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Pyrola Umbellata.

AN
ESSAY
ON THE
ARBUTUS UVA URSI,
AND
PYROLA UMBELLATA & MACULATA,
OF LINNEUS.

BY JOHN S. MITCHELL, ✓
OF PENNSYLVANIA;
MEMBER OF THE AMERICAN LINNEAN,
AND HONORARY MEMBER OF THE PHILADELPHIA MEDICAL AND
CHEMICAL SOCIETIES.

Ἐν σκότῳ πλίσσων ποδας σφαλλεῖς καὶ πλανη ἔπειλαι.
HESIOD.

PHILADELPHIA;
PRINTED, FOR THE AUTHOR, BY
EAKEN & MECUM.

.....
1803.

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The copy printed under the name of the author, and
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PHILADELPHIA,

PRINTED FOR THE AUTHOR, BY

THOMAS A. MERRILL,

1803.

AN
INAUGURAL DISSERTATION,
FOR
THE DEGREE
OF
DOCTOR OF MEDICINE ;
SUBMITTED TO THE EXAMINATION
OF THE
REVEREND JOHN ANDREWS, D. D.
(PROVOST PRO TEMPORE),
THE
TRUSTEES AND MEDICAL PROFESSORS
OF THE
UNIVERSITY OF PENNSYLVANIA;
ON THE
EIGHTH DAY OF JUNE, 1803.

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TRUSTEES AND MEDICAL PROFESSORS

OF THE

UNIVERSITY OF PENNSYLVANIA,

ON THE

EIGHTH DAY OF JUNE, 1803.

TO

BENJAMIN SMITH BARTON, M. D.

*Professor of Materia Medica, Natural
History, and Botany, in the Univer-
sity of Pennsylvania;*

SIR,

I EXULT in this opportunity of partially remunerating, by *sentiment*, some of the many valuable services that have resulted to me from your friendship and instruction. Not a few of the most delightful and ennobling objects of intellectual attention, acknowledge their origin and advancement to your industry and zeal. Raised by your hand and embellished by your genius, the natural science of our country, (but the other day the property of foreigners,) has already assumed a position which shall command respect from the future votaries to physical improvement, on this side the Atlantic. Amid the hourly attacks of a painful and dangerous disease, you have retained animation and ardour enough to excite the philosophical mind of your country, and direct its efforts. You have called its attention to the science of nature, and illustrated your solicitations by example.

BUT the time has arrived, when that connection which has subsisted between us, with so much satisfaction to me, must be dissolved. Whether I have justly appreciated the value of your instructions, my future conduct must determine.

Adieu,

JOHN S. MITCHELL.

TO

BRAMMIN SMITH BARTON, M. D.

Professor of Materia Medica, Natural
History, and Botany, in the Univer-
sity of Pennsylvania;

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Adieu

JOHN S. MITCHELL

TO

JOHN WILSON, M. D.

OF BUCKS COUNTY, PENNSYLVANIA :

THIS ESSAY

IS LIKEWISE INSCRIBED, AS A MARK OF THAT
ESTIMATION,

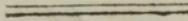
WHICH NEITHER TIME, NOR THE VICISSITUDES OF
LIFE WILL BE ABLE TO ERADICATE

FROM THE MIND OF HIS

AFFECTIONATE RELATIVE,

AND FORMER PUPIL,

I. S. MITCHELL.



TO DOCTOR MAHLON GREGG,

OF BUCKS COUNTY

AND

WILLIAM BARTRAM,

OF KINGSESSING.

GENTLEMEN,

PERMIT me to do justice to my
feelings, by inscribing this to *you*, for the dis-
interested attention received from you during the
progress of my studies.

I. S. MITCHELL.

SECTION I.

OF THE *UVA URSI*.

THE Genus *Arbutus* of Linnæus, according to his sexual system, falls in the class Decandria, and the order Monogynia.

THE Genus is thus described.—Calyx 5 partitus—Corolla ovata : ore 5 fido basi pellucida. Bacca 5 locularis, supera, polysperma.

C. Linnæi, *Genera Plantarum*.

SEVERAL species of this family are now pretty well known ; but I shall confine myself to the consideration of the *Uva Ursi*, or Bear berry.

THE characteristic of this species, as marked by the Swedish Naturalist, is,

ARBUTUS.—Caulibus procumbentibus ; foliis integerrimis.

THE sexual system is now so universally adopted, that it is unnecessary to specify the particular place, this plant occupies in other artificial arrangements.

IN the natural method of Jussieu,* it falls in the order *Ericæ* of his 9th class, along with the genera *Andromeda*, *Clethra*, *Pyrola*, *Epigæa*, *Gaultheria*, *Vaccinium*, *Erica*, *Hudsonia*, and some others.

THE whole of these plants, as well as the one we are particularly considering, are comprehended in Linne's 18th natural order *Bicornes*, several of which possess powers of considerable activity.

THE *Uva Ursi* is a low ever-green shrub, trailing on the ground. It prefers a dry sandy soil, in woods, and on mountains, is common to the warm as well as the cold parts of Europe, and is diffused through many parts of North-America. Hearne observed it as far north as latitude 71.† Charlevoix found it at the bay of Hudson. Kalm says it grows plentifully some little distance from Quebec in Canada. It is a common plant in the state of New-York, and flourishes abundantly in different parts of New-Jersey, particularly about Mount-Holly and Atsion, and extends from thence along the pine forests, near to the sea shore. Its utmost limit towards the south is unknown to us.

THIS plant has been, with great propriety, ranked among the astringent medicines; it has a styptic taste, and an agreeable bitterness. When chewed it increases the secretion of saliva.

As the *Uva Ursi* is so well known to almost every one, we shall not dwell longer on its natu-

* Genera Plantarum secundum Ordines Naturales disposita.

† This writer speaks of it by the name of *Jackasbeypuck*, which is one of its Indian appellations.

ral history, or on its sensible qualities, as they are not remarkable, but proceed immediately to the Chemical Analysis.

§. 1. CHEMICAL ANALYSIS.

EXPERIMENT I.

To 2 ounces of the leaves of *Uva Ursi*, I added just a sufficiency of water to cover them, and subjected the whole to distillation. Upon examining the different portions as they came over, I could not detect the least presence of acidity or astringency.—The distilled water had an aromatic taste and smell.

THE decoction remaining in the retort, produced no change on litmus paper, but struck a black colour with sulphate of iron.

EXPERIMENT II.

HAVING cut up the stalks and roots of the plants, I submitted them to distillation.

THE result was the same as in the former experiment, except that the colour was not so dark.

THESE experiments were frequently repeated as well with the dry as with the fresh plant, and uniformly afforded the same result.

EXPERIMENT III.

HAVING become possessed of a decoction of the leaves that had been made above eight months before, I submitted it to distillation, but in this, though I knew an acid to exist in the decoction before hand, the distilled water differed in no respect from that mentioned in the preceding experiments.

EXPERIMENT IV.

To one ounce of the dried leaves of the plant, reduced to a very fine powder, I added four ounces of rectified spirits of wine, and letting them stand for four and twenty hours, exposed to a moderate degree of heat, I filtered and evaporated to dryness : the residuum weighed 112 grains.

EXPERIMENT V.

UPON the addition of distilled water to the powder remaining on the filter after the above experiment and suffering it to stand twenty-four hours, I obtained forty-two grains of a pure gum.

EXPERIMENT VI.

To one ounce of the same powder mentioned in experiment 4th. I poured four ounces of distilled water, and exposed it to the same temperature as before, for twenty-four hours ; the infu-

sion was then filtered and evaporated to dryness: the residuum weighed seventy-five grains.

EXPERIMENT VII.

By the addition of alcohol to the matter remaining on the filter, I obtained thirty grains of a pure resin.

EXPERIMENT VIII.

To two drams of the powder I added alcohol, and after letting it stand thirty hours, then filtered and evaporated: the residuum weighed twenty-seven grains.

EXPERIMENT IX.

From the remaining powder, by the addition of water, and suffering it to stand thirty-six hours, nine grains of gum were obtained.

EXPERIMENT X.

To two drams of the fresh powder, I added distilled water, and suffered it to stand for the same length of time as the former; this was then filtered and evaporated to dryness; the residuum weighed seventeen grains.

EXPERIMENT XI.

By the addition of alcohol to the matter remaining on the filter, I obtained seven grains of resin.

.....

EXPERIMENTS 1 and 2 prove, that the leaves of the *Uva Ursi* are more astringent than the stalks, which is contrary to the opinion entertained by Professor Murray. Speaking of our plant he says, "Caules, et horum quidem cortex, adstringunt longe magis, quam folia."* This is certainly incorrect. In some instances, it required the addition of the oxy-sulphate of iron to detect the astringent principle; when *Cæteris paribus*, the sulphate struck a deep black with the decoction of the leaves.† I also infer that the *Uva Ursi* contains no acid, in a disengaged state; and here I am obliged to differ from the learned Gerardi, who asserts, that he obtained an acid by distillation, with which he was able to dissolve a great number of calculi; indeed it would be difficult to account for the solution of those calculi; unless we suppose Gerardi used some one of the mineral acids in distilling the plant, and that his calculi were all calcareous.

* See his Apparatus Medicaminum, page 57.

† Dr. Woodhouse says, the simple sulphate of iron will not strike a black colour with the gallic acid, but that the oxy-sulphate is requisite to produce that effect. To satisfy myself on this point, I made the following experiment. I obtained half an ounce of iron filings from a piece of *polished iron*, and added a portion of diluted sulphuric acid: after the action was completely over, I filtered and obtained *regular crystals* by evaporation; these being dissolved in distilled water, a black colour was instantly produced by the addition of alcohol of galls. It is well known that the oxy-sulphate of iron will not form regular crystals, but that the simple sulphate will; this the Doctor allows.

My experiments were carefully executed, but this does not preclude the possibility of error. Indeed, were we to admit the opinion of Professor Woodhouse, the first inference is by no means certain: the Doctor believes the astringent principle to be the gallate of alumine; and the black colour, he says, is in proportion to the quantity of gallic acid.

To ascertain with accuracy the precise proportions of gum and resin contained in a plant, is certainly a difficult task; for, when they are intimately united, the one renders the other somewhat soluble in a menstruum which has no action upon the pure substance.

THE frequent repetition of the preceding experiments,* affording results as similar as possibly could be expected, induces me to offer the following inference, viz.

THAT one ounce of the dried leaves contains about forty grains of a pure gum, and thirty grains of pure resin, besides a large quantity of matter, equally soluble in alcohol and in water:

THAT the same proportion of matter taken up in the 4th. and 5th. and in the 8th. and 9th. experiments, does not obtain in the others, is easily accounted for, inasmuch as we know that gum and resin intimately united, are more soluble in alcohol than in water.

IN conformity to custom, I have made the above experiments on the chemical analysis of

* From 4 to 11.

our vegetable, but conceiving this to be of little importance in a practical point of view, my object was to be as concise as possible. We shall therefore proceed, in the next place, to relate some experiments made on the human system.

§. II. EXPERIMENTS ON THE HUMAN SYSTEM.

EXPERIMENT I.

AT 11 o'clock, A. M. I took ten grains of the dried leaves of *Uva Ursi*, reduced to a fine powder : my ingenious friend and fellow graduate Mr. Walmsley attending to the pulse. Pulse 69 in a minute.

Min.	5	10	15	20	25	30	35	40	45	50	55	60	65	70
Puls.	70	69	70	70	68	69	66	65	65	62	64	63	62	64

M.	75	80.
P.	62	62

IN about ten minutes, pulse became smaller, and continued so during the experiment.

EXPERIMENT II.

TEN o'clock, A. M. took fifteen grains of the powder in water. Pulse 78.

Min.	5	10	15	20	25	30	35	40	45	50	55	60	65	70
Puls.	78	73	75	75	72	73	74	73	72	72	72	74	73	72

M.	75	80	85	90	95	100	105
P.	73	69	69	69	71	68	72

IN the fore part of the experiment, there was a small increase in the fullness of the pulse, which afterwards became smaller.

EXPERIMENT III.

I TOOK thirty grains of the powder in water, at 12 o'clock. Pulse 66.

Min.	5	10	15	20	25	30	35	40	45	50	55	60	65	70
Puls.	69	72	74	69	68	68	67	67	63	63	64	63	63	60
M.	75	80	85	90	95	100								
P.	60	63	65	63	64	60								

IN fifteen minutes, pulse fuller ; had a flushing in the face ; in twenty, a slight head-ache came on, which continued till near the close of the experiment ; in forty, much reduced in force ; in sixty, weak and flowing ; in eighty-five it grew fuller.

EXPERIMENT IV.

AT 11 o'clock, A. M. took forty grains of the powder in water. Pulse 73.

Min.	5	10	15	20	25	30	35	40	45	50	55	60	65	70
Puls.	78	74	73	68	68	66	67	68	65	66	65	67	66	65
M.	75	80	85	90	95	100	105							
P.	68	72	72	73	70	70	72							

IN five minutes, pulse considerably fuller ; in ten much harder ; in 25 flushing in the face, and a slight head-ache came on, which went off in the course of half an hour.

EXPERIMENT V.

AT half past 9, A. M. took eight grains of the resin; Mr. Downey attending to the pulse. Pulse 76 in a minute.

Min.	5	10	15	20	25	30	35	40	45	50	55	60
Puls.	78	78	74	72	70	76	74	73	71	68	68	68

THE pulse remained at 68 for one hour afterwards.

IN ten minutes, pulse not so full; in fifteen, irregular and small; in twenty, a slight head-ache; thirty, pulse very small, and a slight vertiginous affection of my head; in fifty, pulse much fuller.

EXPERIMENT VI.

AT half past 11, A. M. my fellow student Mr. Bartram, took ten grains of the gum.—Pulse 73.

Min.	5	10	15	20	25	30	35	40	45	50	55	60	65	70
Puls.	77	75	76	73	75	75	74	77	78	76	76	77	76	77

M. 75 | 100

P. 78 | 76

IN five minutes, pulse somewhat fuller; thirty, slight flushing, in forty, pulse weak and soft; seventy, pulse much fuller.

FROM these experiments, it appears, that the first effect of the Uva Ursi is slightly stimulant, but that the pulse soon begins to fall, and re-

mains below its natural standard, both in frequency and fullness, for a considerable time. In this respect, our plant bears some analogy to Digitalis; but between them there is still a vast difference; the Digitalis and most other medicines allowed to be powerful, exert an action on some particular part of the general system. The Uva Ursi, on the contrary, has no very considerable effect on the pulse; it increases neither secretion nor excretion; and, in fact, we might suppose it entirely inert,* were it not that we have from many practitioners, the most positive proof to the contrary, from its efficacy in lithiasis, nephritis, gonorrhœa, and other diseases, which are next to be more particularly mentioned.

§. III. OF THE USE OF UVA URSI IN DISEASES.

BY what accident, and at what period, some unknown person first discovered the powers of this important medicine, would be difficult to say; nor shall we stop to inquire, whether this be the *αρκου σταφυλη* of Galen, or the *ιδιαιας ριζης* of Dioscorides. It is sufficient for us to know, that the celebrated De Haen, of Vienna, was the first physician who has published any thing very valuable on the subject. It was he who first directed the attention of the medical world to the use of the Uva Ursi in calculous affections. This was about the year 1756; since which time it has never been entirely forgotten, but too much neg-

* I have known it to induce an uneasy tightness, with a sense of weight, at the chest: but this was in a gouty patient, who is liable to be similarly affected by the Peruvian bark. The fact may serve to point out some affinity between the two medicines. B. S. BARTON.

lected, though some of the German, Spanish and Italian physicians have praised it in very unqualified terms. In the United States it has become much better known as a medicine, since the successful practice of Doctor Barton induced him to recommend it very confidently to his class. The Doctor says, “ this plant, from my own experience, I can recommend to you as a most valuable medicine : it ought to be in the hands of every physician : I have used it with great advantage in old gonorrhœa. But its greatest virtue is that of a medicine in nephritis.”* Dr. Ferriar, of Manchester in England, cured twelve cases of this complaint out of sixteen, by giving it with mild cathartics. He used it in doses from five to ten grains, with half a grain of opium ; larger doses, says the Doctor, produced nausea and vomiting ; but the preceding experiments show that it may be taken in a much larger quantity, without producing any disagreeable effect, Hence we suppose, that the nausea produced in Doctor Ferriar’s cases, resulted from the combination of opium.

.....

The following cases and facts may tend to confirm the efficacy of the Uva Ursi, in different diseases :—

CASE I.

E. B. aged nineteen, affected with gonorrhœa of three weeks standing, was let blood and had a cathartic, was afterwards ordered a strong

* Barton’s Lectures on Materia Medica.

infusion of the leaves of *Uva Ursi*, in the quantity of one pint a day, which was continued about fifteen days, when the discharge ceased, nor did it again recur.

II.

P. M. aged forty, with gonorrhœa of four weeks continuance, was immediately put upon the use of the infusion: at the end of ten days, the medicine was discontinued, and the patient completely cured. During the use of the medicine, he lost about twelve ounces of blood.

III.

M. B. aged forty-two, with gonorrhœa, took daily for about four weeks, half a pint of the infusion, and was cured without the assistance of any other medicine.

IV.

S. H. nineteen years of age, with gonorrhœa, was ordered the infusion in the dose of four ounces, three times a day, for about two weeks, which had the effect of stopping the discharge, and the patient completely relieved.

V.

A. M. aged twenty-four, had a gonorrhœa for three weeks, and on application for relief,

had a cathartic administered immediately, and then a strong infusion ordered to be taken in the quantity of one pint, daily, until the running ceased, which was on the 20th day.

VI.

E. A. aged eighteen, with a recent gonorrhœa, otherwise in good health, was let blood and took a gentle cathartic; afterwards drank daily from half a pint to a pint of the infusion; the same was used by way of injection: in two weeks the patient was entirely cured.*

DR. BARTON informs his class, that he has found the Uva Ursi extremely useful in old gonorrhœas, which have resisted the ordinary modes of treatment, and in gleans of long standing. He particularly relates a case of gonorrhœa, which had continued for a very considerable length of time, and which he found it impossible to manage by injections: for the mildest astringent injections never failed to induce a very distressing *hernia humoralis*. He put his patient upon the use of the Uva Ursi, and had the satisfaction of finding him entirely cured at the end of a few days. The patient took very large quantities of the medicine. The Doctor likewise relates some cases of nephritis, and one case of *Catarrhus Vesicæ*, in which he had employed our medicine, with much advantage. His experience leads him to believe, that it is peculiarly adapted to those cases of nephritis which have a gouty original.

* The chief of the above cases of gonorrhœa, I received from Dr. Shaw, late of the Alms'-house, Philadelphia, for which I beg him to accept my sincere thanks.

DOCTOR WISTAR informs me, that several cases have come under his observation, in which the common symptoms of stone in the bladder were completely removed by the Uva Ursi. In one of these instances, an elderly gentleman who had been accustomed to an active life, confined himself to a chamber, for the purpose of writing, for three months, and at the end of this period, found himself affected with a frequent irritation to discharge urine, attended with great pain, and bearing down at the end of the discharge, and frequent uneasiness of the glans penis, although there was no appearance of disease in that part. These symptoms were slight at their commencement, but gradually increased until they were extremely severe. They were entirely removed by the use of a strong infusion of Uva Ursi, in doses of two ounces four or five times a day.

I AM also informed, that the late Mr. Lee, of the Pennsylvania Hospital, cured a stricture of the urethra, after bougies and other remedies had been used without effect; by giving the patient fifteen grains of the Uva Ursi three times a day.

§. IV. ITS USE IN THE ARTS.

HAVING now finished what we had to say on the analysis of the Uva Ursi, and on its use in disease, &c. we shall conclude this part of our subject with a few words relative to its use in the arts.

DR. LEWIS believes, that it may be used with advantage as a dye, but cannot be substi-

tuted for the Aleppo galls in making ink. He acknowledges that the colour is sufficiently black, but says that the iron is not properly suspended, and that on paper it has the appearance of charcoal diffused in water. Possibly he used the fresh leaves; for we did not observe such a precipitate, when the dried leaves were employed. I have attempted to make an ink by a variety of processes: It is not necessary to mention the different experiments, as it is not likely it will ever come into general use.

THE simple decoction of the dried leaves changed by the oxy-sulphate of iron, was found to answer as well as any: at the end of six or eight days, a very handsome black ink was produced.

SECTION II.

OF THE PYROLA.

WHAT we have mentioned in the preceding part of this essay, is sufficient to show, that the Uva Ursi is a medicine of considerable efficacy in some diseases, though it produces but little perceptible effect on the healthy system.

THAT the disease of lithiasis, in which it is especially useful, is one of the most distressing to which the human kind is subjected, will be readily acknowledged; and, therefore, to relieve it by whatever means becomes an object of the highest importance.

THE Uva Ursi is not a medicine *which is always successful*. The bark does not always cure an intermittent; and, on this account, we are frequently under the necessity of changing it for other articles, which, perhaps, in general, are less powerful. Sydenham succeeded with flowers of camomile and alum, when every thing else had failed. Cullen used the powder of galls in combination with sulphate of alumine, under simi-

lar circumstances. To be possessed of a variety of forces, respectively adapted to different constitutions ; or auxillaries, which may be called to our assistance when others have failed, is always a desirable thing.

WE shall, therefore, offer a very few experiments on a vegetable nearly allied by its botanical affinities to the *Uva Ursi* : This is the *Pyrola*, and more especially that species called by Linnæus, *P. Umbellata*.

CONCERNING the use of this vegetable in calculous affections, we can say nothing from our own experience ; but it will appear from the sequel, that it is not destitute of activity, and as there is such a striking analogy subsisting between a medicine which we have found so often to relieve; and this, which we have not tried, it is presumable, that it may succeed when the other is ineffectual; as certain astringent and bitter articles do after the exhibition of bark in intermittents.

THE *Pyrola* is comprehended in the same natural orders with the *Arbutus* (the *Bicornes* of Linnæus and *Ericæ* of Jussieu.) The habits of the two plants are so very similar, that a description of the one gives not the most imperfect idea of the other.

IN the sexual system, the *Pyrola* also falls into the tenth class and first order ; or *Decandria*, *Monogynia*.

THE following is the abridged character of the genus :

Cal. 5 phyllus. *Petala* 5. *Stigma* 3 fidum.
Caps. 3 locularis, 3 valvis.

Six species of *Pyrola* are well known to botanists. None of them, however, except the *Rotundifolia*, have as yet attracted the attention of physicians. All the species are natives of the United States, or at least of North-America, (if our *umbellata* is the same as the European, which there are some reasons to doubt.) As far as I know, the *Pyrola maculata* is the only species which is exclusively a native of our own country. On this account, it seemed more entitled to our attention, and in this view I considered it till experiment convinced me to the contrary. And yet I may have been deceived; the Delaware Indians, I have understood, call this species *Poison Pippissewa*, in contra-distinction to *umbellata*, which they call simply *Pippissewa*. The word *poison* would seem to imply something active, which, hitherto, we have not found in this species.

THE *Umbellata* is more nearly allied to the *Uva Ursi*, than either of the other species. It is called by different names in different places, such as winter-green, ground-holly, &c. The following description of the plant, is, perhaps, more comprehensive than what is to be met with in the common books of botany.

PYROLA UMBELLATA.

THE ROOT is long, creeping, sending off small radicles or fibres, and is of a yellowish or herb-

aceous colour. When chewed, it has a strong, not unpleasant smell, and an agreeable, somewhat aromatic and pungent, taste.

THE STEM. From the same root, there often arise several stems, which are nearly of the same colour as the root, but rather more green. The stem varies in height, from six to eight inches.

THE number of the **LEAVES** is very various. They are wedge-shaped, or narrowed towards the base, deeply sawed upon their edges, of a thick coriaceous consistence, and of a smooth and shining surface.

CALYX. This is small, five-parted, and permanent.

COROLLA. The petals are five in number, roundish, concave, and spreading. They are white, or of a pale rose-colour, and have a most agreeable smell.

STAMINA. The filaments are ten, awl-shaped, and shorter than the corolla. The anthers are large, nodding, and two-horned upwards (*bicornes*).

PISTILLUM. The germ is roundish, angular, very viscous, and of a green colour. The style is permanent, and the stigma thickest.

PERICARPIUM. This is a roundish, depressed, and pentagonal capsule, with the five cells gaping at the angles.

SEMINA. The seeds are numerous and chaffy.

THIS species of *Pyrola* flowers, in Pennsylvania, and other middle parts of the United States, from the beginning to the middle, or twentieth of June,

§. 1. CHEMICAL ANALYSIS.

ON repeating the experiments mentioned in No. I, when treating of the *Uva Ursi*, no difference was observable in the distilled water, possessing the same aroma, &c,

THE decoction struck a black colour with the sulphate of iron.

THERE appears to be little or no difference in the quantity of astringency in the leaves, and in the stalks.

I SHALL briefly relate a few of the experiments made, with a view of ascertaining the proportion of gum and resin contained in our vegetable.

EXPERIMENT I.

To half an ounce of the dried leaves of *Pyrola Umbellata*, finely powdered, I added alcohol, and suffered them to stand for 24 hours, and at a moderate temperature, then filtered and evaporated to dryness. The residuum weighed 86 grains.

EXPERIMENT II.

By the addition of water to the matter remaining on the filter after the above experiment, I obtained 19 grains of gum.

EXPERIMENT III.

To half an ounce of the same powder, as in the first experiment, I added water, and permitted it to stand the same length of time, and in the same degree of heat as before; the infusion was then filtered, and evaporated to dryness. The residuum weighed 48 grains.

EXPERIMENT IV.

From the remaining powder, by the addition of alcohol, I procured 22 grains of resin.

§. II. EXPERIMENTS ON THE HUMAN SYSTEM.

THE experiments on the Umbellata, afford results not essentially different from the Uva Ursi; we shall briefly relate a few of them, together with two or three on the Maculata without further apology.

EXPERIMENT I.

AT half past ten o'clock, A. M. forty grains of the fresh leaves of the *Pyrola Maculata*, were given to William M. Walmsley. Pulse 80 strokes in a minute.

Min. 5 | 10 | 15 | 20 | 30 | 35 | 40 | 60
 Puls. 80 | 80 | 80 | 80 | 79 | 79 | 80 | 80

No increase either in fulness or force.

EXPERIMENT II.

DOCTOR A. GREGG, jun. took fifty-five grains of the same plant: The pulse during the whole experiment was neither increased in force, frequency or fullness; nor was any other effect observable.

REPETITION afforded similar results.

EXPERIMENT III.

THE same gentleman at half past one, took four grains of the fresh leaves of the *Umbellata*. Pulse 70.

Min. 5 | 10 | 15 | 20
 Puls. 74 | 84 | 88 | 75

AT this time he took twenty grains more of the same:

Min. 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 90 | 105 | 120
 Puls. 76 | 79 | 76 | 74 | 71 | 71 | 70 | 65 | 66 | 69 | 66 | 64 | 64 | 60

IN fifteen minutes felt a slight nausea at stomach; in twenty, after repeating the medi-

cine, nausea stationary ; at one hundred, uneasy sensations in his bowels, and pulse somewhat weaker.

EXPERIMENT IV.

AT 11 o'clock, A. M. he took twenty-five grains of the same plant. Pulse 72.

Min.	10	15	20	25	30	40	50	60	70	80	90
Puls.	66	66	64	62	62	60	60	62	60	57	60

IN ten, pulse fuller ; in seventy, pulse weak, and flowing with some dizziness in the head.

EXPERIMENT V.

AT 9, A. M. he took thirty grains. Pulse 76.

Min.	5	10	15	20	25	30	40	50	60	70	80	90	105	115
Puls.	76	76	78	80	80	80	78	70	70	72	73	72	76	76

IN twenty minutes, pulse fuller and harder ; in forty, a slight head-ache.

THESE experiments, as they were made upon persons in health, or not affected with nephritic complaints, afford us no assistance in forming our judgment concerning its efficacy in diseases, especially of that kind ; nor can we collect from books, any information on the subject. But that the plant is possessed of some activity may be fairly inferred ; and we shall here subjoin a few observations relative to its use in other diseases, where its exhibition was attended with great advantage.

DURING the revolutionary war, when it frequently became necessary to substitute some of our own productions for almost every article of the *Materia Medica* that we had been accustomed to receive from foreign countries, the *Pyrola* was used, with considerable effect, as a substitute for the bark, and other tonics. In the camp fever,* as I am informed, it was a common remedy, and effected cures in many instances, where but little or no other medicine was administered. It is said to have acted very powerfully in inducing sweating.

IN *Pertussis*, or Whooping Cough, it is thought to be a very valuable medicine; and if we may judge from its exhibition in a few cases, the opinion is well founded.

As a remedy for gonorrhœa, were I permitted to judge from one case, in which the decoction was used by way of injection, I should think it highly worthy of further trial. The patient had laboured under gonorrhœa for some time, and the common injections were used without affording much relief; but on injecting the decoction, the discharge was lessened in a very short time.

THESE cases still more certainly evince the powers of the *Pyrola Umbellata*; and, therefore, as it is so nearly allied to the *Uva Ursi*, we shall presume to suggest the propriety of giving it a trial in lithiasis, when the *Uva Ursi* has failed, or cannot be procured. Doctor Barton was informed by a respectable physician in East New-

* This was a genuine malignant typhus.

Jersey, that the *Pyrola*, of which I am speaking, was employed, with manifest advantage, “ in the same cases” in which *Uva Ursi* has been found so useful.

As an external application, we are told, it has frequently been found beneficial in cases of sprains, bruises, &c.

FROM an intelligent friend I have received the following information :

MISS R....., a young lady, was very much bruised by some horses running over her : the bruises were immediately bathed with a strong decoction of the *Pippsissewa* in vinegar, and by the next morning the blackness was removed, and the skin had recovered its natural appearance.

I AM likewise informed,* that, during an attack of rheumatism, which he suffered, he was advised to apply the *Pippsissewa*. Accordingly, the bruised leaves, moistened with brandy, were laid on the affected part : this was in the evening, and by the next morning, complete vesication was produced ; though, with very little alleviation of the disease.

LED by this fact, I was induced to apply a portion of the bruised leaves of the *P. Maculata*, wet occasionally with vinegar to one arm ; at the same time and under similar circumstances, I applied the *P. Umbellata* to my other arm. The former, however, I found to be as inert when

* By Mr. G. Abbot, of this city.

used in this way, as when internally given: the latter on the contrary produced a great deal of inflammation, which continued for six or eight days, accompanied with an intolerable itching in the part, and succeeded by desquamation. This was considerably different from the vesication produced by cantharides; for, besides that the cuticle was very little raised with water, the inflammation extended to a much greater distance round the part, and the next day the blister was circumscribed with an eruption, which continued to increase for some time, having very much the appearance of a ring-worm.

SINCE making the above experiment, I have learned,* that several of our Indian tribes are in the habit of using another species of *Pyrola*, the *P. Rotundifolia*, for the purpose of inducing vesication.

I CANNOT conclude these pages, without acknowledging how much I am indebted to my ingenious friends Dr. Amos Gregg, jun. and Mr. Thomas Walmsley, my fellow graduate, for the kind assistance I have received from them in conducting several of the preceding experiments.

* See Transactions of the American Philosophical Society, vol. 3, page 105.

Med. Hist.

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