agent that diminishes the secretion of milk.

Antihemorrhagic. A remedy which arrests or controls bleeding (hemorrhage).

Antihydrotic. A remedy to prevent or control excessive sweating (same as Anhydrotic).

Antilithic. An agent which is believed to prevent the formation of stone, or calculi.

Antimalarial. A remedy against, or relieving in, malarial infection.

Antimiasmatic. A remedy against miasmatic disorders (miasm-noxious exhalation or effluvium); an unsatisfactory term.

Antimicrobic. A drug checking the development or growth of microbes.

Antiperiodic. An agent that diminishes or arrests the periodicity of malarial attacks; in general, an antimalarial, which see.

Antiphagocytic. Opposing or counteracting the action of phagocytes (phagocytosis).

Antiphlogistic. An agent which counteracts inflammation, with fever.

Antipyretic. An agent which reduces the temperature of fevers.

Antirheumatic. An agent employed to prevent or to relieve in rheumatic infection (rheumatism).

Antiscorbutic. A remedy that prevents or corrects scurvy.

Antiseptic. An agent which prevents the growth of microbes and cripples their activity while in contact with them. An agent that opposes or prevents sepsis.

Antisialagogue. An agent that prevents or diminishes the flow of saliva.

Antisialic. An agent that prevents or diminishes the flow of saliva (same as Antisialagogue, which see).

Antispasmodic. An agent that will prevent and relieve spasm of the voluntary or involuntary muscles.

Antisudorific. An agent to prevent or relieve excessive sweating.

Antisyphilitic. A remedy to prevent or to relieve in syphilitic infection (syphilis).

Antitetanic. An agent to prevent or relieve tetanus.

Antithermic. An agent to reduce body temperature.

Antitoxin. Any defensive protein acting as a neutralizer of poison. Most therapeutic antitoxins are derived from the blood-serum of animals in which a specific disease has been purposely developed. ***Examples***: Antidiphtheric and Antitetanic Serums.

Antitussive. A remedy to relieve or prevent cough.

Antizymotic. An agent which prevents or arrests the process of fermentation.

Aperient. A gentle and nonirritating purgative causing but little increase of peristalsis and producing soft feces.

Aphrodisiac. An agent which increases sexual desire, or increases

sexual power.

Astringent. An agent which, by acting upon the albumen of tissues, causes condensation and contraction, and restrains discharges.

Bitter. An agent which increases the tone and activity of the gastric mucosa, thereby improving the appetite.

Cardiac. An agent which stimulates and tones the heart; also a cordial or restorative.

Cardiant. An agent which acts upon the heart, either stimulating or depressing its action.

Carminative. An agent that prevents or relieves flatulence and thereby allays pain.

Cathartic. An agent that hastens and increases evacuation of the bowels. Same as Purgative, which see.

Caustic. An agent having an escharotic or corrosive action on living tissue. (Used interchangeably with Cauterant.)

Cauterant. An agent which has a corrosive destructive action upon living tissue.

Cholagogue. A medicine which stimulates and increases the flow of bile.

Corrigent. An agent which favorably modifies the action of powerful or harsh drugs; a correctant or corrective.

Corrosive. An agent destructive to tissue.

Counterirritant. An agent which, by inducing local irritation or hyperaemia, acts as a derivative to relieve irritation, inflammation or pain in some part remote from that to which it is applied.

Cycloplegic. An agent which paralyzes the ciliary muscle, resulting in relaxation of accommodation (cycloplegia).

Dacryagogue. An agent which causes a flow of tears.

Deliriant. A drug which may produce delirium. (Same as Delirifacient, which see.)

Delirifacient. A drug which may cause delirium. (Same as Deliriant, which see.)

Demulcent. A bland and soothing oily or mucilaginous application or medicine to relieve irritation of inflamed or abraded surfaces, usually intended for use upon the mucosa. (See also Emollient.)

Deobstruent. A medicine that removes obstructions.

Deodorant. A substance that masks, removes, or destroys odor.

Depilatory. A substance that removes or destroys hair.

Depressant. An agent that will depress function and vital energies by causing relaxation of muscular tissues and sweating; a medicine that depresses any function.

Depresso-motor. An agent which depresses or diminishes motor activity.

Depurant. A purifying medicine; ***e. g.***, a renal depurant.

Detergent. A cleansing or purifying medicine.

Diaphoretic. An agent that will stimulate and cause increased perspiration: a sedative diaphoretic is one that acts by dilation of the vessels of the skin, as when induced by heart sedatives or emetics.

Digestant. An agent, which digests, or assists the digestion of food.

Diluent. An agent that dilutes the fluids of the body and renders the excretions less irritant.

Discutient. A medicine which causes a disappearance or scattering of a local tumefaction or inflammation.

Disinfectant. An agent that prevents, or frees from infection, acting chiefly by destroying pathogenic germs or rendering organic ferments inactive.

Diuretic. A drug which causes and increases secretion and flow of urine.

Drastic. A harsh purgative usually causing pain, tormina or tenesmus, and causing repeated evacuations.

Ecbolic. An agent which excites and accelerates parturition.

Eliminant. A drug which causes evacuations; also one by which soluble compounds are formed of insoluble substances in the body, thus facilitating their removal by the excretory organs.

Eliminator. Same as Eliminant, which see.

Emmenagogue. An agent that stimulates menstruation.

Emetic. An agent that causes vomiting (emesis).

Emollient. A medicine or agent which softens or soothes the skin, or soothes the mucosa, when irritated. (Compare Demulcent.)

Epispastic. An agent which causes blistering (vesication).

Errhine. An agent which excites nasal secretion and sneezing.

Escharotic. A caustic or corrosive agent capable of producing an eschar or slough.

Excitant. A medicine which causes excitation of the vital functions, as of the nervous (nervous excitant), muscular (motor excitant), circulatory (vaso-motor and cardiac excitants) systems.

Excito-motor. An agent which excites to increased muscular activity.

Exhilarant. An agent which excites or elevates the psychic function.

Expectorant. An agent which promotes expectoration; i. e., the

ejection, by spitting, of fluids secreted by the broncho-pulmonic mucosa. Stimulant expectorants excite in atony while sedative expectorants allay irritation, both facilitating the expulsion of sputum.

Febrifuge. An agent that will reduce temperature in fevers.

Galactagogue. An agent that stimulates the secretion or promotes the flow of milk.

Galactophyge. An agent that diminishes or arrests the flow of milk.

Germicide. An agent destructive to germs or micro-organisms.

Hematic (haematic). An agent which improves the quality of the blood.

Hematinic (haematinic). An agent which improves the quality of the blood.

Hepatic. A drug that stimulates the function of the liver.

Hydragogue. An agent that causes watery discharge; especially a purge which produces watery catharsis.

Hypnotic. A medicine which induces sleep simulating that of normal slumber. Some pain relievers are also hypnotic, but true hypnotics only cause sleep.

Irritant. An agent which, when applied locally, excites hyperaemia or inflammation.

Laxative. A medicine causing a mild and painless evacuation of the bowels.

Lenitive. A medicine which has the soothing action of a demulcent on the internal membranes.

Lithontriptic. A medicine supposed to be capable of dissolving calculi within the body.

Miotic (myotic). A medicine which causes the pupil to contract (miosis).

Motor depressant. A drug which depresses or restrains motor or muscular activity.

Motor-excitant. A drug which excites to increased motor or muscular activity.

Mydriatic. An agent which dilates the pupil (mydriasis).

Myotic (miotic). An agent which causes contraction of the pupil (myosis).

Narco-hypnotic. An agent that not only causes sleep, but if given in larger doses induces narcosis. (See Narcotic.)

Narcotic. A drug that will induce stuporous sleep, at the same time relieving pain and abolishing consciousness.

Nutriant (nutrient). A medicine which affects the nutritive process, or metabolic changes in the body; one that supplies material for tissue building.

Oxytocic. A drug which accelerates or hastens the process of delivery in childbirth.

Paralyzant. A drug that causes temporary functional paralysis of some part of the body.

Parasiticide. An agent which destroys parasites.

Parturifacient. A medicine that induces or facilitates childbirth.

Partus praeparator. An agent that strengthens preparatory to labor.

Protective. An agent that protects mechanically by covering or coating the skin or a lesion of the surface.

Purgative. A cathartic; an agent that will cause evacuation of the contents of the bowels.

Purge. A purgative medicine, or a dose of the same; to purge.

Pustulant. An agent that attacks isolated areas of the skin, as the sudoriferous glands, causing pustules (pustulation).

Reconstructive. An agent that, through furnishing needed medicinal substances, restores strength and integrity to the body.

Refrigerant. An agent which imparts a cooling sensation to the mucosa and allays thirst; externally it cools by evaporation.

Resinoids. A class of preparations resembling somewhat the resins, and being a mixture of resins with other substances. A name especially applied to a group of substances obtained by precipitating alcoholic preparations containing resins, with water. The so-called Eclectic resinoids were of this class, all of them, with the exception of podophyllin, iridin, and macrotyn, being of little value.

Resolvent. An agent that is supposed to promote resolution, or dissipation of pathologic growths.

Resorbent. An agent that promotes the removal of excreted material, as exudates, etc.

Restorative. An agent that restores to consciousness, or one that aids in restoring tone, function, vigor, or health.

Revulsive. An agent which, by producing a localized determination of blood, reduces other blood engorged areas.

Roborant. An agent that by supplying needed material or food to the tissues, imparts increased strength.

Rubefacient. An agent which, when locally applied, reddens the skin.

Salivant. Same as Salivator, which see.

Salivator. An agent which salivates or causes an excessive flow of saliva.

Sedative. A drug that allays or calms excitement.

Sedative, Arterial or Special. An Eclectic term for Aconite, Veratrum, and Gelsemium, when given in small doses. (See ***Aconitum*** or ***Gelsemium***.)

Sialagogue. An agent that promotes an increased flow of saliva.

Somnifacient. An agent which induces sleep; a hypnotic.

Specific. An agent supposed to have a selective curative action in a special disease, or in some phases of disease.

Sternutatory. An agent that excites sneezing.

Stimulant. An agent that excites functional activity. A term often loosely applied. Stimulants are diffusible when they excite the circulation and general functions of the body; nervous, when they act chiefly upon the nerve centers; hepatic, when they arouse the functions of the liver; cardiac, when they increase the heart's action; gastric, when they quicken digestion; respiratory, when they increase respiratory movements; etc. Also applied to medicines in which the action of the contained ethyl alcohol is desired,

Styptic. A local agent that, through a strongly astringent action, will arrest bleeding.

Subculoyds. Non-irritating sterile preparations of plant drugs intended for hypodermatic medication.

Sudorific. An agent that will cause active or droplet perspiration, a more intense action than that of the ordinary diaphoretic.

Synergist. A drug which has a similar effect upon tissue or function to that of some other drug. Synergists usually act harmoniously with such other drugs.

Taeniacide (taenicide). An agent that will kill and expel the tapeworm.

Taenifuge (Taeniafuge). An agent that will expel the tapeworm.

Tonic. An agent which tends to produce or restore normal tone to the functions and tissues of the body.

Vaso-constrictor. A drug which causes constriction of blood vessels.

Vaso-depressant. An agent that, by acting on the vaso-motor or nervous system, will decrease arterial pressure and relax the blood vessels.

Vaso-dilator. A drug which causes dilation of blood vessels.

Vaso-stimulant. An agent which, by acting upon the vasomotor nervous system, will in. crease arterial tension and thereby constrict the blood vessels.

Vermicide. A medicine that will kill intestinal worms.

Vermifuge. A medicine that will cause the expulsion of intestinal worms.

Vesicant. A drug which causes blistering (vesication).

PHARMACEUTICAL PREPARATIONS, WITH DOSES.

(List of Fluidextracts, Tinctures, Syrups, Elixirs, Wines, and Powders, not systematically mentioned in the articles on individual drugs. The extremely energetic are in **heavyface type**; those of slightly lesser strength ***in italics***; the balance in ordinary type.)

FLUIDEXTRACTS.

Aconite	**1/2 to 2**	**minims (drops)**
Adonis	**1 to 5**	**“**
Aletris	5 to 60	“
Alstonia constricta	5 to 40	“
Alstonia scholaris	5 to 60	“
Angelica	5 to 60	“
Apocynum	1 to 20	“
Aralia	5 to 60	“
Aromatic	1 to 20	“
Aspidosperma(Quebracho)	5 to 60	“
Belladonna Leaves	**1/5 to 2**	**“**
Belladonna Root	**1/5 to 2**	**“**
Berberis aquifolium	5 to 40	“
Bitter Orange Peel	5 to 30	“
Black Cohosh	1 to 30	“
Black Haw	5 to 60	“
Bloodroot	**1 to 5**	**“**
Blue Flag	1 to 15	“
Buchu	5 to 60	“
Calamus	5 to 40	“
Calendula	5 to 60	“
Calumba	5 to 30	“
Canada Snake Root	5 to 60	“
Capsicum	**1/2 to 2**	**“**
Cascara Sagrada	20 to 60	“
Celery Seed	20 to 60	“
Chestnut Leaves	60 to 120	“
Chionanthus	5 to 60	“
Cinchona	5 to 60	“
Cinchona (Red)	5 to 60	“
Colchicum Root	***1 to 8***	**“**
Colchicum Seed	***1 to 8***	**“**

Colocynth	**1 to 4**	**“**
Condurango	5 to 60	“
Conium Fruit	**1 to 5**	**“**
Corn Silk	30 to 120	“
Cornus	5 to 60	“
Corydalis	10 to 60	“
Cotton Root	20 to 60	“
Cubeb	5 to 40	“
Digitalis	**1 to 2**	**“**
Dioscorea	5 to 60	“
Echinacea	5 to 30	“
Elecampane	10 to 60	“
Eriodictyon	5 to 60	“
Eucalyptus	5 to 60	“
Euonymus	5 to 30	“
Eupatorium	5 to 60	“
Euphorbia pilulifera	10 to 60	“
Frangula	5 to 60	“
Fucus	10 to 60	“
Gelsemium	**1 to 5**	**“**
Gentian Compound (Eclectic)	30 to 60	“
Geranium	5 to 120	“
Glycyrrhiza	10 to 120	“
Grindelia	5 to 60	“
Guarana	15 to 60	“
Hamamelis Leaves	30 to 60	“
Hawthorn Berries	5 to 15	“
Helonias	5 to 60	“
Hemlock Bark	10 to 60	“
Hops	15 to 60	“
Hydrangea	20 to 120	“
Hydrastis	5 to 60	“
Hyoscyamus	***1 to 10***	**“**
Indian Cannabis	***1 to 10***	**“**
Ipecac	5 to 30	“
Jalap	5 to 30	“
Jamaica Dogwood	5 to 40	“
Juglans	5 to 60	“
Kamala	60 to 180	“
Krameria	10 to 30	“

Lactucarium	10 to 30	“
Lappa	15 to 60	“
Larkspur	**1/2 to 5**	**“**
Leptandra	5 to 60	“
Lobelia	**1 to 5**	**“**
Logwood	30 to 60	“
Lupulin	5 to 15	“
Male Fern	1 to 4	fluidrachms.
Matico	30 to 120	minims.
Nux Vomica	**1 to 4**	**“**
Pareira	10 to 60	“
Physostigma	**1 to 3**	**“**
Phytolacca	***1 to 10***	**“**
Pichi	10 to 40	“
Pilocarpus	5 to 40	“
Podophyllum	1 to 20	“
Pomegranate	30 to 60	“
Prickly Ash Berries	5 to 30	“
Quassia	5 to 10	“
Quercus	10 to 60	“
Rhubarb	5 to 30	“
Rubus	10 to 60	“
Rumex	10 to 60	“
Sabal	15 to 60	“
Sarsaparilla	30 to 60	“
Senega	1 to 30	“
Senna	30 to 120	“
Senna, Compound	20 to 60	“
Spigelia	30 to 120	“
Squill,	**1 to 5**	**“**
Squill, Compound	**2 to 3**	**“**
Stillingia	10 to 60	“
Stillingia, Compound	10 to 60	“
Sumbul	5 to 60	“
Taraxacum	60 to 180	“
Trifolium, Compound	30 to 60	“
Triticum	1 to 4	fluidrachms
Viburnum Opulus	20 to 60	minims.
Wafer Ash	10 to 30	“
Wild Cherry,	30 to 60	“

TINCTURES.

Acetous Emetic (Comp. Tr. Lobelia)	1/4 to 1	fluidrachm
Aconite	1 to 10	minim s.
Aloes	2 to 4	fluidrachms.
Aloes and Myrrh	30 to 60	minims.
Antispasmodic (Comp. Tr. Lobelia and Capsicum)	30 to 60	minims.
Arnica	5 to 30	minims.
Asafetida	5 to 60	minims.
Avena	2 to 4	fluidrachms.
Belladonna Leaves	1 to 20	minims.
Belladonna Root	1 to 15	minims.
Benzoin	10 to 60	minims.
Benzoin, Compound	10 to 60	minims.
Buchu	1 to 2	fluidrachms.
Calumba	1 to 2	fluidrachms.
Cannabis	1 to 30	minims.
Cantharides	**1 to 5**	**minims.**
Capsicum	1 to 15	minims.
Capsicum and Myrrh	10 to 60	minims.
Cardamom	10 to 60	minims.
Cardamom, Compound	10 to 120	minims.
Catechu,	1 to 3	fluidrachms.
Catechu, Compound	1 to 3	fluidrachms.
Cimicifuga	1 to 2	fluidrachms.
Cinchona	1 to 2	fluidrachms.
Cinchona, Compound	I to 2	fluidrachms.
Cinnamon	20 to 60	minims.
Colchicum Corm	5 to 60	minims.
Colchicum Seed	5 to 60	minims.
Cubeb	5 to 120	minims.
Digitalis	1 to 20	minims.
Gambir, Compound	30 to 120	minims.
Gelsemium	1 to 15	minims.
Gentian	10 to 120	minims.
Gentian, Compound	10 to 120	minims.
Ginger	5 to 60	minims.
Golden Seal	30 to 60	minims.
Guaiac	30 to 120	minims.

Guaiac, Ammoniated	5 to 120	minims.
Hyoscyamus	5 to 60	minims.
Iodine,	Externally.	
Iron Chloride	1 to 30	minims.
Kino	10 to 120	minims.
Krameria,	20 to 120	minims.
Lactucarium	10 to 60	minims.
Larkspur	Externally only.	
Lavender, Compound	15 to 60	minims.
Lemon Peel	(for flavoring).	
Lobelia	5 to 30	minims.
Myrrh	10 to 60	minims.
Nux Vomica	5 to 30	minims.
Opium, (Laudanum)	***1 to 15***	***minims.***
Opium, Camphorated (Paregoric)		
	1 to 4	fluidrachms.
(infants	5 to 10	minims)
Opium, Deodorized	***1 to 15***	***minims.***
Orange Peel, Sweet	(for flavoring).	
Physostigma	1 to 30	minims.
Quassia	10 to 60	minims.
Rhubarb	15 to 120	minims.
Rhubarb, Aromatic	15 to 120	minims.
Sanguinaria	5 to 30	minims.
Squill	5 to 30	minims.
Stramonium	5 to 20	minims.
Strophanthus	5 to 15	minims.
Valerian,	5 to 120	minims.
Valerian, Ammoniated	5 to 120	minims.
Vanilla	(for flavoring)	
Veratrum Viride,	5 to 20	minims.
Viburnum Opulus	20 to 120	minims.
Warburg's	1 to 4	fluidrachms.

SYRUPS.

Asarum Compound	1/2 to 1	fluidrachms.
Calcium Lactophosphate,	1/2 to 4	fluidrachms.
Ginger	1/2 to 4	fluidrachms.
Hydriodic Acid	1/2 to 1	fluidrachms.

Hypophosphites (calcium, sodium, and potassium)		
	1 to 2	fluidrachms.
Ipecac	2 to 60	minims.
Iodide of Iron	15 to 30	minims.
Lactucarium	1/2 to 2	fluidrachms.
Partridgeberry, Compound (Mother's Cordial)		
	2 to 4	fluidrachms.
Phosphates, Compound (Chemical Food-calcium, iron, sodium and potassium)	1/2 to 1	fluidrachms.
Raspberry	Vehicle.	
Rhubarb	1 to 4	fluidrachms.
Rhubarb, Aromatic	1 to 4	fluidrachms.
Rhubarb and Potassa, Compound (Neutralizing Cordial)		
	1/4 to 2	fluidrachms.
Sarsaparilla, Compound.	Vehicle.	
Senega	1 to 2	fluidrachms.
Squill	1/2 to 1	fluidrachms.
Stillingia, Compound	1/2 to 1	fluidrachms.
Tar	1 to 4	fluidrachms.
Tolu	1 to 4	fluidrachms.
Trifolium Compound,	2 to 4	fluidrachms.
Wild Cherry	1 to 2	fluidrachms.
Wormseed, Compound	1/2 to 1	fluidrachms.
Yerba Santa,Aromatic.	2 to 4	fluidrachms.

WINES, MEDICATED.

Colchicum Corm,	1 to 15	minims.
Colchicum Seed	1 to 20	minims.
Ipecac	5 to 60	minims.
Tar	30 to 60	minims.

ELIXIRS.

Adjuvant
Glycyrrhiza. **All as Vehicles**.
Aromatic (simple)
Aromatic (red),

OLEORESINS.

Aspidium	15 to 60	minims.
Capsicum	**1/10 to 1**	**minim.**
Cubeb	5 to 20	minims.
Ginger	5 to 20	minims.

POWDERS.

Compound Licorice Powder
30 to 60 grains
Dover's Powder (Ipecac 10% and Opium 10%)
5 to 15 grains
Compound Emetic Powder
60 to 120 grains
Diaphoretic Powder, 5 to 15 grains
Jalap, Compound (Anti-bilious Physic)
15 to 60 grains
Tully Powder (Compound Morphine Powder)
5 to 10 grains
= (1/12 to 1/6 gr. morphine.)