ON THE
DIURETIC PROPERTIES
OF THE
PYROLA UMBELLATA.

By W. SOMERVILLE, M.D.

DEPUTY INSPECTOR OF MILITARY HOSPITALS.

COMMUNICATED IN A LETTER TO

SIR WALTER FARQUHAR, BART.

Read July 19, 1814.

London, 29th June, 1814.

MY DEAR SIR,

In order to shew the grounds upon which a favourable opinion was formed of the virtues of the *pyrola umbellata*, I shall take the liberty of recalling to your recollection some particulars of the case in which I first had occasion to use that plant as a medicine; the more especially since it is well known to you, that the disease was fast hastening to a fatal termination before we became acquainted with the remedy to be spoken of.

Sir James Craig, our late able governor of British North America, was attacked with symptoms of

general dropsy about the sixtieth year of his age, the disease in its progress having assumed the forms of hydrothorax, anasarca, and ascites.

The eminent physicians with whom I consulted, ascribed the dropsical symptoms to organic disease of the liver, the existence of which was proved by a palpable induration of a portion of that viscus. It was not difficult to account for the presence of that morbid affection, when it was considered, that the patient, possessing great energy of mind and activity of body, had done the duty of a soldier forty-nine years, under every vicissitude of war, wounds, and climate, in every quarter of the globe: he had also undergone repeated attacks of bilious remittent fever in India.

To remove or alleviate the symptoms immediately resulting from the affection of the liver, recourse was had to mercury in various forms, to Cheltenham water, and other saline purgatives, in addition to the attention to regimen and diet.

In Gibraltar, in May, 1805, a train of anomalous complaints, with which Sir James had long been harassed, ended in difficult respiration, attended with a sensation of tightness round the margin of the diaphragm, a diminution in the quantity of urine, and œdematous swelling of the legs.

usual form. The seton may be introduced obliquely on the anterior part of the joint, including from one inch and a half, to two inches of integuments. After some time the skin over it usually inflames and ulcerates, and the seton drops out; but this does not happen before it has produced all the benefit which may be expected from it.

Of the above observations on the ulceration of the cartilages of the hip, many are applicable to the disease in other joints. In all cases a state of the most perfect quietude is indispensable. Where the disease is in the lower extremity, the patient should be confined to the horizontal position; where it is in the upper, the arm should be supported in a sling. Where the knee or elbow is affected, we may employ the caustic issue, or the blister kept open with the savine cerate; but the former appears to be the most efficacious of the two. In the knee a narrow slough may be made by rubbing the skin with the *potassa fusa* on each side of the patella; and in the elbow the caustic may be applied in the same manner on the inside and on the outside of the joint. Where the disease has its seat in those joints, which are surrounded by numerous tendons, as the wrist or ankle, or the joints of the carpus or tarsus, it may be more prudent to employ the blister kept open with the savine cerate, lest injury should be done to the superficial tendons, by the application of the caustic. Where I have met with this disease in the shoulder,

as elaterium is in its operation, I thought it might be exhibited in doses so small as to preclude the peril arising from hypercatharsis, while its energy as a hydragogue might be exerted and maintained by the repetition of such small doses, and at such intervals as the effect of what had already been taken should warrant. My patient earnestly desired that the experiment might be made.

His bowels had become so sluggish that a spontaneous evacuation rarely occurred, and even large doses of calomel, gamboge, and jalap, had frequently failed : the absorbents and kidneys were so torpid, that the quantity of urine voided in the space of twenty-four hours, had seldom amounted to six ounces for many days.

The fourth part of a grain of elaterium formed into a pill, with a few grains of compound powder of cinnamon, was given : no operation having been produced by it in four hours, another similar pill was given : as the second only occasioned a murmuring noise in the bowels, a third was given in four hours more, which soon brought away a great quantity of hard, dark coloured fetid fæces, together with copious watery stools : a brisk catharsis was kept up by a fourth pill, but the patient began to complain of languor and gnawing pain in the intestines, although he had taken nourishment with more than ordinary relish in the course of the day. I therefore deemed it expedient to allay the

the contraction of the cyst and the obliteration of its cavity will be prevented.

In some instances I have been led to believe that after the application of the caustic, the tumor formed by the abscess has diminished in size, as if from an absorption of a portion of its contents. I have however seen no instance of complete absorption having taken place, though I have made various attempts to produce so desirable an effect. Nauseating doses of ipecacuanha and emetic tartar were, in my experiments, of no service. Electricity was never useful; appearing rather to occasion a more rapid accumulation of matter. Knowing that pressure under certain circumstances, causes an increased action of the absorbent vessels, in two cases I applied strips of adhesive plaster round the limb, with the view of trying the effects of pressure on the contents of the abscess. The consequence was a speedy diminution of the external tumor; but I afterwards found, that this arose not from any absorption having taken place; but simply from the increased resistance on the surface, causing the abscess to occupy a larger space in the interior of the limb.

The early puncture of an abscess connected with a diseased joint is certainly not to be recommended. I have always observed that such an abscess has healed more readily, and that the opening of it, (whether by a natural process, or by the lancet,) has been attended with fewer ill conse-

able as the patient grew weaker : the ordinary doses sometimes produced no effect, sometimes severe pain, and when opium was given to allay the irritation, it also frustrated the operation of the medicine.

From an earnest desire of his own, he took an ounce of sulphate of soda every day for fifty-two consecutive days, in winter 1810-11 ; an irksome and unprofitable discipline, which only served to add another to the number of disappointments he had already experienced.

Every expedient used to arrest the progress of the disease having failed, it now became necessary to have recourse to the operation ; accordingly on the 10th of February, thirty-six pints of clear yellowish fluid were drawn off. The relief obtained was very transient, for in the course of a very few days the abdomen began to fill again, and increased its dimensions so rapidly that we were obliged to repeat the operation on the 19th of May.

A few days previous to this I received a letter from an officer of the medical staff in charge of the hospital at William Henry, to whom I had applied for information respecting the medicines used by the Indians. Mr. Carter in his letter stated, that “ having a patient, private, John M^cCan, of the 49th regiment, labouring under ascites, and after administering digitalis, crystals of tartar, and

other diuretic medicines to no effect, the water in the abdomen continued to increase rapidly. I was resolved previous to my making use of the trochar to try the effect of the herb *de paigné*. He commenced taking a strong infusion of the plant on the 15th instant (April 1811). The next morning when I visited the hospital, I was agreeably surprised, when he informed me that he had voided more water in the night, than he had done in three nights and days previous put together, which I believe to have been the case from the quantity he shewed me he had made in the night. The colour of his water was entirely changed from that of brick-dust to the colour exactly of the infusion of the herb he had drunk. The water in the abdomen continues daily to decrease, and I have the most sanguine hopes of his speedy recovery."

"The herb does not appear to possess any narcotic quality, being perfectly innocent in its operation."

There was great disparity between the two patients, in years, vigour of constitution, and probably in the source of the disease; yet the favourable result of so opportune an experiment, could not fail to hold out some encouragement; on the 19th of May, therefore, immediately after the second operation, Sir James was directed to begin taking a strong infusion of the whole plant, in the quan-

tity of a pint in twenty-four hours. Prepared in this way, the medicine is nearly of the colour of the infusion of green tea; its taste is agreeably bitter.

The benefit derived from the use of this herb was not very durable; but while it lasted, it exceeded any expectation I had formed: its influence on the kidneys was apparent in two days, for the quantity of urine discharged in twenty-four hours amounted to two pints, and was soon increased to three and occasionally to four pints: a decided effect was produced upon the stomach which we had not looked for, namely an increase of appetite. The strength improved daily, the countenance became less sallow, and the abdomen did not begin to fill for several weeks after the second operation.

With a view of ascertaining the power of the medicine, I ordered a pint of the infusion to be drunk by a young man who had fractured his arm, but who was in perfect health in all other respects. He was not prepared to look for an increase in the quantity of his urine. He informed me next morning that he should have slept well, if he had not been constantly waked by calls to make water.

The herb called by the Indians *de paignè*, and by the Canadians *l'herbe à pisser*, is the *pyrola umbellata* of Linnæus.

Sir James took the pyrola in various forms with benefit, and had even rallied more than might have been expected at so late a stage of his disease. He left Canada in June, and in the foggy weather on the banks of Newfoundland in July, symptoms of dropsy again appeared, and made such progress after his arrival in England, that the operation was required towards the end of August. The pyrola resumed its power, but maintained it for a shorter time than after the former tapping. Purgative medicines were again tried without advantage: scammony in the dose of thirty-six grains operated feebly. The trochar was again used, and in January, 1812, Sir James sunk under the pressure of a long protracted malady, which he had endured with fortitude so many years.

It may perhaps render the statement of this case more interesting, to subjoin the report of the inspection of the body, on the 14th of January, 1812.

About four quarts of water were found in the cavity of the abdomen: the peritoneum was everywhere much thickened, and the intestines were glued together from the effect of inflammation. The liver had its peritoneal coat changed into cartilage, and adhesions had formed between it and the stomach: the internal coat of the stomach was much inflamed, and its substance thickened.

The substance of the liver had innumerable tu-

bercles dispersed through it: the gall-bladder was contracted and thickened, and contained two small calculi. The other abdominal viscera were sound, except in their peritoneal coat.

The lungs on the left side were sound, but compressed on the right side by three pints of water.

The pericardium contained six ounces of water.

The heart was somewhat larger than usual.

In the belief that the virtues of this plant do not reside in any volatile principle in its composition, I was induced to vary the mode of preparing it, in order to augment its strength without adding to its violence; a decoction was therefore used instead of an infusion. An ounce of the dried plant including the root, stalk, and leaves, cut small, and macerated twelve hours in two pints of cold water, then boiled till it yielded one pint of strained liquor, was found to act with greater energy than the infusion.

It was an object of some consequence to have so valuable a medicine reduced to the most compendious form, to insure a supply when the forests of America should be no longer within reach. I therefore requested Mr. Carter, in whose accuracy and care I could place entire confidence, to make an extract of the pyrola. He found that thirty-

four pounds avoirdupois of the recent herb produced four pounds of extract. I have given five scruples of this extract in twenty-four hours. The extract may be administered made into pills, or as you, Sir, have recommended, dissolved in a small quantity of boiling water.

Sir James Craig and other patients have remarked, that an agreeable sensation was perceived in the stomach soon after taking the pyrola, followed in some instances by an extraordinary increase of appetite.

This gives it a great advantage over other diuretics, of which none are agreeable to the stomach, and most of them are very offensive to it.

It need scarcely be observed, that to remove the fluid, by the effusion of which dropsy is characterized, is not to cure the disease of which the fluid preternaturally accumulated is, in so many cases, only a symptom, or remote effect; but since that is often the only relief we can aim at, it will readily be acknowledged, that the pyrola umbellata will fill a place unoccupied by any other medicine, and supply a *desideratum* in the list of diuretics, if more extensive experience shall confirm the opinion I have formed of its virtues. It generally increases the secretion of urine, and retains its influence on the kidneys for some time; it occasionally acts as a tonic, and in all cases is free from those

offensive and even deleterious qualities which frequently interdict the application of some of the most powerful diuretics.

You may recollect having prescribed a portion of the pyrola which I had sent from America, to be taken in infusion, by a lady who had then been tapped eight times: her account of its effects is very favourable: thirteen quarts of fluid had been taken from her by Mr. Heaviside on the 23d of July, 1811. She says, "that strength, sleep, appetite, and spirits had left her, she began to take the infusion of pyrola eight days after the operation, and to her great surprise a very few hours after she had taken the first two ounces, she voided two quarts of urine of the colour of the medicine, a quantity equal to what she had previously been accustomed to pass in four days." She took the medicine ten days, when her supply was exhausted, passing from three pints to two quarts of urine daily. In her anxiety to persevere in the use of a medicine that had done her so much good, she boiled the portions of pyrola, from which an infusion had already been made, and experienced the same advantage from the decoction: she continued to make the same quantity of water for some days, after she was obliged to leave off. In a letter, dated the 18th of August, 1811, she writes that "she had passed a certain period, at which she usually began to fill; yet she remained quite well, slept well, had a voracious appetite, her strength and

spirits had returned, and instead of a cold shivering sensation, she then felt a proper warmth, such as she had not experienced for years. In the end of August, she walked from her own house in Gloucester-place to the Strand. The disease returned, but not till twice the usual time had elapsed, at which she used to fill. The fallacious hopes she so anxiously cherished have not been realized, for she has been tapped, for the thirty-fourth time, a few days ago."

The colour imparted to the urine, has been observed by several persons who have taken the pyrola, but it does not always take place; I think it follows the use of the infusion or decoction more frequently than of the extract.

I have generally found the good effects of the pyrola upon the stomach, and as far as my own experience or information extend, no circumstance has occurred to forbid the use of it in any form, or to limit the dose.

The extract was prescribed in three hopeless cases of ascites, accompanied with unequivocal marks of organic visceral derangement; the patients were private soldiers: in two instances, the kidneys were stimulated powerfully; in the third the patient complained of sickness at stomach, and did not persevere in taking the medicine.

The surgeon of the East York militia was cured of dropsical symptoms by the extract of pyrola.

Dr. Satterley informed me, that the quantity of urine was increased in two cases under his care, by the administration of the pyrola; and Sir Gilbert Blane has very lately communicated to me, that Dr. Marcet has found, in two instances, striking effects from the pyrola, which he tried at Guy's Hospital, in doses of fifteen grains of the extract, thrice a day.

A young woman who took the extract, experienced great increase of appetite, as well as an augmentation of the discharge of urine of a greenish colour. She adds that, at the same time, she felt a most uncommon sensation in the small of her back, in the region of the kidneys; sometimes on one side of the spine; sometimes on the other, as if something were fluttering within, without occasioning pain or uneasiness of any sort. She has never experienced the same sensation since she left off taking the extract of pyrola.

The pyrola umbellata is found in great abundance in the Pine forests in North America, growing luxuriantly under the shade and shelter of the trees, in dry sandy soil enriched by decayed leaves. It sends out long roots horizontally, from which stems shoot up at short intervals, propagating itself in this way, as well as by seed. It

is a beautiful shrub, well worthy of a place in a garden on that account, independent of its merits as a medicine.

It has been found very difficult to cultivate this species of the *pyrola* in England ; indeed, I have only found one plant of it alive, of a great number I brought from Canada, in summer 1811 ; that plant is in Mr. Malcolm's garden at Kensington.

The Hurons and other Indian nations are well acquainted with the operative effect of the *pyrola*, and have long been in the habit of using it in all disorders which they ascribe to a diminished secretion of urine, or which they think may be cured by an increase of that secretion. They use it in gravelly complaints very commonly.

I am not acquainted with any author by whom the medicinal virtues of this species of *pyrola* are mentioned. In the *Flora Americæ Septentrionalis*, Pursh says, that the *pyrola maculata* is useful in hysteria.

In a case of acute rheumatism, in Canada, I saw the leaves of a plant which I suppose to have been the *pyrola umbellata*, applied as a cataplasm to the shoulder affected : the bruised leaves of the recent plant held to the fire till they were as hot as they could be endured, were applied to the part in a warm towel, for three hours. The application

produced great heat, irritation, and redness in the part, followed by such sharp pain, that profuse perspiration over the whole body ensued, which was kept up in bed by warm drinks and clothing, for six hours. I am inclined to believe, that perspiration induced by any other means, rather than by the intervention of sudorific medicines taken inwardly, will be found beneficial in rheumatism. At the Cape of Good Hope, the Dutch inhabitants use the warm bath at Zwarte Berg in this view. The water is of the temperature of 107° , where it issues from the ground, but it cools to several degrees lower before the bath is filled. The rheumatic patient remains immersed in the water, as hot as he can bear it, from fifteen minutes to half an hour, or even longer; he then retires to a warm bed in an adjoining room, to *sweat out*, as it is called in that country; an operation which lasts an hour or two according to the habit of the individual: certain it is, that rheumatism is often cured in this way.

As it is of the utmost consequence that the identity of medicines should be ascertained, particularly those of the vegetable kingdom, where there is great room for ambiguity, it has been thought advisable to subjoin a botanical description, and a coloured figure of this plant.

The value of ancient medical writings is considerably diminished, by the great difficulty and even

impossibility of ascertaining the greater number of those articles of the *materia medica*, referred to in their works. There is perhaps no vegetable production mentioned by these writers, which we can now identify with confidence, (except opium, and perhaps aloes,) for want of proper descriptions. This objection will not apply to modern writing, for in consequence of the great precision to which the arrangement of natural objects has been brought, by the happy method of description, founded on the admirable system of botany invented by Linnaeus: the various articles of the *materia medica* will be clearly recognizable to the latest posterity,

W. SOMERVILLE, M.D.

Deputy Inspector of Military Hospitals,

PYROLA UMBELLATA.

CLASS AND ORDER, DECANDRIA, MONOGYNIA.

Generic character of Pyrola.

Calyx, quinque partitus.

Petala, quinque.

Capsula, supera, quinquelocularis, angulis dehis-
cens, polysperma.

Antheræ, poris duobus.

Specific character of Pyrola Umbellata.

Floribus subumbellatis.

Detailed description.

Radix repens.—Caules subdecumbentes, lignosi, spithamæi.—Folia aliquando verticillata, opposita vel sparsa, subsessilia, in petiolum decurrentia, cuneiformi-lanceolata, obtusa, argute serrata, superne lucida viridissima, inferne pallide virescentia. Pedunculi terminales, terni, quaterni sive quini. Flores formosi, minores quam in pyrola rotundifolia. Calyx, perianthemum 5 partitum, exiguum. Petala 5 alba, apicem versus rubicunda. Filamenta 10, filiformia, brevia. Antheræ bicornes. Stigma capitatum, obtusum, magnum. Habitat in sylvis umbrosis Americæ Septentrionalis.