

1012, 17th St. NW,
Washington D.C.,
Dec. 31st 1887

My Dear Sir,

Today I returned
the 1st proof of my
paper to Mr. Boodle.

I have somewhat simpli-
fied the last part, and then
I sent M.S. I had not
access to some references
I needed, which I got here.

These make the case much
clearer, and I would
like you to read ~~you to~~
~~read~~ the latter part of
the paper when out.

I also sent better illus-
trations. The others were
a mistake, and not as
I suspected would be made
(photocopying in place
of wood cuts as requested)
Since writing last, I have
been getting my results
into shape, and now the

work of the summer is
getting ~~ing~~ in order and the
development of the subject.
One paper upon the beach
of Britain I will have
ready soon. Its highest
point - East of Watertown
is 695' above tide. The
date when this was formed
was less than 150' above
sea (demonstrated by
measurement) and proba-
bly at sea level. Some
barometric indications in
the field are confirmed
by mathematical deductions,
that eastward of Watertown
the beach begins again
to descend. Therefore
there is reasonable hope
that it can be correlated
with some one in the
St. Lawrence valley.
What is the height of the
highest water level,
(beach or alluvial),
upon Mont Royal?

Gilbert - was generous
enough to give me several
of his instrumented
measurements, that have
been invaluable, but his
glaciers are melting away.

I will give you some of
my conclusions,

1. The origin of the Ontario
basin, of the Niagara ^{escarpment}
cut between Ont. &
Georg. Bay, and Georgian
Bay valley is common,
Ontario being modified
by the Ontario river (along
foot of escarpment) from
the Erie Basin. 2. The
Erie Basin drained
into Ontario, but at
that time the Maumee
western outlet was relatively
about 200 - 250 feet higher above
the Eastern end than now.
3. Huron ^{valley} drained into
Georgian Bay - then
much lower (relative to
Ontario) than now,
Michigan into Huron.
4. The absence of beaches

in Michigan at the S. End
is due to the uplift to the N.E.,
with the consequent sub-
mergence of the lower, and
the preservation of our pres-
ents of the higher ^{at the S. End.}

5 After formation of the valleys
and subsidance of the region
the barrier between the
Lakes and James Bay
was much lower, and
consequently the lake basin
was exposed to Arctic
Currents. 6 The focus
or foci of uplift was
probably just west of
Late Mississippian (result
of trigonometrical calculations
from differential measure-
ments of many triangles,
7 The lake barrier, solely the
result of warping, one
half of which was during
the contemporary life of the
Hammouth beaver, and
Elk, and the since the for-
mation of the first beach

which, (if Gilbert does
not anticipate me) will
call Inogwas, as portions
of the beach were used
for a trail, on account of
its dryness, by the Indians.
All of the warping is since
the drift. I am also
confident that part of
the stratified deposits
of the Pleistocene have
some relation to the
Expanded late system,
where all were in one
sheet, of which these south beds
The later are consequently
broader.

As soon as I can get
out, I want to return to
this fine problem - so
intimately connected with
the drift - and one that
is becoming so broad as
to be of great importance,
and not a local issue.
Some points I must go over
and measure in situ -
unmistakably.

If you are going over
the Pleistocene Geology
I hope I will be happy to
give you headings of my
paragraphs and you will
see what I am doing,
that may be of use.

I want to examine all the
beaches of Erie &
of Huron - more N.E. of
Georgian Bay and in
Dundee Valley. These
about the "Inland",
on the N side of the
Adirondacs, from where
I left off. From Geneva
Lake to Gibraltar, Erie
Beaches, towards the
Ottawa, and about
Superior report - no
small work.

Yours faithfully
J. M. Spencer

But don't forget - Bewish you
the compliments of the season.

Sir Wm. Dawson, Chf. G.S. &c

Spencer
Dec/27