SOUTHERN
Medical and Surgical Journal.

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"Je prends le bien ou je le trouve."

VOLUME XVII.—NO. XII.—1861.

AUGUSTA, GEORGIA:
DR. WILLIAM S. JONES, PUBLISHER,
Chronicle & Sentinel Steam Press.
1861.
Indigenous Remedies of the Southern Confederacy which may be Employed in the Treatment of Malarial Fever. By Joseph Jones, M. D., Professor of Medical Chemistry in the Medical College of Georgia, and Chemist to the Cotton Planters' Convention of Georgia.

No. 1.

Summary.—Necessity for the use of indigenous remedies at the present time. *Georgia Bark, (Pinckneya pubens)*—its affinities with Peruvian Bark—geographical distribution—active alkaloid principle—medicinal properties—use of by the inhabitants of Georgia in the treatment of Intermittent Fever—Testimony of Dr. John Stevens Law, of Sunbury, to its efficacy as an anti-periodic method of using it. *Dogwood, (Cornus Florida)*—botanical description—geographical distribution—chemical composition—examination of Dr. Walker, of Virginia, 1803; Dr. Walker's receipt for making ink from the bark—examination of Mr. Carpenter, of Philadelphia—Cornine—examination of Drs. Staples, S. Jackson, James Cockburn and D. C. O'Keeffe—medicinal properties and uses—testimony of Dr. Walker, of Virginia, to the medicinal properties of Dogwood; of Dr. Gregg, of Bristol; of Drs. Jacob Bigelow, S. G. Morton, R. Coates, D. C. O'Keeffe and others—method of preparing the extract—dose.

*Cornus Ciricinata (Round-leaved Dogwood)*—testimony of Morson and Ives to its medicinal value.

*Poplar or Tulip Tree, (Liriodendron Tulipifera)*—Botanical character—examination by Dr. Rogers, 1802; by Dr. J. P. Emmet, 1832—discovery of Liriodendrine—chemical and physical properties—medical properties and uses of Poplar Bark—testimony of Michaux, of
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*Small Magnolia or Sweet Bay* (*Magnolia glauca*)—botanical characters—geographical distribution—chemical composition—examination of Dr. Jacob Bigelow—medical properties and uses known to the Indians—testimony of Dr. Bigelow—a domestic remedy in chill and fever—dose.

*Cucumber Tree*, (*Magnolia acuminata*.)

*Big Laurel*, (*Magnolia grandiflora*.)

*Umbrella Tree* (*Magnolia tripetala*.)

*Persimmon*, (*Diospyros Virginiana.*)

*Catalpa*, (*Bignonia Catalpa.*)

*Virginia Snake Root*, (*Aristolochia serpentaria*)—Botanical description—geographical distribution—chemical constitution—analyses of Bucholz, Chevallier, Dr. Jacob Bigelow, Conwell—medical properties and uses—experiments of Jorg on Virginia Snake Root—used by the Indians and early settlers of America—employed and extolled by numerous physicians—testimony of Dr. Nathaniel Chapman, of Sydenham, of Dr. John Eberle, of Dr. Jacob Bigelow, of Dr. George B. Wood, and others. Dose, and mode of administration.

*Indian Quinine or Ague Weed*, (*Gentiana quinquifolia.*)


With our ports blockaded, and all commercial intercourse cut off with those foreign countries and American States from whence the South has received her supplies of medicine, it is important, and we may say absolutely necessary that the indigenous remedies of the Southern Confederacy should be carefully examined and employed. This examination and employment of Southern remedies should be commenced by the physicians not as a temporary expedient, but as a permanent advance in the establishment of our absolute independence. To facilitate this important object, we propose to pass in review the various remedies which may be employed in the treatment of the most common and important of Southern diseases, reserving the chemical analyses, physiological and therapeutic experiments, with these and other remedies, for subsequent papers.
Georgea Bark (Pinckneya* pubens) Michaux.

Botanical Characters.—Capsule two celled, bearing the partition in the middle of the valves. Corolla Tubular. Calyx, with one or two segments resembling bracteas. Filaments inserted at the base of the tube. Seed winged.

A large shrub, 15-20 feet high, with many stems from each root; branches branchiate; the younger tomentose. Leaves opposite, large, lanceolate, entire, slightly acuminate, shining on the upper surface, though sprinkled with hairs, tomentose on the lower; petiole about an inch long, tomentose. Panicles terminal and axillary, composed of fascicles, commonly 5 flowered. Calyx superior, 5 parted; persistent, slightly colored; segments sometimes equal, lanceolate and acuminate; frequently one and sometimes two segments dilate into a large, ovate, veiny, rose-colored leaf; when two segments dilate, they are never equal in size. Corolla tubular; the tube of an obscure green color, tomentose; border 5 parted; segments oval, obtuse, purple. Filaments inserted into the base of the corolla, longer than the tube. Anthers incumbent, two celled. Germ turbinate. Syle shorter than the stamens. Stigma obtuse. Capsule nearly globose, opening at the summit across the dissepiment. Seeds flat, orbicular, attached to a central receptacle. This genus is very nearly allied to cinchona. It differs in its calyx, but principally by the transverse partition of its capsule. Flowers May and June.—Elliott. A Sketch of the Botany of South Carolina and Georgia, vol. 1, p. 268.

Geographical Distribution.—This small tree, interesting not only for the elegance of its flowers and foliage, but also for its close affinity to the celebrated genus Cinchona, which yields the Peruvian bark, and for the valuable medicinal properties of its bark, is indigenous and confined to the most southern parts of the Southern Confederacy. It grows in wet and boggy soils, along the small streams which intersect the pine barrens, from New River, South Carolina, along the sea coast into Florida. I have found it in greatest abundance in

*Consecrated by the Elder Michaux, in testimony of his gratitude and respect, to Charles Cotesworth Pinckney, of South Carolina, an enlightened patron of the arts and sciences, from whom Michaux received multiplied proofs of benevolence and esteem during his residence in South Carolina. First discovered by Bartram, who considered it a species of Mussenda. Found for the first time by the elder Michaux, in 1701, on the banks of the St. Marys.
the “branches” of Walthourville in Liberty County, where it is found in company with the elegant Buckwheat Tree (Mylo-
ecarium ligustrinum Pursh,) several species of Andromeda, 
(Andromeda angustifolia Pursh, A. Catesbæi, Walt. A. 
aeuminata,) Hypericum fasciculatum, Poison bush, (Rhus ver-
nix,) Tupelo (Nyssa aquatica and N. grandidentata), Black 
Gum, (Nyssa sylvatica), Red Maple, (Acer rubrum), Cypress 
(Cupressus desticha,) Small Magnolia or White Bay, (Magno-
lia glauca), Loblolly Bay, (Gordonia lasyanthus), Red Bay, 
(Laurus Carolinensis,) Sweet Gum, (Liquidambar styraciflua) 
and Water Oak, (Quercus aquatica.) The branches which in-
tersect the Pine-barrens of Georgia are capable of supplying 
large quantities of this important medicinal plant, and with 
care, and the assistance of cultivation, they might be made to 
yield sufficient bark to supply the entire Confederacy. If this 
plant fulfils its high promise, these barren and now valueless 
regions of country, will yield one of the most valuable 
remedies.

Chemical and Therapeutic Properties.—The inner bark of 
the Pinckneya pubens is extremely bitter and appears to par-
take of the febrifuge virtues of the Peruvian bark. Mr. Farr, 
an able chemist of Philadelphia, many years ago instituted an 
analysis of this bark, which although by unforeseen accidents 
was not as satisfactory as he would have wished it, still led to 
the discovery of a crystallized substance which resembled 
Cinchona. Previous to the extensive introduction of Bark 
and Quinine, the inhabitants of Georgia and Carolina em-
ployed it successfully in the treatment of intermittent fevers.

Mr. John Stevens Law,* of Sunbury, Georgia, in his Thesis 
for the Degree of Doctor of Medicine, presented to the Faculty 
of the University of Pennsylvania in the spring of 1825, states 
that he was induced to try it in intermittent fever, from the 
estimation in which it was held by some of the inhabitants in 
the neighborhood where he resided.

*The American Dispensatory, by John Redman Coxe, M. D: Philad.
1830, p. 499.
Mr. Law used it in seven cases of intermittent fever, six of which were very speedily cured by it. He affirms that in no case did it distress much the stomach, though in two cases it was given in the quantity of $\frac{3}{4}$ at a dose, after the custom of the West Indian physicians.

This bark may be administered in powder, in doses varying from $\frac{3}{4}$ to $\frac{3}{2}$, according to the severity of the case; it may also be administered in infusion or decoction. Michaux* states that the inhabitants were accustomed to boil a handful of the bark in a quart of water till the liquid was reduced one half, and to administer this decoction to the sick.

The facts now presented with reference to this interesting vegetable, which so closely resembles the celebrated Peruvian Barks, that it has by several distinguished botanists been referred to the same genus, are sufficient to excite, but by no means to satisfy, inquiry; and we sincerely hope that physicians will make extensive examinations and trials, in practice, with this Georgia Bark, which, aside from the reputation which it formerly held in the cure of malarial fever, promises so much from its botanical connections.

**DOGWOOD, (CORNUS FLORIDA.)** LINN.

**Botanical Characters.**—Arborescent; leaves ovate, acuminate; involucrum large, obcordate; drupes ovate.

A tree 15–25 feet high, the trunk 8–10 inches diameter, with expanding branches, the smaller crowded at the extremities of the older.

Wood fine grained, hard, durable. Leaves opposite, deciduous, ovate-lanceolate, acuminate, entire, ribbed; the younger ones very pubescent, almost villous on the under surface. Flowers in terminal heads. Involucrum four-leaved; leaves large, obcordate, nerved, white; the sinus callous, sessile at the base of each head, and enclosing it before the time of flowering. Calyx one-leaved, small, tubular, border four-cleft; segments erect, obtuse, shorter than the tube. Petals 4, linear-lanceolate, inserted into the summit of the germ, yellowish. Filaments 4, as long as the corolla, alternating with the petals. Anthers incumbent, two-lobed. Germ inferior, slightly angled. Style shorter than the stamens, surrounded at base by a glandular ring, around which the petals and fila-

Geographical Distribution.—The *Cornus Florida* is first seen in Massachusetts, between the 42d and 43d degrees of latitude, and extends uninterruptedly throughout the eastern, southern and western states to the banks of the Mississippi. Although abounding especially in the Middle States, it is, nevertheless, one of the most common trees over this vast extent of country. In New-Jersey, Pennsylvania, Maryland and Virginia, it abounds upon moist, gravelly, and uneven soil; in North Carolina, South Carolina, Georgia, Florida and Alabama, it is generally found most abundant and most luxuriant on the borders of swamps and low-grounds, and scarcely ever in the pine barrens, where the soil is too dry and sandy to sustain any trees but the long leaf Pine, (*Pinus Australis,* ) the Barrens Scrub Oak (*Quercus Catesbeii,* ) Upland Willow Oak, (*Quercus cinerea,* ) Black Jack Oak, (*Quercus ferruginea,* ) and Running Oak, (*Quercus pumila,* )

In the most fertile districts of West Tennessee and Kentucky it is said not to appear in the forests, except where the soil is gravelly and of middling quality.

Chemical Composition.—The bark of the root, stem and branches of the *Cornus Florida* is a powerful bitter, possessing a bitter astringent and slightly aromatic taste. The chemical composition of this bark appears to have been first investigated by Dr. Walker, of Virginia, who published his observations in 1803 in Philadelphia.* He found that water distilled from the bark in powder had a transparent, whitish appearance, with a slight aromatic odor, and

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*Experimental inquiry into the similarity in nature between the *Cornus Florida* and *Sericea,* and the *Cinchona Officinalis* of *Linnaeus,* &c. &c. by Dr. John M. Walker. Philadelphia, 1803.*
no perceptible taste; when the heat was increased the fluid had a lemon color, with an unpleasant smell, and an acerb taste, effects which were probably produced by the volatilization and partial decomposition of portions of the bark in consequence of the continuance of the heat until the mixture was evaporated nearly to dryness.

Dr. Walker also endeavored to ascertain the effects of different menstrua upon the extract furnished by evaporating a decoction of the root of Cornus Florida. Strong alcohol dissolved from the extract, three-fourths of the entire quantity; the part which remained undissolved was destitute of taste, and underwent no change of color on adding the test of iron; the alcohol which contained the dissolved portion of the extract possessed an intensely bitter taste with astringency, presented a clear red color, and turned to a deep black on the addition of a salt of iron. When the alcoholic extract was macerated in repeated portions of sulphuric ether, with a view to ascertain the quantity of resin, the ether acquired a dark color and a bitter taste, and dissolved three quarters of the extract. When tested with iron, it was found that the remaining quarter, only, was changed to a black color.*

Upon this examination Dr. Walker announced that the Dogwood contained gum, resin, tannin and gallic acid.

Mr. G. W. Carpenter, of Philadelphia,† subsequently announced the discovery of a peculiar bitter principle for which he proposed the name Cornine, and which he asserted to be the active alkaloid principle of the Cornus Florida,

* Dr. Walker gives a receipt for making an excellent ink, in which the bark of the Cornus Florida is substituted for gall nuts.

Put half an ounce of Dogwood bark, two scruples of Sulphate of Iron and two scruples of Gum Arabic in sixteen ounces of rain water; during the infusion shake it repeatedly.

and to be fully equal, if not superior to Quinine in its tonic and febrifuge properties.

In consequence, however, of yielding this salt in so very minute comparative proportion to what the Quinine is yielded by the Cinchona, it is even more expensive than the latter. It is greatly to be regretted that Mr. Carpenter did not publish the method by which he extracted the alkaloid principle. Some have gone so far as to affirm that he did not discover any alkaloid principle at all, because subsequent investigations have failed to detect Cornine. We consider this criticism severe, for three reasons.

1st. No absolutely accurate and complete examination of the bark of the Cornus Florida has yet been made.

2d. As Mr. Carpenter did not state his method of obtaining the active principle, it might be supposed that the agents used exerted some influence in the transformation as well as the separation of the alkaloid principle.

3d. Mr. Carpenter affirms that he submitted Cornine to the examination of several physicians. This subject is of so much interest and importance that we quote the entire passage from the work of Mr. Carpenter:

"It gives me much pleasure to announce the discovery which I made of an alkaline base in the Cornus Florida, which I have denominated Cornine, and which with acids, forms neutral salts, the sulphate of which has proved a highly valuable tonic and febrifuge. This article has been very carefully and accurately described by Dr. Samuel G. Morton, of this city, in the Philadelphia Journal of the Medical and Physical Sciences, and from the most respectable sources in the medical profession, from various parts of the United States, where this article has been sent, the most corroborating evidences have been received of the unequivocal success of the Cornine in the treatment of remittent and intermittent fevers, in the same doses as the Quinine, and the only circumstance which precludes its competition with that substance, is the minute comparative
proportion of Cornine yielded by the Cornus Florida. If, however, at any time, we should fail in our supplies of Cinchona, which is not impossible, or even improbable, we shall then be able to supply its place by this principle of the Cornus Florida." Essays on the most important articles of the Materia Medica, &c. p. 203.

Dr. S. G. Morton,* of Philadelphia, described Cornine as a greyish-white powder, extremely bitter and deliquescent when exposed to the air, and affirmed that he had exhibited it in some cases of intermittent fever with much success. Dr. Morton considered it to be in no respect inferior to Quinine. Dr. R. Coates, and several other practitioners, exhibited this salt in the same cases in which Quinine is employed, and with decided success.

Cornia, according to Mr. Carpenter, does not crystallize but forms on evaporation a viscid mass. It is of a pale, straw color, attracts the moisture of the atmosphere, and dissolves in alcohol, and in sulphuric, acetic and muriatic acids, with which it forms crystallizable, neutral salts. The Sulphate crystallizes in acicular or needle-like crystals, deliquescent, and consequently soluble in water, of a greyish-white color, and its taste is intensely bitter. According to the testimony of Joseph Tongo,† M.D. and E. Durand. of Philadelphia, Dr. Staples obtained it by digesting the bark of the root of the Cornus Florida in alcohol of 30 deg. of Baume's areometer. After several days had elapsed, the latter was filtered and concentrated by distillation in a water bath. On cooling, a granular extract was obtained, of a light pink color, of a very bitter and astringent taste; when treated with diluted sulphuric acid, afforded a very small

* Philadelphia. Journal Medical and Physical Sciences, xl.
quantity of crystals of Sulphate of Cornia, without having been exhausted of all its bitterness and astringency.

Mr. Ellis states that Dr. S. Jackson, lately of Northumberland, Pa. informed him that he had subjected the bark to Henri's process for obtaining Quinia from Cinchona, and that without carrying the process so far as to obtain a crystalline salt, he used the concentrated alcoholic solution with the most decisive results, and was satisfied that it contained a principle analogous to Quinia.

Mr. James Cockburn examined the Cornus Florida in 1835, with the following results:

The decoction, which was of a bright red color, and slight mucilaginous appearance, formed a precipitate with a solution of subacetate of lead, which consisted of gum, coloring matter, and other foreign substances. A precipitate was also formed with pure alcohol.

Upon the addition of water to the tincture, concentrated by evaporation, it threw down a curdy precipitate, which upon examination, was found to be resin.

The decoction and tincture, redden litmus paper, and cause a yellowish precipitate in a solution of gelatine, and one of a dark olive green in a solution of sulphate of iron. They also afford precipitates with sulphuric and muriatic acids, lime water, alumina, the carbonates of ammonia and potassa tartrate of antimony and potassa. The color becomes lighter on the addition of nitric acid; milky by the corrosive chloride of mercury, and has its color deepened by ammonia.

A portion of the bark was digested in sulphuric ether for a few days and filtered.

The ethereal tincture was of a lemon color and redden litmus paper, and on evaporation deposited on the sides of the vessel a fatty matter, insoluble in water, but soluble in alcohol, leaving a greasy stain on paper; besides this there was a compound of oil and resin combined with colouring matter, and a substance of a light brown color, very bitter taste, friable and very regular appearance, supposed to be a
compound of a peculiar bitter principle, mixed with tannin and other matters. This was dissolved in alcohol and formed a beautiful red colored tincture, which reddened litmus paper. Lime was then added, boiled, filtered and evaporated; a substance resembling the ethereal residue, remained interspersed with small, shining acicular crystals of a bitter taste, which property I am disposed to believe they owed to the bitter extract with which they were associated. The bark used in the last experiment was submitted to the action of boiling ether, which on cooling deposited a substance of the consistence of wax, which it resembled in all its properties.

Two ounces of the bark coarsely powdered were introduced into \( \frac{3}{4} \) of alcohol and exposed to a temperature of from 105 to 120 degrees F. The alcohol was then decanted and a fresh portion added and treated as before. The liquors were then united and a solution of sub-acetate of lead added to separate the coloring matter; after the insoluble portion subsided, the clear liquor was separated, a little sulphuric acid was then added to the solution to separate any excess of sub-acetate of lead. This was filtered, and the alcohol distilled off. There remained in the retort an oily-like substance, together with a principle of a dirty, white color, curdled appearance, resembling the residue of the ethereal tincture. Ammonia was then added to the liquor to precipitate any principle remaining in solution. The residue was then treated with a little sulphuric acid, water and animal charcoal, (previously treated with muriatic acid,) which, upon evaporation, deposited an abundant crystalline mass of a flaky appearance, resembling at first sulphate of quinine, but on cooling, assumed a feathery appearance, with a sharp saline taste, soluble in hot and cold water, insoluble in alcohol and ether, soluble in nitric acid, and resembled sulphate of ammonia in all its properties.

One pound of coarsely powdered bark was boiled for half an hour in one gallon of water, acidulated with \( \frac{3}{4} \)iss sulphuric acid. The tincture was poured off, and treated
with animal charcoal, and when evaporated, left a brown extract of a resinous, waxy appearance, and very bitter taste, which appeared to have very much the flavor of Peruvian bark; this was again treated with animal charcoal, and left on evaporation, a crystalline mass in an impure form, which was slightly soluble in alcohol, almost insoluble in ether, but very soluble in nitric acid. The alcoholic solution was evaporated, and left crystals of a very fine, long, flexible and silky appearance: which crystals decomposed when thrown upon red coals, and did not form a precipitate with oxalate of ammonia, but were without taste.

The bitterness was entirely owing to the bitter extract, which was slightly soluble in water; soluble in alcohol, but nearly insoluble in ether. This I propose to call bitter extractive, and in this I am inclined to believe the active principle resides.

A concentrated tincture yielded by evaporation a dark brown extract, slightly soluble in water, soluble in alcohol and ether, bitter aromatic taste, possessing the properties of resin. Both this and the watery extract possess the sensible properties of the bark in a concentrated form.

There is a red coloring principle in this bark, taken up very feebly by alcohol and ether, but less so by water, and has its color rendered deeper by an alkali.

One thousand grains of the bark yielded by incineration a product weighing sixty-five grains: this residue was submitted to the action of boiling water, and concentrated by evaporation; it then had an alkaline taste, effervesced strongly with acids, and restored the blue color to litmus, previously reddened by an acid; it was then neutralized with nitric acid, and upon evaporation yielded crystals of nitrate of potassa.

The insoluble residue of the preceding experiment was dissolved by nitric acid, (with the exception of a minute portion of carbonaceous matter) with violent effervescence; the colorless solution thus obtained, threw down a white precipitate, on the addition of oxalate of ammonia, and a
deep blue one with ferrocyanate of potassa. It produced also a dark green or black, with tincture of galls. Carbonate of soda when added to the solution, caused a white flocculent precipitate. On adding a solution of phosphate of soda, no change was immediately produced, which led to the belief that a salt of magnesia was present.

From the result of these few and imperfect experiments, we may venture to enumerate the following as among the principal constituents of the Cornus Florida.


Dr. D. C. O'Keeffe, whilst a student of medicine in the Medical College of Georgia, published a valuable article on the chemical constitution and febrifuge properties of Dogwood Bark; in which he states that with the assistance of Dr. Robert Campbell, he had determined upon and conducted the following process for obtaining Cornine:

Pulverize two lbs. of the well-dried bark of the root; separate its tannin with sulphuric ether, and filter. Mace-rate the separated bark in alcohol for two days, to extract its resin and cornine. Pour off the alcohol, and precipitate the resin with water. Filter off the resin, and precipitate the cornine from the liquor with a solution of sub-acetate of lead. Separate the sub-acetate of lead from the solution by passing a current of sulphuretted-hydrogen gas through it. Filter and evaporate the fluid down to the cornine.

This substance is possessed of decided acid properties, having a well-marked acid reaction; it is of a dark straw color, very bitter and astringent. Southern Medical and Surgical Journal, January, 1849, p. 6-7.

Dr. O'Keeffe cites the testimony of Prof. Geiger, of Hei-
dleberg, as confirmatory of the results of his examination of the acid properties of cornine.

It is evident from the discrepancies in the statements and views of these various observers, that the analyses of Dogwood, thus far published, are not sufficiently thorough and accurate, and that the profession needs more extended and definite information with reference to the chemical and physical properties of this valuable indigenous plant.

*Medical Properties and Uses.*—The bark of the Dogwood has been known and successfully used in the treatment of intermittent fever for more than one hundred years.

Upon the human body the bark of the Cornus Florida acts as a tonic, astringent and antiperiodic, and resembles in its general effects Peruvian Bark. Dr. Walker, by numerous experiments with it upon the healthy system, determined that it uniformly increased the force and frequency of the pulse, and augmented the heat of the body. He instituted collateral experiments with the Peruvian bark, and found that both its internal and external effects agreed with those of the Cornus.

Dr. Gregg, of Bristol, Pennsylvania, states that after employing the Cornus Florida for nearly twenty-three years in the treatment of intermittents, he was satisfied that it was not inferior to Peruvian bark; and that he had found it uniformly beneficial as a tonic in cases of debility. Among the number of cures by this medicine was that of his own case. Dr. Gregg estimated thirty-five grains of it equal to thirty grains of Peruvian bark; and observed that the only inconvenience accompanying its use was, that if taken within a year after being stripped from the tree, it sometimes occasioned acute pains in the bowels; but this evil was remedied by adding to it five grains of Virginia Snake Root, (Aristolochia serpentaria.) He recommends the bark as being in the best state after it has been dried a year.

In an intermittent fever which prevailed many years ago in West Jersey, it is said to have proved, generally speaking, more beneficial than Peruvian bark.
Drs. Jacob Bigelow, S. G. Morton, R. Coates and many other medical men have employed this bark with advantage in intermittents and in debilitated states of the system, accompanied with loss of appetite and indigestion.

I have myself used it with good success in the treatment of our climate fevers.

In the southern part of Georgia I have known the planters to employ it extensively amongst their people in combination with Wild Cherry bark and Wild Horehound, (Eupatorium pilosum,) not only in the treatment of intermittent fever, but also in colds and dropsies, and in all cases of debility, accompanied with loss of appetite and indigestion.

Dr. B. S. Barton states that a decoction of the Dogwood bark was found very useful in a malignant disorder of horses, called "yellow water."

Dr. D. C. O'Keeffe, in the article previously referred to, gives an interesting account of the physiological as well as the therapeutic action of the extract of dogwood, and supports his views by fifteen accurately detailed cases of intermittent fever.

In order to ascertain with precision the effects of large doses of the extract on the system in a physiological state, Dr. O'Keeffe instituted the following experiment upon himself.

10 A. M. First dose 30 grains ext.; pulse previous to taking it, 72.

11 A. M. Second dose, 30 grains; pulse intermittent, 72–76; temperature of surface somewhat augmented; general perspiration; a sense of fullness and slight dull pain over the frontal eminences, much increased on flexing the head forward and downward; uneasy feelings in the stomach and bowels.

12 M. Third dose 30 grains; pulse 76, not intermittent but somewhat depressed; sensation in the head uniform On taking this dose a sense of warmth was felt in the stomach, and radiated over the surface of the trunk.
1 P. M. Fourth dose 30 grains; pulse 76 and regular; pain in the head augmented, and extended down the forehead to the eye-lids, with a disposition to sleep; slight oppression in the precordia.

Eating dinner, neither mitigated nor heightened the dull headache, which continued the same throughout the day; at night, tendency to sleep much more urgent—retired early slept well during the night, and arose in the morning free from any uneasy sensations whatever.—Southern Med. & Sur. Jour. Jan. 1849 pp. 10-11.

The discrepancies between the effects observed by Dr. O'Keeffe and Dr. Walker may have been due to the fact that the former used the extract and the latter the bark; be this as it may, it is nevertheless true that the profession needs an extended series of experiments upon the action of the various preparations and constituents of the Cornus Florida. Until these data are supplied it would be worse than useless to attempt any critical analysis and description of its physiological effects.

Dr. O'Keeffe not only substantiates the testimony of various physicians to the great value of Dogwood in the treatment of malarial fever, but he also establishes the fact that the extract has no tendency whatever to disturb the stomach and bowels. This is important, for the alleged tendency of the Cornus to disturb the stomach and bowels mentioned by so many writers, has exerted no little influence in causing this valuable remedy to remain neglected.

According to Mr. Carpenter the Cornus Florida yields a beautiful extract resembling very closely that of Cinchona, differing, however, in its sensible character, from the extract of the superior species of Peruvian bark, by being less bitter and more astringent.

The following is the most eligible mode for preparing this extract:—Evaporate in a sand or water-bath a tincture of the bark made by digesting it in proof-spirits in the proportion of two ounces of the former to a pint of the latter, suffering it to stand for at least a week before strain-
ing; occasionally during this time submitting it for a few hours to a moderated heat, and thereby facilitating the solution. This extract, from its most prominent and sensible characters, is unquestionably much more active than the common extract of Carthagenan bark, and is a preparation admirably adapted, in all cases, where the Cornus may be employed with advantage; and in consequence of being a concentrated preparation, separated from the ligneous and insoluble portions, and containing less gum and mucus matter, (which constitutes so large a portion,) is certainly much preferable to the crude substance, and no doubt will be resorted to by many country practitioners as a useful expedient, particularly in those places where this article is in profusion, and where bark of a good quality is frequently very scarce, and sometimes even unknown.—Essays on Materia Medica, &c. by W. P. Carpenter, pp. 203-204.

The extract thus prepared has been exhibited with success by several practitioners in the same doses as the alcoholic extract of Cinchona.

Dose of Extract of Cornus Florida from gr. x. to 5ij. repeated as often as the case demands.

Dose in powder from 20 to 30 grains, to be repeated according to circumstances. It may also be given in decoction, made with an ounce of the bark to the pint of water, of which the dose is from an ounce to two ounces.

In some parts of the country the ripe berries infused in brandy, have been used as bitters; and the infusion of the flowers are said to form a good substitute for chamomile tea. A decoction of the buds and twigs has been thought to agree better with weak stomachs than the other preparations.

CORNUS CIRCINATA. WILLD. (ROUND LEAVED DOGWOOD,) and CORNUS SERICEA. WILLD. (SWAMP DOGWOOD.)

The ten species of Cornus, indigenous to the United States and Southern Confederacy, are all supposed to pos-
Joseph Jones, on the Indigenous [September,

sess similar medicinal properties. With the exception of the Cornus Florida the two under consideration have been most carefully investigated. Our knowledge, however, of both their chemical and medicinal properties is not only more imperfect than that of the Cornus Florida, but is vague and meagre. Professor Morson and Dr. Ives appear to have been the first to introduce the Cornus Circinata into medical practice. They recommend it very highly for its astringent and tonic properties, and affirm that they have successfully used it in intermittent fevers and dysentery. Mr. Carpenter announced that the alkaloid principle, Cor-
nine, exists also in this species of Cornus.

The alcoholic extract appears to be the most eligible mode of using this article. The extract is prepared in the same manner with that of the Cornus Florida, it possesses more astringency and is therefore better adapted to the treatment of dysentery. As this plant appears to be rare in most of the Southern States, it is not likely that it will ever be extensively employed, especially as the Cornus Florida is not only more abundant but also fully as efficient. The bark of the Cornus Sericea (Swamp Dogwood,) was found by Dr. Walker to be equal to that of the Cornus Florida, and but little inferior to the common pale Peruvian bark, in the treatment of intermitteuts. It forms a beautiful tinc-
ture with proof spirits.

As the Swamp Dogwood inhabits the North American continent from Canada to Florida, growing in moist woods, in swamps, and on the borders of streams, especially in the mountains, it is well worth the attention of the physicians of the Southern Confederacy.

The doses and modes of preparation and administration are the same with those of the Cornus Florida.

POPLAR OR TULIP TREE. (LIRIODENDRON TU-
LIPIFERA.) LINN.

Botanical Characters.—Calyx three-leaved. Petals 6. Capsules (Samarae) imbricated, forming a strobilus, 1–2 seeded, not opening. Leaves truncated, præmorse, four-lobed; calx three-leaved. This is
one of the largest trees of the American forests. In the low country of Carolina and Georgia, it is somewhat rare and seldom exceeds three feet in diameter, but in the fertile soils of the western country in Kentucky, Tennessee and Alabama, it is sometimes found seven to nine feet, and one hundred and twenty to one hundred and forty feet in height. The wood of this tree though soft is durable. The leaves are alternate, three-lobed, with the middle lobe truncate, and varying with the angles of the lobe obtuse, acute and acuminate, glabrous, on petioles two to three inches long. *Flowers* solitary, terminal. Leaves of the calyx concave. *Petals* obovate, lanceolate, of a dull, yellow colour tinged with red. *Stamens* numerous, disposed in a simple series shorter than the petals. Germs numerous on a conical receptacle. Grows in most fertile soils. Flowers May and June.—Elliott. Sketch of Botany So. Ca. and Georgia, vol. 2. pp. 40-41.

**Geographical Distribution.**—According to Michaux, the southern extremity of Lake Champlain in latitude 45°, may be considered as the northern limit, and the Connecticut river, in the longitude of 72° as the eastern limit of the Tulip tree. It is only beyond the Hudson which flows two degrees further west, and below 43° of latitude, that it is frequently met with and fully developed. It is multiplied in the middle states and in the upper parts of the Carolinas and Georgia, and still more abundantly in the western country, particularly Kentucky. Its comparative rareness in the maritime parts of the Carolinas and of Georgia, in Florida, Alabama and lower Louisiana, is owing less to the heat of the summer than to the nature of the soil, which in some parts is too dry, as in the pine-barrens, and in others too wet, as in the swamps which border the rivers.

The western states appear to be the natural soil of this magnificent tree, where they have been found 23 feet in circumference and from 120 to 140 feet in height.—Forest trees of America, vol. 2, p. 35.

**Chemical Composition.**—The first chemical examination of the bark of the *Liriodendron Tulipifera*, appears to have been made in 1802, by Dr. Rogers. From the state of Organic chemistry at that time this examination was almost necessarily imperfect and resulted in the determination of nothing more than gum resin, an acid supposed to be mu-
riatic, iron, calcareous salt, mucus and fecula, as its chief constituents.

In 1832 Dr. J. P. Emmet,* of the University of Virginia announced the discovery of a peculiar principle in the Poplar bark, which he called Liriodendrine; and which he described in the pure state, to be solid, white, crystallizable, brittle, inodorous at 40°, fusible at 180° and volatile and decomposed at 270°, and of a slightly aromatic odor, and a bitter, warm, pungent taste; insoluble in water, soluble in alcohol and ether; water precipitates it from its alcoholic solution; incapable of uniting with alkalies and acids; alkalies precipitate it from the infusion or decoction of the bark by combining with the matter which rendered it soluble in the water. It is obtained by macerating the root in alcohol, boiling the tincture with magnesia till it assumes an olive green color, then filtering concentrating by distillation till the liquid becomes turbid and finally precipitating the Liriodendrine by the addition of cold water. When carefully heated in a glass tube closed at one end it gives off a white vapor which condenses again without any signs of crystallization. Prof. Emmet regarded it as analogous to Camphor.

The fact that the bark of the Liriodendron is weakened by age and so far loses its bitter and aromatic taste, as to become almost insipid, gives force to the opinion that its peculiar properties reside in this volatile principle, Liriodendrine.

Medical Properties and Uses.—Formerly this bark was employed in the United States, both in domestic and regular practice, and from the testimony which was then published in favor of its decided value as an aromatic, stimulating tonic, diaphoretic and anti-periodic, it appears to be well worthy of the careful examination of physicians at the present time.

*Journal of the Philadelphia College of Pharmacy, iii. 5.
Michaux† in his splendid work on the Forest Trees of America, states that in some parts of Virginia the inhabitants were accustomed to steep the bark of the roots, with an equal portion of Dogwood bark in brandy during eight days; two glasses of this tincture, taken every day, sometimes cures intermittent fevers.

Dr. Benjamin Rush* states that he employed the Poplar bark in the treatment of intermittent fever "with as much satisfaction as any of the common bitters of the shops."

The testimony of Dr. J. T. Young, of Philadelphia, to its value is decided and well worthy of consideration at the present time, when we are liable to be deprived of our most powerful and valuable remedies.

In a letter* addressed to Gov. Clayton, of Delaware, in 1792, he thus states the results of his experience:

"The Liriodendron Tulipifera, (Tulip or Poplar tree,) grows throughout the United States of America. The best time to procure the bark for medicinal purposes is in the month of February, as the sap at this time being more confined to the root increases its virtue.

It possesses the qualities of an aromatic, a bitter and an astringent. The bitter quality is greater, the astringent less than in the Peruvian bark. It likewise possesses an aromatic acrimony, hence I infer it is highly antiseptic and powerfully tonic. I have prescribed the Poplar bark in a variety of cases of intermittent fever, and can declare from experience, it is equally efficacious with the Peruvian bark, if properly administered.

In the phthisis pulmonalis attended with hectic fever, night sweats and diarrhœa, when combined with laudanum it has frequently abated these alarming and troublesome symptoms. I effectually cured a Mr. Kiser, fifty years of

† Vol. ii. p. 40.
* Transactions of the College of Physicians of Philad. 1798.
age, who was afflicted with a catarrh and dyspeptic symptoms for five years, which baffled the attempts of many physicians, and the most celebrated remedies, by persevering in the use of the Poplar bark for two weeks.

I can assert from experience there is not in all the *Materia Medica*, a more certain, speedy, and effectual remedy in hysteria than the Poplar bark, combined with a small quantity of laudanum. I have used no remedy in the cholera infantum but the Poplar, after cleansing the prime vice, for these two years. It appears to be an excellent vermifuge. I have never known it to fail in a single case of worms which has come under my observation. I prescribed it to a child when convulsions had taken place. After taking a few doses, several hundreds of dead ascarides were discharged with the stools. The dose of the powder for an adult is from a scruple to two drachms; it may likewise be used in tincture, infusion, or decoction, but its virtues are always greatest when given in substance."

Gov. Clayton in his reply observes: "During the late war the Peruvian bark was very scarce and dear. I was at the time engaged in considerable practice, and was under the necessity of seeking a substitute for the Peruvian bark. I conceived that the Poplar had more aromatic and bitter than the Peruvian, and less astringency. To correct and amend these qualities I added to it nearly an equal quantity of the bark of the root of dogwood, (Cornus Florida or Boxwood,) and half the quantity of the inside bark of the White Oak tree. This remedy I prescribed for several years in every case in which I conceived the Peruvian bark necessary or proper, with at least equal if not superior success. I used it in every species of intermittent, gangrene, mortifications, and, in short, in every case of debility. It remains to determine whether the addition of those barks to the Poplar increases its virtues or not. This can only be done by accurate experiments in practice."

Dr. Barton* recommended the bark of the Poplar in

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* Barton's Collections.
chronic rheumatism and in gout; and from its tendency to produce diaphoresis, together with its tonic powers, there can be little doubt of its value in certain conditions of these diseases. Dr. Eberle* employed it repeatedly in conjunction with the Ulmus Aspera, in the form of decoction, in the treatment of advanced stages of dysentery with satisfactory results.

Dr. Bigelow† used it with success as a stomachic.

The powdered bark in union with steel dust has been prescribed with great advantage in debilitated states of the stomach.‡

The most efficacious form of administering the bark of the Liriodendrum Tulipifera is in substance in the form of powder, 5ss to 5ij. The infusion 15 of powdered bark to one pint of water, may be administered 15i to 15ij., and the saturated tincture in the dose of 15i.

The infusion and the tincture are not as efficient as the powder.

No use that we are aware of has as yet been made of the Liriodendrinic.

The seeds are said by Rafinesque to be laxative; this fact, however, has been noticed by no other writer, and needs confirmation.

The leaves have been used as an external application in headache; and an ointment prepared with them has been used with good effects in ulcers.

In the administration of the bark in powder the bowels should be first opened by a cathartic; and if the bark produces pain in the bowels, it should be combined with small quantities of laudanum.


‡ Thacher's Dispensatory.
Botanical Characters.—Leaves oval lanceolate, glaucous underneath; petals obovate, tapering at the base. A shrub frequently becoming a small tree, remarkable for its white or somewhat glaucous bark. Leaves alternate, on petioles about an inch long, acute, shining, and when young, pubescent, underneath glaucous, pubescence when young having a silken lustre. Flowers solitary, terminal. Leaves of the calyx oval, glabrous, membranaceous, sprinkled with pellucid dots as long as the corolla. Petals generally nine, obovate, white, as long as the receptacle. Filaments very numerous, compressed, with the point acuminate, and extending beyond the anthers. Anthers attached to the inner side of the filaments. This is probably the most fragrant plant in our forests. It grows in great profusion along the margin of the rich swamps which border our rivers, and in the morning and evening, during the period of its flowering, the atmosphere of our streams is often literally perfumed with its fragrance. Flowers April and May.

We have a variety with perennial leaves, which sometimes becomes a tree 50–60 feet high. I have been able to discover no other distinction between these two plants than this difference of habit. Elliott. Sketch of the Botany of South Carolina and Georgia, vol ii, p 37.

Geographical Distribution.—The Sweet Bay has the most extensive range, especially near the seaboard, of any of the species of the Magnolias. According to Professor Bigelow* its most northern boundary appears to be in a sheltered swamp in Manchester, Cape Ann, about thirty miles north of Boston. It here attains to but small size, and is frequently killed to the ground by severe winters.

It is common in the Middle States, and abounds in the maritima parts of the Southern States.

In North Carolina and South Carolina it is found in greatest abundance within the limits of the pine-barrens, growing abundantly in the branches, marshes or swamps traversing the pine-barrens. It is not abundant in the large swamps bordering the rivers, and is very rarely found upon the islands which border the sea coasts.

Chemical Composition.—As far as our information extends, no complete chemical analysis has been made of the bark of this tree; it is highly probable that its constituents will be

* American Medical Botany, vol ii, p 68.
found to resemble closely those of the Magnolia grandiflora, which, according to the examination of Dr. Procter*, contains a green resin, a volatile oil, and a peculiar crystallizable principle analogous to Liriodendrine, which, as we have previously stated, was discovered by Dr. J. P. Emmet in the bark of the Tulip Tree. Dr. Bigelow gives in his most valuable American Medical Botany the fullest account of the chemical constitution of the bark of the Magnolia Glauca with which we are acquainted. The following are the results of his examination.

The bark of the Magnolia Glauca has a bitter taste, combined with a strong aromatic pungency, which approaches that of Sassafras and of the Acorus Calamus. The aroma resides in a volatile portion, which is probably an essential oil or a variety of camphor. It is lost from the bark in the dry state, after it has been kept some time. Water distilled from the green bark has its peculiar flavor, with an empyreumatic smell. No oil appears on the surface when the experiment is conducted in the usual way. The dried bark affords a little resin, and more of a bitter extractive substance. Chalybeate tests produce a very slight darkening of the green color of the decoction, but gelatine occasions no change. This might be anticipated from the little taste of astringency in the bark. American Medical Botany, vol. ii, p 70.

**Medical Properties and Uses.**—The Indians used the bark of the Magnolia Glauca as a remedy for autumnal fever and rheumatism, and in many parts of this country it has been used with success in the treatment of malarial fever, both in domestic and regular practice.

Dr. Jacob Bigelow thus testifies to its medicinal properties and value: As a medicinal article, the Magnolia is to be considered an aromatic tonic, approaching in its character to Cascarilla, Canella and articles of their class. Considered simply in regard to its tonic powers, it is probably of a secondary order, though from the additional properties which

it possesses of a warm stimulant and a diaphoretic, is found useful in certain disorders.

Chronic rheumatism is one of the diseases in which it exhibits most efficacy. Not only the bark, but the seeds and cones which are strongly imbued with the sensible qualities of the tree, are employed in tincture with very good success in this disease.

In intermittent and remittent fevers the Magnolia is one of the many tonics which have been resorted to for cure by the inhabitants of the marshy countries where they prevail. Sufficient testimony has been given in favor of the bark of this tree, to warrant a belief that it is fully adequate to the removal of fever and ague, when administered like the Cinchona, in liberal quantities between the paroxysms. In the more continuous forms of fever, of the typhoid type, it has also received the commendations of physicians. American Medical Botany, vol. ii, p 70–71.

The dose of the powdered bark is from half a drachm to a drachm, repeated according to the character of the case. A decoction may be made in the proportion of one ounce of the powdered bark to the pint of water—this may be administered in doses of from $\frac{1}{3}$ to $\frac{1}{3}ij$, and repeated every one, two or three hours, according to circumstances.

An extract has been made from it, but its powers have not been sufficiently tested. An infusion of the bark in brandy has been employed in rheumatism.

The cones and seeds have likewise been employed to make a tincture, which has been a popular remedy in the treatment of chronic rheumatism, and as a prophylactic against intermittent fever.

**CUCUMBER TREE, (MAGNOLIA ACUMINATA MICH.)**

**AND BIG LAUREL, (MAGNOLIA GRANDIFLORA MICH.) AND UMBRELLA TREE, (MAGNOLIA TRIPETALA,) WILLD.**

Our information with reference to these three species of Magnolia, although less definite and far more meagre than that which we have presented concerning the Magnolia
Glauc, still as far as it extends, tends to establish their value in the treatment of malarial fever.

The Cucumber tree, *Magnolia acuminata*), which extends from the Falls of Niagara along the whole mountainous tract of the Alleghanies to their termination in Georgia, and also along the Cumberland mountains in Tennessee, has been employed by the inhabitants of the country bordering on the Alleghanies as a preventative of intermittent fever. Michaux* states that they gather the cones about midsummer when half ripe, and steep them in whiskey; a glass or two of this liquor, which is extremely bitter, they habitually take in the morning, as a preventative against autumnal fevers.

We are not aware that there are any recorded observations of the results of these attempts to ward off malarial fever; it would therefore be highly important that physicians living in the regions where this tree is found, should carefully determine the value of the cones as a prophylactic. The discovery of a native prophylactic against malarial fever would be of incalculable value to our planters in the rich low-lands of the Southern Confederacy, and especially to bodies of white men exposed during marches, and in the defence of our coast, to the destructive exhalations of marshes and rice fields.

We have before alluded to the discovery by Dr. Stephen Procter, of a principle in the bark of the *Magnolia grandiflora*, analogous to the principle *Liriodendrine* of the Tulip tree. In addition to this he found a volatile oil, and resin.

The medicinal properties of these different species appear, as far as our very limited information extends, to be almost identical, and it is probable that they may be substituted one for the other without inconvenience in the same doses recommended for *Magnolia Glauc*. We need, however, accurate analyses and extended medical observations.

**PERSIMMON (DIOSPYROS VIRGINIANA.)** MICH.

Breckel in his "History of North Carolina," says that the inner bark has been used with success in intermittent fever.

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*Forest Trees of America, vol. ii, p. 16.*
As far as our information extends, this interesting statement remains to be verified. It is well known that its tonic and astringent powers have proved exceedingly valuable in the treatment of affections of the bowels,* hemorrhage and ulcerated sore throat; there are many stages and complications of the different forms of malarial fever, where these tonic and astringent properties would fill most important indications; for malarial fever, as is almost always the case in China, is frequently accompanied with derangements of the bowels.

CATALPA. (BIGNONIA CATALPA.) LINN.

In a thesis supported at the Medical Department of the University of Pennsylvania, the bark of the Catalpa was maintained to be tonic, stimulant and more powerfully antiperiodic than the Peruvian bark. I have been unable, after careful research with the best authorities to find any facts which bear either upon the chemical constitution, or the tonic, stimulant and antiperiodic properties of the bark of the Catalpa. Physicians should exercise caution in their experiments with it, because it is generally believed to be poisonous. When the bark is wounded a very unpleasant, and according to the testimony of some, a poisonous gas is emitted; and it has been stated, on good authority, that the honey collected from its flowers is poisonous, producing effects analogous, though less alarming, than those produced by the honey collected from the Yellow Jasmine of Carolina.

The seeds have been employed by several practitioners of continental Europe in asthma.

M. Automarchi recommends for this purpose a decoction made by boiling twelve ounces of water with three or four ounces of the seeds down to six ounces, the whole to be given morning and night.

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† Dr. B. S. Barton's Collections. 11.
Botanical Description.—Leaves cordate, oblong, acuminate; stem flexuous; peduncles radical; lip of the corolla lanceolate. Root perennial, composed of many filiform fibres, pungent and aromatic. Stem six to eight inches high, herbaceous, pubescent, erect, geniculate and knotty at base, as if formed of the remains of older stems. Leaves few, oblong, lanceolate, slightly acuminate, a little hairy, cordate at base. Flowers few at the base of the stem, laying on or sometimes under the surface of the earth. Peduncles one-flowered. Corolla ventricose at base, slightly three cleft at summit; one lobe extended, lanceolate. Grows in dry soils. Flowers in summer. Elliott. Sketch of Botany of S. C. and Ga. vol. 2, pp 511-512.

Geographical Distribution.—Middle and Southern States. The most northern situation from which Dr. Bigelow received specimens was from the vicinity of New Haven. There are many varieties, and according to some botanists, several species confounded in the market, under the common name of A. Serpentaria. In a medical point of view, this confusion of species is of no consequence, as they are almost entirely identical in properties and remedial action.

Chemical Constitution.—According to Bucholz, who analyzed the root in 1807, 100 parts contain:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volatile Oil</td>
<td>0.50</td>
</tr>
<tr>
<td>Greenish-yellow soft resin</td>
<td>2.85</td>
</tr>
<tr>
<td>Extractive matter</td>
<td>1.70</td>
</tr>
<tr>
<td>Gummy Extractive</td>
<td>18.10</td>
</tr>
<tr>
<td>Lignin</td>
<td>62.40</td>
</tr>
<tr>
<td>Water</td>
<td>14.45</td>
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</tbody>
</table>

It was again examined by Chevallier in 1820, and found to consist of volatile oil, resin, extractive, starch, ligneous fibre, albumen, malate and phosphate of lime, oxide of iron and silica.

Grassman obtained only half an ounce of volatile oil from 100 lbs. of the root, which he describes of a yellowish color, strong odor and moderately strong taste, and compares the odor and taste to those of valerian and camphor combined.
The bitter principle termed \textit{Extractive} by Bucholz and Chevallier is very bitter, slightly acrid, soluble in both water and spirit; its solution which is yellow, is rendered brown by alkalis, but is unchanged by ferruginous salts. The root communicates its qualities both to spirit and water, but most to the former.

Dr. Jacob Bigelow, subjected a quantity of the root to distillation for one hour, and obtained in the receiver a wetish, pearly fluid, very strongly impregnated with aroma, but less bitter than the root. On standing twenty-four hours, this fluid deposited round the edges of the surface a considerable number of small white crystals, which proved to be pure camphor. They were inflammable, fusible with a sudden, and volatile with a gradual heat. American Medical Botany, p 85.

Dr. C. Conwell,* more than thirty years ago announced the discovery in this root of a new alkaloid principle for which he proposed the name of Serpentaria. It forms in a defined crystallized mass of a bitter taste, and possesses all the alkaline properties. The \textit{sulphate} crystallizes in quadrangular prisms, terminated in inclined facets. The \textit{hydrochlorate} of Serpentaria forms brilliant plumose fibrils. Both these salts are insoluble, except in an excess of acid. The preparation is the same as that by which quassa is obtained.

This principle may be the same as the yellow bitter principle of Chevallier, which he considered as analogous to the bitter principle of quassa.

\textit{Medical Properties and Uses.}—The experiments of Jorg and his pupils, established that in small doses it promotes appetite; in large doses, it causes nausea, uneasy sensations in the stomach, flatulence and more frequent but not liquid stools: after absorption, it increases the frequency and fulness of the pulse, augments the heat of the skin, and promotes secretion and excretion, and in very large doses causes disturb-

ance of the cerebral functions, producing headache, sense of oppression within the skull, and disturbed sleep.

Snake-root is said to have been in common use among the Indians at the time of the arrival of the first settlers, and was much esteemed by them as a remedy in snake-bites. The early colonists soon adopted it as an excellent tonic and stimulant, and it is to this day extensively employed as a domestic remedy in fevers and in debilitated states of the system. It has been employed and extolled by numerous physicians, and it will be profitable for us to review the testimony of several of the most intelligent and extensive American practitioners. Dr. Chapman considered the Serpentaria as possessing the mixed qualities of a stimulant and tonic, with active diaphoretic and diuretic properties. "Among the more early uses of the medicine was its application in the cure of intermittent fever. Whether it is adequate alone to the purpose does not clearly appear. But it certainly proves an important adjuvant. It was used by Sydenham, in conjunction with wine, to prevent the recurrence of the paroxysm, and, from his account, not without advantage. As a general rule, he says, that in all cases where it is expedient to combine wine with bark, the effect will be much increased by adding serpentaria. The correctness of this observation has been fully confirmed by subsequent experience, and it is now very much the practice to unite these articles in the low states of disease. "To remittent fever, serpentaria seems to me to be best adapted. It has here, in many cases, an indisputable superiority over the bark, inasmuch as it is rarely offensive to the stomach, and may be given, without injury, in those obscure states of the disease where the remission is not readily discernible. As a popular remedy, more particularly, it is much employed in the secondary stages of pleurisy. After bleeding, it is the practice in many parts of our country, to resort to a strong infusion of this article, with a view to exciting perspiration, and the result is said to be generally favorable. Catarrhs, rheumatisms, and other winter affections incident to rustic life, are managed in the same way. It is also a noted
remedy in dropsy, to which, I should presume, it is adapted, and especially if the case be of an intermittent type.

"In that species of pleurisy which is properly enough designated by the epithet bilious, I have repeatedly had occasion to recur to the serpentaria, and always with more or less utility. I know not, indeed, any modification of disease in which it displays its power more advantageously. The bilious pleurisy has all the characteristics of pneumonic inflammation, with the addition of some of the symptoms incident to autumnal fever. There is considerable headache, much gastric distress, and almost always violent vomitings of bile. It differs also from ordinary pleurisy in having less activity of inflammation, and consequently in not bearing the same extent of depletion. The system, indeed, will often be very evidently depressed by one or two bleedings. In this case, the practice which has been commonly pursued, is after the removal of a comparatively small portion of blood, and the thorough evacuation of the alimentary canal, to administer draughts of the infusion of serpentaria, in order to excite diaphoresis. As an epidemic, the bilious pleurisy prevailed in the neighborhood of this city many years ago, and I am informed, was managed most successfully by the practice which I have detailed. It is not, however, one of the ordinary complaints of the climate of the middle States. The cases which I have seen of it have for the most part occurred in persons coming from districts of country exposed to marsh exhalation, and who have previously had autumnal fever. I have only one more remark to make on the properties of this article, which is, that it is admirably suited to check vomitings, and to tranquilize the stomach, particularly in bilious cases. It is given for the purpose in infusion, in the small dose of half an ounce or less at a time, and frequently repeated."

Dr. John Eberle thus testifies to the action and medicinal value of Virginia Snakeroot:

When taken into the stomach it increases the force and frequency of the pulse, excites a glow of heat throughout the system, and produces pretty copious diaphoresis. It is not, however, simply stimulant and diaphoretic in its effects, for along with these qualities, it possesses very important tonic powers.

Possessing, along with its tonic, pretty powerful stimulant properties, the snakeroot is peculiarly suited to fevers of a low grade of excitement; on the other hand, however, it can never be employed without danger, when blood-letting is indicated.

In every variety of fever, however, when the system is sinking into a typhoid state, the snakeroot is a remedy of unquestionable utility. It is especially serviceable in the latter stages of febrile diseases, when the skin and tongue remain dry and hot, and the pulse is feeble and frequent. When given in this state, it commonly excites a general diaphoresis; the tongue becomes moist, and the pulse and the general powers of the system are invigorated.

A good deal has been said in favor of the powers of the serpentaria in putrid fevers, and from the general properties of this remedy, there can be little doubt of its applicability to the treatment of fevers of this kind.

The snakeroot was formerly much employed in intermittent. Of its efficacy, however, in the cure of this disease when administered by itself, not a great deal can be said. I have employed it in some instances, but always without success, and I am inclined to believe that it is not often capable of arresting the disease. When united, however, with bark, or some of the bitter tonics, it seems to increase their efficacy, and it is in this way that it is now commonly employed in intermittent and remittent fevers. It is particularly useful, with Peruvian bark, in those intermittents where the system is depressed and sluggish during the intermission, with a small
and feeble pulse, and a cold and dry state of the surface of the body.

During the prevalence of the late epidemic, pneumonia typhoides, in this country, the serpentaria was much prescribed by some physicians. Being at once stimulant, diaphoretic and roberant, it was particularly calculated to produce beneficial effects in this disease by equalising the circulation and imparting vigor to the vital powers.

Dr. Dyckman states that he has prescribed the snakeroot in combination with seneka, with marked advantage in this disease. It may also be employed with advantage in the latter stages of pneumonia and bronchial affections, being useful not only by its tonic operation, but chiefly, perhaps, by exciting the cutaneous emunctories, and thereby relieving the pulmonic system. The infusion of snakeroot may be used with advantage as a gargle, in ill-conditioned ulcers of the throat.—Treatise on Materia Medica and Therapeutics by John Eberle, M. D. &c. Philadelphia, 1836, vol. i, pp. 258-259.

The following is the testimony of Dr. Jacob Bigelow:

Medically considered, serpentaria is a tonic, diaphoretic and in certain cases an antispasmodic and anodyne. It has been abundantly used in fevers of various descriptions, and has been commended by a host of medical writers. There is no doubt that it has been injudiciously employed in many cases, in fever attended with an active pulse and inflammatory diathesis.

The early stages, also, of febrile diseases rarely admit the exhibition of so decided a stimulant without injury. But in the advanced stages of fever, and those attended with typhoidal symptoms, this medicine is resorted to with great advantage, both alone and in combination with other tonics and stimulants. It is peculiarly useful in supporting the strength and in allaying the irregular actions which attend great febrile debility, such as subsultus tendinum, delirium, watchfulness, &c. Its bitter ingredients, and the camphor which it contains, no doubt contribute to their effects. It is
most advantageously given in combination with bark, or with wine and opium.—American Medical Botany, vol. 3, p 86.

Dr. George B. Wood in his valuable work on Therapeutics and Pharmacology, considers Virginia Snakeroot as simply tonic and stimulant to the circulation; with a tendency to produce perspiration, generally acceptable to the stomach in moderate doses, and probably without special influence on the brain or nervous system. "It may be employed in pure dyspepsia, attended with a degree of debility calling for something more stimulating than the simple bitters, and especially when there is a disposition to dryness of the surface; but its most appropriate application continues to be that for which it was early recommended, to the treatment, namely, of fevers of a low or typhoid character. Whenever any febrile disease begins to exhibit this tendency, and stimulation is demanded, serpentaria is one of the first medicines to which we may have recourse, provided the stomach be wholly free from inflammation or vascular irritation. It may be used, therefore, with the condition of stomach mentioned, in typhus or typhoid fever, when passing from the first stage of excitement into that of debility, in protracted remittent fever assuming a low character, in typhoid pneumonia, and in small-pox, scarlatina, malignant sore throat and erysipelas, under similar circumstances. But it should be understood, that in none of these affections, does it possess any specific curative powers, that it can act merely as a tonic and gentle stimulant, and that it should be used only as an adjuvant in very serious cases, being alone wholly incompetent to the support of the system under powerful depressing influences. In many of these cases it may be very properly associated with Peruvian bark or Quinia.

"From my own observations, I should infer that serpentaria possesses no peculiar antiperiodic power, and that it cannot, therefore, be relied on for breaking the course of an intermittent or remittent fever; but in either it may be joined with sulphate of quinia when the system is feeble, and the stomach somewhat insusceptible. The association of Peruvian bark has long been a habit among practitioners. It ex-
ists in the *compound tincture of Peruvian bark* of the British and American Pharmacopoeias, better known under the name of *Huxhams Tincture of Bark.*"

I have employed Virginia Snakeroot in conjunction with quinia and brandy, in the treatment of numerous cases of the various forms of malarial fever; as the results of these observations have been laid before the profession,† we shall merely state that while it has proved a valuable stimulant, diuretic and diaphoretic, we do not believe that it is by itself capable of arresting, as a general rule, the more violent forms of malarial fever.

Administered in conjunction with sulphate of quinia, brandy and carbonate of ammonia, I have derived great benefit from it, as well as from the other remedies, in the severe forms of malarial fever, when the pulse is rapid and feeble, beating from 120 to 160 times in a minute, and feeling like the vibrations of a delicate silver thread; when the heart thumps feebly, and spasmodically and rapidly against the walls of the thorax; when the respiration is full, panting, labored, varying from 30 to 50 in the minute; when the skin is hot, and parched, and rough, or bathed in a cold, clammy sweat; when the temperature of the extremities is far below that of the trunk, which by no means corresponds with the increased efforts at the introduction of oxygen; when the circulation of the blood in the capillaries of the extremities is almost entirely checked; when the chemical changes of the solids and fluids are in a great measure arrested and perverted, and the development of the nervous and physical forces arrested, and their correlation disturbed; when the altered blood stagnates in the capillaries of the brain, and the intellect is either abnor-

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†Observations on some of the Physical, Chemical, Physiological and Pathological Phenomena of Malarial Fever; by Joseph Jones, M. D. Transactions of the American Medical Association, vol. 12, 1859. Southern Medical and Surgical Journal, 1858.
mally excited or depressed; when the altered blood stagnates in the capillaries of the tongue and stomach, and the brilliant red, dry, rough tongue, is but a fit index of the consuming thirst of the restless patient tossing from side to side and pleading for a drop of water. In such cases, if brandy and snakeroot be used alone, the beneficial effects will be only temporary. To be permanent, some powerful antiperiodic, as sulphate of quinia, should be combined with the stimulants.

The effects of carbonate of ammonia in such cases, although powerful, are in like manner evanescent, unless combined with large doses of the sulphate of quinia. If we should at any time be deprived of quinine, and be compelled to rely wholly upon the indigenous remedies, I should recommend in such cases the combination of large doses of brandy, carbonate of ammonia, Virginia Snakeroot, Georgia Bark, Poplar and Magnolia Bark. We would thus obtain the stimulant, diuretic, diaphoretic and antiperiodic virtues of several remedies, in a condition of the system where we need not merely active stimulation, but the excitation of the process of excretion, in all the structures and organs, by which the morbific agents and offending products may be eliminated. I have also derived much benefit from the tincture of snakeroot in the debilitated state of the system succeeding remittent fever. In such cases it is most beneficial when administered in conjunction with citrate of potassa, or carbonate of soda. These latter remedies act in conjunction with the diuretic properties of the snake-root.

Dose of the powder 10 to 40 grains. The infusion made in the proportion of half an ounce to a pint of boiling water, may be administered in the dose of one to two fluid ounces, repeated in chronic cases; and where we wish more especially a tonic effect, three or four times a day; in fevers when we wish a more decided effect, it may be administered every half hour, or at longer intervals, according to circumstances.

The tincture, prepared by macerating for fourteen days three ounces of powdered snake-root in two pints of dilu-
ted alcohol, and filtering, or more rapidly in two days by the use of the displacement apparatus, may be administered in the dose of one to three fluid drachms.

In the treatment of malarial fever the properties may be conveniently obtained and combined with a suitable stimulant, by pouring one pint of brandy on one ounce of the roots. One tablespoonful of this may be administered every hour, or more seldom, according to the urgency of the symptoms. In congestive fever it may be administered every half hour until reaction takes place; of course the maximum dose of stimulants here stated would be used only to meet special indications and not as a general rule in prolonged treatment.

Dr. Eberle recommends the following mixture as very useful in the dyspeptic affections of infants:

\[ \text{Rp.} - \text{Pulv. serpentariae;} \]
\[ \text{Magnes. albi aa gr. xvi;} \]
\[ \text{Pulv. Rhæi, gr. xij.} \]
\[ \text{M.} \]

Divide into six equal parts.

Huxham's Tincture of Bark, (compound tincture of Peruvian bark,) is prepared by macerating two ounces of Red bark in powder, one ounce and a half of bruised Orange peel, three drachms of bruised Virginia snake-root, cut Saffron one drachm, and rasped red Saunders one drachm, in twenty fluid ounces of diluted alcohol for fourteen days; then expressing and filtering; or more rapidly with the same formula, in two days by the use of the displacement apparatus.

GENTIANA QUINQUEFLORA.—INDIAN QUININE AGUE WEED.

Dr. E. P. Wood, of Wisconsin, has given this plant with success in a number of cases of intermittent fever, and he states that it is used extensively in domestic practice. Trans. Illinois State Med. Soc. 1857.
THOROUGH WORT. (EUPATORIUM PERFORI-
LIATUM.)

Called also Thorough Wax, Crosswort, Boneset, Indian Sage, The Herb, &c.

Botanical Description.—Leaves connate-perfoliate, rugose, to-
mentose underneath; stem villous. Stem three to six feet high, striate-
villos, almost tomentose, and with the leaves and involucrem hoary and
sprinkled with glandular dots. Lower leaves connate, the upper distinct,
abruptly truncated at base, all tapering gradually to the summit, serratet,
rugose, slightly pubescent on the upper surface, tomentose underneath.

Involucrem many-leaved, (fourteen to sixteen,) eight to ten-flowered,
leaves linear-lanceolate, acute, pubescent, imbricate. Corolla small,
white, glabrous. Style nearly twice as long as the Corolla, two cleft,
stigmas simple. Seed angular, pappus scabrous. A decoction of this
plant is much used and recommended in fevers—it acts as an emetic or
sudorific, according to the constitution of the patient.

Grows in wet soils. Flowers in September—October, Elliott.

Geographical Distribution.—Inhabits meadows and boggy
soils in all latitudes from Nova Scotia to Florida.

Chemical Composition.—According to the experiments of
Dr. A. Anderson of New-York this plant contains. 1. A
free acid. 2. Tannin. 3. Entractive matter. 4. Gummy
matter. 5. Resin. 6. Azote. 7. Lime, probably the ace-
tate of Lime. 8. Gallic acid, probably modified. 9. A re-
siform matter, soluble in water and alcohol, and which
seems to contain a bitter principle.

Dr. Anderson concluded from the results of this exami-
nation that this plant possesses active medicinal properties,
and that many of its constituents and properties are similar
to those which characterise the cinchona officinalis, the an-
themis nobilis, and other valuable articles of the Materia
Medica. He supposed that these virtues resided chiefly in
the leaves.

Dr. Jacob Bigelow states as the results of his examina-
tions: Every part of the Eupatorium has an intensely bit-
ter, combined with a flavor peculiar to the plant, but with-
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out astringency or acrimony; the leaves and flowers abound in a bitter extractive matter, in which the important qualities of the plant seem to reside. This bitter principle is alike soluble in water and alcohol, imparting its sensible qualities to both, and neither solution being rendered turbid, at least for some time, by the addition of the other solvent. It forms copious precipitates with many of the metallic salts, such as muriate of tin, nitrate of mercury, nitrate of silver, and acetate of lead. Of the mineral acids, the muriatic and sulphuric form slight precipitates with the aqueous decoction—the muriatic a more copious one, and the nitric no precipitate, but changed the color red—in the alcoholic solution the muriatic acid alone formed an immediate precipitate. Tannin exists very sparingly in this plant; a solution of isinglass produced a slight precipitate from the tincture, and a hardly perceptible turbidity in separate decoctions of the leaves and flowers; Sulphate of tin gave a dark green precipitate, which partially subsided in a short time. In distillation water came over very slightly affected with the sensible qualities of the plant and not alterable by sulphate of Iron.—American Medical Botany, vol. i. p. 35.

According to the testimony of Dr. Joseph Tongo* and Mr. E. Durand, Mr. J. Scattergood obtained from this plant a salifiable base which forms, with sulphuric acid, tasteless, prismatic crystals, and which he calls Eupatoria.

Medical Properties and Uses.—The effects of Eupatorium vary according to the dose and mode in which it is administered; in cold infusion, and in the form of powder, in moderate doses, it acts as a tonic, producing effects very similar to those of the simple bitters. Larger quantities and in warm effusion it sometimes proves emetic and laxative, and most commonly produces a decided diaphoretic action. So decided and uniform is this action upon the

* Edwards Mannaal of Materia Medica, p. 139.
skin, that it has been called "vegetable antimony," and it has been, with propriety, termed a tonic sudorific.

The Indians appear to have been acquainted with the medicinal properties of this plant, and they are said to have instructed the first settlers in its use—who used it as a febrifuge long before it was introduced into the regular practice. From the settlement of the country to the present time it has been in use in various parts of the North and South as a tonic and febrifuge, to accomplish the same purposes for which gentian, chamomile, peruvian bark and other febrifuge tonics are employed, and many physicians have testified to its great value. Dr. Nathaniel Chapman* of Philadelphia, in his notice of this article states that "many years ago, we had throughout the United States a species of influenza, which in consequence of the seat of pain attending it, came to be denominated break bone fever. The eupatorium, acting as a diaphoretic, so promptly relieved this peculiar symptom that it acquired the popular title of bone-set, which it retains to the present moment." Dr. George B. Wood,† of Philadelphia, supposes that the epidemic alluded to by Dr. Chapman was that described by Dr. Rush as having occurred in Philadelphia in the summer and autumn of 1780, called break-bone fever, from the violence of its pains, but which there is every reason to suppose was the disease since better known under the name of dengue. Dr. Wood, from this fact, suggests a trial of eupatorium in that very painful epidemic disease.

Various practitioners in the Middle and Southern States have testified to the great value Eupatorium perfoliatum in the treatment and cure of intermittent fever.

Dr. Andrew Anderson,‡ of New-York, has borne unequivocal testimony to the value of this remedy in malarial

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* Elements of Therapeutics, vol. i. p. 388.
† Treatise on Therapeutics and Pharmacy, vol. i. p. 299.
‡ Inaugural Dissertation, 1813.
fever. He states that this remedy was used in nearly every case of intermittent fever that occurred in the New-York Alms-house in 1812, to the exclusion of the Peruvian bark, with uniform success. It was given either in decoction or in powder from 20 to 30 grains every second hour during the intermission.

Out of this large number which had been successfully treated with the Eupatorium, Dr. Anderson detailed six cases of intermittent, quotidian, tertian, and quartan; in these cases the cures appeared to have been as expeditious as could have been expected from Peruvian bark. In remitting fever he found that as a sudorific it produced the most salutary effects.

Dr. Anderson supports his own experience by the testimony of several distinguished practitioners.

Dr. Hosack and Dr. Baird in the treatment of Yellow fever, after proper evacuations, placed almost exclusive dependence on sudorifics, and amongst this class of remedies they considered the Eupatorium, administered in the form of decoction, of great value.

The disease called by some petechial or spotted fever, and by others the malignant pleurisy or typhoid periphneumony has been more successfully treated by the class of remedies denominated sudorifics than by an other, and in many cases of this epidemic which occurred in the city of New-York in the winter of 1812–13 after the proper evacuations had been employed, the Eupatorium was resorted to, and its sudorific, its tonic and its cordial properties were clearly demonstrated and much benefit was derived from its use.

The testimony of Dr. Eberle to its use in intermittent fever is not so favorable as that of Dr. Anderson; in his notice of the medical effects of this plant in his Therapeutics, he says: "Dr. Anderson states that this remedy was used in nearly every case of intermittent fever that occurred in the New-York Almshouse in 1812 instead of Peruvian bark, and that it uniformly proved successful. I do not doubt that it has sometimes proved successful in this
disease, but the result of my own experience with it does not lead me to form a very high opinion of it in this respect. I have known it to remove the disease, in a few instances, by vomiting and copious perspiration. But in the great majority of cases in which I have tried it no manifest advantage was obtained."—Therapeutics, vol. ii. p. 194.

The testimony of Dr. Wood agrees with that of Dr. Eberle. "From the Inaugural Dissertation of Dr. Anderson, (New-York, 1813,) it would appear to have been employed with very great success in the treatment of intermittents in one of the New-York Hospitals. Subsequent observation of its effects has proved less favorable; and employed as a mere anti-periodic, in the ordinary mode of prescribing bark or quinia in the intermissions, it cannot be relied on. But I have known it to supersede the paroxysms of intermittent fever, when given in emetic doses, in the state of strong tepid infusion, shortly before the period for the return of the chills; and if jointly with this method of exhibition it be administered in moderate doses at short intervals during the apyrexia, there is little doubt that it will often prove successful. Still it is greatly inferior to Sulphate of Quinia in certainty, while in its effects as thus used, it is much more disagreeable. It may be very appropriately tried in obstinate and frequently recurring attacks of intermittent fever, in which Quinia has become offensive to the patient, or inoperative from repetition. The same remarks are applicable to its comparative efficacy in remittents; in which, however, its tendency to produce perspiration is somewhat in its favor."—Therapeutics and Pharmacology, vol. i. p, 298.

Dr. Chapman, on the other hand, whose experience was certainly equal to, if not larger than that of Drs. Eberle and Wood sustains fully the statements of Dr. Anderson. "I have had lately put into my hands a very well written tract, in which the properties and medicinal applications of this article are fully discussed.*

* Anderson on the Eupatorium, &c. &c.
By the reports of the writer it appears that in the public institutions of New-York it has been extensively employed in intermittent, remittent and yellow fever, in typhus pneumonia and catarrhal fevers, in several cutaneous affections, in dropsies, and for the removal of mere debility. By properly regulating the administration of the medicine, it has, according to him, fulfilled successfully all these diversified indications. After making due abatement for the confidence in which new and favorite remedies are always announced, I entertain little suspicion of the accuracy of these accounts. My own observations, together with communications which I have received from highly respectable sources, would, indeed, nearly confirm every part of the preceding statement relative to the efficacy of this medicine, and especially in intermittent and remittent fever. To these affections it seems particularly adapted, inasmuch as having the united properties of a diaphoretic and tonic, its use may be continued in the successive stages of the paroxysm, as well as the apyrexia."—Elements of Therapeutics and Materia Medica, by N. Chapman, vol. ii. p. 445.

Dr. Ansel W. Ives, of New-York, the editor of the Pharmacologia of Dr. J. A. Paris, adds his testimony to the correctness of Dr. Anderson's observations: "It was long ago used as a tonic by the aborigines of this country, but its properties were not fully investigated, and its remedial character appreciated by the profession till the publication of Dr. Andrew Anderson's excellent inaugural dissertation on the Eupatorium Perfoliatum in 1813. From that time to the present its reputation has been increasing. It is peculiarly valuable from the diversified effects that may be produced by it by varying the preparation and the dose. These may be so modified as to secure its operation as a tonic, emetic, laxative and sudorific; and from its effects in opening the secretions of the whole system, there is, perhaps, no other bitter or tonic, of equal activity, that can be exhibited in febrile affections with so little danger of increasing excitement or producing congestion. In the year
1861.]

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1814, while resident physician to the New-York Almshouse, I had frequent opportunities of testing its tonic powers, as it was enjoined from motives of economy upon the medical department of the institution to substitute this article for the Peruvian bark when it could be done with safety to the patient. In many instances it proved an efficacious substitute. It is a valuable emetic in the early stage of autumnal intermittents."—Pharmacologia, &c. by J. A. Paris, M. D. with additions by Ansel W. Ives, M. D. New-York, 1823, vol. ii. p. 143.

Dr. Bigelow has prescribed an infusion of the Eupatorium, in various instances, to patients in the low stages of fever, when it has appeared instrumental in supporting the strength and promoting a moisture of the skin, without materially increasing the heat of the body. He has also found the cold infusion or decoction a serviceable tonic in loss of appetite, and other symptoms of dyspepsia, as well as in general debility of the system.—Am. Med. Botany, vol. i. p. 37.

We hope that we will be excused for multiplying testimony to the medicinal value of this plant. We believed that at the present time such an examination of its merits as embraced the views of distinguished and reliable writers, would prove valuable as well as interesting. At some future time we hope to be able to present an extended chemical analysis of its constituents, together with numerous experiments upon its physiological and therapeutic action.

When employed as a tonic from twenty to thirty grains of the powder may be taken three times a day; the cold infusion, made in the proportion of $\frac{5}{2}$ to 0 of water, may be taken as a tonic in doses of one to two fluidounces.

When intended to act as an emetic, an ounce of the plant is boiled in a quart of water, down to one pint, and this is taken in the dose of two fluid ounces every ten or twenty minutes until the emetic effect is produced.
The warm infusion is said by Dr. Bigelow to be a convenient substitute for that of chamomile flowers in facilitating the operation of an emetic. Dr. Anderson gave the powder in the treatment of intermittent fever in doses of from twenty to thirty grains every second hour during the intermission.

In the treatment of both intermittent and remittent fever the warm decoction prepared in the proportion of one ounce of the leaves boiled in a quart of water, may be administered in the dose of a wineglassful every two hours, or oftener, according to circumstances. Of course the amount administered will be regulated, in a great measure, by its emetic and cathartic effects.

[Concluded in our next number.]

The Cure of Phthisis.

At a late meeting of the Harveian Society of London, Dr. Pollock read a paper on this subject:

"Dr. Pollock first spoke of the various stages of phthisis, which disease he did not regard as necessarily making a steady progress to decay, but frequently exhibiting a succession of attacks, and susceptible of local repair. Such cases he had seen—the system sometimes opposing itself to morbid action in so marked a manner as to cause very considerable prolongation of life. In referring to the cure of phthisis, Dr. Pollock said he had no specific to offer, and thought that no cure, in the popular sense, would be discovered. He was of opinion that the average duration of life since the use of cod-liver oil, as stated by some authorities at four years was too low an estimate. Tubercle might be absorbed, leaving the lung sound, by excavation and cicatrization, or a cavity sometimes remains circumscribed, the patient living for years. Waste of tissue might be retarded by stimulants when first going under treatment, and those taken at long intervals of time were exhibited to the society, which last gave evidence of favorable results.— Med. Times & Gaz."
Clinical Lecture on Abortive Measures of Treatment in Cases of Typhoid Fever. By Austin Flint, M. D., Professor of Clinical Medicine, etc., in the New Orleans School of Medicine.

Gentlemen—I have chosen as the subject of my lecture today, a renewal of the cases of typhoid fever which have been under our observations during the winter, with reference especially to abortive measures of treatment.

Abortive measures of treatment are those employed to arrest the progress of the disease either by cutting it short, jugulating it as the French writers say, or by abridging materially its career. Up to a late period measures for these ends were employed habitually by physicians, and, as was supposed, with considerable success. Blood-letting, cathartics, emetics, mercurialization, and other means have been advocated as possessing the power of arresting the common continued or typhoid fever. But since the natural history of the disease has been more accurately studied, and its diagnostic characters better understood than they were but a few years ago, it has come to be considered very generally that it cannot be controlled by any measures at present known. The measures just mentioned have mostly gone out of use in the treatment of the disease; at all events, few, if any, now resort to them with the expectation of arresting the disease. The doctrine taught by the most approved writers at the present time is, that the typhoid and other forms of continued fever must have their course, and that the power of the physician is limited to palliating symptoms, sustaining the vital forces and guiding the disease to a favorable termination. This doctrine, however, is not accepted by all. Some years since, Dr. Henry, of Illinois, communicated for the medical journals several papers in which he asserted that opium in large doses, combined with belladonna, succeeds in arresting alike remitting and continued fevers. More recently, Dr. Dundas, of Liverpool, has claimed in behalf of large doses of quinia a potency as great in continued as in periodical fevers. My distinguished friend and colleague, the Professor of Practice in this School, Prof. Fenner, advocates the use of quinia in large doses, combined with opium, as successful, if resorted to early and efficiently, in often cutting short continued fever, and in abridging its duration and modifying its intensity when the disease is not at once arrested. I have made some observations with respect to the abortive treatment of typhoid fever, and been led to think that opium in large doses and the wet sheet employed often, after the manner of the hydropathists,
sometimes may succeed in arresting the disease.

Now you will, perhaps, ask why this matter is not settled to the satisfaction of all candid minds? It may seem to you that the question as to the efficacy of any particular measure could be very easily answered by an appeal to facts; but it is more difficult to bring facts to bear on this question than at first appears. The difficulty arises mainly from two sources. In the first place there is a liability to error in diagnosis during the early part of the course of typhoid fever, and this creates a distrust in the minds of others, and in the mind of the observer, also, when the disease appears to be arrested. In the second place, the disease appears sometimes to abort of itself; in other words, we meet with cases in which the phenomena attending the forming stage of typhoid fever are present, but the disease does not become fully developed, or if developed, it abruptly ceases and does not go on, irrespective of any measures of treatment.

To obviate the first of these difficulties it has been proposed to wait until the eruption appears, and not consider the diagnosis as positive until this event occurs. This plan was pursued by Prof. Bennett, of Edinburgh, in testing the views of Dr. Dundas, and he found that the quinia failed in several cases in which he intended to give this remedy a fair trial. But the eruption in typhoid fever does not usually appear until the seventh day after the patient takes to the bed, and by this time the disease has advanced nearly half-way through its career. This plan involves too much delay to secure for any measure a fair trial. We must, therefore, base the diagnosis on other circumstances, and make due allowance for a liability to error. In like manner, allowance is to be made for the natural abortion of the disease.

You see, gentlemen, that the question as to the efficacy of any abortive measure is not very easily settled. Great caution is requisite in the collection of facts. The observer must be competent for observation, and be careful as regards the diagnostic characters, exclusive of the eruption. His mind must not be warped by undue enthusiasm or credulity, and, unfortunately, we find that not a few persons, who are not wanting in conscientiousness, are apt to see precisely what they desire or expect to witness. If in a considerable number of cases correctly observed, the disease abruptly ends or fails to run its accustomed course in a larger proportion, when certain abortive measures are employed, than when no such measures are employed, we must attribute to these measures more or less efficacy. Now, with regard to the efficacy of any
particular remedies I shall not express an opinion in general terms, for I have not formed any opinion on the subject. I regard the subject as a legitimate one for clinical observation, and that the accumulation of more facts than we at present possess is necessary before we are prepared to come to any positive conclusions.

Without further preliminary remarks, let us direct attention to the cases of typhoid fever which have been treated in my wards this winter. The cases are few, for this disease has not prevailed to much extent in this city during the present season. I have recorded all the cases in my wards, and they are only four in number.

The first case proved fatal in about two weeks after the admission of the patient. In this case abortive measures were not employed. The characteristic intestinal lesions were found after death, and exhibited to the class: tuberculous ulceration from another body being exhibited at the same time, in order to illustrate the points of contrast. In this case, unexpectedly, extensive cystoid degeneration of the kidney was found, these organs being full of cysts, varying in size from a pea to a hickory nut.

Case No. 2 was admitted Nov. 14th. The patient had been ill for six or eight days, but he was not confined to the bed before he came to the hospital. His age was twenty-eight. He had lived in this city for two years. On his admission he took to the bed. His expression was dull and the mind acted slowly. He had moderate diarrhoea which had existed for several days. Before coming to the hospital he had had epistaxis, pains in the head and limbs, lassitude, loss of appetite and some nausea. Tenderness was marked in the iliac region and gurgling. The abdomen was meteorized but not distended. There was moderate febrile movement. No eruption.

On the day after his admission, when I first examined the case (Nov. 15) I prescribed fifteen grains of the sulphate of quinia.

On the 16th, at my morning visit, he was dressed and sitting up, but he was evidently too ill to keep up, and he soon returned to the bed. He reported better than on the previous day, but the symptoms were about the same. I repeated the quinia on this day.

On the 17th he was in bed and reported not as well. The diarrhoea had been troublesome during the night. The dullness of expression and slowness of mind continued. The
Typhoid Fever.

[September,

febrile movement was moderate. Tenderness in the iliac region continued. The chest was everywhere resonant, and some sibilant rales existed on both sides. I counted two or three sore spots on the chest. I prescribed on this day for the diarrhoea, opium, gr. i, and tannic acid, grs. iii, three times, discontinuing the quinia.

On the 18th the daily record is as follows: "He reports no better; says that he did not sleep last night, owing to bad dreams. He had two dejections during the night and has had one this morning. The pulse is eighty; the respirations sixteen. He dozes but is easily aroused. The skin is warm and moist. Slight capillary congestion exists on the face and upper limbs. Tenderness in the iliac region continues. Three or four sore spots are found on the chest and abdomen. He has no appetite, but complains of thirst. There have been no manifestations of delirium. Treatment—opium, grs. ii, three times."

On the 19th the symptoms were the same, and some incoherent talking during the night was observed by the ward nurse.

The treatment on this day had reference to an abortive effect, the case being now regarded as clearly one of typhoid fever. Five grains of the sulphate of quinia and three grs. of opium were directed to be given three times.

Nov. 20th, the patient was dressed and sitting up, but was evidently quite feeble. Moderate diarrhoea continued. The pulse, while sitting up was eighty-four, but on returning to the bed it fell to sixty-four. No manifestations of delirium. Tenderness in the iliac region, with gurgling, continued. The sore spots, previously observed, had disappeared. Treatment—opium, grs. iii, and the sulphate of quinia, grs. vii, three times.

Nov. 21. The patient sat up a portion of the previous day, and on this day he reported quite well. No dejection since the previous evening. Pulse sixty-four.

No medicine was prescribed; a diet of essence of beef, milk and bread was directed.

Nov. 22. Reported not so well. Did not sit up on the previous day. Several dejections occurred during the night. The pulse was seventy-two. The countenance was more dull. Treatment—opium, grs. iii, and the sulphate of quinia, grs. v, three times.

Nov. 23. The patient reported better, and the aspect was brighter. One dejection only. Pulse seventy-six. The
patient sat up a portion of the previous day. Treatment continued.

Nov. 24th. The patient remained the same. Opium, grains iii, and the sulphate of quinia, grains vii, were prescribed.

Nov. 25th. The patient sitting up a little daily; the mind clear; slight diarrhoea; no febrile movement. Treatment continued.

Under this date I have noted in the record of the case the following remark: “The remedies have appeared to exert some controlling influence over the disease in this case, as shown by the change for the worse on the 22d, when the remedies had been withdrawn for a day, and the improvement when the remedies were resumed.”

Nov. 26th. No material change. The treatment was continued.

Nov. 27th. Patient dressed and sitting up. Reported much better. The opium and quinia were suspended on this date, and a drachm of the compound tincture of cinchona, three times, was prescribed.

Nov. 28th. No medicine and full diet.

Dec. 2. The patient reported well enough to leave the hospital, and was discharged.

Dating from the time when this patient took to the bed, and considering convalescence as distinctly existing when the medicine was discontinued and full diet allowed, the duration of the disease was fourteen days. The disease was not cut short, but it is to be remarked that the amount of quinia prescribed fell considerably short of that given by those who claim for this remedy an abortive efficacy in typhoid fever.

The question in the case is whether the disease was shortened or modified by the treatment. I am not prepared to give a positive answer to this question, for, undoubtedly, we observe cases of typhoid fever in which the disease is as mild and shorter in duration than in this case. But, as stated in the note which has been quoted, the change for the worse when the treatment was suspended for a day, and the immediate improvement when it was resumed, render it probable that some controlling influence was exerted. At all events, gentlemen, we may be permitted to conclude that the opium and quinia given in the case did not exert an unfavorable influence on the progress of the disease.

Case No. 3 I shall read from my records, as it will not occupy much time.
James Ellis, aged seventeen, admitted January 17th, was first seen by me on the morning of the 18th, and the record is commenced on the 20th.

He stated that he had resided in this city since August last; that he had been ill for eight or ten days, but took to the bed only two days before his admission. His ailments before admission were cephalgia, loss of appetite and nausia, moderate diarrhoea and pain in the abdomen, lassitude and debility. Epistaxis occurred on the day after his admission. The symptoms on the 18th were, moderate febrile movement, capillary congestion of the face, moderate diarrhoea, tenderness over the abdomen and resonance without distension, want of appetite, thirst and debility. The treatment on the 18th was Dover's powders, grs. v. and the sulphate of quinia, grs. v. three times.

On the 19th his condition was about the same. No eruption was discoverable. The pulse was one hundred and four. The treatment on this day was, opium, grs. ii, and the sulphate of quinia, grs. x, twice.

On the day of the first record (20th) I learned that he had been delirious during the night, talking incoherently, and getting out of bed, saying that he wished to go home. At the time of my visit in the morning, he seemed rational. At the present time (2 p. m.) he lies dozing, and frequently talking incoherently. He is readily aroused and replies to questions promptly and rationally. The abdomen is resonant and moderately distended. Tenderness in the iliac region, and over the abdomen generally continues. He relapses into a dozing state immediately after being aroused, and begins to mutter. The skin is warm and dry. The pulse is one hundred and four, and the respirations twenty-four. There is no eruption. Physical exploration of the chest yields a negative result.

This morning I prescribed opium, grs. ii, and the sulphate of quinia, grs. x, three times, with half an ounce of wine every four hours, and sustaining diet.

Jan. 21. He has passed a quiet night, without muttering or any manifestations of delirium. He states that he has had a little buzzing in the ears. The pulse is ninety-six; respirations twenty-four. Diarrhoea continues with abdominal tenderness. He continues to dose most of the time, but is easily aroused. Treatment—opium, grs. iii, and the sulphate of quinia, grs. x, three times, with wine and diet as before.
Jan. 22. The aspect is much brighter. Some muttering during the night, but no other manifestations of delirium. The pulse is eighty-four; the respirations are twenty. Abdomen not distended, and the tenderness is slight. No diarrhœa.

To-day no medicine is prescribed, but wine and diet as before.


Jan. 24. Continues bright. Pulse seventy-two; respirations twenty. No diarrhœa and no abdominal tenderness nor distension. He has appetite, but complains of occasional vomiting after taking food, for which a scruple of the sub-nitrate of bismuth, three times, was prescribed.

Jan. 25. Reports perfectly well, excepting want of his usual strength. The bismuth has been discontinued.

Jan. 26. The patient reported well enough to leave the hospital and was discharged.

In this case, gentlemen, we have the career of the fever ending on the eighth day, dating from the time of taking to the bed. The diagnostic characters of typhoid fever, exclusive of the eruption, were well marked. Now, it is undeniable that this disease sometimes ends, of its own accord, with as brief a career as eight days, and I am not prepared to affirm positively that the quinia and opium contributed to the short duration. That these remedies exerted a controlling influence, however, I cannot but consider as probable.

Admitting the need of an accumulation of cases before a more positive opinion is admissible, the case shows, to say the least, that there is no hazard in repeating experimental observations of this kind.

Case No. 4 is also brief, and the reading of the notes will not occupy much time. It is proper to state that the greater portion of this case was made by Mr. Profillet, the house student assigned to my wards.

Robert Prizely, aged 19, was admitted February 15th, and the record is commenced on the 16th.

He states that he was ill four days before his admission and confined to the bed three days. He has now diarrhœa, which has existed from the commencement of his illness. The abdomen is tympanitic, and tenderness in the iliac region is
marked. The mind is dull. The tongue is dry. The face is congested. The pulse is one hundred.

On exploration of the chest, dullness on percussion, broncho-vesicular respiration and bronchophonic voice are found over a small space of the upper portion of the posterior lobe of the right lung. Treatment—opium, grs. iv. three times.

Feb. 17. He reports better. Pulse eighty. All the symptoms are improved. The physical signs of solidification continue within the circumscribed space in which they existed yesterday. Treatment continued.

Feb. 18. The patient's mind is still sluggish; he answers questions coherently, but after considerable hesitation. He is now sweating profusely. Pulse sixty; respirations twelve. The abdomen is still somewhat tympanitic, and tenderness in the iliac region continues, but is diminished. Six sore spots, with all the characters of the typhoid eruption, are counted upon the abdomen and chest.

The solidification of lung has not extended, and the signs show that its degree is less. Treatment continued, with an ounce of brandy three times and sustaining diet.

Feb. 19. Improvement is manifest. Pulse fifty-six; respiration twelve. The eruption has disappeared. No diarrhœa. The mind is bright.

No extension of the pneumonia, and the solidification is disappearing. Treatment—the opium is discontinued; the brandy continued and diet as before.

Feb. 20. Convalescence continues and the patient desires to sit up.

Feb. 25. The patient reported well enough to leave the hospital and was discharged.

The career of the fever ended in this case on the seventh day from the time of taking to the bed, the treatment consisting of twelve grains of opium per day, and this treatment continued for three days. The diagnostic characters of typhoid fever were marked, and one day the characteristic eruption was observed. Did the disease end from an intrinsic limitation, or was it arrested by opium. In answer to this question, I have only to repeat the remarks which were made in connection with the preceding case.

The last case is interesting from the existence of pneumonia as a complication, which, like the fever, seemed to be arrested, not extending over the lobe, and rapidly disappearing.
We have thus, gentlemen, reviewed our experience in the management of typhoid fever during the past winter. Three out of four cases have recovered. In the fatal case no abortive measures were employed. In one of the remaining three cases opium and quinia were given in pretty full doses. The duration was fourteen days, and the disease was extremely mild. In the second of these three cases the abortive treatment was commenced on the sixth day of the disease, dating from the time of taking to the bed; in the second and third of the cases the treatment was commenced on the fifth day. In the first case the duration of the disease was eight days after the treatment with quinia and opium was commenced; in the second case the disease continued for three days after the treatment with quinia and opium was commenced, and in the third case the disease ended on the second day after opium was prescribed in large doses.

These three cases, considered alone, are not of great value; but they are valuable in encouraging experimental researches in the same direction, and as a small contribution towards the stock of recorded facts, by means of which it is to be determined whether typhoid fever be amenable to abortive measures of treatment.—N. O. Med. Times.

On Perineal Section. By J. Mason Warren, M. D. one of the Surgeons to the Massachusetts General Hospital.

The distinguished surgeon, Mr. Syme, of Edinboro, has of late years brought more particularly to the notice of the profession the incision of the urethra in the perineum for the purpose of relieving strictures of a bad character. Some confusion seems to exist as to the cases for which this operation is more particularly applicable. So far as we can understand Mr. Syme, his operation appears to be directed to those cases which are permeable to the instrument, yet so irritable and intractable as to be a permanent source of irritation to the patient. Mr. Syme considers that every stricture, with patience, is capable of being penetrated. Other gentlemen, and particularly Mr. Bryant, in an excellent paper in Guy's Hospital Reports, think there are certain
cases of stricture admitted to exist by most surgeons which no patience will overcome, and which the use of the knife alone will remedy. In these he advises that an instrument should be introduced into the urethra as far as allowed by the obstruction; the finger of the left hand is then introduced into the rectum as a guide to the prostate or neck of the bladder. The integuments now being divided, the knife is introduced with its back towards the rectum so as to strike the urethra in front of the prostate, and a cut is made forwards till it meets the instrument in the urethra.

Mr. Bryant after mentioning the different forms of stricture requiring this operation, rejects that in which with retention of urine the urethra is impermeable to an instrument for which case he advises as the only proper operation the puncture of the bladder through the rectum. Without entering upon a discussion as to the merits of the operation we would simply state, that in our experience this is the very case which most frequently calls for the active interference of of the surgeon; and there seems to be no good reason, if the history indicate a callous and incurable stricture as the cause of the retention, why the operation should not be so extended as to divide the stricture at the same time, and give the patient a chance of permanent instead of temporary relief.

In order to illustrate this subject and bring it more fully before the profession I propose by the exhibition of two or three cases, to show the advantage of the operation in these extreme cases which we are so often obliged to deal with; as it is well known that in permeable strictures, to which Mr. Syme's operation would be applicable, the patient, so long as he could obtain relief otherwise, would be unlikely to submit to a cutting operation. One of these is a case in point with those mentioned by Mr. Bryant, viz: a case of organic stricture of long standing gradually diminishing the calibre of the urethra, and finally terminating in complete retention. In this case, it will be perceived, that instead of puncturing the bladder through the rectum, as would have been the practice of Mr. B, the urethra was cut down upon in the perineum, opened near the neck of the bladder, and then the whole portion of the strictured urethra divided; and a large instrument being introduced the urethra was moulded upon it until a complete cure was produced. The other two cases are those in which the operation of Mr. Syme
must have been rejected; as, after much patient treatment in one of them, no instrument could be made to enter the bladder, and in the other, although for a time an instrument could pass through the stricture, ultimately this became impracticable, and the patient's life was gradually being exhausted by pain, confinement, and the irritation and discharge from the numerous fistulous openings in the scrotum and perineum. To Mr. Syme undoubtedly belongs the credit of having fully brought this subject before the profession, and shown the great relief that might be extended to a class of cases allowed to linger on in torment through many years.

In his very valuable paper Mr. Bryant has indicated yet other cases, a class to which the attention of hospital surgeons is much more likely to be called, and of which the preceding are an illustration. We take the liberty of copying Mr. Bryant's conclusions, to which we fully agree, with the exception of the first, upon which we have commented above.

"Conclusions.—1. In uncomplicated retention of urine from organic stricture, the operation of opening the urethra in the perineum is not required, the more simple and safe one of puncturing the bladder through the rectum being preferable.

2. When complicated from extravasation of urine from any cause it should be performed at once, and the stricture when present divided if possible.

3. In laceration of the urethra from injury, when a catheter cannot be passed, the urethra should be opened.

4. And also when the above injury is associated with pelvic mischief.

5. Strictures are occasionally met with which are impermeable, and urethras which are obliterated.

6. That in cases of organic stricture, when the passage of a catheter is possible and not difficult; where it does not produce either any injurious, or painful constitutional or local disturbance, and where, after dilatation of the stricture an occasional passage only of the instrument is required to maintain an open channel, no other surgical means can be called for.

7. That cases of stricture do occur occasionally, which are so exquisitely sensitive, and in which the passage of a catheter, however skillfully performed, is followed by such severe constitutional and local disturbance as to produce
more harm than good; and others, which are relieved by means of a catheter, and are even fully dilated, but which have a tendency to contract immediately upon the omission of the treatment; in such cases the operation of "external division" is most valuable.

8. That the majority of cases of what are called impermeable strictures may be rendered permeable by constitutional treatment but that some are undoubtedly impermeable; in such cases the operation "perineal section" is of value.

9. When the urethra is obliterated the operation of "perineal section" may occasionally be demanded, particularly when associated with perineal fistula.

10. That the worst and most intractable forms of stricture are the result of injury, and in those cases the operation either of "external division," or "perineal section," is of great value.

11. That in boys the operation is not so successful as in adults, although no better can be suggested.

Case 1.—Organic Stricture of the Urethra of Ten Years' Standing; The Urine finally passed in Drops; Retention; Perineal Section; Division of the Stricture; Complete Recovery. A. L. Foydt, about 30 years of age, entered the Hospital on April 30, 1860, with a stricture of the urethra of ten years' duration. The water, when he entered, passed in a very small stream, and urine was constantly dribbling away from him during the night accompanied with a purulent discharge. He complained of pain in the renal region, though not of a severe character. After very careful attempts to pass a bougie of the smallest description, it was finally decided to attempt to cut the stricture from within, which was done from a canula with a concealed blade, on May 15, and which, although it cut but partially through the stricture, seemed to afford him temporary relief.

On May 26, the urine became less free; there was considerable dulness in the pubic region, and the patient complained of pain about the bladder, with general uneasiness. I had already made up my mind to perform the perineal section in this case, and ordered the preparations for the operation to be made for the following day.

On visiting him the next day, I found he had a complete retention of urine, and therefore proceeded at once to the operation. The patient was placed on a table, on his back,
and after being thoroughly etherized, so that his joints were
fully relaxed, he was tied as in the operation for lithotomy, I
have found it much better to confine the limbs in this way
than to intrust them to the care of assistants, who are apt
to be worn out during an operation so likely to be long and
tedious. A small staff was introduced, and it seemed to
penetrate the first stricture, which as stated above, had been
incised about a couple of weeks before, and brought up
against a second stricture, apparently just behind the sero-
tum. The forefinger of the left hand was now introduced
into the rectum, and the situation of the prostate ascer-
tained. The perineum was then divided, and a careful dis-
section made, to ascertain the site of the urethra. This
was rendered very tedious from the constant discharge of
blood at the bottom of the deep wound from the bulb of
the urethra, which in this case was more than ordinarily
troublesome. The urethra, however, was finally opened
directly in front of the prostate, and a gum elastic catheter
passed into the bladder, giving exit to a very large collec-
tion of urine. The canal was now opened forwards, and
the callosities freely, until the staff was reached. A
second gum-elastic catheter was now passed downwards
through the penis until it appeared in the wound; and the
ivory end of the first having been cut off, the point of the
second was insinuated into it and firmly fixed. In this
manner it was dragged up through the whole extent of the
urethra, It might be here mentioned, as a hint for finding
the urethra, which I have before practiced upon, without
the staff for a guide, and where other means have failed, to
do as was done in the present case—viz, allowing the pa-
tient partially to recover from the ether, stimulate him to
make an effort to urinate, and when the urethra behind the
stricture became dilated, a minute stream of urine issued,
indicating the spot for the introduction of the probe, and
the urethra was found. No unpleasant symptoms followed
the operation. On the next day the patient expressed him-
self in great comfort, more so than he had experienced for
many years. The sense of fulness, arising from probable
distension of the bladder, ureters and pelves of the kidneys
having entirely passed away. At the end of a week the
first catheter was removed, and at once replaced by an-
other which had been prepared the day before, of the same
size and curve. The catheter was found to have been par-
tially acted upon by the urine, and its calibre somewhat
obstructed.
At the end of a month the patient was able to introduce the instrument himself; and at the end of two months, the wound in the perineum having nearly healed, he kept it in at night, leaving it out during the day.

He shortly after left the hospital, well, with the exceptions of a small aperture not larger than a pin hole, and some weeks subsequently presented himself there on the eve of a voyage to the sea.

Case II.—Stricture of the Urethra of Twenty-five Years' Duration; numerous Urinæus Fistulae in the Serotum and Perineum; Perineal Section; Cure.—E. O. B., shipmaster, entered the Massachusetts General Hospital on April 24, 1860, and gave the following history of himself. He had suffered from gonorrhœa twenty-five years previously, and was treated by his captains at sea by strong injections. The gonorrhœa terminated in gleet, which was treated by bougies for two years, when it was increased on account of increased obstruction. He then remained pretty well until eight years since, when the stricture became so tight as to give him a great deal of inconvenience, for which he entered the hospital, under my care, and the stricture was divided by internal incision. This relieved the urinæus trouble, and for a time he enjoyed good health. Two years since a fistulous opening appeared in the perineum; four months later, another in the serotum; five months since, a third; through these openings parulent matter with urine was freely discharged. The whole of the serotum was tense, indurated and barred by sinuses. Two months previous to his admission, a No. 1 bougie was passed into the bladder, after much effort; his symptoms have been aggravated by it.

I passed a No. 1 bougie down to the stricture, and kept it applied for two or three hours daily) exerting a gentle pressure against the stricture. After treatment for about a week in this way, the stricture gave way, and the instrument passed into the bladder.

On May 1, I made an incision into one of the serotum openings, and gave vent to a quantity of purulent matter, mixed with urine. Notwithstanding the passage of the bougie, the symptoms of trouble about the serotum increased, and towards the 1st of June, the stricture having again closed so that it was quite impossible to pass any instrument, the operation was done, at his request, on June 4.
The patient being etherized, and confined in the position for lithotomy, Syme's sound was passed through one stricture and encountered a second. An incision was now made in the median line of the perineum, and dissection performed until the point of the staff was reached. The issues were much hardened, and infiltrated by a deposit, which greatly opposed the progress of the knife. The flow of blood from these diseased parts interfered much with the operation; the perineum also was uncommonly deep. In order the better to bring the continuation of the urethra beyond the stricture into view, the end of the staff was turned out through the incision, and served to hook up and thus bring the deeper parts more fully in sight. The wound being freely sponged with iced water, a puncture was made into the supposed urethra, in the neighborhood of the neck of the bladder, which allowed the passage of a probe into that organ; and the urine having escaped, showing it had gone in the right direction, a large gum elastic catheter was substituted for the probe. A sharp-pointed knife was now passed up by the side of a small Syme's sound, and the first stricture, which lay behind the middle of the scrotum, and which would not allow anything larger than the sound to pass, freely divided.

A second gum-elastic catheter was now introduced through the glans and urethra, insinuated into the mouth of the first, which remained in the bladder, and was thus drawn upwards as in the former case.

No great constitutional irritation followed the operation, and the patient on the following day described the comfort of freeing the bladder by a large stream, after having suffered for so many years in his efforts to do so, as beyond belief. The first bougie was left in place a week, then becoming obstructed, it was replaced by another, and this was done weekly through the course of the treatment. The wound in the perineum, on account of the diseased state of the tissues, was very slow in healing, and the patient remained in the hospital for two months afterwards.

A communication was received from him in Nov. 1860, in which he states that he was well.

Case III. Traumatic Stricture of the Urethra of Five Years' Duration.—G. U., 36 years of age, a teamster, came into the hospital under my care in the early part of the spring of 1860. He said that five years before he had been jammed
against a wall by the buffer of a freight car with such force as to produce a rupture of the urethra. He remained in a critical situation for a time, and had never since been able to pass his water, except in a very small stream. Two years previous to his admission, a fistula appeared near the tuber ischii of the left side, between that and the rectum. His water has passed by drops through this fistula, and another in the rectum, ever since. Various attempts have been made to perforate the stricture, but all of them without avail.

On examination by the rectum I found that the bladder, intestine and surrounding parts were glued together and involved in an indurated mass, and the calibre of the intestine was very much diminished. A probe being introduced into the fistula by the side of the rectum, passed up by the side of the gut through these indurated tissues, and apparently entered the interior of the bladder. Having made very careful attempts for a time to get through the stricture by gentle means, I finally advised him, unless willing to have the perineal section performed, to desist from any further efforts, for fear of producing irritation and complete retention, especially as he did not suffer much from his disease.

In June, having heard of the success of two of the above operations, he came back to the hospital for the purpose of having one performed upon himself.

Operation.—A sound was passed down as far as the stricture, an incision made upon it, and its point reached deep in the perineum. No traces of the urethra beyond could be discovered by the most careful manipulation. He was, therefore, allowed to recover partially from the effects of the ether, and to make an effort to void his urine. An incision was now made in the direction of the neck of the bladder, and a female catheter introduced as a guide, which was replaced by a No. 8 elastic catheter. The parts were very vascular, and the steps of the operation, which lasted over an hour, much obscured by blood.

Not the slightest unfavorable symptom followed; but at the end of the week, when it was necessary to replace the catheter, it was found to be a matter of much difficulty to do so, the end of the instrument escaping into the rectum. This was, however, finally effected both at that time, and afterwards, by hooking the beak of the instrument against the pubes, and then, instead of trying to force it forwards,
the handle was suddenly depressed, and it slipped into the bladder. Carried forwards in the ordinary way, it always went into the rectum.

On the 27th, it was recorded that all the urine was discharged by the catheter, although there was purulent discharge through the fistulous opening near the rectum, and occasionally from the rectum itself. The patient remained in the hospital rather more than two months, when he left, and has since been seen well.—Am. Jour. Med. Sciences.

A Paper on the Treatment of Constitutional Syphilis by repeated Inoculations with the virus of Chancres. Read before the German Medical Society of Paris, by Dr. Mansuroff, of Moscow.

Syphilization, instituted by Auzias-Turenne, proposed by him in the first stage as a prophylactic means for syphilis, and applied to the treatment of constitutional syphilis first by M. Sperino, and then by MM. Boeck, Sigmund, Stelberg, Danielsen, Hebra and others, is a great fact, whose importance has attracted the attention of the learned world; but in the present state of science, ought this discovery to be adopted? or, ought it to be rejected even as a method of treatment for constitutional syphilis? This is an important question for science and humanity, which will be very soon settled in a definite manner by the learned of all countries. The large number of cases which have been carefully studied for several years at Turin, Christiana, Stockholm, Vienna, Berguen, Pesth and elsewhere, the scientific authority and the well known honorable position of the physicians who have studied this question, and the attention which I have given it for five months at Vienna and eleven months at Turin, authorize me to give in this paper a short account of my convictions and my observations, which will be published some time hence in an extended work, and which, I will say in advance, will be favorable to syphilization as a curative method for constitutional syphilis.

1. MM. Sperino and Boeck, who have observed and published a great number of cases, have established the three following propositions: (a.) The repeated inoculation of
chancrous virus produces immunity; (b.) The symptoms of constitutional syphilis disappear under the influence of the inoculation; (c.) Syphilization acts in a beneficial manner on the health of the patients. These three propositions form the basis of syphilization; and a certain number of observed cases have convinced me that they cannot be contested whenever syphilization has been practiced regularly. Thus, I have seen that in general after twenty or thirty days the symptoms of constitutional syphilis began to disappear; and that after two, three, or four months, and rarely more, the cure of the patient takes place. The time varies according to the individuals, the gravity of the disease, and the previous mercurial treatment which they have submitted to, etc.

2. As to syphilization as a prophylactic means in a healthy man, it has never been practiced by MM. Sperino and Boeck; and since the year 1852, it has even been abandoned by M. Auzias-Turenne, who practiced it in some cases affected with chancres. The absolute immunity procured by the inoculations is, besides, very transient. After some years, and even in some exceptional cases, after some months, the patient loses in part his immunity, although the cure of the constitutional syphilis continues; and the relapses, or rather the cases of incomplete cure, have been cured easily by a small number of new inoculations, although these individuals are with difficulty inoculated. Consequently, if time proves that syphilization prevents the relapse of constitutional syphilis, as my observations lead me to hope, it is easy to foresee the future of this new treatment.

3. If after some inoculations we interrupt the treatment for several days, we see new syphilitic accidents supervene, or those which already exist to become aggravated; but both disappear very soon, if we resume the inoculations and repeat them until immunity is established. The production of chancre being the essential condition of syphilization, we may favor its evolution in mercurialized persons by a small dose of iodide of potas., which, however, may be replaced by other means.

4. Before and during the treatment, we must remove all causes susceptible of producing an inflammatory complication. If these supervene, the artificial chancres may become inflamed and assume a certain gravity, especially with persons who have already been treated with mercurials.
Hence it is sometimes necessary to give a purgative, some baths and mucilaginous drinks before or during the syphilization.

5. Observation has demonstrated that the more recent and the oldest forms of constitutional syphilis may be cured by syphilization. Among these forms I can count several cases of affection of the bones of the cranium and extremities, affections of the nails and cellular tissue, etc. In these grave cases, when the organism presents but a feeble reaction to the inoculations, we employ sometimes the iodide of potas., which we know is a good remedy in mercurialism, and favors the development of the inoculated ulcers. In less grave cases—the syphilides, for example—the effect of the iodide potas. was ineffective or injurious, because it favored the explosion of affections of the skin.

6. From all the facts known at the present time, it results that the relapses after syphilization do not exceed five in one hundred, whilst the relapses after the mercurial treatment have been observed in one-third or one-half of the patients (Boeck). The relapses after syphilization ordinarily present themselves in light forms, which are cured in a very short time by some inoculations.

7. The age and sex of the patients do not constitute any contra-indication for the treatment of constitutional syphilis by means of inoculation. Prof. Boeck cured children of eight weeks as well as old persons of sixty-seven years of age. The experiments of Prof. Sperino were made almost exclusively on women, and demonstrate that the uterine functions were not disturbed by the treatment. On the contrary, with the improvement of the general condition the patients were cured of the syphilitic anaemia and of amenorrhoea. As to children affected with hereditary syphilis, they died often in spite of the syphilization and every other treatment (Boeck).

8. The health of the patients, improved during the treatment, continued after the cure, which encouraged MM. Sperino and Boeck to continue their studies. The patients are neither exposed to the dangers of mercurial or iodic intoxication, nor to their consequences; they do not carry mercury in their bodies or viscera during four months, or even longer, after the treatment (Gorup-Bezanez, Michaelis, Schroder Van der Kolk, Kletzinsky, etc.

9. It is only the practical study which can convince as to its curative value. It is also the general opinion of the celebrated Professors MM. Oppolzer, Hebra and Sigmund, that syphilization ought to be studied practically before judging
of its therapeutical value, and its applicability to the different cases of constitutional syphilis. Besides the opinions emitted in France and Italy on syphilization, we have read also the opinions, more or less differing, of M.M. Behrend, Huron, Von Baerensprung, Michaelis, Simon, Sigmund, Herrman, Kalischer, and others; we have also read the classical works of the learned Professors Boeck and Sperino. These works, and the large number of cases observed clinically in the hospitals of Turin and Vienna, as also in the private practice of M. Sperino, have afforded me advantages to study syphilization, and to form a decided opinion of this new method of treatment. And when we think that there are physicians who never employ mercury, and apply syphilization at all times when they judge it necessary (M.M. Boeck, at Christiana, Baumann, at Lillehammel and Wildagen, at Drammen), we can conceive then that this treatment has solid basis, although its practical importance has not yet undergone all the improvements of which it is susceptible.

10. It is useless to say that syphilization has inaugurated a reform in syphilology, and that this reform has been accomplished by the study of pathological physiology. "Syphilization proves to us by evidence," says Michaelis (Compend. Wien, 1859, p. 345) "that syphilis is a disease which is cured alone by the powers of nature; and if the physician succeeds in transforming the chronic syphilitic affection into an acute exanthematic affection, syphilization becomes a benefit to the patient; for it places him in the way of a natural cure (naturheibung), and spares him any depressing treatment whatever." These words were written by a learned man who defends mercury, and who judges severely syphilization after having tried it with success. His opinion differs, then, from the indulgent opinions of the recent anti-mercurialists.

As the results and the facts of these observations cannot be explained in a more detailed manner in this paper, I will confine myself to name only the programme which I will follow later in my description. I will describe the methods of syphilization, the indications and the contra-indications, its process, the local effects of indurated chancrous inoculations, non-indurated chancrens (or pustules), abortive, negative inoculations, the immunity, the effects of syphilization on the organism attacked with syphilis, but not suffering from concomitant diseases; on chancre bubo, and the syphilization; upon nutrition, etc. Then will follow the effects of constitutional syphilis on the organism attacked with syphilis, and suffering from accidental diseases—as fevers, catarrh, rheumatism, anaemia,
On the Action of Cannabis Indica.

On the action of the Cannabis Indica, (Indian Hemp,) Dr. Charles A. Lee uses the following language in the Journal of Materia Medica.

"The action of hemp on man is so various that when we read the several descriptions given, differing so widely, we would scarcely suppose we were considering the same agent; but it is, perhaps, no less remarkable than the every day exhibitions we witness of alcohol, with which, being more familiar, we give less attention. The great variety of phenomena presented in the use of the latter, according to the natural disposition or temperament of the person, and the condition of the mind, as well as to the quantity, alternately elevating or depressing in its effect, or producing the extreme of kind or brutal emotions, can, to a certain extent, be observed in the other.

"The mental phenomenon upon a subject possessing an imaginative faculty in a high degree, when fully developed is exceedingly interesting and curious. One writer describes it as follows: 'When it first begins to act, the effects of the Haschisch may be considerably diminished, or altogether checked by a firm exertion of the will. By degrees, however, the power of controlling at will and directing the thoughts diminishes, till finally all power of fixing the attention is lost, and the mind becomes the sport of every idea which arises within itself or is forced upon it from
without. We become the sport of impressions of every kind. The course of our ideas may be broken by the slightest cause. We are turned, so to speak, by every wind. By a word or a gesture our thoughts may be successfully directed to a multitude of different subjects with a rapidity and lucidity which are truly marvelous. The mind becomes possessed with a feeling of pride corresponding to the exaltation of its faculties, which it is conscious it had increased in energy and power. The slightest impulse carries it along.

"The errors of perception in regard to time and place, to which the person is liable during the period of fantasia, are remarkable. Minutes seem hours and hours are prolonged into years, till at last all idea of time seems obliterated, and the past and present are confounded together.

"M. Aubert describes the influence upon him in the following language: 'I was engaged in conversation when I felt a prickling sensation in my feet, and in my head a stricture which gave way suddenly and my skull seemed empty. Every object wore a new aspect; my companion's face assumed a grotesque expression; I burst out laughing and continued to laugh for almost an hour. The merest trifle renewed my mirth. Meanwhile the most varied and whimsical ideas coursed swiftly through my mind. I experienced the most perfect sense of comfort. For me there was no longer past, present or future; the fleeting moment limited my whole existence. Then followed a calm, and sleep stole over me. The whole night was but one long, delightful dream. On awaking, I remembered perfectly all that had taken place, and my head was not heavy nor my mouth dry, as it would have been after a debauch in opium or wine.'

"Dr. Christian relates the following concerning hemp: 'On trying Mr. Robertson's extract once for toothache, I found that about four grains taken about 3 a. m. caused in an hour cessation of pain, a pleasant numbness of the limbs, giddiness, a rapid succession of unassociated ideas, and impossibility to follow a train of thought, frequent interval of sleep, and slight increase in the force of the pulse. Next morning there was an ordinary appetite, much torpidity, great defect and shortness of memory, extreme apparent protraction of time, but no peculiarity of articulation or other effect; and these symptoms lasted until 2 P. M. when they ceased entirely in a few minutes after taking lemon-
ade. On another occasion I took one grain of the extract dissolved in spirit. I felt a peculiar numbness creeping through my body and limbs. On lying down the numbness continued but in fifteen minutes my sensations became agreeable. I laughed heartily several times, answered questions incoherently, and immediately forgot what they were about and what I had answered. Delightful reveries came over me, and whatever I looked at became lost, as it wore, in amaze; the lamp appeared to be slowly turning round, and when I lost sight of this the red lines on the paper of the room appeared to intertwine in a most beautiful manner. The most remarkable effect was the constant succession of new ideas, each of which was almost instantly forgotten. When roused to tea I ate ravenously without feeling satisfied. I slept soundly at night, afterwards, and the night day was stupid and forgetful, but was much improved by drinking lemon juice.

"Dr. O'Shaughnessy describes a singular form of insanity occasioned by an incautious use of the hemp, and which is as singular as the delirium tremens by the prolonged use of spirituous liquors. He says it is at once recognised by the strange balancing gait of the patient, a constant rubbing of the hands, perpetual giggling, and a propensity to caress and chafe the feet of all bystanders, of whatever rank. The eye wears an expression of cunning and merriment which can scarcely be mistaken. In a few cases the patients are violent; in many highly aphrodisic, in all that we have seen voraciously hungry; there is no increased frequency of circulation, or any appearance of inflammation or congestion, and the skin and general functions are in a natural state.

"Dr. Hooke in his paper upon Indian hemp in 1689, notices the various odd tricks shown by persons while under the influence of this plant, and says that when this condition subsides the patient finds himself mightily refreshed and exceedingly hungry.

"As an anaesthetic it relieves pain, and may be employed as an anodyne. Mr. Donovan found that under its influence his sense of touch and feeling gradually became obtuse, until at length he lost all feeling unless he pinched his arm severely.

"In larger doses it produces a cataleptic condition, in which the muscles are moderately contracted, but flexible and pliant, and the limbs retain any position or attitude
in which they may be placed. Dr. O'Shaugnessy gives an interesting case of this kind.

"It does not appear to affect the secretions much. The testimony is strongly in favor of its increasing the appetite and very little that it causes nausea. It neither causes dryness of the tongue nor constipation of the bowels; and its effect upon the bronchial secretions is beneficial than otherwise.

"Its habitual use is said, by Dr. Stille, to produce consequences no less mischievous than are produced by alcohol, and opium; the face becomes bloated, the eyes injected, the limbs weak and tremulous, the mind sinks into a state of imbecility, and death by marasmus is the ultimate penalty for the overstrained pleasure it imparts. We are not acquainted with any case of death directly resulting from the poisonous action of cannabis; but several are recorded which illustrate its effects in excessive doses.

"We shall now consider as briefly as possible the diseases for which it has been employed, under their several heads.

"Tetanus.—Dr. Christian states that Dr. O'Shaughnessy treated several cases of tetanus with apparent success. In one, ascribed to cauterization of the hand by a quack mixture of incandescent charcoal and tobacco, a state of intoxication was excited by large doses of the extract of hemp, and the spams were gradually put an end to; but death ensued in the end from mortification of the hand. Another patient consumed one hundred and thirty-four grains of the extract, and was ultimately discharged from the hospital cured. A third case with similar results is detailed. At the Native Hospital in Calcutta, Mr. O'Brien treated seven cases of tetanus, and in four of them he employed ten grain doses. The result was almost immediate relaxation of the muscles, and interruption of the convulsive tendency. Four of these cases recovered. A case in the practice of Mr. Richard O'Shaughnessy is also detailed, where the disease was connected with suppurating wounds of the scrotum. The hemp had no effect for four days, and then the patient became tranquil, with fewer paroxysms and the appetite good. When the hemp was intermitted the symptoms became aggravated; latterly the hemp caused much excitement and was therefore discontinued. The last case is one of infantile convulsions, where very large doses were given, and where the narcotic action greatly relieved
the symptoms. The child recovered. This gentleman is confident that the resin is capable of arresting the progress of tetanus, and thus in a large proportion of cases, it will cure the disease.

It would certainly appear from the above facts, that Indian hemp has proved of service in the treatment of tetanus, as it occurs in India. How far this result has been obtained in Europe I shall now describe.

That I may not extend my observations to too great a length, I shall limit my remarks to the treatment of tetanus, as observed in cases in private practice, and in the Edinburgh Royal Infirmary.

Professor Miller has provided me with the following remarks:

"My own experience speaks loudly in favor of the hemp. I can now record three fortunate cases under its use—all traumatic tetanus—and a case which proved fatal, but where great alleviation of suffering was produced.

"The first of these was a girl, aged seven, admitted to the Royal Infirmary, Oct. 18, 1844. She had received an extensive injury of the middle finger of the right hand a fortnight previously. Inflammatory swelling and pain became intense, and there was a tendency to spasmatic flexion of the fingers and wrist. On the 23d she was observed by the nurse to take a kind of fit, becoming rigid, having difficulty in opening the mouth and in swallowing, and complaining of pain in the jaws. At visit she seemed perfectly well. A brisk purge was ordered, and lest the case should prove tetanus, ten drops of tincture of hemp were prescribed to be taken every four hours. Next day the symptoms were well marked without any influence from the hemp. The finger was then removed and the simplest dressing applied to the wound. The dose of hemp was increased to twenty drops, and after five doses she slept, but the following day the symptoms were aggravated. Turpentine enema was ordered and ice to the spine—thirty drops of cannabis to be given hourly. In the evening there was rigidity but no spasm; the hemp to be given every half hour; after which she became drowsy, and at twelve o'clock next day she was much improved. Aconite was now substituted; but as the spasmotic attacks became more severe hemp was again given with the effect of producing sleep. She continued to improve till the 25th November, the dose of hemp being gradually reduced; producing, when given,
drowsiness or calm sleep; it was soon discontinued, as it then seemed to excite the circulation. Throughout the whole period of its use, its effect was most obvious, the craving for food being at times absolutely voracious. After this no more medicine was given and recovery was complete.

"The second case, occurring in private practice was that of a boy, about the same age, who had simple fracture of the thigh, with compound and comminuted fracture of the great toe. The treatment and result were the same.

The third was a boy rather old, who had compound fracture of the bones of the arm. Treatment again resulted in cure.

In these cases a few doses generally induced sleep, with marked mitigation of the spasms. The period of narcotism did not exceed two or three hours, the sleep was deep, and unbroken, and seemed to be refreshing. It was followed by no headache, or other apparent inconvenience. The most remarkable effect observed was the tolerance of the remedy, whereby a girl, aged seven, took every half hour, and sometimes many hours in succession, doses of hemp sufficient to narcotise an adult.

"In these cases Mr. Miller is inclined to give the hemp credit for a chief share in the cure.

In 1846 the virtues of hemp were tested in a case of tetanus in the Royal Infirmary, in the wards of Mr. Duncan. In 1847 another case presented itself where hemp was administered. At that time sulphuric ether was much used as an anaesthetic, and it was thought probable that it would be of service in this case. The patient inhaled it at frequent intervals during a whole afternoon, with decided but only temporary relief. After this cannabis was given, without its physiological action being attained by nearly an ounce and a half of the tincture; it was not persevered with. Ether was again tried, and also opiates with some benefit. The patient died on the thirteenth day.

"The first of these cases was very accurately observed, and the following report of the case from the journal will be found to have considerable interest.

"James Mackay, a railway laborer, was admitted under the care of Dr. Duncan, October 20, 1846. He had received a slight lacerated wound of the hand a week before, and tetanus had commenced on his admission. The wound appeared to be healing. He complained of great uneasiness particularly about the neck and spine, of some rigidity of
the jaws, which could only be separated three quarters of an inch, of inability to protrude the tongue, and of commencing spasm of the neck and upper part of the back. He complained also of a burning about the heart. His expression was anxious with but little 'risus.' His thirst was great but swallowing difficult. He perspired profusely. The spasms of short duration, recurred once or twice every minute; pulse, one hundred and fifteen to one hundred and twenty, soft. Opening medicines were ordered, and at 11 o'clock tincture of hemp was given, repeated in doses of fifteen to twenty drops with appreciable effect. On the 21st the bowels were not opened, though a turpentine enema was administered. The spasms were more violent and general, and a touch caused general spasm. He had not slept. One hundred and twenty to one hundred and forty drops had no effect. The doses were increased to sixty or eighty drops every three quarters of an hour, and croton oil was given producing free action of the bowels, and in the evening the spasms abated, but the hemp caused only slight dozing at intervals. The tincture was ordered to be continued and strong beef tea to be drunk.

"On the 22d swallowing was easier, the spasms less violent, but not less frequent; one hundred drops were given at half past eleven, and continued about every half hour till four o'clock, when drowsiness was quite decided, he was not easily roused, even by the spasms, which though as frequent, were not so intense. At nine o'clock drowsiness was passing off; copious stools, colored as by the medicine, were brought away by injection; one hundred and thirty drops were given, and repeated at midnight, at which time he was much relieved, but suffered from cough. On the 23d the spasms were again gaining strength, no hemp having been given for nine hours. A drachm of the tincture was given and repeated at eleven, when he became quiet. The doses were continued till evening, when he took mince collops and beef-tea without difficulty, and the bowels were copiously relieved.

"On the 24th, at visit, the spasms were absent, but the chest symptoms were worse, with general mucous rale, and frothy sputa mixed with blood. Drowsiness had been kept up by doses of a drachm to a drachm and a half. In the evening he was much weaker, but quite sensible, with a desire for food. On the 25th he was perfectly free from spasm, but was evidently dying from accumulation of mu-
in the chest. Very little hemp was given. He died at 8 P. M.

"In this case six ounces of O'Shaughnessy's tincture of Indian hemp were given in all, being equal to one hundred and forty grains of the extract. The extract for the tincture was reputed the best in Edinburgh. The doses at first were evidently too small. The examination of the body was not permitted.

"It is a safe conclusion from these facts, that Indian hemp deserves further trial in the tetanus of Europe, as well as in that of hot climates. I would particularly urge however the necessity in all such trials of making certain by experiment on healthy persons, that the preparation to be used is good. For the present there is no other satisfactory test of quality."—Med. & Surg. Reporter.

Conservative Amputations through the Foot and Ankle

The probability of the occurrence, to military surgeons, of frequent occasions for amputations through the foot and ankle, gives the following appreciation of the operations of Syme and Pirigoff, an importance at this time.

The correspondent of the Medical Times and Gazette from Bonn, Switzerland, says, "that Professor Weber has recently given us a statistical comparison of the different amputations which are performed in the neighborhood of the ankle joint, and which may be of some interest to your readers. The cases brought together have been collected from the German, English and French Hospital Reports. As regards Syme's operation, much preparatory work to this had been done in the valuable work of Professor Gunther, of Leipzig: 'Lehre von den Blutigen Operationen,' (A Treatise on Bloody Operations,) to which numerous plates are added; and there is also a well written these on the results of Pirigoff's amputation by Dr. H. Kestner, of Strasburg, which appeared in 1857, and in which twenty-two cases have been collected. Altogether, 216 amputations have been published. Of these, 34 were made close above the malleoli, 101 according to Syme, with anterior flap, 40 according to Pirigoff, 8 below the astragalus, at first by Textor, later by Malgaigne, 21 according to Chopart. From these returns, it appears that the amputation, close above the malleoli and Chopart's method give the most favor-
able results as to mortality. In the first only three per cent. died; the amputations according to Syme and Pirigoff gave equal results, as 15 per cent died by each of these methods. In the operation according to Baudens, 33 per cent. died, while the operation of Textor and Malgaigne, below the astragalus, shows only one death in 8 cases. This seems certainly to speak in favor of the amputation above the malleoli, to which so many objections have been made; but, perhaps, a larger number of cases might give a different result. In the fatal cases operated upon according to Syme and Pirigoff, death was mostly due to gangrene of the heel having supervened; this is still more frequent if the flap is formed from the thin skin at the back of the foot, as is done in Bauden's operation. In Pirigoff's amputation, the number of cases in which gangrene was induced, amounted to 12, in Syme's to 20, in Bauden's to 25 per cent. Independently of this, however, the first mentioned operations yield exceedingly favorable results; the stumps are always useful, and there is only one case known of Syme's operation in which the stump was so painful as to prevent walking; and only one case of Pirigoff's in which caries recurred, and a subsequent amputation became necessary. In this respect, the results are much more unfavorable in the amputation above the malleoli. The circular incision, even if a large cuff should be formed, is not nearly so good as the formation of a flap, especially if the latter is made posteriorly and sufficiently large. The complaint that a conical stump is generally the result of this operation, is of less moment than the continuous exulceration of the cicatrix which is apt to ensue; and in some cases it has even been necessary, in consequence of such an occurrence, to amputate the stump again. Some time ago, a patient who was under the care of Professor Busch, of this University, and in whom both legs had been amputated close above the malleoli, was obliged to undergo amputation at the place of election on that account, which was successfully done. Amputation above the malleoli shows about 25 per cent. of unfavorable results; and the number of such is just as great after Chopart's operation; although in this town a number of successfully performed operations, according to Chopart, have lately occurred in the practice of Professors Wutzer and Weber.

The question, What is the cause of the drawing up of the heel? has been much discussed; and M. Szymanowsky has recently sought the reason of it in the form of the astragalus, which is narrower on the back than in front, and which is, therefore, driven forward and out of the niche between the
malleoli; but the mere retraction of the tendon of Achilles does not seem to be a sufficient reason, as M. Verneuil has in several cases, in which he made an anatomical examination of the stump, found this tendon quite relaxed. The best means to prevent the drawing up of the heel, seems to be a union of the tendons of the back of the foot and the plantar flap; and in order to effect this, the latter ought to be made as large as possible, and the tendons ought to be left as long as possible.

"As the time which is required for the cure has, in many cases, some influence upon the choice of the method, and is especially to be considered in amputations made during war, I may mention that Professor Weber has found that the cases of Syme's and Pirogoff's operation in which the cure took less than a month, were far more numerous than such of amputation above the malleoli. Of this latter and of Chopart's operation, only 27 per cent. were cured in less than a month; but of Pirogoff's and Syme's more than 40 per cent. This circumstance, of course, does not absolutely decide the question; and the most important point will always be the complete removal of all diseased and the preservation of all healthy parts—a principle the correctness of which cannot be denied by even the most conservative surgeons.

"I conclude with a few remarks upon the method of operating in Pirogoff's amputation. During the last year a controversy took place in the columns of one of your London contemporaries, between Professor Pirrie, of Aberdeen, and Mr. Watson, as to which of them had first made this amputation without previous disarticulation of the astragulus. I believe that both these gentlemen were led to the idea of simplifying the operation independently of each other; but I may remark that before either of them, Dr. Schultz, formerly assistant to Professor Pirogoff, had, in 1854, recommended that the calcaneus should be sawn through from below, to avoid disarticulation. No doubt it is more difficult in this operation to preserve the A. tibialis postica, which is of the greatest importance, as the nutrition of the flap depends upon it; and I may also say that, in case the calcaneus should, contrary to what had been expected, prove to be entirely diseased, a subsequent disarticulation of the process would be attended with great difficulties; and it is always advisable that the surgeon should reserve to himself the possibility of eventually performing Syme's operation. The modification alluded to has, therefore, not met with much encouragement in Germany. Whether the tendon of Achilles ought to be cut through, and
whether the sawing should be more or less oblique, must depend upon the rigidity or softness of the surrounding parts, which are often much infiltrated. If such is not the case it is not difficult to put the sawed surfaces together; otherwise the means just alluded to must be employed. That the bones sawed through should be closely adapted to each other, is of the utmost importance for a rapid union; and this is the reason why some surgeons (for instance, Professor Langenbeck, of Berlin) have even united the bones by means of silver wires. But this is not often necessary. I hope that this communication may assist in setting aside some of the prejudices which still prevail with many surgeons in your country regarding Syme's and Pirigoff's amputations, which yet have not been so extensively tried as they deserve."—Medical & Surgical Reporter.

The Treatment of Tetanus.

Dr. Hutchinson, of London, after the consideration of a statistical table of a large number of cases of tetanus, occurring in the London hospitals, concludes with the following memoranda as to the management of the disease. We quote from the Medical Times and Gazette:

1. The chief objects in view are three—to mitigate the force of the local irritation to which the disease is due; to sustain the patient's strength by food; and lastly, by procuring sleep, to allow the nervous system the opportunity of regaining its wasted powers.

2. If the case be seen in the very onset, and if the injured part be a finger or toe, it is desirable at once to amputate, whatever may be the local condition. If the injury has been severe, and the part have passed into a state in which, whether from sloughing or otherwise, its recovery is doubtful, it is desirable to amputate at any stage of the disease, or even if one of the extremities be the part involved.

3. The injured part should be poulticed, and the limb above it wrapped in lint soaked in laudanum and chloroform.

4. The patient should be put in a room with but one attendant, and the strictest quietude should be insisted on.
5. If the patient has been accustomed to it, he should be allowed to smoke.

6. The bowels should be well cleared out by croton oil, or other efficient purgative.

7. If the skin be very hot, the pulse jerking, and the tongue red and dryish, the surgeon may be justified in combining small doses of calomel with the narcotic he may have selected for employment.

8. A free allowance of beef tea, milk, eggs, and similar articles of concentrated fluid nutriment should be given, more especially in the later stages of the complaint.

9. As long as the patient is able to take food and to obtain periods of comparative quiet and freedom from pain, the use of anaesthetic inhalations is not desirable. Great advantages may, however, be obtained from them if he be unable to open the jaw sufficiently to permit of taking food or if the tetanic spasms are without remission. Ether appears to have stronger facts in its recommendation than chloroform.

10. One or other form of narcotic—opium, Indian hemp, belladonna, or woorara—should be used. There is not very decisive evidence as to the advantage of any one of these over the others. Respecting the Indian hemp and the woorara, the difficulty often encountered in obtaining them in a state of reliable activity will often be an obstacle to their employment.

11. Excepting, possibly, in the per-acute cases, the free use of quinine appears to be desirable. If given in large doses it generally reduces the frequency of the pulse, and in some cases a mitigation of the tendency to spasm has attended its influence. The rapid induction of cinchonism is a measure well worthy of a fair trial.—Ibid.

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On the Use of Warm or Luke-warm Fomentations in certain Ophthalmiae.

Von Graefe reaches the following conclusions on the above subject. We quote from the London Ophthalmic Hospital Reports:

"To sum up. 'The methodical application of warm fomentations assists materially in bringing about the desired
demarcation in all the non-irritative purulent infiltrations of the cornea, which shows a tendency to spread circumferentially.

"Warm fomentations are most serviceable in those cases in which, after an accident or an operation, a circumscribed corneal infiltration shows itself where very violent pain does not yield to one or two applications of leeches, where the customary cold applications, either do not alleviate at all or only temporarily, and where finally a circumscribed portion in the infiltration becomes yellowish discolored. After the fomentations have been applied for twelve to twenty-four hours, there will generally be a diminution in the irritation, and the process on the cornea begin to be circumscribed; when the desired effect has been attained, we must cease their application.

"In those cases of malignant ulcers of the cornea, in which there is but little tendency to formation of pus, but a tendency to progressive destruction of the cornea, not only in depth but in circumference.

"In the diffuse suppurations of the cornea, which sometimes unfortunately threaten or occur after extraction, Von Graefe has found them here of great advantage, particularly in old decrepit people, in whom, after passing eighteen to twenty-four hours without the slightest pain, we notice much swelling of the upper lid and a too great conjunctival secretion. If these symptoms are not due to an inaccurate adaptation of the corneal flap, (for which compresses are the best remedy,) he applies warm fomentations periodically, and paints tincture of iodine on the lids.

"But although we cannot expect much good even from their application, when there is a plentiful thin secretion from the conjunctiva, serous chemosis, yellow hue of the whole of the cornea, and a more or less circumscribed abscess, we yet find that they will limit these processes to the anterior portion of the eye-ball, and thus spare the patient the frightful sufferings of panophthalmitis.

"They are also useful in any obstinate cases of granulations, with or without pannus, for it is a well known fact under these circumstances, a certain amount of conjunctival swelling is very propitious. Von Graefe thinks that the spontaneous curability of acute granulations (which often require but little, if any, therapeutic aid) depends on this. Whereas, on the other hand, we find that the less conjunctival hyperemia there is, particularly during the stage of
development, the more do the granulations develop themselves and attain the type of the so-called trachom granules. It has been lately shown, particularly in Belgium, that the development of a diffuse hyperæmia of the conjunctiva brought about by inoculation, not only exerts a most beneficial influence upon secondary pannus, but also upon the acute granulations. The curative effect of the periodical application of sulphate of copper is similar in nature. And the same is the case with warm fomentations, which remedy links itself on to the treatment by inoculation, and although it cannot supplant this remedy in all cases, it yet has the great advantage of being free from any danger. This is of the more importance in Berlin, where, owing most likely to the climate, diptheritic inflammation often supervenes on the inoculation of blennorrhæa.

"Finally, having observed that patients suffering from the very obstinate diffuse non-vascular form of keratitis, have been surprisingly quickly cured, if they, perchance, have been infected with conjunctivitis, Von Graefe has tried the warm fomentations in some of the cases with good effect. At present, however, his observations have been too few to warrant any very decisive opinion on their efficacy."—Ibid.

Dr. Wm. V. Keating has been elected to fill the chair recently vacated by the resignation of Dr. Ch. D. Meigs, in the Jefferson Medical College at Philadelphia.

The Legislature of Louisiana has enacted that no one shall hereafter be permitted to practice Medicine in that State unless he be a graduate of some respectable Medical Institution.