On Spores and Spore cases in the Erian Rocks.

Some years ago my attention was directed [illegible] Sir W. E. Logan to a shale from the Erian formation at Kettle Point Lake Huron, filled with minute discoid [illegible] scarcely more than one hundredth of an inch in diameter, and also [illegible] supposed to be spore-cases of some Lycopodiaceous plant. The [illegible] described some details in a paper on spore-cases in Coals, published in the Geological Journal of Science in April 1872 and reprinted in the Canadian Naturalist New Series Vol V.

The [illegible] described as "flattened disc-like bodies scarcely more than one hundredth of an inch in diameter, slightly papillate

+ supposed Granulated spores shales

externally and with a ~~smooth~~ part of attachment on one side and in some a slit more or less gaping on the other". Viewed under the microscope as transparent objects they appear yellow like amber and show little structure except that the walls can in some cases be distinguished from the internal cavity and the latter may be seen to contain patches of flocculent or granular matter."

They occur in a brown bituminous shale which burns with much flame. The bed is stated in the Report of the Geological Survey to be 12 to 14 feet in thickness; but whether the Spirangia is equally abundant throughout its thickness is not stated. The shale also contains vast numbers of minute crustacean grannies

Underneath the mountain and what I have supposed to be original specimens of the only Spanish Bayonet is mostly dug away by the persons digging the gold plants found in the bed of Rattle Run near. Many of the specimens of Calamites Cannaeformis and of the Lepidodendron obovatum present the fine & symmetrical shapes. My impression in regard to these forms was that they were the cones and that they might have belonged to some of these Lepidodendrons.

In July 1882 My attention was called to the subject in a letter from Prof. Orton of Columbus Ohio in which he mentioned the occurrence of Annularian leaves in great numbers in the Sewarian and Cuckmeyer Coal Shales of Ohio near the

Beren

Hunn, Cleveland and Beren Shales of the Ohio Geological Reports. Prof Newberry reported them as Macrostoma and Pleurotomaria and abundance and Holopea Clarkeana was despised to regard them as the Holopea chief since of the Holopeas which found in these formations in Ohio. Prof Newberry showed his specimens at the Meeting of the American Association in Montreal and referred to Salem thread like Holopeas found into the Ohio and to which seemed possible they had been attached. Seemed to himself Safely myself that this connection was certain. If established determined Keyston the date of the Lyrodesma Major and would seem

8
5

I may state that these remarkable specimens of fossil cones had belonged to some cryptogamic plants.

At the meeting of the American Association in the absence of Prof Dana Jr. Prof Williams & Cornell University presided. He had seen specimens of the Hamilton fossils from York and that they were associated with the Cornus primaly leaves plants Phlebophyllum bammanni.[x] Prof Williams has subsequently kindly sent me specimens in which were the cones of the Cornus and Lake Huron species. It also appeared that Hooker was disposed to these genera in Canada

[x] an observation to which I have referred in a Report on Fossil plants of Canada for Survey of Canada 1882.

with Phillipsite an account which I had previously received in my Report on these plants (Reports Canadian Survey 1882)

above referred to

In the Report I have given the names of minerals & rocks in connection with the Plants & Zoophytes of Lepreaux & the Lower Carboniferous which I regard as contemporaneous with Phillipsite.

Lake Views Parker View

Regard these plants as agreeing with Lower Coal Measures Plants and Graptolites of Lapworth Lake Views &c.

Still more recently on Mount Tom Mt Holyoke & Mt Chesterfield Massachusetts I have found eight to ten

Nutritive Requirements of Yeasts. Cultures of Yeasts obtained from the Yeast Cake of Copenhagen, New York and Another from the European Laboratory. On the Latter Then Broken Return Then Globules Found × and the Yeast Prepared by the Chalk Then the Cells of Cutinous matter with Indications of a dense cellular Structure. The cells applied into clear culture and in Some cases With young Cutinous Matter and Some of the Yeasts Show the Appearance of Yeast of attachment at one Side by these Arrows what Pears Shaped Yeast. The Use of all these Cells a Yeast from New York as Used the Same with that of the Other as Laboratory Specimens

× The Cells are Crushed in a manner to Show that the inner Cell has Membranes

I had preceded this for with the
Kind of Ferns often when a Mail Carr
I received a letter from Mr Orville A Derby
of the Geological Survey of Brazil stating his
desire to secure both Ferns & Fungi
& Sphagnum
~~Also~~ Specimens of which he knows very
few specimens. The Daily Specimens usually
accumulate Some specimens send to me
for Brazil many years ago & the late
Prof Hall and in which there was a
Fine collection of Sphagnum with
Some cases.

On these I had at that time
applied as follows,

(Les Proper Name Plants)

It will be seen that the Lake Hydrographic Survey of Canada agrees with these early Dutch Surveys that the Lake is contracting in that it had not access to the Champlain Valley as it has at present.

The Dutch Colonists have thrown much light on the early history of this Country. Specimens of both Albany Ware & Delft Ware are included with them

bodies which are sometimes detached
but more usually contain in vacuoles
what I conjecture flattened sacs
filled for three to Many vacuoles
which must be named Vacuospores
As there is an indefinite gradation in size
and number of vacuolary spores all the
latter may be fully called Vacuospores
and should be watched with great
impatience & attempt to separate them

Freedom
for the
a vacuolar
nucleus of
Tuber cells
S. Bonnelaka
& Balbiana

As usually prepared, the common
Lens eyepiece is black and colourless
and the vacuolary spores appear as light
coloured discs, but sometimes they
are coloured as in the Sunflower & as discs
they are dull & the day after cutting
all may be called be pressed down The
Walls of the Sac under the Microscope

Plants adduce upon Herapinna
allied whereunto are mixed Undetermined
with Subens Matter.

Chemical analysis of the Dudley Fossil Specimens

We may now enquire as to the probable affinities of these Common objects. As to the Dudley Fossil Specimens they resemble mentally the Spore-cases or Fructification of Lycopods & Marsileaceae containing microspores or Sporangia and of plants of this order now abundant in the Lower Coal Measures. They can be more easily thus the dispersal of them found in the bottom of shallow water which they commenced clay were by deposited.

Again there is sufficient resemblance between the cuss Polypody and such plants as Adella D maiden hair fern that they may have belonged to this family and if the globular bodies associated with them may also be their spores.

With respect to the spores of ferns and the other cuss simple unicate globular bodies there can be no doubt that they are the cuss & numerous specimens and the filaments stems found with them in Ohio by Prof Orton it

Seems not improbable that
the Algae may be of the same
Nature,

In this Case we shall
have to suppose not so much
Some Kinds of Lepidodendrons
Trees Shrubs Ferns as
a very luxuriant Growth of
Shallow water plants of the
allied to Marsileaceæ Pilularia
Marsilea & Salvinia may
grow pretty near Shores of
Lakes into the Sea. The
luxuriant Growth in these Same
Seas of Phyllophyta which is
of Marked higher Grade but still
has affinities with the Algae

may be taken in connection
with this, Ferns and Equisetums allied to Trees and
Plants as Polypodium Vulgare & Osmunda Regalis
& Botrychium Lunaria
Further Proof Others Observers
Facts Show that we have
Fewer pages sheets
A here an important Summary of the
Facts & Views of Lituinus, matters
Contained in Some Palaeontological
Works, about my Name originally
Put in Error regarded as Fossil
Algae but to the Genus of
numerous Varieties of Plants
allied to the higher Cryptogams
or Vascular Water Plants
Among the Ferns, Prof Asa Gray Botanist Stately Plant
Which Genus couples the Species Lituinus has Capacity of Adaptation to
climate and Water.
X This Little Investigation is
also an illustration of the Importance
of Facts into me from the Fathers

Parts relative to vegetation which can be classed in my declared localities.

~~Parts of Pistia~~

The parts above referred to read the Eight Plates one or both the Statutes objects in the notice ~~referred~~ declared by Henry as Parker Simpson. There are parts in the Demerara both of Scotland and of Simpson and have been supposed to be one of Cuttacus. It seems have been not impossible in the light of the above investigation that some of them may prove to be specimens of Rhinocarpus.

Should these declarations be confirmed we shall have evidence that a group of plants not previously known to have existed in the Pleistocene period really attained to a great development there.

Spare Care
Paper

Note about Books
Dempsey's
Family Almanac

Clipping the Mustache
for Beginners