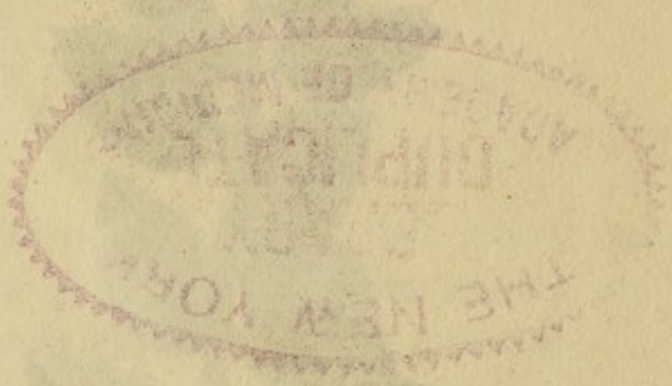
An experimental inquiry into the botanical history, chemical properties, and medicinal virtues, of the Spiræa tomentosa of Linnæus / by Elijah Mead.

MEAD

AN EXPERIMENTAL INQUIRY INTO THE
... SPIRÆA TOMENTOSA OF LINNÆUS

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AN

EXPERIMENTAL INQUIRY

INTO THE

BOTANICAL HISTORY, CHEMICAL PROPERTIES, AND MEDICINAL VIRTUES,

OF THE

SPIRÆA TOMENTOSA

OF

LINNÆUS.

SUBMITTED AS AN INAUGURAL ESSAY TO THE PUBLIC EXAMINATION OF THE TRUSTEES AND PROFESSORS OF THE COLLEGE OF PHYSICIANS AND SURGEONS IN THE STATE OF NEW-YORK.

SAMUEL BARD, M.D. PRESIDENT.

FOR THE

DEGREE OF DOCTOR OF MEDICINE.

ON THE 2d OF APRIL, 1821.

BY ELIJAH MEAD.

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1821.

TO

ANSEL W. IVES, M.D.

Sir,

Having commenced and prosecuted my medical education under your direction, permit me to dedicate to you this Essay as a tribute of respect and gratitude for your private friendship and professional instruction.

E. MEAD.

TO

GIDEON BARSTOW, ESQ.

(SALEM, MASS.)

THIS

INAUGURAL DISSERTATION

IS

INSCRIBED

AS

A TESTIMONY OF RESPECT AND ESTEEM,

BY HIS

SINCERE FRIEND,

THE AUTHOR.

PREFACE.

The introduction of a new medicine into general use, is necessarily slow, as its reputation must be acquired and maintained by the test of experience. Many remedies, which are now universally regarded, as among the most estimable in the Materia Medica, were doomed to serve in subordination, while the process of practical experiment was demonstrating their efficacy, and their claim to the character which they have obtained.

Many of our indigenous plants have of late received considerable attention, and some have proved important acquisitions to the resources of the physician; others, which were no less extolled for their virtues, have scarcely survived the eulogy of their discoverers. In the present state of medical science, it is to be expected, that whatever new may be offered on this subject, and however plausibly it may be urged, will be received with little confidence, unless supported by authority that cannot be questioned. But notwithstanding this professional scepticism, the subject of this inquiry is one, which is confidently believed will, ultimately, be regarded as a valuable auxiliary to the astringents already in use. The plant possesses efficient and valuable medicinal properties, and independent of the writer's feeble testimony, he is persuaded that it must sooner or later excite general notice. It may be said, that our present catalogue of medicines is already sufficiently extensive, and that we had better perfect our knowledge of those in present use, than extend it to others, the virtues of which are yet to be investigated. There are, benefits however, to be derived from having several medicines, possessing very similar properties; as a slight modification of a disease requires a variation in prescription: it is easy for instance, to determine when the condition of the patient indicates the use of *tonics;* but discrimination is often required to select the *one*, which shall be best adapted to the nature of the disease. There is a great advantage in substituting articles of domestic origin, of equal utility, for those ob-

tained by importation ; I only need mention the evils which, in the latter case, result from adulteration. From the richness of our own country in the several departments of natural history, and the zeal with which this science has of late years been prosecuted, we may indulge the hope, that we shall be, ere long, as independent in our supplies in sickness, as we now are in health.

It will not be expected that my opportunities, during the prosecution of my medical studies, could have been very extensive in testing the efficacy of a new medicine in the cure of diseases. In treating, therefore, of the medicinal powers of the Spiræa Tomentosa, I shall give the experience and observations of several gentlemen, who are among the most eminent in the profession. Their kindness to me in this respect has been such, that I wish thus publicly to return my most grateful acknowledgments ; and I hope they will have the satisfaction not only of conferring a favour upon an individual, but of rendering through him, at the same time, an essential service to the profession.

A

DISSERTATION

ON THE

SPIRÆA TOMENTOSA,

OF

LINNÆUS.

BOTANICAL HISTORY.

THE *Genus Spiræa* has long attracted the attention of botanists, for the number and beauty of its species. The Genus is composed of woody and herbaceous plants, consisting of many ornamental flowering shrubs, and floriferous herbaceous perennials, all of hardy temperament. The several species are adorned with spear shaped, pennated, tri-foliate, decompound leaves, and terminated by spikes or clusters of pentapetalous flowers.—(*Mawe's Univer. Gard. and Bart.*)

They are for the most part habitants of the colder regions of the north of *Europe*, *Asia*, and *America*. NUTTALL remarks, that this genus is almost equally divided between this country and Siberia.

The term *Spiræa* seems to have been borrowed from THEOPHRASTUS, whose Σπειραια is supposed to be one of the species of this pretty genus. Most botanists, however, re-

fer it to the *Spiræon* of PLINY, (from Σπειρα, a *rope*,) these hrubs being slender and flexible. LINNÆUS described thirteen species; fourteen have since been added to the genus, making twenty-seven, thirteen of which, as far as I have been able to learn, are natives of America.

MOENCH proposed, some time since, to form several of these species into a new *genus*, under the name of Gallenia; which genus has recently been adopted by BARTON and NUTTALL, who include two North American species, viz. *trifoliata* and *stipulacea*. The propriety of this arrangement, however, is questionable.

The species *tomentosa*, which I have chosen as the subject of the following remarks, is a hardy perennial plant, peculiar to this country. The beauty of its foliage and the elegance of its flowers, attracted the notice of that distinguished Florist, P. COLLINSON, *Esq.* who, in 1736, introduced it into England, where it is now cultivated in gardens and pleasure grounds as an ornamental shrub.*

The Spiræa belongs to Class XII. *Icosandria*, and Order IV. *Pentagynia*, of the sexual system of LINNÆUS; and to the *Natural Order Rosaceæ* of MON. JUSSIEU. The following general character is given by LINNÆUS. (Gen. p. 862.)

Cal. *Perianthum* monophyllum, semiquinquefidum, basi planum; *laciniis* acutis, persistens.

Cor. *Petala* quinque,—calyci inserta, oblonga, rotundata.

Stam. *Filamenta* viginti plura, filiformia, corolla breviora, calyci inserta. *Antheræ* subrotundæ.

Pis. *Germina* quinque seu plura; *styli* totidem filiformes, longitudine staminum. *Stigmata* capitata.

Per. *Capsulæ* oblongæ, acuminatæ, compressæ, bivalves.

Sem. Pauca, acuminata, parva.

The Spiræa tomentosa is found in abundance throughout most parts of the United States. PURSH speaks of this species as growing in Canada, upon the Alleghany Mountains, and from New-York to Carolina. The following is

* Likewise in the garden of the King of France, as marked in the Catalogue by Desfontaines. P. 205.

his amendment of WILLDENOW's specific description.—*Foliis lanceolatis, inæqualiter serratis, subtus tomentosis; racemo terminali, composito, confertifloro, floribus 5-gynis.* This plant is generally known through the country by some one of the following names, viz. *Steeple bush*, *Hardhack*, *Downy Spiræa*, or *Scarlet Spiræa*. I have seen it in great abundance in the low grounds of Massachusetts. It arises in many thickly-set branches from the same root, and grows to the height of from three to four feet. It flowers in July and August, and often gives a scarlet hue to widely extended pastures. Dr. BIGELOW speaks of it as very common in the environs of Boston, and known for having the dried tops of the last year's fructification conspicuous among its purple flowers; the leaves nearly oval, thick and tough, dark green above, whitish, downy underneath; flowers small, blue, inclining to purple, in long conical branches on the ends of the stems.

Professor IVES, of Yale College, informs me that he has often gathered it for medicinal use in the low grounds in the vicinity of New-Haven. DR. TORREY, of New-York, tells me he has seen it at Weehawk, and found it more abundantly in the low lands of New-Jersey.

The S. tomentosa is often found growing with the S. salicifolia, to which it bears considerable resemblance. The following distinction is given: the *tomentosa* differs from the *salicifolia*, in having the leaves more deeply and unequally serrate, tomentose beneath; the terminating compound racemes closer and longer; the flowers of a deeper red, and eight times smaller; the fruit villose. The stalks are slender, and branch out near the ground; they have purple bark covered with a gray mealy down; leaves smaller than those of the *salicifolia*, downy and veined on the under side, but of a dark green above. Branches terminated by thick racemes of flowers, branched towards the bottom into small spikes.—(*Mart. Mill.*)

CHEMICAL PROPERTIES.

Before I speak of the medicinal virtues of the Spiræa

tomentosa, I shall make a brief inquiry into its chemical properties. In the following analysis, the experiments are designedly restricted to those only which illustrate the most important proximate principles of the plant, the best means by which its virtues may be procured, and the most eligible forms in which it may be exhibited as a medicine.

Experiment I.

Four drachms of the roots, stems and leaves of the plant, properly prepared, were severally boiled in eight ounces of distilled water; after boiling to half the quantity, the respective decoctions were strained,and the evaporation completed in a sand bath. The roots yielded *seven grains* of extract, which possessed considerable tenacity; it was of a dark purple colour inclining to red; its taste was pleasantly astringent and slightly aromatic. The extract from the stems weighed *eight grains*, and only differed from the last in being a little more astringent and less aromatic. From the decoction prepared from the leaves, *forty-eight grains* of a very pure and elegant extract were obtained. When warm, this extract was so cohesive, that it could be drawn out to the length of several feet; when spread into thin laminæ, it transmitted a beautiful deep red light. In this state it was easily moulded into pills: but when cold, it was nearly as brittle as *Kino*, and more dense than this substance,exposing, when fractured, brilliant, even surfaces. It was actively astringent, and considerably, though pleasantly, bitter to the taste.

Experiment II.

Equal quantities of the bruised roots, chipped stems and dried leaves, were separately digested six days in alcohol. The alcohol upon the roots and stalks imbibed their colouring matter; that upon the former being slightly discoloured, while that upon the latter was changed to a light green, resembling in colour the woody fibres in the

recent state; otherwise, neither indicated any of the sensible properties of the plant.

The alcohol in which the leaves were digested, soon assumed a dark green colour, and a slightly astringent taste. By evaporation, it yielded an inconsiderable quantity of extract, less pure than that obtained in the last experiment. It was of a dark green colour, and of an unpleasant styptic taste. These alcoholic tinctures were not rendered turbid, or changed by the admixture of water.

Experiment III.

A strong filtrated decoction of the leaves, prepared with distilled water, was submitted to the following re-agents.

a When a solution of Animal Gelatin was gradually added to a portion of the fluid, there ensued a copious ash coloured precipitate; which, after standing a few hours, became dense, leaving the supernatant fluid transparent, and almost colourless.

b With the Muriate of Tin, there was a dense, yellow precipitate.

c When a solution of the Acetate of Lead was added, there was a copious gelatinous precipitate.

d The Nitrate of Silver gave a curdy brown precipitate.

e The Sulphate of Alumine caused a flocculent precipitate.

f A solution of the Salts of Iron changed the fluid to a dark colour; and after standing some time, there was a copious dark green precipitate.

g With the Nitrate of Lime, a light brown precipitate.

h A delicate fawn-coloured precipitate was exhibited by the Sulpuric and Muriatic Acids.

i No immediate change ensued by the addition of the Carbonate, or the Siliciate of Potass.

k Alcohol and Ether induced no change.

l No change by the Vegetable blues.

Experiment IV.

Three drachms of the leaves of the Spiræa were infused in six ounces of distilled water; this infusion was clear, resembling in colour Madeira wine, and exhibited to the taste the peculiar bitter and astringent properties of the plant. It was subjected to the same series of re-agents, as was the decoction in the last experiment, and with the same results, except that the several changes induced were less conspicuous. Three drachms of the infused leaves yielded, by evaporation, *eighteen* grains of extract, which was more bitter and less astringent than that obtained by boiling.

Experiment V.

One drachm of the flowers and fruit of the Spiræa was infused in three ounces of boiling water.—This infusion was pleasant to the taste, resembling very much a strong infusion of Bohea Tea, but its sensible properties were not so peculiar as to indicate the presence of any medicinal virtue, which does not exist in greater abundance in the other parts of the plant: it was not thought necessary, therefore, to subject it to a series of chemical tests.

Experiment VI.

Three drachms of the leaves were boiled in six ounces of pure water, until all the virtue was extracted, which is yielded to that menstruum. The same leaves were then infused in proof spirits, a little below the boiling temperature, for two hours: when filtrated the fluid showed the presence of a small portion of colouring matter, but it indicated no other sensible property of the plant.

Experiment VII.

The aqueous decoction of the last experiment was treated with a solution of Animal Gelatin, until there ceased

to be a precipitate; after percolation, the fluid was nearly colourless, and imparted but little astringency to the taste. Half of this filtrated decoction was evaporated. It yielded a dark-coloured extract, which only resembled that obtained in the first experiment, by being bitter to the taste.

The remaining portion of the fluid was subjected to the following tests:

a The Muriate of Tin, which caused a yellowish precipitate.

b The Sulphate of Alumine gave a brown precipitate.

c There was an immediate change to a dark colour, by the Sulphate and the Muriate of Iron; and after standing some time, there was a copious dark precipitate.

d With a solution of the Acetate of Lead, no immediate change was induced; but the fluid soon became thickly interspersed with delicate yellow flakes.

e When the Nitrate of Silver was added, there ensued a flocculent fawn-coloured precipitate; and after standing, the supernatant liquor became darker than the precipitate.

Inferences deduced from the foregoing Experiments.

I. From this experiment, we learn that every part of the plant possesses medicinal properties, in a greater or less degree, and that they are all readily yielded to water.

The roots afford a very pleasant extract, but in a smaller proportion than either the stems or leaves; the quantity varying probably according to the season of the year in which they are taken from the ground.

This extract seems to possess some advantage over that from the other parts of the plant, inasmuch as it is a little aromatic, and therefore better fitted for cases of great irritability of the stomach; a symptom sometimes of no small importance in the diseases of children in which astringents are indicated.

The extract from the stalks has no superiority over that from the leaves, and as the quantity obtained from them is comparatively small, this preparation is considered as unworthy of particular remark.

In the leaves were found, in great abundance, the most active properties of the plant; they yielded to a watery decoction, a mild and pleasant bitter, and an active astringent. If the decoction be evaporated, these principles are obtained in a solid extract, equal in weight to *one-fifth* of the leaves in a dried state.

II. This experiment shows that the Spiræa yields its virtues but sparingly to Alcohol. The admixture of water with the several alcoholic tinctures, inducing no change, proves the absence of any resinous principle.

III. The copious insoluble precipitate which took place, in this experiment, on the addition of Animal Gelatin, (*a*) demonstrates the presence of a large proportion of *Tannin*.

From the brown precipitate with the Nitrate of Silver, (*d*) and the dark colour given by the Salts of Iron, (*f*) we infer the presence of the Gallic Acid, which appears in a combined state, as shown by the test *l*.

A considerable portion of the extractive principle resides in the leaves, as indicated by the tests *b* and *e*.

This plant appears to afford no Gum or Mucilage; otherwise, they would have been pointed out by the tests *i* and *k*.

IV. It appears, from this experiment, that all the proximate principles of the Spiræa tomentosa are obtained by simple watery infusion, as proved by the several re-agents; but though the comparative quantities of Tannin in the infusion and decoction were not particularly noticed, the probability is, that it is less in the former than in the latter, for the extract from the infusion was obviously more bitter and less astringent to the taste, than that procured from the decoction.

V. This experiment shows that the flowers and fruit are only valuable in common with other parts of the plant.

VI. All the virtues of the plant are yielded to water, and therefore this is its proper menstruum.

VII. In this experiment we find, that after all the Tannin is separated by animal gelatin, there remained a considerable proportion of bitter extractive matter combined with gallic acid. The former of these is indicated by the tests *a* and *b*, and the latter clearly proved by *c d* and *e*. It appears also from this experiment, that the astringent property of the plant resides principally in the Tannin.

MEDICINAL VIRTUES.

The use of the Spiræa as a medicine, as far as I have been able to extend my inquiries, is but little known, and I believe no mention has been made of it as such by any writer. It is surprising that a plant peculiar to our own country, so abundant, and truly medicinal, should have remained thus long unnoticed by most American practitioners. The particular history connected with its first introduction into practice, I have not been able to learn; its use has been, I believe, principally confined to a small district in Connecticut; and for some years it has been prescribed as a valuable medicine by the most respectable physicians of New-Haven, Hartford, and Middletown.—Professor Ives has long considered it as one of our most valuable domestic remedies, and in many cases prefers it to others, belonging to the same class. The high opinion which he entertains of this article, is expressed in the following quotation from his letter in answer to one in which I requested a detail of cases; "Singular as it may appear, I have no cases, nor could my medical friends who are in the habit of using this article, (the Spiræa tomentosa,) furnish me with any. It would be as difficult for me to give cases of the use of the Spiræa as of Catechu or Kino:—The general indication of the article at this time only employs our attention."

On the subject of the early use of this plant, Dr. TULLY of Middletown, remarks, "I have been in the habit of using the Spiræa tomentosa more or less ever since I commenced the practice of Physic, which was in the year 1811. I first learned its use from Drs. COGSWELL and STRONG, of Hartford, who adopted it from its popular reputation."

Every part of the S. tomentosa is medicinal, but the leaves, as has been shown, are most worthy of notice. The plant should be gathered about the third week in August, during the vigour of its fructification. The leaves may be preserved in a dried state, and used in decoction or infusion, or an extract can be easily made by boiling any quantity of them in water, and straining and evaporating the liquor. The evaporation may be conducted by boiling over a slow fire, or in a sand bath, till the liquor becomes a little inspissated; after which it is better to complete it in the sun.

This extract undergoes no change from keeping, and is generally the most eligible form for exhibition. The medium doses of these preparations are from four to six grains of the extract, repeated as the nature of the case may demand; from one ounce to an ounce and an half of the strong decoction, and of the infusion, which makes a pleasant tea, the patient may drink *ad libitum*.

I have said that the S. tomentosa belongs to the class of astringents, and from its sensible properties and its effects upon the system, as well as from the foregoing analysis, it has unquestionably high claims to that rank as a medicine. Observation has not enabled me to define precisely the peculiar virtues of this article, so that I shall not attempt to point out *every* disease in which it may be advantageously used; but from the very respectable testimony which will be introduced in addition to my own knowledge of its effects, I have much confidence in commending it *generally as an active astringent, a mild tonic, and, in moderate doses, a medicine that will seldom or never disagree with the stomach.*—

It will be perceived, therefore, that it may be very properly administered in some one of the following diseases, when they are unconnected with symptoms of fever; and that it is particularly indicated in such *forms* of them, as are accompanied with local or general debility.—The Spiræa has been prescribed with much benefit in the secondary stages of diarrhœa, and dysentery, in cholera infantum, and other bowel complaints of children. The efficacy of this remedy in some forms of these diseases, has been increased by combining with it small portions of Ipecacuanha. In diarrhœa originating in warm climates, the Spiræa has been given with obvious and complete success. I can speak of its efficacy in the case of a gentleman, who arrived in our city during the last summer, after spending some time in a southern climate. He was afflicted with a troublesome diarrhœa, notwithstanding the use of remedies ordinarily prescribed in such complaints. I directed him the extract in doses of six grains; under the operation of this medicine, he was suddenly and permanently restored to health.

"I have used," says Professor Ives, "with obvious benefit, the extract of Spiræa in cases of diarrhœa originating in hot climates, combined with opium, in doses of from two to four grains. I have likewise used the entire plant in decoction, in cases of diarrhœa and dysentery. I have more generally used the extract, it being a more convenient form. To young children with cholera infantum, and other bowel complaints, in which astringents are indicated, I prefer the extract of Spiræa to *other* astringents, giving it in solution in water. In slight cases of dysentery without fever, this article has been used with success."

On the medicinal powers of the Spiræa, I have the following from Dr. Tully.

"The cases in which I have found the greatest benefit from Spiræa, are the chronic diarrhœa of seamen,

which is contracted in tropical climates, or is the sequel of some acute disease; the secondary stages of diarrhœa and dysentery of our own climate; the secondary stages of cholera infantum in children that have arrived at such an age, as to be able to take a bulky medicine; and likewise in apthæ and ulcuscula-oris. I have likewise used it with occasional success in several diseases of the urinary organs, such as Gravel and Hæmaturia. In bowel complaints, as a general rule, I prefer the extract to the decoction. In these cases I have frequently given to an adult two common sized pills every two hours, which I consider a suitable quantity. The decoction I make as strong as can be conveniently taken, and give from an ounce to two ounces, with the same frequency; but circumstances vary the doses. As a general rule, it produces no operative effects that prevent free use, or require great nicety of weight or measure in its preparation or administration. But after all I have more commonly used it as an adjuvant to other means, than as a principal remedy. I am decidedly of the opinion that its efficacy is greater in comparison with other articles of the same class, then the intensity of its astringency would lead us to suppose. I have remarked this both in bowel complaints and in thrush, &c.

I have formerly been in the habit of using extract of Spiræa to give consistency to pills of Acetate of Lead and Opium, for Hæmorrhages, under the idea that it increased the efficacy of the compound."

As a local application, Dr. Ives of this city has used the extract in solution in cases of gleet, fluor albus, fungous ulcers, &c. with decided benefit. In the former of these diseases, I had a very fair opportunity to test its virtue as an astringent in the case of a young man, who contracted gonorrhœa for the first time. Previous to his calling upon me, he had used the more common and popular remedies for this disorder, without permanent benefit. There

was considerable inflammation at the time I first saw him, accompanied with chordee; after these symptoms were in a measure relieved, there still remained a very troublesome gleet. I then prescribed the aqueous solution of extract of Spiræa by injection; this was used four or five times in twenty-four hours, gradually increasing its strength. After the first day, the discharge was evidently diminished; in four days he was relieved from every unpleasant symptom; and in ten days he left the city, since which I have not heard from him.

I gave some of the extract to a medical friend, who used it successfully in two similar cases. In cases of obstinate and debilitating discharges in puerperal women; and in cases of retained placentæ, giving rise to alarming typhoid symptoms; attended with colliquative diarrhœa; and when the stomach has become too irritable to retain other medicines, the Spiræa has had the most happy effect, in composing the stomach, in restraining preternatural evacuations, and in giving healthy vigour to the lax state of the bowels. In these cases its operation is certainly more than astringent.—The two following cases are interesting illustrations of its efficacy. For the first I am indebted to Dr. Ives of New-Haven, and to Dr. Wood of this city for the second.

"I was called in consultation in a case of a female about two months after parturition. The disease was not attended with much fever, but loss of tone of the stomach and bowels. The evacuations were frequent. The common astringents, (astringents were evidently indicated,) such as Catechu, Kino, and other vegetable astringents, were used, but all of them excited vomiting after a few doses had been given. I recommended the extract of Spiræa in doses of four grains, to be repeated four times in the day. The diarrhœa was speedily checked, and the patient fast recovering. The attending physician omitted the Spiræa, and commenced the use of other astringents with no better

success than at first. The extract of Spiræa was given again, and others omitted. Under the use of this article the patient was soon restored to health. From the botanical affinities of the S. tomentosa, from its operation in this and other cases, I was led to the conclusion, that in addition to its astringent properties, it possesses the power of a diaphoretic."

"I used," says Dr. Wood, "the extract of Spiræa in a case of miscarriage, which took place about the third month of pregnancy. The fœtus was expelled without much pain, and the secundines were retained from four to five weeks after. Frequent hemorrhages took place during this time, which together with the putrefaction of the placenta, so much exhausted the patient as to bring on a diarrhœa, with other symptoms of hectic. In order to restrain the discharge from the bowels, different astringents were made use of.—The patients stomach having become irritable, so as at times to reject almost every thing. The exhibition of the Spiræa was suggested by Dr. G. Smith, the physician in consultation. The extract appeared evidently to check the discharges from the bowels, and no unpleasant effects were produced by the medicine. The distressing effects which opium produced on this patient, precluded very much the use of it. This circumstance rendered it more particularly desirable to select some remedy, which might produce the desired effect without deranging the stomach; this was happily accomplished by the Spiræa in the form of pills."

This remedy will be found particularly valuable in cases of diarrhœa supervening Typhus fever, and may be prescribed in such graduated doses, as shall prevent the discharge from exhausting the patient too much, without the danger of improperly checking critical evacuations. It has likewise removed this very unpleasant and debilitating symptom in a case of Phthisis Pulmonalis, and thereby evidently prolonged the lives of patients labouring under this disease. I am indebted to the politeness of Dr.

Stearns, one of the Trustees of this College, for the following case, which is much in point upon this subject.

"The extractof S. tomentosa, with which you supplied me, I used in a case of Diarrhœa from Phthisis Pulmonalis; although I was not prepared to expect any permanent benefit from any medicine in that case, I was however perfectly satisfied with its effects. It was a case of extreme debility in the vascular system, unaccompanied by any symptoms of inflammation or febrile action, with an universal torpor of the Liver and a suppressed state of its secretions. By the previous use of calomel and other medicines, the Liver had been excited and the secretion of bile restored in such profusion, as to stimulate the intestines into preternatural action. An obstinate diarrhœa ensued, which ordinary remedies proved insufficient to restrain. I then submitted the Spiræa. Two pills of the extract were given every four hours.—In four days the frequency of the discharges was considerably diminished, and in a week they became regular and natural. The violent tendency to diarrhœa from this time was evidently subdued, for though it not unfrequently recurred, it was always immediately restrained. Although this did not prevent the fatal termination of the Phthisis, the primary disease, there is much reason to believe that it contributed much to retard that event, and conduced to the comfort of the patient,by removing a very troublesome and debilitating symptom."

I know not that the Spiræa has been much prescribed in uterine hæmorrhage, but from its analogy to other efficient remedies in that complaint, and also from the testimony in the following extract of a letter favoured me by Dr. Eaton of Brookfield, Massachusetts, I am led to believe that it will prove a valuable astringent in such troublesome and often dangerous cases.

"I have used" says the Doctor, "the extract of Spiræa with which you favoured me, in several cases, and am

pleased with its operation. I have prescribed it one case of uterine hæmorrhage successfully, after *other* remedies had failed."

In further testimony of the medicinal virtues of this article, I subjoin the following communication from Dr. A. W. Ives, of New-York.

"I began to use the Spiræa tomentosa about two years ago, since which I have had frequent occasion to prescribe it as an astringent. From its sensible properties, I was led to believe that the Spiræa possessed more virtues as a tonic, than most vegetable astringents; and this opinion was soon strengthened by the exhibition of it to my own child, in the early stage of Cholera, when there existed considerable febrile action. The symptoms of fever were increased, and I imputed it to the operation of the Spiræa. Since that I have prescribed it only in those forms of disease in which tonics as well as astringents were indicated. Under such circumstances, I have found it an efficient and valuable medicine,—indeed I know not that it has failed under my direction in any instance of producing a salutary effect. In a few instances, it appeared to be efficacious, when the ordinary means had failed. These were cases of chronic diarrhœa with general and local debility. A lady who for years had been subject to frequent attacks of that disease, was directed five grains of the extract of Spiræa three times a day. She had previously taken, with but little or no benefit, acids, alkalies, and astringents in various forms, besides resorting frequently, for temporary relief, to laudanum and other astringent injections. I was surprised to learn that the disease was suspended by a few doses of the extract; and the lady informed me but a few days since, that although it occasionally returned during the last winter (which she spent in Georgia,) it was subject to an immediate and complete controul by the Spiræa.

I have used this remedy uncombined with other medicines sufficiently to convince me of its astringent and tonic

powers, though in a few cases I have united it with ipecacuanha. As in diarrhœa, a dryness of the surface is generally an important feature of the disease, I am of opinion that the foregoing combination, after suitable evacuations, will be found one of the most eligible prescription in that complaint.

I have never prescribed any preparations of the Spiræa internally, but the solid extract. I have given from one to five grains of it at a dose, according to the age of the patient. As a lotion, I have often used the extract in solution, and I think it one of the most convenient and efficient which can be prepared from the vegetable kingdom. As an application to ulcers with weak granulations of luxuriant growth, and as an injection in Fluor Albus and gleet depending on great relaxation, I have found it highly useful."

The medicines already in general use possessing properties the most analogous to that of the Spiræa, are Kino and Catechu; but the Spiræa must be regarded in many respects, equal, if not superior, to either of them. It can be procured at less expense; an equal quantity of the extract possesses more virtue as an astringent; all its properties are soluble in water. It is equally pleasant to the taste; it never disagrees with the stomach, and what is of still greater importance, it may always be obtained free from adulteration. Whereas of the Catechu, it was justly remarked by Dr. Cullen, "We *never* get it pure, and this should lead us to endeavour to find for it a substitute of our own growth."

After the foregoing had been sent to the press, I was favoured with an interesting communication from Dr. Mason F. Cogswell of Hartford, Connecticut. It contains facts so important in connexion with the subject of this Essay, and more particularly the circumstances in relationto its first introduction,that I shall take the liberty of subjoining it at length.

"I most cheerfully comply with your request respecting a medicine, which I consider a valuable addition to the Materia Medica. About 12 years since, I was called into a neighbouring town to consult with one of my brethren, in a case of a lad 10 or 12 years of age, who was sinking under an obstinate diarrhœa, the consequence of a malignant dysentery. After examjning the patient, we walked into

the lots, the father accompanying us; while conversing on the subject, he plucked a branch of the Spiræa, which was then in blossom, and inquired if we knew what it was? He of course received a negative answer, as neither of us had noticed it before; on tasting it, its sensible qualities were such, as to induce me to propose the exhibition of it to our patient; my proposition was readily assented to, and he recovered without the aid of any other medicine. Pleased with its effects in this case, I determined to give it a fair trial in other cases, as soon as opportunities offered; accordingly, I gathered a considerable quantity, and very soon had an opportunity of testing its efficacy. In the succeeding fall we had more of cholera infantum than usual. Dr. STRONG and myself used it freely, and on the whole, were better satisfied with its effect than with those of any other remedy we had ever used. Dr. STRONG made an extract from the leaves, which, by the way, they yield abundantly, and to which he is partial, having used it much more than I have. I have used it sufficiently, however, to be satisfied with its efficacy. I gave a small quantity of it to Professor IVES, who was much pleased with its use; of this, however, he has probably informed you himself. It was some time before I found what the plant was; and if Dr. TULLY first learned its virtues from me, I was indebted to him for its Botanical history.

The account which I received from Mr. Butler, the parent of the patient, in whose case I first used it, was, that he had traced it to a *Mohegan Indian;* a source from whence most of our *new medicines* are traditionally derived: you will, of course, attach to it as much credit as it *deserves.* We have generally given it to children in the form of a decoction, by boiling it in milk and water, and sweetening it; in this way it forms a fine balsamic astringent, which is very efficacious. In chronic dirrahœa, especially in adults, the extract is singularly beneficial; in short, I consider the plant in the various forms in which it may be administered, as a very important addition to our class of indigenous astringent medicines."

EXPLANATION OF THE PLATE,

Figure I.

The plant reduced to one-fourth its natural size.

Figure II.

A single flower of the natural size.

Figure III.

The same magnified about 16 times.

Figure IV.

Germen and Styles magnified to the same size.

Figure V.

The five united capsules, do. do.

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