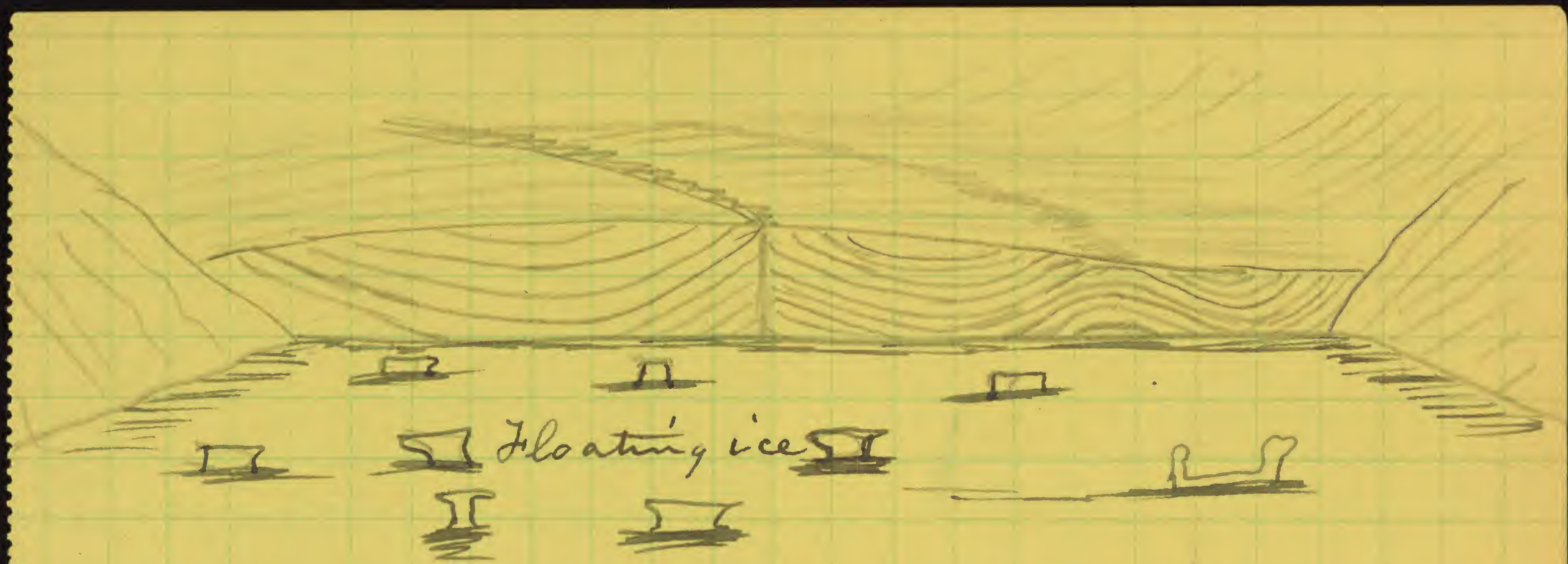
Lakes Louise & Agnes section

Summary.

| | | |
|---|---|---|
| 1. Gray calitic lm | Wapta formation | 103 |
| 2. Shaly & thin bedded lds | | 66 |
| 3 Sil. sh etc | | 102 |
| 4 Lm – | | 115 |
| Bow river. | | |
| 1 massive qtz etc | | 2640 |
| 2 Sil. sh (Ganiti) | | 105 |
| 3 Qtz – " | | 600 |
| | | 3131 |

(St Piran formation
Lake Agnes " " "
Ganiteau " " "




Ice front of
Hanging Glacier Lake.

Aug. 17/23.

Fig. 0. Near mouth of Canyon Creek Sept 5/23
Canyon 5 miles (km) southwest of Golden B.C.

Shale phosphates in massive
Calcareous shale + interbedded
layers of limestone

Section from Red Wall Reservation above Radium Hot Springs west.

Red Wall Fault.

Str. N. E. W.
Dip 90°

Fault - of varying width to contact.

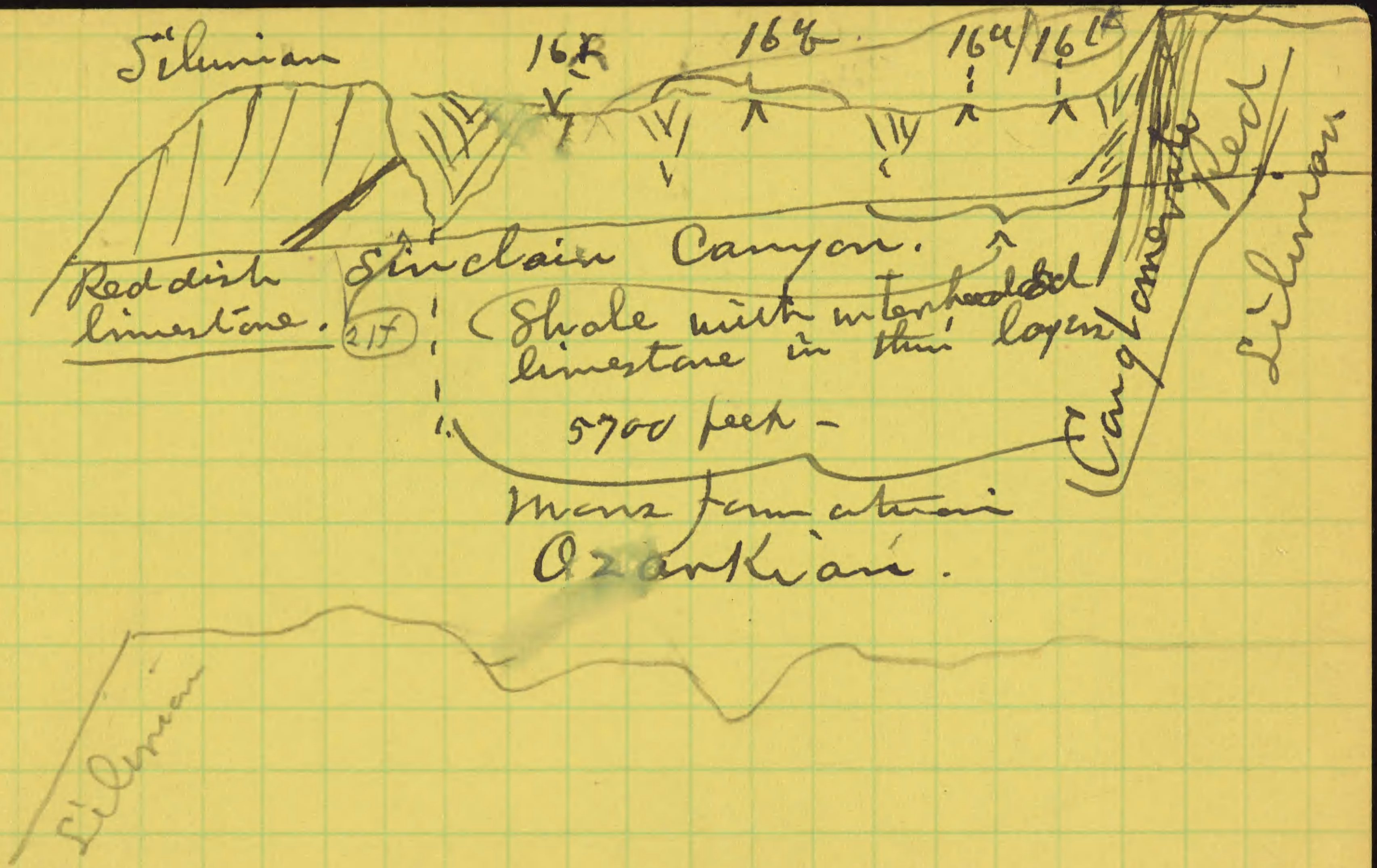
I think he doled enough - weathering was much limestone that is almost crystalline in many places.

Str. N. 30° W.
Dip 50° S.


Red Wall Fault.

1216
152
760
100
860

June 11/28


Silurian
16F
16E
16d
16c
16b
Red dish limestone.
Sinclair Canyon.
217
Shale with interbedded limestone in thin layers
5700 feet -
Mons formation
Ozarkian.
Conglomerate
Silurian
Silurian

RU7004 Box 30 F. 2 July 19/18

July 19/18

Mr. Whyte formation
S.W. slope of Mount Shaffer.
on trail to Lake McArthur.
8.5 mi' S. of Hector on Can-
Pac. Ry - B.C. - Canada.

Going up,
massive sandstone of Prairie
~~formation~~ formation -

1. Shaly, brownish sandstone
with fragments of Olenellus. 10 ft
loc 61e

2. massive bed of gray
arenaceous limestone.
with fragments of
Olenellus. 22"

3). Chocolate brown
& grayish fine grained
sandstone passing off 28
feet into a grayish
granular sandstone. - 28

over

H. massive bedded
gray. american
limestone. — 65 ft

(4)

5) Gray arenaceous thin bedded limestone with fine oolitic layers of finer limestone that shows a varied fauna Alenellus Proty/pus - etc etc see collection (61d)

15 feet.

6. Gray arenaceous silicious limestone with irregular stringers in line of bedding x 20.

The Alberta & Helena shale zone is absent in this section but in present 2mi N.W. on strike of fish Odaroy

Pe

3

above this arenaceous bedded limestones extend up to the massive bedded Cathedral limestone.

RU7004 Box 30 F2 July 18/17

July 18/17.

~~Mr W Lyle~~

Mr Shafer section above McArthur Pass.

Cathedral - formation

Ptarmigan formation

Mr Wylie

~~1/36ft~~

~~5-9ft 2~~

~~3/34~~

~~1~~

~~74ft~~

~~18ft~~ 2

Section (top down)

Cathedral.

Arenaceous, magnesian limestone, steel gray weathering brownish to reddish buff. Massive layers.

Ptarmigan -

1) Bluish-gray thin bedded limestone. About 3 feet from top fossils occur in a thin layer (2 in) of compact hard

74

Shist lm. 2 36 ft

Fauna.

63 ft Cnepiciphalus
Bathymuscic
Hyalithes

2) Thick bedded, light gray lm weathering dark color. Irregular stringers & nodules of magnesian lm weathering dirty brown. 59 ft.
Fauna. Annelid trails & borings.

Mr Whyte —

3) Grey granitic sds weathering red rust brown above & dirty gray below 34 ft

1) Gray, more or less oolitic limestone weathering rough by layers 1 – 2 ft thick breaking

down into thin
irregular layers.
Magnesian stringers
etc - penetrate along
bedding lines in the
much irregular fossiliferous
bottom 61d from top to
bottom. 74ft

2) Thick bedded
gray - magnesian
lime. weathering 18
dirty gray

~~B~~

3) Black brown rock.
~~See section~~
~~of 1910.~~

4). Massive bed of
gray arenaceous
magnesian lime-
with fragments of
Allenellina 22

Sil. Birgu Fi. Tanawgai.
Shaly bituminous
sandstone with fragments
of Atenellus — 10.

RU 7004 Box 30 F. 2 Aug. 11, 1923

Aug 11/23

Stoddart Brook.

Section along Bare Mts.

10a Massive lm (Ayll) Concealed 115 ft
Arg Shale with interbedded lm -
At 170 feet from base Sauk
occurs a thin layer of interbedded lm.
Total of 1a 340 ft.

9b Thick bedded gray limestone with some oolitic layers - A few thin layers at top of massive layer carry fragments of small trilobites - 18 ft

8b/c Alternating bands of gray lm - & drab arg shale - 390 ft

7d Gray limestone in

95 —
57 115
172,

860
115
975 34
170
23
195

340
18
390
250
150, 45
14 195
20 1238
80 1145
2383

2c Aug 11/23

layers varying from
4 to 6 inches (cm) in
thickness with occasional
layers 12 to 30 inches thick
(15x) St. N. 60° E. dip. 50° to 60° NW
(Op 170 ft from base
found Syringopora
zone -

250 ft

1d Greenish angle -
shale with thick
layer of gray lim. 45 ft

1e Massive, + thin
bedded hard gray
lim. 195

1f - Alternating shaly
lm + varying thickness
of bedded lm 875 ft

450 -

975

120

1145

30

150,

60 to lunchea

Fauna here the Symphi-
cmana fauna
similar to 164 occur
Bonnimbed limpkites tests
are scattered throughout
~~at~~ the mass fulcat
510-feet ~~...~~ e traces
of larger fragments
have been seen
at 675 feet from the
base the Atlantic ~~accounts~~
Fauna ranges (174)
from about 125 feet (m)
of shells but recognizable
specimens are confined to
~~only in~~ thin gray bands
interbedded in shale & a
few thicker layers of hard
colored limestone.

---

12. a ~~thick~~ hard
dark colored band
limestone in thick layers
is assumed as the

4

Lower fractures of these strata locally & thins out to 2 feet (m) on a distance of 600 feet (m) to the northwest. This limestone is at the base of the beds containing the Hungaria fauna.

The alternation of calcareous shales & thin bands & layers of limestone continue for up an 440 feet from base. Stringers & nodules of chert occur irregularly in the limestone layers & as thin lamellae in the shales.

Small calcareous mud lumps & intraformational conglomerate abundant in places all through section

648
335
113

16
15

113
535
648

500
35

at 5 35 feet (m)
found Affleta zone
of which many are
at Linard Mt site.

---

Thin bands of greenish
argil - shale occur
in the upper 60 feet
(m)

above the Affleta zone
the limestones begin to
have layers of white
weathering chert running
along irregularly with
the bedding

Sec at Affleta zone
N. 80° E Ar.
Dip 70° N. 10° W.
Total of 19. 648
1st

At 113 feet above
Affleta zone a bed
of hard, fine grained
Mag - lim - with

~~21~~ 14
70

1984

~~16~~ 31
~~123~~
615
9

705

much cleavage in layers thin layers & irregular nodules with interbedded thin bands of hard calcareous shale. 8 3/4

1 h ~~Gray~~ Hard gray & dove colored ~~compact~~ mud limestones with bands of argillaceous & finely arenaceous shale. 70 5 ft

Large fragments of trilobites occur in the matrix of the small mud lump limestones.

Fault line that brings the upper most strata in contact with the Rich. limestones.

Ru 7004 Box 30 F2 8-29-23

8-29-23.

# Cabin Mountain Section

Cabin Mountain is the first mountain south of Sinclair Pass and form the north end of the Stanford Range above the Kootenay River valley British Columbia Canada. The summit of the range at this point is formed of dark Silurian limestones. The section above the Ordovician was not measured or studied in detail at this place & the thickness ~~was~~ is based on estimate

## Section -

Silurian.

Stanford formation

2 9 8-29-23

1. Thick bedded (½ to 6 feet (  m) dark gray, rough weathering, ~~magnesian~~ + more or less siliceous magnesian limestones forming cliffs + high points (Estimate 1,200 feet.

Fauna (See E. Kirk)

~~2.~~

(6 line space)

Brisco formation.

12. Gray, compact hard, cliff forming limestone with considerable gray chert in nodules stringers + thin sheets or irregular layers (Estimate 250 ft.

Fauna. As found a mile distant on the north side of Sinclair canyon -

(See list 1922)

2 (11) 8-29-23

2. Cabin Mountain Quartzite

1. Light-gray to white compact quartzite in layers 3 to 10 feet (1 m) thick

Str. N. 60° W. (Est.) - 110 feet

Dip. 50°. N. 300 mag

Ordovician.

Sinclair formation.

Unconformity.

There is ~~no~~ physical evidence of unconformity beneath the quartzite but the Glenogle shale formation with its strongly marked Middle Ordovician graptolite fauna is absent, ~~at this~~-

1. Thin bedded gray

Continued

a section measured about a mile to the northwest gave the following:

hite and light

.76 m.

oss-

18 to

similar

nos. from

traces of fossils were found.

ah any of the fossils of the formation.

4 12 8-29-23

reddish brown weathering
sandstone passing
into arenaceous
shale 330 feet ( m )
down 474 feet
Fauna. Numerous
annelid trails and
borings on + in some of the
thin layers of sand-
stone.
Lt. N. 55° W.
Dip. 40° N. 35° E

1b Gray hard thin
bedded sandstone 48 ft
1c
Dark grayish
black slightly t
finely arenaceous
shale 106 ft
1d
Light gray quartzite
weathering dull gray - 7 ft
Total of 1. 630.

about a mile to the northwest the following

5. 13 8-29-23

2a. Dark finely arenaceous + silicious shale with occasional ~~thin~~ layers of hard, dark arenaceous earthy rock + a few lenticular concretionary nodules carrying graptolites 707 feet

Fauna. Noted fragments of graptolites 102 feet (m) 407 feet (m) + 572 feet (m) below the summit – at 517 feet (m) collected the following sheet. (Locality 2i g) occurs (Copy a from letter of Jeffs. 9/2 by vacant.) on Kindelmann.

2b – Band of dark silicious impure almost black limestone that

a mile to the monument
a small collection from
a probably lower one
than 21/- game, the
following are valuable
by Rheelmann -
(Locality 16 ⊥)
Cooby
× + ××
of Rheelmann
letter of July 10th

~~6~~ 14. ~~8-29-23~~

break down on weathering slopes into shales & very thin layers / 28 ft

2c Arenaceous and siliceous shale that gradually passes into grayish black argillaceous shale with thin interbedded layers of limestone. 0 (about 55 feet (m) above the base)

Total of 2. 290 ft.
1025.

Total of Sinclair formation 1655 ft

(Back) (Mau Kay) (Underlay 15)

Ozark Kim 15.

Mau formation.

1. more or less irregular dove gray limestone in layers & bands ~~of~~ varying ~~thickness~~ in thickness from a few

In this bedded gray marl or less arenaceous of Williams limestones that occur near a fault about half way between the second & third bridges fault mouth on Gates of Sinclair Canyon a fossiliferous oolitic zone that corresponds to the lower zone of the Sanbach formation of the Cleanwater river section of which may represent the Jamison near the base of the 2d of this section. The fauna includes (locality 162.)

~~1005~~
~~545~~
~~1591~~

New Haven.

~~7~~ 16 ~~8/29/23~~

inches (one to ten, cm)
to 2 to 6 feet ( m)
and interbedded a
irregular integrale in
a gray calcareous
impure shale. 545 ft
Strike near base of
exposure above talus
slope.
Str. N. ~~70°~~ 45 W.
Dip. N. 20 - N.E. } ~~mag.~~

Fauna: At summit - (21 ft)
Lingulella -

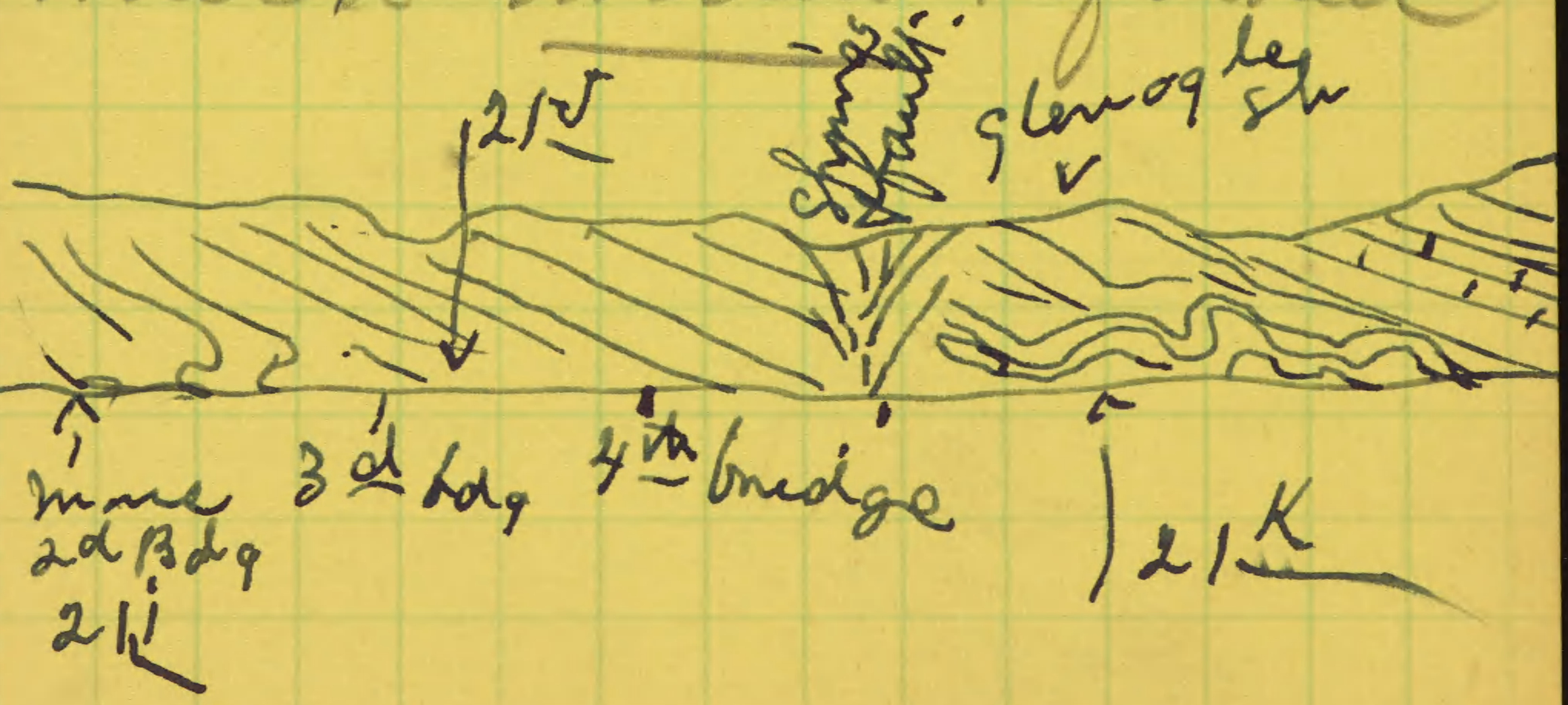
Just above the ~~base~~
talus slope above
500 feet ( m) below
summit. Fragments &
sections of Ophileta
leo. Ugleatt occur
in a hard dark
colored layer of lime
stone

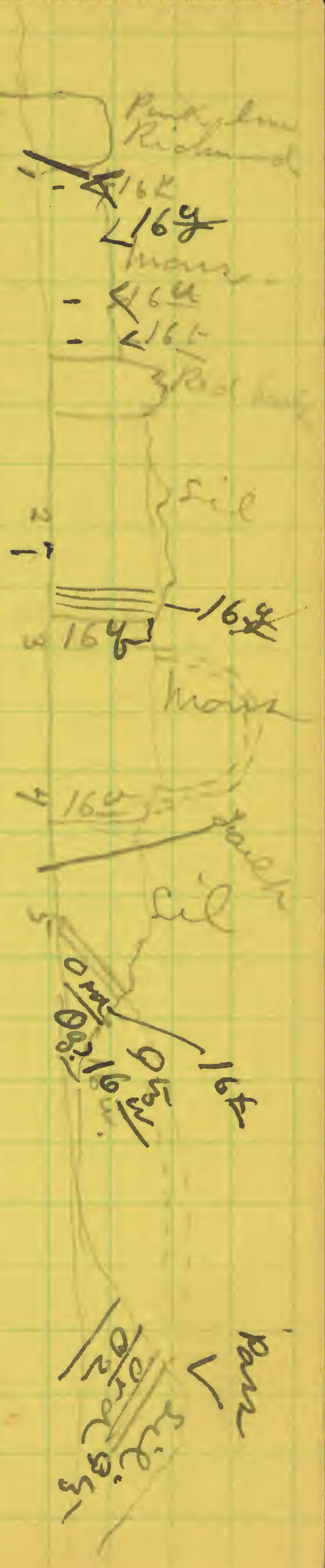
Sept 6/23

Ordovician
Glenogle Shale —

Kicking Horse Canyon
just below tunnel
31-08 on C.P.R.

Faulted in on hogs
Black shale with
graptolites mottled gray
aspenaceous shale &
thin bedded sandstones —
much twisted & folded




Pink lime
Richmond
16
16y
Mass
16
16
Red beds
Sil
16
16
Mass
16
Sil
16
Pass
Sil


51
47
24
14

RU7004 BOX 30 F. 2

JUN 1, 1925

New page (1) Aug 12 '09.

Vermilion Pass section.

Bow ~~River~~ range

Rocky Mts -

Alberta.

JUN - 1 1925

The ascent to the pass up Little Vermilion creek from the Bow river is over drift for two miles or more & then over the shales & sandstones of the pre-Cambrian Beltian group. The contact of the Cambrian basal conglomerate & the Beltian group of fossiliferous shale of the south east side of the canyon ~~almost~~ is in the Bow mountain. The basal conglomerate ~~has~~ very finely developed in massive layers alternating with beds of coarse sandstone. The conglomerate extends up the creek, dipping about

about 1½ miles above large lake on creek.

(2) Vermilion Pass

25° N.W., past ~~two~~ a small pond — a band of purplish arenaceous, platy shales in superjacent to the conglomerate & above that the massive bedded, compact — slightly cross bedded light gray & purplish sandstones of the Dominion formation. — The section gives a fine opportunity to examine each bed in detail. — In the sandstone just below the shales well marked scolithus occurs.

At the lower end of the upper pond on the north side of the Pass a fine outcrop of the Lake Louise shale occurs and

above that the sandstones of the Mt St Piran formation at the upper (south) end of the upper and numerous fossils occur in a light gray thin bedded sandstone.

Aboulella-like radiolaria.
Orthotheca-
Microdiscus
Abenellus-like fusulinids of Nevada.

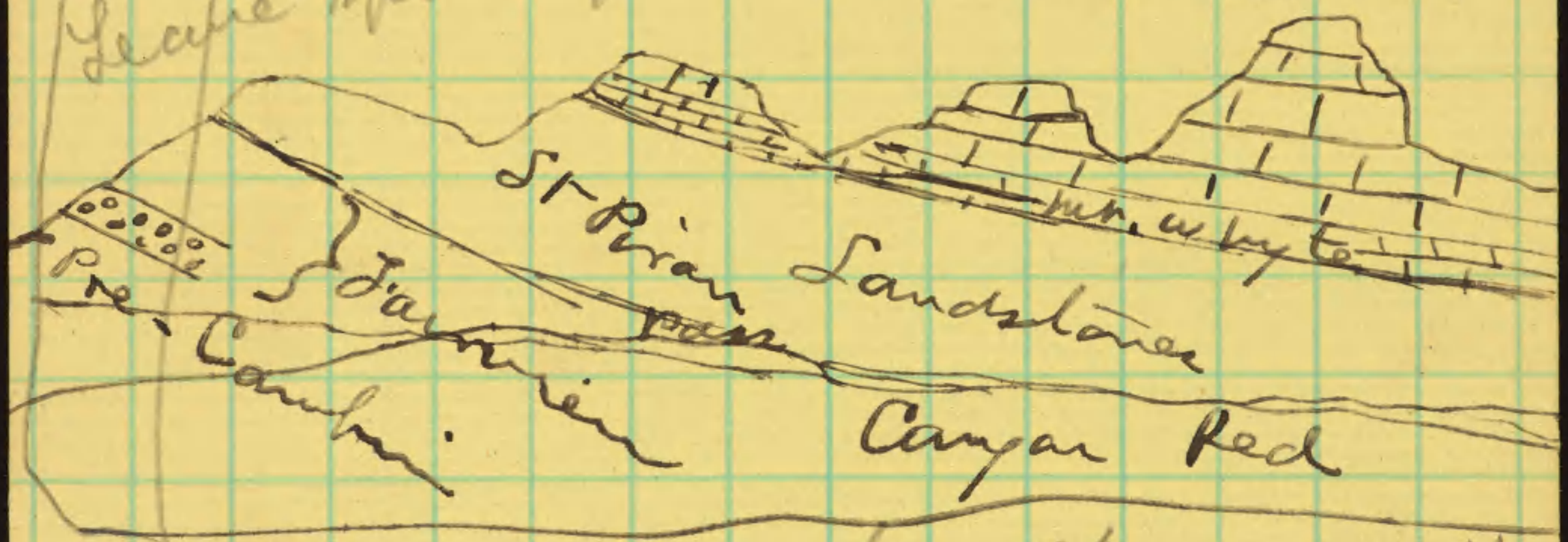
(608)

The St Piran sandstones form cliffs back from the front on the upper side in Boom mountain & the high ridges north of Storm mountain on the south east side. There is a fine section of to the base of the limestones of the Mt Whyte formation & an old through that & into the marine

limestone of the Cathedral formation, which can form the summits of Storm Mt as the east & Mt Whymper, and Boom Mountain and many others.

From base of Mt Whymper looking across Vermilion river S.E. (2mi below summit of pass the outline is

Storm Mt.




Leave space for sketch

At no point within 5mi of the Pass do the limestones reach the canyon bottom & the Abenellus gilberti & O. canadensis Zone are 1000 feet (or more) up on the sides of the mountains.

5

Perth. 22d/11.

The Mt. Whyte formation. Vermilion Pass - on Mt Whymper. has only a few layers of oolitic limestone interbedded in bluish black thin bedded limestone. They measure about 60 ft in thickness. I found a few heads & tails of a species of Ptychoparia. fragments of trilobites. Rough arenaceous limestones above & below with traces of annelid trails & things.

It seems as tho Mr Sparr Dawson must have been in error in stating that the limestones reached the canyon Red & that he found fossils in interbedded limestones on Vermilion Pass.

~~163~~
~~5~~
~~815~~

~~175~~
~~5~~
~~8955~~ 3
158
790
105
895.

46
138
690
92
782

80
400.
55
455

18
46
5
230.
30

RU 2004 Box 30 F. 2

Ozarkian - (Simulacrum ?)

Dirty gray and yellowish shale with thin layers of black shale. Just below the Hot Springs sandstone and the gray limestone. At this layer is a dark colored band bituminous. (over)

The shale lays on against the glauconitic sandstone below the Hot Springs sandstone against the Red Wall fault about 100 feet northwest of the hot Springs!

Stauria. From 30 to 75 feet above the base of the shale, a small Lingulella fragment. Small trilobite scour in the shale at in a layer of bituminous.

The alternating shales & interbedded layers & bands of limestone ~~extend~~ continue for a long distance with an average dip of 70° 80°

Total measured section — 1220 ft.

3

152

152

110

4

Locality, 2 1/2 (Probably same as small fault found near contact with Red wall Limestone breccia.

---

3) There is no fault line between 1 + 2 the shales + interbedded limestones change by the disappearance of the shale + the greater proportion of limestones. These limestone vary in thickness of bands from 2 inches to two or three feet = 1 to fault.

925 feet.

~~No fault line seen~~

Strata much contorted on south side of fault (see photo)

$$
\begin{array}{r}
1\cancel{8}^{0}\cancel{2} \\
9\ 1\ 0 \\
1\ 2\ 0 \\
\hline
1\ 0\ 3\ 0,
\end{array}
$$

Apart 450 feet (m) from the Sanfoe Spring occurs and 900 feet (m) from East the Syntrophia. Twenty feet (m) north the height of the fault the Bantam Syntrophia + Symphyomia (21 E) + 100 feet 50 - Symphyomia in same channel of limestone - The fault line has cut off same of the strata judging from a comparison with the Shoaldank Creek - Dry Creek reef 5' miles ( ) to the south.

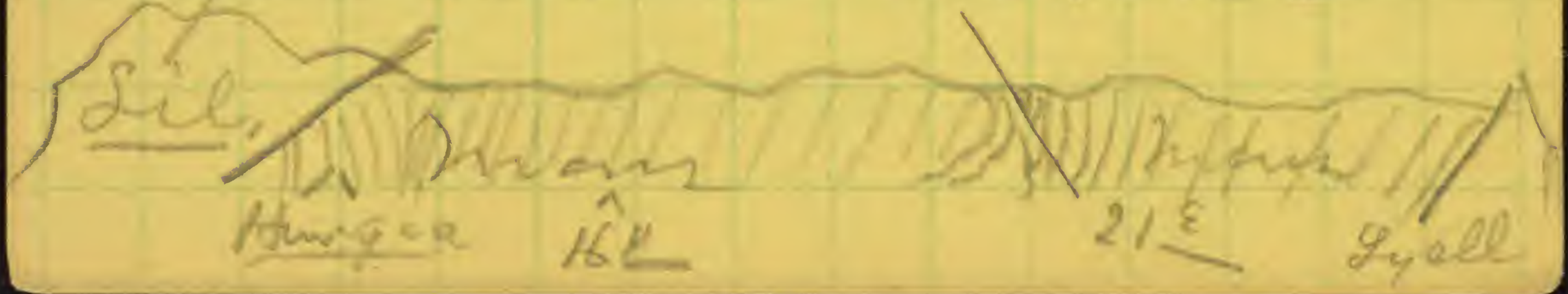
Southwest of the fault-cliff rectangle is taken up by the

base of the Upper Sandale
Mons on No. 3

B. Calcareous & argillaceous shales with layers & bands of hard gray limestone in layers varying from 2 in to 1 mile or more feet in thickness - many layers being composed of small mud-balls & fits of limestone and carried formational conglomerate

1030 feet.

Section taken by a fault that has thrust the Silurian formation north over against the Mons-



$$
\begin{array}{r}
1330 \\
-\ 550 \\
75 \\
\hline
1030 \quad 625 \\
\hline
405
\end{array}
$$

RU7004 Box 30 F2

1 Lake Louise

Left. 6/07

Lake Louise, B.C.

Sh of banal quartzite with S. 25° W. 25° W.

134

a) massive bedded light gray, dark weathering quartzite with a few thin partings of arenaceous shale.

825 + 50 875

b. Sil. shale & thin bedded sandstone 24

c. 05 - 33

d shale (arenaceous sil) with interbedded layers. 143

105
10
115

650
65
715

12
19
31

66

Lake Lomie

E. 95 -

715

2. Brownish gray sandstone with greenish silt shale partings, 72
Fauna. near affin. perth.
Aberellus -
Hyalithes ol
Protypus -
Thin bedded

3. Calcareous, carneting arenaceous - dark drab gray weathering drab brown, with intercalated beds 6 in to 2 ft thick of greenish siliceous shale 115.

4th. Greenish silt. sh. 66
at the base a large fauna occurs - (Bacculites)

5. Alternating lm - of character of 2 - interbedded with gn sh. 38

26.40.
187
2827

1958/103

26 4/8 5

4/23

948

3/15
31

77
3.5.15
8 8

91 " 1/2 "

67 4/20

68 5/13

8 7 16

68 — [illegible]

5 2 [illegible]

Lake Louise.

6) Shaly & thin bedded sandstone with thin layers of intercalated bluish gray lm.

66

Fauna.

Numerous trails of annelids, trilobites.

7. Gray oolitic limestone in thin beds — with interbedded banded — bluish & steel gray lm. The steel gray weathering half passes into thin bedded, compact bluish gray lm towards the top. 103

Fauna.

Fragments of trilobites did not give ten minutes to looking for fossils.

Section of Cambrian at Lakes Louise and Agnes - Canadian Rocky Mountains, British Columbia.

Sept. 6 '07.

Cathedral limestone

a) massive bedded arenaceous limestone forming summit of Mt. Whyte. Did not attempt to measure this formation. It is 200 feet or more in thickness.

b. Gray oolitic limestone in thin beds with interbedded banded flint & steel gray limestone. The steel gray, dolomitic layers weathering to a buff color.

103

On Mt. Bosworth

(2) Lake Louise
quite a fauna was
collected from this zone.
Also on Mt. Stephen.

3. Shaly & thin bedded
hard gray sandstones
with a few thin
layers of bluish gray
limestone interbedded
so as to give a banded
appearance to many
of the sandstone layers. 66
Fauna Annelid trails
& trilobite tracks.

4) Greenish siliceous
shale with a few
layers of dirty gray
arenaceous limestone
interbedded at irregu-
lar intervals. 38

5. Greenish siliceous
shales in massive

3. Lake Louise-
layers. The lower
two feet of this forma-
tion is a dark gray
siliceous shale with
numerous fossils - 64

Fauna

Lingulella -
Micrometra
Ptychaspis 3. sp.
Bathyuriscus -
Zacanthoides -
Hyalithes.

This is the fauna found
in the drift blocks on
the south slope of Mt.
Bisworth - (See calls)

6. Calcareous, thin
bedded, arenaceous,
dark, dirty gray lime-
stone, with numerous
small concretions and
a few sands ~~of interca~~
~~lated beds~~ of greenish

(4x Lake Louise
siliceous shale from
6 inches to two feet
thick. 115

Fauna
Obolellus thruaut.
Protypus -

Bow river group
7. Brownish & gray
sandstones with
thin partings of
greenish siliceous
shale. 72

Fauna:
Orthotheca -
Obolellus -
Protypus -

8a massive bedded
quartzitic sandstone 715

8b greenish siliceous
shale with occa-
sional imbedded
layers of quartzitic

5 Lake Louise

sandstone 143

8c Thick bedded gray quartzitic sandstone 33

8d Greenish & gray silicious shale and thin bedded sandstone layers. 24

8e Massive bedded quartzitic sandstone, usually light gray and containing a few partings of gray arenaceous shale 875

8f. Thin bedded quartzitic sandstones, with some shaly partings & a band of shale about ten feet thick towards the base — 295

6 - Lake Louise.

8g. massive bedded light gray quartzitic sandstone - Scalithoz borings - 44

8h. massive bedded pinkish colored, quartzitic sandstone - 88

8i. Quartzitic sandstone, in layers one inch to 6 in thick, some shaly silicious partings 423.

Total of 8. = 2640 - 72 -

9. Gray silicious, hard shale 105

Fauna.

Lingulella ?
Micrometra -
Salterella. annelid trails -
cruziana -

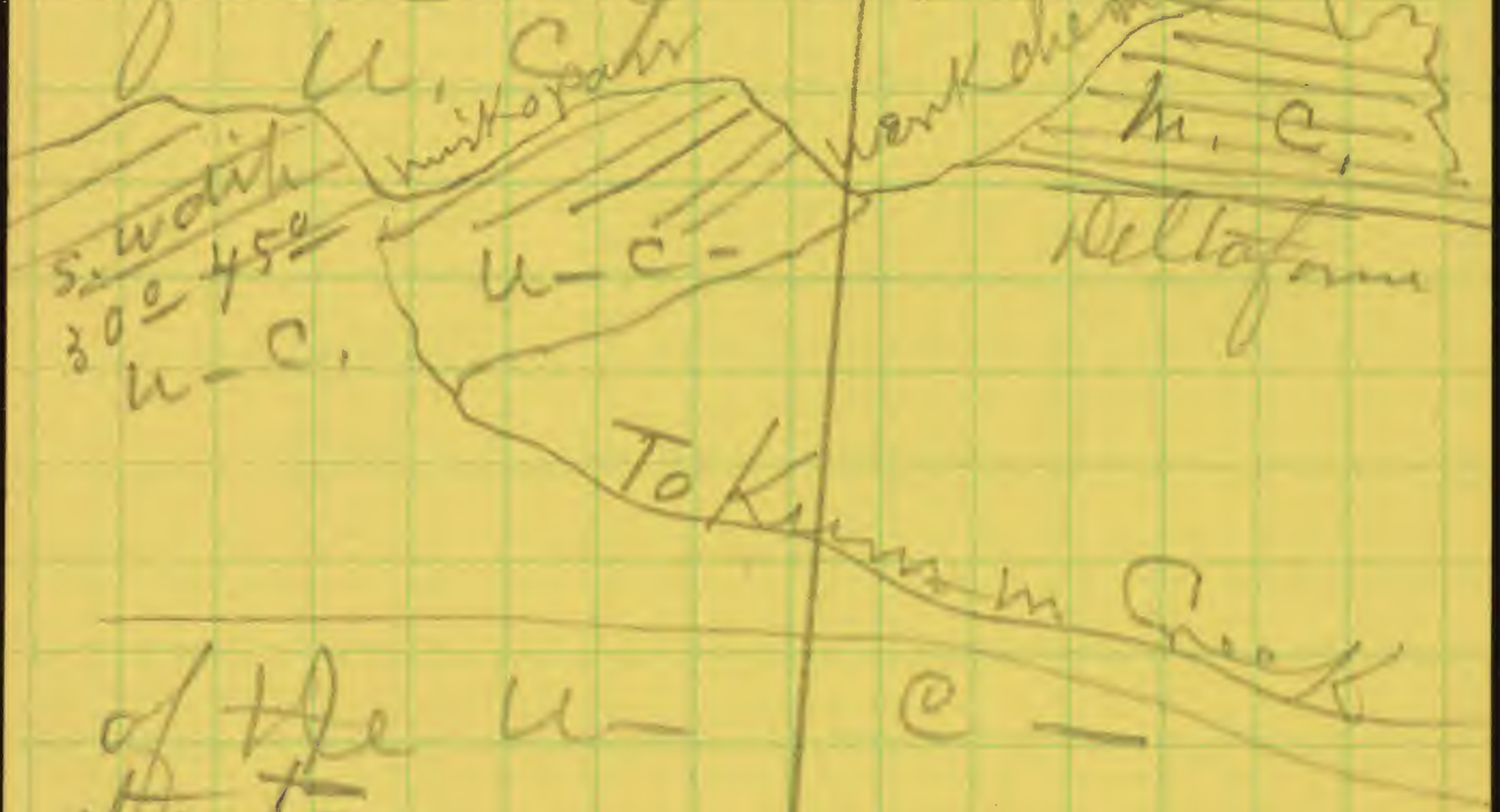
10. Thin & thick layers of gray quartzitic sandstone Cesk - 600.

Field Note
Takumuhl Creek
(Non-marble Canyon)
Sept. 12/

The valley of Takumuhl creek, called Prospectors Valley trends N.W. from Mt. Moritz & is on the line of the dimicin between the Middle & Upper Cambrian series of the rocks. The M-C — series form the higher ridges of the Bonn Range. The strata dip S.E. 10° - 12° from Mt. Moritz & the Velmuhlen Pass. Flat mean Wenkchemna Pass.

The M-C strata are tilted to the north & S. East

the broad canyon walls of Tokium Creek showing the line of the folding of the U. Cobb




of the U-C- strata.

The strata immediately above the U-C- for 1500 feet or more are arenaceous, with calcareous & calcareous in a region bands of shaly & massive beds. No fossils found yet that characterize of

the sediment indicates fresh water deposits. Many of the sands of shales have come as sediments since much and shown in the Van Horn Range to the U.S. west across the Kicking Horse valley.

1—3

Section of Juan Safine Mt
Silurian (Richmond)
Niagaran formation (1) Cat Point
Pt 2.

Ozarkian -
Trenton formation -

(1a)
Dark, compact argillaceous shales with interbedded irregular layers of shaly, compact gray limestone in slivers and in a few layers 3 in ( cm) to 12 in ( cm) thick >56 ft (m)

Trenton - Near top, 17t)

(17t) Billingsella -
(6 lines)

1. Compact hard gray lm 6 ft (m)

162
108
~~27~~
~~297~~.

1276

1c)

Somewhat earthy dark gray shale occasional thin limestone layers or lens irregular layers of dark gray limestone — 54 ft (m)

1d Irregular bed thin layers hard gray limestone with parting of gray shale — 48 ft (m)

Fauna 17

Fragments of trilobites —

1e Compact hard gray buff weathering limestone in layers 6 to 14 inches (c. 20) thick 4 ft (m)

Str. N. 25° W
Dip 40° S. 70 E.

f. Gray shale with layer of buff weathering gray limestone .025 (1 foot) to 6 in. thick — Shale

5

at 17 feet (m) down for m a solid band of layers the shale shows disappeared. 29"

2.92 V/S

Zutgal

Hawa (On back)

The recent map have taken along north side face of Sabine Mountain to where the vein in pliocene brak layers he old vein above underlying the south side angle of the mountain ~~and~~ reduction of the Mans indicate from the face of the Silurian ~~Reid and~~ by the contact with a sinuation magnetite assumed the which is the serpentine of the Lyell of the Shasta Range section

175

6 line space

north of ~~the~~ Bow Valley.
~~[illegible]~~

1g Just below the ~~thin~~ limestone of 1f. shale with interbedded stringers ~~thin~~ layers & flat nodules of limestone appear wh. contain the Saukia fauna, which also occurs ~~in~~ thin ~~pebbles~~ limestone on the debris slope of the section of 1f above.

Fauna, — (Copy from 6 a) 176 feet

St. N. 25° W.

Dip. 50. S. 65. E

---

1h Buff colored arenaceous shale weathering a reddish buff brown with a few interbedded layers of gray lm. ~~at~~
~~54 feet ( m ) dominated Agnostus~~

On the southwestern angle of Sabine Mt. there appears to be an unconformity between the Inman & the surrounding Silurian but this may be only a local upturning of the Inman shale against the massive bedded Silurian limestone - usually the shales & limestone appear to be conformable.

6a

~~Same as 17S Acc collection.~~

Fragments of Sauka similar to those of locality 17S were found in the other frontier of 19

~~c to à a plan one~~
~~2 m (many) Thick~~
The shales became
slightly coarser
at 2nd peak (m)
down

Journ. (over) 2)35 ft

Total (mons) 720 ft (m)

The distinction between
1 & 1 ft is a gradual
decrease of limestone
+ argillaceous shale +
an increase of fine
arenaceous sediment.
As seen in cliffs there
is very little ~~[illegible]~~ of such
change involved ~~[illegible]~~
by the color. ~~[illegible]~~
~~is smooth~~

Jaula. A small fauna occurs 54 feet (m) below the summit of the cliff that contains the following species. Loc

in a thin interbedded layer of soft gray limestone

17 v.

(6 line space)

Stoddart = Dry Creek Section

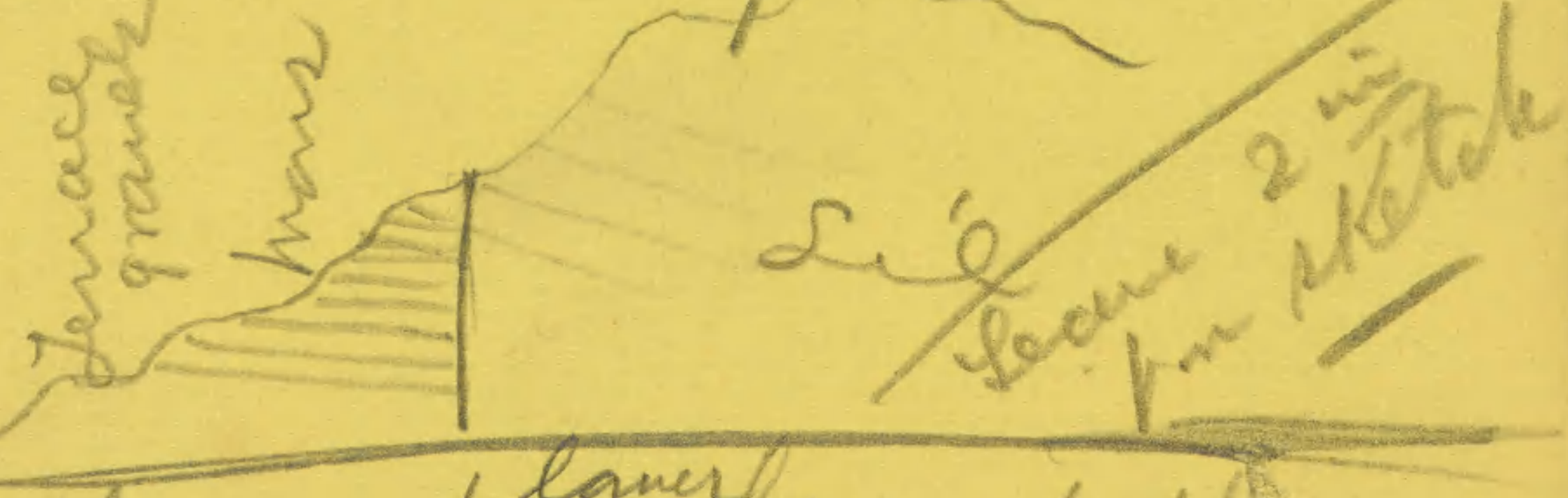
Section between Stoddart & Dry Creeks, eastern side of Columbia river valley, 7 mi. (  km) north of Lake Windermere & 5 to 5½ mi. (  km) S. Lindsay Canyon

At the mouth of Stoddart Creek Canyon is flanked on either side by a cliff of massive bedded Brandon rock which finely crystallized are redeposited, & magnesian limestone. The cliff on the north side belongs to the northeast & on the south side slightly to the W. S. W. This limestone is apparently beneath the shales & interbedded limestones of the Lower Brandon formations ~~limestone~~ ~~belt~~

in which it tends to the
North forming foothills
to the high cliffs of
massive Silurian lime-
stones that constitute the
high (Eastern) wall of the
valley (on the west side) of the
Columbia. The strata
lie dip to the north
east so that
higher & higher strata
are successively met with
as one proceeds up the
Silurian limestones. They
are separated from the latter
by a fault that extends
for a mile or more (on the)
the western side of
the mons limestone &
shales mons is crowned by
the high terrace drift
gravels of the Columbia valley.
The floor of mons
is about 15 of a mile (1 km)
in breadth & include

A. 3 fractions

(a) and (2a) which is a fragment of a major fault line along the western side of the Stanford range, in places the terrace drift, gravels up to the Spluman ✗ Extens in others a narrow strip of marl, limestones, outcrops above the gravel hills to terraces. The marls limestones are fragments of a large marsh that formerly extended to the western and prior to the regional fault by erosion. I have I have been an essential factor in forming the western side of the Brisco & Stanford Ranges. (Conback of 3)




✗) & the western lower face of the Stanford Range

with a high dip (70 to 90°
west). How much duplication of strata by faulting
* folding in the great
thickness of Mon is
unknown ~~(See p. )~~ (See
discussion of thickness
of Mon formation in
Bruco & Stanford ranges.
p. )

(Mon back to (a)
on p. 2

— all of the
known series from near
the upper limit
downward to the Saukia
zone at the base
which is superposed
to a massive bedded
limestone that occupies
the stratigraphic
position & has the
character of the
Upper Cambrian Lyell
limestone of the Bow
valley section to the
north.

and Saskatchewan

Ozarkian
Mons formation -
p. 41

Other major faults occur within the range to the eastward that have "dropped" long strips of Silurian limestones on the east of the western strip of Mons and a second north and south strip ~~east~~ of the Mons east of the Silurian that extends ~~some~~ over 5000 feet (with a dip of 60° to 80°) up the Sinclair Canyon where one "peak" is cut off by the "Red wall breccia" fault. Another strip of the Mons occurs east of the Silurian of the "Red wall breccia" that has a thickness of nearly 600 feet (m) along the canyon. The

(see fig. 4, next page)

Standard Creek section.
Ozarkian
Mars formation
1. The highest beds exposed are two bands of hard gray interformational conglomerate limestone some six feet (1m) thickness separated by three feet (m) of gray siliceous shale.
Dip 80° N. 25° (mag)
Strike - N. ~~80° E~~ 25° west (mag.)
Below there are single layers and bands of hard, siliceous gray limestone with more less interformational limestone conglomerate made up of small irregular lumps of rolled calcareous mud, their irregular and angular bits of gray limestone with angular or rounded

edges the layers and bands of lay more interbedded in gray silicious shale. Stringers very thin layers of gray chert occur in the clear steel gray layers of limestone. Thin layers of limestone .25 in to 2 in (cm) thick occur in the shale seperating the thicker lay ers & bands of limestone.

Thickness of 1. 705 ft (m)

Fauna. The only fossil found were near the top & consist of a single ventral valve of Syntrophia a whorl of a small flat depressed gasteropod & a small fragment of the test of a trilobite.

3

2. Hard, steel gray, fine grained compact magnesian limestone in thick layers 12 to 30 inches (cm) with much light gray weathering chert in thin layers .5 to 2 in (cm) thick & numerous irregular chert nodules. 83 ft.

A siliceous or finely arenaceous shale forms parting between some of the layers.

Fauna - No fossils observed.

3. Alternating bands of calcareous & siliceous shale with layers of gray limestone of varying thickness and character: the limestone may be dark colored

compact with conchoidal fracture; hard dark gray ~~+ impure~~ with silicious shale in thin irregular laminations = ~~round~~ mud lumps of small size scattered through it or mainly composing it; and a few thin layers of soft gray more or less finely crystalline limestone crowded with broken + rolled fragments of the test of trilobites.

648 ft.

~~strata~~

In the upper 100 feet C in there are a few thin layers of light gray weathering chert running along irregularly with the bedding of the limestone + shale.

~~Above~~

In the other two on three hundred feet the strike of the shales is N. ~~80°~~ 150 east (mag) dip 70° N. ~~10°~~ 15° East (mag)

58

Fauna. In a bagger of shard, dove colored gray limestone 30 inches ( cm) thick that occurs 11½ feet ( m) from the top of 3 a number of gasteropoda were found. These include

172 Athleta cf leo n. Raphistoma.

6 lines space

(Same fauna occurs Fossil Mn. 64k)

~~Near the~~

4. On 125 feet ( m) above the base of 3. a compact, hard gray limestone, contains fragments of the Nunquida and these were found down through to the near the base. about 50 feet ( m

above the base the
Hungaá fauna included
(17y)

Hungvà ———
Leave 6 lines —

In the section on the
north side of Day Creek
this zone gave - (17u)

Hungvà
(6 lines)

4. A thick layer of
hard, dark colored
limestone, 6 to 8 feet (m)
thick where the section
crossed, was assumed
to mark the base of
3. below it ~~there~~ there is
a thick series of
alternating bands of
shale and limestone.
mostly small mudlike

710

limps and bits of
rolled limestone shale
(interformational con-
glomerate). Thin even
layers of hard gray limestone occur
irregularly in the shale
& with the thicker layers.
There is much similarity
between the series above
(3) and this series (875 feet (m))
Fauna. Fragments of
the tests of trilobites
occur in many of the
layers of limestone but
it is ~~not entirely~~ in the
lower portion ~~is reached~~
that ~~the~~ recognizable
~~specimen~~ fragments were collected -
~~These include~~ - These
Eos, this indicate the
17 ~~Dyrnella~~ lower portion
of the Symphysurina beds
~~(6 lines)~~ of the
Lincoln canyon section.

8/11

a local sigmoid flexure occurs in this series (4) but by carrying the section east of it ~~the~~ any duplication of strata was avoided or prevented.

5. ~~massive~~ alternation of thick (.78 to 30 inches ( cm) & thin (.25 to 3 inches ( cm) layers of hard, close grained dark gray limestone 195ft

6. greenish argillaceous shale with a few interbedded layers of dark gray limestone 45

7. medium gray limestone in layers varying from one to six inches ( cm) in thickness with occasional layers 12

$$\begin{array}{r} 457 \\ 408 \\ \hline 865 \end{array} \qquad \begin{array}{r} 120 \\ 408 \\ 457 \\ \hline 1045 \end{array}$$

to 30 inches ( cm)
thick. 250 feet (m)
Strike N. ~~60°~~ 85° east.
dip 50° to 60° north ~~30°~~ 50° W.
Fauna. about 80 feet (m)
below the top a well
marked faunule occurs
that contains many speci-
mens of Syntrophia (17x)

6 lines

8 Alternating bands of
gray limestone and
drab-gray argillaceous
shale. 390 ft
Fauna. Fragments of
trilobites in ~~shale~~ limestone
about 190 feet from top (12)
9. Thick bedded dark gray
limestone with a few
oolitic layers — 18 feet
Fauna. none observed.

~~13~~ 40 13

10) Argillaceous shale with a few interbedded layers of hard bluish gray more or less interformational conglomerate limestone. 340 ft

Fauna. At 170 feet below the top numerous fragments of the Sankia fauna occur. (17N) 4 lines

Concealed 117 feet.

Total Mass exposed. 3766 ~~3500~~ feet

Below the lowest exposure ~~there~~ is a drift covered slope ~~that~~ extends down to a cliff forming ledge

When Cambrian &
E Lyell formation.

bedded, ~~semi~~ rough weathering, semi crystalline, magnesian limestone dipping to the north about 30°. It is unlike any of the limestones above the Iron & corresponds in position to the magnesian limestone beneath the Iron ~~at B~~ near Fairmount Hot Springs and at the southern end of Stanford Range on Sabine mountain east of Canal Flat and this limestone corresponds ~~to~~ in position to the massive magnesian limestone of the upper portion of the Lyell Upper Cambrian formation, north

East of the Rosalind
Hot Springs beneath
the base of the
Mans in Sinclair
Canyon.

of the Bar Valley in the Sawback Range and is the only ~~evidence of~~ formation I have seen in the Stanford Range that might be referred to the Upper Cambrian.

The thickness of the exposed equivalent of the Lyell Quartzite is about 125 feet (m) down to the level of Stoddart Creek.

RU7004 Box 30 F2

July 4, 1888

July 4/88.

Phillipsburgh Section.

Crossed the section from the Afillete beds to the Eastern edge facing the G.T. R.R. N. of St. Armand.

The section from the first appearance of the Lituites above the Afillete horizon indicates a reversion by monoclina uplift but I could not demonstrate this without an elaborate collecting of fossils.

The section on the line of the Boundary is the best up to the Lituites horizon.

Phillipstown section on line of Boundary.
Scale feet
Dist 200 25°

RU7004 Box 30 F2

July, 1889

1

Section of Potsdam, Calciferous & Chazy rocks near & North of U.S. & Canada boundary, C.D.V. 1889. July.

2 July 24/89

## Poladam.

Section on telephone of Mississippi Bay a little south of the US & Canada boundary.

1. Thin bedded, gray, fine grained sd. with fr. Lingulepis 12.
St N. 20° E. rel. 20° E.

## Californus.

1. Massive bedded mud unless silicified — with layer of quartzite 165 ft up & at same time rel. decreases to 80° by way of transitions

$$\begin{array}{r} 33 \\ 5 \\ \hline 165 \end{array}$$

$$\frac{31}{8}$$

This series of rocks forms rugh, ragged, outcrops. 360 —

2. Dome colored limestone with veins of silicious matter incrustating thro' it & ~~phases~~ some layer that is altered. A canine shell ∩ + section of Ophiletia were seen. This section is nearly on the boundary between U S & Canada.

Following the junction of Rt 2. South it is traced across the road leading from Phillipsburgh to St Armand where the strike swing around to N. 5° E. & dip is 10° East. Start are-

$$
\begin{array}{r}
85 \\
\underline{5} \\
2\,4\,5\,7 \\
5\,7 \\
\hline
360 \\
\hline
7\,4\,7
\end{array}
$$

1/2 a mile N. of the old Methodist church ~~(1819)~~ (dated 1819) the section was taken why at the base of the limestone. 2 -

2 = 105

3. Massive bedded calcareous rock similar to 1. 35

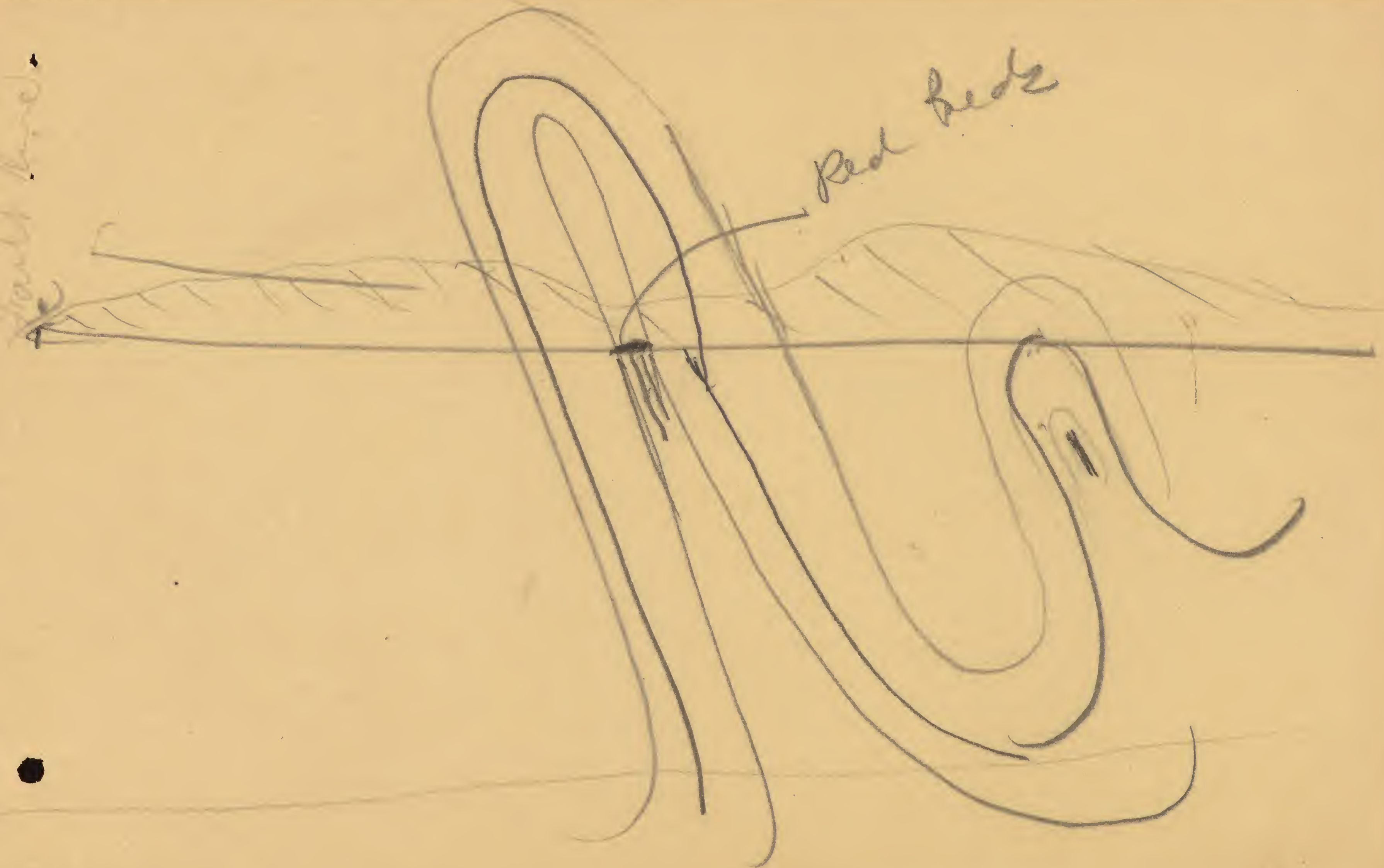
4. Similar to 2 - 20.
St. N. 70° W, dip 20° S.

5. Similar to 1 + 3. 245.
St at smith N. 90° E,
dip 10° to 15° E.

6. Following on the strike to the S.W, the four beds of gray l - become more numerous and alternate with thin dolomitic layers

to form massive beds
at the base from the
Aphlitta
or 38 feet of
Arthrs
Bathymus 2 sh.
Lightonema —
This is ~~some the rock~~
200 yds N. of the road,
from Phillipstown to St Amand.
6 = 60

7. Massive bedded
silicified calcareous
sandrock 50.
These beds strike N-
70° East. a meadow
intervenes and the
section is taken such
where the strike
is N. 20° East.
Than much rock is
covered down on the
South & do not know.


Red beds

8, Messrs. Redfield
& Rensaeng l-mill
dolomitic layers in
lamellar flute mica-
lite & cut thin sheet
in many lines folse
parallel to bedding
Dark at base
Opaline —

Z

• Cornuella Machurea 

Much like M. magna

At 140 feet gave of Bathyurus Saffordi & Ectenimorphus affear in a gray shelly l.

At. 245 feet gave of Ophileta etc. etc. in decomposed rock. 245-

8a The interbedded siliceous material from at least 1/2 of the rock & gives it a banded appearance. At the summit the genus Ecculiomphalus

$$\begin{array}{r} 28 \\ 5 \\ \hline 149 \\ 57 \\ \hline 206 \end{array}$$

29.

Sh, N & S, 24 10° E, (8)

occurs & also numerous of Aphileta also Lituites — 8 Sh.

Note on 8a

as far as I can judge the same species of Ecculiomphalus & Aphileta occur at 140 feet in 8. & also at ~~about 75 feet in~~ 3a. We have to await the collection of specimens for full determination —

8a Continued — At 102. The zone of the large lituites comes in.

Cancellata 15 ft

Rock 10 ft

Cancellata 12 ft

205

09.

```
  32
  160
  121
  128
 1812
 140
```

```
  51
  85
 181
 323
```

9

Rock
Concealed

7.
13.

St N + S, 10½
12° E,

At 120 feet noticed
Eccoliaiphalus astrine -
Lituites 4 3/4" across
the whorls.
Fragments of Eccoliom-
phalus occur all the
way up through the section,

---

At 206 stone the
first Lituites zone
a second zone occurs
in which the Lituites
are very abundant.

At 323 feet from stone
of 3 a layer of hard
yellowish limestone

323+

The Jaber Cas referred to B 354 are decorated in places on a grand scale. Great masses of the rock are broken & decorated

Scale 12 feet to inch

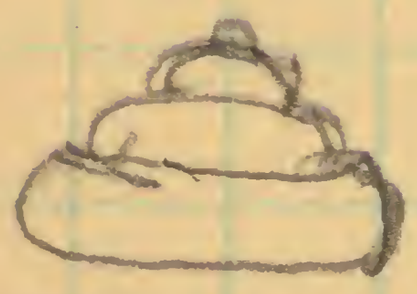
Banded brilliant Rosaceal

4 10

At 31 feet above the 1st yellowish band the fauna is suddenly changing.

Numerous fossil fragments appear on the surface of the rock, sections of a large trilobite, head & tail, & a broader chambered Orthoceras.

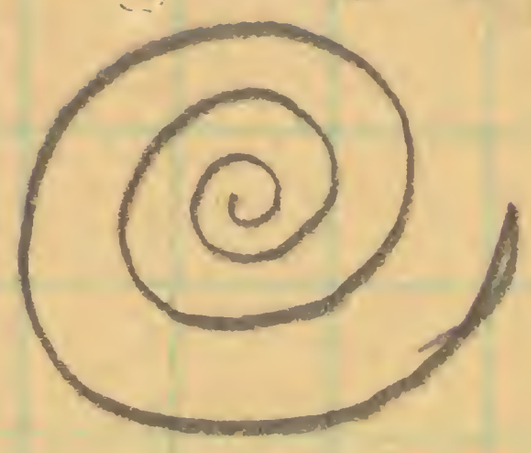
also stromatopora —



At 41 feet section of Pleurotomaria like P.

25.

also Euomphalus. 18



All of 4. is more or less specialized in flavus. The soft colored gray l. appears to have a paste in which the aureocrene layer must be broken up & mixed in.

Zu 4. oben 85 b

5. alternating bands of soft gray l. ~~with~~ & dark flecked aureocrene layer, at 17 from notch long. Ostrocrene

Supra (1/2) (3) (4) (5)

45.
6
51

28
5
140

1

20
5

This belt continues on up until at 110 feet the big gray limestone predominates. At this point noted Machrea magna. & it comes all the way up. At 160 feet it is very abundant & also at the top of the outcrop on the road from St Armand north. 210 feet from the point of 4.



Note some Orthoceras as 17 feet from bottom of 5, also Machrea magna & sections of Orthoceras Pleurotomaria & other gasteropods -

5)

Massive bedded limestones with annaceous-calcareous bands cut up with annelid burrows (hangtial) These weathering out on the surface of the dome extend lines of gave rise to the so called ~~Antho~~ Paleophycus —

30

R07004 Box 30 F2 Aug. 16, 1889

Phillipsburgh Section -

A locality of the conglomerate of division D. of Sir W. Logan's section. Geol. Canada, occurs on the central portion of lot 29. North side.

It is like that which occurs at various horizons in the Phillipsburgh section. ~~but~~ It carries fossils Modiola ponderosa etc similar to the upper beds of the Phillipsburgh section. From the examination of the "conglomerate" beds of ~~St~~ Annade & Bedford & their relations to the adjoining rocks I think that they are not true conglomerates in the sense of being Annade

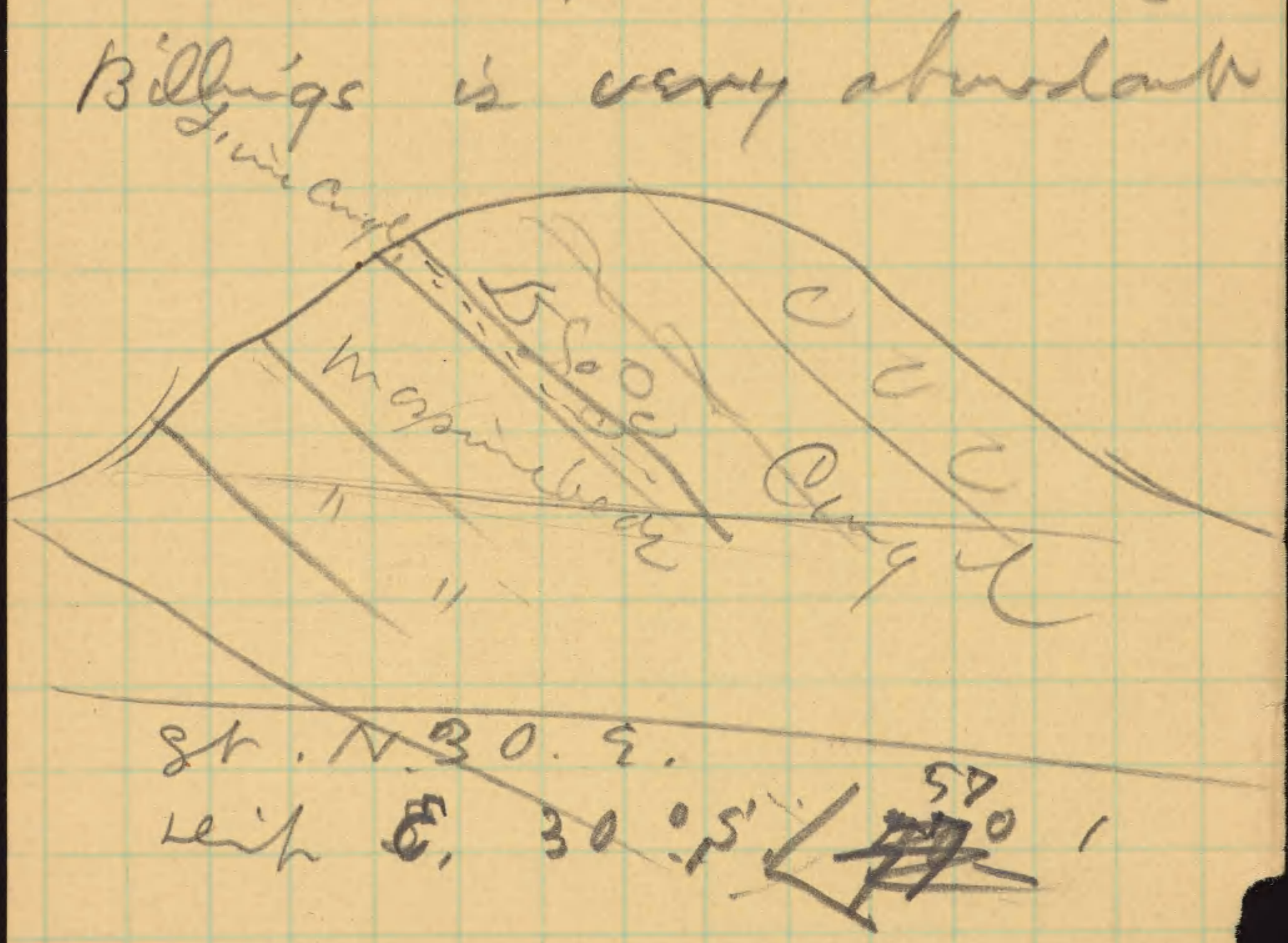
th if transported masses of the upper l-bers of the Phillipsburg section. The so called th boulders of limestone are nodules of blanketed concretions among or layers of the rock broken up & decomposed ~~in the bed~~ in situ. As I now understand it the th of the Phillipsburg section is near the summit of the Chazy zone & the Trenton limestone comes in on top of it as shown at Highgate Springs

Sir Wm Logan's division 20. of the Phillipsburg section includes strata of the upper portion of

But much of C. of the Phillipsburgh section. Also the red & green shales & dark shales of the filling on Cambrian. Believing that the filling was on top of the Calciferous Brane he put the surficial similar Rocks on top of the Calciferous Bane in the map problem section between the area north of Bedford & St Armande

Attach to Phillipsburgh section

1/2 mi. west of Bedford and 1 mi. of Cagwinnet is crossed, under it a massive bed of limestone is continuous for 150 feet. In the Macleod formation of Billings is very abundant




Str. N. 30. E.
Dip E. 30° 57'

1a.

Ordovician

~~At~~ a little south of Phillipsburg on the shore of Missisquoi Bay the lower beds of the Calciferous sandrock are thrown over on the shales & interbedded thin layers of limestone. The Trenton Utica & Lorraine at the fork of Mrs Kays bathing house other fine graptolites in a narrow band of black shale - Climacograptus bicornis

G

Phillipsburgh Section
Aug 16/89.

The summit bed of the Phillipsburgh section dip to the eastward towards the 2nd Rung track - Crossing a meadow the massive bed of the Lower Carbon are met with. Lower down the latter beds are met with on the Calciferous Chazy - Trenton, Utica as thin line of outcrop to pushed over first one of them then the other

~~Chazy Trenton Utica~~ ~~Calciferous~~

Carbon

Sept. 18/1890

Section Mystic Quebec

Chazy

Sept 18/90.

Examined section near Mystic, P.Q. Canada. in connection with Dr R.W. Ells.


The formation is a dolomitic slate with bands of limestone & limestone conglomerate occurring as lenticular masses in it. Two miles north of Mystic the best localities for fossils occur. Several "lentils" of lm & congl occur. In one a mile east of J. E. Watson's have graptolites occur in a limestone with Lingula — Rhynchonella

etc. In another band a large number of fossils occur in situ.
See list in Geol. Canada 1863. Also collections.

This series of slates forms a broad belt and according to Dr R. W. Ells its bases beneath the Trenton limestone. As it carries Chazy fossils it is evident a development of that upper portion of that terrane that is not represented in the St Armand section. The thickness of this series is estimated roughly at 1000 feet. By Logan

See Geol. Can. 1863.

July 20

Sh Piran formation
Lake O'Hara 7.5 mi
South of Hector -

At the level of Lake
O'Hara a little east
of the ~~Castle~~ Wiwaxy Peaks
cliff of gray, hard, quartz-
itic sandstone outcrops
+ in this occurs -
Orthotheca - loc. 61e
Wanneria? gracile -

(Same fauna as in
Vermilion Pass.)
The Wiwaxy Peaks rise
2200 feet above Lake
O'Hara - and the upper
2000 (two hundred feet) is formed
of the arenaceous limestone
of the Mt Whyte formation.
The S.W. slope of the
east Wiwaxy Peak exposes
fully 2000 feet of the

1600. 3120.

RU7004 Box 30 F. 2 Aug. 6, 1909

SIA2012-1154, SIA2012-1155, SIA2012-1156

R07004 Box 20 F2 July 20, 1910

July 20/10.

Section on north & S.W. sides of Continental divide above Lake O'Hara

Elden
Stephen

Mt Hubert.

Cathedral
Mt Whyte

St Piran

Eldon just caps Mt Huber
" 600+ feet on Mt Victoria
" 800+ " " Mt Lefroy.

See panoramic photos also Kodak,

900
350
550

St Piran formation

The Dr. E. cliff of Mt. Odaray gives a section of over 3000 feet.

Mt. Odaray

St Stephen formation. 200.

Cathedral. Est. 1200 –

~~St Piran~~ Mt Wyte } 250

St. Piran 1500 +

See Kodak photo July 20/10.

Ro 7004 Box 30 F. 2 Aug. 21/16

Aug. 21/16.

Whyte formation on S.W. slope Mt. Temple above west side Centennial Pass.

Cathedral formation.

massive bedded light gray arenaceous limestone rising in cliffs above terrace of Whyte formation

Whyte formation

Top bed,

1) Thin bedded impure bluish gray limestone 22 feet

2) Greenish arenaceous silicious shale in massive beds, 107"
abrupt - small & large

3) Thin bedded dirty gray arenaceous limestone. 3'6"

2 Aug 21/16

4.) Cross bedded gray sandstone - 5'6"

5.
Coarse, reddish & gray calcareous sandstone with numerous fragments of Olenellus 23'

6
Greenish silicious shale 3'

7. Reddish brown & gray sandstone with some layers quite calcareous & almost made up of fragments of Olenellus 7
Total Whyte. 17 feet

St Piran formation -
alternating bands of gray quartzitic sandstone & greenish & gray silicious shale -
Several hundred feet in thickness exposed

8-21-16

The lower portion of the section is made of the massive bedded Jacinto quartzitic-sandstones. These may be seen at the giant stairs & outcrops on the west side of the upper portion of Paradise Valley & to the north they rise in the bold cliffs facing Bear Valley.

Collected a few Abalones in No. 2. O — which compare with those from Albonitella shale of Mh. Why to section.

RU7004 Box 30 F. 2

Aug. 28, 1916

Aug. 28/16

~~Whyte formation~~

~~Pope Peak~~

Ross Lake Section.

~~Section measured in~~ amphitheater along Ross lake on the north end of the north spur of Popes Peak. The base rests on the, greenish colored massive quartzites of the Shinarump formation on the west slope of the ~~north~~ east spur + about 500 feet above Ross lake. The summit is on the north face of the same spur.

(add (a) on big line)

~~Upper formation~~

~~Cathedral formation~~

~~(middle Cambrian)~~

La

massive bedded, dense gray rough weathering arenaceous limestones with a band of steel gray, hard, thin bedded finely arenaceous limestone 52 thick at base 327 ft.

Whyte formation (4 – C –)

1. Gray to grayish black oolitic thin bedded limestone 43'
Fossils. Many small fragments of trilobites.

2. Finely banded gray sandstone & hard arenaceous limestone. 5'

3. Gray – finely oolitic limestone in thick beds that break down into thin irregular

layers 18.
Fauna. on 15 feet from
summit,
63K) Stenotheca
Scenella
Orsiina
Ptychoparia

4. Banded sandstone and
finely arenaceous shale
in massive beds that
break down on weathering
into arenaceous shaly
layers usually
covered more or less
thickly with annelid
trails & more rarely
tracks of trilobites. 70'

5. Greenish, drab and
buff colored very fine
siliceous shale with fossiliferous
of thin layers of
sandstone. 85'

Fossils noted a value of Micromeltra and crassidicum of Ptychophoria.

6. Calcareous sandstone with dirty brown & rusty layers & shaly sandstone partings. 27'

Fossils

63L)
Coryneyochus fieldensis w
Alenellus (many fragments)

Total thickness of Whyte formation 248'

St Vivian formation,
'massive bedded
purplish quartzitic
sandstones that form
cliffs above Ross Lake.

P. P. section

the cliff forming limestone of the formation above. 135 ft.

Fauna

In the upper band of oolitic limestone

63a. Nisusia
Hyalithes
Ptychoparia
Cnephicephalus

63c)
at 85 feet from the base
Ptychoparia

at 62 feet from the base numerous fragments of trilobite tests occur but ~~not~~ too much broken up to recognize genus or species.

The fauna near ~~at~~ the summit is the same as that in the oolitic limestone

P. P. Sedin

in the section of the Whyte formation at McArthur Pass and Mount Stephen.

2.) Thin bands of dark gray arenaceous shale, alternating with (hard), thin layers of uneven greenish brownish gray sandstone ~~the~~ 57 ft.

This band forms a low cliff on the ~~face~~ slopes of Ptarmigan, Richardson & Redoubt mountains when not covered by talus of the limestone cliffs above

Fauna.

The surface of the sandstones is thickly marked by casts of annelid trails and borings.

135
57
43
17

252.

P. P. Sechan

3) Fine grained, dusty gray to greenish arenaceous shale. ~~with fragments of trilobites~~ — 43.

Fauna.

Fragments of trilobites. Ptychoparia recognized.

4) Thin bedded gray ~~sub-arenaceous limestone~~ more or less calcareous, hard sandstone. 17

Fauna —

Alenellus canadensis n
Mesonacis gilberti m.
Corynexochus (Bonnia) fieldensis
Total of Whyte formation. 252 ft

10 P. B. Section 6

N.E. section

c) Thin bedded, gray-rusty weathering argillaceous limestone. Abundantly fragmental in great abundance. 1764

Total - 8/10 3170

St. Brian

1) Gray bedded, gray, brownish weathering sandstone. 68

2) Thick bedded, hard, light gray quartzitic ~~cliffforming~~ sandstone. Scolithus & Planolites. 430
(cl)

3. Shaly & thin bedded light-brownish to gray sandstone. 57

4 Thick bedded, light gray, quartzitic, cliff forming

1 6
4 6.
2 3 0.

200.

11 P.P. Section IX

sandstone. 230

Fine scaliths occur in immense numbers in many layers varying from ~~twenty~~ 3 inches to ~~two~~ 2 feet thick.

~~230~~
785

Lake Louise shale.
Cruziana & Hanilites.
Dark siliceous shale
Fairview formation

1) Thick bedded, light gray, occasionally cross bedded, quartzitic sandstone with a little trace of purple color in a few layers. 260

2) Light gray to brownish gray sandstone in thin layers. 22

3) Massive bedded con-

150

glomerate with white ~~quartz~~ quartz pebbles in 4 bits of dark & greenish shale in coarse sandstone matrix — general irregular bentles & thin bands of shale occur in the lower portion. 170 / 452

Unconformity.

Algonkian.

Greenish gray pilleous shales with a massive bedded very coarse conglomerate about 400 feet below the Cambrian.

The section is here cut off by a fault.

Aug 28, 1916

Pu 7004 Box 30
F.L.

Aug. 28/16.

~~Whyte formation~~

Papes Peak section
North spur above
Ross Lake.

Cathedral formation:
massive bedded light
gray limestone.

~~Whyte formation~~

1) Thin bedded more or
less argillaceous & mottled
limestone. 155.

2) Bluish lime in thin
irregular layers interbedded
in greenish shale 3

& dark
3) Greenish, compact 158
siliceous shale
weathering light gray
on large fissure. 7th

Alberta Fauna. (63a)

160
172
275
52
43
702

275

2

4) Massive bedded, mottled arenaceous lm 160.

5) Compact dove & gray lm - 12

6. Massive, dirty, gray rough weathering calcareous sandstone 275.

7. Alternating flinty & steel-gray, hard limestone! 52

Whyte Formation 664. ~~499~~

18. Oolitic limestones with fragments of fossils! 43

29. Finely banded gray sandstone & hard arenaceous limestone. 5

3 ~~10~~. Gray, finly oolitic limestone in thick beds that weak

66
70
85
27
248

3

dam into thin
irregular layers
ap. 15 feet from top. 18
(63K) Stenotheca abundant.
Nissia
Scemella
pty —

4) ~~Similar to 9.~~
Banded sandstone & fine
arenaceous shale in massive beds
that break down into
arenaceous shaly layers
usually covered more
or less thickly with
annelid trails — 70

5 ~~#~~. Greenish & drab
to buff very fine
shale with sand-
stone partings — 85
Micronetra. pty —

b
~~13~~
63L. Calcareous sandstone
with dirty brown rusty
layers with greenish
arenaceous shaly partings 27.
Fauna

Conyngopchus feldenius
Olenellus many fragments
that almost make
up layers.

Note.
This section shows that
the Albertella fauna
occurs 702 feet above
the horizon at which
it was formerly supposed to
occur above the
the Olenellus zone
of the Mt Bowman
section.

Sp Pravi.
Massive bedded
Purplish quartzites.

RU 7004 Box 30 F 2 July 17/17

July 27/17.

Mr Whyte formation,
East face Mt Odaray.

Going up,

Reddish-brown ~~coa~~ medium grained hard sandstones of Sp Pass formation.

---

Mt Whyte,

a. Bluish-gray and dove colored hard limestone with irregular ~~lines~~ stringers of arenaceous & magnesian limestone parallel to the bedding. Layers 2ft-2-6in (7) 39ft

b. Reddish brown medium grained and ~~[illegible]~~ thick layers 18in-2ft. (3) 17ft

c. Gray arenaceous dolomitic lime

56.
204
260.

90. 35.

2

in thick layers. Weathers to rough dirty gray surface (48.) Oolitic Bituminous 102 ft

Fauna Olenellus ~~Paradoxides~~ Paradoxides Feldenia

Steel-gray, brownish weathering ~~shale~~ siliceous shale 8 ft

Fauna. Micrometra (?) chaoxon

E. Bluish-gray lime with thin stringers of layers of arenaceous mag-lime that weathers in relief. 46 ft

Fauna On back.

(634) f. Bluish to steel gray siliceous shale similar to d. 52 ft

g. ~~Reddish~~ Coarse gray-mag lime weathering to a reddish dirty brown color.

the fauna of E. in the oolitic layers includes –

63h) Misusia (

Acrocephalites
Cosmoceras (B) fieldensis
Abnellus canadensis

---

35
8
280 m
23

36
23
59.

3

The section is here cut off by a N & S fault.

D. E. F. & G. are probably Ptarmigan formation.

RU 7004 Box 30 F2

July 2, 1888

Phillipsburg with Lemoine July 2d/88.
Calaveras section.

The section East from Mississquoi Bay crosses several of the "Calaveras" of Marcou ~~and~~ only in the boundary line between the U.S. & Can.
At the surface of the water the Potsdam sandstone occurs with Lingulepis acuminata.
Upon the sandstone an ~~Calciferous sandrock or~~ arenaceous l. occurs in wh. Orthis & traces of trilobites were found.
Marine layers of Calciferous rd rock followed by dark colored l. dark calc. rd. just beyond the 1st N.T.S. road.

Banded ornaceous l-
& dark colored l- succeed
& then massive beds
of dark l- with
numerous fossils -
Orthoceras,
Lituites -
Orthis -
Bathyurus Goldfordi etc
& about 100 feet higher
in the section,
Aphileta -
Ecculiomphalus - etc.
The banded massive
layers then continue
on to nearly the next road
east.
The average strike
is N. 20° to 30° E.
dip 25° 20° to 10° E.

Before reaching the road
N.S.W. of St Armand &
a little north of the

Boundary the strike runs around to N. 70° E. & the dip is 70° N. inside the road. On the line of the Boundary the dip is slightly all the structure goes to show the presence of a fault line at the East base of the cliff & the rectai cut off.

East of the rectai in the Rock River valley the Phillipsburgh Lenape is broken & distributed between the unbroken rectai & the Cambrian on the east.

Note: By Marcou's map the section has crossed 3 Colonies but by the section the stratigraphic section is unbroken & the passage from the Potsdam to the Calciferous is the same as in all normal sections of the same horizon elsewhere.

There is no reason that I can discern why the theory of Barrande Colonies should be hoist in this section to explain that which is the same as in all the sections running from the Potsdam up on the east side of Lake Champlain.

Note: Marcou has introduced the slate at various points so as to make the limestone

often as tho it was in elongated masses but a careful study shows that the limestone is a continuous mass from the lake to the 2d N+S road cut on the Boundary.

At one place he has slate indicated where a massive bed of l- completely cuts across the line of the slate as indicated on his map. Again a cliff of 100 feet high faces a meadow. The latter is put as slate. He has indicated slate on all drift covered localities altho by close search outcrops of l- ~~some~~ can be found scattered here & there. The drift filled

depressions are excavated in the l – as far as the evidence goes & the slate is not present in situ. Some bits occur in the drift.

The Theory of Colonies is not needed to explain the phenomena observed & there is not any evidence in favor of the Theory.

June 28th 88.

East Shore of Missisquoi Bay.
1½ mi. S. of Phillipsburgh. Canada
Near a small Cold Spring —

At base of the Cliff. Thus exposed
about 15 ft of Sandstone in
layers varying from an inch
to 15 inches in thickness —

Strike N 30° E —
Dip 35° E.

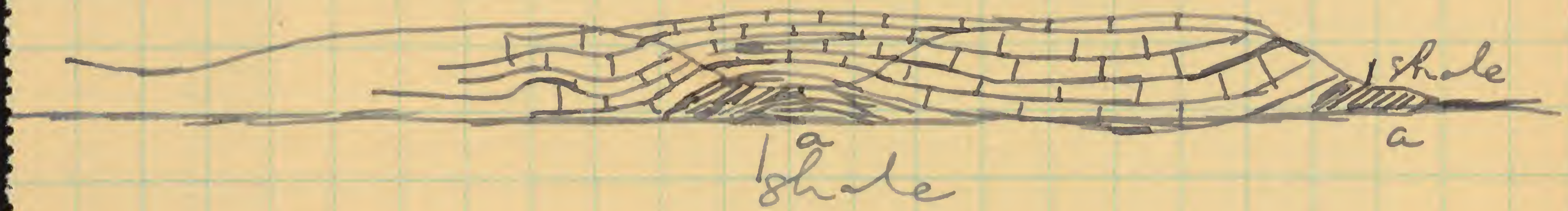
In this Sandstone numerous
specimen of "Lingulepis
Pinnaformis" were found.

In its physical and
lithologic characters this
sandstone is essentially
the same as the Potsdam
Sandstone at Whitehall
at the head of Lake Champlain
and the same species of fossil
occurs at each place.

Overlying the Sandstone

There is a massive ~~Calcifer~~ arenaceous limestone, which in turn has a band of dove colored limestone in which numerous fossils occur. A small "Orthis" and fragments of a species of "Trilobite" were observed - Also a small Sponge. Similar in its macroscopic appearance to the one described by Prof. H. M. Ashley - from the Calciferous or Chazy limestone. ~~[illegible]~~

Section from Rock River north along East shore of Minisquoi Bay.



July 21/17

R. Toor Box 30 F.2

July 21/19

West slope of Narao ~~Point~~ Mt.
2.5 mi's S. of Hector on C.P.Ry. B.C.
Can. East side Cataract brook
Canyon.

Cathedral limestone
not measured

Plamegan ? formation.

1) Thin bedded dirty flesh-
gray limestone that is more
or less arenaceous. — 48 ft

Mt Wilty formation

2) Thick bayne of gray
limestone that breaks up
into thin layers on
weathering
at 42 feet (m) down
fossils occur (Loc. 63 S
calcareous. 12

3) Banded siliceous beds
~~with calcareous~~
~~partings~~ — 54

3) Steel gray siliceous shale. 9 ft

8 ft Pisan
massive bedded reddish
T grayish rocks - with
numerous fragments of
Olenellus.

The upper bed. 1. may represent the Ptarmigan formation. No traces of the Ross Lake shale were found in the well exposed section. altho it is well developed on the northeast slope of Narao Mt.

This section is quite unlike the Mt. Schaffer section 5.5 mi' S the south.