As I have recently had much experience in the
examination of Fossil wood under [illegible]
[illegible] Magnification that I prepare
the slices in the usual method by polishing one
side and attaching it to glass by melted lac
then polishing the other side until sufficiently thin.
The best method is to lay a thin piece of shell lac
on the glass under the specimen hold over a
lamp until the lac melts and then
press the slice firmly down till all air
bubbles are expelled. I use a magnifying power
of 80 to 200 linear and find cloud light the
best when artificial light is used I place
ground glass under the specimens. In the

about 130 miles with an extreme breadth of abou

Carboniferous [illegible] specimens I have
found that the fossil [illegible] [illegible] in
the [illegible] [illegible] and [illegible] in
Canada which furnish excellent
specimens. It requires some pains to obtain the
specimens but when obtaining they are equal to
the best slices. Calcareous [illegible] & other [illegible]
[illegible] must be sliced or the fossil [illegible]
[illegible] and ~~[illegible]~~ [illegible] [illegible] & [illegible] [illegible]

Under the impression that any facts relating to the formation which has afforded the interesting reptilian fragment recently described in the Journal of the Academy of Sciences by Dr Leidy will prove interesting I beg leave to communicate the following results of microscopic examinations of the conferva mud referred to in my note appended to Dr Leidy's paper.

I may premise that Prince Edward Island which extends in an east and west direction about 130 miles with an extreme breadth of about 35 miles, consists almost entirely of bright red sandstones similar to the matrix of Dr Leidy's fossil, with occasional bands of conglomerate, red clay and arenaceous & concretionary limestone. Over a large part of the Island these beds dip at small angles to the northward but there are a few tracts where the beds undulate to the southward and south-east. These red rocks in their mineral character closely resemble the New red sandstone of Cornwallis and other places in Nova Scotia and Dr Jessen in his report on the geology of P.E. Island has described an outburst of trap at Island in the Northern part of the Island which still further increases the resemblance. There are however a

few places in which beds occur that have some analogy to the upper parts of the Coal Formation of Nova Scotia, and it is in one of these localities that the coniferous wood in question chiefly occurs, along with a few other vegetable fragments for the most part very imperfectly preserved. Some interest therefore attaches to these vegetable remains as affording almost the only means of ascertaining whether these older rocks of Prince Edward Island are equivalent to the upper coal formation of the Mainland of Nova Scotia and New Brunswick or are the oldest members of a newer deposit.

1 Coniferous wood from Gallas or Gallows Point West side of Orwell Bay. At this place which I visited in 1842 the following beds appear in descending order the dip being to the ESE at angles of 6° to 8°. Red and brownish sandstone, grey sandstone with bands of concretionary limestone & containing vegetable fragments one of the striated like Calamites but without joints. Grey & brown clays or soft shales, brownish sandstone with large trunks of silicified trees are ofttimes 3 feet in thickness. In an article published at the time in a local paper I find that I was strongly impressed with the suspicion that these beds might belong to the N C Formation and Dr Gesner in his Report expresses a similar opinion, although he found specimens of Calamites which if well characterized would be strong contradictory evidence.

My specimens of fossil wood from this place are perfectly silicified and of a dark wood brown colour. They are much flattened in the direction

of the medullary rays and the fissures are filled with flesh-coloured Sulphate of Barytes. Under the microscope transverse slices show a somewhat dense tissue of quadrangular cells in rows and with spaces between them medullary rays. Longitudinal slices in the direction of the med rays show parallel elongated cells med rays not strongly marked and in a few places traces of a reticulated structure ~~on the~~ of the araucarian type on the walls of the cells, with only two rows of reticulations or discs on each cell.

2 Specimens from De Sable & Crapaud. At these localities the only rocks seen are the ordinary red sandstone but the coniferous wood is found only in loose fragments on the surface and I could not succeed in tracing it to the solid rock. Dr Jenner Ross [illegible] his report was greatly unsuccessful. From the large group here scattered about the fields and the general surface of the [illegible] however there no doubt that it is over or very near its original site. These specimens are dense and [illegible] and present cellular tissue similar to that of the fragments from Gallows Point. The tissue has been too much injured by the cryst of the silica or clay of the wood to permit the minute reticulation on the cells to be seen.

3 Specimen in the coll. of the Literary Society of Ch. from the south side of the Island. This spec. from one of the red sandst. nature shall also

toothed and is unmarked for the insertion.
But it is penetrated by numerous vermicular
holes ~~[illegible]~~ probably produced when the wood
was recent by creatures a.g. Xylophagous larvae.
In their present state they more resemble the
work of the latter. Some parts of this specimen
retain their structure in a very perfect state.
Spots of the same character with that of the
Specimens from Gallops Point and there
are a few rows of reticulation in each cell.

All these specimens probably belong to the
same genus and perhaps to the same species of
coniferous trees, and they all differ from
the coniferous wood which occurs very abundantly
in the upper coal formation. I have slices
of this latter from various parts of N S & N B
& C B some of them from the highest members
of the coal formation & in this province and
all are characterised by wider cells usually with
3 or more rows of pitting and a much coarser
woody texture than the P E I specimens —
In the narrowness of the cellular tissue fewer rows
of discs and presence of spiral lines — the P E I
specimens though [illegible] of the structure indicates
a tendency to deviate from that type as shown in the
coal form towards that of the ordinary pines. In
so far therefore as these trunks [illegible] exactly they tend
to show that the oldest beds of P E I belong to a formation
later than the coal system & perhaps [illegible] with the lower Permian system

Paper to Phila [illegible] [illegible]

to those of the Coal Formation. They therefore afford no proof that these lower members of the Red Sandstone Formation of Prince Edward Island are of carboniferous date, but would rather tend to assign them to the same period with the overlying Red sandstones. which have preserved the remains of the

At the same time the occurrence of these plant-bearing beds at the base of the New Red Sandstone renders it probable that no sudden & marked physical changes intervened between the close of the carboniferous period and the