

parts of the treatment as too energetic. However, the desperate aspect of things appeared to justify a prudent rashness, and as the issue *was* fortunate, I am not called upon, on this occasion at least, to practise the duty of self-stricture.

## ON UVA URSI, OR BEARBERRY.—(AN INAUGURAL ESSAY.)

By J. Curtis O. Hughes.

THE *uva ursi* is a low evergreen shrub, with long trailing stems. The leaves are short, oval, oblong, cuneate, smooth, shining, of a dark-green color on the upper surface. On the under surface they are of a lighter color, and traced with veins of net work. When fresh, they are void of smell, but when dry and bruised they have the odor of hay. The flowers are of a reddish white color. The fruit is a round berry. It is green at first, but when ripe it becomes red. The leaves are used for tanning, and would form a good substitute for sumac. This shrub inhabits northern Europe, Asia and America. It flourishes in a cold and barren soil. Our market is supplied from New Jersey.

**Medical Properties.**—*Uva ursi* is an astringent tonic and diuretic. As an astringent it is applicable to all the purposes for which the vegetable astringents are used. The principal use of this medicine is in chronic affections of the bladder and kidneys. It has been used with success in strangury, with discharge of mucus; and also, in gravel, by a direct action on the kidneys, and by giving tone to the digestive organs, in diabetes, gleet, fluor albus, menorrhagia, and pulmonary consumption. The dose of the powder, ℥j. to ʒj. Of the decoction, f ʒj. to f ʒij., made by boiling 1 oz. of *uva ursi* with a pint and a half of distilled water, to a pint. Of the extract, grs. v. to grs. xv.

**Chemical History.**—1st. Two ounces of *uva ursi* in powder were treated by displacement with six ounces of alcohol. The resulting tincture was of a dark-green color, and when evaporated to the consistence of a syrup, globules of a fixed oil floated on its surface, and on the sides of the dish a brownish matter was deposited, consisting of tannin, extractive and resin. After removing the fixed oil, the extract was treated with water, which dissolved the tannin and extractive, leaving an undissolved portion, consisting mainly of resin and chlorophylle; soluble in alcohol and ether, and insoluble in acids. The watery solution of the extract was largely precipitated by tincture of muriate of iron.

2d. *Uva ursi*, when treated with ether by displacement, affords a deep-green tincture, which leaves a greenish extract by evaporation, composed of tannin, chlorophylle, resin and fixed oil. The extract, treated with water, is deprived of tannin, and the filter absorbs the oil, leaving the resin colored with chlorophylle on the filter.

3d. Two ounces of *uva ursi* were macerated with acidulated water for twelve hours. The liquor was then strained, and the residue boiled for twenty minutes three successive times in a pint of water. It was then displaced with water until it passed off nearly colorless and tasteless, and

afterwards with alcohol until it ceased to remove any portion. It was then dried and weighed one ounce, showing about fifty per cent. of lignin. This was without taste or odor, very brittle, readily decomposed with sulphuric acid, forming a thick black mass.

4th. Six ounces of *uva ursi* having been bruised and macerated in water for six hours, were then transferred to a retort placed in a sand bath; a solution of common salt was added, and a receiver adapted. The distillation continued for five hours. There was about a pint condensed in the receiver during the operation. The liquid in the retort was of a dark-brown color, but that which passed over was colorless; a light-colored oil collected in globules on the surface of the distilled liquid, having a very pleasant odor.

5th. An infusion was made of two ounces of *uva ursi* with a pint of water. The infusion was precipitated with a solution of gelatin, forming tannate of gelatin, and the infusion was filtered. To a portion of the filtered liquid a solution of subacetate of lead was added; it produced a dull white precipitate. With lime water, a yellow, showing the existence of gum. To a second portion of the liquor a few drops of protochloride of tin were added, producing a white precipitate; with nitrate of silver, a brown one, denoting the presence of bitter extractive. To a third portion a few drops of tincture of muriate of iron were added; it turned black, proving the existence of gallic acid. Starch could not be detected with tincture of iodine.

Ashes of *uva ursi* were tested and found to contain potash and lime.

6th. One pound of *uva ursi* was macerated in water for twelve hours, and displaced until two quarts of liquor were obtained. The tannin was precipitated with a solution of gelatin, and filtered. The liquor was evaporated to dryness, the extract remaining dissolved in strong alcohol, and treated with purified animal charcoal for twenty-four hours. It was then filtered, evaporated, re-dissolved in absolute alcohol, and treated with purified animal charcoal for twenty-four hours; filtered and crystallized by spontaneous evaporation. The crystals were pressed, re-dissolved in absolute alcohol, treated with animal charcoal, filtered and crystallized by spontaneous evaporation. This substance crystallizes in transparent, colorless, needle-shaped prisms, soluble in alcohol, ether and dilute acid. It will not dissolve in essential and fixed oils. Its aqueous solution is precipitated by subacetate of lead and carb. potash; lime water, and tincture muriate of iron do not affect it. It is neutral to test paper, and combustible. One grain acted as a powerful diuretic.

From the experiments here detailed, it may be inferred that *uva ursi* contains tannin, gallic acid, gum, resin, bitter extractive, volatile and fixed oils, lignin, and a peculiar principle, which, as it embodies the diuretic power of the leaves, may be called *ursin*. This principle is worthy of a further investigation, particularly as to its chemical relations and medicinal powers. If it should prove to possess, in full, the useful properties of the plant, it may become a valuable agent in the hands of the practitioner.—*The American Journal of Pharmacy*.