ON THE

PREPARATION, CULTURE,

AND

USE

OF THE

ORCHIS ROOT.

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SALEP is a preparation of the root of Orchis, or Dogſtones, of which many ſpecies are enumerated by Botanical writers. The *Orchis maſcula, Linn. ſp. pl.* is the moſt valued, although the roots of ſome of the palmated ſorts, particularly of the *Orchis latifolia*, are found to anſwer almoſt equally well. This plant flouriſhes in various parts of Europe and Aſia, and grows in our country ſpontaneouſly, and in great abundance. It is aſſiduouſly cultivated in the Eaſt, and the root of it forms a conſiderable part of the

diet of the inhabitants of Turkey, Perſia, and Syria. A dry and not very fertile ſoil is beſt adapted to its growth. An ingenious friend of mine, in order to collect the ſeed, tranſplanted a number of the Orchiſes into a meadow, where he had prepared a bed well manured for their reception. The next ſpring few of them appeared, and not one came to maturity, their roots being black and half rotten. The ſame gentleman informed me, that he had never been able to raiſe any plant from the ſeed of the wild Orchis; but he aſcribes his want of ſucceſs to the wetneſs of the ſituation in which he reſides. I have now before me a ſeed pod of the Orchis, the contents of which to the naked eye, ſeem to be ſeed corrupted and turned to duſt, but when viewed through a microſcope appear evidently to be organized, and would I doubt not with proper culture germinate, and produce a thriving crop of plants. The propereſt time for gathering the roots is when the ſeed

ſeed is formed, and the ſtalk is ready to fall, becauſe the new bulb, of which the ſalep is made, is then arrived to its full maturity, and may be diſtinguiſhed from the old one, by a white bud riſing from the top of it, which is the germ of the Orchis of the ſucceeding year.

Several methods of preparing ſalep have been propoſed and practiſed. Geoffroy has delivered a very judicious proceſs for this purpoſe, in the *Hiſtoire de l' Academie Royale des Sciences* 1740; and Retzius, in the Swediſh Tranſactions 1764, has improved Geoffroy's method. But Mr. Moult of Rochdale has lately favoured the public with a new manner of curing the Orchis root, and as I have ſeen many ſpecimens of his ſalep, at leaſt equal if not ſuperior to any brought from the Levant, I can recommend the following, which is his proceſs, from my own knowledge of its ſucceſs.

The new root is to be waſhed in water, and the fine brown ſkin which covers it is to be ſeparated by means of a ſmall bruſh, or by dipping the root in hot water, and rubbing it with a coarſe linen cloth. When a ſufficient number of roots have been thus cleaned, they are to be ſpread on a tin plate, and placed in an oven heated to the uſual degree, where they are to remain ſix or ten minutes, in which time they will have loſt their milky whiteneſs, and acquired a tranſparency like horn, without any diminution of bulk. Being arrived at this ſtate they are to be removed, in order to dry and harden in the air, which will require ſeveral days to effect; or by uſing a very gentle heat, they may be finiſhed in a few hours. *(a)*

SALEP thus prepared, may be afforded in this part of England, where labour bears

(a) Vid. a Letter from Mr. John Moult to the Author, containing a new method of preparing Salep. Phil. Tranſact. Vol. 59.

bears a high value, at about eight pence or ten pence per pound. And it might be ſold ſtill cheaper, if the Orchis were to be cured, without ſeparating from it the brown ſkin which covers it: A troubleſome part of the proceſs, and which does not contribute to render the root, either more palatable or ſalutary. Whereas the foreign ſalep is now ſold at five or ſix ſhillings per pound.

THE culture of the Orchis therefore is an object highly deſerving of encouragement, from all the lovers of agriculture. And as the root, if introduced into common uſe, would furniſh a cheap, wholeſome, and moſt nutritious article of diet, the growth of it would be ſufficiently profitable to the farmer.

SALEP is ſaid to contain the greateſt quantity of vegetable nouriſhment in the ſmalleſt bulk. Hence a very judicious writer, to prevent the dreadful calamity of

of famine at ſea, has lately propoſed that the powder of it ſhould conſtitute part of the proviſions of every ſhip's company. This powder and portable ſoup, diſſolved in boiling water, form a rich thick jelly, capable of ſupporting life for a conſiderable length of time. An ounce of each of theſe articles, with two quarts of boiling water, will be ſufficient ſubſiſtence for a man a day *(b)*; and as being a mixture of animal, and vegetable food, muſt prove more nouriſhing than double the quantity of rice cake, made by boiling rice in water; this laſt however ſailors are often obliged ſolely to ſubſiſt upon for ſeveral months, eſpecially in voyages to Guinea, when the bread and flour are exhauſted, and the beef and pork, having been ſalted in

(b) Portable ſoup is ſold at half a crown per pound; ſalep, if cultivated in our own country, might be afforded at ten pence per pound; the day's ſubſiſtence would therefore amount only to two pence halfpenny.

in hot countries, are become unfit for uſe.*

But as a wholeſome nouriſhment, rice is much inferior to ſalep. I digeſted ſeveral alimentary mixtures prepared of mutton and water, beat up with bread, ſea biſcuit, ſalep, rice flour, ſago powder, potato, old cheeſe, &c. in a heat equal to that of the human body. In forty-eight hours they had all acquired a vinous ſmell, and were in briſk fermentation, except the mixture with rice, which did not emit many air bubbles, and was but little changed. The third day ſeveral of the mixtures were ſweet, and continued to ferment; others had loſt their inteſtine motion, and were ſour; but the one which contained the rice was become putrid. From this experiment it appears that rice as an aliment, is ſlow of fermentation,

* Vid. Dr. Lind's Appendix to his Eſſay on the Diſeaſes of Hot Climates.

mentation, and a very weak corrector of putrefaction. It is therefore an improper diet for hoſpital patients; but more particularly for ſailors, in long voyages, becauſe it is incapable of preventing, and will not contribute much to check the progreſs of that fatal diſeaſe, the ſea ſcurvy. *(c)* Under certain circumſtances rice ſeems diſpoſed of itſelf, without mixture, to become putrid. For by long keeping it ſometimes acquires an offenſive fœtor. Nor can it be conſidered as a very nutritive kind of food, on account of its difficult ſolubility in the ſtomach. Experience confirms the truth of this concluſion;

(c) CHEESE is now become a conſiderable article of ſhip proviſions. When mellowed by age it ferments readily with fleſh and water, but ſeparates a rancid oil, which ſeems incapable of any further change, and muſt, as a ſeptic, be pernicious in the ſcurvy. For rancidity appears to be a ſpecies of putrefaction. The ſame objection may be urged, with ſtill greater propriety, againſt the uſe of cheeſe in hoſpitals; becauſe convaleſcents are ſo liable to relapſes, that the ſlighteſt error of diet may occaſion them. Vid. Percival's Letter to Mr. Aikin. Thoughts on Hoſpitals, p. 95.

on; for it is obſerved by the planters in the Weſt-Indies, that the negroes grow thin, and are leſs able to work, whilſt they ſubſiſt upon rice.

SALEP has the ſingular property of concealing the taſte of ſalt water *(d)*; a circumſtance of the higheſt importance at ſea, when there is a ſcarcity of freſh water. I diſſolved a drachm and a half of common ſalt in a pint of the mucilage of ſalep, ſo liquid as to be potable, and the ſame quantity in a pint of ſpring water. The ſalep was by no means diſagreeable to the taſte, but the water was rendered extremely unpalatable.

THIS experiment ſuggeſted to me the trial of the Orchis root as a corrector of acidity, a property which would render it a very uſeful diet for children. But the ſolution of it, when mixed with vinegar,

(d) Vid. Dr. Lind's Appendix.

negar, ſeemed only to dilute, like an equal proportion of water, and not to cover its ſharpneſs.

SALEP however appears by my experiments, to retard the acetous fermentation of milk, and conſequently would be a good lithing for milk pottage, eſpecially in large towns, where the cattle being fed upon ſour draft, muſt yield aceſcent milk.

SALEP in a certain proportion, which I have not yet been able to aſcertain, would be a very uſeful and profitable addition to bread. I directed one ounce of the powder to be diſſolved in a quart of water, and the mucilage to be be mixed with a ſufficient quantity of flour, ſalt, and yeaſt. The flour amounted to two pounds, the yeaſt to two ounces, and the ſalt to eighty grains. The loaf when baked was remarkably well fermented, and weighed three pounds two ounces.

Another

Another loaf, made with the ſame quantity of flour, &c. weighed two pounds and twelve ounces; from which it appears, that the ſalep, though uſed in ſo ſmall a proportion, increaſed the gravity of the loaf ſix ounces, by abſorbing and retaining more water than the flour alone was capable of. Half a pound of flour, and an ounce of ſalep were mixed together, and the water added according to the uſual method of preparing bread. The loaf when baked weighed thirteen ounces and a half; and would probably have been heavier, if the ſalep had been previouſly diſſolved in about a pint of water. But it ſhould be remarked, that the quantity of flour uſed in this trial was not ſufficient to conceal the peculiar taſte of the ſalep.

THE reſtorative, mucilaginous, and demulcent qualities of the Orchis root render it of conſiderable uſe in various diſeaſes. In the ſea ſcurvy it powerfully

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obtunds the acrimony of the fluids, and at the ſame time is eaſily aſſimulated into a mild and nutritious chyle. In diarrhœas and the dyſentery it is highly ſerviceable, by ſheathing the internal coat of the inteſtines, by abating irritation, and gently correcting putrefaction. In the ſymptomatic fever, which ariſes from the abſorption of pus, from ulcers in the lungs, from wounds, or from amputation, ſalep uſed plentifully is an admirable demulcent, and well adapted to reſiſt that diſſolution of the *craſis* of the blood, which is ſo evident in theſe caſes. And by the ſame mucilaginous quality, it is equally efficacious in the ſtrangury, and dyſury; eſpecially in the latter when ariſing from a venereal cauſe, becauſe the diſcharge of urine is then attended with the moſt exquiſite pain, from the ulcerations about the neck of the bladder, and through the courſe of the *urethra*. I have found it alſo an uſeful

ful aliment for patients who labour under the ſtone or gravel. *(e)*

FROM theſe obſervations, ſhort and imperfect as they are, I hope it will ſufficiently appear that the culture of the Orchis root is an object of conſiderable importance

(e) THE ancient chemiſts ſeem to have entertained a very high opinion of the virtues of the Orchis root, of which the following quotation from the SECRETA SECRETORUM of Raymund Lully, affords a diverting proof. The work is dated 1565.

SEXTA HERBA,

Satirion.

" SATIRION herba eſt pluribus nota, hujus radicis collecta ad pondus lib. 4. die 20 menſis Januarij, contunde fortiter & maſſam contuſam pone in ollam de aurichalcum habente in cooperculo 20 foramina minuta ſicut athomi, & pone intus cù prædicta meſſa lactis vaccini calidi ſicut mulgetur de vacca ℔. 3. & mellis libram 1. vini aromatici ℔. 2. & repone per dies 20. ad ſolem & conſerua & utere."

" Iſtius itaq; doſis ad pondus 3. 4. & hora diei decima exhibita mulieri poſt ipſius menſtrua eadem nocte còcipiet ſi vir cum ea agàt."

importance to the public, and highly worthy of encouragement from all the patrons of agriculture. That taſte for experiment, which characteriſes the preſent age, and which has ſo amazingly enlarged the boundaries of ſcience, now animates the RATIONAL FARMER, who fears not to deviate from the beaten track, whenever improvements are ſuggeſted, or uſeful projects are pointed out to him. Much has been already done for the advancement of agriculture; but the earth ſtill teems with treaſures which remain to be explored. The bounties of nature are inexhauſtible, and will forever employ the art, and reward the induſtry of man.

MISCEL-

MISCELLANEOUS EXPERIMENTS AND OBSERVATIONS.

—— Alij hinc ſaltem, hac data via, felicioribus freti ingenijs, rei rectius gerendæ et melius inquirendi occaſionem capiant.

G. HARVEIJ. Op.

EXPERIMENTS AND OBSERVATIONS ON THE WATERS OF BUXTON AND MATLOCK, In DERBYSHIRE.

THE water of St. Ann's well at BUXTON, is found, by analyſis, to contain calcareous earth, foſſil alkali, and ſea ſalt; but in very ſmall proportions. For a gallon of the water, when evaporated, yields only twenty-three or twenty-four grains of ſediment. It ſtrikes a ſlight green colour with ſyrup of violets, ſuffers no change from an infuſion of galls, from the fixed vegetable alkali, or from the