

73 Harley Street
June 23rd 1869.

My dear Dawson

I have this morning received
your splendid section of the Joggins
Coal basin & I thank you much
for your kindness in recollecting my wishes
although you had already so far as theory was
concerned given me a correct idea of your
views

I will not dwell on this subject at present but
will allude to the coal-plants of which you sent
sections. I hope I acknowledged as I fully
intended to do the safe arrival by post of the
beautiful sections of Sigillaria which I sent
immediately to Carruthers & which interested
him very much. As he undertook to send
them back in a stronger case than that

in which they came to me having escaped
the post-office stamping which I almost
wonder at; & as he promised to enlarge on
the botanical questions it is almost a work
of supererogation for me to tell you what
I learnt. & possibly I may make some mistakes.
It was a great treat for me to see your specimens
under glasses of different powers. First Carruthers
showed me sections of a root & a branch of a
living conifer to illustrate the morphological
law of the identity of structure of those two
parts of the same plant. Then he showed
me how completely the Stigmaria was the
root of a cryptogamous plant ~~with~~ scalariform
vessels without disks & without medullary
rays. He inferred from this that

Leigillaria being undoubtedly the tree of which
Stigmaria is the root must in like manner
have been cryptogamous & could not have
possessed medullary rays & the dotted vessels
or disks of a conifer. He then pointed out to
me under the microscope how decidedly your
specimen exhibited coniferous structure. If
I remember rightly he said that there were
some living plants in which the scalariform
tissue was united with disks & medullary
rays; but he said, it was impossible for
a plant of which Stigmaria was the root
to possess such structure as that which
is seen in your specimen which he admitted
to be a gymnozem & which he called I believe
Dadoxylon. I told him that you had

proof that the woody structure alluded
to was taken from a *Sigillaria* & referred
him to your letter but he said that he
had taken from the inside of an erect petrified
(silicified?) *Sigillaria* in Arrau fragments of
Lepidodendron, ferns, etc & that as we had found
Dendroseton & *Pupa* in the inside of a *Sigillaria*
in the Joggins so we might find the wood
of *Dadoxylon*. He declared that Brongniart's
Sigillaria elegans was the only specimen in
which the woody structure or the whole of the
interior was preserved from bark to bark & that
it gave no countenance to your opinion. I
could not, of course, gainsay this argument
which depends on the manner of the occurrence
of your fossil with gymnospermous structure
with the exterior bark of a *Sigillaria*. But

when you get his letter you may be able to remove
his doubts referring to the figure which I have
given of Prof. Williamson's Calamite (Elements
6th ed. fig 525 p 470). He said that the internal
cylinder with many joints was the termination
of a Calamite which had got into the
middle of a large stem or an upper & larger part
of the same Calamite forming the outer portion
of the specimen so that he gets rid of the anomaly
if I understand him right ~~something~~ in the
same way in which he explains the gynospereous
structure of wood which has got inside your

Sigillaria

Professor Williamson is going to publish a
paper in which we shall see the opinions he
has arrived at after his late conference with

Mr Carruthers. The latter was converted by
the sight of some of Williamson's specimens &
has abandoned some of his objections but they
are not yet at one upon some points of
importance owing I believe to Williamson
not taking exactly the same view of the structure
of living plants.

Carruthers is preparing a monograph on fossil
conifers on which I suppose we shall learn
all his views on this subject. He thinks of reading
it to the British Association in August

My wife desires her
kind remembrance to you &
Mr Dawson & your daughter
Believe me
very truly
yours
Chas Lyell

L. C. Lym
May/69