

Leeds. Oct. 26. 1891

Dear Darwin,

I agree with you that too much has been said about submergence of large, floating leaves. The great difficulty which we had in sinking a leaf of *V. regia* shows how little it can be exposed to risk of forcible submergence. Flooding by rain is no doubt the accident to be specially guarded against, & the lodging of rain-water on the leaves. We should expect that the choking of the stomata would be the first & most serious injury to result.

I am not at all satisfied about the prickles in *V. regia*, & feel the want of observations made where the plant grows. We know so little of the everyday life of the plant. *Stratiotes* is more accessible, but I have seen very little of it, as it does not grow within many miles of Leeds.

Yesterday I visited a pond which is overgrown with *Potamogeton natans*, mixed with *P. lucens*. Many fruits of *P. natans* were

floating on the surface. They have no centres of attraction & do not form chains or figures of any kind, but merely gather round stems, the sides of ponds &c. as close as they can stick. Spacing on the surface of the water is apparently of little or no consequence to these fruits. Means of transport to a new site is probably the important thing.

P. natans was evidently getting ready for the winter. The floating leaves have to a great extent ceased to repel water, & in one pond all were submerged. Most of the leaves of *Hydrocharis* were submerged too. I have noticed in my aquarium the behaviour of a number of water-plants in winter. If the leaves &c. ordinarily contain air, this is got rid of. Winter-buds form which do not elongate, though the leaves slowly increase in size & become very closely wrapped. The connecting stems decay & the winter-buds become isolated. In *Hydrocharis* I have seen such detached buds floating on the water in spring, & found that they contained a

good deal of air or some other gas.

The writing pad now sent will explain the rough edge of the paper. A ream of paper makes up into 16 pads of 120 sheets each, & costs 12/- Each pad is therefore 9.^d I got mine from McCorquodale & Co., Leeds.

Yours very truly,
L. C. Miall.