HATR D E P A T E N T

PATENT

UNPREPARED

20 PREPARED PAPER

A.

HATR.

M.AT.

T.30.

They will be found of great advantage

To Students and all persons who wish

to preserve

their writing

No. 8

Walter

1882
No. 6.

C. D. Walcott
U.S. Geologist

Sept. 5, 1852.

Mined out of Kanab
+ camped 10 mi. S.S.W.
on the Kanab, Wash.
just north of town.
Pemasis cliffs.

Collected fossils
from the middle band
of limestone 5 ft. 6 in.

Sept. 6.

Went down the
Kanab, Camped
the upper Camp. L-
Collected a few
possibly with E.J.A.
I returned to the
Penna. cliffs to
assist C.J.A.

Rode 10 miles west
along Penna.
cutoff and search
for fossils until 8:00.

Mr. Hayden made
sketch of unique
formity at middle
of Penna. Mountain.

With C.E.H. collected
fossils in Penna.
C.J.H. sketching.

With E.J.H. rode
to the east of camp
5 mi., in a chin
of water, Chena Ford,
and also took a
close at Penna. Mountain.

Marched camp to
Joseph Kanat field.
Edith, 11 1/2, 3

Blain all day cutting

Wok 13 - 2

Revind 28.52

the Apothecary carried on a great
diff. The night at the hotel was

256

Bar. Morning, make

Food.
several miles to 10 1/2 east on short to the mouth of the Johnson Wash below the Shinumo cliff. They return the characters given in the section of 1879 + the sandstones are embedded in it along 20 miles of outliers.

Sept. 11th

Rainy day. At Kano to camp.

Sept. 16th

Travelled camp to Johnson Canyon.

A.M. Rode to Johnson Canyon to examine coarse folded sandstone.
Hence our choice.

There are many sources in the area of the road. A few are:

- The road cuts through the valley.
- The valley is wide and flat.
- The road is well-maintained and smooth.

Our choice was the road that crosses the valley.
Sept. 19th

At Horse Rock spring the fish bed is well developed in the form of a cliff.

A mile south of the cliff the bed is exposed at a shallow angle 20°. At the base the strata rise up to the west and when a section

from the character of the beds there are considerable local faults causing the repetition of the beds.

The broad floor of the valley is quaternary and no connection is shown between it and the Cambrian.

Crossed the valley and found the upper Bellerophon beds of the Cambrian.
With Mr Hayden collected a fewgood
specimens,
Above the Bellbrook beds
a peculiar deposit of
shale is found, small
angels on bony plates of the
totem, below denoted by
tall colored limestone
occurs. These condi-
tions of deposit, such
as noticed at some
places in Kansas are
in 1879.

Sept. 20th
Stanton, N. From Home
Rock Spring, Above.

6 miles up the
valley these horits of
Shinarump Cong-
glomerate in compara-
tively close relations
to the Carboniferous
limestone on the west
side, so much so
that the Permian
is probably faulted
down at this point.
The Conglomerate
does not suffer agai
for 8 or 10 miles wher
it forms a ridge
or hogback in the
valley.
The Pennine is here faulted out in a great measure, at the Buckskin wash 22 or 23 miles from the Rose Rock gap. The Pennine rests conformably on the Carboniferous and gives a section.

29, 16.

The eastern Kautob fault carries many much. In places it is scarcely a displace ment & in other the dam in is at least 1000 feet. This depends on the projection of the great snails of the Carboniferous line of Pennin in cliffs.
Sept 21st

On the N. side of the Buckskin wash the chocolate colored Rama shales overly the cream colored A cant. L. and a little less than 100 feet above (96) a band of a yellowish, sandy limestone & a shaly, of 3 millimeters. Mysallina, Schielenina

Two plates taken. At one point the band & 3 feet in thickness

About 10 feet below a layer of sandy L. 3 inches thick occurs. These beds are overlaid by petrified chocolate colored shales the thickness of which, coming to the faulting along the line of the Shinarump Clag, was not determined. At another point, a half mile north a band of sandy L. 1 foot thick contained great numbers of
This section appeared to be about 150 feet above the Camb-.

The section of the Permian was not unlike that of Kansas. The marlites, including the S. cong. are varied in color and banded. The arenaceous marls are of a brownish Emerald chocolate color and chalky, the clays having the faintest traces of their bands of coloring the fossils and the color of the marly beds & sandstone.

To the Carboniferous 07.

The Shinarump Conglomerate its character is featured by a strong thick chocolate colored sandstone beneath which at a distance gives the impression of a double band of the conglomerate.

Continue north to the summit of the Vomblin cliffs, looking to the
Canyon of the Pania. (20)

2. The Pania is the S.-cany. of the Pania.

The descent to Pania is the S.-cany. cut in the mountains opposite the S.-cany. and the lower beds of the Vermilion Cliffs. The upper of these beds are lighted up by the western sunlight in a very fine, exquisitely beautiful, way, of the kind I have not seen before. Several hundred feet of fantastically colored beds are enclosed in many beautiful forms of sutures and canyons, and sculptured in smooth rounded knobs and projections.
Sept. 22nd

1/2 mile with the
entrance of the
canyon at Pompei
The S. W. height
with the road runs
to (Kamal) at the N. side
canyon a strong
water supply is obtained
in the chocolate
layers of the
Pompeian and
The
strata are
The following
 illustrate it:

Strike of Perm. 20°
D. N. 40° N.
P.P.P. = the Permian: chocolate colored sand
stones on the escarpment beneath the Shinarump Conglomerate of
outer wall both in the
Kanab region north of House Rock Valley.
Along the line a - b it is 62 feet thick and
is mainly a coarse ad albite pebble (Cili) 
occurrence in the upper
formation. At the
N. S. end of the
exposure there is an old cliff
indicating a strong
surface erosion,
against which the
claystone 3. 5. 5.
was deposited. The
bottom of the cone
not reached any
by the table & cliff
but 34 feet added
to the thickness, giving
136 feet to the Shinarump
much as their points
in the N. S. at 0. The
Shinarump is still
three times as old,
and being 40
feet above the Shinarump
at 1. 2. 3. 4. the
uncertainty of the deposit of the
made in beautifully
shown & our the
debris s.d. in
a conglomorate of
pieces of sandstone
brecia and wood and
coarse sand. This
is of local deposit
as only a short
distance to the east
wood the made
rest directly on the
light colored shiv
mark.
The line of strike
of the old Penn
Cliff is N.W., W.S.W. 2) & can be traced
plainly a half mile
to the N.W. where
another canyon cuts
to the S.E. where it
is cut by the
other side of
the canyon in which
the sketch is made.

About 200 feet of
the Upper Pennian
is exposed at the
desert cut in the
form of a front
of the Vermilion Cliffs caused by the elevation of the plateau towards the Kaibab Plateau from Ponia.

The section this is

1. Brown raised with 29
   to 30 ft.
   200 ft.

2. Shim and
   40 to 130 ft.

3. Mark (Brown ad. 0)
   0 to 50 ft.

4. Van Gob's marks.
   Mean of 493 feet.

5. Redish brown ad.
   to fish head.
   75 to 80 ft.

Vermilion Cliffs above
that on 150 feet to the
white cliffs.
S.E. of the point where the sketch was taken the outline of the "nacelle" or cliff dip N.E. 15° 4" and the section just taken is beautifully shown down this, the moats (4) and to the massive brown sand bed cutting the Permian. The moats rest directly on this bed & there is a very thin sand in it present as its equivalent ad. Beneath the massive brown bed, the succession of marls etc., is the same as beneath the Permian. These beds present many features showing shallow water origin: ripple marks, local unconformities of bedding, mud cracks + tracks of gastropods & annelids.

The thinning out of the Shinamnik South of the Permian
Cliff is a feature connected with the topography at the close of the Persian and on the Shina-
ungh is thin all along Horse Rock valley & north it leads to the view that the elevation of the Kailbush was
going on at that time.

Sect. 235.792
Can. from 1. 37(a).

52

11

Sect. 235.792

On the west of the point from which the
sketch was taken, the conglomerate thins out and lavender colored
marl came in between it & the marl sandstone & locally there is a
second light gray coarse sandstone about 50 feet above the
1st. The same feature also occurs about 20
miles to the S.S. in the
N. end of the H. R. Valley.
Gallani & along under
the Western Cliffs towards Kailob the
Shinaungh is only seen
occasionally on a
grey bed, coming in
a notch of the massive
br. bed. At the south
base of Cono Point
the double bed of
beds came in again
for a little way, and
then for some distance
the Shnamah is
entirely absent.
The Shnamah is
not seen again
until the west side
of the great butted
mound of
which the Cow is
reached. There it
is developed as

a bed about 20 ft.
feet thick and
rests on the massive
brown bed. The
latter bed is not
always present
where the Cow is
absent as the
upper marks rest
on those below,
with the exception
however of the
locality near Papin
the massive brown
bed was always
seen beneath the
Cow. It may be
of the result of a

slight erosion on
Sept. 27th — Sunday

In looking over the
section at the West
Pania I find that
the Shinarup Conglomerate
rested on the eroded
surface of the geosynclinal
clays below. On the
17 examples this to the
erosion of the current
spreading the Conglomerate
in many instances. This
is undoubtedly correct,
or it is shown that if
Pania, at the cliff
of the Shinarup Conglomerate
on the line of the Kaibab
uplift is reasonably accounted
for by the theory
mentioned in p. 32 of this notebook.

Fossil localities below
Shinarup Conglomerate by Gilbert and well No. 7.
No. 255
Pono-Coy 177
Marine City 213
Sept. 25/82

Endeavored to get a section from the Colto
inounum due to Shear, but could not do so
satisfactorily, lost of Navajo well 5
miles. C.H.H. Collected a lot of fossils in
the Permian, which
is here most strongly
developed in the
upfolded. Went back
for a time.

Also found a Horn
from fossils in the
Perm Coab.

Oct. 26
Went in to Kanab &
refit to make shelter
into a.

Oct. 27

Oct. 1st
Moved
camp to Conundrum
field.

Oct. 28
With C.H.H. collected
a lot of Permian
fossils in the L-
south of Kanab, got
6 miles, found
Gonocerus, Antil/us
etc. this in those
Reds.
Oct. 3d
Rode along shoreline cliff 4 mi. of Kanab gap.
Noticed portion of silicified water warm tree 3 feet in diameter. (Measured conglomerate rate with tape line 197 feet on inside Kanab gap.)
Noticed many traces of coarse pebbles and also ameloid.

Eorming cie the 41/2 sandstone immediately upon the conglomerate.

Oct. 4th

Oct. 5th
Wrote E. Collected a lot of Permian.
Gossips 6 miles

S. Pike Springs. There
appears here but one
plation of the 3 or 4
feet in thickness.

This outcrop of
Pennine in which
has been unweathered
from the Harrods wash
across the bed by
a few places of foreign
2 cut off S. of Pike wy.
by the Long valley
Yaucy & the Pine ar-
round come in left
clay. almost again

it

\section marked as mother

A strongly marked
in conformity by Pennin
is shown beneath the
cliff S.S.E.

of Pike wy. The brown
chocolate Pennin
rody shaly are cut
into 30 feet and this
nicerwise line is
shown in central place.
Oct. 6
With E. C. H. C. collecting fossils in Pernian at one locality as yesterday near Sand Pike Spring.

Oct. 7th
Section of Pernian S.S.W. of Pike Spring.
Start 15 - 55 w.p. c. 10.30 a.m. 5.1.9

1) Section of limestone (Bravo) & Sandstone & gypsum, clays & fossil bearing 150.

2) Shaly - light esdl. 45
2) carrying minerals. 50, 75, 85, 100, 150, 200, Muscovite, etc.

3) Bravo - sandy clays with more or less gypsum.
245

4) Light chocolate brown alternate with chalybeate, some cream & gypsum, some clays.
Drop 75-

5) Bravo - chocolate esdl. passing into brown, soft gypsum, shaly shale & ad. with masses of brown esdl. much out of thickness.
December 1st 1871

Summit Camp.

6:5 to Clear water summit Logan's gap.

The distance from the Camp to the pension was a nearly a level plain so the thickness was estimated at about 150 feet under rather than over the true thickness.

The upper part of No. 4 is a soft layered sandstone clay passing up sandstone near the top. Lyttleton was discovered throughout 4 and often found thin layers 1/4" to 1/8" in thickness.

Painted Rock.

7 Jan. intercepted.
Note on Permian Lye fauna

The peculiarity of the Permian fauna is undoubtedly owing to the physical conditions during the deposition of the sediments. A sea deposit of a mixture of clay and sand + only clear locally for the deposition of an inner limestone

An arid desert would likely allow of the growth of forms capable of living under such conditions and the Mytilus Cardium families are separated and the former largely developed. Both of these are represented in the same saline water of the Caspian sea & are present and we also noticed them in the muddy +
areas are some deposits (30) of the same fossils of the Aubry group.

In the Permian L.
Beachrode occur but they are exceptional & probably spread from some locality
where limestones were in continuous deposition. The subject of the origin
of the Colorado Permian

for u is one of (51) interest & will proba-
ly be found to the eastward of the
Colorado River.

In studying Permian
fauna refer to the
fauna just above
the Aubry l-; as
it possesses some
points in common.
27. 4. Lithologie
11. fossile.
Grand Canal

Penn's section.
No. 3.
Distance 70'15" ft.
Rise 63'54"
142
240

4. Distance 1000 ft.
Rise 22
280

2nd Distance 525'0"
120
340

840.
2570
867
130
220
260
60
26
260
240
5
355

200
150
Bar of silver in hallom

10.5
1.4

Nix in Manum Chookey

10.5
1.4
2.5

Sum of Cents

18.2
2.4
3.35
2.58

867

1

1

1430
2150
1269.6

5.8

104
86
87
435
49.2

Manen

81
120

1-5475
1.25

1-6100
230
250
600
250