

15

Oct 31

1860

15 Marine Parade

Eastbourne

My dear Gray

Since I wrote about a week or 10 days ago,
 I have had such a week of misery ^{as} ~~that~~ I
 can hardly bear it. My daughter
 did not know men and suffer. My daughter
 gives work & work, with pitiable suffering ^{so} ~~the~~
 all the doctors thought we had lost her. But
 the stoppage is over, & she has rallied strongly;
 the matter then is much again mending & what
 the final result will be cannot be known, but
 the mischief if any is decided. But she is quite
 easy now, & one comes at last to ease of
 for the present & we have managed to conceal from
 her, her extreme danger. - You are so kind &
 sympathetic that I have not resisted telling you
 our unhappiness. - We shall not be able
 to remove her home for several weeks, even if
 the case is not worse than the doctors ^{now} hope &
 believe. - I received the morning post letter of 16th

Oct, & forwarded that to Decimus. - Thanks for
 the letter Oct. 10th, which I shall find at home; but I
 have already 2 copies for self, so I shall be

Me to give away. How I wish you had time
 to write an affidavit in relation to descent with
 modification & how well you would do it. - Could you
 not some time bring it in by side wind in
 briefest affidavit of some group in form of some
 papers? You have in truth far more, even
 & over again, some more than you promised
 in getting my views & fair hearing. - I
 have been reflecting about getting, as you suggest,
 if it can be done, ²⁷⁵⁰ ~~2500~~ 200, copies
 of the 3 articles of the Atlantic reported
 from the States in America & sent here.
 Could it be done for 4 or 5 pounds? I
 would gladly pay that. - I do not think
 it would be of material about ^{the} papers.
 But what I do consider all important,
 is the you would publish title - page
 with your name & titles. If you did
 not object to this, I would post a

copy to all the societies here I could
get address of from the Societies. Perhaps
your name was appended, the articles
would not, I am sure, be read in
England & it would be time & money thrown away.
But would it not cost you a good
deal of trouble to get it done? The
might be sent to care of Murray
Albionville 11 or Williams & Rogers,
marked "to be forwarded" - ~~from me~~
I am profoundly interested with your sentence
"I think it grows more & more likely that species
are defined." I am glad to hear about
Dana. - I enclose sketch about Spitzbergen; if
you will observe your species, I'll be infinitely
obliged. If a very distinct species, the confidence
will probably differ; as the confidences are entirely
diverted. - I am not sure that you will understand
=, then a rough description; but you will if your
species is like mine. - I shall publish on Drosophila. -
your own of dear Greg
Most truly C. Darwin

as you speak of determinate movements for an end in
plants I am tempted to give case of *Orchis pyramidalis*
which seems to me pretty. The pollinia

are attached to connate glands of shape of a 
saddle, & are suspended in cup of liquid with ^a minute
lip. - Insects ^a needle into ^{the} nectary. The lip of cup is
pushed, & ^{the} sticky under surface of saddle sticks to needle
& the pollinia are removed. Immediately the saddle is
(, not whilst under water) the flaps

to the pollinia are removed. The flaps
exposed to ~~dry~~ air (& not whilst under water) I had a
of the saddle cut in & enclosed ^{the} needle. I had a
moth sent me with 3 pollen-masses attached ^{to following} & the
extending how the moth had

moth sent me with
under said it was extending how the moth had
bored through the sticky glands of some other! The movement
of the ^{is} fly conspicuous. At first



Side view of needle

pollinia occupy this position (viewed if
laterally, from ^{pollen-mass} behind the stam) ; & you push needle into nectary
of another flower, so pollen-masses do not touch stigmas, which
are lateral ~~the~~ inside, one on each side of orifice of
nectary. But immediately after the floss of saddle hump
^{and} another movement commences,

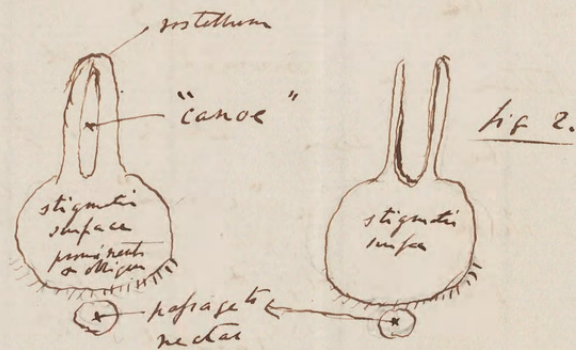
needle ^{and} seized the needle, another moment, commenced,
more downward,

seized the needle, and
the following more forward,
nearly parallel to needle of the two
if you push needle into rectum, the pollen-masses
exactly hit the stigmas & leave pollen-grain on them.
The insect which is always in one

which separated & fig 2. all
 the flowers which have been
 visited & insects are in
 this condition. (change the needle
 of insect, into the proboscis & you will see
 how fertilization is effected. The
 pollinia become attached nearly
 parallel to proboscis; & the
 insect visiting a second
 flower is sure to strike the
 apices of the pollinia against
 the stigma predicting disaid
 stigma. - If you follow the culms of a
 group from the rectum & withdraw it
 without bending, you will not withdraw the
 pollinia; but if before you withdraw it,
 you bend the culms so that its broad
 or convex surface touches the rostellum
 the pollinia will generally be withdrawn.
 moths in curling up their probosces, perform
 this action; & I go so far as to believe, while
 the structure of flower is made in relation to this
 mode of withdrawing probosces!!!

124a.

Spilanthus autumnalis



- (1) In rather early but the anthers
 open & press pollinia against
 back of rostellum in early bud
- (2) Back of rostellum opens, & a
 viscid substance glues the pollinia
 of rostellum or sticks to the
 to the back, & bottom of what
 I call the "canoe".
- (3) When the flower first opens
 the rostellum is not ruptured
 on the front surface (ie on
 its surface above the stigma)

Within the substance of the
sostellum a brownish, pig-like
can be seen, which is of
the shape of a "canoe", pointed
at both ends, & standing
vertically up, parallel to
longer axis of sostellum. The
bottom of canoe, as stated,
is already glued to the
pollinia. - The front &
concave or hollow side of
the canoe is filled, with very
viscid substance, which sets
hard in such less than a
minute when exposed to
the air. The concave side of the
canoe is, as

stated, covered, when flower opens,
with the membrane of the
sostellum. -

(4) Now if front surface of sostellum
be touched ^{longitudinally} most delicately by a
(or exposed to vapour of chloroform)
needle, its instantly split lengthwise
= touching its whole length, &
the needle comes into contact
with the viscid matter within
the canoe, ~~is forced~~ The canoe
embedded in the sostellum
& becomes firmly glued to the
needle; & the bottom of the
canoe is already long since
glued to the pollinia. Hence
when the needle is withdrawn
the canoe & pollinia are
all withdrawn together. The
sostellum is then left in the state



Darwin, Charles. 1860. "Darwin, Charles Oct. 31, 1860." *Charles Darwin letters to Asa Gray*

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