1879.

MSS. COLL. G. M. DAWSON

0/-

George M. Dawson

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small note book fr May 8th Montreal
to June 2d Victoria

1879

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June 3 Steamed out of mouth of Victoria Harbour at about 10.20 a.m. in H.B. SS "Olympia". The intention had been to start at early morning but owing to various delays, & especially to the fact that some of Horetzky's photographic material had not been got off the "Dakota", the time slipped away. The steamer too, being light caught the wind & could not till after some time & trouble to get out through the narrow harbour. A very fine bright day, the Olympian mountains partly shrouded in fleecy clouds. Much snow upon them as on all the mountains this spring. Reached Departure bay in the afternoon & having taken on about forty tons of Coal proceeded again. A perfect night, but with some stratus clouds covering the moon as we ran up toward Cape Mudge

The steamer partly chartered by the C.P.Ry. Survey but going on after getting us landed & examination of work Channel made, to the Stickeen. Party on board as follows. H.J. Cambie, Keefer, McLeod, Horetzky, Rev. D.M. Gordon, with Keefer's assistants. Pinder, Grey &c, & party consisting of axemen Indians &c. A few miscellaneous passengers Indian Chinamen & others going to Cassiar. Mr Charles in charge of the H.B. Company in Brit. Columbia, accompanied by Mrs C & family. Miss Gray, Mr & Mrs Innis & Mr Boyle. All these last pleasuring, & going the round trip.

Steamed out of harbour with flags flying & a burgee with the H.B. mottow "Pro pelle Cutem" A propos of

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which Mr McLeod tells me that it is commonly said in the Saskatchewan Country that the prairie lark continues to repeat this sentence in its song. The same bird is the subject of the Milo Copswallow story of note-book of 1877.

June 4. Not far from Alert Bay when we came on deck this morning. Whistled when abreast & communicated by Canoe. Weather thick & showery mountains in great part concealed. Ran past Fort Rupert without stopping in thick dirty weather with South Easterly wind, but not strong. Reading talking & wasting time in various ways. Stopped a moment opposite Bella Bella & then on again. The deck being wet & disagreeable, abandoned metaphysical discussion with Mr S. for the ladies Cabin & a game of "Poker" in which we had just got fairly embarked when ominous heavings began to show that we were getting into the open mouth of Millbank Sound. The ladies appeared to be less interested in the game & at last precipitately abandoned it, retiring to their cabins & beds leaving beans, pool & a little supper which the attentive steward had brought in. On deck dark with a thick drizzling rain the Captain steering a course for a group of low rocks which must be rounded before leaving the open stretch for the next Channel. Dimly at last the rock appeared & at the same moment the long sound of sea-birds calling to each other upon it heard. Passed within a couple of hundred yards & saw through the glass the long swell laving its sides, a mass of yeasty foam. Struck a couple of floating logs during the night but without damage

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June 5. About South entrance to Grenville Channel this morning. Dull overcast & showery. The mountains buried in floating mist & clouds as we steam northward through the narrow strait. Great fields & patches of snow low down on the mountains & every evidence of a severe winter & late Spring. Water in threads descending the mountains from the snow & falling in Cascades into the channel everywhere. Called at Cardeena Bay, or "Aberdeen" in Salmon Canning parlance, filling a boat with Chinamen, rice, baggage & a lady or woman. A contribution to the Cannery. Soon after reached Port Essington & landed most of the survey staff & Keefer's party. It rains & the country looks like a sponge. No Indians here & no Canoes. On leaving Port Essington steamed on to Metla Katla, anchored in the outer part of the harbour & landed in one of the boats. Found Mr Duncan & Mrs Collison at home. Mr C, having left a few days ago for Queen Charlotte Is. Mr Duncan delighted to see us all & only too anxious to show everything about the community, which in several respects shows improvement since last Autumn. Mr C. who anxious to talk about Canoes & Indians scarcely able to get a word in edgeways. Saw the Church, workshops &c, & purchased a few Indian silver bracelets, of which one came to my share. Returned on board after ten o'clock with twilight of these northern latitudes still lingering, & the water calm, enlivening the way with song. Mr Duncan came on board & there finished

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Climate Mr Duncan on being questioned as to Climate says that for the first seven months after his arrival he kept a meteoro. register & so far as he remembers found on the average about seven days without rain, - five days, in each month. Also that he remembers having to use an umbrella to shelter his lamp from the rain in passing a few steps from the house to the School-house every day consecutively for 21 days ~~These were in the seventh~~ facts are for the months of October to April.

Mr Collison tells me that they had snow of some depth on the ground at Masset last winter for about a month, & that it was the most severe season, with greatest snow-fall of which the Indians had any knowledge.

business arrangements, while some of us retired to the ladies Cabin to play "poker" which was kept up till after midnight.

June 6. Off at daybreak but without noise enough to kill sleep, & arrived before 6 a.m. in Port Simpson, where delayed about an hour & a half putting off & taking on a few things the latter "things" being boxes of oolachen grease for the trading post at Masset. A long time till breakfast & a dull drizzling morning. On steaming away from Port Simpson went to Work Channel, where some soundings to be taken for C.P.Ry. purposes. Running up this all the morning between walls of mountains, comparatively low on the side of the Tsimpsian peninsula, but high & very rugged on the opposite side. The features however revealed only in glimpses as rifts now & then silently formed in the cloud-masses under which all were buried. Landed for a few minutes on a flat at the head of the inlet, from which a low valley goes through to the Skeena, & then turned back for our run of about 29 nautical miles northward out of the inlet again. An opening about the middle of the inlet on the west side, called Quotoon by the Indians is one of the wildest chasms I have seen on the coast! bordered on its southern side by prodigious bare cliffs of granite, dark grey, wet & weathered looking some whose large flocks have recently been detached. The opening to the west at the south end of Work Channel

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The rocks of Work Channel apparently all of the Cascade Crystalline or Metamorphic Series, consisting chiefly of schists, often banded striped light & dark colours & ~~[illegible]~~ micaceous, resembling those of Port Simpson & Metla Katla. Many seams or small whitish dykes. Great masses apparently of homogeneous granite, especially on the East Side

<u>Port Essington</u> or <u>Spucksute</u> is situated on the South side of the shallow estuary of the Skeena, on the western side of a point at the entrance to a long Inlet called <u>Ecstall</u>. The houses, chiefly those of Indians & more or less ruinous are scattered along the shore of a shallow bay which dries far from shore at low water. The ground is swampy & rough with stumps & logs the remains of an originally dense forest growth. Behind the flat is the ridge which separates the Skeena estuary from the Ecstall Inlet, rising in one place to a rather remarkable conical mount. The flat is narrow & now supports a growth of Elder & other bushes, & weeds. The <u>alder</u> at this date is in full flower, the Pigeon-berry, also abundant has its floral bracts still greenish, & only in a few cases approaching pure white.

Shaking hands with our week-old friends of the Olympia, we scramble one by one down the steamers side, & fit ourselves in as best we may among the baggage in the canoe which has come off for us from Spucksute. The rope is let go. "All clear" cries Capt L. The paddles of the steamer begin to revolve, & we find ourselves floating alone on the broad muddy waters of the Skeena estuary; the higher peaks of the snow clad mountains hidden in clouds & the grey of the northern twilight darkening into night. Three cheers from the steamer, echoed back from the canoe, waving of handkerchiefs, & then turning ourselves resolutely to paddle for the shore, we cannot for a moment help thinking of the weary miles of travel by water & land, which lie before us ere we traverse the Continent by this new route.

also reaches into a region of great snowy mountains, & both this & the last are unexplored. The anchorage at the head of Work Channel proves unsatisfactory, the water holding deep till the edge of a steep partly submerged bench is attained & then shoaling at once. On getting out of Work Channel the weather clearing & sea calm, with a fine wide-stretching view of the entrance to Portland Channel, Capes Fox & Northumberland & the Dundas Islands. Steam rapidly southward & about 8 P.m. reach Port Essington or Spucksute as known in Tshimsian. See from a distance the tents of Keefers party ranged near the store. On approaching a canoe soon came off, the steamer stopped, & after exchanging farewells with the party on board, we found ourselves, not without some regret paddling toward the store, while the Olympia turning her prow seaward again went on her way. As we floated away from the steamer those on board gave us three hearty cheers, which, with many wavings of handkerchiefs &c were duly acknowledged on our side. Find quarters for the night, McDonald of Keefer's party kindly giving up his tent to Mr S. & self. The canoes from Metla-Katla are here & all appears to be ready for a start in the morning. Sat round the camp fire till late, finishing the evening with a cup of tea

June 7. No work going on, & tide being against us in the river till 11 a.m., did not get up till late. Breakfasted with Keefer's party & got away with the turn of the tide. Favoured with a good fair wind & tide, we came up the river without paddling much, & camped before 4 P.m. over 15 miles from Essington, at the mouth of a small but rapid stream which enters from the South. Went for a

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<u>Skeena River</u> In its general Character, so far as we have come, resembles one of the inlets of the Coast, but has become filled with debris, so that even where from the bold banks one would be lead to expect deep water it is not found. The mountains are steep & for the most part densely wooded, but wondrous from the regularity of their rounded outlines. Their summits, though probably seldom exceeding 4000 feet are deeply buried in snow. In a few cases wide areas of bushes & swampy spots seem to occupy the higher slopes, while frequently large bare surfaces of rocks show where the snow & land slips have been able to remove whatever covering of soil or vegetable matter they originally have been. Near Camp of Evg. of June 7. the mountains of the opposite or north shore become in great part bare in this way & appear to be of solid granite. Their slopes are exceptionally steep & end frequently toward the river in bluffs & cliffs of considerable height.

mile or more inland as a stroll while the tents being pitched & other arrangements made. Gained an elevation in following the little Indian trail of about 200 feet & then travelled on over the nearly level surface of a bench for some distance. This is swampy & partly open, with mossy & grassy meadows on which rather alpine-looking plants, including *Kalmia*, *Drosera rotundifolia*, *Ledum* &c. Trees all small & many dead, include Cypress, Cedar, Menzies Spruce Pinus contorta &c.

2. Canoes. Crew of 5 Indians in each, with McNeil in addition in one & a Sillooet Cook in the other. Today C & G in one canoe. Self & M. in the other.

June 8. Sunday. Remained in Camp all day. C. found last night that his clothes bag had been left at Essington & sent McNeil & Indians off in canoe to look for natives to send down for it. McNeil not finding any camps went down with his own crew getting back before daylight after a journey of about 20 miles. Two Church parades under G. Day very fine, though clouding over in P.M. The stream at which we are camped is called the Kwd-ād or nearly thus. Writing reading & getting various little matters in train.

June 9. Up at 5.30 & off at 7.25. Travel till 12.15 when stop for lunch. Off again at 1.15 & travel till 3.50. Above Coast Camp about 20 miles from Essington. Here today made about eighteen. Now altogether above tidal influence, the tide ceasing to have perceptible effect a few miles above last Camp. The valley of the river probably a mile or a half wide between the Mountains, ~~with~~ the stream meandering between flats & islands. Ascend partly by paddling partly by poling. Generally pole up on the best bank or shore of island & then on coming to drift-pile or rock round which the current surges, strike out for the other

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June 9. The Skeena or Kshī-en during today's journey has a valley from 1½ to 2 miles wide between the mountains which rise to heights of 3000 to 4000 feet & show much rock & bare cliffs, with occasional snow-slides, & large fields & patches of snow on the higher parts. In some places snow, the remnants of large accumulations which have slidden from the valleys lies yet nearly down to the water's edge. The river winds about among innumerable islands & flats, occupying generally a ~~[illegible]~~ considerable part of the valley. The islands are low, mostly subject at least occasionally to flood, overgrown with cottonwood, willows, alders & with occasional elders, ferns, devils club, red ozier, dog-wood, of salmon-berry, Spiraeas

Plants &c. The current is rapid, probably averaging 4 knots but quite practicable for stern wheelers.

bank, the Canoe instantly beginning to race down stream, the Indians lifting their paddles high throwing up water from them & yelling or he-heing to encourage themselves as they put forth a great effort, & then uttering a combined ha-ha or whining as they strike the next Eddy or slack water.

On stopping at Camp went in Canoe across the river to a rather peculiar rock called He-bets-a meaning the place where tobacco is pounded, or something to that effect. On climbing to the top of the rock, which is near the mouth of the Kuy-tsa-Kish stream, one of the Indians, clearing away a little moss, showed us a mortar hollowed in the surface of the solid rock. Exactly one foot in diameter, 5 inches deep, & surrounded by a narrow raised border. This the Indians say was used for pounding up the Indian tobacco formerly. On low ground just below the rock (further down stream) the posts of a ruined village. The Indians say many people lived here formerly, but have left on account of the salmon having deserted the Channels of the river on this side. The rock which is about 80 feet high & nearly perpendicular, separated from the mountain side by a narrow chasm has the Indians say been used as a sort of fortification, against the Haidas in former days. The Indian tobacco called Wun-daw by the Kitsimsians, who tell me that it was only obtained from the Haidas & the name is a Haida one.

Indian mortar

Indian tobacco

June 10. Off about 7 am. Stop at noon. Off again at 1 P.m & travel till 3.35. Making in all about 10 miles. Woked at earliest dawn this morning by the song birds which are here in great numbers, chanting among the Cottonwood groves.

May 8. Leave Montreal by M O & O Ry reaching Ottawa in P.M. Called Sandford Fleming, Camsell 1902. Dine with Mr Fleming. Make arrangements for transport & supplies for summer. Find that Camsell, McLeod, & Forsythe are going out to same part of B.C. with self. Put some leaving till tomorrow.

May 9. Finished business. Corrected QC1. map & returned to W. In the Rome part of P.M. & Evening. Leave by 10.35. train for

Toronto & West.

May 10. Delayed this a.m. by car off the track ahead, getting several hours behind. Found train waiting for us at Toronto, however. Found McConnell at Toronto, he having left Montreal a day ~~ahead of me~~ on Sunday 8th according to first arrangement, not having received my telegram postponing till Friday.
Get luggage through Customs at Port Huron without

difficulty. Made connection
at Detroit Junction.
May 11. Arrive on time in
Chicago & find that through tickets
by C B & Q, must cross town in
Crass to C R-I & P Ry as only
one of the three roads going to
Omaha runs a train on Sunday,
taking it by turn to carry all
the passengers. People in the
country through which we pass
enjoying Sunday in their various
ways, sitting often on open
verandas & at doors as
the weather very warm.
A warm night.

May 12. Arrive in Council Bluffs & have a long wait there & at Omaha after all baggage rechecked & Pullman tickets obtained. Morning very warm. Afternoon cooler, with passing thunder showers sometimes with hail.

May 13. Breakfast at Sydney Supper at Rock Creek. Travelling on comfortable enough all day. Wrote draft of memorandum on Queen Charlotte Islands for Mr Fleming. On Sunday last at Sydney the people lynched a man who had shot

another. Hung him up to the telegraph pole where a piece of the rope still dangles.

May 14 Breakfast at Green River. Supper at Ogden, where, finding that nothing can be gained by hurrying on to San Francisco sooner than to catch steamer of 20th. decide to take a day at Salt Lake city. Leaving McCandell to go on to S.F. take evg. train to Salt Lake, arriving there after 8 P.M. Put up at Walker House.

May 15 Went about seeing sights of place. Tabernacle

with its organ. New tabernacle
& temple in course of
construction. Fine view
from top of Walker House
of the city, which wide-spread
& laid out in gardens.
Took 3.40 train back to
Ogden, & after supper
there continued jogging on
westward. Found
Haretzky on the train

May 16. Breakfast at
Elko, dinner at Battle Mt.
Supper Humboldt, the oasis.
Reading Wallace. Day warm
& dusty. Had intended

stopping over at Reno to go
to Virginia city, but being told
that no chance of seeing the
mines without pass from some
one of owners in San Francisco,
decide to go on.

May 17, Breakfasted Colfax
Dines at Lathrop. Arrive in
San Francisco on time & go to
Lick House. Evg. go to Grand
Opera House where 'Carmen' being
performed but did not think
much of it.

May 18 Sunday. Morning for
a walk about the streets. Ren

A. Bowman called. Talking with him & at the Bancroft Library looking over some books ~~till~~ [illegible] Evening writing.

May 19. Running about town nearly all day attending to business matters, ordering tent &c. Cambee & other engineers arrived in the evening. Went with them to California Theatre where an amusing play named "Divorce" going on.

May 20 Made a few business calls. Sailed on "City of Chester" for Victoria at noon.

May 21 Pleasant weather but vessel being light rolls unpleasantly. making it very uncomfortable for passengers.

May 22 Pleasant weather, light north westerly winds with occasional showers.

May 23. Continue voyage pleasant weather. Pass Cape Flattery about dark

May 24. Arrive in Victoria at 4.30 am. Go up to Driard House with luggage $2. Town

quiet, nearly deserted, everyone being away on excursions. Can get no information & do nothing but loaf

May 25 - Sunday.

May 26 - 27 - 28 Getting stuff looked over & arrangements made for expedition. Dined at Judge Creases on evg. of 28th.

May 29-30-31 June
1-2. In Victoria
waiting for steamer.
McConnell left via
Fraser River for Fort St.
James on 30th. Dined
with Dr Ash evg. of 29th.
at pec neck up Arm with
Powells + 2 on Saturday
May 31. Sunday June
1 dined at Macdonalds.

Fish in Stuart Lake

Small salmon. Kē-sul (landlocked)

" " Tāl-o

Large salmon Kēse

Second small salmon Tā-tzuc (hook bill)

Vh Small white fleshed comes up to Babine
Stam-on

Ling Tsin-tel - broad head

Whitefish Tluth

Lake trout Pēte

Speckled trout Tuck-ai

Red speckled river trout Tshap-ai

Chub Whas-i

Small whitefish H2oos

Sturgeon H2ē-cho = big fish

Small red striped chub. Tal-tsi

White sucker (large) Koo-spai } Large scales
Black sucker Ta-Koos }

Red " Tel-ke-yās (very small scales)

Charles Fraser

Bull-head Sus-Kwo "

126°
4
504
8h 24m

58 30 3
15 46
58 14 17
32
Transit 58 13 35

60 00
13 35
58
31 46 25 Lu dut

Decl 23 8 3
1 23
23 6 40
31 46 25
54 53 5

9.92
8
79.36
4
83 36
= 1' 23.

10.93

10.93
8
87.44
60.92
1' 32

on 3'

34' 10"

2 | 68' 10

34' 5"

off 28' 35

28' 40

2 | 56 75

28 37

34 45
28 37

2 | 5 28

2 44 to subtract

July 1. Sun at noon

117° 3' 0"
2 44

2 | 117° 0 6

58.5° 30' 3"

0·1
1·75
1·1
0·8
0·45
0·3
2·5
1·25
1·25
0·1
1·0
0·7
·2
1·0
·75
1·25
1·1
1·2
1·25
1·7
1·9
2·0

22·65

Supplies & Sundries

1675 flour
1300 bacon
210 hams
450 sugar
100 rice
80 tea
20 tobacco
7 doz yeast powder
23 bottles pickles
1½ tin relishes
1 box green corn
1 box soups
1 box candles
75 lbs barley
90 lbs oatmeal
1 box black pepper
1 tin chocolate.
1 box milk
45 lbs codfish
7 tins coffee
4 cases canned fruit
1 box curry powders
380 lbs beans
30 lbs. apples
1 box dried pears
85 lbs plums
1 box soap & 8 tins carbolic soap.
15 lbs table salt.
1 box lemon sugar

1675
1300
2975

3 | 3000 | 2
26
40

McLeans haul

700 flour
250 hams
500 bacon & hams
350 sugar
50 lbs rice
30 lbs tea
20 lbs tobacco
6½ dozen yeast powders
½ doz pickles
2 cases canned stuff
20 soap
20 candles
50 lbs barley
100 oatmeal
1 tin chocolate
1 box milk
1 box raisins
25 lbs codfish
50 lbs coffee
50 lbs apples
60 lbs plums

380
450
830

2375
2010
3 | 4385
1461

1675
700
2375
flour

1300
500
1800
210
2010

45
41
205
205
3 | 225.5
75.1

ᒥᐢᑕᐦᐃ ᐁ ᐊᐸᑕᐠ ᑭᓇᐁᐧᐢ ᒋ ᑳᓇᐁᐧᔭ ᒥᑕᐧᐤ ᐸᐢᑳᐧᐤ ᒧᐢᑐᐢᐅᐧᐠ:

ᐃᐧᔭ ᑲ ᑎᐯᔭᑕᐠ ᐅᒪ ᐊᐢᑭᐩ ᐁᑯᓯ ᐁ ᒋ ᒥᔭᓯᑭᒥᐟ, ᐅᒥᓯ ᐃᑕᓯᐁᐧᐤ:

1. ᓇᒪ ᑫᑲᐧᐩ ᐱᑐᑲᐦᐊᐠᑉ, ᐊᐧᑎᑲᐠᑉ, ᐊᐧᐢ ᑳᓂᑲᐠᑉ ᑭᑕ ᑭᐦ ᐊᐸᒋᑕᓂᐃᐧᐤ ᒋ ᑳᐢᑭᐦᐃᑕᐧᐤ ᐸᐢᑳᐧ ᒧᐢᑐᐢᐅᐧᐠ. ᓇᒪᐃᐧᔭ ᑭᑕ ᑭᐦ ᐱᒥᑎᓴᐦᐊᐧᐅᐧᐠ ᓴᐱᐠ ᐊᐳ ᓴᑲᐦᐃᑲᓂᐠ. ᓇᒪᐃᐧᔭ ᑭᑕ ᑭᐦ ᓂᑎᑲᐧᐢᑯᓯᒪᐅᐧᐠ ᐃᑌ ᑲ ᑳᐢᑲᑕᐊᐧᑲᔭᐠ ᒋ ᓂ ᐸᐦᐃᓯᑕᐧᐤ.

2. ᓇᒪ ᐃᐧᑲ- ᐊᐃᐧᔭᐠ ᑭᑕ ᑭᐦ ᓇᐊᐧᐢ ᐊᐧᑌᐤ ᐸᐢᑳᐧ ᒧᐢᑐᐢᐊᐧ ᑯᑉᑕ ᒋ ᓂᐸᐦᐊᐧ; ᒥᑌᔭᓂᐩ ᐸᐠᑫᑭᑉ, ᐊᐳ ᐊᐱᓯᐢ ᐃᐧᔭᐢ ᐱᑯ ᒋ ᐅᑎᓇᒪᓯᐟ ᐅᑎ. ᐁᑯᓯ ᐊᐃᐧᔭᐠ ᐊᐢᑕᑦᐁᔭᑯᐠ ᐊᐱᑕᐤ ᒧᐢᑐᐢ ᐃᐧᔭᐢ ᐅᑎᓇᑫᐧ, ᐱᑯᓇᑦ ᐃᐧᔭᓯᐁᐧᐃᐧᐤ ᑭᑕ ᐃᑌ ᔭᑕᑯᓯᐤ.

3. ᓇᒪ ᐃᐧᑲ- ᑭᑕ ᑭᐦ ᓂᐸᐦᐊᐤ ᐊᔭᐯ ᐊᐳ ᐅᓂᒐᓂ ᒧᐢᑐᐢ ᐊᐢᑕᑦᐁᔭᑯᐠ ᐁ ᓂᓯᐱᐳᑉᐁᐧᐠ. ᑕᓯᐸᐧ, ᐊᐃᐧᔭᐠ ᑳᓇᐁᐧᔭᒪᒋ ᒧᐢᑐᓯᐢ ᐁᐧᔭᐠᓇ, ᐊᐳ ᐱᑯ ᐃᓯ ᑫᑲᐧᐩ ᐸᑭ ᒧᐢᑐᓯᐢ ᐁ ᑳᓇᐁᐧᔭᑕᐠ, ᐁᑯᑕ ᐅᒋ ᑭᑕ ᑭᐢᑫᔭᑕᑲᐧᓂᐤ ᐁ ᑭ ᐱᑯᓇᐠ ᐃᐧᔭᓯᐁᐧᐃᐧᐤ.

4. ᐊᐱᑕᐤ ᐃᔦᑯᐃᐧᐱᓯᑦ ᐁ ᐊᑭᑕᒥᐠ ᐅᒋ ᐃᐢᑯ ᒋ ᐊᑭᑕᒥᐠ ᐊᐱᑕᐤ ᐅᐸᐦᐅᐃᐧᐱᓯᑦ ᓇᒪᐃᐧᔭ ᑭᑕ ᑭ ᓂᐸᐦᐊᐤ ᐸᐢᑳᐧ ᐅᓂᒐᓂ ᒧᐢᑐᐢ.

ᐊᑕᐃᐧᔭ ᐃᔭᓂᐅᐧᐠ ᐁᑲ ᒣᐢᑳᐧ ᑲ ᑭ

ᑎᐸᐦᐊᒪᑕᐧᐤ ᐅᐟᐊᐢᑭᐊᐧᐤ ᐅᒋ ᑭᑕ ᑭᐦ ᓇᐊᐧᐢᐊᐧ ᑌᐅᐧᐣ ᐅᓂᒐᓂ ᒧᐢᑐᐢᐊᐧ ᐃᐢᑯ ᐊᐱᑕᐤ ᒥᑭᓯᐃᐧ ᐱᓯᑦ.

5. ᐊᐃᐧᔭᐠ ᐁ ᐸᐸᒧᑌᐟ ᐁᑯᓯ ᐁ ᓇᑌ ᐸᔨᔨᐠ ᒥᒋᒪ ᑭᑕ ᑭᐦ ᓂᐸᐦᐁᐤ ᒧᐢᑐᐢᐊᐧ ᒋ ᐁᑲ ᓇᑌᑲᑌᐟ.

6. ᐊᐃᐧᔭᐠ ᐁ ᓂᓯᑲᒪᑫᐟ ᒋ ᓂᐸᐦᐃᒥᐟ ᒧᐢᑐᐢᐊᐧ ᓇᐊᐧᐢᐁᐧᐃᐧᐣ ᒣᑲᐧ- ᐁ ᑭᑕᐦᐊᒪᒋᑲ ᑌᔨᐠ, ᑕᐱᐢᑯ- ᐃᐧᔭ ᑎᐱᔭᐁᐧ ᐁ ᑭᐦ ᓂᐸᐦᐊᐧ ᑭᑕ ᐃᑌᔨᑕᑯᓯᐤ.

7. ᐊᐃᐧᔭᐠ ᐁ ᐱᑯᓇ- ᐅᒪ ᐃᑕᓯᐁᐧ ᐃᐧᐣ ᑭᑕ ᑭᐦ ᐃᐧᔭᓯᐊᐧᑕᐤ ᓂᐢᑕᓇᐤ ᑕᑐ ᑭᒋ ᓯᓂᔭᐊᐧ ᑭᑕ ᑎᐸᐦᐊᐠ; ᐊᐳ ᒣᑲᐧ- ᓂᐢᑐ ᐱᓯᑦ ᑭᑕ ᑭ ᑭᐸᐦᐃᑲᓯ.

8. ᓯᒪᑲᓂᐢ ᐊᐳ ᐱᑯ ᐊᐃᐧᔭᐠ ᐃᐧᔭᓯ ᐁᐧᐃᐧᓂᔨᓂᐃᐧᐤ, ᐁ ᑭᐦ ᐃᐧᑕᒪᑯᐟ ᓂᓯ ᐊᔨᓯ ᔨᓂᐊᐧ ᐊᐃᐧᔭ ᐁ ᑭᐦ ᐱᑯᓇᒥᔨᐟ ᐅᒪ ᐃᐧᔭᓯ ᐁᐧᐃᐧᐣ, ᓯᐢᑲᐧ- ᑭᑕ ᑭᐦ ᐅᑎᓃᐤ ᐁᑯᓯ ᐃᐧᔭ ᓯᐁᐧᐃᐧᓂᐠ ᑭᑕ ᑭᐦ ᐃᑐᑕᐦᐁᐤ.

9. ᐊᐃᐧᔭᐠ ᐱᑯ ᐃᓯ ᐱᑯᓇᑭ ᐅᐦᐃ ᐃᑕ ᓯᐁᐧᐃᓇ ᑭᑕ ᑭᐦ ᐃᑐᑕᐦᐊᐤ ᐃᐧᔭᓯᐁᐧᐃᐧᓂᐠ.

10. ᐊᓇᐦ ᑲ ᐃᐧᑕᐠ ᐊᐱᑕᐤ ᑭᑕ ᐅᑎᓇᑦ ᐁᔨᑯᐟ ᑲ ᑎᐸᐦᐊᒥᔨᐟ ᐃᐧᔭ ᑲ ᐱᑯᓇᒥᔨ ᐃᐧᔭᓯᐁᐧᐃᐧᐣ.

ᐊᓇ- ᐅᒋ ᑲᑭᔭᐤ ᐊᐃᐧᔭᐠ ᐅᒪ ᐃᐧᔭ ᓯᐁᐧᐃᐧᐣ ᑭᑕ ᑲᓇᐁᐧᔨᑕᑦ.

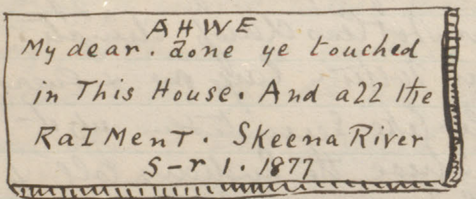
Sketch Map of Smoky R. &c

MSS Coll. G.M. Dawson

June 10. The part of the river traversed today, being from about 38 m. above Port Essington to 48 m., in general features much like that described yesterday, but with water more rapid. It must average about six knots an hour in its central swifter portion, & runs without any reaches of slack water, steadily onward with a rushing sound, sweeping round the islands & through the drift-piles. The islands are quite as numerous as before, & often covered with fine cottonwood groves, or woods of these trees mixed with the more sombre spruce & cedar. The river in its numerous channels often occupies almost the entire width of the valley, which continues as before. From the Kinatoyak River to this point the mountains are generally higher than before, in several cases probably considerably exceeding 4000 feet. The soil of many of the islands appears good, & some of them are not overflowed, but then covered with very heavy cottonwood timber.

Called Puk-a-tan or the bird's beak.

Morning fine but overcast. Heavy dew. Light showers began shortly after we left camp & continued at intervals during day. Evening clearing & fine. Passed today two abandoned Indian villages, one just at the mouth of the Kinatoyak River, the other a little lower down. Houses have been of the ordinary pattern found among the Haidas Tshimsians &c but smaller & rougher than many on the coast. At the lower village, on the best preserved house — which has apparently been lately occupied — found the following inscription posted, on a small board. The Indian owner called Ahwe, & the theory is that he wished to put up a notice warning not to trespass. He must have copied the words from a book as to spelling, but got a little mixed otherwise.



Continue travelling up the river, which more rapid than before, in the manner described yesterday, the Indians showing great skill in managing the canoes, both in poling & paddling. In each canoe five Indians sit behind close together, while one manages the bow, whether with pole or paddle.
Landed for camp in a grove of fine cottonwoods & spruces with little undergrowth of devil's-club, which however soon cleared away, & a snug camp pitched & fire lighted. The change in one's idea of a place wrought in a few minutes, when the camp made, quite surprising. Any chance spot of the wilderness taking on at once a home-like appearance. Opposite our camp, on the north side of the river, a gigantic mountain side of solid granite, swept clean by snow-slides, & with the valleys ~~in~~ its upper part ~~yet~~ buried in snow. | Some indians

MSS CN1 G.M. DAWSON

June 11. The river continues of much the same character, but rather more rapid. Since morning Camp the mountains are somewhat lower, & now begin to be more rounded also, & with trees up to the summits. A good deal of snow still on them, though begin to find evidence in the way of fruit pines, & the general appearance of the vegetation of a somewhat less damp climate. The valley of the Iskoot River rather large one & several high rugged pinnacle-like summits seen up it at some miles distant. These the Indians call by a name denoting the "Indian hat". The top of one of the peaks has rather the shape of such a hat.
Mr C. says he has observed a few birches on the banks yesterday.

on their way to a village at some distance above this place, passed camp this evening, but did not land or evince any curiosity, about [illegible] unpleasantly developed in some of the natives elsewhere.

June 11. Off about 7 a.m. Stop for lunch at 12.30, after having lost half an hour in cutting new poles. Leave lunching place at 1.45, Camp at 3.50. Travel on all day in much the same mode as yesterday, but current even more rapid, necessitating sometimes the hauling of the canoe up along the banks by the bushes. This when the stream very strong, no chance of tracking & water too deep for poles. The process a disagreeable one as the branches sweep the canoe from stem to stern, sometimes rather roughly.
Took a stroll after camping up the hill, finding a few rock exposures. Had a little difficulty in finding camp on return. Day very fine, with much clear sky & sunshine. About dark showers begin. Camp about 11 miles above last, or say 59 miles up the river, a few miles above the mouth of the Ecstews or Kstoos (as it may more correctly be spelt) River.
Saw a canoe placed on the bank not far from camp. It is old, & has been used to hold bodies, those of a father & child accidentally drowned in the river about 50 years ago. The sail suddenly jibing threw the child overboard when the father plunging in to save it both lost their lives.

June 12. Leave camp 7.20. Stop for lunch 12.10 Off again 1.10 Camp at about 4 P.M. Made about seven miles today or not much more camping at the mouth of the Lacelse stream

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Lakelse valley

Lakelse valley

neg.

which is about 63 miles from Essington (The first days distance from Essington having been somewhat overestimated the distances heretofore given have been somewhat in excess) Similar travelling but the water even more rapid than before, requiring great exertions on the part of the Indians. Day nearly fine throughout with much sunshine & quite warm. Tried fishing in the Lacelse stream near Camp, but without success.
The river still continues to preserve its character as before described, many beautiful views through between the islands, with walls of Cottonwood foliage bordering them & blue hills & snowy mountains on the banks. The Lacelse contrasts in its clear water with the brown & muddy Skeena. The fall from the Lake to the Skeena is according to Mr Cambie over 200 feet. ~~From~~ Beyond Lacelse lake a low watershed intervenes & the distance is short to the Kitimat Arm of Gardiner Inlet. The Lacelse valley is a very wide one compared with most, & with slight depression of the land would form a strait, separating a large island. At the mouth of the Lacelse a small Indian village, with evidence in the slope of old houses &c of a former extensive one. Many Salmon run up this stream according to the Indians.
Vegetation. The trees all in quite full leaf on the Skeena, & though so far north probably considerably in advance of Montreal. The following plants noted in flower. — Echinopanax, Actaea, Sambucus Salmon berry the purple flowered Smilacina (?). Viburnum alnifolia Pyrus rivularis, Crataegus Mountain ash
Roses not yet in bloom though some out when we left Victoria, which thus perceptibly in advance.

MSS Coll. G.M. Dawson

Rut-zun-golum
pil.

Hg.

Rut-zungolum
R

Sup-ki-ew

June 13. Leave camp 6.55. Stop for lunch 12.15. Leave 1.25. Camp. 4.25. A long day, tracking against very strong water, more so than we have yet experienced. River continues to have much the same character, but bordered to the south by the low land of the wide valley in which Lacelse Lake lies, & which leads toward Gardiner Channel. Stopped for lunch at an Indian village of a few houses at the mouth of the Kitsumgalum River about a dozen men here, with some women & children. Part of the men form the crews of a couple of canoes which have stopped in their ascent of the river owing to the high water. The people at the village try to frighten our men by telling them they will not be able to get above Kitsalas Canon with the water at this stage. On asking one of the men in the evening whether he is afraid, he answers Oh no, if anything happens you will drown as well as us. Camp among some tall pine trees, in a good place, with fine view of mountains up the river. Take a rough sketch of these before supper. Flies a little troublesome.

Vegetation Birch becoming abundant, observe P. contorta near river level. See. Linnaea & Pachystema

The Kitsumgalum River is a large stream with clear water. The Indians ascend it some distance.

June 14. Leave camp at 6.55. Reach Sip-ki-aw or Kitsiph-keagh Rapid at 10 a.m. Occupied in portaging & lunch till 11.45. Travel on till 5 p.m., when camp about 2 1/2 miles below the Kitsalas Canon. The course of the river is interrupted at Sip-ki-aw by a mass of granite, which forms a low rocky mass on the left side, over which much water flows at high stages, & on which a great drift-pile is formed

MSS COLL G.M. DAWSON

Pass islands

Zymoetz R.

On the opposite bank the same rocks rise in a steep hill 600 or 700 feet high which is continued up stream by a range similar in height. The width of the river at the rapid is 400 to 500 feet only, with a half submerged rocky mass in the middle. The fall, at this stage of water about 2 feet only, but the rapid making this at one bound, a pretty wild one. Canoes are generally ~~portaged~~ tracked up light, but ours portaged over the narrow rocky neck. Made good time in the afternoon owing to a strong westerly wind which enabled us to assist ourselves with the sail. It was however very exciting & by no means very safe, as the wind came in flaws, causing the large clumsy square sail to jibe continually. We hung almost stationary in many of the rapids for a time, the force of the water against that of the wind & our paddles, the slender mast bending & cracking & seeming every moment as though it would break. We are now above the islands, the river sweeping on in a wide unbroken stream. Opposite camp say 1000 feet across. The sloughs behind the islands have so far been our chief means of ascent, the water of them being comparatively tranquil & shallow, & seeming with the wall of great cottonwoods & fringes of willow on either side like some beautiful small river. Such sloughs, however, end above invariably at the head of the island in a rapid & drift-pile of greater or less dimensions. The Zymoetz River, according to Mr Cambie who has explored it, has a deep ~~&~~ but narrow valley, with steep banks. It heads in mountains over 6000 feet high to the South-eastward, on which early in August the snow line was approximately at 5000 feet.

June 15th. Sunday. Stayed in Camp. Morning wet, afternoon dull but fair. Writing reading & camp duties. Found some of the Indians sitting with flat pebbles endeavouring to make sketches of the mountains & river, using a soft

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Kitsalas Cañon

River.

red stone as a pencil. They were watching me the other day, & evidently wish to see what they can do. Some of them succeeded fairly well in getting the outlines.

June 16. Leave Camp 7 a.m. Reach Canon 9 a.m. Occupied portaging lunching &c till 12.5. Camp 4.30 about 3 miles above the Kitsolas Canon. The Canon sides perhaps seldom exceed 100 feet, but are rough & rocky. The channel of the river is also interrupted by several rocky islands & rocks. At the lower end of the Canon the river forms a considerable expansion, round which, & in the Canon are the favourite fishing stations of the Indians. The length of the portage varies according to the stage of the water. Water having now fallen, make two short portages. The first over a narrow neck of rock, over which canoes also carried. The second, about 1000 feet further up, is by a path about 1000 feet long. Both on the left bank of the river. In entering the canon below, several wild dashes across the rapid to eddies on the opposite side require to be made. The mountain on the right bank rises from the edge of the canon in steep rocky slopes. That on the opposite side farther removed. A few Indian houses, with some rude carved posts, most of them cylindrical, with figures of birds at top — perched on a green rocky knoll on the right bank near lower end of Canon. Reminding somewhat of Salmon House on Dean River. On opposite bank at upper end of Canon a larger village with perhaps 8 or 10 houses, a few good, others in various stages of dilapidation. Some remarkable looking posts, somewhat different in design from any I have seen. One with a box piece up on the front looking like a burial arrangement. Sketched the best post, & the Canon & got an observation for latitude.

The river from Canon to Camp with few islands, & steady

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Salmon
Plants

Babine River McNeil says some miners worked for a few months in 1868 ~~or~~ about that year on the Babine, & obtained some gold. It may be supposed, however, from the abandonment of the river that the mines not very promising.

Stream & valley.

current, though not so rapid as seen in some places before. Flats elevated in some instances as much as 60 feet narrow or of some breadth on one or both sides of stream. Soil apparently rich but sandy. Timber not very heavy. A few small farms might be seen out here.

From Evg. Camp, looking up stream a magnificent view of the Alpine mountains of the Cascade (?) range. Three tent-like peaks block the furthest end of the valley, robed in white with scarcely a bare spot of rock, & reaching an elevation probably in excess of 8000 feet.

Salmon. The first of the Spring run arrived at the Canon today.

Vegetation. The roses begin to come out at Canon. First seen since leaving Victoria. Plants generally seem to be somewhat in advance of those of Port Essington. Tiarella & Mitella in full bloom. Alpine berry blossoms white. See Veronica & the hook-seeded Ranunculus. Continued evidence of drier climate. Devils club much less common & the Skunk Cabbage not abundant on flats as near the mouth of the river.

June 17. Left Camp 7.10 Stop for lunch 12.20 Leave 1.25 Camp at mouth of the Cha-kath-in-ghant, a large stream & very rapid (slope about 1 in 30) at 4.5 P.M. Made in all about 11 miles today according to estimate. Day showery & the high peaks among which we now are, concealed by clouds. The river in this part of its course has several swift-rapids, but at this stage of the water the banks good for poling & tracking. There are now few islands, the stream sweeping on in unbroken course. The valley continues about a mile & a half, or even in places nearly 2 miles wide between the steep slopes of the hills. The river winds considerably, but does not make

MSS [illegible] G.M. Dawson

reg.

River

Kwatsalix

abrupt turns. There is now generally a flat based on gravel, & from 10 to 30 feet, or even more in height, on one or both sides. These flats are not very heavily timbered as a rule, & though sometimes stony, might, as remarked yesterday, be in part brought under cultivation, though soil generally light. On burnt terraces behind every camp find already a tangled growth of ~~xxxx~~ wild peas, with white-flowering raspberry & fire-weed. The peas of two kinds, purple & white blossomed & with the raspberry in flower. Bears have been tracking through them & probably browsing on them. Spiraea common though buds formed none yet open. See also Corydalis aurea & the common pink & yellow blossom allied to it—genus I forget the name. Noted one crab-apple today. Devils Club now scarce. Noted aspen on the benches for the first time.

June 18. Leave 7.15. Stop for lunch at noon. Leave at 1.15 Camp at 4.15 2 3/4 miles above Quatsalix or Kwatsalix Cañon. Lost half an hour during travelling time. Made altogether a fair day's work, though the water very strong & very swift in a few places. The river continues to be bordered by terrace-flats like those previously described, but now not unfrequently of some width on both sides. The mountains along the sides of the river rather less in height on the whole, but high peaks some miles back. The valley thus appears to be an important structural one, & not a defile cut through a range. The so called Kwatsalix Cañon, is merely a part of the river less than half a mile in length where steep rocks & low cliffs come down to the waters edge. The water runs swiftly through, however, but not so much so as to prevent our coming

Glacier

Hg.

up without tracking. The canoe is run twice sharply across the rapid, meeting strong eddies each time. Stopped for a few moments at the mouth of the stream flowing from the lowest (farthest west) glacier of the map. The scene looking back into the mountains a wildly picturesque one. Peaks probably reaching 7000 feet in height, more than half covered with snow as to their upper portions. Two small masses of blue glacier ice in hollows near the summits, & in the bottom of the main valley— a steeply V-shaped one — a large glacier probably at least 1/4 mile across & running up the valley like a gigantic waggon road. The ice here, however, not seen, being completely covered with rock debris, & at the present date much snow also. The slope of the bottom of the valley is quite considerable, but the amphitheatrical head of the valley seems very small to nourish so large an ice stream. It must move very slowly, evidenced also by the not very muddy character of the stream below. The point of the glacier is about 4 miles back from the river & comes down to an elevation of about 600 feet (est.) above it. The sides of the glacier stream are steeply sloping, thus — .

Vegetation. Mr Cambie places the point at which the vegetation of the interior of B.C. may be said to set in about Kwatsolik Cañon. This probably as near as it can be located, though of course the change a very gradual one. *Pinus contorta*, now however quite abundant on some flats, also Aspen Poplar. Saw a few small trees of Douglas fir. Lupins very abundant on some burnt flats. Devil's Club becoming very scarce. Soap-berry (*Shepherdia Canadensis*

River

Veg.

mountains

abundant in some places. Saw a white flowering astragalus at Kwatsalix, also a Saxifrage, with three pointed leaf. Low growing juniper bushes seen in one locality.
A few Indian houses about Kwatsalix, which a fishing station, the eddys in vicinity giving good places to take Salmon in Scoop nets. Language. The Kwatsalix dialect said by the Tshimsians to be a little different from theirs.

June 19. Called this morning at 4.30 & off at 6 a.m. Stop for lunch at 11.30. Off again at 12.35 & travel till 5.10, camping on a bench about 40' high opposite the Kit-wan-gah Indian village. Frequent showers during day, & completely overcast. The portion of the river travelled today (18 3/4 miles by McLeod's reckoning) generally swift as before, with a few stiff rapids. Few islands. Benches even more prominent than before along banks in some places spreading widely. Valley continues wide as before, with the exception of a short stretch above morning camp where low rocky hills come out in places to the rivers bank. At lunch point about 10 m. above morning camp a flat about half a mile wide on right bank of river, & at least a mile long. This has been burnt over, & is now covered with scattered poplars (aspens) rose-bushes, high-bush cranberry Castilleja, pease & vetches Heracleum, Epilobium &c. The vetches well grown & in full blossom. Wild gooseberries formed, about the size of pease. This flat shows what improvement might be effected in others by burning & clearing them off. Site for a good sized farm, though land a little light, being a fine loamy sand.
Hills for some distance back from river generally low, & evidently composed of the comparatively soft sandstones & argillite rocks. [illegible]

__Snowfall__ Mr Cambie gathered ~~that~~ the snowfall below Lakelse very heavy, said to be often over 10 feet. From Lakelse to Kitsolas about 6 feet. From Kitsolas, & about this place 3 feet (This confirmed by self in conversation with the Kit-wan-gah Indians. At the Forks W. McNeil who has spent some winters there says never over 2 feet.

Snowfall

mountains further back. The axis, marked by the higher peaks of the range must be about position of camp of this morning. Some miles back from left bank of river, soon after leaving morning camp see for a few moments now & then through the trees a great mass of high rugged peaks, which reach a probable elevation of 7000 to 8000 feet. Several small glaciers lodged among the summits. These peaks called Roh-gan-isht by the Indians.

The Kit-wan-gah village consists of about 15 houses, on a flat of some extent, elevated about 40' feet above the river. A trail leads across from here to the Nasse, the journey occupying three long days. The houses of the style usual on the coast, not so elaborate as the Haida but more like those seen at Alert Bay &c. One framed house. About ten carved posts, but none very striking. The Indians here are unconverted. They speak a dialect of Tsimsian slightly different from that of the Coast, but like that of the Forks. They are said to be in the habit of burning their dead.

Veg. Vegetation on flat where we are camped something like that described above. Linnaea almost in flower. Galium boreale almost out. Pease with seed beginning to swell in pods in some cases. Found a number of ripe strawberries, evidently the first, but indicating that the season is well advanced as compared with many parts of Eastern Canada. The rainfall here probably, in so far as vegetation can be trusted probably not much greater, (probably not at all) than at Quesnel. As further proof of dried climate note that most of hillsides today have been burnt over, & are now largely (over considerable areas almost exclusively clad in Poplar (aspen)

June 20 Leave camp 6.50. Stop for lunch 4.50. Start again 1.10 Camp 5.5 P.m. at about 1 m. above Kit-si-genchle on the left bank of the river.

River

The valley below Kit-si-guchla continues to be narrowed at intervals by low rocky hills of sandstones argillites &c of mesozoic age. For about eight miles above morning camp moderate water, but from there to here — about 3 1/2 miles — a succession of the worst rapids we have seen. The Kit-si-guchla a stream of some size, but not apparently large enough for canoes. Very rapid about the mouth, resembling many feeders seen lower down. In the village, which is a short distance below the stream there are about ten houses, mostly in a more or less unfinished state & of modern type. This village was accidentally burnt by some travelling miners a few years ago. The Indians were much angered & prevented traffic on the river for some time, but were eventually pacified by a money compensation from the government. Since this time the village has been rebuilt. The new posts are two in number. One very tall but quite plain, the other ambitious & elaborately carved & painted, but in a very inferior style of work. At the top of the post is a most grotesque looking blue jay, with something in its bill. On the bench behind the village several tombs, two of them little sheds like those seen on the Fraser &c. In one a painted rude image. This the resting place of a famed medicine man.

From the earliest dawn, the sound of a drum & singing heard across the river from the Kit-wan-goh village. Learn that it had been kept up all night, the medicine man being engaged over a patient.

Had some exciting work in getting up the rapids this afternoon. Crossed several times in very rough water, the canoe fairly seeming to stand up on end, though going through well & shipping little water. In watching the second canoe crossing seemed much more risky than when in the thick of it ourselves.

Showery in the morning. Clearing in p.m. & fine evening.

Omineca Mr Hankin tells me that this year there are about 60 white miners in Omineca this season, some 20 Chinamen & 60 to 70 Indians, the latter receiving $3 a day as labourers. Vital Creek is the favourite this season.

Distance in to Omineca from Forks about 200 miles (to Mansen Creek) To Babine 50 m. To Tatla 45 m. To Hogem 60 m. & then 4 m. down the river.

Indians Mr Hankin tells me that the Indians speaking ~~the~~ dialects of the Coast (Tsimsian) language, extend about 80 miles up the Skeena beyond the Forks. Up the Babine to the Cañons. The Nascar Indians, of the nasse, extend up that river about 25 miles above tide-water, with permanent villages. Have fishing stations & "own" the country for about 50 m. further. The Indians of Kispaiot village, on the river of the same name about 9 m. above this point speak a Tsimsian dialect. These, with the Indians of the upper Skeena speak a dialect nearer to the Nascar than to the true Tsimsian. Hankin also says that the linguistic division between the Tinneh (Carrier) Indians & all the branches of the Tsimsians is quite distinct.

Freight Freight Costs about 4 cents a pound on the average from the Coast to the Forks. Large boats carrying about 15 tons have been brought up, but the Tsimsian Canoe is found on the whole to be better adapted for the work

veg. Vegetation. The astragalus observed a day or so ago, now abundant on dry southern slopes. The narrow-leaved Sedum common about Victoria also observed. See Aquilegia Canadensis in full flower & what appeared to be the Elaeagnus argentea.
Intensity extensive of Sandstones & carbonaceous shales much folded in this afternoons travel. Observe Index Error of Sextant after stopping to Camp.

June 21. Leave Camp 7.10 a.m. Stop for lunch 12.10. Leave 1.30 arrive at "the Forks" at 3.5 P.m. A fine bright day, though with a few showers. The river gives us shite a few rather stiff rapids to surmount after leaving camp, & continued rapid throughout. Landed for lunch on a

Flats. fine large Flat about 3 m. below the Forks on the right bank of the river This has been well burnt over & now forms a prairie large enough for an ordinary farm. The soil light sandy loam about 2 feet deep overlying hard packed gravels. Stands about 15' above river. Type of Flats possible to bring under cultivation if the woods were burnt off. Castilleja coccinea

veg. in flower. Anemone (with greenish white flowers) mostly in seed. Cerastium in fl. Yarrow begins to flower. Vetch & pea in flower. Strawberries a few ripe. Amelanchier berries half size. Epilobium over a foot high flowers not yet out. Heracleum. Bear berry formed & full size. Hazel & rose bushes, the latter in full bloom. Galium boreale begins to flower. Heuchera in bud not yet in flower. Stellaria. Columbines in full flower. Also the small blue astragalus-like flower found on the Chilcotin R.
The Forks mountain, or Roche deboulé called by the Indians Nilh-Ki-an-da. The Forks Ket-une-max. The Wat-son-Kwa of the interior Indians is the ix-a-andow of the Coast Indians The Sees-Kwa, means "bear river" in the Carrier language

The Forks or Hazelton situated on the left-bank of the Skeena

Indian Population of various places about the Forks

Approximate Estimates.

Forks	250	
• Aghwilgate & Kyaghwilgate on the Wat Songua R (Zimme)		200
• Kispaiot	350	
Kit-si-geulta	150	
Kit-sai-las, fluctuates much, if all at home would be but now living at Port Simpson &c.		300
• Kuldōz on upper Skeena	150	
• Kis-ka-gas 3 miles up Babine R from mouth		400
Kit-wun-Kool, between Skeena & Nasse		250
Kit-sum-galum		25

a short distance above the junction of that stream & the Watsonqua R. It stands upon an extensive flat elevated ten or fifteen feet above the stream, & at the base of a higher terrace, which rises to 170 feet very steeply. Hankin & one other trader live here, & there are several houses, stores &c, with an Indian village of about half a dozen barn-like buildings, each accommodating several families. The Indian village is quite new & there are no carved posts. The old village, now abandoned, is situated about 1/4 m. down stream & there are remains of carved posts &c there. The Indians speak of erecting posts here at some time.

Climate Mr Hankin states that he has seen the thermometer down to 48° below zero, & that he has known it never to rise above 30° below zero for several weeks at a time. Vegetation here much earlier than at Ft St James, though winter about as cold. A few cattle & horses have been wintered here, but necessary to feed the former for 5 months. The latter have been kept by clearing snow from the ground to a certain depth in strips to allow them to paw for grass. Last season was an exceptionally long one & two crops of oats ripened before the frost, the second a "Volunteer Crop". Potatoes do well, though tops often injured in spring & in two seasons summer frosts have occurred. When the season is favorable squashes, cucumbers & corn come to perfection. Mr H. has been here since 1868 (?). The Skeena opens generally during the last week in April or first week of May. Ice begins to run in the river early in November, but the river does not generally freeze till the end of December. If a thaw comes on, causing the anchor ice to rise, which it sometimes does very suddenly, it blocks the river & causes it to freeze over. In 1887 the river closed exceptionally early, on the 13 of November. | Grass begins to get green a earlier

Babine Lake is called Kit-Koün by the Forks Indians Ne-kil-stlas of the Haidas Us-tâs of the Carriers is represented in the Tshimsian language by Taim-shem, of whom all sorts of adventures are related. Mr Haokin told me the following Naaskar Indian story. Taim-shem being very hungry, wandering in the woods sees a smoke, going towards it finds a lodge & in it an old woman, alone. Asks for something to eat, & is given some salmon. The old hag then ~~[illegible]~~ tells him to go to sleep, which he pretends to do. The woman then dressed with her dancing ornaments & went out - Taim-shem slyly following. She goes to a spring & begins to dance about it & sing. After a time a lot of fish things came up in the spring, which she eats. She then returns to the lodge & sleeps while Taim-shem puts on the dancing ornaments & going to the spring sings the song which he had learnt from the old woman. Things like those before seen come up but prove inedible & hard like stone. This was repeated several times & finally Taim-shem getting very angry says you are fit for nothing but to stick on these trees, & threw them at the spruce trees, which at this time were straight poles with no branches, but have been branched as they now are ever since.

budding trees to cover out about the first week in April. Cottonwoods come out about the first of May. Snow begins in October, but this generally goes. Snow that lies for the winter does not generally fall till the middle of December. The average depth on the benches about the Forks is not over one foot, but greater in all the surrounding district at Kit-sai-geulta nearly 3 feet. The winter is generally steadily cold, though there is almost always a heavy thaw in February. (The river is generally highest in July & lowest before the first rise after the ice goes. The best time for boating August & September. At other times portages are necessary owing to high or low water.) Potatoes are generally dug in end of September, but are ripe before that. New potatoes fit for use can be obtained about July 1st. Wheat Mr Hankin considers an uncertain crop. Oats & barley always very good. Indian corn does not ripen, but excellent cattle feed.

June 22. Sunday. Writing letters & making preparations for start tomorrow. Try to get Sun at noon but miss it. Take angles for height of the N.E. angle of the Roche Deboulé, Calculated by Mr Camber & found to be 5 m. off & 5955 feet above the Forks flat. Day very warm & mosquitoes innumerable, making it hard to exist with any comfort. Not feeling well.

June 23. Up at good hour & busily occupied for some time in packing & arranging things for start. McNail making up the packs as near equal weight as he can, the Indians naturally grumbling at each addition & trying to get off as lightly as possible. The packs average about 100 pounds. About two sacks of flour weighing just 50 pounds each there can be no doubt, but with other things a chance to argue that weight excessive. Get off at last about 9.30 & travel in a desultory way till 3.40 P.m. making about 6 1/3 miles on the trail toward

Babine. The day hot, but with occasional showers & plenty of mosquitoes about the bushes on the trail. We have a motley crew of packers, Aghwilgates (Kisiask) & Forks Indians, though chiefly the former. Two women in the company. One of the men having an old mule puts his load on it instead of carrying it himself & walks alongside. A couple of dogs packed with some of the Indians private property, & altogether the appearance of a crowd of migrating aborigines. Strung out along the trail, sitting down to rest & wipe the perspiration away now & then & taking their time to the job. Packing across to Babine is systematically carried on for the supply of Ominica, the rate being $4 per hundred pounds. With us however the Indians are engaged by the day & expected to turn up at camp chosen for them in the evening. This they are not slow to do as we supply them with food. Some Indians travelling with ours are going in all the way to Ominica loaded with dried dulce to trade with the Indians working there, who become very hungry for this luxury.

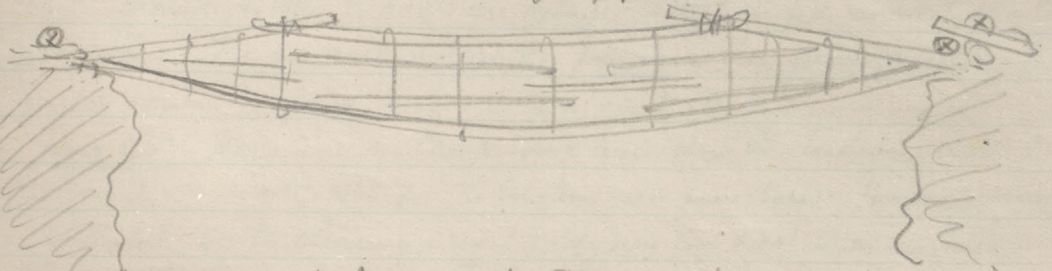
Country passed over at first a nearly level bench probably fit for cultivation, lightly wooded with poplar, cottonwood, birch &c. Then the steep sloping hills near & on the right bank of the Watsonqua River. Much fine grass & pea-vine with many of plants before enumerated. Splendid feed for cattle or horses. Wild roses in great abundance & of large size in full bloom & the air fragrant with them. Service berries formed & half full size on sunny exposures. Find choke cherries at about the same stage of advance at camp. Ripe strawberries abundant in some places. Mixture of junipers & aspen on the sloping banks. Altogether a glorious summer country whatever it may be in winter.

Visit Indian suspension bridge across the Watsonqua a short distance before camp. Several of similar type in this part of the

June 23. Our Metla-Katla Canoe men left today, well paid & in good spirits. Shook hands all round, & as we waved our hats to them turned their now light canoes into the stream & sped away with it at a rate very different from that necessary in ascending. They expect to reach the mouth in two days.

Mountains seen from the Forks. The Roche Deboulé range is the most prominent, occupying a triangular area between the Skeena, Watsonqua, & Ket-si-geuKa Rivers. Its N.E. angle is a wonderfully picturesque Crag with a height ascertained to be 5955 feet above the Forks Flat. Among some of the peaks near it a small glacier is nourished, & much snow lies everywhere still on the upper parts of the range. The vertical cliffs must be of tremendous height about the angle of the mountain but are dwarfed by distance. They are wild bare shattered rocks too steep for snow to lie on. Looking back down the Skeena the axial mountains of the Coast Range cover a considerable angle. The highest peaks seen are those just south of the Skeena of some of which we obtained partial glimpses on the way up. These are called "the Sisters" by the people about here & must reach to 9000' in altitude. North of the Skeena between it & the Kispaiox is a nearer range which hides the eastern continuation of the axial belts of the Coast Range. The summits of these are shown on sketch. They have a peculiar reddish appearance. The Range south of the bend of the Babine River is also very fine. Its extremity bearing a little W. of true north must be 25 or 30 m. off. The altitude of its higher summits only second to that of the "Sisters" probably 8000' at least.

country. The bridge here extends across the narrow part of a cañon with a wild rapid some 50 feet below it. The bridge itself is about 50 feet long, & in principle as below. A beam bound by rude crib-work, stones & logs projects at each side. To these other beams are attached & hanging pieces, with natural hooked



ends pass down to hold up the floor, which may be a single flatted beam as in this case or composed of several lengths of poles. Here, telegraph wire being abundant, the suspending is chiefly dependent on it. A hooked stick is evidently the aboriginal substitute.

June 24. Leave camp shortly after 7 a.m. & get into camp about 6 P.m. making traverse avg 10.51 miles by traverse during the day. Trail hilly going into several deep brook valleys. Frequent long halts to let the Indians who are packing keep ahead. Day rather warm but not excessively so, generally clear & fine. Where we first see into the bottom of the Wet-Son-qua valley the river running swiftly in a rough cañon. The Sus-Kwa similarly circumstanced where we first come out on its banks some distance above its junction with the former. Valley continues deep & bordered by terraces at several different levels. No arable land where the benches wide too stony. Similar vegetation continues. Thickets of beautiful wild roses, flowering raspberry &c. See a few plants of Devil's Club in a damp shady valley. Lonicera in bloom everywhere, ripe strawberries. Pyrola rotundifolia beginning to

bloom as also the greenish-white species. Pass several Indians on the trail going westward. Some have come from Vital Creek in four days some in three. No loads but blankets.
Human beings were surely never intended to be turned out beasts of burden as the Indians are in these journeys, yet they do not seem to suffer much from it, & when the packs are dumped & they have fed are ready for a laugh or anything. They are well called the porteurs. For goods generally $4.00 for 100 pounds is paid across the portage to Babine.
June 25. Remained in Camp some time after the Indians cleared out, — which was shortly after 7 — to let them get a fair start. Morning showery & chilly but weather clearing, & most of day very fine & not too warm for comfortable travel. Stopped several times for long rests while the packers worked slowly ahead. Follow up the Suskwa on high benches for some time, when the valley of that river turning to the southward, we take to that of a tributary of considerable size, the Oo-ats-an-li. Trail in afternoon a rough mountain one, the surface of the benches cut up by numerous small streams & valleys some in ravines of considerable depth. Terraces generally stony & no arable land. The hillsides generally have been burnt over, & along the northern banks very thoroughly so, the forest nearly all gone for great stretches & rank growth of pea-vine, cow parsnip, fire-weed, & grass, in some places already shoulder high. Splendid feed for several hundred head of cattle during summer, though assured that not nearly so good as on the Wat-son-qua. The 5 months of winter feeding necessary in this climate the great drawback. At the junction of the Suskwa & Oo-ats-an-li a wide flat of pretty appearance sunk among the mountains but probably of no agricultural ~~valley~~ value. The valleys of both streams, taking the higher sloping benches into account, are wide, but benches near the water level quite limited. Now camped on a bench overlooking the river at a height of about 450 feet, the stream a rapid & noisy one flowing in a gorge below. Surrounded by snow-clad mountains in every direction in several cases probably exceeding 6000'. A high range running down the S.W. side of the Suskwa beyond where the trail leaves it.

Scenes round camp fire & at start. Dry day.

Our motley party.. Ahwilgates, Forks Indians, Kit-wan-gaks & Kis-ka-gas, with one mule

The Summit plateau on this trail resembles those found elsewhere in the province at considerable elevations. The dense forest which has originally filled the valleys here gives place to scattered clumps of stunted trees, the stems of which taper rapidly & are composed of many very small annual growth-rings. These are here chiefly A. lasiocarpa & A. Engelmannii (?). The snow has not long gone & the low-growing willows just leafing out. Streamlets run from one green moss rimmed pool to another, & the branches of the trees are hung with the black crape-like funereal lichen jubatus (?) The beautiful little yellow violet, in many cases with its delicate green leaves scarcely yet unfolded is pushing up everywhere through the grass & moss. Here much of the timber has been burnt off, groups of bleached or blackened ramspikes replacing the dark green foliage.

An Indian sent down this morning (J. 27) with a couple of barometers to Set, returned about 6 am. the valley, or summit of the pass to the south of us proving to be 750' lower than our present position. It is occupied by a small lake & swampy meadows which drain in both directions.

Elevations The height of Babine Lake above the Forks of Skeena by cutting out all variations of barometer except those happening while actually travelling = 1875' By direct comparison of readings taken during similar weather 1845, say 1860 feet. The plateau by direct comparison of readings 3730' above Forks

June 26 Up at 5 am as usual & packs off a little after 7. Remained at camp fire about an hour & a half, & did not come up with all the packs again till noon as they travelled well, the day being moderately cool. Ascending in the main all day, but many ups & downs. Travelling on rough irregular terraces cut across by numerous brook valleys. Country mostly burnt over, but vegetation becoming scanty & much less advanced than at lower levels. Great forests of bleached & bristling rampikes in some parts of the valley, with here & there a clump of trees which have not been swept off & beneath which the trail is found very soft & wet. Camp practically at the summit of the trail, having made 10.8 miles. The trail here passes over an irregular terrace at a height considerably over 4000 feet to avoid soft ground in the valley which runs through at a less elevation & apparently in all parts of its upper reaches is wide & flat bottomed with swamps, swampy meadows alternating with brush & woods. A magnificent broken mountain range to the south of the valley. The Central peak is called by the Indians a name signifying watery mountain & must have an elevation of over 8000 feet. Took bearing & a sextant angle on it to determine height

Vegetation As we ascend the peculiar mountain species as elsewhere seen in B.C. appear. Veratrum peeping out. Menziesia not yet in bloom, a peculiar carmine Castilleja the white mountain Caltha & many other species. The timber limit is about 4500 on these mountains

June 27. Heavy showers during the night & early morning. Off about usual time, travelling with little halt to the shore of Babine Lake, which we reached about noon. Several heavy showers with thunder during the day. Evening cold raw & gusty. Our arrival the signal for a considerable portion of the inhabitants of the opposite Indian Village to come over & swarm about us & our carriers. A nuisance little abated during the remainder of the day. Packers paid off by C., getting $7.50 each. Will not do to show eagerness concerning the hiring of Canoes, & as it is they try to take advantage of us by putting wages up to a ridiculous figure. The old Chief* sends word not to engage for less than $4.0 a day!, but

* Tzil-ton-te or "Noah".

Packing with Indians.

McNeil, who manages the Indians finds it best to keep with them during the morning, moving them on, & to start ahead of them in the afternoon, taking the cook with him, select a camp & leave the packers to come on to it as fast as they like. They come dropping in in the evening two or three at a time, glad enough to lay down for good their heavy loads. Tents are soon up & supper ready, after which the packers are fed; collecting in a circle near the fire in squatting attitudes while the cook – full of business – serves out quarter galletts to them, ladels out boiled rice or beans & tea, & serves each with a healthy rasher of bacon. Supper disposed of they linger about the fires smoking, drying their clothes &c but soon drop off one by one to their blankets, most of them being provided with light tents or cotton awnings to sleep under. The dogs, the Indians are careful to muzzle by tying up their jaws with a strip of cedar bark to prevent depredations. Amusing to see these animals smelling about quite unable to taste or do any damage. Not always easy to get the Indians up at first call in the morning but the approach of breakfast gets them out. Then tents & other light articles being distributed as packs among the dogs, the burdens are made up away again over the rough hilly trail. Rests are frequently called for during the journey, especially when the steeper ascents are met with & perspiration flows freely. The Indians are here nearly all nominal Catholics, & collect in the evening, crowding into one of the tents for the repetition of prayers & singing of certain chants which they have been taught. The monotonous hum of this service being generally the immediate antecedent to bed.—

When "seen" & his own canoe engaged at a high price becomes quite amiable, & we succeed in getting the men for $2.00 a day. Find here "Seymour" the Stuart Lake Indian who accompanied Jarvis on his trip across the Rocky Mountains, & went to Pine R. with Hunter. He is engaged.

Country. The descent from the high plateau where we were camped last night is pretty gradual & continuous over rather broken surface chiefly composed of stony superficial deposits not arranged in terrace form, or not evidently so. Surface either densely wooded or bristling with windfall. This bad for a short time, but not nearly so troublesome as during ascent yesterday. Trees chiefly Abies lasiocarpa A. Engelmanni (?) & P. contorta. On looking down from the hills Babine lake is seen stretching far to the S.E. Its banks generally low with flats or low rounded hills bordering it, & though the weather too unfavourable for any very clear view saw few high snowy mountains to the north-westward, & those distant. Where we reach the valley the flats or gently sloping ground is several miles in width & for a width of more than half a mile, between the densely wooded & swampy margin good arable flats with rich soil & partly open meadow. The *Tzes-a-tza-kwa River, a small stream joining the Babine below the lake runs through these flats. A lake which is said to lie near the trail which runs eastward from here was seen from the hills & bearings taken on it. It is called O-weil-i-ē by the Indians.

Vegetation here quite perceptibly behind that of the valley of the Skeena River but how far, difficult to tell. The wild strawberries have not long been in bloom & the peas & vetches are scarcely yet in flower. Ledum in flower in the swamps along the lake shore.

June 28. Arrangements made to start this morning but heavy rain with strong squalls rendering it unsafe for navigation in the long narrow warped canoes which alone are to be obtained here. Wait on thinking to leave at noon, but weather continuing bad & even growing worse decide to remain. P.m. went for a walk to the stream behind camp. Found some fragments of coal or coaly shale in the wash

* Means Canoe making Creek.

The name was given because of the habit of the Indians known of this region to wear wooden lip-pieces. They differed in this from the other Porteurs, & of course resembled the Tshimsians.

Nat. Sheep & Goats.

Ind. names

June 29. Sunday. Clearing all day, but heavy rain during last night & early morning. Wind continued heavy during most of day, but fell & weather became quite clear about sundown. P.M. took a walk on the east side of the lake behind the H.B. Post. Sketched mountains & took bearings. Conversed with St Pierre (?) who arrived this morning with a batteau & goods for the post. A new building is now in course of erection at this place, which constitutes an alternative trading post with Babine Fort proper which is about 30 m. down the lake. The same trader attends to both,

Ind. vil. spending most of his time at the latter. The Indian village seems to have some vitality here, there being quite a number of small shanty-like houses, several of them new. Many salmon caches, standing as rough board erections on posts. Great quantities of salmon are annually taken here, a wicker wier with fish traps being placed completely across the river. The Indians are provident enough to keep nearly a years supply ahead & consequently have plenty to sell to travelling parties of Indians. The name Babine is not the Indian name of the lake, that being Na-taw-bun-Kut. Babine is however a word used to signify the lip in the French patois spoken in this part of the country. Where it originated & how it came to be applied to the lake require elucidation. Season here said to be very considerably behind that at the Forks, as the vegetation would indicate. St P. says however that he has a good garden at the other fort & can grow all sorts of vegetables. Mr Charles his predecessor tried barley which succeeded well.

Could not get the sun at noon today owing to clouds. Took two series of altitudes off the meridian, & got the moon on the meridian between 8 & 9 P.M.

Mountain sheep in small numbers inhabit the high mass of mountains S. of the post to the Forks. The goat is comparatively abundant through the region.

Indian name of village at outlet of lake Wut-at. Of that near H.B. post 1/3 way up the lake Ni-to-atz or Na-tal-Kuz.

June 30 Monday Off at 7.30 in two canoes C, McL, & McNeil in one. Self & G in another. Passed Cottonwood house through of usual style

Ind. vel.

Country

Fire plan range

but have done pretty well today, bringing us down to the H.B. post which is supposed to be about 1/3 ~~the~~ length of the lake. Carry on track survey, but see little of geological interest. The Ni-to-atz or Na-tal-Kuz Indian village seems a somewhat populous one, with many houses scattered along the banks of the lake. also many Salmon Caches & canoes. On landing received by almost the entire whole population & besieged by them till at sundown the horn for prayers sounded, after which comparatively few returned.

The lake is narrower & much more winding & irregular in width than shown on the maps, & does not present the appearance of being very deep. The shores often rise to 100 or 200 feet pretty steeply & then slope more gently backward to hills which do not reach 1000' in the vicinity of the lake. Considerable areas quite low, & on North Shore extensive areas have been well burnt over presenting slopes of rich pasturage of most attractive appearance. In many places the timber more than half aspen & the evergreens everywhere pretty well mingled with these trees. Catch occasional glimpses of the high snowy ranges which intervene between us & the Cootsonqua valley. The peaks must reach 8000' but a wide stretch of low or only moderately elevated land intervenes between the lake & base of the range, appearing even to fall backward after a few miles from the lake. In what direction does this region drain. See also from a distance the wall like & cloud capped range across which the Tree-pan Pass goes, & which evidently runs uninterruptedly northward toward Cowally or Bear Lake. This surpasses in general elevation the last mentioned range, & all that part of it which is seen today, above nearer hills is covered with a heavy covering of new snow

Hoar frost on grass this morning & ice as thick as a penny formed on vessels of water standing out last night! Fresh westerly wind during PM enabling us to sail much of way down lake under a three point blanket supported on a couple of paddles. Several fine trout caught in trolling during day.

Indian village. The Indians pointed out a place where the Indians now at the efflux formerly lived. Some great mortality occurring they gave it up.

County.

County

July 1. Left with G. in one of Canoes, C & McL remaining a day to explore a possible pass. Made 22.6 miles down the S.W. side of the lake by reckoning camping after 5 p.m. a little to one side of an old Indian camp. Day fine & warm till noon. P.m. clouded gusts of westerly wind. Evg. clearing. Got an obn. for lat at lunch stop. Shores of lake contive on the whole low, though a rampart-like range of hills run along the N.E. shore inland of the bottoms of the bays. To the north of this low-country through which distant snowy mountains seen. Probably no land over 500' above lake for many miles back. To the S. of the range a low pass leading South-eastward. Thus where Geo Wrights' trail to Trembley lake made formerly. Possible railway route. Bays on N.E. side deep & many islands. Much low land to southward on both sides of lake, & probably a large area fit for cultivation if climate good enough.

Several trout caught en route today.

July 2. Made 27.6 miles up Babine Lake, camping at 6.15 - just beyond the Eastward bend on the N. side. Up at 4 a.m. & off by 6. making a long day. Morning & early part of afternoon fine & very warm. Later, clouding & evening overcast. No wind to interfere with travel. Got Lat. obn. at noon & Passed the H.B. boat en route to the head of the lake & she in turn passed us when we stopped to camp. Quite a number of speckled & lake trout caught on trolls during day, adding to our bill of fare.

The lake continues to be bordered by wide spreading bench-like flats, with occasional higher hills & ridges projecting through them & a large area suitable for farming in so far as contour goes. Some fine grassy slopes & much lightly wooded & aspen covered country. See what I believe to be a few Douglas firs on the northern slopes, also on sunny rocky crags the first samples of Artemisia frigida, & the bright yellow lichen which is on branches so common in the southern part of the interior. Lake a fine sheet of cool clear water, & though now with no very bordering snowy mountains, as glittering in the sunlight very picturesque.

July 3. Off about 7 a.m. getting up as usual at 5 a.m to secure this result. Showers during night & showery during morning. Travelled on

Country

Climate

to the head of Bobine Lake, arriving at the end of the portage trail about 11.30 a.m. Heavy rain with occasional thunder during remainder of day. Landed stuff & set Cook to work making lunch. Found St Pierre's wife & another woman camped, but only one lad to be found to assist in packing. After much ado, grumbling & complaining about size of packs &c, heavy rain continuing all the time, got away, leaving some provisions to be brought by Mr Cambie. Travelled about half way across the portage, camping about 6.30 P.m. half way across the portage in a swarm of hungry mosquitoes.

The Eastern end of the Lake probably averages 3½ to 4 miles wide, with the banks generally higher & hills rising more rapidly as they recede from the lake. The outcrop of the tertiary rocks on the north shore gives rise to a broken country of rocky hills, There are also, however, on the north shore frequent fine grassy slopes. A remarkably abrupt rocky hill of some height stands on the south side of the lake near its termination. East of this a wide low valley runs southward (S 85 E 10 m. or more.) A large stream comes from this valley & a small lake lies some way up it. A trail goes through by this valley to Stella at the west end of Fraser Lake. Douglas fir seen today for the first time on sunny slopes. The portage according to my traverse is 7.6 miles, probably 8 m. by the road. Summit on trail 400 feet. The country undulating. Wide benches with rocky & gravelly hills projecting through. About 4 miles between abrupt slopes. About 1/3 of the area suitable for agriculture. Soil in some places good. Generally rather light. Gravel well rounded. Veg. P. contorta chiefly burnt over. Road with favorable grades. Easy to construct a tramway if necessary to connect the two lakes. Season. Strawberries here now beginning to ripen. Compare as fixing same stage in advance with the Skeena near the Forks.

"Indian village" of map consists of 1 house & some sheds on the bank of a small stream. Potatoes & barley cultivated the latter now 3 feet high with the ear just appearing. Evidently very poorly sown & attended to. A few cattle. Hay cut for them in marshes overflowed at present by the lake. Room enough for a good farm on the bench, which is elevated about 12 feet above the lake.

July 4. Off about 7 a.m. & got down to the end of the portage at 9.30. Sent the men back to meet Mr Cambie immediately. Tents pitched. Obsn. for lat. at noon. Shortly after C & McL. arrived. P.m. went in canoe to the mouth of the little river. A very fine day

Rocks. Told by Charles Farel that the limestone range runs East of Tremblem Lake, but not seen beyond it. That "Slaty formation" occurs on the S.E. side of the Lake

Native names of fish inhabiting Stuart Lake B.C. from Charles Farel

Common small salmon ~~Ko...~~ Tel-o
Another small salmon Tā-tzue (hook billed)
Large salmon Kēse
Landlocked salmon (?) Kē-sul
"Ling" Tsin-tel = "broad head"
White-fish Tlath
Lake trout Pēte
Speckled trout Tuck-ai
A third variety, Red speckled river trout Tstap-ai
Chub. Tthas-i
Small white fish H2oos
Sturgeon H2ē-cho = "big fish"
Small red striped Chub Tel-tsē
Large white sucker Koo-spai } large scales.
Black sucker Ta-Koos }
Red sucker Tel-ke-yās } very small scales
Bull-head Sus-Kwo (Sometimes 4" long)

The same fish are found in François & Fraser Lakes & others of the vicinity, but a small poor white-fleshed salmon comes up the Skeena to Babine. Called Stam-on

warm & calm. The lake looking very pretty with blue distant hills & islands. Douglas fir pretty abundant. No boat here from Ft St James, though it was supposed to be arranged that one should be sent up immediately on the arrival of the pack trains & hear that they have now been there 5 days. Some difficulty in arranging about canoes as all here small.

July 5. Shortly after going to bed last night the cry raised by the Indians "boat chaco" & soon the H.B. barge with Major on board appeared. Arrangements for canoes of course fell through & this morning an early start made. A head wind delayed us somewhat & caused us to remain ashore some hours, but by rowing, sailing when the wind again became fair, & poling, we managed to make Fort St James by 10.15 P.m. We had not expected to get down the lake more than half way. Fired a few shots, which brought some of the people to the bank, headed the boat, & landed the stuff. Poles & pins being ready cut, but much time was lost in pitching tents, & after a cup of tea we turned in about 12-30 quite ready for sleep.

The length of the lake from the portage to the Fort is — according to track survey — 36.6 miles. It must be over 40 miles in total length as a long arm runs up beyond the portage to that which separates this from Trembleur Lake. The lake is a noble sheet of water, exceeding 5 miles in breadth for a great part of its length. Toward the north end islands are numerous but not at the South. The day being during the morning very wet, & in the afternoon dull & overcast, could not see the distant mountains well. The idea however, that a range of rugged limestone mountains runs along the N.E. bank is incorrect, as above Pinche River the hills bordering this range are comparatively low & fall back from the lake leaving wide stretches of level or nearly level land, bearing aspen poplar, with a few spruce &c. Douglas fir now abundant. Much of the S.W. shore of the lake has the same character, & is similarly wooded, though coniferous trees more abundant. The area of cultivable land elevated a few hundred feet only above the lake must be considerable, though difficult to form any reasonably correct estimate yet.

July 6. Sunday. Camp duties. Observation for Lat. at noon. ~~[illegible]~~ Service in morning at Camp. P.m. at Fort.

Northern Interior Indians divided broadly by language into Porteurs or Carriers & Siccanies. The porteurs extend down the Fraser to Soda Creek, includes the Blackwater, & thence across to Gatcho Lake Include Fraser, Stuart & Babine L. Indians. Indians of Watsonqua Middle River & Eastward to McLeod. Up the N. Fraser to the head of the Parsnip R. The Siccanies lie to the north & east of the Porteurs, occupy Bear Lake (from which the coast Indians) in part of Tacla Lake & the N. Finlay about 75 m. up, or to the vicinity of the new post of the H.B. Company in that direction. Down the Peace River to Hudson Hope.

N. of the Siccanies & toward the Coast are the Na-ha-nies who speak a different language. The Indians about Cassiar are said to be again different.

Population. According to Lampère about 300 Indians in all about Babine L. Here called Na-to-tin

{ Fort St James villages 75 Indians. Pin-chi 40. Tache 32.
Here Na-kas-le-tin

Grand Rapid 10 m up Tache R. 22. Here Kus-chē-o-tin.

Stony Creek Pop. 24. Called Ta-tshik-o-tin

Nool-kai L. pop 56 Nool-kē-o-tin.

Fraser L. pop. (?) Nool-kē-o-tin.

" pop. (?) Stel-a-tin (?)

The upper part of François L. belongs to the Wotsonqua Indians.

The figures as above given are pretty reliable as far as they go.

Siccanies one family numbering 7 live on Tacla L.

Atenah general name for foreign Indians by Porteurs & Siccanies.

July 7. The cargoes overhauled today, stuff divided, & arrangements made for start tomorrow. Four pack trains, making in all with riding animals considerably over 100, came up. 3 secular for Self McLeod & Cambie, one for Horetzky. The three first to go on with me via Pine River, while C, McL, & G. go down the Parsnip & Peace to Dunvegan. Part of Horetzky's stuff divided among three trains & Dewdney to go back to Quesnel with remainder of animals to bring up more for H. Self & McConnell go over stuff packing anew for the journey. Letters written, including a long one to Selwyn to serve as a preliminary report. Obs. for Lat. at noon, & for time by McLeod's watch during aft. Took photographs including Na-Kadl or Pope's Cradle. Writing during evening in office of H.B. post & did not turn in till 12.30.

Visited Alexander's garden. Barley doing well in field & C. Favel has two small patches planted, which I did not see. This an experiment on his part & not yet injured by frost, though the potato tops were cut down one night about two weeks ago. The potatoes now however growing up well again. Peas, lettuce, beets, carrots, onions, garlic, turnips cabbage & cauliflower doing well in the garden though not looking very early. Peas in blossom only.

July 8. Up early, but owing to the numerous arrangements to be made trains did not get off till between 9 & 10 a.m. Travelled only 8½ or 9 miles camping on a small stream which issues from a little lake close by. The stream runs northward into the lake which discharges at Pin-chi. The ground travelled over ascends gradually till now at about 400 feet above the lake. It is generally undulating, has for the most part been burnt over. Fine grass & pasture over much of the area, most of which would be cultivable if climate suitable. The leaves of many of the aspens appear to have been partly blighted by the severe frost of a few weeks ago.

Vegetation Heracleum now in flower, with Galium boreale, Ranunculus, Geums strawberry, peas & vetches render the meadows gay.

Douglas Fir. Told that this tree extends northward partly up Tacla Lake, eastward to McLeod at least, but said not to be seen down the Parsnip.
Coal. Tested in the fire the material from the stream at lower end of Babine Lakes burns with flame & odour of true bituminous, but impure, leaving reddish ash of bulk of original, & in some cases quite hard. Valuable as indicating state of possible seams.
Snowfall About Stuart Lake some 3 feet average in winter. About McLeod probably averages 6'. A foot or two more at Bear Lake Post.

July 10. Abies lasiocarpa abundant in some cold swampy parts of todays route.
Moose Told ~~that~~ only for 10 or 15 years back Moose have frequented neighbourhood of Ft. McLeod. Now moderately abundant, & with Caribou, afford chief sustenance of Indians & H.B. post during winter. Supposed to have been driven westward by hunting activity E. of the mountains. Every autumn however leather party leaves McLeod down Peace River to bring in supply of dressed moose skins for New Caledonia trade. Caribou skins not suitable for moccassins.
Mountain sheep The only mountain in all this part of the country which is inhabited by these animals, is one S. of the Babine - Skeena Forks Trail; & there not abundant.

July 9. Drove on to Salmon River, a distance of about 17 miles, which with a pretty poor & crooked trail is quite far enough for our heavily loaded animals. The Country passed over consists of undulating uplands, the highest point of which between our Camp & Salmon R., about 300' above the former point. The surface of boulder clay general character with occasional areas of flat sandy benches. Small lakes numerous perhaps in original irregularities of drift. About the East end of Carrier Lake some remarkable almost moraine-like ridges, but can scarcely be of this character, & appear composed of sand. The Salmon River a stream about 40' wide & 2' deep, gentle current. Little land resembling that of good quality passed over yesterday. Many bay swamps & margins of lakes having swamp grass. Windfall & burnt country. Swampy hollows between ridges with soft ground on trail.

July 10. Did not start very early this morning to allow trail workers to get ahead. Left Camp at 8 am. Travelled on about 11 miles to camp on E. side of Swamp River or Muskeg R., a sluggish brook. Morning wet & day for most part overcast though little rain. Trail very crooked & soft in some places. Character of country in main similar to yesterday but in main more broken & ridgy. Rode ahead of packs arriving at Camp site long before them & having to wait some hours for tents. Amusing to note how many languages spoken about camp. English, half-breed french, spanish, Chinook, Lillooet & various dialects of Porteur.

Timothy grass has spread along this trail from posts. Where ground good for some miles from Ft. St James a good growth, especially at each side of the trail, from which it spreads replacing native species.

July 11. Drove about 8½ miles to the Narrows of Carp Lake. Rode ahead, getting in quite early. Trail men on arrival set to work to build a raft, that found here being quite unequal to the work of taking our stuff over. Got all animals & stuff crossed over during the afternoon, & Camped on the East bank. Took two photos. Got a good bath in the lake, Reading.

Travel for 1/4 or 1/3 of a mile along the shore of Camp I. in the water — "Splash splash along the sea". Water now rises to horses belly.

The country passed over, forming the Pacific-Arctic watershed, differs somewhat from that before described in the great spread of nearly level, or only slightly undulating benches. These for the most part sandy or gravelly, with occasional lower ground occupied by swamps or small lakes. Timber chiefly P. contorta growing in open order, & often covered densely with the trailing black lichen. The wild lupin (L. polyphillus) according to Macoun) very abundant, in flower & going to seed. The blossoms generally cerulean blue, but occasionally white or pink & passing through many intermediate varieties. The plant evidently very variable. This lupin grows so luxuriantly that the whole surface of the country on some of the benches appears purple. It would evidently make excellent fodder or hay & might not this or some similarly hardy plant be cultivated as a cereal quite beyond reach of frost? Carp Lake is crossed at the narrows, a small expansion lying N. of the trail. It requires to be rafted, & it would appear that without much labour a trail might be made round to the north, avoiding this necessity & the consequent delay.

Many fine trout in the lake, the fishermen enjoying a field day this afternoon & bringing an acceptable addition to our supper.

July 12. From Camp at Carp Lake to Iroquois Creek, a long drive over bad trail, some of the animals being 9 hours under their packs. Rode ahead of trains to the crossing of Long L. River, at lower end of lake. Lunched & began fishing. Had some good sport, taking out some fine trout. Caught 3 fish on as many flies fixed to one casting-line, twice consecutively! Stayed at the river till after 4 P.M. & then rode on to camp in rear of the last train.

Long lake a pretty little sheet of water, with banks sloping up at sides 100' or more & hill 500 or 600 feet high on S. side. Country passed over not dissimilar in general features to that before seen. Almost all burnt over. Chiefly terraces or wide reaching benches. Curious pot-holes & moraines soon after leaving Carp Lake, also in vicinity of Iroquois Creek. For description see

Geol. note book. Soil sandy or gravelly, chiefly dry, but with occasional swamps. Large swampy meadows with fine feed on Iroquois Creek. Creek so-called from the murder of an Iroquois here in former years by the Fort St James Indians.. Much of this country has been burnt over about 10 years. Trail formerly much better than now. Martens & fur-bearing animals formerly much more abundant than now, inhabiting the dense woods. Beaver still very common. See many recent traces of their work along shores of Carp & Long Lakes. In one places had felled a number of aspens 6 or 8 inches thick across the trail, which had to be chopped off to allow passage. Veg. Shepherdia Canadensis berries becoming red. Epilobium beginning to flower. Abies lasiocarpa has been abundant in some places.

July 13 Sunday Up rather late, Reading & attending to Camp duties Rev. took Photo. of Camp & got Indian to pack Camera about half a mile back on trail to get photo. of moraines & intervening pot-holes. Scrambled down to Junction of Iroquois Creek & Long L. River, through heavy windfall to examine rocks there. A remarkably fine day.

July 14. Off as usual, & travel to Fort McLeod, about 10 1/2 miles. Trail good & dry. Packs all in shortly after noon. Camp in immediate vicinity of the Fort, which consists of one House, rather old & shaky, a store, & a few sheds & outbuildings. Took three photographs, & a time observation by McLeod's watch. Also took out index error of sextant. Evening discussed plans with C & McL. A fine & warm day.

The country passed over at first a succession of mounds & ridges, pretty evident moraines, then, trail descends onto benches, dry gravelly & sandy, thinly covered with woods or burnt over, which extend to Fort McLeod. Cross the Long L. River again at the mouth, just before reaching the fort. About 50' wide by 2' deep with moderately rapid current. See a few Douglas firs in the vicinity of the lake. Pachystima

reappears today in force along the trail. No Indians here at present, being all off hunting. Have a church here, quite roughest, but no houses. They differ in this from most of the other Indians of the Province, being almost entirely hunters & wanderers. ~~June~~ A short time in June, October & about Christmas they spend here but live for the most part in Camps, & dont outwhile here. A number of graves, house-like little erections covered often with white cotton & with, each of them, a cross above.

Frost. Experienced a sharp frost at camp last night, but none felt at McLeod, between 400 & 500' lower. Potatoes in garden at fort have been cut down once — about 3 weeks ago — by frost, now looking well again. Peas blossoming & looking well. Other vegetables, but for most part rather dwindling the soil & cultivation being poor. The garden has been in existence here only a few years.

In coming down from the high ridges gain a wide view eastward, but day rather hazy. Some peaks to S-Eastward with a little snow. Ridges beginning to rise boldly toward the foot hills of the Rocky Mountains. McLeod's Lake situated near the edge of the foot-hills, a pretty sheet of water surrounded by forest-clad low hills & ridges

Party now consists of 6. Staff. McNeil, Charles (attached to Hudson Hope only) 14 Packers Whites mexicans & Indians. 5 Supernumerary Indians. 74 pack animals. 22 riding animals.

July 15. Writing diary letters &c. Observed lat. at noon. P.m. overcast with thunder storm & heavy rain in the evening. Spent time in the H.B. building. Cargo is being overhauled & repacked & arrangements for separation of parties completed, while some of men out on trail, endeavouring to cut way out down to Hunter's trail to the Parsnip. Trail men come back with a very discouraging report in the afternoon, swamp windfall &c.

July 16. A very wet night & morning. No one moving early about the camp. C, McL, & Major, with party left in boat about 11 a.m., the weather moderating. Took with them also a few additional men, all to go down to the place on the McLeod River where Hunter's trail starts in, to begin chopping out trail towards our camp. Went out with McConnell & party of

men to continue trail northward. Showers & overcast. Met Mr McCurdie in the afternoon & heard that "Donald" an Indian had cut his foot very badly while chopping. Horses sent for, trail opened through & the wounded Indian brought back to camp before dark. Got foot bound up & the man placed in H.B. fort. Arrange for him to stay there till well. Board to be paid as Mr Alexander may decide. Spent rest of evening in H.B. with Webster. G. unwell & unable to leave by the boat. To cross with us & meet C. on other side

July 17. Heavy rain in the night & morning. Got animals up however, & in lucid interval aparejos on & loads. Got away by 11 Am. Many little delays. Two mules have to be left, one sick, to return with H.B. train to Ft. St James. One which has staked itself, unable to ~~proceed~~ walk & must be left at Ft McLeod. Rained almost continuously till evening. Trail very bad, & poached up by the passage of so many animals. Constant missing & trouble. Finally struck Hunter's trail, & brought to a stand in an impassable swamp. Camped on quaking ground thoroughly water-soaked. Found a note from C. on the trail saying that if day wet would not attempt the ascent of the Parsnip till tomorrow. Day certainly wet. Hold a council of war & decide to go back a little way on trail & try to go round it on the higher ground

July 18. Off early & get round swamp without much trouble. Have a long piece of new trail to make, though fortunately through good country. Travel part of way through border of lake, following Hunter but water so high that forced to take to the woods again, & spend some time cutting out for the old trail. On finding it got easily eastward to the Parsnip, but had then over a mile with much chopping to go up along the bank to the point opposite the Misinchinca R. See nothing of C., & the boat, which was to be up to cross the stock. River high & current very strong probably difficulty in working way against it. No place to dump cargo on the bank where Hunter crossed, & in present state of river necessary to start the mules higher up when they

describe only.

Parsnip River where crossed 500' wide, with current of about 3½ m. an hour. A mighty navigable stream with brown muddy water. Its sources almost unknown though traversed by Mackenzie so long ago. Drainage area appears small, & must contain high snowy mountains to supply so much water. Very interesting to explore. The Misinchinca at mouth with current more rapid than the Parsnip. At present of a browner colour. Eastward a few peaks

are to swim over. Decide to camp on top of the bank about 1/3 mile down stream from Hunters Crossing. Packers find pass in swamp for the animals.

Veg. Devil's Club now quite abundant again. Abies lasiocarpa ~~[illegible]~~ very common, woods generally mossy. Birches numerous, lycopodiums all signs of much damper climate than W. of McLeod's Lake.

The country passed over between Tatia L. & Hunter & the Parsnip consists of benches, sandy or gravelly & not rich land for agricultural purposes. The surface falls in steps northward to low flats which may be of better quality. Southward it rises gradually to McLeod's L. Mountain of Selwyn. The benches passed over generally very flat at a level about 130' above the Parsnip, the height of land is near Tatia L. 250' according to Hunter. Surface of country near Tatia & McLeod R. densely timbered with A. Engelmanni, A. lasiocarpa, aspen, P. contorta & birch. Eastward similar timber in hollows & near Parsnip but much country lightly timbered with P. contorta of small growth. Bench comes out with full height on Parsnip about camp. Composed of quartzite gravel. Fine yellow sandy soil above, probably poor.

July 19, Up at 3 a.m. Breakfast. Send two Indians down river to meet C in the boat & help to pole it up against the rapid current. Go out with most of men looking for good place to get cargo down to river's edge & swim mules over. Find suitable place, with low bench about 15' above water half a mile above camp. Men had just finished cutting trail to it at 10 a.m., when a shot announced the approach of the boat. Got mules in, tents struck & all moved down to crossing. Stuff all ferried over in four trips, & mules safely crossed by 5 p.m. Messrs Cambie & McLeod, who came up in boat, & Mr Gordon who now joins them, getting a pot of tea made to save time drop down the river in the boat, shouting adieux. Camp on a swampy flat covered with burnt timber.

seen to carry a little snow, but for the most part rather rounded. Flats extend, rising gradually some miles eastward from the Parsnip. Then foot hills of the Rockies gradually increasing in elevation. Smoke haze in the air this morning prevents photograph of scene

Base measured on Parsnip left bank at crossing 175' in bearing N 99° E. Point on right bank from W. end bears N 21°5' E. From E end N 2° E.

July 20. Up at 5 a.m. Considerable difficulty in collecting the animals from the burnt timber & windfall surrounding camp, getting them driven up to apparejos & packed. First animals leave about 10 a.m. Cut way across to Hunter's Trail & follow it for about   miles, camping at 5.30 a short distance beyond his second camp from the Parsnip, on the bank of the Misinchinca. Stevens & Harvey the only two men who have been here before seem to have forgotten nearly everything about the country. Take a wrong trail today & follow it two miles southward before finding mistake, leading to considerable loss of time. Day fine, but for the most part clouded, & with smoke-haze. Find Hunter's trail a great assistance though still considerable cutting & brushing to do.
Country passed over for the most part perches less than 100 feet above the river. Sandy or gravelly, chiefly covered with P. contorta growing thin & small. Surface covered with small blue-berry bushes, white & grey mosses with great abundance of Houstonia (?). Soil scarcely to be considered favourable for agriculture though large extent of level or nearly level stretching southward along E. bank of Parsnip with width of several miles. River where seen rather sluggish & tortuous with low swampy flats covered with black spruce &c at convex bends. High banks of horizontally stratified gravel at concave. Mossy, damp, with timber of fair size on northward facing slopes.
July 21. Up at 4.20. First packs left camp at 8.30 First train arrived in camp 4.30 p.m. Day fine, but trail very bad. First part swampy on flats not far above river. On reaching Hunter's camp of Aug 23 decided to press on to his next camp if possible. The flat being very heavily timbered, much fallen, & swampy Hunter here turned up the mountain side & spent the whole day cutting his way up & down again. Decided that better to take his trail though a great round with very little advance than camp & cut our way across the flat. Had a very heavy afternoons work on a horrible piece of trail. Great logs, stones

rock & bog. almost impassable for last train. Succeeded however in making Hunter's Camp of Aug. 25, Camping on same spot. Last train nearly an hour behind first & hillside resounding with shouts, whinnying of mules & mingled profanity during this time. No serious accidents though many mules mired down.
Devil's club very abundant. Huckleberries already in some places turned blue. See Actaea berries coloured red.
Take a type photo. of P. Contorta groves on sandy bench at morning camp.
July 22. A hard day on men & animals. Up at usual time. All hands go out to brush & bridge swamps near Camp. First packs start at 8.30 a.m., & do not get into camp till 6 p.m. The last packs coming in about an hour after. Made only about 7 miles during day. Trail rough, much chopping of logs & many bad swamps & mud-holes. These, bad enough at first, before the passage of the last become impossible & necessitate in many cases cutting new trail round them. Reach Hunters crossing place of the Misinchka, where he rafted & continued trail on other side, hoping thereby to better himself.
Benches scarcely seen today, hills sloping irregularly to river-flat. Valley now only about a mile wide, the river flowing tortuously in the flat, bordered by willows & tall groves of black spruce. Vegetation in the abundance of Devils' club, ferns, moss, & lycopodiums evidences a humid climate
On reaching camp & unloading the animals at the edge of the bank, prepare for rafting the stuff over. Swim the animals across. The banks sandy & quite firm
July 23. Up at 4 a.m. All hands to work cutting out dry timber for a raft, which in due time constructed, rope stretched across & all ready. Party of men with Stevens then go out on trail while the rest cross the stuff & cut out camping ground on the opposite bank. These occupations employ rest of day. Get latitude observation at noon, & two photographs. Write up notes & attend to various matters. Try fishing though unsuccessfully. McC. in pm ascends Mt. behind Camp on left-bank 2300' high
sit up late to change plates in camera box

July 24

Camp up about 4 a.m. & first packs leave about 7.30. Travel easily for a few miles over trail made yesterday & then got into a series of bog-holes & difficulties which occupied the remainder of the day & prevented progress, the distance travelled being very short. First packs get to camp about 3.45. Our Camp Hunter's of July 30, we having made two of his marches as usual. Several mules hurt while coming over the very rough trail of today. Hurts chiefly cuts & scratches inflicted by the sharp slaty fragments. Caught two "arctic trout" this evening in the river. There are plenty of them, but slow to bite, & what with mosquitoes, midgets, & logs & sticks in the water & on the banks, fishing by no means a pleasant recreation. River still falling & water now nearly clear

The part of the valley traversed ~~perhaps~~ is narrower than that below, occupying probably a mile in width between the steep banks. River very tortuous going from side to side of valley. Much of low land subject to occasional flood. Some large trees of black spruce & cottonwood, one or two of latter 5' through. Undergrowth of Devil's Club, Veratrum, ferns, Lonicera involucrata, alder, elder Gooseberries & Currants &c. Where woods open on flats very difficult to walk through. Side hills rough & rocky with no observed traces of benches or drift

July 25 Trail being known to be very bad ahead, men go out in morning to work on it. Stevens returned about 1 P.m. with news that work still unfinished & likely to occupy most of day. Decide not to attempt to move camp. Send lunch out to men on trail & get all other available hands. Go out myself in P.m. to see how work progressing. Try fishing with little success, the fish rising freely but not taking fly or bait readily. A fine & warm day

July 26 Camp up before 4 a.m. & some rivalry between the various trains as to which will get off first. Travel easily over the trail which has been repaired, & soon afterwards begin to take to bars & bed of river, travelling along the banks or crossing from island to island. Work for several horsemen

in advance selecting trail & endeavouring by faint traces to recognise & utilize the little chopping made by Hunter where necessary, to leave the river. At the mouth of Atunachi Creek, up which we must go, Stephen reports the water much higher than when he was here before, & dangerous for the animals. Camp accordingly at 2 P.m. & after lunch a number of men go out to make trail past the portion of the creek up the bed of which Hunter travelled. Took Photo. on arriving at Camp, & in P.m. tried fishing, getting one good sized "arctic trout." The river full of them but they are too well fed. A fine & warm day.

The valley about the mouth of Atunachi Creek, & for some distance below it wide & flat, with heavy, spruce & cottonwood timber in places. Other bars & islands covered with willows. The river spreads out into numerous sloughs which are however hard-bottomed. Many of the flats near the river subject to overflow. No ground at any height above river in valley. Patches of snow have for some days been visible on shady sides of higher mountains, on the bare summits which now appear to block the valley, larger patches. These the highest mountains we have yet seen in this region.

July 27. Up early as usual, but heavy showers coming on prevented very early start. Got away at last, however, day clearing & becoming very fine in the afternoon. Travelled for some distance ~~xx~~ on our new trail up the left bank of the Atunachi, which is a stream ~~xx~~ about 20' wide by 8" deep & rapid. Hunter travelled for the lower part of its course in the bed of the creek. On reaching Hunter's trail progressed more easily, passed his camp near the lower end of the lake, & camped about 4 P.m. where the trail first reaches a tributary of Pine River. Got three photos. looking up the pass from lower end of lake, & after arriving at Camp a fourth, looking southward, from the slope of the hill behind the Camp. Climbed afterwards about 500' up the mountain side looking for fossils in the limestone of which it is composed, but with little success. Evg. Changed photo. plates after dark, & stayed up till 1 a.m. getting series of observations to fix the latitude. A brilliant starlight night with heavy

Read over.

dew falling & now & then a meteor shooting silently across the blue. Traces of Indian Camps about the lake, but not recent & little appearance that the natives frequent the place much.

The East side of the valley of the pass, (containing the Alimnacki) is formed by a very regular wall-like range of limestone mountains, with rounded peaks at intervals, rising somewhat above the average level & probably reaching 3000' above the lake. The beds can be clearly seen dipping at high angles (perhaps averaging 50°) toward the valley, in the bare summits, & the valley evidently follows the strike, marking the junction of the limestones with the schistose rocks before described, which, however, pretty evidently belong to the same series. Some snow still lies in sheltered gullies & valleys where the drift has been great. On the opposite side the mountains are much more rounded in form, & are covered from ~~##~~ base to summit, in most instances by dense woods. The valley bottom is wide & flat as far as Camp, with the exception of about half a mile near the mouth of the Alimnacki, where it becomes somewhat contracted, with steeply sloping side-hills. Nothing however to make railway work difficult. The lake is shallow, over a mile long & probably nearly 3/4 m. wide in places. Bordered at S.E. end by low grassy flat, holds one or two little wooded islands. At north end, extending to the bend made by the source of Pine R. where it enters the valley, is a series of sloughs & pools. which appear to be on the level of the lake. Camp therefore, 15' above "Pine R" at level may therefore counts as as nearly as may be that of the summit of the pass, which according to my readings is higher than Hunter made it. The greater part of the valley thickly wooded, but the N.E. slopes, with irregular small "fans" of debris projected from bases of mountains show some fine meadows with good feed for animals. Many mountain plants on shady parts of Mt. behind Camp.

July 28. All hands turn out after breakfast to make a passable road down the "Precipice" which is about a mile from Camp. Occupied this most of morning. Write up my notes & for collecting fossils. Packs leave Camp about 11.30. Go on in advance with mule with Camera, & get a good view looking down the Pine River Pass westward. Mules experience some difficulty in passing down the Precipice

Rise from Camp at mouth of Atemachti to Summit 400' by
barometer observations several hours apart.
altitude of Summit by approx. mean of barometers 2768'

& march afterwards delayed by mud-holes & of the usual character, with the addition of the fall of one animal into the river, resulting in the wetting of rigging & cargo. Camp at 5.45 in a dense wood. Near us signs of an old Indian winter camp, but generally very little traces of former visitors.

From Morning Camp to the Precipice — about a mile, the trail follows the east side of the valley, passing over some broken surface composed of wash from the hills etc & densely wooded. It gradually ascends till just above the precipice reaches a summit — 65' above the Camp. The brook meanwhile passes on the west side of the valley & is not seen. There are probably no continuous flats on this part of the brook, but the slopes are gentle on both sides as far as seen. Hunter describes brook as descending the actual precipice through a little Canon. The Precipice is the edge of an outcrop of limestone & is in many places nearly a sheer cliff, though never from base to summit in one step. Densely overgrown with trees, moss & bushes, with piles of fallen rock here & there. The abrupt portion, which may be called a Cliff has a height above the flat bottom of the valley below it of 130'. The fall from the top of the summit before mentioned to the same bottom being 223 feet. The fall of the stream from Morning Camp to the base of the Cliff is therefore about 158'. This occurs in 1.25 m. about. From the summit of the Cliff a good view obtained down the valley. Limestone mountain rises to height of 3000' above it on the right, on the left hills much lower & densely wooded to summits. The slopes on both sides, however, gentle toward bottom of valley & not much broken by transverse gullies. No rocks project. Probably quite easy to gain grade to ascend the precipice. This would probably be on the W. side, where the brook cuts through & it is probably lowest. The bottom of the reach of valley seen from the cliff is narrow, but on travelling down it find always either flats or very gentle slopes near the river, & valley straight. Evg Camp according to Bar. is 207' lower than Morning Camp, giving approx. fall of river.

Vegetation. Whole country densely wooded with little feed. Occasional pine sticks. Devil's Club abundant in some places. Hellebore also very common. The beautiful blue Monkshood now also very abundant & in full flower.

gold -

July 29. Up at usual time. Sent packs off at 7 a.m. Camped at 3.45 having travelled by account 7.25 m. Camp on broad open shingly flat. Travel a great part of the time this Rm. on bars in the river, fording & refording. Two mules of Stephens' train go in over their depth, wetting kitchen boxes & some cargo. One of McLeans mules goes over in slough, wetting a pack of beans. Some bad swamps & mud holes. After camping get men out to make bridge over slough ahead. Take photo. Get colours of gold from gravel on prospecting it.

Valley for todays march wide, probably averaging over half a mile, with the river following a serpentinous course. Current uniformly swift but no falls or heavy rapids. Valley flat-bottomed, most of the flats being elevated only a few feet above the stream. Slopes bounding valley generally light, though occasionally steep, no rocky cliffs on the right bank. River increases rapidly in size being now too deep to ford comfortably in some places. Water pale bluish colour, bed clean, shingly, bluish micaceous & mica schist in round flat pieces. Some fine black spruce trunks, but quite scattered. Tracks of moose very common. Bear tracks also seen.

July 30. Travelling as usual nearly all day, camping after four, after having made by my reckoning 8.1 m. Trail only in short lengths across points or along banks when river too deep to ford. Travel road by way on gravel bars or in the river, crossing & recrossing. Wet feet but no wet cargoes today. Much pioneering required in advance of trains & frequent delays at best. Find some fossils & spend time in collecting. Devonian or Carboniferous. A stream about half the size of the original joins from the left during todays march, bringing down ~~gravel~~ coarse quartzite & limestone wash which at once swamps the light silvery schists of the stream we have been following. Find a canoe cached in the bushes at evening camp, indicating that at least at high water this part of the river & below is navigable. Signs of moose, beaver, & geese abundant along the rivers but the animals religiously seclude themselves.

Valley continues to present same characters as yesterday. Wide flat bottom with winding river. High mountains at the sides, often rising steeply. Railway would probably follow on the flat, but occasional crossings of the river would be necessary. The flats generally less than 20' above the river, often under 10'. The "Isolated Mt" of survey a remarkable peak partly bare rock toward summit. But higher than many neighbouring mountains but conspicuous from its position. On right bank at Camp of evening a remarkable rampart like mass of mountains rising to 3000' above the river, & with much bare limestone? rock near the top.

July 31. Rain last night & this morning, delaying start. Camped about 5 P.M., having made a short day. Travelling chiefly on bars & in the river. Find some geese moulting & unable to fly, & all hands getting after them kill 5 - two by the rifle & the rest with stones & hunting them in the water with horses. Some of the fords today very deep & strong, the water coming half up the side of my mule. Fair during day & a fine clearing evening.

Valley from about a mile above last night's camp to a mile below the same place rather more than usually contracted, the stream flowing occasionally up against the rocky side hill, in its bends. It might be necessary to bridge in a few places with a railway, to avoid rocky points. Generally benches now appear occasionally 40 or 50 feet above the river level. Flood water appears seldom ever to reach a level over 5 feet above the present. The valley now becomes wide again, & we are camped at the N.W. base of a remarkable high pointed mountain, for the most part bare, & reaching a probable alt of 3500' above the stream. The climate becoming dryer, with marks of extensive forest fires. Old Indian camps.

Vegetation raspberries found fully ripe on one of flats today.

Aug. 1. Fine morning & a good early start, first packs getting off at 7 a.m. Camp on a pretty, partly open sandy flat near the river level at 3 P.m. Many fords today deep & considerable lengths of trail upon the river flats. After camping take two photographs looking up the river valley. Also observations on the sun for time to apply to observation of Polaris for which sat up till midnight last night. A fine day with strong westerly wind & cumulous clouds. Made nearly 7 miles today by my reckoning, but portion of morning camp still in sight.
Valley of same character as yesterday, averages half a mile wide. Pass over one fine grassy flat nearly two miles long, the scene reported to by Hunter as the first of the fertile country. Raspberries abundant & ripe. Viburnum berries begining to turn red. The flat has been burnt over & might probably look not unlike others we have crossed if the timber had not thus been removed. The occurrence of extensive fires in itself however betokens a dryer country. All the hills about here have been burnt over, & generally covered by young growth ~~&~~ windfall, though showing also much bare rock, & displaying the convolutions of the sandstones. No appearance of drift deposits. The hills bounding the valley are state from 1000 to 1500 & probably in some cases 2000' above it. Many bear tracks on the flats today. Try fishing but without success.

Aug 2. Off early & drove till 4 P.m. Camping on the edge of a pretty bench about 20' above the river. Met with some difficulty in fords & sloughs during day, but on the whole got on well, making over 7 miles. Hunter's trail for considerable distances over partly open shrubby burnt ground & hard to trace, but the Indians ahead recognise it with wonderful facility. A fine clear & warm day, with unclouded sunrise & sunset & strong westerly wind
This camp may be said to be on the eastern edge of the foot-hills of the Rocky mountains, the river further down appearing to be bordered by a

nearly level plateau. The undulation & folding of the rocks at the same time ceases, the beds becoming flat. The valley now over a mile in average width. River pursuing a very serpentine course with width at present of about 175 feet. Evidence of considerable floods, rising perhaps 8' above present level. Many of flats burnt over & partly overgrown with small willow alder cranberry & bushes. Remarkably fine feed & much of area of valley bottom cultivable. No soil on the hills.
Took photo. looking down valley after getting into camp. Travelling improving. Find on a sandy flat today the head & shoulders, with one paw attached of a beaver, not long killed. This had been buried up by some animal, the soil being scraped together to form a little heap in the same way that a dog frequently conceals food not required at the time.
Aug 3. Start early & camp at 6.20 P.m. after having been nearly 12 hours in the saddle. Unable to find water for noon camp in proper time, the river being on the opposite side of the valley, & consequently obliged to go on till late. See numerous traces of Indian camps in the valley, which Stevens says were not here when Hunter passed through. Day fine & warm. A light frost last night but the grass not whitened. Do not ford the river at all today, but travel for the most part along the northern slopes of the valley. Some picturesque views as the pack mules seen ahead strung along the trail on the steep grassy slopes like so many beads.
The valley wider today, averaging fully a mile between the slopes. The plateau must be nearly or quite 1000' above the bottom level, of which a large proportion forbite & cleared by fire. The edges of the plateau above generally present serried ranks of dry whitened timber, through which fire has passed. Benches begin to be important about morning camp, of gravel & fine sand or silt. For 1 or 2 miles below morning camp railway work might here be a little heavier than usual. The river makes several bends the convex sides of which occupied by more or less degraded

benches with irregular slopes. Would probably involve crossing the river two or three times to avoid too great curvature. Otherwise the valley wont favorable. It has now quite changed for the better in appearance. Sunny slopes covered with grass & sometimes bunch grass — *Artemisia frigida*, Service berry (now ripe) Choke-cherry in small bushes. See also *Eleagnus argentea* & the common wild red cherry for the first time. Soil appears everywhere very rich & grass & pea-vine affording splendid feed. An important tributary enters from the South on this day's course. It must drain the country between the upper part of the main stream of Pine River & the South Fork. It has projected a very large "fan" into the valley forcing the river over to the north bank. Smaller fans formed of entering streams are common.

Aug 4. Packs off at about 7.30 & travel on till 3 P.M. Camping at the bend of the river where it turns toward the upper Forks. Travel good during day, & chiefly along sunny northern slopes. Some patches of bad wind fall.

Valley continues with same appearance as yesterday but must now be 2 miles wide in places. Toward evening camp the plateau hills bounding it are becoming lower & more rounded. During day frequent crops & low bluffs of sandstone horizontal or nearly along the banks. Fine prairie land in the valley bottom with some meadows of considerable size with pea-vine & grass as high as a horses back.

Heavy thunder-storm with some hail this P.M. after camping. Brought to a stand rather early by a heavy windfall, combined with a swamp just where the trail turns southward toward the upper Forks. Set men out to do some cutting on trail after supper. A full-grown bear & two or three cubs seen today. A sharp frost — forming skim of ice on standing water, last night. Caused by intensely blue & clear sky after strong westerly wind blowing all day.

valley about Forks.

(& probably about average height of the broken plateau of this region)

Aug. 5. Intended making a half-day today, driving only to the upper Forks of Pine River. Hoped to get lat. at noon, examine rocks &c & let men get washing & other necessary operations completed. Intentions frustrated by a heavy windfall which barred our progress, we left Hunters trail in the bottom of the valley, taking to the top of a bench, but found ourselves little bettered, with the additional trouble of numerous deep gullies to cross. Train got into Camp about 2.30. With McC, after taking a couple of photographs looking up S. Pine R, climbed the N.E. angle of the plateau at the Forks & obtained a magnificent view. The height of this part of the plateau 1020' above river at Forks by barometer. The main valley which Pine R. follows to Camp of this morning continues on as a broad trough-like depression to the N. Eward (true) becoming wider & the hills, or plateau-edges at the sides reduced in height. It seems eventually to turn more to the northward, & its floor is formed by a bench or benches from 100 to 200 feet above the level of the river. A small tortuous stream, which probably does not rise many miles off flows from this great valley into the river. It is probable that part of its drainage goes in the opposite direction. Width averages probably 2 m. This valley not seen from the view point above referred to owing to higher intervening ridges. At morning Camp, or rather near it, the main river makes an abrupt bend, flowing southward through a valley still wide, but not so much so as that ~~of~~ above described. It probably averages ~~1½ miles~~ about 1 m. to bases of steep slopes. Its bottom chiefly composed of silty terraces 100 to 200 feet above the river, & broken by deep gullies leading to the stream. Through this valley, the river passes for some miles, to the S. Fork. The valley of the S. Fork again a very important one, quite equal in size to that of the main stream above the southward reach, & generally resembling it. Tortuous river, wide flats or gently sloping flats, probably fertile land. Occasional bare slopes, but generally covered with young aspen or birch which has grown up after fire. Valley open for at least 10 miles. Average width over 1 m., giving probably little less than 10 square miles of fertile land, with extensive grazing privileges

on the hills, capable of further improvement by burning off from time to time. A few patches of snow visible on some mountains 20 m. or more off up S. Fork, but no rugged or bare peaks. In front a flat of perhaps 1000 acres at the forks of the rivers, for the most part open & covered with luxuriant herbage with a couple of swampy sloughs — old river courses — winding through it. Sky spotted with little cumulous fair weather clouds sailing before a gentle westerly wind, & scene altogether one never to be forgotten.. The plateau in this place partly open partly covered with young growth of P. contorta & aspen coming up after fire. Surface generally covered with good soil, & fair grass growing even on very exposed points. The general character of this part of the country is that of a high broken plateau, trenched by wide, generally trough-like valleys, & rising to a hilly or mountainous region again toward the main range. The wide valleys generally good farming land. Doubtful whether this part of the plateau will be cultivated, but with slopes of valleys forms splendid summer stock ranges.

For Railway, from morning camp to the Forks, the valley a little rough, owing to the steep slopes of terraces coming down to the river, & the devious course of the latter. Two or three crossings of the stream, which is here about 150' wide, might be necessary.

Aug. 6. Took obsn. for lat. this evg.
Camped before 3 P.m. at the upper end of the "Canon" of Pine R. Day very fine & exceedingly warm. After bath & dinner or supper as may choose to call it, took photo of entrance of Canon, & then examined rocks, finding only a few poorly preserved plants. McC having lost gun today on the trail, went back late looking for it, but unsuccessfully.

Most of the northern slope of the valley today bare of trees & with small aspens & bushes scattered on it. Grass, gay with Solidagoes & Erigeron glabellum. An occasional thicket of Elaeagnus, of large growth & looking like frosted silver. Benches extend several hundred feet up the sides of the valley, but are difficult to identify because of the irregular

alternate of the beds which give a singular terraced appearance. Extensive land-slides have occurred formerly in some places, forming hog-backed ridges along sides of valley. Valley itself with rather more dense wood & cut up more with swampy sloughs, than that of the main river above yesterday's morning Camp. Still however a great proportion of fertile land. The steep edge of the terrace comes out to the river bank in a few places but not enough to make very heavy work for the railway. The river might have to be crossed once or twice to get good line. No bare "active" slides.
Many little birches mixed with aspens in groves today.
See a large bear on the mountain slope at some distance this morning.

Aug. 7. Up at 3 a.m. & make an early start. On leaving our snug camp on the flat at the upper end of the Cañon, ascend by a long "hog-back" ridge to the plateau, or surface of the high bench which here borders the river & extends widely. About half way to the Forks descend to the lower benches & flats near the river. Reach the Forks near noon, & while Stephens & McLean looking for fords, take observation for lat. The West Branch easily forded, & a ford found also on the East, by going about half a mile up. The latter however wide & stony, & near the right bank so deep that several of mules nearly carried away. Water washed almost over Charlotte's back as I crossed. Much pleased however, to find that the delay & trouble of rafting may be avoided. Camp on the left side opposite the point at the Forks. Find no news from McLeod or Cambie, nor sign of the Forks having been visited, & consequently decide to push on towards Dunvegan in the morning. Day extremely warm & oppressive. After ~~dark~~ sunset ragged cirro-cumulus clouds begin piling up from the south, & become ~~gold~~ white canary yellow, contrasted with bold darker grey shades form a fine pageant, followed after dark by thunder storms with vivid lightning, & gusts of cool wind, though no rain fell here. Up till late changing photo. plates. McC who went back for gun today with two of the Indians returned successful. Examined Hunter's blazed & inscribed tree & added a note of our passage. Wrote memo. on empty box & launched into river on chance that some one might

find it below. At sunset fired several rifle shots for the purpose of attracting the notice of any Indians who may be near. Prepared inscription to leave in warning at camp on empty tin, as follows. (G.M. Dawson & C.P.R.S. Pack Trains Aug 7. 1879. Finding no news or any sign of the "Forks" having been visited leave for Dunvegan, following in first instance Hunter's trail. All well)
The portion of the river which may be called a Canon, is about 3 miles long. For this distance the sandstones & shales form steep slopes & cliffs along the waters edge in most places, rising in some cases about 100 feet above the water. The heavy drift deposits above these form slopes, for several hundred feet higher, or to the plateau level. These slopes are also steep but owing to soft character of material not so much so as lower, & generally grassed. Not regular but broken by ravines & gullies. Several crossings of the river might be necessary in the Canon, & it forms the worst piece of work we have so far seen on the route. Below Canon river opens again & bordered by good level benches at several heights. The East Branch appears to carry about half as much again water than the West, & is in fact the main stream. Probably 250' to 300' wide, but shallow & gravelly. Rivers would probably be crossed by Ry below the Fork, where approaches on low level moderately good on both sides. The valley, soon below the Canon is now nowhere so wide as that of either the S. or W. branches above the upper Forks. The high plateau runs no longer exists, but the river is bordered by benches spreading very widely at a level of about 500' above it, composed of heavy drift deposits, gravelly or silty & forming a magnificent soil in most places. To the northward the horizon sea-like & unlimited, Southward & Westward the broken hilly plateau before described begins to rise gradually. Edges of the bench overlooking the Canon curiously crooked, being hog-backs & pot holes at first suggesting moraines, but evidently, on second consideration by drainage toward valley.
The lower terraces below Canon wonderfully fertile & covered with tangled pea-vine & grass. Much of the plateau above also open, & covered with scattered groves of young aspen. It has nearly all been wooded with pretty large timber, but in comparatively late years has been burnt over, & then thinned by successive fires, spreading so

The typical quartzite drift, which has now been certainly traced to the axial mountains of the Rockies is abundantly strewn over all this region, but mixed with a preponderance of local fragments. The limestone & shaly rocks do not travel far from the mountains in force, as found before near the 49th parallel. They are evidently worn & dissolved away, while the everlasting quartzite, in the form of boulders & pebbles, round, lenticular, or flat, polished like glass outlasts all & evidences direction of transport. Limestone, however, still moderately abundant in some places, especially the hard cherty pieces. The facts however would seem to show that the material travelling Eastward has suffered much wear & not been merely carried out in masses by glaciers. It has worked its passage.

doubt in the dry grass & vegetation. These have burnt up most of fallen logs & stumps & have produced & maintain the present beautiful prairie character. Both valley & plateau here appear susceptible of cultivation. Prairie flowers appearing. Monarda fistulosa, Campanula rotundifolia, & Anemone patens among others.

Aug. 8. Make a good start & travel till 4 P.M. Follow Hunter's return route, up the bank of the E. Branch for some miles, then take to the bed of Coal Creek & follow it up travelling on banks or bars & making according to traverse 14.4 miles in all. Stream very tortuous & much more than this actually travelled. Stay behind to examine rocks & collect fossils & catch up to the train again only a few miles before Camp. Camp on a sandy bar far up on the brook, now a small stream, with low banks. Very difficult to keep good track survey owing to crooked character of stream & & limited outlook.

For 5 or 5½ miles the valley of the stream is narrow & gorge-like, tortuous, with banks of sliding Cretaceous sandstones & shales, overlain by drift clays & gravels 200 to 300 feet high at the ~~concave~~ convex sides of bends. Stream rapid, but current pretty uniform. Indicated rise by Bar. from morning's camp to this evening's about 400 feet. This part of valley would be very rough for Ry. line, owing to crooked character, slides, & frequent bridging of stream probably necessary. Stream in flood evidently a formidable one. Above the point indicated valley widens to about 1/4 mile, with flats alternating but steep slide-slopes still common. The valley generally pretty thickly wooded, with Cottonwood, aspen, spruce & birch, generally of rather small growth.

Aug 9 Made about 13.6 miles, Camping near the summit between Coal & Buffalo Creeks. Travelled in the first instance up the bed of Coal Creek as yesterday, the banks becoming lower, & showing bouldery & gravelly drift deposits, with occasionally a few feet of the underlying Cretaceous shales. Pass Hunter's Camp of Sept. 1. 1877, where he struck Coal Creek on coming up from the bend of the East Branch of Pine R. Struck into his trail a short distance above the Camp

& followed it to present Camp, passing over a rather hilly country more or less densely wooded with black spruce, black pine, birch, aspen, cottonwood & alder. Camp at 5 Pm in a dense grove of spruce & pine tall thin trees, & abundant dry windfall. A dark & desolate looking region with little or no feed for the animals. Where fires have occurred aspen or to great extent replaces the Conifers & grass & peavine begin to grow luxuriantly in openings. Soil of the whole region good, based on a white silt deposit, & if cleared by fire would probably be arable, or at least excellent pasture land. See numerous specimens of Devil's Club again, with other evidence of a damper climate than we have had on the part of Pine River valley lately traversed. Day an uninteresting one geologically & topographically & a day of hard chopping for the men ahead.

In some of the dense groves of tall lichen-hung conifers, with carpet of the greenest moss muffling the footsteps, it seems almost sacrilege to break the summer silence by the jangling mule bells.

Aug 10. Off in good time & travelled till 4 Pm. For some miles travelled through heavily timbered country, spruce & pine like that described yesterday, then coming down to the sources of Buffalo Creek of Hunter got into more open region, with considerable areas of scattered aspen groves & grassy flats. Continued improving as we descended the valley, with fine grassy hillsides & extensive flats, grassed or covered with small bushes & young aspens, often killed by fire. Camp miles further down the stream than Hunters point where he turned off for the East. See fresh horse tracks & signs that the valley has been visited by Indians within the last few weeks. Send one of our Indians out to examine their trail & he reports that they have crossed the valley from the E. going westward. Examine & consider maps with view of making up mind as to course to be pursued tomorrow.

The valley of Buffalo Creek where first struck small, with gently sloping sides, continues widening till at lower camp about 1 m. wide. The plateau at the sides at the same time lowering, & the low hills which rose above the level of the upper terrace or plateau on both sides near the sources of the stream have now disappeared. Soil everywhere very fertile & susceptible of cultivation. Earthy clays & loam 20' or 30' thick exposed in banks on lower part of stream. Stream follows a very tortuous ditch-like course in the valley bottom, water brown & very little of it, the stream in fact, though in such a large valley a mere rivulet. Notice Betula glandulosa in abundance growing with willows in swampy spots.

Aug 11. Travelled about ten miles North Eastward from camp on Buffalo Creek, camping at 6 P.M. at some little swamp holes with water, after a long search for that necessary. Striking out now on a compass course for Dunvegan, followed a dim Indian trail for a mile or so today, but most of time forcing passage as best can. Have good luck on the whole today, finding an excellent crossing of Hunter's Mud R, & with some exceptions avoiding very heavy windfall.

About 2 m. from morning camp cross Mud R, a stream averaging about 120' wide, with current generally slow, muddy banks. Depressed 50' below the level of the valley-bottom which wide. On course followed no high divide between this & Buffalo Creek, low ridges & swamps. The two valleys here in fact inosculate. Further South a low tongue of plateau divides the valleys. Looking N. Eward from valley of Mud R, the plateau level, or gradually falling to the Northward, while South of course the hills marked on Hunter's sketch are seen. Plateau where ascended & passed over by our trail, probably about average level, & as low as a line passing eastward without following possible valleys to the north, could get. It is about 300 above the water of Mud R. The Northern line of the hills to the S. at least 300' state higher. Surface generally level or gently undulating. Valley of Mud R wide. Slopes gentle. Good land, &

much nearly bare, having been thoroughly burnt over. Land between Buffalo & Mud R. generally good, several swampy spots. Surface of plateau has originally been more or less heavily timbered everywhere with black spruce, pine, cottonwood, aspen &c. These sometimes of fine growth. Black pines & aspens 2' through. Most of area passed over today now however generally either covered with young second-growth aspen, or windfall or both. Soil generally appears good, though sometimes a silty material with gravel like that called boulder clay in B.C.

Aug. 12. Start cutting our way out of heavy windfall, with much labour. McC, climbing a tree gave us direction to some standing timber, on reaching which found good going. Continued on eastward rapidly, getting out eventually on the south side of a large valley with pretty open prairie patches alternating with poplar & willow. New opening in that direction, turned northward & found ourselves in a valley with gently sloping sides one to two miles wide, chiefly prairie, with patches of willow & alder. Splendid grass from knee deep to the height of a horses belly. Hillsides carpeted with flowers Castilleja, asters, Solidagos, oxytropis &c. Grass already ripe & turning brown, crickets singing & a warm summer sun beating down. As we continue on our course over mile after mile of similar country, ~~with~~ which also stretches for miles in wider expanses to the view in wonderful natural beauty. Feel at first almost strange & awkward in getting out into the open with space all round. See a couple of Indians who apparently much afraid, & plunge into the bush, reappearing in a few minutes on the run on the top of a hill. Our appearance it must be admitted enough to frighten an untutored Beaver Indian, nearly 100 animals, chiefly mules which they have probably not before seen, 18 men, & strange rigging & outfit imported from the other slope of the continent when other

customs prevail. Find a small river in a large valley about 300' deep in the bottom of the much wider valley, barring our course. Camp before 4 P.M. McLean & Harvey follow the frightened Indians to their camp, which not far off, & soon after camping quite a little crowd of Indians appeared & manifested usual interest in all going on. They bring a letter for me from McLeod, advising of his movements & asking me to leave McLean at the Forks of Pine R. The Indian supposed to carry the letter to meet us at the Forks, which he has failed to do. Decide on consultation to leave McLean cargo & men in the wide valley in which we just emerged to wait for McLeod, & scour the country for him if necessary. These Beaver Indians can make themselves intelligible, though with difficulty to Louis & Jasen(?), the former from Stuart L., the latter from the Watsonkwa. See different types of features exemplified. Jasen(?) squat-stout, broad faced, cheek bones prominent, mouth very large & lips thick, nose with the nostrils open in front. Louis with all these traits less marked. The Beavers slight in build, much less broad faced & coarse featured, with pleasant expressions, evidently lithe & active but comparatively weak.

The valleys here are not troughs cut out in the plateau, but wide depressions with gentle slopes, with, at times, a trough like course in the bottom. The plateau itself being a broad terrace level. The soil in the valleys a very deep rich loam like that of the Red R. country. On the plateau sometimes similar but not so deep, resting on a silty deposit which often comes to the surface making a pale soil, perhaps in some places inclined to clayey but always rich. Service berries abundant, nearly over in sunny spots. Choke cherries begin to be ripe. Common small red cherries ripe.

Aug. 13. McLean starts to return southward, while Sabilto's(?) & my train get off again toward Dunvegan. Some showers in the morning but fine &

13. δ Aquilae $65^\circ 58' 40''$

warm in the afternoon. Steer northward to strike the trail to Dunvegan, find it, cross the nameless river, & continue eastward following the trail. Some swampy spots but none bad, very little chopping though trail evidently not much used. Eventually loose the trail in an extensive burnt patch, & after some search find a trail which follow for some distance & again loose. Push on through poplars & willow thickets looking for water to camp, which pretend thought to strike soon. Camp after 5 P.m. at a little sluggish stream with brown water, & wide grassy flats. About dark two Indians appear. Endeavour by signs questioning them through Lorin to ascertain position of trail to Dunvegan &c.
Travel over bench & plateau nearly all day today. Level or nearly level Elevation ' by barometer. Open prairies, ~~&&~~ aspen groves & thickets, copses of willows & little well grown woods of aspen & spruce alternate. Occasional swampy spots. Much of country has been burnt over & windfalls occur. Nearly all capable of being cultivated & settled if alt. not too great, found no sign. The richest soil, however, doubtless in the wide valleys.
We begin to feel we are in an inhabited world again, having seen Indians two days in succession. Those seen yesterday the first human beings outside our own party we have come across since leaving the Parsnip on July 19th.
Aug 14. Travelled as usual all day, camping at 5 P.m. beside a small stream with brown water, in the midst of forest, but with good grass on the slopes for the animals. Have the advantage today of one of our visitors of last night as a guide. He proves of great service, as there are many & confusing trails in the country passed over. Day very warm & beautifully fine.
The country passed over chiefly plateau or high bench at an elevation of over 2000' above sea. Flat, or very gently rolling. No rock exposures. Surface

Night frosts, clear nights
without frost.

wooded where not burnt over, with well grown trees, generally growing thickly. Chiefly aspen & P. contorta where dry. Black spruce where damp. Being so flat, much of surface rather damp even at this season, but if cleared would be dry enough. Besides the narrow grassy swamps, but of inconsiderable area. Of the country 1/2 to 3/4 well suited for cultivation with good soil. In swamps rather cold & clayey, probably even if drained. Where woods burnt luxuriant grass & pea-vine. On sunny slopes of all valleys fine grass & belts of open grassy poplar woods.

Aug 15. Travelled till about 1 P.m., when unexpectedly meeting McLeod, we camped to discuss matters & make arrangements. McC. had fitted out at Dunvegan with a few H.B. horses with pack-saddles & pads & now examining country westward to Forks of Pine R. Compare notes & arrange plans of movement with tryst at Dunvegan about the end of August, by which time Cambie will have returned from Slave L. Country passed over gently & flat, with occasional small swamps but all densely wooded with poplar, black pine & spruce. Chiefly poplar. Fire has not passed. Grassy slopes & prairies of limited extent along sunny sides of river valleys.

Aug 16. Saying adieu to McCloud continue on toward Dunvegan, arriving opposite that place at about 4.45 P.m. & camping on the river bank. Distance about 21 1/2 miles. Road good & sky generally clouded. Find Mr Gordon still here. Cross the river in the evening & take a look at the H.B. garden, & question Mr Kennedy, who in absence of Mr McDougal in charge of post, as to trails Indians &c.

Passed through open poplar woods, which merge eventually by degrees into a rolling prairie, with copses of small poplars & willows in the hollows. Little slow streams meandering in wide grassy valleys with indeterminate courses. Grass

Dawgar

platinum.

luxuriant pea-vine, & gay with asters, Erigeron, & solidago. Grass still green from a growing owing to a wet early summer. From small hillocks an extensive view of similar prairie country to the S Eward, while to the Southward it is bounded by a low ridge or edge of plateau at a distance of 12 miles or so. No mountains of high hills in view on any bearing. At about 10 miles from the edge of the river enter a belt of poplar woodland with small open patches. Woods grow more dense as we approach the river, probably protected from fire by the numerous & deep valleys with which the country is here dissected. Emerging at last on a beautiful rounded grassy promontory, pitted with the old-time "wallows" of the buffalo, the valley of the great Unjiga or Peace River bursts upon the view. The valley less than 3/4 m. wide in the bottom, with steep grassy slopes, broken by wooded ravines & runnells, with occasional bare slopes & crags of Cretaceous rocks.

At the Fort a fine garden with magnificent wheat & barley nearly ripe & turning yellow. Potatoes with balls beginning to form & tubers ripe & good. Fine Cabbages & Cauliflowers, & beets, carrots, onions, lettuce, turnips, onions &c. Also low beans, cucumbers, & squashes in the open air No fruit of any size yet however formed on the two latter. A stock or two of Indian Corn with ears formed though growing low. The same patch has been cultivated for many years with little attention or manure but still yields splendid crops though the soil not nearly so rich looking as much on the plateau. It is a fine grey silt. The vegetation is said to be a week or two weeks behind on the plateau as compared with the valley, the snow lying longer in the woods, but going much about the same time on the prairie. The valley probably ~~a week or two weeks in advance~~ on the whole in advance of the Ottawa valley, taking average of seasons. Snow disappears about the middle of April, westerly winds sweeping it away fast. The river breaks up about ~~the~~ same time. Cultivation begins about end of April or first of May. Horses winter out well almost invariably. Snow averaging 2' & remaining dry. Stock need be fed at outside

for perfect safety 3 or 4 months. Some winters only a few weeks. River begins to freeze in November generally.

Aug. 17. Sunday. At Dunvegan, busy nearly all day making preparation for departure on exploring trip tomorrow. Mr Gordon holds service at the fort in the morning. Take latitude of Fort at noon. Take two photos. in P.m. Had a visit from the priest in charge of the mission in the Evening. He stayed with us for supper. A fine day but very warm.

Aug 18. Up early completing preparations for expedition. Viz. Self, with Stephens, Sellout Johnny, Je-sen, Louis, & Louis Campbell as guide, riding horses, & three packs to go Southward to Grande Prairie, Elk R, & Smoky R. McConnell, with Shumway, our former Beaver guide Wo-hás-e, & Thomas — a half-breed from the Fort, accompanied by Mr Gordon, & also with riding animals & 3 packs to the northern region Battle R. &c. Thomas goes as interpreter to the guide, who cannot speak English, French or Chinook. Wrote note to Cambie detailing plans.
Get away at 8 a.m. & travel over 22 m. camping at a small beaver pond on the S. slope of the ridge beyond Riviere Brulé or Burnt R. Other party probably got off a little later, having to swim animals over the river in tow of a canoe, & cross cargo. Travel to La Fourche, over same trail as before. A short distance beyond get into prairie country with coppice of aspen & willow. Rolling, with small valleys, like that described on Aug. 16 th. Cross Stert or Dead River, & R. Brule or Burnt R, both small streams, the latter in a large valley. On ascending the ridge or plateau to the S.E. of the Fort, gain an elevation of about 200' above the rolling plain. Country slightly undulating, about 3/4 wooded, with poplar, willow bushes of large growth, & occasional spruce trees. Beautiful prairie patches with luxuriant grass. Soil of lower prairie uniformly fertile black loam. Of plateau perhaps in some places more sandy, but all rich. Occasional boulders seen on the plateau or ridge.

Aug. 19. Left Camp at 5.50 a.m. & travelled till 3 P.m. at a good pace. making by reckoning 27.8 miles. Day overcast, with dropping rain,

Take with us food for the trip, on simple ration list. Blankets or. Canvas, Sextant. adzes & auger for making Canoe if necessary.

Great abundance of Ducks, geese &c in the lakes. Many large white cranes. Bear tracks. hear a Coyote. Many prairie chickens in some places.

making it difficult to keep good track-survey. The mules drive well, & follow the tin can which is attached to the bell-horse as if it were a genuine bell. Travel through beautiful country, partly open, to N. bank of Wicked River, after crossing the valley of which enter a belt of timber, mostly of small growth, aspen, alder, cottonwood, birch, & an occasional spruce or pine. This extends on route followed for about 6.5 miles, when the Grande Prairie is entered. The country becomes gradually open, the trees changing to bushes forming close low copses, rendered definite in their edges by the sweep of fires in the surrounding grass. A pretty park-like country. Emerge eventually on an open rolling plain, which slopes gradually southward to the great marshy lake which occupies the depression N. of the ridge—perhaps 200' or 300' high, which lies N. of the Bear River. Only occasional groves & lines of bushes & trees on this part of prairie. Grass rather short & dry-looking on hillocks of the open plain. A large marshy area subject to overflow surrounds the lake, with many isolated smaller ponds. These marshes produce hay, & some of them at least might be drained. Soil everywhere good, though on summits of swells often more or less gravelly, & an occasional granite or gneiss boulder every now & then lies on the surface. A few old buffalo bones, & the ground scared with their tracks. Louis Campbell says that the Indians tell that all killed by a very severe winter many years ago, when about 5' of snow fell. The lakes & ponds swarming with ducks, geese, cranes &c. Took a turn out with the rifle after working up days course &c, but with no success. Notice a Grindelia & the Salicornea today for the first time.

Aug 20. Lost a little time this morning searching for my spurs, but unsuccessfully, having to leave without them. Travelled about west during day, camping at 3 P.m. on the S. bank of Bear R, a few miles above the Lake. Steering for the Isle de Montagne, or Montagne de l'Isle early day, but this evidently covered with heavy woods & windfall & next to useless as a viewing point. Day fine but cool, with a strong westerly wind. Travelling without any determinate trail, & consequently several times in difficulty in crossing little streams, which

soft-bottomed & miry. Had an unsatisfactory bear hunt during march. Three bears seen at some distance in the open. Thought it too far to leave route in chase, & gave the rifle to Louis, who with Louis Campbell, armed with a shot gun, started in pursuit. Into this I was also unwittingly drawn, armed with revolver. The bears turned out to be an old grizzly with two year old cubs. They moved along slowly at first, not noticing any danger from the approaching party, but eventually becoming alarmed, the old lady stood up on her hind legs to full height several times to get a good view, sniffing the air as she did so. At last thoroughly frightened & started off at galloping pace, though with a peculiar gait. Wanting my spurs or a whip unable to get my horse out of a trot, the ground being rough. Louis also well behind, & unable to head the animals off. L. Campbell, our guide, ranged alongside one & determined to fire, but gun missed fire, & immediately all three plunged into a rather extensive thicket. We could hear the noise of growling, & the snapping of sticks for a few moments, but these also stopped with the packs. Soon saw the two young ones emerge from the opposite side & disappear over a hill. We neither had time to wait, nor any particular inclination to enter the thicket in search of the old one, & so rode slowly back to the packs & pursued our journey.

The country passed over all beautiful looking. Open prairie with soil very rich & deep, & covered generally with fine grass & gay with flowers. Aspen thickets in valleys & along streams. Bear L., a large sheet of water, fringed with swamps & willow copses. Like the lake near which morning camp, & others passed today has low shores, & occupies the bottom of a wide shallow depression. The "ridge" separating the Bear R. valley, from that of the lake near morning camp, not properly so designated, a broad gently undulating swell, scarcely 200' above the valleys. The whole of this region seems to have been formed by the gradual & uniform denudation of a plateau, like that passed over SW of Dunvegan, & the "ridge" bounding the Grande Prairie to the N, merely the front of a strip of plateau between it & R. Brulé.

J. de
Montagne

Isle de Montagne a plateau-like projection, rising about 500' above the river valleys. The Bear R. valley, above the lake, a particularly beautiful one, & different from that of any of the smaller streams we have crossed. The river occupies a trough-like minor valley in the bottom of the wide shallow depression. The trough about 500' wide & 30 to 40 below the general level of the wide valley. In this the river meanders. A stream of 30' × 2' with rather rapid current. Brown water, muddy banks & difficult to ford. The largest stream we have yet seen since leaving the Peace. Being anxious to see from what direction the water comes; after getting into camp & having something to eat, had horse saddled & with Louis rode up it about 3 miles northward, when it turned, coming from Wg. W. Valley getting more thickly timbered, & no prospect of getting extensive view, turned from this point, getting back at 6 p.m. The park like scenery, under the glow of the sun, now low. really fascinating, with the blue. wide stretch of Bear L. in the distance. Only occasional groves of bleached burnt poplars to remind that in rude state of nature. Surely this country will one day support a great population, instead of the mere handful of lazy Indians who now wander over it.

The country passed over today & yesterday the greatest service berry region I have ever seen. Thickets of bushes literally loaded down with fruit. Now more than ripe, & in many cases dried up on the stalk. Deliciously sweet juicy & large berries.

Today rather trying on men & animals, the grass lumpy & irregular from the cracking up of the deep tenacious soil, rendering the little trail which we often travel very rough & uncertain.

Aug. 21. Leave camp before 6 a.m. & decide, in consequence of the ignorance of our guide — which in regard to the W end of the Prairie & country beyond it is complete — & on the information acquired by Stephens during his exploratory trip last evening, to take the trail to the S & E of Montagne des Isles. Cross a low ridge separating Bear R. from a smaller tributary — Fish Creek, — & then ascend diagonally the eastern continuation of the low broad swell of which Mdes I. is a projection.

Frosts. A severe frost last night, with hoar-frost on grass this morning. This followed the strong westerly wind of yesterday, which sweeping away all the warm air from the surface, left a cool perfectly transparent atmosphere. A cloudless night. Radiation unchecked. = frost. Same observed on two occasions while on the Paro R., & thus the danger in these latitudes at altitudes where the cordle of atmosphere corresponding thin, & wanting in the denser layers.

Find a lake of some size — without outlet — to the E. of the mt. — well called Service berry Li, & greatly resorted to by the Beaver Indians when gathering berries. From from this southward & then south westward, wishing to reach Beaver Lodge River to ascertain its size & origin. It occupies the bottom of a very wide valley, with beautiful prairie slopes on the N. On the far side apparently all densely wooded, & rising ground. Stream about as large as Bear R, & like it brown in colour evidently from swamps & quite different from the Mountain waters. Threatening in the morning, the day had now for some hours been pouring a light rain upon us, & our guide anxious that we should camp at once (noon) pretended more than ordinary stupidity. Did not know any trail leading to Elk R. all bad country &c. On coming determined to continue march or go back on trail we have come if necessary to reach our going as we wish, Louis soon found a track, which has led us in a nearly due E. course to this place, through open prairie country sloping southward. Rising ground, densely wooded, & forming the southern margin of the Prairie follows parallel to course from Beaver Lodge River 1 to 2 m. off. On reaching this little stream — Deep Creek — being thoroughly wet & cold, with no prospect of abatement of rain, Camp at 1.40 P.m.

Reading, writing up notes, traverse &c.

Aug. 22. Travelled 16 1/4 miles in direction a little south of east. From morning camp to Crossing of Jasper House Trail (Black Jack's trail) over beautiful country. Prairie with copses of aspen &c., with extensive prospect of similar country to E & N.E. to S extends from 1 to 2 miles, when becomes thickly wooded with small aspen for some miles to summit of little ridge bounding view. Between this & trail wide valley, probably carrying Deep Cr. of last nights Camp. Stopped at Jasper Ho Trail; putting off the packs, & then rode down on trail to edge of Elk or La Biche R valley — 4 m. — Trail through very fertile country but mostly copse & small woods. Narrow sandy belt with P. contorta along edge of valley. The river valley probably 400' or 500' deep, averaging a mile wide. Trough-like, & no hills rising above plateau on any bearing. Horizon level to S. River notes large as Pine R. West, winding in trough. Wide sandy bars alternating in channel. Slopes of valley wooded, sloping steeply, but no extensive slides were seen, nor any rock exposures. Rode back to packs, & travelled on to Camp, which

The sandy hillocks & ridges in vicinity of Elk R., on N side, are not due to glacial action. Do not appear to be due to the river itself, & differ from bars now forming in being sandy & not stony. Thought they might be land slips mod. by subsequent erosion, but apparently not. Due probably to movement of great body of water at time when country much submerged. Water much larger, but more tranquil than the present River. A period of rest in emergence marked by bench above alluded to, which doubtless subsequent to the sandy ridges above it.

made at 3.45 near edge of La Biche, farther down. Trail in good country, though with much copse & light wood, till within about 2 m. of Camp, when sandy region, apparently that before mentioned entered. Here however irregular sandy ridges separated by grassy or tamarac swamps. A dreary region. Camped in a bed of fallen sticks & young aspen. Soil everywhere very fertile till enter the sandy tract. Deep black or brown loam resembling that of Red R. valley.
Nearly 10 hours in saddle today, brushing much of time through wet bushes. Men & animals tired. Morning gloomy, afternoon light cold rain, which continues in showers this evening. After working out traverse & plotting it, now ready for bed. Caught 20 Caterpillars here, though want it much.
Aug 23 Evening token of a fine day, & quite cheering prospect on leaving camp. In about 1/2 m. came out on bank of La Biche valley. Stop & take photo. looking down. The valley here agrees with description already given, but not so abrupt as to edges, especially on N. bank. Woods & ridges of sand, strangely shaped, & supporting scanty growth of trees & grass, slope on the whole gradually down toward river bottom, but are cut off below by a well marked terrace, in places wide, & with fertile soil. Ford the river without difficulty on a bar near the mouth of "Mountain Cr" but have to go some distance up the bar to get off it, & cut our way afterwards back to the trail at the mouth of the Creek. River about the size of W. Pine River. Bars gravel, & not sand. Quartzite drift preponderates, but some granite & gneiss, much sandstone, & abundant fragments of Coal ironstone. In the mouth of Mountain Cr. also coal blocks so abundant, that must exist somewhere in place not far up. Went a short distance up looking for it, but found only very thin seam. Find a Canoe cached, which will serve our purpose should we not get one at Smoky R. Trail follows near Mountain Creek for some miles, then goes nearly due South, (as far as can make out direction) to evening Camp, which our guide now assures us is not more than a mile from the bank of Smoky R. Travel till 5 P.M., most of time at good pace, but trail very crooked. "Guide" very much at sea as to whole country. Plateau travelled over for the most part wooded, generally lightly, with openings, but passed for several miles through heavy woods where black spruce of good

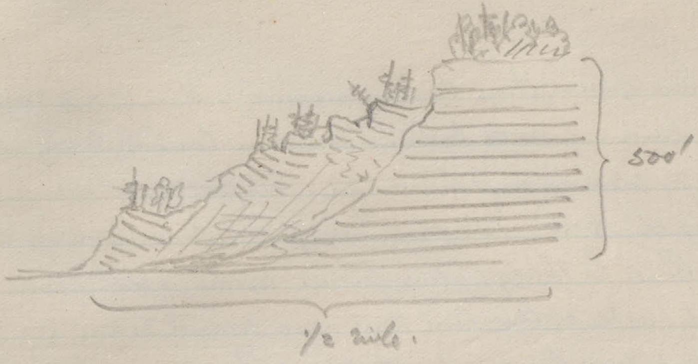
growth the predominant tree. Sky overcast & very unfavourable for track survey all day. P.m. heavy showers, wetting all the bushes & giving us our usual bath before getting into camp. Still raining as I write, & dismal looking weather. Soil of plateau generally fertile, though not quite so favourable as that of Grande Prairie. Often rather sandy, or again, in hollows rather strong & clayey. At least half the surface good land. Level, or gently rolling.

Aug. 24. Found a trail leading down from camp to Smoky R, that followed by Louis Campbells father. Rode down into valley with Stephens & Lodhams to look for canoe where Louis' father crossed, but after going over 3 m. found that no crossing effected here, but that the party had gone up the stream on this side. Thus no chance of finding canoe cached here, & decide to return to that already found on R. la Biche. — Take lot. of camp on return at noon, then pack up & drive 6 hours to the la Biche, at the mouth of Mountain Creek, getting into camp at 6.35 P.m. Day clearing with strong westerly wind, & only a few light showers. Examine canoe, which appears to be in good order, with three paddles & a pole all ready for use. Probably made this spring by Campbells party. If we take it must remember to make arrangements to repay the owner. Gather some coal in the creek & make a fire. Good bituminous, burning well without much softening. The smell of its smoke brings back other memories than those of these woods.

Smoky R. valley where seen today 2 to 2½ m. wide from rim to rim, nearly 300' deep. Banks not precipitous. Almost everywhere covered with woods. Bottom wide & with many beaver dams & swampy meadows. Fine large cottonwoods in dense groves. River tortuous stream, bars & islands, appears however comparatively gentle in its flow.

Aug 25. Up betimes. Get canoe launched, & find her seaworthy though small. All arrangements made & off by 7.30, Stephens leaving at same time with the animals for Dunvegan, which he hopes to make in two days. Our canoe, which christened the Adventure, has for crew Louis & Jasen. Had intended taking L. Campbell, but the canoe proves too small for extra luggage, & he says he is unable to work. We have supplies for 4 or 5 days, & hope

to reach the Peace R, before that time expires, though the time necessary, & character of the river is quite uncertain to us. We knowing that the Indians go down in canoes easily. Two rapids, our "guide" tells us of, which we must look out for. Stop an hour at noon for lunch, & get lat. observation. Camp at 5.30. Take photo. looking down river. Write up notes &c.
The banks of the valley of Elk R, or La Biche, continue generally wooded, & with gentle or moderate slopes. Fine arable benches at low level, though some evidently subject to occasional floods, even though more than 10' above the river. No extensive slides, though frequent low bluffs of soft Cretaceous rocks along water's edge. Bear R, though not possible to see far up it, from the knoll at its mouth to which I climbed, appears, as our guide had reported, to occupy a wide valley, with moderately inclined wooded slopes & no great slides or difficulties. The point at the north side of the junction of Biche & Smoky Rivers bluff, of soft sandstones &c. probably too sharp for Canadian engines, which, however, might cross the Smoky without bending round it, & strike across flat for the Moose R, on the opposite side, up which stream it should pass. Smoky R, valley wide, with terraces at several levels lower than that of the plateau. Frequent exposures of the soft horizontal rocks in low cliffs & banks. Great slides have frequently affected the beds, bringing them down to the water's edge in a broken state. Most of these slides old, with trees & bushes growing on them. Wide flats with cottonwood &c in bends of river. Banks now beginning to show more grass & less timber. The Elk & Smoky have so far nearly uniform descent. Occasional little rapids & no slack water. Wide gravelly bars at present stage.
Aug 26. A fine day, but cold & raw in the morning. Continue on down Smoky R, meeting nothing very bad in the way of rapids, & finding many good sections. Camped about 5 P.M., but delayed considerably examining rocks & collecting fossils, finding several good fossiliferous localities. Took lat. observ. at noon halt, & also a photo. of the river. See two bears today at a distance on the hills, many beaver tracks, & some geese & ducks.
River valley now considerably deeper than in its upper part. Slides & scarped banks higher & on larger scale as it cuts its trough deeper into the plateau.


500'
1/2 mile.

The blackish Cret. Clay shales also much more liable to slide than any beds before seen. Probably 1/8 of river banks formed of old or recent slides which have generally occurred as shown in diagram. The lower parts of slides have sometimes been spread out & pushed into flats, on which strange-looking little mounds project. Southern exposures generally grassed, or with light aspen coppices. Flats in the river valley fit for cultivation not extensive.

Aug. 27. A chilly raw morning & overcast throughout day, preventing Lat. observation. Continue on down the river, making good time, & spinning along with the current faster than estimated. See four bears & several beavers during day. One of the bears eating berries on the flat, but before could get ashore & find a way up the steep clay bank which along water, he had disappeared. Got a good shot at a beaver sitting on the bank, but missed him by a hairsbreadth & had the mortification to see him plunge into the water unhurt. As our bacon is now about done a little game of some sort would not come amiss. Camped a few miles from mouth of Smoky River, on a sandy flat. Evidence that water has been about 15 feet above present level during freshet. Found the bad rapid of which our "guide" had spoken, a short distance above camp. It is formed by the upper massive sandstone of the group underlying the blue shales. Ran it safely, though striking one stone in passage in such a way as to make things in the canoe jump. The boucanes which have given this river its name are at the point at junction of the Goose River. Bank curiously coloured by combustion, & a little smoke still rising at one place. Took photo of this, & also of cliffs of blue shales near lunch point of today.

Scarped banks along river, & slides continue to increase somewhat in size. Valley otherwise much the same. Below the mouth of Goose River, (which a much smaller stream than the La Biche) the river widens considerably & becomes shoaler. If a stern-wheel steamer could ascend to the mouth of the Goose R, (which in high water I think probable) it might go on at least as far as the mouth of the R. La Biche

Aug. 27. Owing to a mistake in plotting work on map, started this morning with the anticipation of reaching the Forks in a very few miles. Travelled on

all day as usual, expecting every bend to be the last. Took lat. at noon, but not having the suns declination could not work it out on the spot to ascertain whereabouts. At last, & just as about to give up hope of reaching the Peace R today, find ourselves among flats & islands where the two streams meet. Content with having reached our goal, about to camp on a small gravelly island, about 6 P.m., when catch sight of the H.B. Post about a mile up the Peace. Cross the river & reach it, but climbing the bank find all deserted, & no welcome save from the mosquitoes, which in myriads, more numerous & hungry than any we have yet seen. They can scarcely be driven away by smoke, so persistent are they. May the "bocannes" account for their familiarity with it (?!) Just about dark, while still fighting the mosquitoes & about to sit down to supper, hear men & horses, which suppose may be our people from Dunvegan, but turn out to be 3 Cree Indians, with whom neither English, French, Chinook, or Tinneh affords means of communication, any more than if they had dropped from another planet. By signs, however, give us to understand that the H.B. man now at the Slave Lake Crossing, which a few miles lower down — I do not know how many —. Write a note to him, asking to send packers here if they should get there by mistake, & give one of the Indians a plug of tobacco to carry it. They start off at once. See a large fisher, today, & also a family of ducks sitting on the bank, at both of which try rifle, with usual success. Numerous bad rapids in todays journey, the sandstones forming great blocks which strew the river bed, the softer rocks having been washed away as brought down by slides. Possible that a steamer (stern wheel) might ascend at high water, but river not to be counted a navigable one. Banks continue much as before, though whole valley narrower & rougher where the sandstones prevail than in the shale country. High scarped banks & numerous slides continue to prevail. At one of scarps the black shales coloured by combustion like those of the "bocannes" above.

Made 27.2 miles of Northing & 45.5 of Westing by traverse today (Mag.)

Aug 29. The first excitement today a Wolverine hunt. Jones seeing some animal swimming across the river called out to Jason & myself. We landed the canoe & set out in pursuit, but the creature got ashore before us. When it landed I saw for the first time what we had been chasing. Fired a couple of shots at it from

describe Country.

The Amelanchier, & other bushes now in places beginning to show Autumn tints while an occasional Aspen may be seen turning yellow. At Smoky R. Post, the potato tops are partly killed down by frost in the garden. The tubers however ripe, & the stalks with well-formed bolls. Here at Dunvegan the frost has not been so severe. Cucumbers, Squashes, & beans only partially killed. Potatoes scarcely affected. The wheat & barley have been ripening but slowly since we left here. Some yet has now been cut however, & the rest will probably be ready in a few days. The Priests garden is much better kept than that of the H.B. Co, but his wheat owing to accidental causes was sown too late, & he thinks will scarcely ripen. He will cut it with the stalk in a few weeks & hang it up. He ripens small black butter-beans every year. Corn he has tried this year but it is not yet ripe. A few stalks of oats. First found seed among some pease. Sowed 3 grains & counted about 2000 as the produce. All vegetables looking very well. To the North, near Battle R, the frost according to McConnells account has been much more severe

the Canoe, but it got off all safe. At 9 am a half-breed from the post at the Slave Lake Crossing, appeared, with an Indian boy, in a small Canoe. Louis, who had scaled a hill behind was heard making joyful exclamations & Joe Stephens with the animals was shortly observed. Decided to take saddles & apparejos off mules & give them a few hours rest. Had lunch & took an observation for latitude. Got our Canoe hauled up & covered with brush. Left camp at 12.10 pm & Camped on Lac des Femmes, on the plateau at 5.30 pm. The distance estimated at 18 miles. 2.6 M. from Smoky R. post (Shanty) to Cambie's first Camp after the Slave Lake Crossing. The lake at which camped full of weeds & swarming with ducks. Water with a bad smell, but tastes well enough in tea. Stephens met Cambie near Dunvegan yesterday, on his way westward for news of McLeod & McConnell yet.

Aug. 30. Intended making an early start, but Stephens by a slight mistake got us up at 2.30 am, & after breakfast disposed of found we had to wait some time for light enough to follow the trail. Got off at 4 am. & travel steadily on at good pace, arriving at Burnt River — 12 m. — at 8.30 am. & at Dunvegan — 18 m. — at 2.50 pm. Met Kennedy, who is at present in charge of Dunvegan with 5 Carts on way to Smoky R. to bring up freight. On arriving at Dunvegan find that McLeod has not yet returned, McConnell out to Mouth of Burnt River to look at "Coal". Cambie & Gordon out for a ride across the river. Evening devoted to talking.

The trail from Smoky River to Dunvegan passes at a considerable distance from the river, & almost all the way through a country which may be described as prairie. The plateau is flat, beyond the heads of the numerous gullies which run toward the river, & wide grassy stretches alternate with aspen copice, & clumps of willows. Considerable patches of burnt aspen woods of larger growth occur, with some yet green. Fire evidently sweeps at intervals over all these prairies, killing the young growth of aspens which spreading in all directions, would soon make woodland of the whole district. It is thus pretty evident that these prairies owe their origin & continuance to fire. Near Dunvegan, the plateau for some miles becomes undulating & broken from the action of denudation in sweeping toward the main river valley. This undulating region is pretty densely wooded with aspen, which be characters of the country prevents being swept by fires.

Aug. 31. Sunday. Took two photos in per. & plotted part of map work in evening. Had the priest's (Tessier.) company much of the afternoon & managed to get a little information from him about the country. No news of McLeod.

Sept. 1. Packing & arranging things. McLeod arrived at 11.30 afternoon devoted to discussion of railway & other matters. Evening to mapping &c.

Sept. 3. Rode out six miles down the river with Cambie & McLeod to find a man called Charley Green who was supposed to be camped there cutting hay for the priest. Had our ride for nothing, however, as he had just left in canoe, & arrived at camp just about the time we returned. A late lunch, & then over to S. side of river where final arrangements for dismembering pack trains &c. Evening took observation for lat. on Polaris, altair having got across the meridian under cloud; Changed photo plates & packed them to return over the mountains under Mr Cambie's care, & to be expressed from Victoria to Montreal.

Sept. 2. At work all morning finishing telegraphic report on line & country for Mr Fleming. Gordon on the qui vive to get off, & after lunch set out. Thomas a half breed, acting as crew to the raft on which he travels down stream to Smoky River. Gave him three cheers as he floated off. Over at packers camp seeing about distribution of supplies. Set up till 2 a.m. to get moon on meridian for approx. longitude.

Sept. 4. Have decided on following arrangement for future explorations this season. Self to take two men, Thomas —— & Green, & with 11 animals accompany McL. South-Eastward to the Athabasca R. of Possible. Thence make or purchase a canoe & go down to the landing of Waggon Road from Edmonton. Examining the streams up to Lesser Slave Lake & L. la Biche if possible. McConnell with Stephens & a half-breed to go to Slave Lake, making some exploration there & eventually getting to the 'landing' in time for my arrival there. Many little things yet to do. Pack train with wagon returning to B.C. got away shortly after noon. Cargoes animals & rigging for trips on N. side of

Smoky River. From information received gains three large tributaries above the Biche on the same side. Grand Camp Plat-R The Porcupine & the Sheep.

Smoky Riv. Tribs.

river crossed over. Find it impossible to make start today. Wrote letter of instructions for McConnell, & list of Photos. which are to be returned to Henderson via the River Peas & Victoria. Took altitude on Meridian & polaris. Also observation for mag. variation.

Sept 5. Up early with hope of early start but as usual much found to be done. Thomas has not yet returned from Smoky R, & no saying when he will come. Had decided to send after teams for another man, which would have involved loss of week of day, when Cambie proposed to let McNeil go with me, which being agreeable to all parties was at once settled. Green sends word over that the supplies sent for his family during his proposed absence insufficient, & being otherwise disgusted with his behaviour, replied that if not satisfied he need not come. He decides to stay. Very important that Thomas should now come with us as he speaks Cree & would otherwise be necessary. Decide to leave mule & saddle to bring him on when he arrives from below. Cambie & McConnell set off about 11 am. Self & McLeod at 12.40. Our party now consists of McLeod. Alex. McLean Packer. Francois Stuart Lake Indian. Charley Larcl. Guide to the Cree Settlement. Self & McNeil. 15 Pack animals & — Riding & loose animals. Dunvegan thus finally deserted, 4 parties scattering out from it in various directions. Camped on Spirit River at 4.30 pm. Following same trail as before on my trip to Grande Prairie. Came near being a serious accident while travelling through the woods S. of the river. Dog running away the animals caused a sudden & simultaneous stampede McNeil brought up against a tree & thrown off, but fortunately receiving no greater injury than a severe bruise.

The aspens & berry bushes about the Peace Valley now looking quite autumnal. On the plateau, between 800 & 900 feet higher appear not nearly so much so. Only slight tinge of yellow on some aspen groves. A fine warm cloudless summer like day, cooling off rapidly after sundown.

Buffalo. Informed on good authority that six buffalo seen by the Beaver Indians at a little prairie near Pine River, this summer. One was killed & the remainder hunted into the woods with dogs, which did not return, & were supposed to have been killed by the buffalo. The Chief of the Indians did not want any more of the buffalo killed, hoping that they would increase.
Said that wood buffalo still abundant between Athabasca & Great Slave Lakes (Inquire further)

Beaver Indians

Limits of Beaver Indians. To N near Battle R. to E, formerly Smoky River (x Moose R). To S to the Grande Coup Plate, to west, the Rocky Mountains portage, or thereabouts on the Peace. Mix then with Siccannies. On Pine R. to the Mountains. The Crees are encroaching across Smoky R. to westward, & the Iroquois now own a considerable stretch of the Southern country.

Sept. 6. Up early. Left Camp at 7.40 in advance of packs, with McLeod, riding on to Ka-toot Lake to shoot; the survey of this part of trail having already been made by both of us. McL. shot 3 fine mallards, while I had a good shot at a lynx, which was running into the woods from the edge of the lake where it had been poaching. The bullet went very close, but missed as usual. Packs coming up about 2 P.m. continued on, camping at a small stream about half a mile N. of Bad Heart or Wicked River, at 5.00 P.m. The ducks appear as an appetizing soupe de bouillon. A fine & warm day, making lemonade a luxury when we arrived at camp. Now cooling down, though, owing to a partial covering of Cirrus clouds but very rapidly.

Sept. 7. Left Camp about 8 & travelled till 4.30, camping on S. bank of Kles-Kun Lake stream. A fine day, though partly clouded. Warm & summer-like, & a host of bugs, black flies & mosquitoes ready for us at Camp. Rode out to bank of Smoky River near the crossing of the trail, & recognized the point at which one of lat. observations taken on trip down the river. Tried fishing in Kles-Kun stream — a small brown brook with beaver pools — but with no success.

Country passed over today not before traversed by me. Largest area of woodland. Aspen & willow copse with prairie openings. Very pretty, soil fertile. In some places a little damp, having long green grass, but susceptible of drainage. Remarks made on foliage day before yesterday, not generally applicable: Some places on plateau today quite as autumnal as neighbourhood of Dunvegan. Generally, however, with little change yet.

Sept. 8. Left Camp about 7 am, the packs following shortly afterwards. Travelled southward & then eastward, reaching the bank of the Smoky a little above the mouth of the Moose at 5 P.m. Morning fine, though generally cloudy. Afternoon heavy showers with some thunder, rendering bushes unpleasantly wet.

On reaching the E. end of Kles-Kun Lake, come out on the edge of very extensive hay marshes, to be measured by thousands of acres, though area not easily accurately obtained. Ducks, geese & Cranes. Country continues open for some miles, then gradually becomes more densely wooded, generally with willow bushes. The angle between the Smoky & R. la biche filled with woods & coppice, little prairie. Much of land

Many little pools & swamps where we travelled along parallel to river valleys a short distance back from brink. These evidently caused by unequal settlement of soft strata & partial old slides.

When the rain is done the sunshine repays the wet & cold
With tear-drops turned to diamonds, repays a hundred fold
So good o'ercometh evil, so pleasure conquers pain
& the world is full of sunshine though it has its days of rain
But woe to him who beareth, in heart the barbed steel
Whose eye to joy is blinded, who sorrow finds in weal

Quartzite outlasting other drift.
Sandy deposits near mouth of Birch. explain.
Boulders on top of silt deposit of Grande Prairie &c.

Ursa major. Called by the Crees the Fisher, as by the Chippeways of the Lake of the Woods.

Somewhat damp, but may be drained. Bar. on summit of plateau E. of Smoky 27.53 River level 27.73.

Sept. 9. No Canoe found at the Crossing, & learned that we must raft the river. Left Camp with McL while they were making preparations. Walked, or rather scrambled up the river bank to the point at the Junction of the Smoky & La Biche to examine crossing &c. Returned to Camp at 10 & found that they had discovered a ford, not deep, but very wide, & had all crossed over. Followed at once, & next Crossing the Moose, or as it is more properly called Simonette River, struck off Eastward, by a trail which runs nearly parallel to this part of its course. McL having satisfied himself as to practicability of river, left the trail, & struck off north Eastward through open woods toward the trail leading to the "Cree Settlement", a direct trail from the mouth of the river formerly, but now blocked by brulé & windfall. A trail also runs up the point between the Smoky & Simonette toward Jasper Ho. Day fine & warm. Strong S.W. wind & partly cloudy in p.m. Camped in dense woods on a small stream at 4:30 P.m.

Plateau passed over wooded, with only occasional small swampy meadows, & old beaver ponds with pine goes. For some miles open woods aspen, spruce & birch, then denser forest spruce with some aspen. Surface rather lumpy & undulating with small streams occasionally, in deep valleys breaking off toward the Simonette. Soil generally yellow silt, evidently fertile. In bottoms & lower ground deep black mould. Some of small hills & ridges rather sandy, but area of these inconsiderable. No boulders or stones seen.

Sept. 10. Made only 6.45 miles today by traverse, owing to bad country. Had some trouble crossing little streams flowing toward the Simonette & delayed at bad swamps. Camped at 4 P.m near beaver meadows & small grassy swamps. At one of streams mule fell off beaver dam with my box & one of the kitchens. Obliged to open box on spot to get water out, & after camping got [illegible] spread out before fire in entrance of tent to dry. Day overcast, with slight passing showers. Much fresh beaver work in some places.

The country passed over plateau, nearly level, with small streams depressed 10 to 40 feet

below it, & spreading out into wide swamps, mostly caused by beavers, which now nearly all gone. Some very long & large dams. Aspen woods, with some of spruce. Soil generally grayish white silt. Little vegetable mould on hillocks, deep in hollows. Generally fertile some spots perhaps rather cold & clayey. No stones observed.

Sept. 11. Up early, but delayed some time searching for strayed animals. Travelled about 9 1/2 m. northward, following part of time an Indian trail which runs to the Crossing of Smoky River, & then diverging, & under the directions of our guide striking through woods & open toward the trail formerly followed by Cambie to the Cree Settlement. Camp at 4.30 on a small rill running northward. A prairie patch with good feed for the animals. Strong chilly westerly wind all day, & even now keeping up after sundown. Passing showers, at one time a few pellets of hail.

The country passed over to a short distance beyond where we left the Indian trail, wooded, generally lightly, with aspen. Swampy meadows as yesterday, & a couple of small ponds or lakes. Thence to camp chiefly burnt country, with comparatively little green timber. Windfall & young second growth of aspens alternating with little open patches. Considerable areas of damp ground, but all might be drained, & soil in these evidently very good. White silt continues. Vg. mould generally not deep. Pass over the northern flank of the "ridge" seen on E. side of Smoky R. from the opposite bank. It is inconspicuous when approached & probably not over 200' at highest point above this evening's camp. Guide describes great & almost impassible windfalls & brulees on the E. side of the ridge.

Sept. 12. Up at 4.30 & off early. Travelled across country for some distance, then struck an old Indian trail, which was at first supposed to be that going from Smoky R. Crossing to the Cree Settlement. Soon proved otherwise, & leaving it again before long got the real trail a little further to the N. Nearly an hour lost in searching for trail. On finding it travel on pretty steadily till 5 P.M. being obliged to go on rather late to find water. Camp in a dense aspen grove, silent & lonely-looking with a smell of damp moss, but soon enlivened by good camp fires. Distance by traverse 13.4 miles. We are now following the route to the Cree Settlement previously traversed by Cambie

Our guide knows little about this part of country, not having visited it since a boy.

The country to Caribou Camp of Aug 11-12 wooded with aspen generally, lightly, often burnt over with open patches. From camp to our camp of tonight chiefly dense woods with swampy spots characterized by black spruce. Travelling along northern flank of the "ridge", or more elevated portion of plateau, gaining a greater elevation in so doing than before. Woods aspen spruce & birch. Soil almost everywhere good. White silt with deep veg. mould in places. A few Laurentian & quartzite boulders on higher parts of country. All water draining away northward.

Sep. 13. Up early & off at 7.35, camping at 5 P.m. on bank of Sturgeon Lake. Some delay in making a couple of bridges, & trouble with packs in the narrow trail through dense woods. Day partly cloudy, becoming overcast & showery at sundown. Promise of rain in morning, however, happily not fulfilled, & got into camp with dry skins. Made 13.3 m. by traverse.

Country for the most part densely wooded with aspen, & dark groves of P. contorta & spruce. Birch abundant. No brulé or windfall of any extent. A few mossy spruce swamps with Labrador tea & cranberries. Many spots passed over would be swampy in spring but no great extent of marsh, not more than might be expected in any case on undrained plateau. Soil of the usual white silt, with a variable depth of black mould. A few boulders observed. Streams crossed all quite small, & pass the watershed between the Smoky & Sturgeon L. Sturgeon L. a large sheet of water with banks uniformly low. Stony beach at this place. Much resembles Carp L. N. of McLeod's Lake in B.C.

Route varied by the usual number of wasps nests causing panics among the mules, but otherwise uneventful

Sept. 14. Travelled round the edge of the Sturgeon Lake, part of the time on the beach to the "Cree Settlement", arriving here at 11 A.m. A strong cold wind blowing off the lake, & a little surf piling in on the sandy beach with white caps over the lake. Bleak & autumnal looking. The settlement consists of two log houses, with several little garden

Indian News. Our ex-guide tells us of a lake between this place & the Sunwatte R, which when first found by some of his people very full of beavers. The dam being cut the lake was so large that it took 2 or 3 days to run out. Over 100 beavers killed when it ran dry, & in the evening of this to the beavers woeful day a great beaver "as large as a man" seen sitting up in the centre of the desolation uttering a mournful cry. The lake thus called ever since Beaver Crying Lake.

Last winter, at a lake noted for whitefish not far NW of old Ft. Assiniboine, an Indian, starving ate all his people. His mother, wife, sister & others to the number of 8. This summer the police caught him, & took him to the scene of his deed. Found parts of 9 skeletons & not known who the ninth person was. The Indians have it that the police are going to burn ~~[illegible]~~ murderer to death with a slow fire.

There is, or ought to be an old man near the lakes to which we are going; who, according to the Captain knows all about that part of the country. His name means He looks different. He must be found if possible.

* Meaning "Cut to pieces" & referring to a story that an Indian who formerly wished to monopolize this part of the country was here killed & hacked to pieces by the others.

patches. A third house is seen across a bay about half a mile off. Find here only "the Captain" his son in law, & a number of women & children. All the rest out hunting. The moose now fat, in another month when rutting commences will be lean & the present the Indians harvest. Spend the afternoon in enquiring about country, discussing routes & arranging about a guide. "The Captain" has some goods in charge for Stobart Eagan & Co & has now to go down to Slave Lake on business or he would be glad to go with us Southward. His son in law will go, but being rather an invalid, must have a little boy to go with him for company on the way back. The Captain at first told us that country almost impassable, windfall, swamps &c, but on more minute enquiry & getting him to put it in the form of a diagram on a Mantoc hears of a trail going in the right direction to a lake called Ī-o-sē-gun * near which we may expect to find some Indians hunting who it is thought may be able to pilot us through to the Athabasca, though windfall said to be very bad toward that river. We go out therefore tomorrow for about 5 days travel to the lake where these Indians are supposed to be. Took a lat. at noon & plotted out position on map by lat. & departure.

In following round the edge of the lake pass through small meadows with splendid grass higher than the backs of the horses. Open poplar woods further back. Near the Cree Settlement extensive flat country about 30' above lake. Fine soil & luxuriant feed. Gardens have potatoes quite ripe, though Indians will not dig yet for ten days. Tops touched by frost but not more than at Dunvegan. Turnips very fine, Carrots, beets & onions good. Small patches of barley; the heads nearly all eaten off by the mice. Some cut quite green in order to save it. A few stalks remaining in the fields quite ripe & some fine heads. Captain expresses himself desirous to have tools & seeds to cultivate more. Gardens dug up with a wooden spade, very clumsy. Indians here own horses but no cattle. Shores of Sturgeon L. slope gradually back to a height nowhere (probably) exceeding 100' & marking which the level of the plateau.

Sep. 15. Got away at 9 a.m. & travelled till 3.45, making 11 miles by my traverse on a pretty rough Indian trail. General direction South Eastward. Camped on a very small

Names of Places

The Siccany Indians call the Peace R. Tsē-tai-e-ka meaning the river which runs near or under the rocks.
The Cree name is A-mis-kwe-i-moo-si-pi, or the Beaver Indian river.

The Smoky called in Cree Ka-ska-pa-tē-oo Si-pi meaning same as in English
The little Smoky the same with si-pi-sis instead of si-pi.

The Cree name of Sturgeon L. Ke-me-sis sa-ga-ha-gun or Little Sturgeon L. Called after a man of that name
The Cree name of the Settlement Pus-kwat-si-nas or little bare hill.

Athabasca — The Crees call the Athabasca A-hē-pas-kow but apply this name, which is that of the Great Lake, to the lower part only of the river. The name as applied to the Lake means wide stretching water with many points & islands. The upper part of the river they call Mus-ta-hi-si-pi or Big River
The Pembina is the French name of the Cranberry, not Viburnum Opulus but a true Cranberry. The Cree name of the bush & river A-ni-pi-mi-nan

Lesser Slave — Lesser Slave Lake called in Cree A-yih-ti-I-noo with the usual termination. The issuing river called the same with the addition of Si-pi. The name means a foreign or strange Indian

R. La Biche — The L. la Biche (= Elk Lake) called Wa-was-ke-soo sa-ga-hē-gun meaning the same. The issuing river called the same with the substitution of si-pi. The same name is given to the La Biche which joins the Smoky near Lat. 55°.

stream which our guide tells us runs toward the Little Smoky. Day fine, but with very strong west wind, howling over the dry trees in the burnt ground in all directions. Wind dying away as usual at sundown. Smoke in the north west from burning forest.

The country passed over varies little in level, our present camp being by barometer on arrival exactly on level of that of morning. Summit between nearly 200' higher. For some miles after leaving Sturgeon L, pass through very pretty country, wooded lightly or open dry meadows along the banks of a stream flowing into the lake. Then enter more densely wooded country & pass through an extensive brulé, the sticks in which are for the most part still standing. Many little swamps & swampy spots, but these in the aggregate cover but a small area of the surface. Trail is evidently pretty often travelled, but must be nearly impossible in spring. Soil generally fertile, though about summit the silt becomes rather hard & clayey, with thin covering of veg. mould except in swamps. Rather cold soil. Notice about summit with black spruce, many & large specimens of balsam (A. lasiocarpa (?))

Sep. 16. Delayed by the straying of some of the animals, & did not get away from camp till 8.30 am. Travelled till 3.30 on a good trail, making 14.9 miles by my traverse. Camp in a pretty open grove of aspens – golden yellow – mixed with spruce trees. Sheltered, & the beau ideal of an Autumn camping ground. Have a long talk with our guide this evening, & find him very intelligent. He has a little white blood & is a brother-in-law of Moberly of the H.B. Company. We find that the Captain – father-in-law to the guide tried to humbug us at first in saying that there was no way southward. Rumours had reached him that we were in some way going to dispossess the Indians of their country. There are several fair trails in the region, going in various ways. The main Jasper trail which crosses the Smoky just above the mouth of the R. la Biche, runs diagonally to the forks of the Baptiste & Athabascaw. From near where it crosses the Athabascaw a travelled trail goes to Lost L. & Edmonton. 8 days journey from where we now are to Jasper House. From near where we crossed the Lit. Smoky today a trail goes to Moose L, without crossing that river. From Moose Creek a trail diverges to intersect the Jasper trail. The Jasper Trail is not far from us where we now are, & now propose to cut across to it

Rivers

The Baptiste, Little Smoky, Simonette, & Main Smoky, are said to head almost together in the mountains, afterwards diverging. The Simonette is said to make a great bend in this direction.

Horses belonging to Sturgeon L. Indians do not winter well round the lake, but admirably round some other lakes, one at least of which is nearly as big as Sturgeon L. These lie on the stream which we followed up for some miles from Sturgeon L.

before long & follow it to the mouth of the Baptiste. Macleod can examine the river for a crossing below that point, while I go down the stream, if suitable arrangements can be made as to men.

The country passed over today very pretty, & may be described as generally open woodland aspen, or aspen & spruce with grass growing more or less thickly almost everywhere. Many open prairie patches small in extent, but with very fine feed. Pass two or three small Mossy spruce swamps, but country generally most attractive, & soil uniformly fertile. The Little Smoky R here follows a wide shallow valley, & is not depressed more than 80 feet below the plateau. It is from 250' to 300' wide & now from 2 to 3 feet deep. Stony bottom & good ford. Valley 3/4 m to 1 m wide.

Sep. 17. Travelled 14.2 miles, most of the distance not far from the bank of the Little Smoky valley. Camped in the valley of a small tributary stream at 3.30 P.m. Trail generally good, but rather crooked. No incidents worth writing down. Guide shoots a few partridges. Fine day, with westerly wind & Cumulous clouds during P.m. Evening becoming overcast. Got a refreshing but cold bath in stream after camping. Guide shows indications of wish to again change route & has rather a different story now about the trails. See how events turn out tomorrow. Get instrument out for Lat. Obs: but clouding interferes.

Country passed over for most part very pretty. Open woods like those of yesterday with fine meadows in valley of Little Smoky. Some dense spruce & aspen woods occasional small swamps, & guide reports several large swamps in vicinity which do not see. Tells us, as might be expected, that trail follows best country, intervening tracts with much more swamp & windfall. Cross the I-o-sē-gun-si-pi, a large stream, at its junction with the Little Smoky. Flood channel more than half as wide as L.S. Have ascended considerably by barometer from noon camp (between 200' & 300') plateau rising in this direction. Little Smoky where seen today rather rapid with calmer pools between shallow riffles.

Sep. 18. Off earlier than usual, & made 14.7 miles, travelling till 4.30 P.m. Day fine but partly cloudy. Trail very rough, windfall & swamps. Black-flies numerous &

Prairies

First & Second growth

Of the Aspen woods, whether thick or open, & the small open woods of aspen, birch, spruce &c, generally what seems to represent second growth on brulé. The whole country must have been burnt & the timber almost completely destroyed ~~within~~ about the life time of the present Aspen growth. Old rotten logs of greater size still found prostrate, & patches of heavy spruce timber which have escaped. The prairie-areas would without doubt soon fill up if left to themselves. In the course of years the young spruce which are frequently seen in abundance among the poplars sheltering them, will reconstitute the old forest. Fires however recurring, will doubtless prevent this.

practically boggy. Camps in a "barren" for the most part swampy, with many dead sticks lying about, moss & Labrador tea. Near Camp a a perfect beaver dam the builders of which have only been killed only a few weeks ago.
Country passed over to the Crossing of Little Smoky River, with good soil, but generally with many swamps & half-swampy patches. At the Crossing the plateau is only about 55 feet above the river. Valley wide. Ford rough with large blocks of sandstone. Several of mules fell into holes & were nearly swimming. After crossing pass for a few miles over benches not far above river & rising to plateau. Soil generally sandy. Thence to here almost all sandy barren soil, when not covered with brulé bearing P. contorta, blue berry & bear-berry bushes. Peaty in swamps, Betula Glandulosa, young larch & black spruce, Labrador tea &c. Fire has passed everywhere & left great areas of unsightly standing brulé & windfall.
Sep. 19. Travelled 13.2 miles, camping on a sandy ridge, near, & in sight of I-a-tō-ow Lake (= Buck moose L.) Met with some bad windfall & swamps at the start, causing considerable delay. Followed up Little Smoky several miles, crossing & recrossing, & eventually left it, striking to the left through bad swamps, separated by sandy ridges. Day fine, & warm in the sun. The Indians in marking the trail very frequently substitute a handfull of moss or herbage, placed on the branch of a bush or tree for a blaze. Notice today however large masses of bleached bog-moss spread on bushes, this is placed there to be well washed & bleached for use in packing babies when the hunting party, on whose trail we are, returns.
Soil improves a little after leaving camp, & in following the river valley (which may be said to be from 1/2 to 1/4 m wide) many beautiful little prairies & meadows, intersected by sloughs, & groves of poorer timber. About half the meadows more or less wet, constituting fine hay land, the rest dry, & soil generally good though often rather sandy. Immediately on reascending to the plateau, enter mossy & tea swamps, with sandy ridges. Larch, spruce & black pine, — a useless country. Soil either sandy or peaty.

Sep. 20. 1879. On leaving camp follow back on our trail for a short distance, & then strike off on a track which our guide believed to be that of his father. Soon find that we are mistaken, as no horses had gone that way, & the track lead into a muskeg impassable for animals. After some time lost in searching, guide finds what he believed to be the right trail, & we follow along fairly by a pretty good track, though through a country of terrible brulé & windfalls. Make good time till a little after 3 P.m., when we reach the end of the trail, & the Indian Camp. Here camp, & proceed to negotiate matters. The Camp in an extensive standing brulé, with no view but of burnt sticks, & scarcely room to set up tents among the logs. The hunting party, we learn, has now separated, the guides two uncles having gone off in another direction. We have before this seen many abandoned hunting camps, but now arrive at an inhabited one. Plenty moose meat, & the skin of one lately killed spread on a sloping frame of sticks. A couple of women get upon the skin, their weight stretching it, & with chisel-shaped, but ~~partly~~ slightly curved pieces of iron set in wooden handles, scrape away the hair, & outer surface of the skin. The dogs — lean looking no matter how well their masters may be faring — stand below, or climb upon the skin near the women & snatch up the hairy morsels as they are separated. Dried moose meat in various stages hanging round, children crying with a familiar intonation — though in Cree. Some of the children were some miles back on the trail playing when they heard the noise of our approach, & very much frightened fled into camp. The father then came out to see what was up, & met us on the trail, not a little surprised however at being followed to his secluded hunting ground. He produced, shortly after we had camped, a large pot of boiled moose meat, from the liquor of which François soon extemporised — with a little rice — an excellent soup. He also presented us with a quantity of dried meat, & was presented in return with some flour. He tells us that there are but three possible routes by which the Athabasca can be reached (with animals). The first following up the Goose R, & coming out near old Ft Assiniboine. The second a little further up than our present position. The third by the Jasper House trail. We have fortunately hit the best & most direct very nearly, but must set out in the morning to look for a way across to the trail which leads down to the river. After a little palaver he consents to guide us to the river & show the trail across which leads to Dirt Lake. There is no one here, however, to go with me down the Athabasca, he does not think it worth while to send out in search of his brothers, & further informs us that there are no cottonwoods on this part of the river fit to make canoes — all which is very discouraging.

Country on leaving morning camp soon got beyond the region of sand ridges & muskegs, into one with a better soil — fine sandy silt — fair to good in quality, but everywhere rather

light. The country has been covered originally with dense forest of black spruce, with occasional balsams; some trees of fine growth, only small samples of original forest left. All burnt, standing brulé or windfall with thickets of bushes coming up in places, fine grass growing almost everywhere. Much of this country will probably become light Poplar woods when a few more fires have passed among the logs. Saw in one of remaining forest patches a few specimens of Devils Club. Also in open places several of mountain ash, loaded with berries. The country is rising toward the Athabasca. Pass over several ridges, — after leaving the sandy region — in the hollows between which small streams flow toward the Ī-a-tō-ow sē-pē (See bar. readings for height of country) Stones — Laurentian & Quartzite drift appear in soil of ridges.

Sep. 21. Sunday. Our new Indian friend reporting the country through which we must pass in order to reach the Assiniboine trail to the Athabasca, very bad, decided to let him go out & prospect. McLean & Charley going with him to chop. Remain in camp all day, writing up notes, reading & plotting out work on map. Day fine with passing clouds but not warm. Took a photo of camp illustrating standing brulé. Men return about 5 P.M. & report very bad country, windfall & swamp. The Indian wintered near here last winter, but had not been in this part of country for 8 years before. At that time woods all green & now so much changed that he scarcely knows part of it.

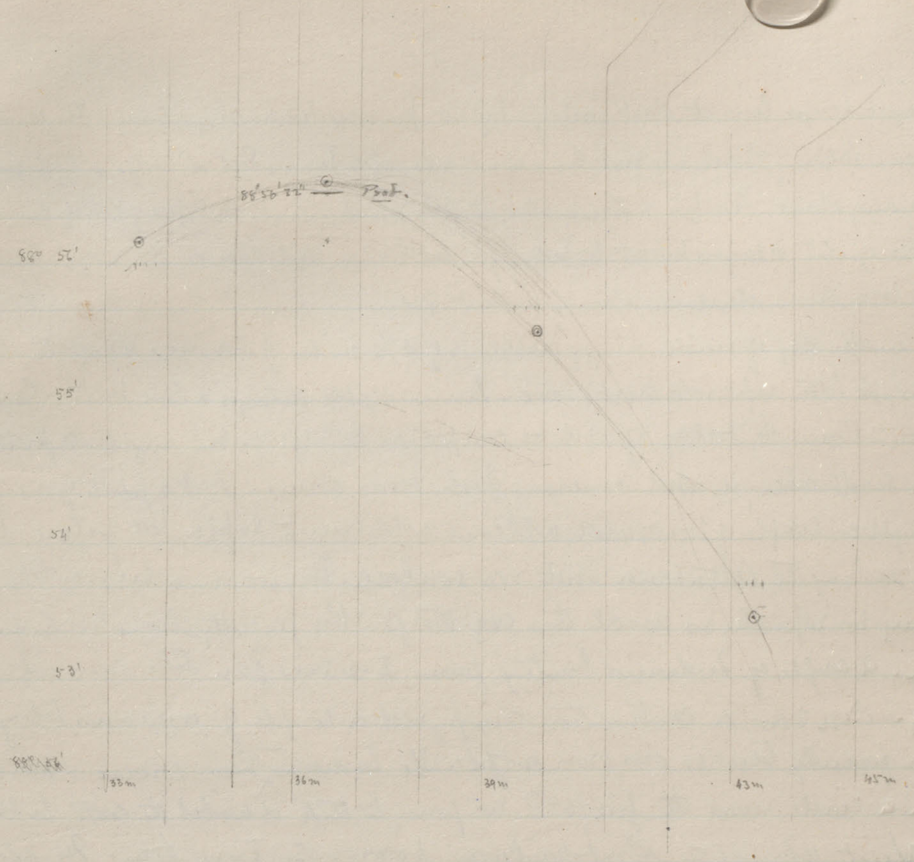
Sep. 22. Delayed some time searching for strayed horses. Off at 9 a.m. & travel 5½ miles, camping on the N. slope of the valley of a large stream flowing toward the Athabasca. Whole journey through bad brulé & windfall, involving much chopping & searching for route. All men ahead, & a couple of young Indian lads pressed into the service to drive the train. Waited behind several times for a considerable interval to allow the train to get far enough ahead, as can judge distance better when travelling steadily. A very fine warm day with black-flies intolerably abundant. The Indian camp moves with us, women children & dogs, with three horses packed with the household goods. Get a fine view of the Athabasca valley at junction with that of stream on which we now are — about 6 m. distant.

On leaving morning camp ascend gradually a shoulder of wide ridge, or detached area of higher plateau, much broken by little valleys. Travel along this, which nearly parallel to our route, & descend again to same level as morning camp to evening camp. Looking eastward, & toward sources of Goose R., all land lower than ridge we are on tho low hills rise 30 m. or more off. Looking across valley, south westward,

nearly straight horizon line at about level of highest point reached on ridge today. The country then a higher plateau. Valley of stream very great, being about 4 m. wide here. Soil on ridge & high land sandy silt with many stones, quartzite & Laurentian; the latter not abundant. On slopes of valley fine sandy silt, a soil of fair quality & surface here not too broken for cultivation, which case on the ridge. Fine tall grass coming up everywhere in abundance, affording excellent feed.

Sep. 23. Another day of small things, making only 4½ miles of traverse. Windfall, brule & swamps, the latter especially troublesome. Innumerable delays & long halts. Camp on the border of the stream the valley of which we camped on the edge of last night. A pretty large brook or small river, in which numerous fresh beaver dams. Took a photo of one of these. M. caught a couple of trout, which welcome addition to supper bill of fare. Disappointed at not reaching the Athabasca which now so close. Day warm & summer like, & temperature not falling so rapidly as usual this evg. though sky perfectly clear. Wonderfully fine weather. A couple of Indians hunting from I-o-swa-gan Lake come into camp this evg. Ours now a combination camp, with a couple of wigwams belonging to the Indian family besides our own outfit. The Indians ^ new comers & our old friends — form a circle round the fire, which we join, to talk & watch the cook baking &c. Try to elicit information about railway passes &c from them. M. also tries to arrange with one of them to go down the river on a raft to look for Topper, who, if he ever left Edmonton should have got to the Athabasca by this time. Two of the Indian dogs, forming part of the caravan today looked very ludicrous, each with a large copper kettle, reversed, & strapped on his back.
On descending to the level of the bottom of the valley find the soil sandy & poor, alternating with nearly impassible peaty swamps. The upper slopes & plateau above have the character noted yesterday.

Sep. 24. Left camp with anticipation of almost immediately reaching the Athabasca, but got at once into bad swamps & brule which delaying us much, caused it to be 3 P.m. before we had made a traverse of 4.85 m. to the rivers bank. Camped on the bank, the cargo being deposited on a bar, while our tents are pitched above, among small trees about 8' above the water level at present. The water has evidently been 8 or 10 feet higher in the spring than it now is. The Indian family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45m

accompany us, though they have left their camp, & some of the women & children where we camped last night. Two lads who came in yesterday evening also follow us, one of them being engaged to go down the river some way on a raft to look for any signs of Tupper. The river is here a rapid muddy stream full of bars & islands & resembling some parts of the Skeena though not so large. It does not look at all well suited for rafting down, & though our Indian friend says there are no cottonwoods large enough to make canoe, must endeavour to find one, or rig up a canoe of some sort if possible. The old man still hangs off & on though offered very high wages will not definitely engage to go down with me. Took Altair for lat. this evg. The banks of the valley are less than 400' above the river about here, & about 1½ mile apart, the stream tortuous. No good land, the tract passed over today being sandy & sterile, or boggy. The river flats are irregular about here & sandy also. All the original forest growth has been destroyed by fire.

Sep. 25. Up early, & before long had the Indian lad started down the river on a small raft, with note from Macleod to Tupper, a couple of days grub, & a handful of shot & powder. The old man, whose name we find is Antoine, goes off up the river to look for trail, & also to look out for cottonwood tree for canoe. Charley & others to cut wood to set up his canvas canoe. Day, & on till 12 P.M. devoted by ourselves chiefly to astron. observations, getting Sun by = altitudes for time, Sun on meridian. Altair on meridian, observations on polaris & on moon on meridian. Also an attempted observation of an occultation, which turned out abortive. Antoine returns about dark, having been up to Baptiste R, but found no trail & no good tree. Has seen plenty tracks, however, of moose & elk, & says he will go there to hunt in the winter. McNeil returns from short trip down the river, where he has been setting fire to a drift-pile & firing rifle in hope of attracting attention of Tupper's party if near — reports no good trees to be found. Determine therefore to set about at once the construction of a canvas canoe somewhat larger than Charley's, & strong enough for descent of river.

A warm summer-like day. Quite hot indeed in the sun.

Sep. 26. Review of tarpaulins & canvas this morning, boat blocked out & McNeil McLean & the Indian woman get to work at the seams, which are stiff & long. Charley, aided by the Indian father & son setting up the small canoe, which launched

early in the afternoon to bring the Indian who went down the river on the raft over. He reports no sign of Tapper. Went down till evening on the raft, & walked back during the night till the moon set. Started at dawn again & got here between 1 & 2 Am. Distance probably about 28 miles. Am. Charly goes to get wood to set up my larger Canoe, or boat. In the evening have a long palaver with the Indian whom we wish to go down the river with me. He very much dislikes leaving his hunt. The animals, especially the moose now fat & this the harvest season. Otherwise, however, willing to go, & eventually succeed in overcoming his scruples, giving him, however, the pinto horse on the spot, with a promise of an order for two bags of flour when he leaves us. Exorbitant wages, but no way of getting out of it. Having once made up his mind he assures us that his promise is like rock & under no circumstances will be broken. He has travelled much in the service of the Company, & 13 years ago went as far as York Factory on Hudson Bay. A warm & very fine day. Thermometer over 70 in the shade.

Sep. 27. All hands at work on the large canoe, sewing of canvas nearly finished by evening. Day pleasant, warm, partly clouded. Observed Eclipse of Jupiter's 1st. Satellite this evg, but not very satisfactorily owing to haze.

Sep. 28. Camp occupied all day in putting Canoe together, which successfully accomplished, & craft launched before 5 P.m. A cold raw day, overcast, with passing showers. Great barometric depression which now however passing over without bringing heavy rain or wind. Completed Cree vocabulary from Charles Ford. The Indian lad who is to go with Macleod — the same who before went down stream on the raft — came back from his uncle's camp today, & brought with him a present of dry & fresh moose meat. Dined on Moose moufle, that brought in yesterday to exchange for flour by the uncle who came over, not knowing that his nephew had gone back to his camp to see him.

Sep. 29. Canoes launched, & camp looked out about half a mile down stream on the opposite side of river. All stuff & animals crossed before 1.30 P.m. My large Canoe found very leaky, owing to number of seams & great area of Canvas, & so

The Maskootz has taken the ingenuity, & drawn heavily on the resources of the whole party in construction. She is made of a cargo cover, sewn together with my canvas bed wrapper & McNeil's. Framed like a bark canoe with sticks & lined inside with split pieces of black pine. These with string & rope in plenty are her materials. Self & McN. embark in her, with the Antoines, Father & Son, Crees, whom we can neither talk to nor receive information from save by signs. Camera, sextant, compass, barometer, thermometer, &c with with rifle, blanket, one small tent, pots & frying pan & provisions estimated for 20 days complete our outfit for the navigation of the Athabasca for an unknown distance. Saw a fine black bear today just taking the water to swim the river. Indian had fired but missed, & on getting out my rifle found not a bullet in it. Bruin trotted off into the woods.

The river almost uniformly very rapid, though no rapids of a dangerous character. The descent per mile must be great, & stream when travelled as today unsuited even for stern-wheel steamers owing to its velocity. Stream generally wide, spreading among numerous gravelly islands & bars which it is quite impossible to map in detail as we spin along. Benches & flats generally gravelly, with occasionally sandy layers near top. No good soil seen. Black spruce & pine woods. Flats & benches generally between 6 & 50 feet above water. River trough wide, & where well seen 300 to 400' above water to tops of banks. Banks of trough seldom both seen at once, & often run far along edges of low wooded flats or benches without seeing the banks of valley at all. Many exposures of sandstones & shales, horizontal or nearly so. Seldom more than 30' above water seen. Banks of valley generally sloping & tree-clad though numerous small streams notch them. Had passed mouth of Marsh Hd. Creek without observing it before guide called attention. Stream similar in size in large valley comes in on right side a short way below & will probably suit well for ascent of line.

my Indian – Antoine – who took his horse away with him to Camp on Marsh Hd. Creek has not yet turned up, proceed to get gum gathered & further work done on the Canoe. Overhaul ideas & get all that I am to take with me packed up. Day stormy with heavy cold wind & squalls with sleet & hail. Go over all supplies & divide amicably with Macleod. We have now each about 20 days provisions.

Sep. 30. Up early & get to work on canoe, melting up two frying-pans full of gum & bacon fat, & then with McNeil painting the whole bottom of Canoe below water line. Antoine & his little son, a lad of 12 or 13 appear just as we have finished & are ferried across the river by Charley & François who are helping Macleod to measure its width & depth. Get everything packed & piled on bank, cup of tea & early lunch, launch Canoe & set off at noon. The Canoe may be Called the Maskooto which is the Cree for Clumsy = perhaps. She seems likely however to answer admirably & now leaks very little. Travelled till about 5 p.m., Camping on right bank about a mile above some high cliffs. At about ____ miles below morning Camp see some blazed trees, & landing find a note from Brown! stating that he had reached the river at that place on the 23rd – when we must have been quite close to him camped on Marsh Hd. Creek – That he had left his horses about 30 miles to the S.E. having been unable to get further owing to want of supplies, & had travelled 3½ days on foot to the place where we found his note. Turns back from there to rejoin his animals & retreat on Edmonton. The primary cause of his unsuccess appears to have been the want of horses at Edmonton, though his note a little incoherent & not addressed to Macleod. Write on back of note date at which found, & say that as Brown was evidently in no condition to afford any assistance, & further that on course which Macleod intends to follow he is likely to intersect Brown's trail from the Sobstick; it did not seem worth my while spending a day or more in sending back a message to Macleod simply to say that we had found traces of Brown.

McNeil thinks he felt something like an earthquake, with a rumbling sound last night. Does not know time but thinks perhaps 11 O'C. Probably a slide of the bank of river.

River continues to have much the same character. Valley wider & bordering hills, or edge of plateau somewhat lower. Soil on flats, which often very extensive, improving. Often sandy but sometimes good. Flats covered with Black Spruce, aspen & Cottonwood, of the last named some trees now seen fit for making canoes. Higher flats observed yesterday now scarcely seen. Black Pine disappearing. On many flats cottonwoods have lost nearly all leaves & look quite wintry. Seems generally that clinging in greater or less quantity to aspens, though all yellow. Indian says the river rises at uncertain dates very fast, owing to rains in the Mts. Floods do not appear at any time however to exceed about 10' & not often to surpass 8' in this part of course.

River during morning pretty rapid, with many & large islands, in places filling up the whole bottom of the valley, which much narrower than before, for some miles of its course. Wide & very shallow in places among the islands, & also rapid. After passing the region of islands the current appears to get less & less & may be called quite tranquil here. Among the islands it would scarcely be possible for a steamer of any kind to ascend now, not so much owing to the swiftness of the water as its want of depth where the river spreads. Bars on the whole seem to be becoming finer & more frequently sandy. Flats often extensive. Soil generally sandy, but often rather a silt resembling that cultivated at Dunvegan, & not improbably equally well suited for crops. At a guess, about 1/2 the area of the flats — perhaps more — high enough to be free from river floods. Many slides

Oct. 1st Continue on down river all day without mishap through many little rapids, some gotten shoal owing to the splitting up of the river among islands. Camp as the Indian tells us not far from the mouth of the McLeod River. See a wolverine & some ducks today. Day overcast in am, clearing about noon & blowing up squalls of wind & rain from the W or NW in the afternoon. Chilly. Hear a gun shot at some distance after camping. Coal in numerous locs. on river today. Take lat. at lunch stop. See much beaver work along banks & traces of beavers now in occupation. Hear a couple plunging into the stream as we pass.

Oct. 2. Leave Camp at 7.45 & travel till 4.30 making a successful voyage & with less trouble from shoals than formerly. Current however being slacker do not get so far in proportion to time occupied. Shoot at a few ducks & geese unsuccessfully, with the rifle. Day cold & raw, clouding up with light easterly wind in the afternoon, & appearance of bad weather. Get sun at noon for lat. Camp in a snug nook under spruce trees, the stems of which are barked on one side by the ice, which has evidently piled heavily in this reach of the river two springs ago. Aspens & cottonwoods begin to look very bare, more so apparently than further up the river. Either the mouth of the McLeod R must be much further up than I had supposed, or we must have passed it without observing, which, according to Dr Hector's sketch would seem more likely. Antoine may have forgotten about it as it is a long time since he passed down this river before.

Oct. 3. Up in good time, but delayed a little in putting the first patch on the Maskoots. Get off at 8, but do not make a very brilliant day. Not long after starting come, to Antoine's surprise on the site of Old Ft Assiniboine. We have, as I supposed, passed the McLeod without seeing it. The place of the fort a wide flat on the N. bank of river, at level of 35ft above it. Gravel, with little soil. Fort's position marked by a few half burnt boards & beams, stones, & bones on the surface, & a rank growth of Chenopodiaceous weeds. Find no traces of late visitants, but put up board with name & date of passing. About two miles lower down the trail from the N, appears to come

The River today by no means so rapid as in upper course, probably not averaging more than 3 m. an hour. Very crooked, & except in the shoal water on bars in little rapids probably quite navigable for stern wheelers. Might be ascended I think to the beginning of the large Islands which must be near the mouth of the McLeod. Valley wide for part of course, but toward evening narrowing in, & banks again increasing in height. Little burnt country seen today, though quite the rule further up, with the exception of most of river flats. Flats extensive, soil silty & probably good.

Oct. 4.
The first few miles of the river exceedingly crooked, with numerous heavy slides along banks at convex bends. Valley here also narrow, but shortly widens, & stream becomes much more nearly straight. Banks of valley now never over 200' & appear to be lowering. Just above Lunch Point of today, the last little shallow rapid so far seen. Below this all tranquil, wide, & pretty deep; excellent for steamboats. Flats extensive, covered with Brulé or second growth of aspen & spruce. Soil silt, probably quite fertile. See a few tamarac trees. Sandy bars replacing those of coarse gravel.

Oct. 5. The river continues tranquil, though so wide as to be rather shoal in some places. One little rapid only, a few miles above evg. camp. This no impediment to stern wheelers of light draft, even at this season. A few large boulders seen projecting from the river today. Banks gradually lower, & lose their regular uniform escarpment-like character considerably, often declining by gentle slopes or successive steps. Banks covered throughout days course principally with aspen, though spruce, cottonwood, tamarack, birch &c also seen. A few trees which might be Banksian pine. Timber all small, apparently second growth, little trace of recent fires. Soil on flats generally fine silt. Fertile. According to Alberta, extensive ~~flats~~ swamps back from the river in some places

out on the river. Saw here, on the beach a stake driven with streamer of Gunny Sac attached. Stopped, & found it a notice from McConnell that he had passed on the 26th ulto. & would be at the Landing today, Oct. 3. Cheering to find that he had got so far safely. Got on the wrong side of one of the shoal rapids of the river, & had to pole back some distance after lunch stop, to run across. After all struck a stick in going down, the result of which was to keep the old man busy baling the remainder of the afternoon. Saw an Assineboine Indian, & stopped a few moments to talk to him. He appeared however to have no news, though he could speak a little French. Camped at 4.20, & on examining bottom of Canoe found a hole as large as the finger.

Oct. 4. Delayed in starting till 9 a.m., putting second patch on Canoe, & effecting general repairs. Camped at 4.20. Old Antoine quite sick all day, & during PM almost incapacitated from duty, which, together with our late start, & the now inconsiderable current of the river kept us from making a great distance. Day fine & warm enough in the sun, but still quite autumnal.

Oct. 5. Got away from Camp about 7 a.m., & Camped at 4.05, having made a pretty good days run with straight courses. Old Antoine still sick, but able to work pretty well notwithstanding. A chilly day, with squalls & passing showers. Clouds prevented observation at noon, also evening obsns. Took photos. looking up & down the river after Camping. Heard Cranes & swans flying overhead after dark.

Oct. 6. Again delayed a while patching Canoe, which is now generally frozen stiff in the mornings. Find considerable hindrance from a head wind, which blew strong & cold most of day, with generally clouded sky, & light flurries of snow. Reach the mouth of Lesser Slave River about 11 am. & find there, where I had agreed with McConnell in case he should come down the river, to leave dispatches; a little package swinging from a blazed tree, with note from Mr Gordon, enclosing one from Mr McConnell. The letters have been in this Poste Restante from from Sep 16. No news of Sterts, so decide must go up Slave River. Get obsn. for lat.

The mouth of the Pembina is deep & sluggish, with brown water from swamps & contrasting with the bluish milky hue of the Athabasca. In size disappoints my expectations.

Informed that the following streams enter Slave Lake River, in order ascending. Moose, Sawtooth, Pow-wow, & Muskeg. The first named rises in a lake described as being as large as Sturgeon L. Lake not far from Athabasca at mouth of R. la Biche. Near this lake a small stream named Calling R, rises & flows into Athabasca a short distance below the La Biche. A low country, partly prairie, with other lakes stretches through on the line of the Moose & Calling. From near the mouth of the La Biche, can see a "mountain" which on the N. side of Lesser Slave L, some ten miles from E. end (Raspberry Hill). A trail by which the Indians take horses follows this pass, coming out somewhere near the Slave Lake. A large stream enters the lake near this hill which also heads to the eastward, & might afford a pass (cut off) toward the La Biche. The trail mentioned is said to be a good one.

The river from the mouth up to this point is a small rapid stream, shallow where swift, & stony, with many large Laurentian boulders. Very crooked. Brown water, flecked with green [illegible] from Slave Lake. At every convex bend the stream cuts into the high bank, or plateau level. This 70 or 80' near the mouth, decreasing now to 50' or less. No higher land yet seen on either side of river. Frequent scarps & occasional small slides at convex bends. Concave bends occupied by flats gradualing in height from plateau to about 6 or 10 feet above water. Often partly open with fine grass. Area however, comparatively limited. Soil fertile fine silt, & that of plateau above apparently generally the same though perhaps more or less swampy away from river. A railway line would not follow the river, but take the level plateau on one side or other. Apparently very favorable. Ice marks on trees along banks to 15' above present water level.

which were badly needed, between flying clouds, & after lunch start up the river. Encounter Shoal rapids, & make one little portage to avoid crossing river. Find considerable difficulty from the awkwardness of Antoine Sen. & weakness of Antoine Jun. Camp early, about 2 m up river to get wellers letter arranged, & canoe thoroughly overhauled & strengthened. Soon after camping G. Marten & party of men with light boat on way down to Landing arrive, camping at same place, have left the lake this morning. Acquire considerable information as to country & routes. Write notes to McConnell & Brown, acquainting the latter with Mr Macleod's position &c.

Oct. 7. Hearing from Marten that still many rapids to encounter, manage to arrange through his kindness that one of his men, whom he is done with accompanies me. He is acquainted with the river, & can speak English as well as Cree. To prevent overloading canoe, get Marten to take Antoine Jun. in boat, to be returned to us when we meet in a few days as he comes back from the Landing. Have to give the man now engaged $2.00 a day instead of the $30 a month he has heretofore been receiving to get him to go, also to promise to pay At Jun. 1 skin per diem during time he has been working before his father would let him go. All arrangements made get away at 7.05 Am. & camp at 4.30 having made about 8½ m, all through rapid water. Antoine & Adam tracking all day through water, mud, bushes &c very hard work. McNeil steering & self with pole ahead, trying to warm fingers to make track survey of river between times. Day cold, windy & cloudy with scattered snow flakes falling now & then. Temp. probably below freezing all day. Mud along banks partly frozen, & ice forming on poles paddles & tracking line. Cleared & became beautifully calm shortly after sundown.

Oct. 8. Off at 7.15, & travel till 4.20, making nearly nine miles westwardly by reckoning. Tracking for first part of way, & then arriving at head of rapids, take to poling & paddling. The Maskoots travels up stream rather too much like a raft, but nevertheless stands the strain admirably. Day cold,

The banks of the river continue to decrease in elevation & now do not exceed 10 or 15 feet. Probable that extensive areas of swamps away from banks, from the numerous small streams which fall in, & the appearance of tamarack in many places. Soil clay, soon sometimes gravelly, but generally fertile, with fine grass growing in many flats. River continues tortuous, & above rapids has a current probably averaging about 1½ m an hour

Oct 9. River today very tortuous, current probably not averaging over 1 m. an hour. Stream from 90 to 200 feet wide. Banks now quite low, not exceeding 6 feet. Wide hay meadows with fine grass stretching away. Often bushy & wet. Often much forest fir trees but occasional tamaracks. Willows & stems of birches killed by fire many years ago & now quite rotten.

Oct. 10. The upper part of the river still retains its crooked character. Banks seldom more than a few feet high. Willows, with occasional groves of small poplar tamarack &c, but generally wide marshes with magnificent grass for hay.

Moose R. &c. Told by Indians that can go up Moose in canoes, making numerous portages owing to drift piles, & crossing over a portage, all low ground, about 2 spells (say 2 miles) reach the Calling R, & descend again to the Athabasca. This confirms what formerly told about the low pass on this line. The trail by which horses go direct to L. la Biche starts here at the head of the river, on the N. side. The trail to Assiniboine from this point described as good, few muskegs, nearly all burnt country. Slave L. said to be 70 m. long.

& following the coldest night we have so far experienced, the mercury going lower than my deep sea thermometer will register. Light fringes of ice along river banks where water calm, & drops freezing as they fall about the canoe for some hours after starting. See many ducks, muskrats, & one bear during day. Tracking & splashing about in the ice cold water is hard work for the men. Tried for a latitude obsn. at noon, but clouds intervened.

Oct. 9. Up before dawn, & away from camp at 6.30. Travelled till after 4.30 but did not make a great distance — about 8 m. only — owing to the very crooked character of the river, & the fact that the bottom is now too soft for poling, our canoe going very heavily under the paddle. Adam shoots 4 ducks during day. See numerous large flocks of geese & swans bound for the sunny south. Get. lat. obsn. at noon. Changed photo plates in evg. Promises to be a very cold night.

Oct. 10. Up again by starlight, & /stay the/ current soon. A boisterous blustery morning with flurries of snow & flying cumulo-fractus clouds. Cold & bleak. Off about 7 a.m. contending against strong wind as well as current of river. Soon after, in midst of blinding flurry of snow meet the H.B. boat making her last trip for the season to the Landing. They stop to cook breakfast, & I interview the man in charge, a half-breed who can speak only Cree & French. Tell him to let McConnell know, should he be at the Landing, where I am, also if no one at the Landing to meet me, to detain one of the carts which are coming out with goods for the boat. The crew a mongrel looking lot. Hard to tell whether Indians or half-breeds, rough misshapen, uncouth, unclean, but merry enough, with a great cauldron of potatoes on the fire for breakfast. Separate wishing bon voyage. Get only a little more than 2 miles from camp when reach a portage, 63 yards long, by which a bend of about 1½ miles is cut off, & the river reached near its mouth. Day being now become pronounced snow storm, camp on portage, & Adam going a short distance borrowed a small bark canoe with which we can go to the lake easily without the trouble of carrying ours over. Work some lats. & traverse, & about 4 p.m., the weather moderating somewhat, go out to the lake, a very short distance. Take sketch & some bearings, intending to return in morning to complete these, & get photos. if fine. A piercing wind, bearing now & then a flurry of snow sweeps across the great expanse of the lake, & a fierce surf

Lesser Slave Lake is a great expanse of water, & appears to be bounded by high hilly country at no great distance on either side. It is probably shallow throughout. Adam says he knows of only 2 places one on N & one on S shore, where it is deep along shore. These rocky also. The narrows, about 3 m. wide, not far from middle of lake. Boats rowing Eastward take N shore to narrows, then cross over to S. shore. An island of some size, & about 50' high in centre, near the outlet. The hills to the South flat-topped, like detached fragments of denuded plateau. Some traces also of horizontal lines as though flat-lying beds in them. Flat beaches of fine sand & sand dunes at E. end were seen. Some of hills probably reach elevation of nearly 1000'. Average perhaps about 500' or 600'

Oct. 13. The river today generally with considerable current, flowing steadily along at an average rate of probably 2 m an hour. Several rapids, but none very shoal or strong. A small stern wheeler could I think climb them all, even at this season. Some with bad boulders, however. The river does not now flow in a wide flat-bottomed valley, but is generally bounded by light slopes, which eventually rise to elevation of plateau, which must average 200 or 250 above stream. Flats along banks frequent, but not of great extent, narrow, & soon passing into the slopes aforesaid. General course of stream & valley identical, rather crooked, but no small flexures difficult to get round with line. No heavy or extensive slides, though slips have occurred in a few places. No large valleys enter during today's traverse, but line might mount out of valley by gaining grade at any desirable point. S side probably on whole more favourable than N. No hills seen on any bearing at any time, though the valley crooked enough to command considerable azimuth. Probably superior line on plateau above, as no deep gullies to cross. Ice marks on trees, & flood [illegible] on banks up to 12'.

River throughout wide through today's traverse, no crossing so good as above mouth of Lesser Slave R.

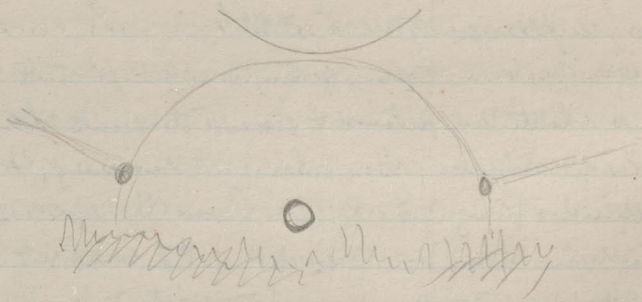
breaks in an irregular manner far out from the shallow sandy shore. Here a Swans skein flying overhead whenever the air not filled with drifting snow flurries. Find numerous tracks on the shore of shod horses & mules, from which suppose that McConnell may have passed this way after all. Meet Sugeni of our Indian friend.

Oct. 11. Antoine & Adam spend the night at the Indian camp, & return too late this morning to allow a very early start. Morning evidently clearing, but still overcast, with low clouds & light flurries of snow, with strong cold wind. Useless to attempt photos of Lake & cannot wait longer. Set off down stream, & camp at 4.20 a short distance above the mouth of Sawtein River. Day improving, but thermometer below freezing point, & very cold sitting in canoe. Meet an Indian in a small bark canoe, coming up, who has been with McConnell as guide, & has been six days on his way home from the Landing. The river water is down to 38° today, unpleasantly near 32°!

Oct. 12. Up early, & off down stream, getting nearly to first camp on this river by lunch time. Stopped a little early for lunch to ascend the bank at a spot previously selected. Snow which had been falling more or less all morning, in part thickened. Day very cold, with icicles fringing the canoe. Run all rapids safely, but on arriving at the Athabasca snow storm became so dense that could not carry on bearings. Landed at 2.30 & after waiting some time without finding improvement, decided to camp. Pitched in a warm looking dense spruce grove, the boughs well blanketed with lichen. The river this evening looks cold enough, with its shores covered with newly-fallen snow.

Oct. 13. Up before dawn. A fine starlight morning. Got away from camp at 6.45 & camped at 4.05. Stopped a little over one hour at noon, getting obsn for lat. No mishap or trouble today, & made good progress. Day cold, with chilly easterly wind. Snow still remains on the ground except on banks with southern exposure from which it has for the most part gone. Temperature of river water this evening 36°

Oct. 14. The river continues to preserve much the same character, generally steady & tranquil, but with a few little rapids, one of them rather strong. All could be passed easily however by a stern wheeler at high stage of water. Banks show more slides today than before, but generally similar to former. Some of these slides may give trouble to line, though nothing to compare with those seen [illegible] on Smoky R. & generally old, showing little sign of recent movement. "Light slopes" of survey may be said to mean slopes between 10° & 15° as a rule, though not, of course, very strictly adhered to. At the Landing a large wide valley, very easy route by which line may get out of Athabasca valley. (See Survey book). The crooked character of the Athabasca as a whole, its worst fault.



From Slave River down the principal tree along the Athabasca is the Aspen, mingled with black spruce & occasional balsam spruce. Cottonwoods & large spruce prevail on flats.

Oct. 14. Up early & off down the river. Light snow falling at intervals during morning. Cloudy, with glimpses of watery sunlight, & at one time a fine parhelion. Met the H.B. boat on the way up to Slave L. Her last trip. Landed at noon to try for lat. but clouds prevented success. Embarked again & pushed on for the Landing, which reached about 1 P.m. Found McConnell, Stephens & the animals all in good preservation, & very glad to see us. Martin & crew also here waiting for carts, on verge of starvation, & borrowing from our camp. Hear that Eberts has been to La Biche & returned eastward, leaving the awkward gap between there & this place. McC has already tried going eastward with the animals, but turned back by swamp & brulé. No trails of a possible character can be heard of. Decide to send McConnell & Adam, if the latter will go, round by the rivers to La Biche & thence to Victoria to meet us there on way in to Winnipeg. Try for Lat. in Evg. but baffled by clouds. No mail.

Oct. 15. Manage to arrange with Adam for the La Biche trip. Trade my gun & outfit belonging to it to Martin for a bark canoe for the expedition. Arrange with Martin to give Antoine Lee & son a passage to Slave Lake, giving him some bacon & tea as a partial equivalent for what they will eat on the way. The trip he estimates will occupy 10 days. Get the Maskoots burned in HB store; provisions looked out & done up for McConnell. Write order for Antoine on Slave Lake Post for 100 lbs Flour. Martin got away with his boat about 10 a.m. McConnell about 11.30 a.m. The carts which arrived with M's stuff late last night, return this morning early toward Edmonton. Measure river. Take two photos. Climb to plateau & take round of bearings. Evening clearing, & after waiting some time get series of observations for lat. Thermometer a little above freezing today, falling rapidly in the evening after it became clear. Some snow still lies on the ground.

The trail all day follows near the stream which joins the Athabasca at the Landing. Its valley runs nearly direct, & is wide & deep, though the sides are often a little lumpy & irregular. Terrace flats also occur & run for considerable distances. With the exception of limited areas in the valley, where fine timber occurs, the whole country has been burnt over, & is strewn with logs, among which bushy second growth appearing. Fine grass & pea-vine everywhere, & the region would be a good grazing one, though the soil generally sandy, both in the valley & on the plateau. On the plateau there are also numerous boulders, in places packed closely together, & mainly Laurentian, though with a few probably "Quartzite". Fairly good soil occurs in limited spots only, so far as seen. The surface of the plateau shows tendency to arrangement in N-S trending ridges, parallel in general way to valley of stream. Trail crosses stream a short distance before reg. camp, & for some miles down wide sandy flats with Banksian pine. From a hill passed over on trail got extensive view similar to that noted in field-book yesterday. Country for many degrees in direction of La Biche quite flat, with the exception of the low ridge noted yesterday. Safe to say plateau at about same level for 30 m. Only differences might be from valleys of streams, & these cannot, at a distance from the river, be extensive.

P. Banksiana closely watched today. Much less symmetrical in habit than P. Contorta. Branches more numerous & diffuse. Lower branches rise & droop again in a mode different from P. Contorta. Bark appears rougher & thicker.

Oct. 17. Country passed over today undulating plateau intersected by valleys of streams 50 to 150' deep. Soil sandy, or light sandy loam. Often gravelly or bouldery. Always a few inches of black mould. Fine grass everywhere. Land might be cultivated in many places but soil light

Oct. 16. Up pretty early, but owing to the numerous little matters requiring attention did not get away till nearly 9 a.m. Stephens having got a cart at Edmonton, much of our stuff goes in it, there being besides only 3 light packs, & three riding animals. Of these last one runs loose, McNeil rides the bell horse & I drive up the mules behind as far as I can find time. Day bleak, with a cutting easterly wind, though thermometer above freezing point far enough to make road very slippery & muddy. Camp between 3d & Rin horiz[illegible] made 17 miles. See a couple of Indians on the trail, but no other living thing. The little ponds now frozen over, ice an inch to 1½ inch thick. Wintry aspect with much of snow not yet melted, & showing no particular disposition to melt. Water of Athabasca this morning down to 33° with thin ice forming in still coves. We may be said to start today on our journey of 1000 miles to civilization.

Oct. 17. Off early, & travelled steadily on southward till 1 p.m., when seeing a stoppage ahead rode on & found Mr Tupper with two men. He had come out to find me to ascertain if any more definite instructions from Mr Macleod. Turns back & returns toward Edmonton with us. In a short time hear much news of the outer world, & get also two letters written at Metis last July, the first home news I have had since leaving the west coast. Camp at 3.30 between two shallow reedy lakes. Day partly clouded, but fine, & evening clear starlight. Got series of observations for lat.

Oct. 18. Up very early & off by 6.45. Travelled till 3.20 making 21.6 m., & camping on the Sturgeon River, which is said to be 20 m. from Edmonton. Day warm with light south westerly wind. Snow disappearing rapidly & road muddy. Generally partly clouded. Took observation on Polaris for lat.

Oct. 19. Up early & travel southward, arriving at Camp about 3 m. from Edmonton at 3.30. Would have got in much sooner, but lost the trail & wandered about for some time with no very definite course. Day fine though partly overcast.

Not altogether worthless for agriculture but of second rate quality. Chiefly burnt country, but some pretty extensive groves of Banksian pine. On plateau many little pot-hole like depressions irregular, & difficult to account for. General level of plateau seems everywhere about the same.

Oct. 18. Gradually ascend from Camp, & a few miles to S. cross the Arctic - Saskatchewan watershed. Not much above the general plateau level, though looking like range of low hills. Sandy, with groves of Banksian pine & poplar. Surface undulating & ridges with light slopes. Many more or less basin shaped hollows, probably formed by currents, which must have been strong & may have run in NW.-SE. bearings. Follow down small streams to the Vermilion River, chiefly through Banksian pines. Valley wide undulating depression. Stream sluggish & winding. Cross an indistinct undulating watershed, & follow down stream, on which a long lake to Camp on the Sturgeon R, also occupying a wide valley, but a much larger stream than the Vermilion. Fine hay swamps in parts of valley followed to Sturgeon. Country becomes distinctly prairie after crossing the Vermilion, short close grass, groves of willows, larger trees chiefly confined to stream valleys. Many buffalo trails & old wallows, with a few scattered bones. No signs of buffalo seen north of Vermilion. These prairies may have been produced by fire, but much older date than the grassy country to N, which still in process of clearing by repeated fires. Soil generally sandy & only good in spots to the Vermilion. S. of the Vermilion [?] though generally sandy, but mixed with much vegetable mould, often black & rich looking, & though not of [?] fertility, much of it would class as good land.

Strong warm S.W. wind. Evening windy & dropping rain. Supper, reading papers & to bed, glad to have finished another stage of the journey.

Oct. 20. Walked up to the Fort, getting Stephens to bring books & maps for work. Saw Mr Hardisty & others, & dined at his house. Soon after dinner, while working at maps Mr Macleod arrived ahead of his train. He decides to occupy empty rooms in officers quarters, send down to camp for bedding to remain here also to be able to decide on telegram & other matters. Evening reading papers, which, together with some home letters, were waiting for me here.

Oct. 21. At work on maps getting distances & lats. & longs. of points for length & route of railway line. Dined with Mr Hardisty, & after returning to quarters worked till past midnight with Macleod at getting telegraphic reports into shape. Telegraphed to Mr Fleming & Selwyn.

The Hudson Bay establishment here on a large scale. The buildings enclosed with a stockade which has bastions at the four corners. All in good repair. Bastions pierced for musketry & a couple of small cannons mounted in them besides three or four small bronze pieces in the yard. Office, stores, mens & officers quarters. ~~Bg.~~ blacksmiths & carpenters shops &c. &c. The trading store large & well stocked with everything that the heart of an Indian could desire, besides many things which one would hardly think necessary for Indian trade. Canned fruits, meats, jams, pickles &c. &c. Surprised to see a quantity of 'gingerbread' in thin square cakes. Mr H tells me that the Indians are fond of it. It is imported in cases from England, each cake being done up in a separate paper. It looks good enough, but is not improved by drying on the shelves of the store. When the first Indian treaty payment made here, one savage adjourned at once to the store & invested his money promiscuously, getting pickles, jams & canned meats,

Oct. 19. Soil from the Sturgeon to the Saskatchewan may be said to be uniformly rich, deep black loamy soil, yet warm & light enough to be worked easily. Where crops have been put in, wonderful returns. A gently undulating prairie of uniform fertility. Belts of aspen, with willows & small bushes forming copses at intervals. Declines toward the edge of the Saskatchewan. No water over considerable areas. Might probably be obtained, however, in wells.

Curry powder, Epsom Salts &c a freely asking how these things were to be cooked. The Clerk told him to boil them up together in a pot, which the Indian actually did, but was seen looking for the gentleman who gave him the advice the next day, & saying that they could eat only a few spoonsful of the mess & that afterwards they were all sick. The treaty payments by the way seem to be rather bad for the Indians in one way. Many have to travel long distances to place of payment & wait a few days before returning to their hunting grounds, losing altogether much time which they might more profitably employ otherwise. They get a very few dollars each after all & traders are on the ground to sell, getting nearly all the annuity. Another Indian trade story:— They trade here & in this district now usually by shillings, four to a dollar, having to a great extent abandoned the skin tariff. One Indian not understanding the matter very well, the trader gave him a number of ballets to serve as counters, which he paid back for goods bought. On counting the ballets after the trade it was found that some had not been returned, the Indian foolishly thinking that by stealing them he was getting ahead of the trader (!) His ballets cost him a shilling each!.

Oct 22. Got telegrams sent away by Indian messengers this morning, to Office some 30 odd miles to the South. Very inconvenient that the line so far off, & Mr Hardisty about to get it brought up to the Fort by arrangement with the Contractors who still possess the main line. Making various arrangements, looking for stores & additional buck-board &c. Afternoon took two views of the fort from opposite side of river. Examined coal in bank. The Saskatchewan can be forded opposite the fort at this season, horses & carts crossing.

Oct. 23. Making estimates of supplies & transport required, & other arrangements for departure. Took photo. looking up river from the Fort. P.M. Walked to Mrs Grote's to see about moccasins &c. Called on Mrs Hardisty. Went to see D. Ross who has a farm on flat a short way below Fort. An intelligent man taking much interest in country & very hopeful about it. Gave samples of grain & vegetables. Magnificent potatoes, Early Rose, also numerous seedling varieties, some apparently good. Ross says that the balls falling produce naturally great numbers of seedlings in the ensuing year, which soon become troublesome as weeds. Frosts occur seldom in June, very seldom in July & August (according to Ross, not unfrequent in August according to others). This year no heavy frost to injure vegetables till about Sept. 5. Tomatoes Cucumbers & Squashes will grow here, though sometimes checked by frost. On the whole frosts appear to be lighter here than on Peace River. Messenger returned from the Telegraph Station reporting that line down beyond Pelly & not expected to be in working order for some days. No use therefore in waiting for any reply to messages.

Oct. 24. Wrote note to McConnell, & got Charley Favel off with buckboard to Victoria, to meet us south of that place on the trail on the 28th. Packing up, loading cartridges for gun &c. &c.

R. Macdonald who has been farming here many years on a small scale — originally from Stornaway — says he has known seasons in which frost injured the potato crop by cutting down the tops, but very seldom. Has always ripened wheat, which, however should be put in as early as possible. Has had his wheat in early in April, as soon as the surface of the soil free from frost. Cattle if fed must be kept for 6 months, from November to first of May. Fife wheat this year. Sown 36 bushels, reaped 400 bushels. Oats 30 bushels, yield about 600 bushels. On new ground has sown 130 lbs oats & harvested 97 bushels. Cannot make Indian corn succeed. Has tried beans once & ripened seed. Destructive hail storms, limited in area, sometimes occur in summer.

Oct. 25. Carts & horses did not arrive last night, nor this morning till pretty late, as Brown had some trouble in finding the animals in the stage. Got accts with H B Co. settled, packages closed & actually started from Fort, having said adieu to Comrades, at a little past noon. Camped about 8 m. off, there being no water between our Camping place & the Barracks or Fort Saskatchewan. Have now in party, counting Cheadey & McConnell who will join us — 15 men 34 horses & mules, eight Red River Carts, two buck-boards. A fine day & not cold.

Oct. 26. Drove on ahead of Carts, reaching the bank opposite Fort Saskatchewan early. Crossed, & found Col Jarvis & Capt Gagnon nearly ready for breakfast. Spent day at the fort, being hospitably entertained. Carts arrived before noon, but a gale of wind blowing prevented crossing in scow. Camp made on N W side. Crossed about 4 P.m & took photo. of fort under very unfavourable conditions. Dull & wind shaking Camera. The fort a collection of low but substantial buildings surrounded by a stockade 15 or 20 feet high, with a small bastion of logs at one angle. Officers & mens quarters, prison, extensive stables &c. Post established in 1874 Col. Jarvis coming across from the Roche Percée. Opposite the fort, & in its vicinity on the same side, a considerable number of houses, also on the opposite side — a small R. C. Church. Farming beginning to be carried on & some fine stacks of grain. During the day a Cree called Grasshopper had an interview with the Col. The bands which he represented, numbering 300 or more, are in the vicinity of the Red Deer River. They have got cattle & some implements from Govt. & are about to settle down to cultivate, building houses &c. Now, however, no buffalo & on verge of starvation. Col. J. says they are behaving very well, & after enquiring into circumstances, told Grasshopper that he will send him back tomorrow with an ox & [illegible] of flour to help them through. They have been given some ammunition & have been living on ducks, but these have now nearly all gone. The Chiefs of the bands collected there are Ermine-skin, Sampson, & Bob-tail. It is evident that these Indians — Plain Crees — must be kept by Govt. during this winter or they will starve. This too is only the beginning of the demands ~~which~~

for support, which will soon pour in thickly enough. All the plain Indians owing to the failure of the buffalo will be starving this winter, & if not provided for at once will doubtless steal stock & provisions where they can, bringing on troubles. Grasshopper brings news that 34 families of Blackfeet have already starved to death somewhere south of the Cypress Hills. A great portion of the Plain Crees, & some of the Blackfeet will probably come to Edmonton & the fort for succour, which the Col. is not properly authorized to give on an extensive scale. Should any trouble arise he is very badly provided with ammunition, & in other ways, & has besides a very small garrison. The plain Indians have absolutely nothing to live on this winter, & it is scarcely likely that the buffalo will ever again be in sufficient numbers to be of much service in this respect. The time has all at once arrived when a complete change must take place. No robes or pemmican have come to Edmonton now for a year or more. Grasshopper, as he related the state of his people squatted on the floor, with a couple of Indians who afterwards had minor grievances to explain. He is rather a good-looking, though dried up old man, with a hooked nose, & long hair, one lock of which he allowed to hang down between his eyes. Other locks were strung with brass beads. A very old & faded H B overcoat served for attire. The wood Indians will not be harder up than usual this winter, having their fish & moose &c to depend on, but will no doubt be ready to claim a share of they can, of any relief organized for other tribes.

The Cannibal spoken of on a former page, is here at Fort Saskatchewan in gaol. Has been tried by Col. Richardson the Stipendiary Magistrate, & is under sentence of death, the execution to take place on the 20th of next month. He is called Swift Runner, & is not a bad looking fellow on the whole. He begs to be shot, not hung. He killed & ate eight persons, though it was proved that he could not have been starving. He appears to have gone about the matter deliberately enough. The bones found had been broken to extract the marrow, the skulls to

The victims, ~~his mother~~, wife, ~~half brother~~ & ~~three~~ children & two others, it is supposed, — his mother & half-brother.

got the brains. Many of the bones had been boiled & picked clean. The last victim was a boy, whom he killed not far from Victoria, where he could easily have come for relief if really starving. He acknowledges the truth of the charge with respect to some of the victims, but denies it in regard to others. His wife had long ago said that she was afraid he would kill & eat the family, as he had been threatening to do so, saying that his familiar spirit or Manitou — a moose — told him to do so. Other cases of Cannibalism are known among the Indians, but only in event of starvation. It is said a Christian Brother was eaten on Slave L. some years ago. Also that some Indian Hunters of the H B Co. were followed into the woods by other Indians & eaten. Also that 2 or more young employees of the Co. lately from Scotland, camping near some old Squaws lonely there, ~~...~~ knocked on the he head & eaten. Difficult however to ascertain the exact truth about these cases.

Agriculture. Lawrence Bros. give me sample of Hucklers barley grown opposite fort, which weighs 62 lbs to bushel, U.S. Standard. Yields well. Seed from priest at L. St Anne, said to have come from France. Reed, also opposite the fort, has over 100 bushels of oats to the acre weighing about 41 lbs. per bushel. 90 bushels of barley to the acre. Over 28 tons of turnips from a measured acre of land. Potatoes fit for use, & about the size of goose eggs at the Fort on July 12, last.

Oct. 27. Carts got across early this morning, & left the Fort about 9:30. Breakfasted at the Fort, took a number of photographs, & then followed carts, catching up at noon, after they had halted for lunch. Made about 13 miles, camping after sundown. Day generally overcast, with a little rain, but not cold.

Oct. 28. A wild windy night from 2 a.m. Up by starlight, as usual. Leave camp at 7.05, & travel till 11:30. After lunch got away at 1.20 & travel till 5.05 - Camping by fitful moonlight in the valley of a considerable stream. Day raw & blustry, with several dense flurries of snow in the afternoon, whitening the ground. See no living creature

but a single eagle soaring aloft. One of the pack-mules put into Cart for first time after noon halt gave some amusement by his capers & nearly brought the cart to grief. Distance by estimate a little over 20 miles. Road generally full of bad ruts, but improving toward Camp. Still snowing thickly at intervals, but this snow can scarcely lie, the ground having thawed out pretty well since last spell of severe frost. Soil good along whole route, but changes, with the simultaneous appearance of boulders, near noon halt. From Edmonton to this place, also northward to the Sturgeon R &c evidently based on nearly level deposits of old lake or arm of the sea, the finer materials washed down into it from neighbouring slightly higher ground. Accounts for nearly uniform fertility of soil over tract referred to.

Oct. 29. Left Camp about 7.30, & delayed some time brushing crossing of Creek, not half a mile off. Travelled on till about 10.30, stopping early for lunch as a long stretch ahead with scarcely any wood & no good water. Camped at 4 P.m. in a large valley, with small stream flowing eastward. Found McConnell & Charley Sorel camped at Crossing of trail from Victoria, with buck-board & horse. They packed up at once & followed us to camp. Now all reunited & nothing to do but strike for Battleford &c as fast as we can. Made about 20 miles today, the road on the whole being good. Reading papers brought from Victoria. Montreal Witness to Sep. 17! Flurries of snow alternating with sunshine. A cold nearly clear evening. Land passed over all good, though a portion S. of Egg Lake not of very best description, & with little wood or good water in vicinity. Egg L. occupies the [a portion of] bottom of a wide shallow depression. Several small ponds & lakelets passed on days march. Comparatively few boulders.

Oct 30. Travelled about 21 miles by Odometer, camping N. of one of the Lakes of the "Chain of Lakes" at 3.30 P.m. Day cold & raw, with little sunshine, cloudy overcast with light flakes of snow. The temperature of last night — 25 — brought out a display of gloves moccasins overalls &c this morning. Passed a family of settlers en route for Edmonton, with waggons & oxen. They left Winnipeg Aug. 6., & must have

taken their time by the way.

× *Country* up to lunch point very good, with very fertile soil, but in some places rather too much broken by small undulations, for farming. This broken country with very numerous small pools & lakes forms the bottom of a wide diffuse valley running toward the Vermilion. After lunch, along the Vermilion a chain of lakes — which occupy a valley 1 1/2 to 2 miles wide, & depressed about 100' — the land is not so good. About half the area of the valley bottom may be called land of second class, being encumbered with numerous Laurentian boulders in some places, & also hard & without much vegetable mould in other places. Fine growth of grass everywhere, however. Groves of aspen with spruce, forming thick woods along S. side of valley. The plateau above probably better land than the valley, which appears to have been lake-bed, or in places swept by currents of water at some time, concentrating the boulders elsewhere scattered through the drift. No Cactus, & scarcely any sage — either *A. frigida*, or *tridentata* seen about Edmonton or to here, implying a considerable rainfall. Everywhere quite sufficient for growth of crops.

Oct. 31. Travelled about 20 miles, camping in the Vermilion valley not far from the crossing on N.E. side. Road moderately good & straight. Day overcast & chilly, but without wind. Flakes of snow occasionally filling the air. Meet Col. Stewart the Indian agent on his way to Edmonton, with cart, buckboard, & two men. Several Crees interviewed us today, coming from a camp near ours of last night. They had not known that we were camped near them. *The Vermilion* has a wide valley, but becomes wider below the point at which "lignite" marked, & is now about 3 m. from rim to rim. Banks of valley 100' to 200' above river on average. Thick woods along S. bank in many places to about point above indicated, where also last spruce occurs. From lignite point on wood becoming scarce & small. Vegetation generally shows change depending on decreased precipitation. Grass shorter, though still forming a close sod, — begins to resemble bunch or buffalo grass. *Artemisia frigida* begins to be plentiful on southern exposures. Soil to lunch point good, thence, in valley & on slopes may be described as *fair*, though *good* in places, occasionally stony & boulder strewn. Soil on plateau above generally appears *good*, though not so heavy as that near Ft. Saskatchewan.

Nov. 1. Off in good time, Crossed Vermilion River, having to cut out the ice, which not strong enough to bear Carts & horses safely. Ford at this season easy. Animals miscounted this morning, & Brown & Stephens remained behind to look for lost animal, while really all in the band. Stopped early for lunch, but cut down stoppage to one hour. Travelled on again till 4.45, camping after dark near small lake where good wood. Passed a half-breed freighting to Edmonton with several Carts. Day overcast, though clearing towards evening. Cutting easterly wind, though fortunately not strong. Groves of aspen & willow abundant to point marked on track survey. Growing, however only on N. exposures or in valleys. Beyond this point only wood near trail small willows, to Camp, where small grove of poplar & plenty good wood. Soil may be called good throughout, though surface of country somewhat broken in places. Boulders abundant in some spots, but not sufficiently so to form serious drawback. Patches with gravelly subsoil occasionally found. Soil generally, & for some depth, — as indicated by badger-mounds — yellowish, greyish, or brownish, pale loam, varying apparently, from rather sandy to rather clayey. Covered generally with a few inches of black mould, which increases to a foot or more in hollows. The boulders appear to be imbedded in this. Thick, though often short sod everywhere, forming excellent grazing country. The rainfall is also probably everywhere sufficient for farming. Trees might be planted, & plenty good water probably obtained in judiciously-chosen wells.

Nov. 2. Leave Camp at 7.30 Stop early for lunch at last wood near trail, load wood on carts & start across a stretch of about 40 m. of country where no wood near trail. Change horses about 6 m. beyond lunch point, & travel on till 3.35, camping near a small lake with good water. Horse nearly demolished back-board by plunging about when starting after lunch. Made 22.4 m. by Odometer. Day cold & bleak with easterly wind. Only occasional glimpses of sunlight. Have some extensive views across seas of rolling russet coloured grassy hills, variegated with patches of rich brown & neutral purple where bushes & small aspen groves fill hollows, or shelter on northern slopes. Passing all day through hilly country, the undulations amounting to 300' or even more in some places, but generally 50' to 100'. This forms the northern

part of the Four Blackfoot Hills. Wide valleys, often nearly flat bottomed & numerous little lakes & pools with gently sloping banks, without outlets, or with flood outlets by wide grassy-bottomed valleys. Denudation not now active in the district, & most of lakes formed probably by inwash of soil or to old valleys. Everywhere fine grass, short & crisp on hills, long, & full of stalks of flowering plants &c in hollows. Wood scarce. Water of lakes fresh or only slightly saline. Soil same as yesterday, good, very constant in character. Almost whole surface arable. Trees require to be planted. Magnificent stock-feeding country. Swamps enough to cut plenty hay. ? whether the Blackfoot hills formed of drift only, or mark some feature of the underlying rocks -

Nov. 3. Left Camp at 6.30, & travelled 15 miles to edge of partly wooded country before stopping for lunch. Delayed rather longer than usual at lunch stop, interviewing Donald McLeod & party, on their way to Edmonton. Passed four trains of Carts & Waggons going westward during day. Camped after dark, having found some difficulty in coming across satisfactory combination of wood & water. Day partly clouded, not so cold as before, the snow thawing a little about noon. Little snow on the ground now, in many places. Light Easterly winds. Pass through a hilly country, which gradually declines to nearly level & almost woodless plain before lunch point. Thence to Camp undulating prairie with many patches of small aspen & willows. Undulations 20' to 40' on average. Soil similar to yesterday, but with thicker layer of black vegetable mould after lunch point. Rather light & inclined to be sandy near morning camp. Subsoil varies from pale grey to yellowish-brown & snuff-coloured; occasionally pebbly. Appears to be composed of Cret. & Tert. clays & sands poached up & mixed with boulders, chiefly Laurentian. Very uniform in general character, & with admixture of varying proportion of vegetable matter, turning it black, forms the surface soil. Soil may be described as generally fertile, of first-class, but not super-excellent like that about Edmonton &c. Wood of any size everywhere scarce, but whole surface probably arable. Small bouldery ridges not uncommon between morning camp & lunch point. Thence not common

Rainfall probably small – at least between morning camp & lunch point – Artemisia frigida more abundant than before. Small thickets of stunted Eleagnus. Rainfall however probably sufficient for agriculture. Closed track-survey on picket 3006 of the Railway location line.

Nov. 4. Made about 20 3/4 miles by odometer, camping early as wood for camp supposed to be scarce ahead. A flurry of snow in the early morning, followed by clearing weather with westerly wind. Blue sky & sunshine in the afternoon, clearing away nearly all the snow, & partly melting the ice on the little lakes.

To lunch point, – ten miles – soil & country similar to that before described. Soil good & many groves of small poplar. Undulating surface, & very pretty country. Soon beyond lunch point begin to enter Wolf Hills, a more broken country, but the undulations seldom exceeding 50'. The soil at the same time becomes more sandy & the subsoil also partakes of same character, losing its former appearance. Many of the swells rather abrupt & quite poor & sandy, bearing often bear-berry & sometimes stunted juniper. Cut out by the wind & hollowed everywhere with old buffalo wallows. Numerous small lakes ponds & swamps intervening between the ridges & hillocks. Good hay grass. The remainder of the surface, being perhaps about 1/2 of good to very good black sandy loam. About 1/4 ~~[illegible]~~ of surface covered with willow & poplar groves, the trees evidently protected from sweep of fires by broken character of country, & attaining a somewhat larger growth than before.

Nov. 5. Leave Camp at 6.15, & make over 30 miles before camping, on a good road. Day fine, with little wind, & sunshine. Camp at two lakes which about 8 miles from Battleford. One of these lakes saline & the other good.

From morning camp for about 13 miles, country gently undulating to nearly flat, & soil good, being sandy loam, nearly black, to a

considerable depth, or a thin covering of this over a subsoil like that met with near Blackfoot Hills &c & of which samples taken, woods scarce & smaller from this point to evening camp the ground becomes hilly again, this is also a portion of the Wolf Hills, & resembles that described yesterday. Sandy & abruptly undulating. Soil generally second class though most of it arable & some fine land in hollows. Poplar woods - stunted - cover considerable portion of country. Grass on hills rather short & thin. Patches of Arctostaphylos & juniper. Many small lakes & pools, often with good hay grass. To the southward, yesterday pm & today the broken escarpment forming the western continuation of the Eagle Hills. Represents edge of 3rd plateau. Soil to S. probably different from that passed over - at higher level. Probably poor & little wood according to Palliser. The N. slope of the scarp pretty densely wooded with poplar, forming excellent reserve for fertile land to N.

Nov. 6. Travel in to Battleford barracks, a little over 8 miles, arriving early. Find Major Walker away but hospitably received by Capt. French & Dr R. Miller. Find newspapers &c to occupy attention. Dined with Capt. French. Pm to store, telegraph office &c & visited Governor Laird & Mr Scott. Evening writing telegram on Lake La Biche Route & reading. Carts all overhauled this pm, buckboard axle straightened &c.

Country passed over to Battleford generally light sandy loam, with some sand hills, for the most part arable but soil not of first quality. Fair to good crops raised round Battleford. Very good of potatoes, but question whether rainfall sufficient with this light soil every season. The police quarters at Battleford on the N. side of the Battle River, on the brow of the bank about 100' above the stream, & over a mile from the other Govt. buildings which on opposite bank, about 200' above river. Governor's residence & NW Council Hall in one building, with other Govt. buildings - residences for a couple of officials - at a little distance off. The town situated on the river flat on S. side. A couple of unpretentious stores, telegraph office &c, forming a straggling village. About 20 men in the place without counting the fluctuating population of Indians half-breeds &c.

wood in the vicinity of the "town" rather scarce & no timber of good size for building in the immediate vicinity. Soil on the flat on which police quarters — Sandy loam (black) about 6 inches. Sandy loam (brown) about 18". Layer of tenacious silt (pale) 6 to 9 inches. Coarse clean sand forming subsoil to unknown depth.

Nov. 7. Slept in the barracks last night. Breakfast at 8 a.m. Oats & shipper, with other supplies o.k. & left eastward about 11 a.m. Crossed Battle River on the ice, which just strong enough to bear the horses & carts. Enquire at telegraph office but find line still not working further than Pelly. Leave message for Mr Fleming. Day overcast & lowering with light snow, but mild. Camp just before dark having made 13.6 miles. Provoking to travel in this slow manner in the vicinity of a telegraph line, & also to be in the office & see the operator conversing with Humboldt & Pelly, places which it will take one weeks of travel to reach.

Follow the river trail, travelling along the broken southern slopes of the Saskatchewan, & never very far from the river. High ground of the Eagle hills rising to southward. Appears from our route merely to form edge of plateau, though from a distance resembling range of hills. At about 5 m. from Battleford boulders — chiefly Laurentian — become very abundant & large. Limestone — cream coloured — also not uncommon. Soil generally rather light sandy loam, but may be called good throughout, & in some places as heavy as desirable. This refers to slopes of river & does not describe plateau to N. — which reported very good — or plateau & Eagle Hills to S. — which said to contain much good land also.

Nov. 8. Up at 4.30. Travelled only about 5 miles to lunch point, the road being very hilly owing to valleys deep & large opening into that of the river. Road slippery from light snow of last night, & frost. Travelled on more rapidly in the afternoon, making in all 18.6 miles. Day very fine with bright sunshine melting away nearly all the snow, but beginning to freeze again at about 2 p.m. A stray mare which joined our

band of animals yesterday & could not be driven away, was this morning lassoed, hobbled, & left behind.

Still travelling along not far from Saskatchewan, which now frozen over with exception of the more rapid currents, where much ice running. Country undulating or broken declining toward river. In some places evident that many old land-slides, now completely rounded down & overgrown. May these have possibly occurred when the region covered with forest? Ridges & hillocks generally covered very thickly, or almost paved with boulders. Not seen in valleys & lower slopes where evidently covered by soil which has washed down. Ridges often gravelly. Boulders chiefly Laurentian but nearly 1/3 now of white, cream, yellowish or pale reddish limestones. Many, especially of the limestone boulders very large. Noticed Encrinal columns in some. Soil in hollows generally good, but not extensive in any one area. Cross plain about 12 miles wide before reaching camp, the soil of which good & surface moderately level. Extends some miles southward. Very little wood, though visible on slopes of Eagle hills to S, & on S bank of river also found. Land generally cannot be said to be of first class character, being so much broken. About 1/2 may be counted arable & all good grazing land. Buffalo grass (Bouteloua oligostachya) more abundant now than formerly though not uncommon for some days back. May the sandy character of ground about Battleford be attributed to currents sweeping round N. base of Eagle Hills?

Nov. 9. Lost some time this morning owing to straying of horses, & though up at 4.30 did not get away till 7.55. Soon after leaving camp met Major Walker N.W.M.P. on way to Battleford, with two men. Stopped for lunch at Eagle Creek, & camped at 4, P.M. near Maple Creek, on the bank of the Saskatchewan. Day bright, but with cold cutting Easterly wind. Thawing slightly on sunny hillsides for an hour or two about noon. This morning & yesterday the grass & bushes covered with a beautiful frost rime in large flat crystalline flakes, condensed from the air. Passed today a train of 13 carts, with half breeds from Prince Albert. Passed the mail in a waggon yesterday, going toward Battleford.

Country to Eagle Creek rather broken with ridges composed of boulders, often large & a large proportion limestone. This forms the declining edge of the Eagle Hills, sloping toward the river. The Eagle Hills proper appear as a conspicuous escarpment some miles to the South, & gradually leaving the river. Do not appear to be continued by any high land to the N, which a level plain. Soil between the ridges generally good though often light & gravelly. Too much broken to be desirable for agriculture. Trees & bushes only in coulées. Eagle Cr. a wide valley with sections of pale yellowish drift studded with boulders. About 200' deep & over half a mile across. Stream 30' to 40' × 1' rapid & gravelly. Beyond Eagle Creek to Camp surface undulating with only occasional bouldery ridges. Soil generally good – rich sandy loam – but rather variable in character & devoid of timber.

Novr. 10. Up at 4 am. but owing to straying of horses did not get off till 7 30. Morning misty & very dark, silver frost covering the grass & bushes. Camped at 3.15 having made about 22 miles. Uncertainty of finding water prevents longer journey. Afternoon nearly calm & perfectly clear but sun scarcely thawing the frost. Camp on edge of descent to Saskatchewan, 300' above the river. The bank here composed of series of old slides now forming parallel ridges, rounded & grassed completely over. Sun goes down without a cloud, taking strange shapes owing to refraction as it sinks below the sharp & perfectly level edge of the prairie across the river to the west. Atmosphere wonderfully clear & crisp. Pass a train of carts with half-breeds going W. Prairie passed over today nearly perfectly level, or with gentle undulations scarcely perceptible from a distance. Boulders not unfrequent but not so large or numerous as before. Generally form little ridges or low knolls when they occur very thickly, with gravel &c. Imbedded in matrix of yellowish sandy clay. This generally forms the subsoil, or has several feet of finer soil above it, leaving 1 foot to 6 inches of blackish veg. mould. Soil generally may be called good & with exception of occasional stony patches all arable. Grass short & crisp, but rainfall probably sufficient for crops. No wood except along coulees & river banks.

See a grove of well grown Maples soon after leaving camp. (Negundo)
Country passed over in the afternoon nearly all burnt.

Nov. 11. Up at 4 a.m., off some time before sunrise & travelled about 18 miles to 6-mile Creek before stopping for Lunch. After Lunch Macleod goes ahead with Charley with one of buckboards & a riding animal intending to make Duck L. Leave the N. trail some miles from Carleton & strike across by dim trails to the road leading from Carleton to Duck L. Camp shortly after sunset but without finding water & have to melt snow for supper. Some depth of snow in shady localities here, where heavier snowfall has evidently occurred. Morning cold with cutting E. wind. Afternoon moderately warm, the sun removing frost from trees. Partly clouded all day. About 3 miles from last night's camp enter clumps of aspen & bushes which continue & thicken toward Carleton. Prairie very gently undulating becoming more markedly so toward Carleton & evening camp. Soil to edge of woods similar to that before described. Thence evidently richer bearing heavy growth of grass & weeds. Rather variable in character but may be described as rich dark sandy loam of variable thickness but apparently seldom over a foot, resting on paler, generally yellowish sandy to silty subsoil. Very few boulders seen. Few swamps or ponds.

Nov. 12. Travelled 8 or ten miles to Duck Lake, camping near Stobart Eden & Co's buildings & store. Heavy snow in the night, falling quietly & on looking out this morning on the ground 3 or 4 inches deep. Found no difficulty however in travelling in with carts. On arriving at about 11 a.m. found that M. had already procured flat-sleds, ten in number to substitute for the carts, it being the opinion of everyone that this snow will last. Remainder of day spent in getting sleds put in order, supplies ordered &c. See some late papers. Wadsworth, inspector of Indian Farmers here looking for chance to go to Winnipeg. Hughes in charge of Stobart & Co's establishment, which extensive. Houses of half-breed settlers scattered along today's route, with some fenced land & fields.
Country passed over undulating or hilly the height of undulations 20' to 30'.
Soil apparently everywhere good & of same character as last described.

A number of Teton Sioux from Sitting Bull's band now scattered about this part of country & loafing about settlements trying to pick up a living as best they can. It is of these people that the settlers at Prince Albert are afraid, & the rumors (unfounded) lately started of depredations on cattle.

Novr. 13. Sleds got away between 10 & 11 am, we following in buckboard & overtaking them at Batouche's Ferry on the S. Saskatchewan. Crossed on the ice, which quite firm, & stopped for lunch about 2 m. beyond river. Travelled on during Pm, about 9 miles, camping just before dark. Mr Wads[worth?] took charge of our party, which consists of 10 sleds, Carriole-sled (Wadsworth's) & two buckboards. Day cold but fine clear & calm. Thermo. a few degrees below zero at 6 Am. Men yet a little awkward in management of the flat-sleds or toboggans & animals shy, many overturns & little mishaps. Country passed over gently undulating becoming boldly undulating toward camp, & rising at the same time toward a range of roundedly-broken hills or escarpment which runs SW-NE; & the crest of which is still about 3 miles off. Soil apparently everywhere good bearing fine growth of grass & weeds. Groves of aspen & willow scattered everywhere. Many small lakes & pools probably occupying original depressions in drift more or less modified by subsequent denudation. Boulders very abundant & large in bed of S. Saskatchewan but rare in region travelled over to Camp from it.

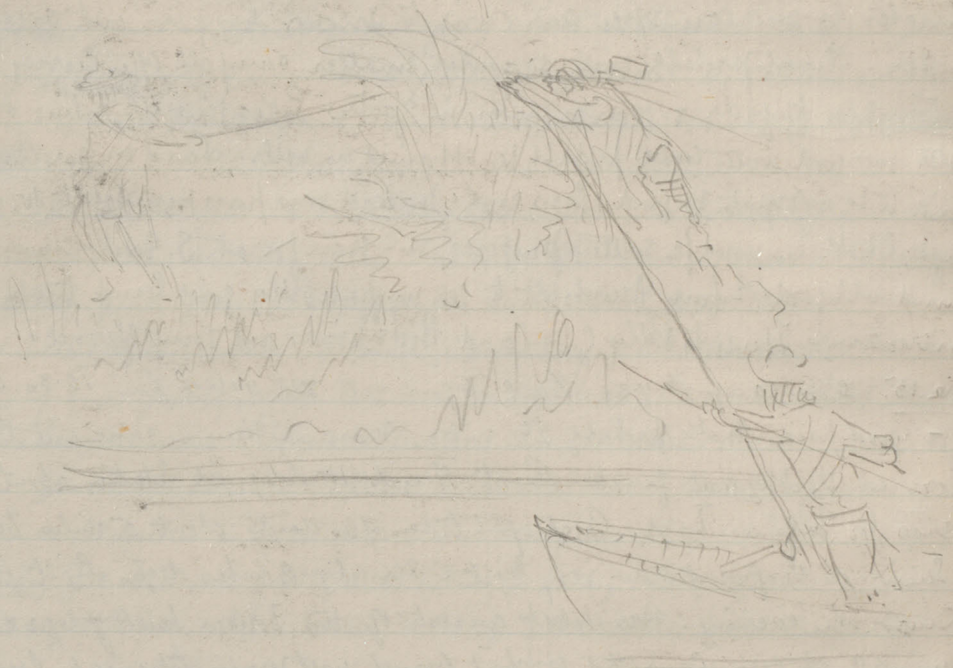
Farming. The season being short enough for ripening of cereals, cultivation & sowing must be done as soon as possible in spring & all labour saving machinery of great service. This remark applies to most of the North-west Country.

Novr 14. Night rather blustry. Leave camp at 7 am & travel till 4 Pm, excepting 1½ hour at lunch stop. Morning cold with keen NE wind. Pm not unpleasant, but day generally overcast. Made about 26 miles. From camp, for about 5 miles passed through rather broken hilly country referred to yesterday. Wood & small pools & lakes abundant. Thence over undulating plains, with wide valleys holding lakes. Boulders scarce, wood in many scattered groves, & considerable

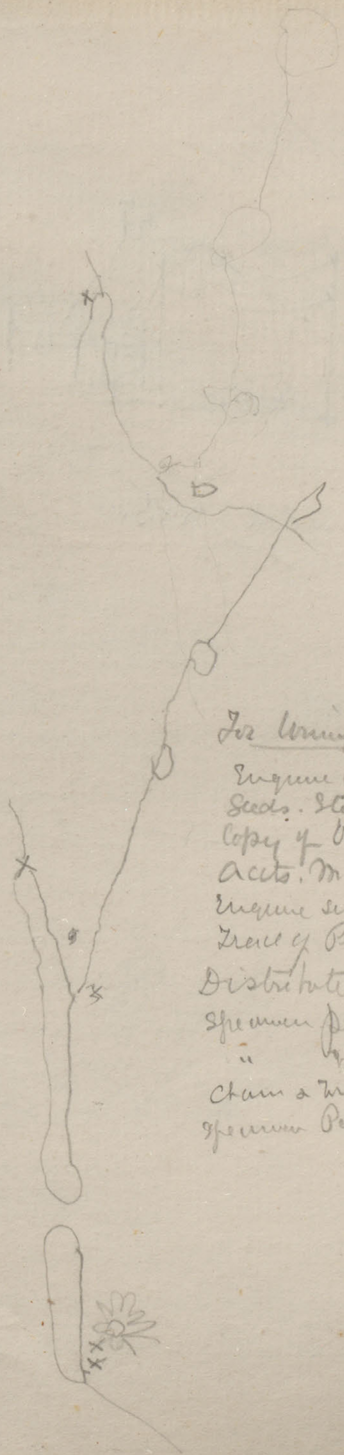
proportion of Coppice. Land appears everywhere rich & good though precise character of soil cannot be seen owing to snow. Long grass with weeds & small bushes. Climate probably with somewhat smaller rainfall after leaving the hills. Artemisia frigida not uncommon in spots. Lakes generally somewhat saline & little running water but good water could probably be obtained in wells. Land on parallel trail to S.W. said to be not quite so good. Less wood. Macleod says from Humboldt W. on tel. line to Eagle Creek no wood for settlers purposes, not even ~~for~~ at S. Saskatchewan crossing but land all good. E. from Humboldt to 100 m. from Pelly good land timber abundant & increasing. Thence to Pelly good land, thick woods with some spruce.

Nov. 15. Leave camp at 7.30. Travel at good rate till 11.15 & from 12.30 to 4 P.m., also at good pace. Make probably 28 miles. Morning keen & raw with trees & grass covered thickly with frost. Reach Humboldt Telegraph Station about 3 P.m. & stop for half an hour. Catch up to train after dark about 5 miles beyond. Snow on the ground now very light & scarcely 2 inches deep. Light flurries of snow in evening. Humboldt consists of two houses built of logs & mudded in usual style. Connected by short branch with main telegraph line, & a set of Govt. Meteorological apparatus mounted.

For about 15 miles from morning camp travel through hilly country with numerous aspen groves & small pools & swamps. Boulders scarce. Soil evidently rich & good though somewhat too much broken for extensive farms. Water of pools generally saline but not very strongly so. From point above indicated to Humboldt open gently undulating plain with no timber about ten miles wide. Grass has been burnt. Boulders not uncommon some small ridges thickly studded. Soil generally good though inclined to be somewhat light. Subsoil occasionally gravelly. Surface however everywhere arable. From Humboldt to camp surface boldly undulating. Aspen & willow groves abundant, many small lakes & pools. Soil probably good everywhere. Not very numerous boulders.



Humboldt N.W.S.



For Winnipeg

Enquire as to bridge Borings.
Seeds. Stewart Egan & Co.
Copy of Irvin & Macleod's telegrams.
Accts. McConnell.
Enquire summer frosts.
Trace of Peace R. reduction map.
Distribute grain samples.
Specimen pemmican
" bears grease
Chain & bracelets
Specimen Pembina Coal.

Nov 16. Up early but did not get away till 8.30 being delayed by the animals which had strayed away on burnt ground. Travelled about 8 miles to lunch stoppage & the same distance to evening camp, which at the last wood on the N. side of the Salt Plains. Camped early not judging it expedient to go out on the plains which are said to be 30 miles wide. Morning cloudy, afternoon clear. Light westerly wind & no feeling of cold though the sun makes no impression on the dry snow. Thermometer −4° at 6 P.M.

Country to lunch point undulating scarcely any wood but willow coppice. Soil generally good. Very good in hollows. Some boulders. In the afternoon similar country similar soil though perhaps somewhat lighter. Frequent aspen groves.

Nov 17. Thermometer went down last night to −9, the coldest we have yet had. Up early to get a good start to cross the Salt Plains, but delayed till 9.30 owing to the straying of Wadsworth's two horses. All the other animals in & hitched up. Travel about 10 miles to last willow thicket affording a little shelter. Stop there for lunch, & then away across the plains travelling at good speed till 7 P.M., long after dark. Day raw with southerly wind & mist with dull lowering sky. Threatening snow. Road seemed almost interminable & all ready for supper & rest when we reached a suitable thicket of dry wood in the Touchwood Hills.

Distance travelled about 36 miles, of which the Salt plains proper, destitute of wood or brush of any sort, except along the northern edge the coppices of stunted willows already referred to — occupy about 30 miles. We are now about 5 miles into the Touchwood Hills, the first part being without good wood & the grass this season burnt off. The Salt Plains gently rolling prairie probably considerably lower than morning camp — perhaps as much as 200'. No running water seen at this season. Pools & small lakes nearly all saline. Boulders pretty abundant in some places, especially in swamps & depressions. Soil appears to be based on material like that described near the Beaver Hills, but containing often a good deal of white limestone gravel. Variable & sometimes considerable thickness of black

loamy soil in hollows. Soil of plain generally may be described as good second quality. Bears everywhere a close though not very long growth of grass, though this probably rather better than usual this year owing to wet character of early part of summer. Rainfall generally probably pretty light, but plains probably for most part cultivable. We are now, on the Hills probably 300' higher than morning camp. Ground toward base of hills gradually becomes more boldly undulating & turns hilly, affording shelter to timber. Boulders not specially abundant.

✗ Nov. 18. Did not leave camp till 8.45. Travelled about 8 miles to the establishment of the Govt. Indian Farmer, one of those sent up this summer to instruct the Indians. He has built a small house & stable, dug a well & made preparations for passing his first winter in a business like way. Name Scott. Lunch, & then travel on 12 or 13 miles to Touchwood Post of Hudson Bay Co. This consists of several good buildings & looks neat & comfortable. Camped about 1/4 mile from the post in the edge of the woods. Animals put in fenced enclosure & fed hay. McBeath, in charge of the post is away at the Mission, 8 or 10 miles off looking up grain for us as requested in letter sent ahead to him by the mail-carrier. A bright day, with ~~snow~~ softening a little in the sun in early afternoon.

Country passed over part of area of Touchwood Hills, boldly undulating to hilly, though amplitude of undulations seldom over 100 feet. Aspen thickets & bush abundant, in some places covering half the surface. Small lakes & pools, often very pretty, scattered everywhere in great profusion. Irregular in shape & size, & probably occupying original depressions in surface of drift, more or less modified by subsequent denudation. Boulders not very abundant on the whole, but thickly packed on crests of some ridges. Soil appears everywhere very good, & though surface often too much broken for extensive fields, many areas large enough for good farms. In farmer's well, has gone down through 28 feet of strat. yellowish-grey sandy clay to more permeable layer in which plenty

water, but rather hard. This material forms the bed of one of the hollows between ridges.
Met Mr L. Clarke of Fort Carleton at the farmer's place. He is travelling with a number of good horses, one sled & a flat sled called the "Saskatchewan" fitted up for his own use. He left Winnipeg only 8 days ago.
A fine carmine sunset.
Novr. 19. Stayed all day at Touchwood to rest animals, which can here be fed hay. Learn from McBeath that no grain can be had. The mission about 15 miles off. No barley thrashed & uncertain even if thrashed if any to spare. Must push through to Ellice (130 m) as best we can with no other feed than the dry & now snow-covered prairie grass affords. Many freighters are still on the road however with nothing but this to depend on for their animals. From Ellice in we can get grain. Took a couple of photos of the post more to test the behaviour of plates in cold weather than anything else. Thermometer at time about 8° above zero.
A heavy gale of wind last night from 8 pm to 4 am. west & then north. Today clear & bright though cold & thermometer at 6 P.M. -13°.
Novr. 20. Left about 7.30 & travelled till 11. Then from 12.15 to 5.45 making about 12 miles in the morning & 14 in the afternoon. Morning rather keen but day on the whole very good for travelling with much sunshine in the afternoon.
From Touchwood Post to lunch point hilly country largely wooded with poplar &c. Similar to that before described. Soil good. Surface rather too much broken for extensive farming. Many pools & swamps. From lunch point to ~~[illegible]~~ ~~[illegible]~~ within about 3 miles of evening camp country described as a plain. Little timber though many willow thickets. Really differs little from the Touchwood Hills but in decreased height & greater width of undulations. Soil generally very good & surface well adapted for farming. Many small pools & swamps. Two or three nearly circular, or oval basins depressed about 30' below general surface, about 1000' long & without outlet. Probably original depressions in drift but singularly steep-sided. Many

boulders in swampy depressions especially. Soil vegetable mould of varying thickness based on pale yellowish sandy clay of the drift with small gravel intermixed, appears to resemble pretty closely that examined N. of the Beaver Hills.

Grasshoppers McBeth says no grasshoppers worth mentioning at Touchwood this summer. A few, however, observed flying from the west about July 17th. In 1875 great numbers arrived & the insect hatched out in great force in 1876.

Nov 21. Travelled about 12 miles to lunch point & thence 8 miles to Camp at the last thickets affording shelter on the north side of the Pheasant plains. Day fine & mild though sun generally obscured. Wind W & NW. Snow softening a little about noon.

Country passed over, to lunch point similar to that before described. Boldly undulating or hilly though undulations seldom over 50' in height. Many small swamps & pools. Soil generally good but ridges frequently rather gravelly. In gravel limestone abundant. Boulders not uncommon. Chiefly Laurentian. Surface generally too much broken for extensive farms, about 1/4 wooded. From lunch point to camp undulations decreasing & extensive areas everywhere easily cultivated. Soil good. Timber moderately abundant to within 3 miles of Camp.

Animals feeling perceptibly for want of grain, but will probably go through all right to Ellice. One mule - of my lot - already left at the Indian farmers. A horse at Touchwood to be taken back to the farmer to be cared for.

Nov 22. Up early & left camp at 6.30. Travelled till 10.30 making about 18 miles & in the afternoon from 12.15 to 3 P.M. making about 11 miles. Day fine & clear but with a strong cutting NW wind rendering travel unpleasant. Lunched in an open unsheltered spot in the middle of the Pheasant Plains. The wind

nearly carrying the fire away & making eating an unpleasant & chilling business.
The open stretch with no timber whatever extends from morning camp about 21 miles. Pass then for about two miles through country with some coppice & then again through open country to camp, which is a point of wood nearly half a mile south of the trail. Country undulating, or even hilly in some parts of the pleasant plain. Extensive stretches not too much broken for large fields. Soil generally fair to good. Ridges often more or less gravelly, the gravel being mixed with the black soil, fine, & largely of limestone.
Nov. 23. Travelled about 25 miles — fourteen in the morning & eleven in the afternoon. Camped some miles east of Cut Arm Creek. Morning cold & clear, light westerly wind. Calm about noon, then southerly wind, milder, sky becomes cloudy & in evening a few flakes of snow. Snow considerably deeper as we go southward. Here about 10 inches. In some places heavy & hard packed drifts making wheeling heavy for the buckboards.
The first four miles over open undulating prairie. Then about two miles through country with coppice & small aspen groves. Then across the "12-mile plains". Then reach a country somewhat hilly groves abundant. Many small pools & swamps, Boulders scattered everywhere but not in great numbers. Soil generally good so far as can be seen. Similar to that described yesterday. Valley of the Qu'Appelle in sight to S. all day. Considerable groves on its southern bank. Much of country seen today not too much broken for extensive farms.

~~Sep~~. 24. Made about 15 miles to lunch point, & thence 11 to camp where trail falls into the Qu'Appelle Valley, Strong NW wind all day with squalls of snow & in some places heavy drift. Cold & disagreeable travelling. Animals beginning to weaken on the course of hard travel without grain. Both Jim & Baldy played out in the buckboard, the wheeling being very heavy. Passed one dead horse by the trail yesterday & a second today, showing that other travellers are suffering under the hard weather.
Cross Cut Arm Creek about two miles from Camp. The valley about 150' deep

but not wide in the bottom. This stream the first running water worth mentioning since leaving the S. Saskatchewan. On leaving the Cut arm the soil begins to be sandy & gravelly & at lunch point, — about 13 miles beyond quite sandy. From Cut arm to lunch point one plain several miles wide but country generally with small groves. Spy Hill a remarkable little elevation about 100' above general level. Two or three miles beyond lunch point leave the partly wooded markedly undulating country & travel over almost perfectly level plain with no timber except along valley of the Qu'appelle & its Coulées to Camp. Soil evidently sandy & rather poor. Perhaps too poor for cultivation but fair growth of grass mixed with Artemisia dracunculoides &c. Bear-berry & ground juniper abundant in spots. See some small oaks where we descend into the Qu'appelle valley at "the Springs".

Sep. 25. Off at usual time & travelled about 6 miles to Ft Ellice. Passed Eberts & King's outfits camped near the crossing of the Qu'appelle. Found Eberts & King at the fort. Camped on the bank near the fort, & remained restyday. Men overhauling toboggans which badly worn by the rough roads & helping to thrash out oats for the animals. See several late papers at the fort. Arch. McDonald in charge of the post. Armit whom I met in 1873 at the NW angle, here as clerk. Qu'appelle valley where seen about 3/4 mile wide 150' deep. Soil sandy & poor. Cross the river which about 70' wide — by good bridge built by H.B.Co. Plateau to Ft Ellice generally rather poor soil. Boulders very abundant, chiefly Laurentian & limestone. Fort comprises a number of buildings enclosed in low stockade. Fine view of the Assiniboine Valley with the very tortuous river winding in it. Valley about 200' deep & 1 1/2 m. wide. Took photos of fort & valley.

Sep. 26. Some horse work still remaining to be done on the toboggans did not get away till after ten O'clock. Had lunch before starting & travelled to Bird Tail Creek. Then changed horses & kept on till after sunset making about 5 miles. The snow having been found inconveniently deep leave Buckboards at Ellice & rig up a flat sled or toboggan for self & Macleod to travel in. Snow found very thin in terrain E. of Bird Tail Creek. At Bird Tail Cr. Several houses & the nucleus of a village. See Mr Wood who has been engaged colonizing two townships about here. In these all the land now taken up & lots of settlers to arrive in Spring. Find no oats thrashed at Bird Tail but arrange to have a load of sheaf oats brought out to camp.

Country gently undulating. Soil to Bird Tail generally not first class owing to number of boulders. Soil itself good, black loam with some coarse sand intermixed. Not so fertile terrain as much before seen. Oaks abundant yesterday & today.

boundaries of Assiniboines.

Assiniboines McDonald tells me the original boundaries of these people as follows. To E, Rewbina Mt or Red R. A short distance S of the 49th parallel. Missouri Coteau & thence northward to the S. Saskatchewan W. of Touchwood Hills. Carleton & probably some country N of the main Saskatchewan. Thence S of Beaver Hills, but including Duck & Riding Mountains. Since early days have followed the Buffalo out on the plains westward. Said that the Assiniboines either dig up earth round the edge of the tepe on pitching

or place a circle of stones round it. — See notes on region of stone circles on 49th parallel — This may help to define the limits & wanderings of these people.
Day cold, partly clouded but fine. Some difficulty in navigating the toboggans owing to the want of sufficient snow.

Sep. 27. Travelled about 15 miles to Shoal L. this a.m. Snow very light & flat sleds scraping heavily necessitating much walking & running. Brown going ahead to Shoal L. arranged with Capt. Herkomer in command of the N.W.M.Police for oats, & also for a waggon to carry our heavy stuff on to Salt Lake when the snow reported deep enough. Herkomer quite ready to do everything in his power & also entertained us hospitably at lunch. The buildings put up by the N.W.M.Police themselves are neat commodious & in first rate order. Reached Salt Lake after sunset & camped by moonlight. A remarkably fine day & bright moonlight tonight. A. McKenzie who brought the oats for the Police to Shoal L. is going in to Winnipeg express & offers to take self & Macleod along. Seems a good chance.
Land to ~~the~~ Shoal L. gently undulating prairie with some small gravel — chiefly limestone — in the soil, which evidently very rich. Excellent farming country but timber not very abundant. Shoal L. to Salt L., still generally good but probably not so rich as former stretch.

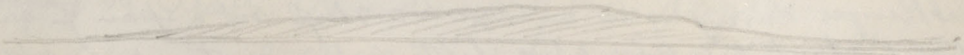
Sep. 28. Mr Adam McKenzie who is to take us in to Winnipeg in advance of the train got into camp from Shoal L. at 3.30 a.m. All hands soon up, breakfast & little packing arrangements made & off, McKenzie driving us in a large box sleigh with a span of mules. Stopped about 8.30 a.m at a little cabin on the road to feed mules. The house a dug-out built of sods & roofed with thatch. The people only got into it in October. They are Highland Scotch who have been a few years in Ontario, but did not like the country. The old wife spotted McAcleod's scotch bonnet & immediately enquired as to his nativity. Much pleased to see a countryman, & amid many exclamations such as "Oh! to see a Heelandman" &c prepared a cup of tea. The house without any window though the good man is about to go to some neighbouring village to get one. He was a gamekeeper in the Old Country but hurting his knee, had to seek other work.

Little first houses dotted everywhere over the prairie to ~~Bird Tail~~ Little Saskatchewan River. Timber very scarce. Surface undulating. Soil generally rich but not clayey or very heavy. Some fine gravel mixed with it. Country evidently filling up very fast.

Got down early to the Little Saskatchewan & put up at the store which is also an inn of a sort. Small & rather crowded with labourers engaged in building &c. Sleeping accommodation primitive & a sick baby crying nearly all night.

Sep. 29. Breakfasted before daylight & away Eastward. Stopped for half an hour at Fraser's, a new settler at Stony Creek. He keeps the post-office lately established. On to ~~White~~ Mr McKenzie's place at Beautiful Plains on the White Mud River, arriving about 2 P.M. Had a good dinner & made ourselves comfortable,

MacKenzie deciding to go no further today. Pass along to South of Riding Mountain which long a low with an outline something like this.



Land passed over generally good with a fair quantity of timber & brush. Some miles however evidently rather sandy & light, & in consequence little sign of settlement on them.

Nov. 30. Up & away before dawn. Drove 18 miles to Palestine or Gladstone, a thriving little town, where we stopped for a second breakfast. Little settlement on this part of route. From Gladstone 30 miles to Burnside, where stopped for night with McKenzie's brother. Country from Gladstone to Burnside (on Rat Creek) everywhere dotted with settlement.

Decr. 1. Off pretty early, driving 8 miles to Portage La Prairie, a large thriving village with every appearance of life. Stopped at Lorne House for second breakfast or lunch, & then drove on to Pageries at Bay St Paul. With exception of the "bay", a low tract liable to flood from the Assiniboine, country all pretty thickly settled. Arrived at Pageries after dark while an inquest on the body of a man found not far off, going on. After a time got supper & then to bed quite ready for sleep after a days jolting.

Decr. 2. From Bay St Paul to Winnipeg, arriving at 1 P.m. after a 30 mile drive. Delighted once again to hear the sound of a railway whistle. Found a number of letters & papers. Winnipeg grown beyond recognition. McConnell; Eberts, & Wadsworth

Arrived this evening. Telegraphed to Montreal.

Decr. 3. Attending to business about town. Drew on Mr Selwyn for $400. A clear magnificent day, enough snow falling to make good sleighing, cold night.

Decr 4. Men arrived this am. Got packing attended to. Called at Forbes, & on Mr Murdoch for particulars as to Souris lignites.

Decr 5. Drew $299 being the balance on draft. Paid bills & left with McC by the 1 Am train to South. Wadsworth goes on same train. Train late, & uncertain whether connection would be made at St Vincent. Train waited, got luggage checked to Samna with no trouble from customs authorities. Got places in sleeper.

Decr 6. Breakfast at Breckenridge. Arrive in St Paul about 7 Pm, leaving at 8 Pm by the C. M & St P railway. Took supper at counter in station. Got good places in sleeper.

Decr 7. Arrived at Chicago this Pm & found we had just about an hour to wait, leaving by the 5.15 train. Supper in the dining car. No snow on the ground today.

Decr 8. Sleeper left early this am in Detroit station, where we have to wait about 4 hours for the outgoing train. Breakfast before leaving. Wadsworth leaves at Weston. McConnell at Toronto for purpose of going to Niagara. Telegraph home.

Here in a ~~world~~ place apart + far
From all the mad worlds ignoble strife
+ all that man doth ~~[illegible]~~ grows to call
the object & the good of life,
beneath the fixed, the molten star
our path is laid + day by day

Promises

Photog. Ft McLeod for Webster

Garden seeds & Wheat for the Captain. Sturgeon L. Being in Winnipeg & send via Stewart Eagan slo to Stone L.

Alex. McLean Kamloops. Copy of Peace R. report. (Sturgeon L.)

Photo. of Campbell & for Col. Jarvis.

Photo. of H.B. Post at Edmonton for F Wilson at post.

Report for Rev. Whiteside, Edmonton (see letter)

Capt French Battleford. Copies of Geol Reports bearing on country.

— Laurie. Ed. Saskatchewan Herald. Battleford. Copies of reports.

Dr R. Miller. Mounted Police. Shoal L. or Battleford.

Arch McDonald Ft Ellice