hæmorrhages into the vitreous, floating bodies, glaucoma, *atrophic choroiditis*, hæmorrhages and exudations of the retina, commencing atrophy of the optic nerves, etc. (Gillet de Grandmont, Meyer, Gubler, Wecker, and others). The first-named author affirms that we find in pilocarpine "an absolute remedy against white atrophy." Beranger, following Gubler, proposes to use this remedy as a substitute for eserine in certain ocular affections requiring a myositic—an effect produced by pilocarpine when instilled in the eye. It has been used successfully *de novo* and as a substitute for eserine in certain paralyses of the ocular muscles—those consecutive to the fevers and other acute diseases. After the operation for cataract extraction, pilocarpine is used by Chalot to prevent exudations and other inflammatory changes. In the discussion which ensued before the Geneva Congress where this paper was read, various adverse opinions were expressed regarding the exhibition of this remedy in different ocular maladies. Especially was the danger emphasized—the danger in cases of cardiac and arterial diseases, and of pulmonary engorgement.

Ringer has used jaborandi with success to *increase the secretion of milk*. As the milk-glands correspond in structure to the sudoriparous glands, and are merely differentiated and specialized for their particular office, the effects of this drug in increasing the production of milk might have been, *a priori*, expected. The author has used recently a fluid extract of jaborandi successfully in a case of deficiency in the secretion of the milk of a nursing-woman. But Dr. Max Strumpf denies that it has such power.

In two cases of that very intractable disorder, *diabetes insipidus*, or polydipsia, Laycock has used jaborandi with the effect to reduce the quantity of urine in one case from three hundred ounces to one hundred and twenty ounces per diem, and, in the other, from one hundred and fifty-eight ounces to ninety-eight ounces per diem. M. Huchard reports the cure of a case of the same kind, and also one of *glycosuria;* on the other hand, Vulpian declares it to be useless. Murrell has found it to be useful in some cases of the sweats of phthisis and of other nocturnal sweats, but yet far inferior to atropine and picrotoxin.

In *scaly skin eruptions*, pilocarpus has good effects by maintaining a moist state of the skin. It is the most efficient remedy for *alopecia* which we possess. In the treatment of this affection pilocarpine may be injected subcutaneously, or the fluid extract can be applied locally. The following is a very successful topical application: ℞ Ext. pilocarpi fl., ʒ j; tinct. cantharidis, ʒ ss; lin. saponis, ʒ ijss. M. Sig.: The scalp must be well rubbed with this lotion daily. In *prurigo* Pick had success, but failed in psoriasis, and he also succeeded in two cases of *pruritus senilis* and in one of *urticaria*. In *alopecia pityrodes*, he had good results in ten cases, but not in alopecia areata.

Pick administered one sixth of a grain three times a day by the stomach.

Recently Guttmann has brought forward pilocarpine as a remedy for *diphtheria*. He reports having successfully treated eighty-one cases without a single death, but these extraordinary results have not been confirmed. Numerous observations have been published, but out of the mass of cases and reports we can select only some of the most important. Soon after Guttmann's paper appeared, confirmatory statements were published by Lax, and directly contradictory by Lashkewitz. The latter lost all his cases treated with pilocarpine. Pitschen and Dilewsky, on the other hand, succeeded in curing many which would otherwise, they think, have died. Archambault treated twenty-one cases according to Guttmann's plan, and of these twelve died, a result which he considers bad. In this country Jacobi was one of the first to make a trial of the new remedy, and he pronounced against its utility. Payraudeau, who has made an exhaustive study of the subject, offers some conclusions which seem to the author eminently sound. The false membrane in inaccessible situations is softened and detached by the action of pilocarpine; it does not effect the elimination of the diphtheritic poison by the sweat which it induces; it is apt to cause nausea, vomiting, and diarrhœa, and may in this way greatly increase the danger of the case; it is positively contraindicated when the cardiac muscle is weakened in any way. Although these positions are perfectly tenable, there are facts more favorable to the utility of pilocarpine. They are well stated by Courtois: The results of the treatment of diphtheria by pilocarpine, without being so good as were at first supposed, are nevertheless worthy of careful consideration. Children of less than five years offer such slight resistance to the action of the morbific germs of diphtheria, that they are rarely cured. Those above this age, in which the mixed form of the disease is most frequent, are especially favorable subjects for this treatment. The false membrane is more thoroughly detached, and has less tendency to be reproduced, than by any other treatment. All are now agreed that efficient support must be given the patient by food and alcohol during the pilocarpine treatment; that cases characterized by extreme depression of the vital powers, and by weakness of the heart, are unsuited for this remedy.

Guttmann exhibited pilocarpine with hydrochloric acid and pepsin by the stomach, giving from $\frac{1}{15}$ gr. to $\frac{1}{6}$ gr. Archambault administered the remedy by the stomach generally, but, in urgent cases, hypodermatically. Chiotti preferred rectal injections of a simple solution.

Physostigma.—Calabar bean. The seed of *Physostigma venenosum* Balfour (Nat. Ord. *Leguminosæ, Papilionaceæ*). (U. S. P.) *Fève de Calabar*, Fr.; *Kalabarbohne*, Ger.

Extractum Physostigmatis.—Extract of physostigma. Dose, gr. $\frac{1}{6}$—gr. ss—gr. j.

Tinctura Physostigmatis.—Tincture of physostigma. Dose, ♏ v—♏ xx.

Composition.—Calabar bean contains two alkaloids, *physostigmine* and *eserine*. These have been supposed to be the same, but they differ in important particulars. Physostigmine has an alkaline reaction, is amorphous, colorless, and tasteless. Eserine crystallizes in colorless, rhomboidal plates, and has a bitter taste. Eserine has strong basic properties, and combines with acids to form salts, which are freely soluble. But they seem to agree perfectly in physiological action. The Calabar bean contains, besides these alkaloids, the ordinary constituents of the common bean, viz., albuminous matters, starch, and oil.

Physostigminæ Salicylas.—Salicylate of physostigmine. In colorless, shining, acicular, or short columnar crystals, turning reddish on long exposure to light and air, odorless, having a bitter taste and a neutral reaction. Soluble in 130 parts of water, and in 12 parts of alcohol at 59° Fahr. Dose, gr. $\frac{1}{100}$—gr. $\frac{1}{60}$.

Antagonists and Incompatibles.—The vegetable astringents, tannic acid, and the caustic alkalies, are chemically incompatible. As respects physiological actions, physostigma is antagonized in a limited part, but not in the whole of its actions, by atropine, and still more by chloral. Therapeutically, the tetanizing agents may be regarded as opposed to physostigma.

Synergists.—The paralyzers, or depressors of the motor nervous system, conium, gelsemium, nitrate of amyl, etc., act in harmony with physostigma, increasing its effects in the whole range of its physiological influence.

Physiological Actions.—The preparations of physostigma are apt to excite nausea. Increased secretion of the gastro-intestinal mucous membrane, and increased peristalsis, follow their administration. The active principles quickly diffuse into the blood. Physostigma does not impair the respiratory function of the blood, but, after death, loose coagula are found, the globules have undergone changes of shape, and rectangular plates of hæmato-crystallin occur (Leven and Laborde). The action of the heart is affected by considerable toxic doses; it is paralyzed in the diastole, and is flabby, but it contracts lazily on electric stimulation. In less than lethal doses the action of the heart is slowed, and the arterial tension is, for a brief period, lowered, but soon rises considerably above the normal. As these effects are not due to an action on the inhibitory apparatus, and follow when the heart is separated from the vaso-motor center by division of the spinal cord, it is probable that the action consists in a stimulation of the cardiac ganglia, and a subsequent paralyzing action on the cardiac muscles. The same result may be due to a paralyzing action on the accelerator nerves

of the heart (Köhler). The respiration is more powerfully affected than the circulation. When a lethal dose is administered the respiration becomes slower and shallower, and death ensues from arrest of the respiratory movements (asphyxia), the heart continuing in action for some time afterward.

Physostigma does not affect the centers of conscious impressions, and consciousness is preserved until the oxygenation of the blood is so far interfered with that carbonic-acid narcosis supervenes. Giddiness, vertigo, and a sense of muscular weakness and fatigue, are produced by considerable doses (Gubler). When a lethal dose is administered to an animal, its muscular system soon grows weak, and complete paralysis soon after ensues. The voluntary muscular system, however, before complete resolution occurs, is agitated by a succession of tremors—temporary tetanic contractions followed by entire relaxation. These muscular tremblings occur, but more feebly, after complete paralysis, and persist in a slight degree after death. The muscular contractility is not destroyed, not even impaired, by physostigma.

The irritability of the motor nerves is affected, if at all, to a very slight extent, and the sensibility of the sensory nerves is rather heightened. It follows from these facts that the paralyzing effect of physostigma is due to a direct action on the spinal cord.

Attention has not thus far been directed to the influence of physostigma on the pupil. Whether introduced directly into the eye, or taken into the stomach, or thrown under the skin, it contracts the pupil. This is a local and peripheral action, exactly corresponding, as to its seat, to the action of atropine. The end-organs of the sympathetic, or of the motor oculi, and it may be of both, are acted upon. By some it is held that the contraction of the pupil is due to a tetanic state of the circular fibers (Grünhagen, Rogow); by others, to a paralysis of the dilator system (Fraser, Hirschmann). It were probably safer to accept the conclusion that the nerves innervating both sets of fibers are acted on—the motor oculi stimulated (see case by T. Wharton Jones, "Practitioner," vol. iii), the sympathetic depressed—for we find that tetanic contraction of the muscular fiber of the intestine, followed by dilatation and a paretic state, can be experimentally produced by physostigma. The apparatus of accommodation is also affected; myosis begins in ten to fifteen minutes after eserine is inserted. Direct galvanization of the iris, contracted by physostigma, causes it to dilate (Engelhardt, Hermann).

Therapy.—The applications of physostigma to the treatment of disease are by no means so important as the elaborate study given to its physiological action, by various observers, would seem to indicate.

In *torpor of the muscular layer of the intestine, combined with deficient secretion of the mucous membrane*, this agent is often very serviceable. In some subjects fifteen minims of the tincture, or a half-

grain of the extract, taken at bedtime, will procure a morning evacuation, but it frequently fails. When the state to be relieved is such as is indicated above, a combination of physostigma, belladonna, and nux-vomica, is sometimes very effective: ℞ Tinct. physostigmatis, tinct. nucis vomicæ, tinct. belladonnæ, āā ʒ ij. M. Sig.: *Thirty drops in water, morning and evening.* ℞ Extract. physostigmatis, ext. belladonnæ, ext. nucis vomicæ, āā gr. v. M. Ft. pil. no. x. Sig.: *One pill at bed-hour.* Physostigma (gr. ¼—gr. ss of the extract) is a useful addition to a cathartic pill. ℞ Ext. physostigmatis, resinæ podophylli, āā grs. iij. M. Ft. pil. no. vj. Sig.: *One pill at bed-hour.*

To the troublesome *flatulence of women at the climacteric period*, usually associated with a paretic state of the muscular layer of the bowel, very great relief is often afforded by the use of physostigma. With the relief to the flatulence there usually follows relief to the morbid fancies, the headache and vertigo connected with it.

The action of physostigma on the spinal cord, as a paralyzer, naturally suggested its use in *tetanus*. The evidence of its utility is discrepant. Moreover, tetanus, in many instances, manifests a tendency to spontaneous cure. It is difficult, therefore, to estimate the precise value of physostigma, but about one half of the cases treated with this agent recover—according to Watson, ten in eighteen; according to Roemer, twenty in forty-seven cases. A larger measure of success might have been achieved, had sufficient attention been paid to the quality of the extract used and to the mode of administration. The following remarks by Dr. Fraser, in regard to the treatment of tetanus by Calabar bean, are of great importance:

"I should myself feel inclined always to commence the treatment by subcutaneous injection, and to repeat such injection until the system is decidedly affected, and then to administer the remedy by the mouth in a dose three times as large as is found necessary by subcutaneous injection. Such a plan might be quite safely followed in a child of even nine years. If the remedial effects continue to be produced by administration by the mouth, it should be persevered with, for such administration has obvious advantages as far as the convenience of the practitioner is concerned. In the more severe cases, however, I believe subcutaneous injection should be alone employed. The distress and increase of spasm caused by swallowing, or the impossibility of introducing substances by the mouth, will render this necessary. I can not, also, too strongly urge that subcutaneous injection should always be used when severe and continued spasms occur, when a fatal result is imminent from the exhaustion caused by prolonged and frequent convulsions, and when apnœa threatens at once to close the tragic scene. By it we obtain the quickest and most powerful effect.

"From the preceding remarks it can not be expected that any arbitrary rules of dosage can be laid down. For an adult one grain of the extract by the stomach, or one third of a grain by subcutaneous injection, will generally be sufficient to commence with. This should be repeated in two hours, when its effects will usually have passed off, and the succeeding doses may be modified according to the experience that will be thus gained. . . . The great object is to produce as quickly as possible, and then to maintain, the physiological effect of physostigma in diminishing reflex excitability. The doses must, therefore, be continued in increasing quantities until this physiological effect is produced, or until the sedative action of the drug on the circulation is carried to a dangerous extreme, or until constant nausea and vomiting compel us to desist."

Influenced by theoretical considerations, physostigma has been prescribed in *chorea* and *epilepsy*, but the results have not been encouraging. It is true, successful cases of *chorea* have been reported, but the influence of favorable hygienic surroundings and time is so great in uncomplicated chorea, that we may well doubt whether physostigma has any real influence. Of twelve cases of epilepsy treated by this agent, six were improved, and in the other six a notable increase in the number of the epileptic paroxysms took place (Williams).

In *progressive paralysis of the insane*, remarkable improvement has occurred under the use of physostigma in a few cases (Browne), but in others the results have been entirely negative (Williams). As in this melancholy disorder no remedies have hitherto been of any avail, it is a gratifying fact that in some cases Calabar bean has seemed to stay its progress.

Since it has been shown that physostigma lessens the activity of the respiratory function, lowers the action of the heart, and depresses the temperature, it has been used in *bronchitis*, *congestion of the lungs*, and *pneumonia*, with a degree of success which warrants more extended and systematic use.

Besides the various applications in ophthalmic practice growing out of the myosis produced by physostigma, it has been used with success in certain *paralytic and convulsive states of the ocular muscles.* In a case of *paralysis of the third nerve*, with ptosis, double vision, and immobile pupil, Wharton Jones effected a cure by the instillation of physostigma into the eye, whence he concludes that the myosis caused by this agent is due to the stimulation of the third nerve. Galezowski recommends the instillation of physostigma into the eye in cases of *suppuration of the cornea* and in *amblyopia.* Eserine disks (of gelatin) have been successfully employed in *tic.*

The experiments—thirty in number—of the British Medical Association Committee, with regard to the antagonism between physostigma and strychnine, have led them to the following conclusion:

"Although the symptoms produced by either substance were mod-

ified considerably by the action of the other, there was no instance of recovery from a fatal dose."

The antagonism between atropine and physostigma, at least to a considerable extent, has been well established, especially by the labors of Fraser. In 1864 Kleinwächter, influenced probably by the marked antagonism of the two agents on the pupil, employed physostigma with success in a case of poisoning by atropine. The British Association Committee, however, conclude as the result of their investigations that—"1. Sulphate of atropine antagonizes to a slight extent the fatal action of extract of Calabar bean; 2. The area of antagonism is more limited than even Dr. Fraser has indicated in his paper on the subject.

"Thirty-one experiments, performed by the committee with hydrate of chloral and Calabar bean, have shown that—

"1. Hydrate of chloral modifies to a great extent the action of a fatal dose of extract of Calabar bean, mitigating symptoms and prolonging life.

"2. Hydrate of chloral, in some cases, saves life from a fatal dose of Calabar bean.

"3. If hydrate of chloral be given before extract of Calabar bean, so that the animal is deeply under the influence of hydrate of chloral before it receives the extract of Calabar bean, the symptoms produced by the latter are much modified, and life is saved from the effects of what would otherwise be a fatal dose.

"4. Chloral hydrate is of little service as an antagonist to extract of Calabar bean, if given some time after the latter. If the symptoms of the action of Calabar bean be in full operation, it will not save life, however it may modify symptoms."

Uses of Eserine.—This alkaloid represents the powers of the plant, and is the most eligible form for internal administration, and for local use in ophthalmic therapeutics. Merck, however, maintains that the salicylate of physostigmine is the best preparation of the alkaloids, and it has been made official. The dose for internal and hypodermatic use ranges from $\frac{1}{60}$ to $\frac{1}{12}$ of a grain. Gelatin disks of eserine are now most frequently employed for instillation into the eye, but a neutral solution of any of its salts is convenient for this purpose. It is now largely used to counteract the *effects of atropine* on the pupil; in *iritis*, to break away or prevent the formation of adhesions; in *ulceration* and suppuration of the cornea; after *extraction* of *cataract*, to prevent suppuration (Wecker); in the operation of *iridectomy*. The curative influence of eserine in these cases is due to its action in lowering the intra-ocular tension, in diminishing the conjunctival secretions by contracting the blood-vessels, and in checking the migration of the white blood-corpuscles (Wecker). Eserine may be substituted for physostigma for all purposes, by the stomach or hypodermatically.

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Tabacum.—Tobacco. *Tabac*, Fr.; *Tabakblätter*, Ger. The commercial dried leaves of *Nicotiana tabacum* Linné (Nat. Ord. *Solanaceæ*). (U. S. P.)

Infusum Tabaci.—Infusion of tobacco (℥j—Oj). Dose, as an enema, ℥ss—℥iv. (Not official.)

Oleum Tabaci.—Oil of tobacco. (Not official.)

Unguentum Tabaci.—Tobacco-ointment (℥ss—℥viij). (Not official.)

Vinum Tabaci.—Wine of tobacco (℥j—Oj). Dose, ♏ v—℥ss. (Not official.)

Composition.—Tobacco contains a powerful alkaloid—*nicotine*—in combination with malic acid. It is an oily, colorless liquid, strongly alkaline in reaction. Its taste is hot and acrid, and its odor disagreeable and peculiar. It is contained in the dried leaves, in the proportion of about five per cent.

Tobacco also contains a peculiar camphor—*nicotianine*.

Tobacco-leaves are rich in mineral constituents—potash, lime, nitrates, and phosphates. The vapor of tobacco "contains numerous basic substances of the picolinic series, and cedes to caustic potash, hydrocyanic acid, sulphureted hydrogen, several volatile fatty acids, phenol, and creosote" (Flückiger and Hanbury, Husemann). It does not contain nicotine. The oil of tobacco is an empyreumatic product, obtained by distillation.

Antagonists and Incompatibles.—The caustic alkalies, tannin,

and the iodides, are chemically incompatible. Strychnine is, according to Haughton, a true physiological antagonist. Ergot, digitalis, belladonna, ammonia, and alcoholic stimulants, antagonize the effects of tobacco on the heart and arterial system.

In cases of poisoning, the stomach should be evacuated by emetics or the stomach-pump, and tannin and the iodides should be administered. Ammonia and brandy are indicated to relieve the failing circulation. Subcutaneous injection of strychnine should also be resorted to, and, if necessary, artificial respiration.

Synergists.—All of the motor depressants increase the effects of tobacco.

Physiological Effects.—Tobacco is a severe and very depressing nauseant and emetic. It is locally an irritant to the mucous membrane, and produces burning pain at the epigastrium. It is also laxative even when smoked, and in considerable quantity by the stomach causes hypercatharsis. The emetic effect of tobacco is, doubtless, the product of three factors : its cerebral action, its local irritation of the gastric mucous membrane, and its specific emetic property. The secretions of the intestinal mucous membrane are increased, and the muscular layer is thrown into tetanic contraction, whence the catharsis which follows its administration. Applied to a wounded surface, tobacco produces the same effects.

Its active principle, nicotine, a crystalloidal substance, diffuses into the blood with great rapidity. It corresponds, in the mode and intensity of its action, to prussic acid. In a case narrated by Taylor, a fatal result ensued in three minutes after a toxic dose. In another case, death occurred in five minutes (M. Fougnies, poisoned by Count Bocarmé). When a lethal dose is administered to an animal, the action of the heart continues after respiration has ceased. Its cavities are usually found empty, or containing black fluid blood. Tobacco is not, therefore, a cardiac poison, and the depression of the circulation noted when full medicinal doses are administered is, doubtless, due to the interference with the pulmonary functions. Applied directly to the muscular tissue of the heart, nicotine does not impair its contractile power (Benham). The blood throughout the body is black and fluid ; but, as agitation with oxygen restores its color, and as the blood-globules are unaffected, the condition of the blood is doubtless due to the arrest of oxygenation (asphyxia).

Trembling and clonic spasms are produced by lethal doses of tobacco. Its ultimate effect is paralyzing, but preceding the muscular relaxation and paresis there is in animals, and occasionally in man, a definite tetanic stage. Death ensues through its paralyzing action on the muscles of respiration. The end-organs of the motor nerves lose their excitability, next the trunks of the nerves, and then the spinal cord, but the muscular irritability is unaffected. The brain is not

directly affected. Giddiness and delirium have been noted in cases of poisoning by tobacco, but these symptoms, as well as the insensibility which immediately precedes death, are no doubt due to the accumulation of carbonic acid in the blood. The pupils are contracted by tobacco, and, in fatal cases, are insensible to light.

There is considerable sweating, and the skin is cold and clammy in fatal cases. The temperature of the body is decidedly reduced (Tscheschichin). The elimination of nicotine probably takes place by the kidneys. Very free urinary discharge, at all events, is produced by tobacco, and, reasoning by analogy, it may be supposed that this effect is due to the direct action of the nicotine on the Malpighian tufts and on the tubules of the kidneys.

When a lethal dose of nicotine has been taken, and the effects follow immediately, there may be none of the symptoms described above. In the case narrated by Taylor, the " deceased stared wildly ; there were no convulsions, and he died quietly [in three minutes], heaving a deep sigh in expiring."

Therapy.—In *habitual constipation*, due to a relaxed state of the muscular layer of the bowel, five minims of the wine of tobacco, administered at bedtime, will not unfrequently afford relief.

Impaction of the cæcum, *colica pictonum*, sometimes *intussusception*, and *strangulated hernia*, may be overcome by a tobacco-enema. It must be borne in mind, however, that this is an expedient not free from danger. Numerous deaths have been caused by it, and Dr. Copeland reports one instance in which thirty grains by enema proved fatal. Of the official infusion (℥ j—Oj) it is not safe to use more than four ounces, or fifteen grains ; and this quantity may be expected to produce most depressing nausea. It must be urged in favor of this remedy that it has, in very unfavorable cases, proved exceedingly effective. It is especially adapted to cases in which obstruction has occurred from paresis of the muscular layer of the bowel (impacted cæcum, typhlitis, painter's colic).

Tobacco is one of the antispasmodic remedies used in the treatment of *spasmodic asthma*, and the paroxysms of difficult breathing in *emphysema*. It enters as a constituent in various pastilles and cigarettes employed in these maladies. *Asthmatics*, unaccustomed to the use of tobacco, are sometimes relieved by smoking a cigar or pipe, but the effect is lost by habitual use. *Laryngismus stridulus* may be quickly arrested by a snuff-plaster to the neck—an effective but dangerous domestic remedy. Obstinate *hiccough*, or *singultus*, may be cured by five-minim doses of wine of tobacco, but we possess other useful remedies, less dangerous and less unpleasant in action.

We possess no remedy more effective in the treatment of *tetanus* than tobacco. It may be used in the form of an enema, commencing with four ounces of the infusion, and regulating the quantity to be

administered and the time of administration by the effect produced. Minim-doses of the alkaloid may be given every two hours by the stomach, or two minims by the rectum (Haughton). When it acts favorably, it relaxes the trismus so that nutriment may be taken, and suspends the tonic convulsions. Care must be used not to introduce a lethal quantity, and produce death by asphyxia. The author has known the wine of tobacco to be used successfully in a severe case of tetanus, the quantity administered being regulated by the effect of the remedy on the convulsions.

The experiments of Haughton having demonstrated an antagonism between nicotine and strychnine, he proposed the use of nicotine in *strychnine-poisoning*, and cases have occurred in which it proved entirely successful. As the effects of nicotine are so nearly instantaneous, the stomach administration—if the spasms do not prevent—will suffice, but rectal and even hypodermatic injections may be resorted to if necessary. The following formula of Erlenmeyer may be used for the subcutaneous injection in strychnine-poisoning and in tetanus: ℞ Nicotinæ, gr. ss; aquæ destil., ʒ ij. M. Sig.: *Ten minims contain* $\frac{1}{24}$ *of a grain.* The cases of strychnine-poisoning in which tobacco was used successfully were treated by the infusion.

Tobacco was formerly employed in the treatment of *dropsy*. It is adapted to those cases in which digitalis is now used. It promotes free diuresis, and is at the same time laxative—effects especially serviceable in cardiac dropsy. It is, however, so disagreeable in action that few practitioners have the temerity to prescribe it, and few patients are willing to swallow it.

There is no doubt that excessive use of tobacco lessens the *venereal appetite*. Slightly nauseating doses of the wine of tobacco will check *chordee* and *priapism*. *Satyriasis* is effectively quenched in tobacco-nausea. *Nocturnal pollutions*, due to repletion and to continence, are also usually suspended by the use of this remedy; but it is, unfortunately, so horribly depressing that the remedy may be justly considered the greater evil.

Local Uses of Tobacco.—So many unfortunate accidents have resulted from the external application of tobacco, that its use in this way is rarely justifiable. The infusion and an ointment have been employed with success in *tinea*, *scabies*, *prurigo*, *pityriasis*, etc. An injection of tobacco will destroy *ascarides*, but it is unsafe. Other and more manageable remedies have entirely taken the place of tobacco in the local diseases above named.

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Lobelia.—*Lobelia.* The leaves and tops of *Lobelia inflata* Linné (Nat. Ord. *Lobeliaceæ*), collected after a portion of the capsules have become inflated. (U. S. P.) Indian tobacco. *Lobélie enflée*, Fr.; *Lobeliakraut*, Ger.

Acetum Lobeliæ.—Vinegar of lobelia. (Lobelia, ten parts—diluted acetic acid to make one hundred parts.) Dose, ♏ v—ʒ j.

Tinctura Lobeliæ.—Tincture of lobelia. (Lobelia, twenty parts—diluted alcohol sufficient to make one hundred parts.) Dose, ♏ v—ʒ j.

Extractum Lobeliæ Fluidum.—Fluid extract of lobelia. Dose, ♏ j—ʒ ss.

Composition.—The effects of lobelia are due to the presence in it of a peculiar alkaloid—*lobeline*. This principle is oily in consistence, has a pungent, rather acrid taste, a tobacco-like odor, and is strongly alkaline in reaction. It is slightly soluble in water, but more freely soluble in alcohol and ether. It combines with acids to form crystallizable salts, which are soluble in water and in alcohol. The active principle—lobeline—is combined in the plant with *lobelic acid*.

Antagonists and Incompatibles.—The caustic alkalies decompose lobeline; hence these are incompatible. The depressing effects of lobelia on the circulation are counteracted by digitalis, belladonna, ergot, and other vaso-motor excitants, by alcohol, ether, ammonia, etc.; on the nervous system of animal life, by strychnine, picrotoxin, thebaine, etc.

Synergists.—All of the motor depressants increase the effects of lobelia.

Physiological Actions.—The taste of lobelia is pungent and acrid, and it persists for a long time in the fauces. The leaves chewed excite a very abundant flow of saliva, and soon cause a feeling of epigastric