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ORIGINAL AND ECLECTIC.

ARTICLE XVIII.

*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 Circinata* (*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



Dr. Benjamin Rush, of Dr. I. T. Young, of Governor Clayton, of Drs. Barton, Bigelow and Eberle—great value as an antiperiodic.

*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*.)

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*Umbrella Tree* (*Magnolia tripetala*.)

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*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 quinquefolia*.)

*Thorough Wort*. (*Eupatorium perfoliatum*)—Botanical description—geographical distribution—chemical composition—examination of Drs. Anderson and Bigelow—discovery of a salifiable base in, by Mr. J. Scattergood. Medical properties and uses—the Indians acquainted with its uses—use of by early settlers—testimony of Drs. Chapman, Wood, Anderson, Hosack, Baird, Eberle, Ives, Bigelow and others. Dose, and mode of administration.

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.



## GEORGIA 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 the corolla, longer than the tube. Anthers incumbent, two celled. Germ turbinate. Style 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

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\*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 (*Mylocarum ligustrinum* Pursh,) several species of *Andromeda*, (*Andromeda angustifolia* Pursh, *A. Catesbæi*, Walt. *A. acuminata*,) *Hypericum fasciculatum*, Poison bush, (*Rhus vernix*,) Tupelo (*Nyssa aquatica* and *N. grandidentata*), Black Gum, (*Nyssa sylvatica*), Red Maple, (*Acer rubrum*), Cypress (*Cupressus desticha*,) Small Magnolia or White Bay, (*Magnolia glauca*), Loblolly Bay, (*Gordonia lasyanthus*), Red Bay, (*Laurus Caroliniensis*,) Sweet Gum, (*Liquidambar styraciflua*) and Water Oak, (*Quercus aquatica*.) The branches which intersect 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 partake 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 employed 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.

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\*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  $\mathfrak{z}\text{i}$  at a dose, after the custom of the West Indian physicians.

This bark may be administered in powder, in doses varying from  $\mathfrak{z}\text{i}$  to  $\mathfrak{z}\text{i}$ , 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; involucre large, obovate; 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. Involucre four-leaved; leaves large, obovate, 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-

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\*North American, Sylva, vol 1, p. 181, Philad. 1857.



ments are inserted. Stigma capitate. Drupe red. Flowers March. April.—Elliott. Sketch of Botany of South-Carolina and Georgia, vol. 1, pp. 207–208.

*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 Catesbæi*,) 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 Linnæus, &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*,

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\* 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.

† Essays on some of the most important articles of the *Materia Medica* &c. By G. W. Carpenter. Philadelphia, 1804, p. 202.



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

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\* Philadelphia. *Journal Medical and Physical Sciences*, xl.

† A Manual of *Materia Medica* and Pharmacy, comprising a concise description of the articles used in Medicine by H. M. Edwards, M. D. and P. Vavasseur, M. D. Translated from the French by Joseph Tongo, M. D. and E. Durand, Philad. 1829.



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 reddened 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 etherial 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 ℥viij 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 etherial 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 ℥iiss 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*.

1, Gum; 2, Resin; 3, Tannin; 4, Gallic Acid; 5, Oil; 6, Fatty Matter; 7, a Crystalline substance; 8, Bitter Extractive; 9, Wax; 10, red coloring matter; 11, Lignin; 12, Potassa; 13, Iron. To which may be added, Salts of Lime and Magnesia.—*Cornus Florida*, by James Cockburn, Jr. Extract from Thesis. Phil. Coll. of Pharm. American Journal of Pharmacy, July 1835, new series, vol. 1, pp. 109–114.

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. Macerate 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.



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 Carthagera 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 ʒij, 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-



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 intermittents. It forms a beautiful tincture 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 TULIPIFERA*.) LINN.

*Botanical Characters*.—Calyx three-leaved. Petals 6. Capsules (*Samaræ*) 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  $45^{\circ}$ , may be considered as the northern limit, and the Connecticut river, in the longitude of  $72^{\circ}$  as the eastern limit of the Tulip tree. It is only beyond the Hudson which flows two degrees further west, and below  $43^{\circ}$  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.

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\*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

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† Vol. ii. p. 40.

\* Transactions of the College of Physicians of Philad. 1798.

† Carey's American Museum, vol. 12.



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 primæ viæ, 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, gangrenes, 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,  $\mathfrak{zss}$  to  $\mathfrak{zij}$ . The infusion  $\mathfrak{i}\mathfrak{ss}$  of powdered bark to one pint of water, may be administered  $\mathfrak{f}\mathfrak{z}\mathfrak{i}$  to  $\mathfrak{f}\mathfrak{z}\mathfrak{ij}$ ., and the saturated tincture in the dose of  $\mathfrak{f}\mathfrak{z}\mathfrak{i}$ .

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 *Liriodendrine*.

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.

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\* A Treatise on Materia Medica and Therapeutics, by John Eberle, M. D. Philadelphia, 1830. Vol. 1, p. 282.

† American Medical Botany, &c. Philadelphia, by Jacob Bigelow, M. D. Boston, 1818. Vol. 11, 112.

‡ Thacher's Dispensatory.



SMALL MAGNOLIA OR SWEET BAY, (MAGNOLIA  
GLAUCA.) LINN.

*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 maritime 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

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\* 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

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\* *American Journal of Pharmacy*, vol. xiv, p. 95.



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  $\text{f}\overline{3}$  to  $\text{f}\overline{3}\text{ij}$ , 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 TRIPE-*  
*TALA*,) 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*



*Glauca*, 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 Glauca*. 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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\*On the use of the unripe fruit of the *Diospyros Virginiana*, as a therapeutic agent. By John P. Mettauer, M. D., of Virginia. *The American Journal of Med. Sci.* October, 1842, p 297. *Amer. Jour. Pharm.* xii, p 161. Woodhouse, Inaug. Diss.

† Dr. B. S. Barton's Collections. 11.



## VIRGINIA SNAKEROOT, (ARISTOLOCHIA SERPENTARIA.) LINN.

*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 :

Volatile Oil,	-	-	-	-	0.50
Greenish-yellow soft resin,	-	-	-	-	2.85
Extractive matter,	-	-	-	-	1.70
Gummy Extractive,	-	-	-	-	18.10
Lignin,	-	-	-	-	62.40
Water,	-	-	-	-	14.45
					100.00

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 *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 *sulphate* crystallizes in quadrangular prisms, terminated in inclined facets. The *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.

*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-

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\*Manual of Materia Medica, by H. M. Edwards and P. Vavasseur, M. D. Translated by J. Tongo, M. D., and E. Durand, p 188. Philad. 1829.



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."\*

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\* Elements of Therapeutics and Materia Medica. By N. Chapman, M. D. &c. Philad. 1822, vol. ii, pp. 432-435.



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-



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 intermittents. 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 conjoined 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 Pharmacopœias, 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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\*A Treatise on Therapeutics and Pharmacology, or Materia Medica, by George B. Wood, M. D., &c. Philadelphia, 1856, vol. 1, p 302.

†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 snake-root 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 morbid 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:

R.—Pulv. serpentariæ;  
Magnes. albi aa gr. xvi;  
Pulv. Rhæi, gr. xij. 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 PERFOLIATUM.)

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

*Botanical Description.*—Leaves connate-perfoliate, rugose, tomentose underneath; stem villous. Stem three to six feet high, striate villous, 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, serrate, 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. Sketch of Botany of South Carolina and Georgia. Vol. ii. p. 302.

*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 acetate of Lime. 8. Gallic acid, probably modified. 9. A resiniform matter, soluble in water and alcohol, and which seems to contain a bitter principle.

Dr. Anderson concluded from the results of this examination 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 *anthemis 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 examinations: Every part of the *Eupatorium* has an intensely bitter, combined with a flavor peculiar to the plant, but with-



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 turbidness 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

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\* Edwards Manual 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.\*

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\* 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



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  $\mathfrak{z}\text{j}$  to  $\text{Oj}$  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.]

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### *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 to-day, 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 calomel, 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