

Prof. A. B.
Niagara

S. Matthews Red Hill
May 15. / 84

Dear Sir,

Many thanks for your courteous
note.

With reference to Niagara, my in-
-ference was entirely drawn from Lyll
(Principles of Geology) and others.

He states that there is a Plateau through
which the River has cut a Ravine
of some 7 miles long.

He estimates the time required as
35,000 years

But he has made a stupid error
in his calculations, I repeated it in,
so far as I know, all later Editions!
According to his observations, the Falls are

now receding at the rate of a foot
a year -

But according to his own sketch, the
present width of the ^{gorge at the} Falls is $\frac{1}{3}$ mile
+ 600 ft. + width of Fort Island (given by
Nakum as 600 yards) or altogether nearly
~~1400 yards~~
1400 yards.

On this width ^{of 35000 years} Lyell's calculation is based.
But strange to say he has overlooked, what
he has stated a little before, that the width
of the Ravine varies from 200 to 600 yds
below the Falls - or say 300 yds
_{average}

Since supposing the excavating power
of water to be the same. - we have to reduce
the 35000 years to $\frac{300}{1400}$ or say to 7500 years!

Is it not so?

But as the Falls seem to form ^{enough} the
arc of a circle, ^(or "semicircular" cap at width) instead of a straight
line. we must for this calculation
reduce their width. I take say
9000 years as a probable estimate

But (2) The Map of Director Gardner,
of the Niagara State Survey, shows the
recession of the Falls circa 1842, to be
"Smoothly on 100 f.+" (see Times of Dec 10/79)
or nearly 3 feet per annum - which
was the old ~~est~~ estimate of Bakewell
& Basil Hall -- so that we must
again reduce the time $1/3$ or say
3000 years!

Doubtless there are a few corrections needed
as the Prairie near the Falls is not quite
so deep as at the ~~the~~ extremity.

So that 3000 to 4000 years is the
probable time that has elapsed since
the River began to excavate. ~~for~~
~~down the river~~.

What course did it pursue
before that time? -!

Probably it ran for a short time
over the whole plateau, till it
finally settled in its present
bed - - but in the absence
of any other possible outlet for
the waters of the Upper Basin
of the Laramie, one I will

warranted in ~~concluding~~ supposing
that the elevation of the Niagara
Plateau is of my recent origin,
and that soon after its elevation
the River commenced excavating its
present gorge?

Kindly point out where I am wrong!
The old Pliocene Bed to which you
refer may modify the time element
but does not apparently affect my
main argument.

Lyle refers to it, but does not let it
affect his calculations.

I sh^d. much like to read the paper
you refer to. Is it in the Transactions
of the Geol. Soc^y? or in an unofficial
Geological Magazine?

I have long taken an interest in
this matter, & want to see it elucidated.

The Delta of the Rhone in the Lake of
Geneva & the Mediterranean, & also
the Delta of the Nile ("average growth
of 500 linear miles in 60 years" Condé in Pal.
Explor. May 1881 Apr 85) all seem to show
that the time when they begin to be
formed is not so far distant as many
claim to imagine.

It is a most interesting question
which I wish some more compe-
tent person than myself would
take up.

Kind regards my thanks for
your letter

Hobart

Very faithfully yours
Henry Brass,