



R. H.

4. * Gell.

See Dantagon 18th Volume
and Milna 1st Vol.

(Lyell's Geology)

1830-1831

Friday
Thursday 29 Gale

18th 1st 1835. the crisis of nature = 1800

The living alone having definite existence
there they undergo the greatest number
of changes towards perfection (namely
mammalia must have a better
position than the more constant
this view supplies the ^{simplest} historical
same since commencement of
world. —

1800-

Smith

Rankin

Rankin

Rankin

Rankin

Rankin

Rankin

(16)

Hemlock

D 403

jaw was also firm, out
of which we plucked a great
many teeth, 2 of them, 8
inches long & as big as
a man's thumb, the rest
not above half as long.
The man was full of jelly
which stunk extremely!!
This shark was caught in
Shark's Bay. Lat 25°
The nearest of the Indian
Islands - namely Java is
1000 miles distant!
Where are Hippoboscids found
in that Archipelago? (4)
Such have never been observed in Australia.

Dampier ^{repeatedly} also talks about ^{Vol}
the immense quantities of
Cattle fish bones floating
on the surface of the ocean.
before arriving at the
Arcthos shoals. //

No B. The views of the Volcanos
of the chain of the Cordilleras
^{as}
arising from faults or nuclear things
figures, produced by the
elevation of those mountains
on the Continent of S.
America is inadmissible
^{may have happened from unimportant elevation}
The Volcanos originated

America is ⁱⁿ the midst
may have happened from ^{eruption} ^{elevation}
The Volcanos originated

is the bottom of the
ocean. & the present
Vulcano have been
said to be very accidental
agitations still open. -

The fault like appearance
arising from the manner of horizontal upheaval
of the shore of the Pacific
This fault determines the
volcanic activity.
Paupuk is 60 miles
distant from the
grand ancient volcanic
axis of the Andes. That axis
was produced from
a fissure in deep &
therefore work part of
the ocean's bottom. (11)

With respect to Sharks ⁽¹²⁾
Distributing, ~~fish~~ remains.
Sharks followed Capt. Henry
refuel from the Friends
Is. to Sydney. known by
having been seen & from
the contents of its Maw,
amongst which were things
pitched over board early
in the passage!! —

M. Schaller in Bay of
Lepid. (his part) describes
a ^{small} granite Is. capped by
Cleareous rock; following

M^r Power and Port Louis
talked of the extra ordi-

Small
a Granite L. capped by
Calcareous rock; Siliceous

M^r Power at Port Louis
talks of the extraordinary
freshness of the streams
of Lava in Ascension
know the machine 20
years?

No Volcanic Earth quakes or
Hot Springs in I. del
Fuego = The Wager's
Earthquake the most
Southern one I have
heard of.

(18)

In a preface, it may it
be well to urge, geologists
to compare whole history of
Europe, with America; I
might add I have drawn
all my illustrations from
America, purposed to
show what facts can be
supported from that part
of the globe: & when
we see conclusions substan-
tiated over S. America &
Europe - we may believe
them applicable to the
World.

It is a fact worth noting
that crystal & glass felspar in

... we may believe
them applicable to the
world.

It is a fact worth noting
that cryst of glass feldspar in
hornblite arrange themselves
in determinate planes::
such action can take place
in melted rocks

The frequent coincidence of
line of veins & cleavage
is important; veins appearing
a gabbroic phenomenon. so
probably with the cleavage be

There is a resemblance at
Hobart town between
the Olden shales &
the bottom of sea near (2)
I. del. Fuego.

Is there account of Baron
Boussin's voyage -

In Europe proofs of many
oscillations of level, which
in the nature of shales &
Organic remains does
not appear to have taken
place in the Cordillera
of S. America

Study Geology Map of Europe

Cong. beak. Introduced XII P.
silicified bones not common
in Britain. Men. Conception
says Echinites. Echinites
Astence, usually pelinid into

a peculiar cream-colored
Limestone: the strange sub-
stitution of matter in shells

Says Echinotis. Echinotis
Asterice. usually referred into

a peculiar cream-colored
Limestone: the strange sub-
stitution of matter in shells,
like Concretions & laminae
show what movements take
place in semicircular
sorts

¶ XV. Mentions in what
formations Concretions are
found.

The above oscillations
remarkable because, the
formations are now seen
in regular descending steps

Mem; rapidity of germination
in young corals. - v. de
L. Jackson's paper. Thibaut

Transact: at R. de Janeiro
Columbo. Bolemba at Macapao.

Hunt: Pers. 2. VII P. 56.

Serpentine form: of Cuba for
comparison (?) with St Pauls

men white layers with purple
Clays tones of P. Desire
where tuffery of such substance
being worn into channels.

Mention submarine channels,
such as that in front of St.
of Mayellam

In Chitoc aurikneum strata
subsidence. - The sudden in-
creased dip is not parallel
case to Isle of White but
rather to one out of a
series of faults 

The frequency of shells in the
Cale. Sandstone Contact, is
connected with frequency of shells
in flints in Chalk

New Providence more hilly
than others of the Bahama
consists of rock & sand
mixed with sea shells —
about 500 ft. &
great banks. effect
of Elevation.
White's service Journal

In the Iron sand formation ⁽²⁸⁾
^{would} convert into siliceous
pyrites & coaly matter.
Mem: Chiloe

In the endless gde of
revolutions, & actions of
rivers, currents & sea beaches.
All mineral masses must
have a tendency to mingle.
The sea would separate
quartz or sand from the
finer matter resulting from
degradation of felspar &
other minerals. containing
Alumina. — This matter

Other minerals. containing
Aluminum. This is the

accumulating in deep seas
forms states: How is the
lime separated; is it
washed from the solid
rock by the action of
springs or more probably
by some unknown chemical
process? How does it
come that all lime
is not accumulated in
the Tropical oceans -
detained by organic
powers. We know (29

(30)

the waters of the
ocean all are mingled
Then reflections might
be introduced either as
notes in local papers
or by the thickness of
of some sandstones, as
in Australia. —

Have Limestones all
been deposited, if so
sea would separate
them from indissoluble
rocks? Has chalk

them from indistinguishable
rocks? Has chalk
ever been dip SW?

Singularity of fresh water
at Iquique, not from
rain, because alluvium
saline; Mem: on coast
of Northern Chili as springs
become rarer, so does the
rain, therefore ^{rain} such is cause,
hence at least no water
is absorbed into the earth.

I did not see one dike
in the whole Salapagos
Arch; because no serious (3)
sake came as no other

(32)
Sir. J. Herskells idea of
escape of heat prevented
sedimentary rocks, & hence
mechanic action, Contradicted
by Cordillera, where that action
commenced before any great
accumulation of such
matter. —

J. A. Smith says that
Boulders do not occur
in the South African
plains. — Sydney no

~~unpublished manuscript~~
The case differs I think from
Patagonian steps, because
the deposition & accumulation

The case differs. I think from
Patagonian steps, because
the deposition & accumulation
is brought into play

As in Ocean & Air there are
at equal distances from centre of rotation
differences of temperature &
rotation & circulation ~~very~~ in fluid
Matter of globe must there-
fore be a circulation ^{however slow & weak.}
(cause of not accumulation of cold ^{in temperate} ^{in intertropical})
then a vanishing of substance
expelled from same point, &
(changes in variation?)
changes in Earth there.

From poles to Equator current downwards &
to West. - From Equator to poles, across
the surface & to the Eastward. - If matter
proceeds from great depth, from axis to surface
must gain a Westing current: - If great
changes of latitude have happened, hurricane
in bowels of earth cause: - ~~it~~ does not explain
cleavage lines, possibly general system of world. - (41)

I feel no doubt, respecting
the becciated white stone
of Chiloe, after having
examined the changes of
pumice at Ascension

In Calcs. sandstone at Ascension,
each particles coated by pellucid
envelope of lime - form resembles
the pees ps at Loguimbos:
in that case, may not central
& rather differently constituted
lime have been removed?
As shell out of its cast
which, altho' not very intelligible
is a familiar case: If
refilled with other matter how very
curious a structure: Have shells
ever casts alone in Calcs. rocks? ^{See p. 22}
it so can precisely analogous fragments ^{under}

Peaks of Senariff, also Ctopexi
has a in cylinder placed on
the rim of conical crater:
at Senariff wall of Prof. Lave
in town of Pita,

which, although not very intelligent
is a familiar case: It
is filled with other matter how very
common a structure: Have studied
and

Peak of Teneriffe, also Copaxi
has a ~~tin~~ cylinder placed on
the rim of conical crater:
at Teneriffe wall of Porph. Lava
with base of Pitchstone: Mem. Geol.



of elevation, may well be
preserved at Patagonia.
The English fact is astonishing
consult book itself.
P. 88: same fact is indeed
shown of the parallel bands
of formations on any ledge
map: Just from Dantony
P. 402: Whewell, mean
height of tertiary, being less
than secondary: - Consider
arguments for oscillation of level
independent of mineralogical
nature & dependent: & then
how wonderful level ^{& same beds} should
have been kept: it shows
that throughout all England, whole
surface oscillated equally. -

These facts become easy
 if we look at the action
 as a deep & extensive
 movement of viscid nucleus,
 which in any one country
 would produce ^{effects} ~~effects~~ ^(though so immense to shut further)
 effects. — Mountains, which
 in size are grains of
 sand, in this view sink
 into their proper insigni-
 ficance, as features, compared
 on grand scale, & angular
 displacement, compared
 of injection of fluid
 work. —

Try on globe, with slip paper
 a gradually curved enlargement

see its increased length, which
 will represent the dilatation
 which dilated cracks must
 be filled up & dikes &

Try on globe, with slip paper
a gradually curved enlargement

See its increased length, which
will represent the dilatation,
which dilated cracks must
be filled up, & dikes &
mountain chains. —

Introduce part of the above
in Patagonian paper; &
part in grand discussion
Consult, reconsult Geolog. map
of Europe

Consult charts for distribution (50)
of pebbles. — Plans off coast of
Patagonia. — British channel
or or.

There is a Hill, near Copiapó
which is reported to make
a noise, — my impression, is
not my first, from some
of the lower orders; it was
connected with movement of
sand. — it is called "Bramido"
(?) — It was a strange story.
I believe it was necessary
to ascend the hill, — but
my recollection is imperfect,
+ was recalled I note in

fact seen the place
which occurred in a sandy
place. — (the sound was
long & prolonged). N.B. I

to ascend the hill, - but
my recollection is imperfect.
I was recalled I think in

Daubey. P. 438., of similar
fact near the Red Sea.
which occurred in a sandy
place. - (the sound was
long & prolonged). R. B. I. &
generally known. the acute
chirping sound produced
in walking over the sand.
I am nearly sure it is necessary
to ascend the hill. -

The absence of Second form,
except near Submaris. P. 11:
in harmony with the prevailing
movement being one of elevation
alone. - In England much
subsidence; hence difference;
action on land different (5)

W. 351. V.R. I. (52)

Woody bushes, ^{Gazelles} hares, ^{Graphis}
& Rats. Characteristic
of the deserts of Syria
also little for Patagonia,
especially rocky parts of
Central Patagonia.

Does Andes in Chili. separate
geographical range of plants.
V. S. 24. Chap XI Vol II.

Wife the entire absence
of any rock situated beneath
low water in the Southern
ocean not being buried
with kelp.

the secondary strata. By land
may contain shells, fossils, corals
and other bones.

of any work situated beneath
low water in the South Sea
may not have been

With respect to degradation

Thomas Smith 5/16 The

Major the situated
of any south in the Southern
some winter in the Southern
may not being the
to the

Strong currents off the
Galapagos. - strata must be
accumulating which like
the secondary strata of England,
besides ordinary marine remains
may contain shells, ~~few corals~~
~~remains of~~ Amphibia, ~~exclusively~~
~~Tortoise~~ & Turtle bones, & the
bones of ~~two~~ ^a ~~herbivorous~~
lizards. - from the action of
torrents ^{many} Tortoise & other species
of large lizard, - There would
probably be no other organic
remains. -

Mem. da ... on
the Amazons. Consult

Insist on the frequency of dips
in granitic countries, especially
cases. - M. Vides exception, but
even there, hills of Basalt &
the Neaning rocks.

Bahia, Rio de Jan: (B. Oriental
level surface not disturbed).

Whole West Coast, Chonos to
Copiapo. - Long: K. J. Land.

C. J. Lord Hope. - Carnatic

Lyell considers (P 84 Vol 111)
whole of Et na series of contings,
hence it will be necessary to

level surface not less than 5.
White West coast. Chorus to
Chicago - L. P. S. S. S. S. S.

It has been common practice + Sedgwick

Lyell considers (P 84 Vol 111)
whole of Et na series of conings;
hence it will be necessary to
state all arguments for believing
that there must be a central
core of melted rock - I
think the strongest - the consideration
of the state at a grand
eruption when whole summit
of mountain is blown off; &
again when in great crater.
Different little craters are all
becoming sure they must
be ^{somehow} below a field of fluid
rock - In the discussion it
will be better not to refer
to Lyell but refer to (57)

(58)

state these reasons, & saying
that they refer to central nucleus
& that envelopes no doubt existed.

These higher portions probably formed
Is^l from which proceeded pebbles &
on which trees grew. — (?)

Are not the Dr. in upper
strata quite different from
the Porphyrines; certainly appearance

leads me to believe were fissures
filled up. — The appearance
will here be the strongest

argument: — ? Consider causes
for subsequent water being of
diff: from subaerial one? —

In former not so much in no
vapilli; & from action of water
probably not so much aluminate.
~~was~~

of anticlinal violence crossing
lines of center. say state that
all the great Volcanoes have

in form of a ~~small~~ ^{small} ~~water~~ ^{water} ~~fall~~ ^{fall} ~~rapids~~ ^{rapids} ~~and~~ ^{and} ~~from~~ ^{from} ~~action~~ ^{action} ~~of~~ ^{of} ~~water~~ ^{water} ~~probably~~ ^{probably} ~~not~~ ^{not} ~~so~~ ^{so} ~~much~~ ^{much} ~~aluminum~~ ^{aluminum}

as argument in favor of lines
of anticlinal violence crossing
lines of center. ~~and~~ state that
all the great Volcanoes have
been elevated considerably. which
shows an ~~off~~ ^{off} ~~flux~~ ^{flux} of inferior
melted rocks to these parts.

Are not the dikes generally
vertical? if so posterior to
elevations? & not sources of
lava streams.

~~Do not tell that~~

It will be well to urge
the case of St. Helena, where
dikes certainly have not been
points of eruption.

Nobody supposes that all the
dikes in Cornwall & in the
Cock measures have been
conduits to Volcanoes. — (59)

(60)

structure of ascension
the most remarkable feature in the
Tallness of the cricket valley.
give as an example the
great subsidence at the
famous eruption of Pinaloa, &
the more true analogy from
the Galapagos —

M^r Zell. P 111 & 113. seems to
consider that successive
terraces mark as may distinct
elevations; hence it would
appear he has not fully
considered the subject.

J. America in the form
of the land decidedly

elevation. which is different
from what M^r Zell supposed.
P 111 & 113

S. America in the form
of the hard deciduous

bears the stamp of recent
elevation. which is different
from what Mr. Lyell supposed.

Lyell P. 146 Vol III, says
that in the Rhodene formation
of Limestone, casts of shells, as
in some older formations: hence
the envelope at Cognin to.
The analogy is now perfect

~~The grand supposition of
fluid mts. which pleates
a continent~~

We are more abroad to take analog-
ies of movements of W coast. in explaining
plains because such are found in
perfection on that side. -

ADD from Mr. Lefson. ⁽⁶²⁾characte
of Flora to New Zealand,
which agrees with St. Helena
in being unique, yet no
quadrupeds.

Is the white matter beneath
pebbles the degraded matter
of such pebbles extending to seaward,
the alternating with such matter
at St. Julian's looks like
such? - destructive to
animal life. - Patagonia

In the ~~clay~~ ^{clay} ~~shale~~ ^{shale} we must
imagine bituminous shales
have been metamorphosed, as

In the Chonos Isl^l. we must
imagine bituminous shales
have been metamorphosed, as
in Brazil ferruginous sandy
ones have undergone the same
processes -

Neither lakes or Avalanches
(Glaciers very rare) to cause
floods in valleys, which
must aid in preserving the
terraces ~~of~~ ^{of} Indian's Care

At Vesuvius. Vol III P. 124. Syll.
Lipari have a parting of pitchstone,
which is described as very rare
than St. Helena; probably more
abundant in this case from
intersecting a mass probably cold &
not warm as sides of a crater
as Vesuvius -

There may have been (64)
oscillations in the upheaval
of Andes — but on land or at
below water no evidence —
The depth of shells (which
bring fossils) in beds down
there, makes it very doubtful
whether they could have lived
in so deep a sea. —
Perhaps agrees with formation
of palm trees & vertical trees

Grand Lago at B. Agres; mention
about the deer, approaching
the walls — The effect of salt
water of the Salado. —

Mem. in Owens Africa it is
mentioned that the Elephant, came

in I know as on some
have back water lakes and partly
elevated, which movements

and with far more regularity

in I know as in France we
have fresh water lakes and fully
developed, which movements
present in the Andes, and I

the walls - the effect of salt
water of the Salado. -
then in Ocean Africa it is
in I. America in France we
have fresh water lakes unequally
elevated, which movements of
present in the Andes, would
have destroyed regularity of
slope of valleys. - All my
Observations of period ^{of time} of elevation
Volcanic action, must be
^{many} & ^{desired} confined to that
country.

Read description of channels
a grown in rocks at Coste-
phine hills. to compare
with Galapagos. - Chiloe.
Mr. Hemoso. + Coal
reeds (imperfect in latter).

at Lzall. Vol. I. P. 316. (70)
Earthquake of 1812 affected
valley of Mississippi & New Madrid
& Caracas. - Is thus mentioned
by Humboldt in his account
of extensive areas. -

P. 322 In any archipelago.
& very strong. Volcanoes erupt
from ^{more than} one orifice ~~but~~ does
not occur at same time;
this is contrasted to contemporaneous
action over large spaces
the globe & periods of
increased activity. - such
as that of 1835 -

State the three ^{or 4} fields of
Earthquake in Chili. -

Chiloé. Concepcion. Valparaiso
(Copiapó & Iquique). yet whole
territory vibrates from any one

increased activity. — Such
as that of 1835 —

State the three ^{or} fields of
Chiloé. Concepcion. Valparaiso
(Quipio & Juasco). get whole
territory vibrates from any one
shock —

In S. America — continuity of
space in formations & durability
of similar causes go together.
add. ^{to} "from" in the same line
to "from the epoch of Abraham
to the present day."

at Maunabo. (Dir of strata on East
consult. Borg)
cannot believe in a great
explosion, nor would sea
remove more internally than
externally — I did not see any
number of Quipos in the (71

72
cliffs. - wide valleys. -
central peak small; get
great body of lava have
flowed from centre -

Pis Riter bulls occur in
the ashes which fill up
theatre of Pompeii P. -
Such have been seen to form
in atmosphere. - Mem.
Ascension. convulsions &
Galapagos -

^{Humboldt fragments.}
Read geology of N. America.
India. - representing I. Africa.
Australia. - Oceanic Isles.
Geology of whole world will
turn out simple. -

Intimate for this science. that
Europe was its birth place. -
Some general reflections might
be made on the subject

India. — representing S. Africa.
Australia — Oceanic Isles.
Islands of whole world with
India.

Introduce for this Science. That
Europe was its birth place. —
Some general reflections might
be introduced on great
size of ocean; especially Pacific
insignificant islets —
general movements of the
earth: — Scarcity of Organic
remains. — Unequal distribution
of Volcanic action, Australia
S. Africa — on one side.
S. America on the other.
The extreme frequency of soft materials
being consolidated; one inclines to
believe all strata of Europe formed
near coast. Humboldt's position
of instability of ground at present
day. — applied by me geologically
to vertical movements.

(74)

In Cord: after seeing
 small Bombs. without a vesicle.
 we may consider appearances
 of eruption at bottom. —
 solution under high pressure
 of gases especially the most
 abundant. Sulph. Hyd: Carb: A.
 Mer: A. = (the effect of
 water thus holding matter in
 solution must be great: &
 in the fact of bombs in tufa
 there is proof of such gas)
 steam condensed. — Perhaps
 there might change my U.
 go on. & not a bubbles
 on the surface bespeak
 the changes.

Metalliferous
 solution
 & silica
 in the
 phenomena.

I do not believe that the
 chaotic fissures of the ground
 at Calabria were present at
 the Cretaceous earth.

As these greenstones seem to graduate into granites

This ~~rather~~ passage from lava
to granite is much more
perfect than in believing
mere agency of dikes. &
indeed when do these dikes
lead to a critical map.
with this critical map
be granite? why not more
probably greenstone? What
possible reason can be given
to the numerous hills of
greenstone? —

Daubeng. p 95. Gyps & strong
Pearlstones alternate together
in contorted layers: Rem:
Phillips Mineralogy some
such fact stated to exist
in Peru. — Ascension (89

on the surface bespeaks
the changes.

I do not believe that the
extraordinary fissures of the ground
at Callao were present at
the Concepcion earthquake -
or patiate on difficulty of
evidence about eruptions of
Volcanos. (where there are no
country newspapers) - at
the Callao earthquake
things pitched off the ground.
Nillou states that Volcanos!! were in eruption
at time of great Lima earthquake.
In the Chile earthquakes
if rise was more than
inland than on coast it
would be invariably discovered,
this may be mentioned with
general slope of the country,
(perhaps generally over)
(whole world)

jet eruptions ~~to~~ at (76
sea (as wells as in the
Cordillera), They may be consi-
dered as accidents (if ~~the~~
part of a regular system
can be called accidental;
the proportionate force of crust of
globe & injecting matter)
on the great rise. -

The great rains which
attend ^{1822. & 1835?} severe earthquakes
alone, (& the general belief
in N. Chili, where rains
are so frequent, so as to
exclaim, ^{how} heavy! when they
hear of a place having a
pretty severe shock)
are much more curious

& perplexing. that those that
attend Eruptions: M. P.
Severe explanation of low

at latter place, sandy sandstone
with gypsum, covered by limestone
with recent shells 200 ft. now
quite agreeable with Corinto.

Urge. cliff form of land. in St
Helena: Ascension. Azores (half
^{sandstone first signs}
~~demolished~~ craters) - worn into
mud & dust. - connection
with age, & agreement with
number of craters. No cliffs at
Ascension (or modern streams of
St Iago) yet no historical
records of eruptions how enormous
the time!! How well agrees
with number of craters! -
At S. Cruz. there is no
occasion to wonder what has
become of the Basalt.
fine into fine sediment (107
Look at St Helena!! -

are so frequent, so as to
exclaim, how busy! when they
hear of a place having a
pretty severe shock.

perplexing. that there that
attend Eruptions: Is P.
Seizes explanation of low
Barometer?

In a subsiding area we
may believe the fluid
matter instead of afflux (always
slightly oscillating on that of a
spring) moves away. — Will
geology ever succeed in showing
a direct relation of a part
of globe rising, when another
falls. — When discussing
connection of Pacific &
S. America. —

are altered of circumstances, & not
in chemical nature, or
has a subterranean fluid

Get the fluid granite map
under the left page. Might
have its ^{proportion} particles altered.

With respect to Volcanic
theory. I want to ground
that the first phenomenon
is an inward afflux of
molten matter. - Volcanos
perhaps may be a distillation
of water, though the rent
shala: M. Lyell considers that
Plutonic rocks are generated as often

Vegetation?
Ascension
Rats & Mice, at St
Helena. There is a native

Moose. I consider latter
+ as Volcanic on the afflux of
as accidental the former. -

Did wave first retreat at (80)
Juan Fernandez; the first great
movement was one of rise
(any smaller prior ones might have
been owing to absolute movement of
ground). Mitchell (Philos. Transactions)
seems to consider the first movement
(as in Peru 1745). —
at great distance Earthquake Look
toward water oscillated between
2 & 3 ft. (as in Chile Lake).
Therefore motion of sea may be
be considered as a plain motion
communicated to it as well as
by the vertical as lateral
movement — at first one would
think movement owing to water
keeping its level whilst land
rose up & down. — But from
above reasons, do not think so

also neighbouring sea must participate in absolute
also elevating Earthquake of
Valparaiso. (1822) no great wave
on 22.2.29 movement was

also neighbouring sea must partake in absolute
also elevating Earthquake of 1822
Valparaiso. (1822) no great wave
on record. — Moreover wave
with same general character
reaches far beyond coast
which has been raised. —
It must be considered as
an oscillation, from violence.
Is it not same as swell
travelling across Pacific. —
excepting in number of waves
& in wind, instead of sea's
bottom being in motion what
difference? In watching heavy
swell sea stretches & then breaks:
i.e. to form a wave in ocean
is not this 
from present, i.e. a part
below ^{mean} level before the higher
part. — Does the (81

sea fall. on banks. as a (82)
Bore wave rushes up? (2 B.
Earthquake wave in an
oscillation, body of water
manifestly does not have
up. -). If then view are
right. The coincidental
reheat at Portugal & Madem
(Gell. Vol I p. 471) is
explained. also the similar
fact at Concepcion? Read
the various accounts &
see if fall is not the first
very evident movement. -
The swelling first on beach
I cannot understand, without
(C^d in raised above a^d).

In great Calabrian wave
did not see break first?
I can imagine from local

(C. in raised above a.)

In great Calabrian wave
did not see break first?
I can imagine from local
form of coast (as seen in
swell) the undertow &
overflow must vary propor-
tionally.

Partial shrinking after eleva-
tion in perfect conformity
with Mr. Lyell's idea of an
injected mass of fluid rock.

In Patagonia plains. long
periods of rest & vice
versa most likely to be con-
=dential than single elevations
along whole line of coast (83

Early mentions beds of (84)
marine shells on banks of
Red River Louisiana.
V. S. Zell Vol. I. P. 191

State of St. Helena. pebbles
entirely coated with Iroca.
which implies motion in the
^{lower} bed of pebbles. (on a sea
beach. under a cascade, one
can understand a pebbles
thus coated. - The motion
is not wonderful, from chemical
attraction, as a blade of grass
penetrating by action of organic
power a lump of hard
clay - -

In the history of America
we cannot delve into the

Must we look at regular
greenstone cones at S. J.
del Freys as nucleus of
a Volcano or as an injected
mass. — From conical form
I incline to ~~latter~~ former;
& thus occurring in groups. —
As these greenstone rocks are
seen to graduate into granites

penetrating & action of organic
power a hump of hard
glac - -

In the History of S America
we cannot delve into the
causes of the life of the
species of Mastodon which ranged from
Equatorial plains to S Patagonia.
To the Megatherium - To
the Horse. - We might
fancy that it was so arranged
from the foresight of the
works of man

Feeling surprise at Mastodon
in habiting plains of Patagonia,
is removed by reflecting on the
nature of the country in which
the Rhinoceros lives in S Africa.
The same caution is applicable
to the Siberia case (85

(86)

We must not think
alluvial plains ^{always} most favorable;
In what part of the globe are
there such vast numbers of
wild animals both species
& individuals as in the half-
desert country of S. Africa.
It would be well to quote
Burchell. "When the Rhinoceros
was killed. —"

In Patagonia; are all beds
same age? is white substance
trihedral Porphyritic rocks
(more white tuffas with purple
clay tones of P. Desvigne).
Where talking of such substance
being worn into channels.

noted submarine channels;
such as that in front of St.
of Magellan

at Ischia there is a 90
pumiceous conglomerate, with
small & large fragments, nature
of which is doubtful. P. 180.
I think my ascension case
very doubtful. -

In Iceland Bladders of Lava
are described, & many minute
craters as at Galapagos.
Sir George Mackenzie. Must
be worth reading

Some earthquakes of Suma-
tra no connection with a
neighboring Volcano, of
Siamang. - Marsden's Sumatra
M. De. Jones seems to

think that volcanic eruptions
form foundations for coral
reefs. - Does he mean

neg L. brown Volcanos, of
Guamang. — Marsden Substantia
M. De. Jones seems to

therefore the volcanic eruptions
form foundations for coal
seeps. — Does he mean in
contradistinction to sand? ?

B. Boussin states that generally
in North part of Boudard, gullied
~~keens~~ sand less & gravel more
common. the shallower the water
& the nearer the Banks

Is there not a sudden deepening on
E. coast of Africa, as at Brazil

Further Part

Are there Earth quakes in the
Badark & Balir Sol??

Are there Earthquakes in the
Radstock & Belvoir Hills?

In my Cleavage paper
Dr. Fitton's Australia case
must be quoted at length.

The Lines of Mountain appear to
me to be effect of expansions
acting at great depths (mem:
profound earthquakes), which
would cause parallel lines,
but the rectangular intersections
are singular. —

Mr. Lyson considers the Sand-
stone & granite districts to be
separated by profound valleys
Lydney. —

Leform Zoology

(102)

Grand tertiary formation of
Pagta : h. part of New
Zealand entering stream!!
New Zealand not in particular
genre of plants : All St
Catherine & coast granite :
P. 199; Falkland account of cleavage
differs wonderfully from mine : phyllade
covered of quartzite sandstone :
refers to broken hills described by
Pernettly : account of streams of
stones agree with mine. —
at Conception, cleavage E & W!
at Pagta, talose slates, do
at latter place, sandy sandstone
with gypsum, covered of limestone
with recent shells 200 ft, how
exact agreement with Coquimbos.

Urge. cliff form of land in St
hills

There are some arguments (108)
which strike the mind with
force. — the exact yearly
rise of the great rivers some
better than any meteorology
tells the present periods over
unwear areas, & the constant
variations of rain. — The Bulk
of sediment, ^{does} being brought down
by every torrent proves the
decay almost none of the most
solid rocks. — The grand cliffs
of a thousand feet in height,
of the solid lavas — proportionally
high to age. (we do not wonder
to see Teikay plains consumed)
where slope ^{plain} indicates former
boundaries. (as in other unworn

islands) we take in at once
the stupendous map which
has been made. (St)

high to age. (we do not wonder
to see terraces ^{plains} ~~plains~~ consumed)
where slope indicates former
boundaries. (in the valleys)

(lands) we take in at once
the stupendous mass which
has been corroded. If
man could raise such a
bulwark to the ocean, who
would ever suppose that its
age was limited? Who could
suppose that trifling means
could effect so ^{much} ~~much~~ &
grand a work? In valleys
one is not sure whether figures
may not have helped it, or
diluvial waves. but when we
see an entire island ^{as}
^{(I describe & never see such islands where inclination ^{on the face} ^{out with a ^{natural} ^{cause}}}
encircled, the one slow ^{deep & antonish} ~~cause~~
is apparent. Perhaps scarcely
a full mile. between the ¹⁸⁹
of these lives. —

Cause of churning
to crater, as at
Galapagos. It.



(110)

Helena. - effect of heat on inner wall,
hence resists degradation longer
than outer parts. -

The common occurrence of a
breccia of primitive rocks
between that formation and
the secondary (stated in
Playfair to be the case
p. 51). presupposes an elevated
country of granite, not
greater for all Europe, than
from the Plater to Caracas,
which is all of granite.

In discharging circulation
of fluid nucleus, - the
similarity of volcanic
over with the

granite which is all of granite.

In discussing circulation
of fluid nucleus, - the
similarity of volcanic
products ^{over whole world} argument, as
well as separating causes
by water. - Or rather
begin to explain how water
separates. - (interrupted at
present fix time). Also
~~Volcanos separate~~. Volcanos
blend all substances together;
& products being similar over
whole world, general circulation.
But Volcanic action separates
some sulphur (perhaps lime)
salt. & metallic ores. -
which mingling & separating
is well adapted to III

use of mean kind—

But then show Earth quakes
 part of necessary process
 of terrestrial renovation
 & so is Volcano a useful
 chemical instrument.
 Yet reflecting there
 final causes. — What
 more awful scourges to
 mankind than the Volcano
 & Earth quake. —

Earthquake act as plagues
Volcanos as Thair-pits:

a beach

Remember idea of frozen bottom, of sea to explain
preserved animals - mean stream of water
in the country -

In J. Herschel. Ige. princ. & Phil. B. all the infinites
= birds got. arrange themselves in planes. ^{have silky bodies} and Eras. now.
whether electricity would affect this. -

State the circumstances of appearance of Conception
no sign / elevation. Effects of great waves to
obliterate all land marks - at first it

would ~~tho't~~ be easy to see on beach
 successive lines of sea weed

Histoire Naturelle des Indes

Acoste. p. 125. of last Edition states that the same
 earthquake has run from Chili to Iquitos
 a distance of more than 500 leagues.

A little time after a bad earthquake in Chili;
 August. in 82 was overthrown, & 85. Lima
 next year Iquitos considers these earthquakes
 travel in order. —

If we look at Elevations as constantly going
on we shall see a cause for volcanic
part of same phenomena lasting so long.

The great movements (not man patches as in Italy
proved of local height. agree with great continents).

118 ~~Voyez~~ aux tenes Austriats OR. I. p. 54.

M. Bailly says. "en effet toutes les montagnes de cette île se développent autour d'elle comme une ceinture d'immenses remparts, toutes affectent une pente plus ou moins inclinée^x vers le rivage de la mer, tandis au contraire, que vers le centre de l'île, elles présentent une coupe abrupte et souvent taillée à pic. Toutes ces montagnes

sont formées de crêtes parallèles ⁽¹¹⁹⁾ et
inclinaées du centre d'île, vers la mer;
ces crêtes ont entre elles une correspondance
exacte, et lorsqu'elles se trouvent interrompues
par quelque vallée ou par quelque saignée
profonde, on les voit se reproduire à des
hauteurs communes sur le vers de chacune
des montagnes qui forment les vallées ou
les saignées. — M. B. thinks then parts
incontestably form ~~the~~ parts of one whole

¹²⁰ burning mountain, & that the central part fell
in. — Lags posteriorly in center.

Baill's laths of much granite on all
East side of Van Diemen Land.

All the calcareous rocks which
harder of themselves cannot be
more. for if so Chalk would

harder. — Climate.?? a Smith¹²¹
Preparation of Alum: matter. — all pale
cream colour. —

The ~~Basaltic~~ structure of all the ~~Pile~~ ^{Pile} stones (which
I have seen) is a kind of concretionary structure, for
the interstices are of diff. cont: & even in the
same column time. — All bear close analogy
to Obsidian, & all show chemical action as well
as effects of cooling.

¹²³
The Squamous rocks. - which have the cysts & plates
fractured, have been melted with white
pressure. & perhaps cooled suddenly. -

As the rule of symmetry of the globe shows
power have acted from great depths,
so changes, acting in these lines, must now
proceed from great depths.
important. -

124

Decr 10. 1802. Earthquake at Demerara. The
earthquakes "seem to arise from some efforts
in the land to lift itself higher & to
grow upwards; for the land is constantly pressing
the sea (which of course must retire some land
to a greater distance". — Afterward speaks of
this phenomenon in connection with shooting upward
of the ~~ground~~ land in the W Indies. —
p. 200. Bolling's voyage to the Demerary

125 Earth quakes at St Helena. 1756. June 1780,
Sept 21st 1817. - p 371. Webster Antarctic reg.

Study ^{Scandinavian} ^{nothing} ~~Ulton~~ to see if Indian habitations
above region of vegetation - see Caroline's production
from Scandinavia

Urge the mineralogical difference of formations of
America & Europe. - If great chain of Mts. had
been in action during secondary period how
diff. would the rocks have been. The red sandstone of ^{Florida?} ~~Andes~~

no. mad dogs. Azores. allround best in numbers 126
p. 124. Webster

Consult W. Parish, & Azar, about dog season
1791. see crossing land over whole world.

(Was it so in 1791, consult history? Phillips.

1826. 27. 28. got. Doughty at Sydney. which
caused Capt. Stuart expedition. —

{ Another one in 1816(?) —

¹²⁷ Mr Owen's various facts about crust Bone
in Brine Springs (Herdon)

pearls on heated ground for 2. Striches; by the one encounter,
on smaller - change all progress: produced at one
flow. if one species altered: ~~altered~~ here: my idea of the
islands. elevated. then peculiar plants created, if for
such new points; then any mountain, one is false
left surprised at new creation for large - Australia =
if for V.R. - in? then for any spot of land. = yet new creation
affected 1 Halo of neighboring continent: & as if any

action, ^{taking place} over certain area. must have peculiar character:

Contrast low limit of Palms, cypress trees, xiboncent
wops, parasite plants, Cacti: + with limits of no vegetation
at S. Shetland: =

Great contrast of two sides of Cordillera, where climate
similar. - I do not know botanically = but pictures page
Both N & S. part contrast from nature of climate =

Perpetual snow, - subterranean lake, near volcanoes, lakes of brine
all inhabited;

Go steadily through all the limits of birds + animals in S. America.
Zoila:

129 wide limits of waters: ascension. Keeling: at sea so commonly
seen. at long distances: generally first arrives: -

New Zealand. rats & mice in the history of rats, in the
antipodes - parallel case. -

Should urge that extinct *Flammaria* owed its death not
to change of circumstances; reversed argument. knowing it
to be. a desert. - Tempted to believe animals created for
a definite time: - not extinguished & change of circumstances:

The same kind of relation that common ostrich bear 6. 130
(Pelpe. & off. kind of *Furmillier*): extinct Juanaco to recent:
in former case position, in latter time (or change consequent
on lapse) being the relation. — As in first cases distinct
species insculptate, so must we believe ancient ones: not
gradual change or degeneration. From circumstances: if
one species does change into another it must be per
saltum — or species may perish. — This ^{representation} insculptation of
species important, each its own limit & represented. — Chiles *cuys*:
Furmillier *causaria* Colombia; insculptation alone shows not gradation; —

an argument for the front of globe being thin, may
be drawn from Cordillera rocks. - When beneath
water. - together with hypothetical case of
Brazil. -

Propagation. whether ordinary, leucophorite, or of cutting
 an animal is true. (geminiparous, of nature or
 accident). we see an individual divided either at
 one moment or through lapse of ages. — Therefore
 we are not so much surprised at seeing.

Zoophite producing distinct animals, still partly
 united, & eggs which become quite separate. —

Considering all individuals of all species, ^{each} as one individual
 of different methods, afforded life or adds one other
 method where the division is not perfect. —

Dogs. Cats. Horses. Battle, Gosh. have all run
wild & had no doubt with perfect success. — showing how
creation does not bear upon itself adaptation of
animals. — extinction in same manner may not
depend. — There is no more wonder in extinction
of species than of individual. —

Investigate with greater care. . . vegetation & climate of
Tristan D. Acunha. Kerguelen Land. Prince Edward Ist, Marion &
Crozet. L. Auckland. Macquarie. - Sandwich Ist. □

Specimens of water were brought home by Capt. Forster expedition
from Deception Ist Smith. Shetland Cape Peperin.
Geni? an diti?

Degradation of inland bays. like St Julian a
 Pat Dene applicable to Centers of Elevation.
 The longer diameter of Depression No 2 is six
 Geographical miles and width $2 \frac{1}{2}$ miles

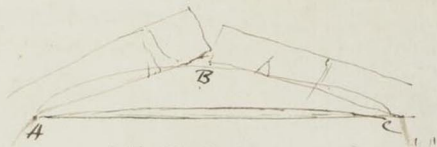
of Sletland. Lat. $62^{\circ} 55'$. ~~off~~ one Dickson. only production.
 a body which has long been buried, ~~see~~ from rotten
 state of ^{mineral} ~~mineral~~ ^{mineral} long exposed to the earth, yet body
 had scarcely undergone any decomposition: counteracted by rock
 preserved. that it was thought not to have belonged
 to ice driftwood - On 8th of March. core began to freeze. ^{to separate} ~~core~~

The cross. of burst out where there is
 act of dislocation (A.B. dislocation connected with
 fluidity of rock... ^{in earliest stage} when coming up beneath ocean). — The
 first dislocation, & eruptions can of Upper Dzung
 first movements, and therefore beneath ocean,
 for subsequently there is a coating of solidifying igneous
 rocks, which would be too thick to be penetrated by the
 repeated trifling injections. — Old vents would keep per-
 forming after eruptions, but probably so long, that to be
 surrounded of continued — change of volcanic
 focus. —

~~It is certain, if shale can be~~

~~Proven to locate shale
without ejection of the fluid propelling msp.~~

~~If one well can be raised then all
can for great layers of igneous rock
replace shale & it is better odd to
find them infected of veins &
magma~~



(A. B. C.
how from slide)

142

Red Sea near Kosir, land appears
elevated. Geograph. Journal p 202
VN IV

When collecting Gulf of California. Beagle
Channel. - one need never be
afraid of collecting on the sea

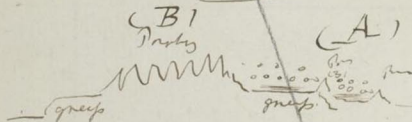
The 24th election at Compeiron. From 149
impossibility of such change having taken
place unrecorded, must be insensible.

Quantity of matter from Corti Uera

bring out movement of this matter

not (for instance) expansion of this matter
by heat

Consider profoundly the sandstone
of the Potlatch Univ. - connected
with gneiss. - (Mississippi State)



(B) like Bed of Indiantown

(A) in this state may be seen the view

(B) -

Most important view

++ Analogous to Van Buren
Basalt where Basalt. trachyte within basalt

Large mass on fault between
Mette gneiss // Quartz // ++

151
There must have been as much employment
on west of Pugueses as on East.

Where gone to?

There must have been some employment
East of Pointe.

Where gone to?

Intermediate space protected.

On the east power of the ocean!

Make a grand analogy between
 Waulden & Birba

Transportation of conglomerate between
 two ranges mysterious! —

See. Subidea The parallel

of which is true east of the

The structure of ice in columns show that granite
when weathering into boulders must exhibit
orbicular structure. — When we recollect
connections of columns & orbicular in
basalt.

When we see two species certainly different,
not insensible change. — yet one is urged to
look to common parent? why should two of the most
close allied species occur in same country? In botany
instances diametrically opposite have been instances: it is

154

Let it not be overlooked that except
of trees. I could not see trace of

subsidence of Ho. collata. -

? If crust very thick would there be undulations?
would it not be mere vibration? but walls &
feeling shows undulation: crust thin. -
Conception earthquake

Draw close analogy Lake of Cordill. of Cuzco ¹⁵⁵ &
Desaguadero. — three ridges in Cuzco as well
as in latter. —

According to Mr Brown, a person (whom I met at
S. W. P. / the Cordillera extend to near Salta, & not
far from Tucuman. & A Chinguisaca. half across the
continent. — He states plains of Mendoza smooth. S. W.
P. states that in Helms' travels accounts of travelled builders.
from the Cordillera range. — Señor Rozales tells me at
seven o'clock that his conception most visibly shaken
by earthquake, but no serious injury. —

156 Analysis of Glaciated Iron. in Edinburgh. This eff. Ironation. =
Main: Olivine. Idem product. =

~~Did Roman Indians use arrows or Ironation?~~

~~If wood was present we would find Dipterydium
far predominant, & so conifers must form
low level must abundant trees~~

~~Metamorphic action: most coming to
near surface most important~~

MacKenzie has talked of lava
flowing up Hill. : ? what can he mean?)
Consult Dr. H. H. about bottles. —

No volcanic action on coast line
of Old Greenland, close to W of Van
Nugen. 20. — In? Barrow. Think no S. line
connect. western sides of Scotland & Ireland. —

In a hurry, a Spitzbergen. —

Spitzbergen anemone (?). #

The ~~the~~ ~~the~~ ~~the~~ Chiloe concretions, somewhat
 analogous to septa. - would perhaps attract towards
 space. tend to form ring.
 from within & without



H. Kingston. h. Sp. 1811-1813
 "Nature exhibited to the Mexicans enormous
 masses of Poros and Siderite, & these masses which
 are scattered over the surface of the ground
 are firm. malleable & of so great tenacity that it is with
 difficulty that a few fragments can be separated from them with
 steel instruments!!

181
P. H. Brown - (Crest: ^{P. H. W.}) When the stalactiform
masses have layers been accumulated, some parts,
a pushed when soft, a red brown soft. - Is there
any flexure ~~fr~~ in the fragmentary layers -
so undulations (a better says) always
come from without -

True native iron that to which we cannot attribute
a meteoric origin & which is constantly found mixed
with lead & copper is infinitely rare in all parts
of the globe" - d. 11.3

How utterly incomprehensible that if metallic
 stones simply pitched from men, that the metals
 should be those which have magnetic properties.

They were products of *Hydrotaria*
 some general leuc. opacities & lead & silver. Sulf. & Barites:
 Fluorine. Barites: -

resembling the character of a
 transcarian tube, with not often a few
 + intermediate

Puncture on animal with wet drop and 1 m.
 after 1/2 hour effect in little green
 from green water + black lead with chemically
 like green + porous

129

~~N.B. P. 73. General reflections
on the geology of the world
P. 14. } gradual sinking of coasts
91 }
93 action of sea on coast.~~

~~27. Bahama Is.~~

De Jansz travels
 Bellingham to Macassar

Capt. Rps. & Scores day Monday
 Gilbert Tanagerhuthus
 hats B. with. Pen. Sandas

Howe travels from the
 Brazil

Did Melaspena publish
 his travels?

Bellingham on 1819
 Rps. 1816

Constant log. always additive
to convert French Measure into English ^{ft.}

0. 8058372

French metre into English ft.

0. 5159929

Mypriametre	=	French Paces
Kilometre		5130, 4, 5 in
Hectometre		513, 0.5
Metre		51, 4, 10
Decametre		3, 0, 11 ⁱⁿ
Centimetre		3.8
		4.4

C. Gamm

1.2.
68262322

Nothing True

Range of
B. 2. Shook