



Miall L.C.

O  
2

Correspondence with FD.

for L.C. Miall of Leeds  
on floating leaves (with  
various photographs).

Ed.



Oct. 3. 1891

Dear Darwin

The interest which you take in the questions about floating leaves encourages me to ask whether you would care to enter into a correspondence on the subject. I would gladly send you from time to time an account of what I have seen, & the questions which occur to me, & if you would do the same we could keep the subject alive until

we see what is likely to come of it. I am persuaded that we have got upon an interesting & productive Enquiry, but I have only a hazy notion of its extent & difficulty.

One of the first things to do would be to ascertain the surface-tension of water in contact with various leaves. This would be readily done in the case of large flat leaves, but how to determine it in the case of Duckweeds, Azolla,

tc. I don't as yet see.

The effect of gentle rubbing (to remove bloom, fine hairs, &c.) might be observed. *Nelumbium* soon loses its repellent power in this way. Some *Nymphaeas* become more repellent by rubbing, probably by removal of dirt.

The minute structure of the surface would in many cases need attention. I am much puzzled how to explain the loss of repellent power in leaves which begin to decline

in vigour. A yellowish *Nymphaea*  
leaf, not visibly changed in  
structure, often floats beneath  
the surface.

As to *Marsilea*, I have  
only observed one species, *M.*  
*macrospora*. This has so repellent  
a surface, almost equal to  
*Nelumbium*, that I think it  
would readily liberate itself  
from water. Unfortunately I  
did not examine the under  
side of the aerial leaves, which  
are probably the parts specially  
concerned.



ations going on at Cambridge,  
& possibly, where a number  
of determinations have to be  
made by a particular method  
you would be able to put  
one of your pupils (if possible  
a man practised in physical  
observation) to do them for us.

The matter is so little  
explored at present that it  
would be undesirable to  
commit ourselves to any

far-reaching plan, & I  
should propose to go on only  
so long as we are both  
satisfied that progress is  
being made.

Yours very truly,  
L. C. Miall

I should think it useful in the first instance to take a survey of the subject, not too minute, noting what is known or conjectured about each plant. The result, so far as positive knowledge is concerned, would be very meagre, but I hope that some good lines of enquiry might be suggested.

I am quite prepared to hear that you cannot give



a great amount of time to  
the question. All the same,  
your co-operation might be  
of the greatest use. We  
want the right questions put  
& good experiments suggested.  
I should particularly value  
your opinion as to whether  
in a certain enquiry the  
evidence warrants the conclusion  
supposed to follow. It might  
be a great help to have observ.