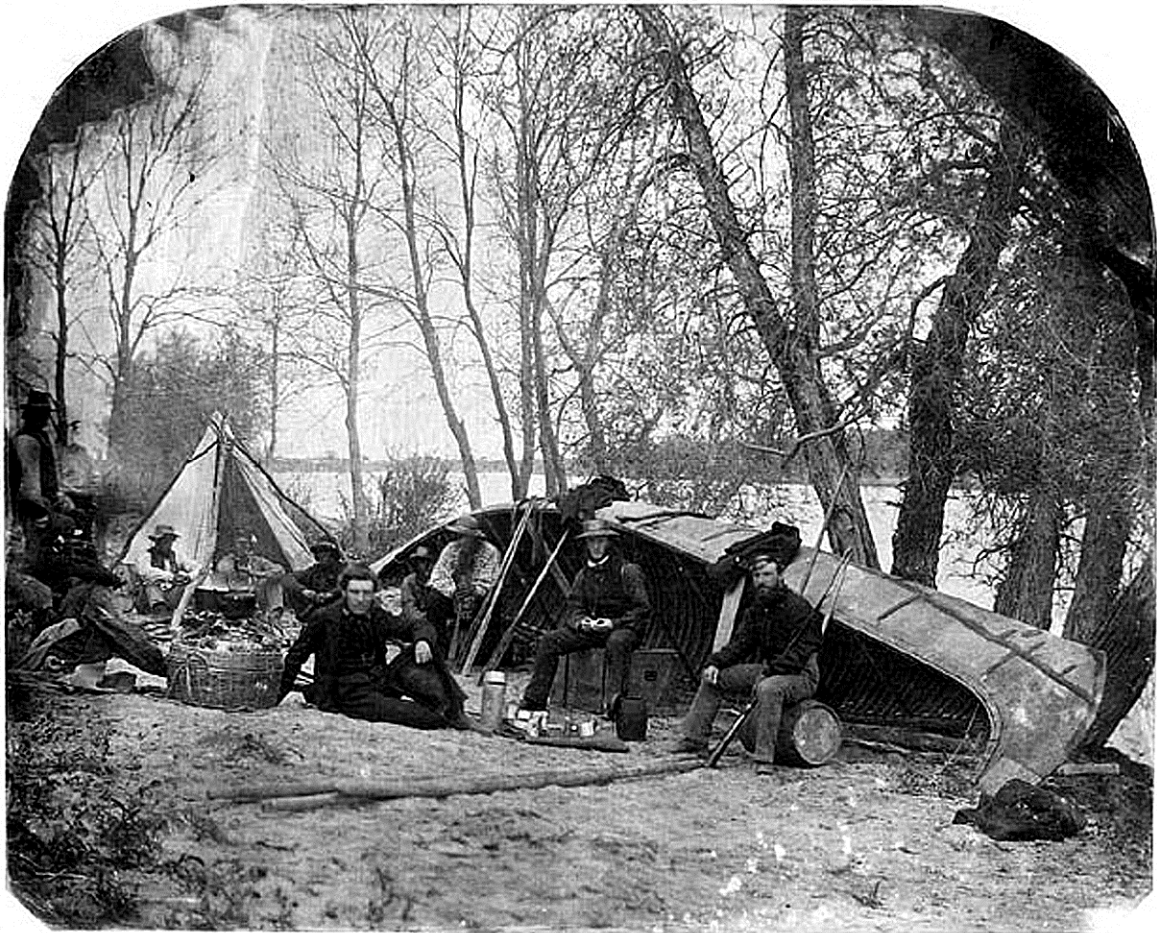


**THE JOURNALS, DETAILED REPORTS, AND
OBSERVATIONS
RELATIVE TO THE EXPLORATION,
BY CAPTAIN PALLISER,
OF
THAT PORTION OF BRITISH NORTH AMERICA,
BETWEEN THE WESTERN SHORE OF LAKE SUPERIOR
AND
THE PACIFIC OCEAN
During the Years 1857, 1858, 1859, and 1860.**

PRINTED BY GEORGE EDWARD EYRE AND WILLIAM SPOTTISWOODE,
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FOR HER MAJESTY'S STATIONERY OFFICE.
LONDON: 1863.



Captain John Palliser expedition campsite on the banks of the Red River, July 10, 1857

Itinerary 1.- Fort Garry to Fort Elice

(Page 165)

by Captain John Palliser

1857 July 21. *Started from Upper Fort Garry, crossed the Assineboine River, and proceeded up the left bank of Red River, through dense thickets of small poplar and scrub oak for 10 miles, whence we emerged on country clear of woods, and continued our march eight miles further.*

July 22. *During the march passed through slightly wooded country, with occasional patches of pasture land. At 5.30 we crossed La Riviere Grate.*

July 23. *Twelve miles of splendid meadows of natural hay, and at 1.15 we struck a lagoon near the river.*

July 24. *Arrived at the Hudson Bay Company's post "Pembina." The land in the neighbourhood of this place is peculiarly fitted for agriculture.*

July 28. *Halt at a saline lake.*

July 28. *Arrived at St. Joseph, after passing over prairie land through oak copse, and again over prairie with salt lakes.*

July 30. *Country much the same as that described yesterday. Towards evening we crossed a creek at Point d'Allard.*

July 31. *Two miles of open country, and then through a belt of oak copse. To this succeeds a stretch of land covered with conical mounds and deep pot-like depressions; also numerous boulders of limestone and granite.*

August 1. *Reach Pembina valley, depth 247 feet. Eastern boundary of what the half-breed hunters call "La Grande Prairie."*

August 2. *Passing over bare prairie struck the valley of Long River. This stream runs north to the first of the Pembina lakes.*

August 3. *From this camp the three principal points of Turtle Mount bore as follows: A. (Bearing of) most southerly W. 297° N. 15. B: Head of mountain - 230° C. Heart of - 347°.*

August 4. *Cross the White Earth River valley, 100 feet below the prairie : flows N., and is tributary to Pembina River. Struck a fine wooded prairie on the outskirts of Turtle Mount, now four miles distant.*

August 5. *Arrived at Turtle Mount. Nothing more than a dense forest, covering a great swell in the prairie, from 250 to 300 feet above the general level.*

August 6. *At noon arrived at a small creek running to the north and losing itself in swamp.*

August 8. *Arrived at a deep gully, on the east side of which we encamped. Six miles to our north is the White Lake. Its bearing from two miles east of our camp : E. end of, N. 3° E. ; W. end of, N. 291° E.*

August 9. *Reach a large valley, through which flows a small stream.*

August 10. *Crossed a narrow slip of level plateau, and then made a rapid descent of 150 feet, traversed a bare plain; four miles from last night's camp crossed a small creek, which flows easterly, and falls into White Lake. Here we made a considerable rise, so as to pass over a broken ridge which runs in a westerly direction. The woods which skirt the Souris River visible from this point, and on reaching the first bluff of these we halted.*

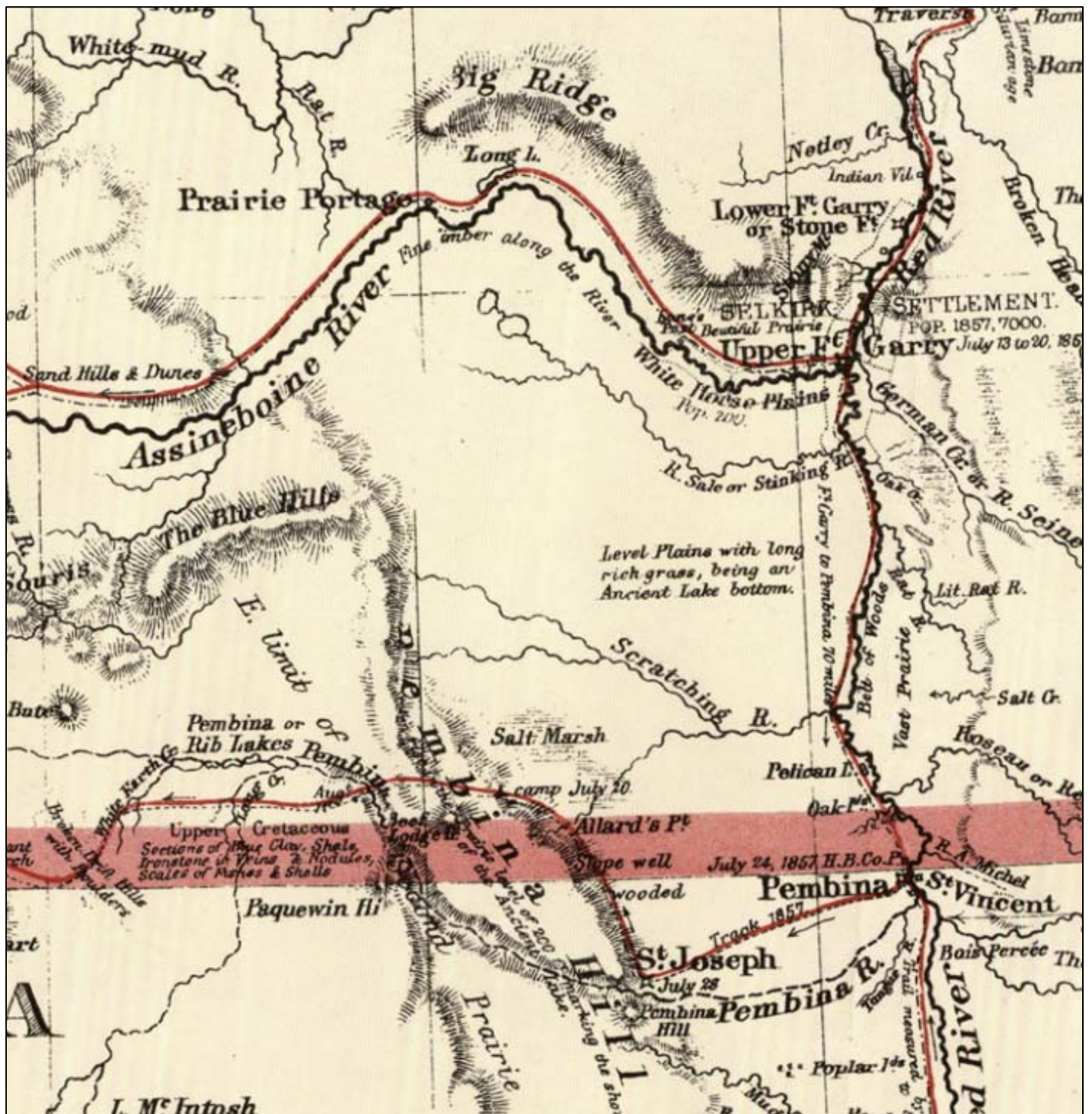
August 11. *Skirted the Souris for some miles to find a fording place. The shallowest part of river here was four feet. The country to north of this river is covered with conical sand-hills, from 60 to 70 feet in height.*

August 12. *Cross a swamp which forms Snako River that falls into the Souris River a few miles to the east of this place, and six miles from the mouth of that river, where it joins the Assineboine. We were now five or six miles from the valley of the Assineboine, passing through bluffs of wood which belong to this valley.*

August 13. *Since leaving the Snake Creek we have had the advantage of the Hudson Bay Company's trail to Fort Ellice, which cuts from "point" to "point" of poplar woods. No other tree grows here.*

August 14. *10.45 struck Forked Gully.*

August 15. *Arrived at Fort Ellice, after crossing several gullies depressed 200 feet below the prairies, and having the breadth of half a mile. A dense growth of small wood is sheltered in these localities. The Assineboine valley here is 250 feet below the plains, and is at least three quarters of a mile wide. About five miles above the fort the river Qu'appelle joins the Assineboine. The Assineboine at this point averages 10 feet in depth, and is 60 yards across. The expedition remained here till August 25th, but a branch expedition proceeded to "La roche percee."*



Map title: A General Map of the Routes in British North America Explored by the Expedition under Captain Palliser during the years 1857-1860 to accompany "The Journals, Detailed Reports & Observations presented to both Houses of Parliament by Command of Her Majesty, 19th May, 1863.

Chapter 2.

“From Commencement of Journey on the Plains, 14th July 1857, to Termination of First Exploring Season on 8th October 1857”. (Pages 37- 47)

1857, July 14th. (Fort Garry.)

Occupied in weighing and considering the best direction to take in order to traverse the country so as to fulfil the objects of the Expedition; also, on this and the several succeeding days, busily employed repairing carts, organizing harness, pack saddles, and various details necessary for a protracted journey across the plains. We did not expect to fall in with buffalo for a considerable time, and therefore, in addition to the luxuries of tea and sugar, were provided with pemican and flour. I learned from all experienced voyageurs in this country a confirmation of the ideas I had formed of it from old experience of my own when on the Missouri, namely, that the whole of Red River and Saskatchewan plains can be travelled in carts.

The plan of operations I had now determined on was to push in a southerly direction along the west bank of Red River to the boundary line at Pembina, and thence along the country in the neighbourhood of the boundary line to the Turtle Mountains, well timbered and watered hills, reported of considerable extent, situated on the boundary line; from thence we intended to a N.W. course for Fort Ellice, on the forks of the Assineboine and Qu'appelle rivers. With this circuitous route in contemplation, it was not necessary to take the whole party, and therefore we determined to detach 11 horses, together with the four heaviest-laden carts, with provisions and articles not wanted for immediate use, and send them under the charge of our second guide, Henry Hallet, directly along the ordinary route to Fort Ellice, with orders to await us there, and with a view also of recruiting the horses as much as possible on the excellent pasture in that neighbourhood. By this means we trusted that, by the time we had finished our more circuitous journey, and had reached Fort Ellice, Hallet's band of horses would be in condition to allow us to avail ourselves of another trip with them to the boundary line in that longitude, while the horses we had taken with us from Fort Garry via Pembina were in their turn recruiting.

Our party altogether amounted to 17 in number, consisting of myself and the three gentlemen who accompanied me, viz., Doctor Hector, Mr. Sullivan, and Mons. Bourgeau, our servant Beads, our guide, or head man John Ferguson, and 11 men; we had in all 29 horses, 6 Red River carts, and 2 American waggons.

The Red River cart is one admirably suited to the exigencies of the country ; its peculiarity consists in the total absence of all iron or metal of any kind in its construction, consequently whenever a cart breaks down it can be mended again as long as any timber is to be found in the neighbourhood; even out in the plains, far from all timber, a breakdown is not an irremediable evil, as long as buffalo are not far off. The ever-ready expedient of killing a buffalo bull is then adopted; the broken shaft or wheel is then tightly lashed with green hide, which soon dries with an iron pressure, securing all splinters and other damages; indeed I might almost say that as long as the wood in the body or wheels is not rotten, the cart is never unrepairable.

Besides the 6 Red River carts, I purchased 2 American waggons, which had not long since arrived at Red River Settlement from Fort Union on the Missouri; they had been the property of Mr. Denig, an old friend of mine with whom I wintered in 1848, when he was in charge of the establishment. We afterwards found great convenience attending these waggons, by apportioning for their loads such articles as we wanted for daily use, the broad inside area of the waggon enabling you to take and replace what you wanted without any of the unpacking and re-arranging required in disturbing the load in the narrow body of the cart. The average load for a cart is 4 cwt.; 6 cwt is considered a very heavy load. Our waggons carried 11 cwt. drawn by 2 horses, and our carts, owing to the condition of the horses, also in consideration of the length of the trip, did not carry more than 4 cwt. each. Besides our pemican, flour, tea, and sugar we brought along with us abundance of ammunition, not only for ourselves, but for presents or barter for leather and many things which the casualties of a long journey might render it very

necessary to have the means of obtaining from Indians. We remained in the settlement of Red River for more than a week previous to our start for the boundary line in that longitude.

July 20th, Monday.

Occupied all day in getting the two brigades under weigh, viz., that under our second guide, Henry Hallet, direct to Fort Ellice, and that which we ourselves took with us to the southward to the boundary line, and thence to the westward to Turtle Mountains.

Preparing for the start was a busy scene, and attended with all the innumerable delays which are sure to arise whenever a party leaves a fort. Hallet's departure, however, was more easily accomplished than that of our brigade, since we had to cross over to the right bank of the Assineboine our two waggons, two carts, and 10 horses. We had, however, an excellent ferry, got all the men, horses, and carts across the river before sunset, took them to camp about three miles off to the southward, and then we returned to pass our last night in civilized society at the fort, the last we were likely to enjoy in that manner for a long time. We left directions with the men to start off the first thing in the morning, make a short spell, rest for three or four hours during the heat of the day, and make another short march to-morrow evening, we ourselves having determined to start before noon from the fort to-morrow morning, and could easily overtake them before camping-time that evening. The Assineboine is crossed by the road to Pembina quite close to its mouth; it is deep and rapid, with banks composed of soft tenacious clay. Our horses, carts, and waggons, as well as ourselves, were all ferried across on a bateau, the property of one of the settlers, who makes a fair income from his ferry; there would, however, be no difficulty in erecting an excellent bridge at this place.

July 21st. Tuesday.

We crossed the Assineboine and commenced our journey, accompanied by Major Seton and Mr. Johnson (the recorder of Red River Settlement); they rode with us for the first ten miles, until we came to Rivière Sale, the first small tributary to Red River. Our course had been south, and we rode through dense thickets of poplars and small oaks. Rivière Sale joins the Red River from the west; its course being through the level plains long and tortuous; it keeps nearly parallel with the Assineboine, and rises from extensive swamps. Nine miles' further ride through coarse rich grass and luxuriant vegetation over a low moist soil brought us up with our men as they were commencing to prepare a camp for the night. During the latter part of our ride the country has been clear of woods, a few clumps of trees only growing along the river banks, which are elevated above the water-level to 40 feet. The view to the west is still a dead flat, marshy and swampy. The spot which our men had chosen abounded in excellent grass for the horses, but the myriads of mosquitoes and flies quite prevented their feeding or resting, until we were obliged to light fires, supplied with green wood, in the dense smoke of which they instinctively sought refuge from their tormentors.

July 22nd, Wednesday. (Scratching River).

This morning we were up at four o'clock and early on the march. Our party consisted of 13 men in all, two waggons and two carts. Five of our men were mounted, and four drove the waggons and carts, and six horses ran bare as reserves in case any should tire. This forenoon we passed through slightly wooded country with open glades, and we got pretty good shooting at coveys of pheasants, as they are called here, although in reality they are the sharp-tailed grouse of Richardson, and are also called prairie hens, but they are quite distinct from the bird of that name which is found so plentifully in the United States. We also obtained some ducks, but the young ones were very late as compared with them at the same season in England. At 9.30 a.m. we halted for breakfast, and to make up for the restless night passed by our horses, delayed our start until 3 p.m.; and took observations for latitude. The nature of the country is much the same as that passed over yesterday, open prairie to the west, while to the east the bends of the river are marked by clumps of wood, which are known in the country by the name of "points," which applies also to any projecting angle of wood whether it be caused by the bend of a river or not. This distribution of the wood is very uniform, and is as consistent on the Missouri as it is on the smaller rivers which traverse the plains in this part of the country. M. Bourgeau here noticed the following plants: *Lysimachia*, *Rudbeckia*, *Amorpha*, *Lobelia*, and two species of *Lipinus*; one of the latter is named *Lipinus tuberosus*, being the root which receives the name of the Prairie Turnip by the half-breeds, who, with Indians, use it as food, and sometimes crush it into a kind of flour and make bread from it. The root

is very dry and almost tasteless, and even when boiled for a great length of time does not become soft, and is at best but insipid unnutritious trash.

At 5.30 p.m. we came to a small swift stream, known as "La Rivière qui grate," or "Scratching River," where we were surprised to find a ferry, kept by an intelligent half-breed, a new settler in this place. He was hard at work clearing land, and had not yet finished his log hut. He told us that he had come from the American side, by the Lake of the Woods, and that he had crossed from that lake to Red River with a small canoe, passing, for the first 25 miles, through marshy country, over which he was obliged to drag his canoe, and then, having made only a slight rise, he reached Reed Grass River, which he descended without any portages for a distance of 70 miles to the point where its waters join those of Red River, about 9 miles below Pembina. He described Reed Grass River as being swift and small, suitable only for the smallest canoes. After crossing "La Rivière qui grate," we fixed our camp upon its opposite bank, having now travelled 88 miles from Fort Garry.

July 23rd, Thursday.

This morning I found it necessary to change our plans of early starting, as it is only between the hours of 3 and 7 a.m. that our horses can feed, when the flies ceased their attacks. Accordingly we were not on the march before 9.30 a.m. Our course during the early part of the day was through some splendid meadows of natural hay, and many mowers were busily engaged cutting and saving it. We also saw some newly-built houses. At 1.15 p.m. we stopped for dinner at a lake which has been, at one time, a bend of the river, but which is now converted into a lagoon; found ducks very plentiful, and killed nine brace for dinner. While here, we shot a brace of woodcocks in some alders which skirt the lake. This bird, although very common in Canada, is said to be only a rare visitor in this quarter. After again proceeding on the march we encountered irregular country with many hollows, and traversed by small creeks, thus rendering the road very bad. The heat throughout the day has been excessive, and, towards evening, a cloud of great density appeared in the north-west, and before we could erect our tents a heavy thunder-shower fell.

Our encampment afforded excellent feeding for our horses, the grass for some miles around growing far above the knees. Since the shower, millions of insects have infested our tents. The interior of the canvass is literally black with mosquitoes, and if we could preserve the many species of moths which our candles have attracted we should have a large collection. Travelling here is more like passing through a tropical country, so numerous and plentiful is insect life. From all accounts no snake, except the common Garter Snake, is met with in this locality. It is beautifully variegated, and, in full size, attains the length of 3 feet, and the thickness of 1 1/4 inches. Its haunts are generally the summits of stony mounds, or in the sides of creeks.

July 24th, Friday.

The morning broke fair with the promise of a fine day. Notwithstanding the thunderstorm of last night, the heat at early morning was very great; our thermometer indicated 82°. From our last night's camp, where the river takes a great bend towards the east, we had an extensive view to the south, bounded by the woods in the neighbourhood of Pembina. At 1.15 p.m. we arrived at the small fort, and like all the Hudson Bay Company's trading establishments it is stockaded and possesses the usual stores, trade shop, and small houses for the resident families. It is the smallest we have met with, and is only important as being situated on the American frontier line. There is only a small hut besides the fort, standing on the north side of the boundary line, and the country around, although adapted for agriculture, is still a wild waste, and only awaits the hand of the settler to render it productive and valuable.

On proceeding for about half a mile to the south of the fort we came to a post which marks the position of the boundary line, according to the observations of Mr. Nicolett and other American explorers. This is, however, not the original post, as the Indians had destroyed that many years since. The present one, however, was replanted with great care upon the same spot by some gentlemen connected with the Hudson Bay Company. A little further on we observed several groups of settlers' houses, with well situated enclosures of land; but the place seems at one time to have been of much greater size, if we

might judge from the standing posts and other remains of former dwellings. We had the usual afternoon thunderstorm to-day.

July 25th, Saturday. (Pembina River)

To-day, by observations, we found the boundary line post to be a few yards within the American territory, its latitude being 48° 59' 46" N. Observations for longitude and variation of the compass were also made during the afternoon. We also visited the American fort on the River Pembina, where it joins the Red River. It is an insignificant collection of a few wooden huts. It is here that the post-office for the Red River Settlement and other parts of the Hudson Bay Company's territories is established, as the further conveyance of letters from this place is entirely a private act at the expense of the company, and forms no part of any postal system. The arrangements for the safe and speedy delivery of letters did not seem at all suitable to the magnitude of the concerns which are committed to the care of the person in charge. We found here a Mr. Iddings, surveyor to a land company at Saint Paul's. This gentleman was commissioned by the said company to survey and lay out a town at Pembina River. His plans were completed and shown to us.

In the early part of this evening we examined the banks of the river, and found that they were raised about 42 feet above the surface of the water. The drift timber is lying plentifully upon flats or hollows, at an elevation of 35 feet, which shows the great extent to which this river must be flooded during the spring freshets. Several times the waters have flooded the fort, and a mark on the gate post indicates where the water had reached during the last great flood of the river, and which is at an elevation of 52 feet where the water stood four feet deep in the courtyard of the establishment. The banks of the river are composed of layers of red clay, silt, and calcareous clay, in which are embedded numerous fragments and stumps of trees. The country around is well adapted for agriculture; the soil is light and free, and good natural drainage might everywhere be taken advantage of.

Along Pembina River, which is only 10 yards wide, the vegetation is luxuriant, and there is abundance of timber for every purpose. Red River itself is at this time flooded about five feet above its usual level, the depth of water now being 14 or 15 feet. Although it has not a straight course, its bends are long, with gentle curves, and would offer no impediment to navigation by steamboats or other craft of moderate length.

The plan of the American Land Company alluded to above, is to plant two townships, one on the left bank to be called Pembina Town, while opposite to it there will be another named St. Vincent's. These are to be connected by a bridge, the probable position of which was pointed out to us. The railway, which is to connect this place with St. Paul's, and for which a legislative Act has been already obtained, binding them to complete it in 10 years, will have its terminal station at St. Vincent's. Mr. Iddings considers that there will be little difficulty in making this line; the main obstacles to be contended with will be creeks and small lakes, over the former of which bridges are necessary. At present the railway is open to within 220 miles of St. Paul's, and the time is not far distant when it will be completed to that place. There will then remain 350 miles to bring it as far as this; but as the distance from a navigable part of the Mississippi to a similar part of the Red River is under 200 miles, it is probable that water communication will for a long time be the best method of approaching this place. From 150 miles above Pembina, Red River is said to retain the same character that it has here, but beyond that distance, although it still remains sufficiently deep, its course becomes too tortuous to admit of navigation by any but small craft. To-night, for the first time since our arrival in America, we beheld a fine display of the aurora borealis. consisting of an arch of bright convergent pencils of light. They were much brighter than those seen in England, although in a summer month.

July 26th, Sunday.

This forenoon we were occupied completing our despatches to England, and in the afternoon, assisted by Mr. Iddings, we planted a post distant 370 yards due west from that previously erected by the American surveyors, thus establishing the direction of the parallel of 49° of N. latitude. Numerous flocks of pigeons were flying over this place during our stay, but they did not appear in such numbers as are seen in the States of America to the south. The principal trade at this port of the Hudson Bay

Company is with the half-breed hunters, who proceed annually to the plains of the west in search of buffalo, and the returns consist of robes, leather, provisions, with few other furs than wolves' and foxes'.

July 27th, Monday. (Pembina River)

Remained at the same place owing to some of the horses straying, which were not recovered till late in the evening. The cold last night was sharp, considering the season of the year, and every night of late there have been slight frosts. The aneroid barometer being again in order, we were now able to resume our barometrical observations, which had been suspended since our departure from Sturgeon Lake. The doctor replaced the dial plates, which he found had been shifted, and treated the aneroids most successfully by firmly sewing on their faces with brass wire. The mean of those observations, which he considers reliable since leaving Fort Garry until this time, and which, from the slight change of level may be looked upon as a rough mean for the Red River valley, for 16 days, commencing on the 12th instant, is 29°03, therm. 64°.

July 28th, Tuesday.

This morning, although all were astir at sunrise, it was 9 a.m. before all the horses were tackled, and a start effected. Our course, after leaving the post, was over fine prairie undulations, covered with luxuriant nutritious grass ; we followed the track in the direction of the town of St. Joseph, which we were anxious to visit, being situated not far from the boundary line. We made for a ridge of small woods slightly higher than the surrounding plain, and being about a couple of points to the south of west, and continued a slight but constant ascent to its level ; thence we pushed across another stretch of prairie to the next woods, and passed through several clumps of oak copse; attempted to traverse the next stretch of plain, but finding this traverse too long for our horses, we stopped short of the woods and halted for dinner at some small lakes, the water of which had a bitter saline taste due to the presence of Glauber salts or sulphate of soda. Before starting took observations for longitude and variation of compass.

During our march we could see for a great distance to the southward the thick woods skirting the banks of Pembina River. After dinner our course was more to the southward, and towards a high hill, at the base of which the town of St. Joseph is situated, distant from our dinner camp about 15 or 16 miles. We made a forced march and arrived there about an hour and a half after sunset. What few inhabitants the place possessed were all asleep except an old French half-breed, who invited us to turn our horses into his enclosure, where they would not only have the advantage of hay already cut and stacked there, but we also might let them go without hobbling them, as we should have no difficulty in finding them the following morning, and here also we ourselves encamped for the night. He brought us also some "gold eyes," a species of carp, which are caught in the river here in abundance.

July 29th, Wednesday, (St. Joseph).

It rained very heavily during the night, cleared up in the forenoon, but unfortunately came on to rain again about 12 o'clock, thus preventing us from obtaining an observation obtain any for latitude at this (comparatively speaking) important place. The harness belonging to our waggons had originally been made for mules, and although we had altered it, it did not yet fit the horses, we therefore remained a day here in order to avail ourselves of the assistance of a professional harness professional maker, whom we were so fortunate as to find in this primitive town. St. Joseph's has been established for several years, and consists of numerous detached dwellings, which, however, are well arranged on a regular plan with a view to the after-construction of streets. There is abundance of enclosed land, and the whole is prettily situated at the base of what is known as Pembina Mountain, just where the river of that name issues from it through a large deep valley coming from the west- To the north and east bare plains extend as far as the eye can reach, while to the south thick woods run along the base of the hill and out into the plain to the south of the river, consisting principally of poplars, but with a few oaks and ash intermixed. Altogether the position of this place is well adapted for a settlement, wells sunk anywhere in the neighbourhood yield readily ample supplies of excellent water. The neighbouring prairies are admirably suited for grazing, and its capabilities, from the swamps which skirt the base of the hill plenty of hay can be obtained. The fields are very fertile, and there is no lack of wood for all purposes. Notwithstanding all this favourable concurrence of circumstances for the agriculturist, the inhabitants, who are chiefly Red River half-breeds, were at this time all off to the prairies in search of buffalo, leaving

their houses and fields deserted during that season of the year when their labour would be most productive.

The timber in the Pembina valley and along the slope of the hill mostly consists of the *Populus tremuloides* and *balsamifera*, and shrubs *Quercus*, and *Fraxinus*. Of these *Populus tremuloides* is by far the most abundant. The shrubs are *Viburnum*, *Ribes*, *Cerasus*, *Amelanchier*, *Crataegus* and *Salix*. Perennial plants are very plentiful in this valley; a very pretty *Hedysarum* and many species of *Composite* have been observed, which would be valuable for gardens. Dr. Hector, who examined the valley in search of sections, describes it as being the eastern border of a prairie level, which extends to the west without any apparent descent as far as the eye could reach, but here slopes abruptly to the level of the Red River plains by a succession of terrace-like steps. The height of the first summit level above the stream where it issues from the valley is 250 feet, but behind this, by two more gentle slopes, it gains an additional 100 feet of elevation, and as we may add 100 feet for the rise from Lake Winnipeg to the base of this hill, its total altitude above that lake will be 450 feet, or about the same as Rainy Lake.

Along the sides of the valley he found enormous landslips, at a very high angle, displaying the structure of this terrace from its summit to its base, consisting almost altogether of coarse loose sand with rounded shingle and gravel. These latter beds are found towards the upper part of the section, and on its summit true boulders occur, presenting all the characters of a shore deposit, and corresponding closely with those which may be observed on the right bank of Rainy River in the neighbourhood of Fort Francis. The materials which compose this terrace level are very distinct from those which form the deposits of the Red River prairie level, which latter are marked by a predominance of calcareous and argillaceous matter. From the summit of the hill, and as far as the eye stretches towards the north-east over the plain below, all minor inequalities seem to disappear. This plain, no doubt, had formed at one time the bed of a sheet of water, and Pembina Hill, consisting of previously deposited materials, was its western shore.

To-day we were visited by an old traveller, one of those who first crossed the mountains in the famous expedition described in Washington Irving's "Astoria." He was, after that, for a long time, a runner with the mails between Pembina and Fort Garry. He is 91 years old, and only last week had walked from Fort Garry to this place, a distance of 70 miles, in two days, driving a young bull. He came to seek the Doctor's advice as to what he should do for his knees, for he did not, as he innocently said, "find them so strong as they used to be." Another patient of the Doctor's was a poor man, who, from the severity of last winter had been frozen out on the plains, and lost parts of both feet in consequence. The continual haziness of the weather during our stay here has prevented all astronomical observations, but we did not feel justified in remaining on the chance of getting a fine day to-morrow. We hazy for accordingly prepared for an early start in the morning.

July 30th, Thursday.

Having obtained all the assistance from the American harness-maker that we required, our cavalcade moved off at 8.35 a.m., and continued in a north-westerly direction till 12.35 p.m. The character of the prairie lands over which we travelled was, in every respect, similar to that described before, possessing numerous fresh and saline marshes, and small lakes abounding ducks, waders, and other aquatic birds. As we were now approaching a creek, which our guide described here, as very hard to traverse, two or three riders were sent a head with a view to seek the best fording place.

As we did not move off again until 4.25 p.m. our horses had a long rest, and the men had sufficient time to choose a ford for the carts and waggons. In about half an hour after we had started we arrived at the creek, and found it, as our guide had described, exceedingly bad. Here the fertility of resource of our prairie voyageurs was well displayed in extemporising a bridge; in a few minutes they had trees felled and a rough bridge constructed, over which our waggons, carts, and horses passed in safety, although crossing the place seemed, at first sight, to be quite impracticable. We traversed the creek near a clump of woods known as "Allard's Point." From this our course was for an hour and a half to the westward, after which we camped at the base of Pembina Hill, along which we have been skirting all day. This hill, from St. Joseph's to the place where we took dinner, preserves the same Pembina character of a steep slope, scantily clothed with small wood, the summit forming an even sky line, but further on the slope

becomes more gentle, and facing the north ceases to be so marked, appearing like a hill seen from the prairies. The woods also become more plentiful, and of much finer growth, being disposed in very pretty groups upon the long slope into which the escarpment changes. Our encampment was close to a small well, from which, as it is only one foot in diameter, and the only water that can be found in the neighbourhood, we have to draw a supply for our animals, and to prevent them procuring from helping themselves and trampling the place into a puddle. The creek we passed at "Point d' Allard" runs to the N.E., and is said to lose itself in an extensive marsh without communicating its waters to any other stream.

July 31st, Friday. "Point d'Allard".

Rose early, but in consideration of the restless night our horses had passed from the attacks of mosquitoes, we breakfasted before moving off, thus giving the animals a little time to feed. At 8.15 a.m. we started, and during the first three-quarters of an hour crossed some open ground with a gradual descent, and at the end of that time emerged on a belt of oak wood of very fair growth. From this point the ground rises rapidly and continues to be wooded with irregular clumps.

The country here is very fine, and well adapted to agricultural purposes. Saw two small deer, and subsequently through the day several wolves. The woods in this locality formerly abounded in large game, such as elk, moose, and bears, but they have long since become very scarce. Still continuing to rise, we at length reached a very irregular country, the surface of which consists of conical mounds and deep basin like depressions. On these an immense number of granite and limestone boulders were scattered. In a valley of this kind we rested for dinner at the edge of a small lake. Our general course to this lake has been west, although our track has been necessarily winding and irregular.

A very curious hill rises in the neighbourhood, which is known as the Beef Lodge (Calf Mountain). A fine view of the surrounding country may be obtained from its summit, which rises to the altitude of 50 feet above the adjacent plains. We ascertained that from our encampment of last night to this place there was a rise of about 430 feet, or about equal to the summit of Pembina Hill. That we had now actually gained this level is corroborated by the fact that the view which we get to the north shows the line of woods which mark the declivity (face) of the hill to stretch away to the right hand of our course in a north-west direction. To the north and south the country presents the same uneven swampy character as that through which we have travelled, but to the west woods are scattered among the irregularities of the surface.

After dinner our course has been very zigzag, winding among the mounds and hollows which have been already noticed; but as these now became skirted and clothed with green woods, while the grass which covered the open spaces was in full grain, the landscape assumed a rich brown tint, and reminded us of the parks attached to domains in England. We shortly emerged from this kind of country, and commenced to traverse prairie undulations, each rising in succession towards the westward, with their summits clad with poplar thickets, while the intervening hollows were occupied by swampy lakes. At 7 p.m. we encamped on the borders of one of these lakes.

August 1st, Saturday. (Pembina Crossing).

We were delayed this morning till 9.15 a.m., and our course at first struck off considerably to the south. The "Paquewin", or as it is called by the Indians, the "Hill of the Great Medicine Dance", (Star Mound), rises in a south-westerly direction at the distance of about 10 or 12 miles from our encampment, and not far from Pembina valley.

In about one hour and a quarter we arrived at the brink of the wide valley through which Pembina River runs. The descent to the river margin is very precipitous, but there is a tolerably good road, winding through copse wood, formed by the hunters, who resort annually to the plains beyond. The flat in the bottom of this valley is about one mile wide, and through this, the small stream, not more than 10 yards broad, follows a very circuitous course. Its depth at the ford where we crossed is not great, only rising to the axletrees of our carts, and the only inconvenience we experienced was in ascending the declivity with our laden wagons. The immediate banks are about six feet in height, and are composed of dark-

coloured silt arranged in thin layers. The verdure (vegetation) in the base of the valley seemed to be very rich, and the left side especially is well wooded. We have had a long pull in reaching the opposite brink of the valley, and although the road takes advantage of a lateral ravine, the ascent still remains steep. Secondary levels (plateaus) are well marked along both sides of the valley, which here forms a bend towards the south-east, but more especially on the right bank. On gaining the summit of the hill there is still a considerable rise to the west, which might be fairly included as part of the valley bank, only hollowed out in a less abrupt manner from lying in the concavity of a great bend.

Astronomical observations were made at this place. Botanically speaking, this valley is the limit of a new country, for while the eastern side of it is wooded and irregular, the western side, at a higher level, consists of nothing but bare prairie lands. This distinction is also recognized by the hunters, who consider Pembina valley to be the eastern limits of "la grande prairie."

While encamped for dinner a violent wind sprang up from south-west, bringing with it dense clouds, among which the lightning played vividly, without however producing a regular thunderstorm. Along with this wind came what seemed at first to be a low cloud of a brownish-black colour, but soon we discovered it by aid of a telescope to consist of myriads of grasshoppers. A breeze springing up from the east met this cloud, and suddenly the insects began to fall as thickly as snow. They soon covered the ground, giving everything a greyish aspect from the colour of their bodies. When we started the fall of grasshoppers was still continuing, though to a less amount, but still sufficient to cause us much discomfort from the blows they gave us on the face, as they came down with great rapidity before the wind.

The locust cloud had now passed to south-east, and by the action of the opposing wind had formed into a large massive bank, passing from which we observed several pillars like waterspouts; two of these were especially fine, and one had a curious twist about half way up, as if the centrifugal force was tending to overcome the columnar shape. There were also some imperfect cones, the points of which directed downwards did not reach to the earth.

This afternoon we continued to proceed towards the west, crossing a high level plain, which is bounded to the north by a line of woods, marking the position of Pembina valley. From information given by our guide, it seems that Pembina River, a few miles above the place where we forded it, has a course from west to east, and expands into five lakes, which are of considerable size, and lie in a depression below the general level of the country, which must be the continuation of Pembina valley. To our south there is a range of low conical hills and broken ground, among which is Paquewin Hill, already alluded to. Before leaving Pembina valley it was necessary to obtain a supply of wood sufficient to last two days. We now had a long traverse of plain to make before we could again obtain wood for fuel, and therefore had to bring along with us sufficient for the cooking of several meals. We did not, however, adopt a direct traverse of the plain, but preferred going round by Long River. Although this somewhat lengthened our route, it enabled us to manage with a smaller supply of wood for cooking than we should otherwise have laden our horses with.

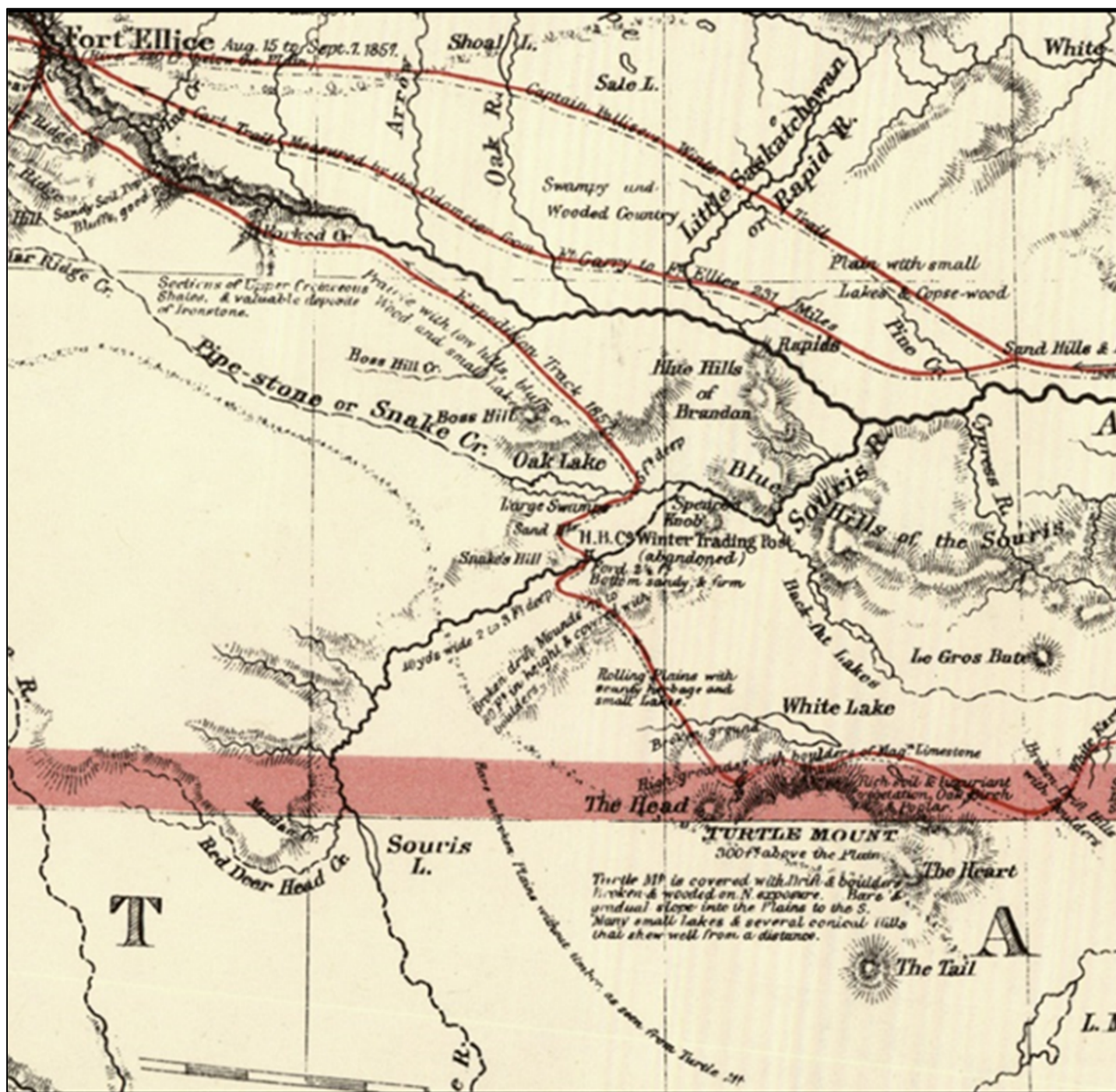
Since leaving Pembina River also the plains were plentifully strewn with dry buffalo dung, which by also using as fuel we greatly economized the wood we took with us. This buffalo dung, the glow from which somewhat resembles that from coals, is a great acquisition to a camp fire. Water is also very scarce in this plain, so that, in case we might not meet with any, we filled a cask which we brought for the purpose, taking it along with us. At night, however, we reached and camped by the side of one of several large swamps.

This evening we were amused by one of the many proofs of credulity among the French half-breeds, and subsequently were much entertained by accomplishing its exposure.

After dark some of the men came to Bourgeau and requested him to take notice of a very mysterious noise in the swamp. This they asserted to proceed from the "*Carrot a moreau*" (a species of umbelliferous plant) in consequence of its poisonous and manitou or miraculous attributes. They insisted that this plant, which continuously kept up a muttering noise, invariably became silent at the approach of man! Determined to sift this strange but universal belief among the half-breeds regarding a poisonous

plant gifted with a voice, and that voice under its control, Bourgeau set out accompanied by Hector with a dark lantern on their nocturnal search. After frequently failing to reach several spots from which the sounds proceeded, they at last effected a stealthy approach, and quickly turning on the light in the direction of the sound now almost at their feet, they interrupted a noisy little frog in the midst of his croaking. Late in the night the barking of a dog put us all on the alert. We were now a slight close on the country of the Sioux Indians, and began to apprehend attempts to steal our horses. These Indians are wonderful horse thieves, and, in my former experience among them in 1849, I had seen several proofs of their fertility of resource in these depredations.

If only half the skill and enterprise expended in horse thieving were devoted by them to breeding and rearing young horses, they would become wealthy; but to be esteemed an accomplished horse thief is the summit of their ambition. There had been Indians, no doubt, in our neighbourhood, as, in addition to the barking dog, we subsequently heard a shot, a blank shot probably fired at some stealing dog trying his chance of finding some food in a neighbouring tent.



August 2nd. (Long River).

A heavy thunderstorm detained us in camp for several hours; the lightning was very vivid, playing incessantly, and seeming to run along the ground in blinding sheets. At about 9 a.m. the day cleared up, and we started. We took a more northerly course than that in the direction of the Turtle Mountain, in order to touch at various wooded points which advance into the plains from the north along the tributaries of Pembina River. We had now the Paquewin Hill to S.E., and observed another conical hill covered with woods lying to N.N.W., which is known as the Little Paquewin. About The wood noon we came to a shallow creek, when finding some tolerably good water we stopped for dinner, which we had we cooked using buffalo dung for fuel. Took observations; distance from Pembina River, 24 miles.

Since leaving Pembina River the soil has been everywhere very poor, being both sandy and stony, and grass grows only in swampy places; its general scarcity is now further felt by our poor horses in consequence of the plague of grasshoppers which now swarm over the plain. By making the detour to the northward of our course to-day we were enabled to camp at night in the woods of Long River before dark; its valley in the vicinity of our encampment is wide and well wooded, the river itself runs 120 feet below the level of the prairie. The sides of the valley are very irregular, having none of that even embankment-like aspect which characterizes the valley of Pembina River; the course of the stream is very tortuous, and said to flow into the first of the Pembina Lakes at a distance of four or five miles to the north of where we crossed it. The valley is filled with a dense growth of wood, consisting of oak and poplar, which extends also for some distance over the adjacent plains on either side; a few miles higher up the stream these woods cease; the banks become low and the valley changes into a shallow trough cutting through bare plains. Hector found the banks of the valley there to be composed of shale of a light buff-green colour, not occurring in continuous beds but as fissile fragments. The surface of the ground is scattered with detached boulders of fine red granite; many of these are polished by the buffalo, whose numerous tracks have worn trenches about them in consequence of their walking round them in order to scratch themselves. Before dark, numbers of goat-suckers were flying about by startling us with their booming call as they swept close by our beads.

August 3rd, Monday (Long River).

The morning broke very fine, and throughout the day the sun's rays have been excessively hot. Large numbers of garter snakes have left their retreats and are very numerous on this portion of the prairie. Dr. Hector dissected one and found it to contain 54 young ones in different stages of incubation. Instead of continuing on the march of the main party during the forenoon, Dr. Hector remained to continue the examination of the valley of Long River, accompanied by one of our men; but as we went slowly they came up with us at our dinner encampment. The country through which we have travelled to-day is rolling and irregular, and from the number of small swampy lakes, it presents more the character of moorland than prairie. There is not a vestige of wood, so we are again dependent on buffalo dung for fuel. The lakes abounded in ducks and various kinds of waterfowl, so that our fare was excellent, and although no buffalo or other large game appeared, we enjoyed an ample supply of fresh provision,

About noon halted for dinner, and Mr. Sullivan made observations for longitude and variation of the compass. Here one of our party wounded a wolf, and after a long run succeeded in killing him. It was one of the large prairie wolves, and known in this country as the case wolf, or large "Toganny." It resembles a dog, being of a grey colour, with the tips of the hair on the back of an olive black, the ears are erect and of a dirty red colour, and the tail is bushy and straight; the great distinction which gives the face of this animal a very different appearance from that of a dog is its white nose.

During the afternoon the country presented an irregular appearance being broken into knolls, on the summits and sides of which abundance of rounded stones were strewn, some of great size. Our course has been nearly due west, and making for a distant group of woods which we saw thrown up by the *mirage*, we encamped at 7 p.m., but found them to consist of nothing but small poplars. Luckily, however, we found some fragments of a broken cart, which we at once appropriated for fuel. From this

point we obtained our first view of Turtle Mountain, which, as seen from here, presents a long blue line bounding the prairie horizon to the S.W.

August 4th, Tuesday. (Badger Creek).

A short time after our start, and at about the distance of four or five miles, we came to another tributary of Pembina River, known as the White Earth Creek (Badger Creek), to traverse which we were obliged to descend into a steep valley depressed 100 feet below the prairie level. The creek is not more than 10 yards across, and at this place flows due north. It is said to fall into the third of the Pembina Lakes. Its bed is very stony, as are also the banks of the valley through which it runs. After crossing it we turned more to the south and shaped our course for a point in Turtle Mountain about one-third from its eastern extremity. We thus passed considerably to the south of the clump of woods which lay directly in our road, ...the distance between the two points of observation being 11 or 12 miles. At the place where we dined, which was in the neighbourhood of a small lake, observations for longitude and variation of the compass were obtained. Towards evening we came in close proximity to the outskirts of Turtle Mountain, and encamped at the commencement of a fine rich prairie, studded with clumps of bushes and small poplars at a distance of only four miles from the mountain base. During the last two days we have effected a considerable rise in our progress westward to our present encampment. A very violent thunderstorm this evening; it has lasted throughout the night.

August 5th, Wednesday. (Turtle Mountain).

The thunderstorm continued this morning, and it has been accompanied by several showers of very large hailstones. A succession of very dense clouds have been passing over us, which are invariably followed by very high wind from S.W. During a lull in the storm we shifted our camp, and after going four miles to the south reached the edge of the thick woods, by which Turtle Mountain is covered. Here we again halted as we intended if the storm abated to make an examination of this part of the country during the afternoon. About noon the sky began to clear, and the storm, which has now lasted almost continuously for 19 hours, passed away to the N.E. Accompanied by our principal guide, I immediately started to skirt the hill towards the N.W., and endeavoured to penetrate the dense forest by which it is covered. Dr. Hector also, accompanied by one of the men, set off with the same view in an opposite direction. As we neared the hill, or mountain as it is called, in common with every little rising ground in this flat prairie country, the altitude which it apparently possessed when viewed from a distance has dwindled away very considerably; and now that we were close under its flank it seemed to be nothing more than a dense forest, covering a gentle swell in the prairie, and which rises from 250 to 300 feet above the general level. In the course of our ride this afternoon we encountered nothing but broken ground, covered by impenetrable thicket, and studded with innumerable lakes, which form the breeding-places of many kinds of water fowl,—swans, geese, ducks, coots, divers, & etc.

I tracked up and got a shot at a wapiti (red deer), but missed him. The dense thicket and the absence of all tracks through the woods, so different from the valley of the Missouri, renders the hunting here very arduous. This hill, however, had once a great name as a hunting ground, and abounded with moose, wapite, and bears, but as the buffalo resort here every winter, and bring in their trail numerous camps of Indians and companies of half-breed hunters, the game has been either exterminated or driven away. We have been disappointed by the entire absence of buffalo from the plains in this neighbourhood, where they are so frequently found; but, perhaps, it is as well for us that it is so, as we are now on the confines of the Sioux country, and we shall be less likely to see Indians, or get our horses stolen.

On my return to camp I found that Mr. Sullivan had been able to obtain a meridian altitude of the sun, and curiously enough our camp was pitched within a few seconds of the boundary line, our latitude being 49° 0' 32" N. This observation places the greater mass of Turtle Mountain within the United States territory, as a line carried due west from this place would pass obliquely across the hill, cutting off a portion of its northern flank, while if produced to the east it would not meet the hill at all, which from here stretches away for 20 miles considerably to the south of east. This evening we became enveloped in a singularly dense fog, which is a very unusual occurrence on high prairie lands. It began in the small hollows in which there were lakes, and the effect on the eye was very curious. Looking down from a little

height just before sunset, the country seemed as if it were undergoing gradual inundation, for while the upper air was clear, the fog was so dense that it quite resembled water rising gradually, and thus giving the many rounded knolls the appearance of islands. We watched it as it continued to rise, until nothing but the tops of the trees were visible, when, soon becoming enveloped ourselves, we had no small trouble in retracing our steps to the encampment. We found the men engaged in making huge fires, as all found this fog to be peculiarly chilling, although, unlike the cold of a sharp frost, it did not free us from our persecutors the mosquitoes. During the afternoon observed for longitude, also for variation of the compass, with an interesting local result.

August 6th, Thursday.

This morning the weather was wet. Finding that there was nothing to be seen in this neighbourhood, we determined to pitch along the base of the hill to the westward, the mass of the party making short stages each day, so as to allow of our exploring the mountain as far as possible. We started accordingly at 9.30 a.m., and went about 6 miles to the north, in order to round a point of dense woods which here projects into the plain. We halted for dinner beside a small creek, wending its way northerly, and seemingly losing itself in the many swamps which cover the plains at this place. We observed from here a ridge at a considerable distance to the north scantily covered with wood, which our guide called the "Montagne de Poile." This elevation seems to continue as a broken ridge, covered with small lakes to the spot where we now are, whence, sweeping round to the west, it becomes merged with the base of Turtle Mountain. Shot two cranes here, one the large white crane, measuring five feet eight inches in height ; the other a grey crane, measuring five feet, spread of wings, six feet. Both of these birds are excellent eating and common to this part of the country, but very wild and shy. We also killed a number of bitterns, which rose lazily out of the swamps. They are of a rich hazel-brown colour, with saffron-coloured bills. This bird is seemingly very lean, on account of its lengthy awkward build, but in reality carries a great deal of excellent *moite* fat, and has a delicious flavour. During the afternoon I left the party and rode through the woods, without, however, seeing anything worthy of notice. Just before dark I again rejoined them, where we encamped at a small lake.

August 7th, Friday.

At early morning we received a visit from three wapite; they had observed two of our chesnut-coloured horses feeding on the opposite side of the lake, and immediately swam across to where they were grazing. We killed a doe and set to work slicing and drying the meat. This operation delayed us till after mid-day, so that we obtained the latitude and longitude of our camp, and the variation of the compass.

August 8th, Saturday. (White Lake)

We kept on a due west course until 2 p.m. this day, and having arrived at a deep gully encamped on its eastern side. To our north at the distance of 5 or 6 miles is a large lake known as the White Lake, and said to be of very recent origin. It lies in a hollow without any outlet, and until five years ago water was never known to lodge permanently in this place. Its bearing 2 miles east from our camp was (E. end of) N. 3° E. (W. end of) N. 291° E. During the afternoon we separated over the hill in different directions. Thunderstorms have visited us daily of late, commencing generally at 2 a.m. and lasting till 6 or 8 p.m., and the night set in with high wind.

August 9th, Sunday. (Turtle's Head)

This morning we started at 10 a.m., and travelled about 5 or 6 miles, when we reached a large wide valley with a small stream running through it. The latter issues from the head of Turtle Mountain, a few miles N.E. of our last night's encampment; the west end of White Lake bore N. 310° E., and the east end was not visible. We had discovered several tracks of horses, and consequently were now very careful concealing our own in the bottom of a deep ravine where they had abundance of grass. After dinner we again set off in different directions to make a last examination of the nature of the hill. We here arrived at the northern extremity of a crescentic notch, which crosses the hill, cutting off a lofty conical summit from the rest of the mass, and known to the half-breeds as the "Tête de Tortue"; thus the hill receives its

name from the hunters by their seeing a resemblance in the elliptical mass to the buckler of a turtle, its head being represented by the conical mound standing out from one end.

All this part of the hill is comparatively free from wood, the wide notch-like valley spoken of being occupied by bare plains, and the rounded hill only covered with patches which offer no impediments to the rider; but on attempting however to cross right over the summit to the south we soon got involved in the woods. At last, after a long ride, Hector succeeded in gaining the highest point, having avoided some deep gullies by which that part of the mountain is intersected. From the summit he obtained not only an extensive view to the north, but away to the south and west over American territory, where nothing as far as the eye could reach was to be seen but bare and barren prairie stretching in every direction. The hill here rises very abruptly from the plain below to the height of 300 feet above the plateau level, which skirts its base. Its western face is entirely devoid of wood, and has somewhat of a fine bold appearance. From sections which the ravines afforded, Dr. Hector ascertained the mass of the hill to consist altogether of drift accumulation, and wherever an exposed surface was seen, whether near its summit or towards its base, the materials were always coarse sand and shingle with large boulders. Boulders are also very frequent along its flanks and on steep slopes. They consist of large masses of limestone, which are generally angular, and huge rounded blocks of granite, gneiss, and other azoic rocks. He considers it probable that there may be a rocky nucleus to this hill; but if it is not exposed on its northern and western flanks, where the denuding agencies have evidently been the most violent, it would be useless to look for it in other quarters.

The country in the neighbourhood of the mountain is very beautiful, and somewhat like that which we traversed previous to our crossing Pembina River on August 1st. The forests which cover Turtle Mountain are not of much value as regards timber, the principal growth being the two ordinary species of poplar (*balsamifera* and *tremuloides*), several kinds of oak of stunted and crooked growth, a small birch (*Betula pumila*), and, round the skirts of the hill, dense thickets of willows and berry-bearing bushes. The boundary line passes directly through the summit of the mountain, and somewhere about the part resembling the head of the animal from which the mountain derives its name, and thence passes to the north of another point termed by the half-breeds the heart of the animal.

August 10th, Monday.

During last night another dense fog occurred, and this morning everything was completely drenched with moisture. We started at 8 a.m., and taking a N. W. course left Turtle Mountain behind us, our visit there having been much less fruitful than we had been led to expect; except, however, as regards M. Bourgeau's department. We crossed a narrow slip of level plateau, after which we made a rapid descent of about 150 feet, and then commenced to traverse a long expanse of bare plain. At 10 a.m. we came to a small creek which flows towards the east and joins White Lake, and at 11.15 a.m., having made about 10 miles, we halted to rest our horses, the heat being very intense. At 1.30 p.m. we were off again. We saw a caloi, or one of the prairie antelope, and several of our party unsuccessfully attempted to approach it. This antelope is known by the name of *Forcifer*. It is very inquisitive, a peculiarity which may sometimes be taken advantage of in hunting it by showing some attractive object, such as a red or white blanket, and then running round to the lee, when the animal will expose itself to the hunters in its endeavour to get the wind of the thing it has perceived. During the afternoon we made a considerable rise whilst crossing a ridge of broken ground running in a westerly direction, and from its summit we obtained a view of the woods which skirts the Souris River. At 6 p.m. we reached the first bluff of these, situated at about four miles from the river, and halted for the night.

August 11th, Tuesday. (Souris River)

We were off at 8.15 a.m., and reached the banks of the Souris at 9.30 a.m. It is a considerable stream, being 50 yards wide and about four feet deep at the shallowest place we could find to ford it. We were obliged to skirt the river for several miles before making this discovery, and even then a portage was necessary in order to gain the opposite bank. It occupied us till 1 p.m. getting all our baggage and horses across, and we then halted for dinner. At this place there was once a small winter post of the Hudson Bay Company, but it is at present deserted. It corresponds to Grant's House in Arrowsmith's map. The country immediately adjacent on the north side of the river consists of numerous conical sand

hills, which generally rise to the height of from 60 to 70 feet above the plain, and are composed of very fine sand similar to that which forms the hills on the sea shore. The bed of the river is of a similar composition, and cut through a rich alluvial bottom to the depth of 8 or 10 feet, and, judging from the amount of overflowed land on either bank, the river itself must be subject to great floods. The land thus inundated is covered with a thick layer of substance not unlike grey packing paper. At some of the river bends high cliffs of the sand hills are exposed.

After dinner we struck off to the N.E., with a view of avoiding the swamp which lies to our north. We did not, however, proceed far, as our horses were fatigued from dragging their loads over the loose sandy soil, and we found it advisable to encamp at the edge of the sand hills. Dr. Hector, who had left the party when we halted for dinner to geologize in the neighbourhood, rejoined us about half an hour after we fixed camp. Fragments of coal were found in the bed of the river at our crossing place. These are derived from a bed of rounded shingle which underlies the sand hills, or in some cases may have been carried down the stream from an outcrop of lignite which occurs higher up. There is a distinct lake deposit at this place in regular strata of marl, sand, shingle, and iron-shot sand, with fresh water and land shells. The sand hills have doubtless been formed on the shore of this lake. Eight feet below the surface in one section bones protruded in numbers, but they all seemed to belong to the bison, although much mineralized.

August 12th, Wednesday. (Sand Hills)

As the flies had ceased to disturb our horses during the night, owing to frequent frost after sunset, we commenced starting early every morning so as to allow of a long halt during the oppressive heat of the mid-day sun. Notwithstanding the dense fog which caused our view of the country to be greatly limited, we were off at daylight this morning. At 7 a.m. we came to a large swamp (Oak Lake) over which we had to pass, but found that we had struck it too much to the westward and consequently required to make a long detour to the east. On reaching the place where it narrows into a sluggish stream of inconsiderable breadth, but of great depth, we halted for dinner while some of the men prepared a corade or boat with willow branches and our oil cloths, which was to convey our luggage across. The latitude of this place is 49° 36' 0" N. After dinner we swam across the stream, finding it deeper than the Souris River which we had had only occasion to ford with our horses. The crossing of the party took more than an hour, and while we were congratulating ourselves on getting on our dry clothes again a tremendous thunderstorm, accompanied by heavy rain, came on in the centre of this great swamp where we had no means of sheltering ourselves. The stream we had just traversed is known as Snake Creek (Plum Creek), and falls into the Souris River, a few miles to the east of this place, and about 6 or 7 miles from its junction with the Assineboine. Our course lay now a little to the north of west, and our camp at night was also north of the place where we turned to the eastward in the morning. Immediately adjoining this swamp bluffs of wood occur, which, although they belong to the valley of the Assineboine, are at a distance of 5 or 6 miles from that river. The land in this neighbourhood is rich, and some good wood is to be met with.

August 13th, Thursday. (Plum Creek).

The morning broke raw and blustering, so much so that on starting at 5.15 a.m. we all preferred walking to riding. We continued to pass through level country with occasional groups of sandy hills, having the advantage of a "trail," known as the south road to Fort Ellice from Red River. It is said to be considerably longer than the road on the left bank of the Assineboine, which cuts across from "point" to "point" of the woods marking the course of this river, and although we have never approached sufficiently near to explore it closely, owing to the deep transverse gullies in its neighbourhood, nevertheless we could easily observe it running a little to the south of east. Our horses were now beginning to tire from the length, consequently shortening our day's marches. At nightfall we came to a bluff of high poplars, where we camped. The woods which sprinkle the plains in this quarter consist of nothing but poplars.

August 14th, Friday.

Last night was very cold, the water in our kettles being frozen, and the ground at daybreak covered with hoar-frost. Our course was north-west, following a bend which the Assineboine takes from this point.

Above this the river runs to the south, while below it follows an easterly direction. The country through which we passed now rose considerably, but otherwise preserves the same features as before. At 10.45 a.m. we arrived at a large gully, which divides into two branches, and is named Fork Creek. Here there is a small stream of water, and at some parts the banks have a cliff structure which exposed fine sections of the same shale which we had seen at Long River on the 2nd of August. Accordingly we halted for dinner to allow Dr. Hector to examine these beds, and we also determined the latitude and longitude of the place. During the afternoon we passed several other creeks, and they all exposed like sections of the Long River shale. The ground, too, is plentifully strewn with large boulders, most of limestone, and one composed of calciferous sandstone measured 9 by 9 by 3 feet.

August 15th, Saturday. (Fort Ellice).

Some of our party left the carts at starting, intending to proceed to Fort Ellice (half a day's march distant) by the ordinary route, while the others were to pass through the woods, keeping close to the river. After descending into several gullies, which were about 200 ft. deep, with a breadth of half a mile, our guide gave up the idea of reaching the fort in this direction, and again returned to the cart track about 6 miles from where we had left it. The sides of these gullies are very steep, and covered with a small but dense growth of wood. They run only a short distance into the plain, very abruptly losing their depth, and the small streams which flow through them generally emerge from swampy lakes a little distance back. Thus the cart track avoided the ravines without deviating far from the direct course to Fort Ellice, where we arrived about noon.

Fort Ellice is situated near the junction of the Assineboine and Qu'appelle rivers, one on the east the other to the north, both distant about two miles. It is built on a steep thickly-wooded bank, at the foot of which flows the Beaver Creek at a depth of about 200 feet. Like most of the Hudson Bay trading posts it is built of wood and surrounded by pickets. Once it was a very lucrative emporium of the fur trade, but now its principal value is derived from its importance as a post for trading provisions; two excellent ferry-boats have been placed one on each of the rivers above mentioned; thus the whole of the trade in the country, both that of the Hudson Bay Company and also of those engaged in opposition, pass by the fort, so that the Hudson Bay Company often obtain indirectly considerable advantage from their rivals in the trade, who are frequently obliged to exchange the furs traded by them from the Indians for the common necessities of life, which can only be obtained at this fort.

We found the fort in charge of Mr. McKay who received us in the most friendly manner. The men with the horses and carts which I had despatched from Red River Settlement direct, under the charge of Hallet, had arrived on the 1st of August, and these horses had already considerably improved by the condition of rest and good grass they had been enjoying. The horses which we had taken with us were very much fatigued and greatly in want of rest after what had been to them a severe journey, first on account of their bad condition before starting, and secondly from the severity of the heat accompanied with incessant attacks of mosquitoes and sand flies. I therefore determined to defer any further exploration to the westward until I found the condition of those horses which had accompanied us considerably improved. I further contemplated a branch trip to the boundary line in this longitude with Hallet's band of horses while ours were recruiting themselves on the fine grass here in the rolling country to the west of the Assiniboine.

(Abridged from Chapter 2, pages 37- 47, "Commencement of Journey on the Plains, 14th July 1857, to Termination of First Exploring Season on 8th October 1857" in *"The Journals, Detailed Reports and Observations Relative to the Exploration, by Captain Palliser of that Portion of British North America, Between the Western Shore of Lake Superior and the Pacific Ocean During the Years 1857, 1858, 1859, and 1860"*. Printed By George Edward Eyre and William Spottiswoode, Printers To The Queen's Most Excellent Majesty. For Her Majesty's Stationery Office. London: 1863.)



FORT ELLICE.

HBC Fort Ellice above Beaver Creek near its confluence with the Assiniboine River. 1859.