DESCRIPTION

OF THE

PROVINCE OF MANITOBA

PUBLISHED UNDER THE AUTHORITY

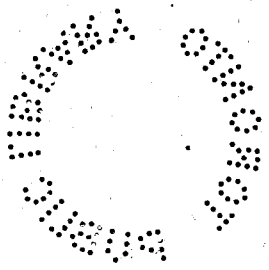
OF THE

HONOURABLE T. MAYNE DALY

MINISTER OF THE INTERIOR.

Compiled and arranged from the field-notes, plans and reports of Dominion Land Surveyors, and published reports of the Geological Survey, Canadian Pacific Railway Surveys, and other official reports.

OTTAWA
PRINTED BY S. E. DAWSON, PRINTER TO THE QUEEN'S MOST EXCELLENT MAJESTY
1893



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Scale of Statute Miles

10 0 10 20 30 40 50 60

Saskatchewan

Keewatin

Assiniboia

District

Province of Ontario

LAKE WINNIPEG

LAKE MANITOBA

LAKE SIMCOE

WINNIPEGOSIS

PRINCIPAL MERIDIAN

MANITOBA

RUSSELL

RIDING MOUNTAIN

BEAUTIFUL PLAINS

WESTBOURNE

FAIRFORD

GIMLI

PLESSIS

SHOAL LAKE

MINNEDOSA

LISGAR

DENNIS

BRANDON

NORFOLK

PORTAGE LA PRAIRIE

MARQUETTE

SELKIRK

LA VERANDRYE

SOURIS RIVER

TURTLE MOUNTAIN

ROCK LAKE

DUFFERIN

MORRIS

CARILLON

MANCHESTER

BOUNDARY BETWEEN CANADA AND THE UNITED STATES

INTRODUCTION.

It is proposed in the following pages to discuss, first the history and resources of the Province of Manitoba, then to give, in as concise a form as possible, a detailed description of its geographical features, and to follow this by a more extended explanation of the characteristics of each county, the whole being illustrated by an accompanying map.

The history and resources of the Province will be treated of in a very brief manner, the aim of the volume being to give detailed information regarding the geographical features, soil, etc., based upon the reports of the Dominion Land Surveyors, who have been employed in laying out the Province into townships and the subsequent smaller sub-divisions into farm holdings, and upon the reports of explorations and examinations, and other official documents which need not be particularized here, the authorities from which quotations are given being set forth in their proper place.

This work is a mere compilation of all the official reports known to have been published regarding the territory now forming the Province of Manitoba; many of these reports have been abbreviated, and in some cases the older exploratory reports have been slightly altered to correspond with the later and more complete surveys: the descriptions of the soil given by the earlier explorers have not been changed, the alterations consist of the correction of the areas of lakes, etc., the elevation of the various parts of the Province above the sea, and the distances between different places; in no instance has the substance of a report been altered.

It must not be understood that any of the descriptions published in this work represents a complete description of any particular locality, it is only a publication of official reports extant.

PART I.

CHAPTER I.

General Description of the Province of Manitoba.

The province dates its birth from the Act of the Dominion Parliament passed in 1870 (33 Vic., chap. 3), under which the District of Assiniboia, which comprised part of the extensive territory of Rupert's Land acquired in 1869 by the Dominion through purchase of the rights of the honourable Hudson Bay Company, and a portion of these territories was erected into a province and called Manitoba.

The limits of the province, as fixed by that Act, have since been considerably extended, and it now covers, approximately, that portion of the continent between the ninety-fifth and one hundred and second degrees of west longitude and the forty-ninth and fifty-third degrees of north latitude, and owing to its position, about midway between the Atlantic and Pacific Oceans, may be fitly termed the pivotal province of the Dominion.

The area of the province is about 73,956 square miles, of which about 9,890 square miles are covered by the lakes within its borders.

Between 14,000 and 16,000 square miles of the land area may be said to consist of muskegs and shallow marshes, much of which, however, is susceptible of being drained at a comparatively small expense.

The soil of the province is treated of very fully in the detailed descriptions of each township, which will be found in their respective places and in the descriptions of each county to which they belong; but for the purpose of a general description it may be described as a deep alluvial deposit of unsurpassed richness, producing bountiful crops of cereals, roots, vegetables and nutritious grasses.

Wild fruits, including strawberries, currants, raspberries, gooseberries, plums, cherries, blueberries, wortleberries, cranberries, (both bush and marsh), grow in great abundance; hops grow wild in great luxuriance, official tests of which prove them to be of better quality than those cultivated in other provinces.

The many authorities quoted further on, with the descriptions of the soil and crop results, will be ample proof of the wonderful productiveness of the soil, and it will be sufficient here to quote the fact, as illustrating the inexhaustible nature of the soil, that on some farms in the older settlements successive crops of wheat have been raised for over half a century without fertilizers, and apparently without the soil showing signs of exhaustion.

With reference to the suitability of the soil and climate of Manitoba for the cultivation of flax, the London (England) *Telegraph*, states in an editorial on the subject: "The recent imposition

by Russia of an almost prohibitive duty on manufactured linens shipped from the United Kingdom, is already injuring the trade in that class of goods with the Czar's subjects. Unfortunately for a time the mischief thus wrought is likely to extend, for the home manufacturers will have less inducement now than formerly to purchase the raw materials, flax and hemp, from the Russian growers. How extensive the importation of flax from Russia is, may be readily understood when it is stated that that crop alone is frequently of greater value than the entire yield of grain. Although, however, the Russians raise an enormous quantity, it is of an inferior quality compared with that grown in Holland, Belgium or Ireland. Mr. E. B. Biggar, of Montreal, Canada, having made a study of the question, a few days ago took occasion to bring the matter prominently forward at a meeting in the Conference Hall of the Colonial and Indian Exhibition. From the paper then read, as well as from the discussion which followed, and evidence since obtained, it seems that Canada, and particularly the great North-west, offers a limitless and inexhaustible field for the supply of flax and hemp. The former crop has been grown in every one of the Canadian provinces, but the North-west appears to be especially adapted by nature for its cultivation. Wherever it has been grown north-west of Ontario there has been a prolific yield, with great length of fibre. Hemp also thrives splendidly, often attaining a height of 12 feet. At least three species of flax are indigenous to Canada. In the Province of Quebec the plant has been cultivated for over 150 years, and is woven by the people into various articles of clothing. It will be seen, therefore, that this branch of agriculture is no mere experiment in Canada, and the only questions for consideration really are, how can the farmers there be induced to pursue it and how the virgin soil of the North-west may be made to yield a rich harvest to the pioneers and settlers flocking there.

"The invention of several machines during the past year for scutching and enabling the farmer quickly to render his crop marketable, is giving an impetus at present both in Ireland and America to the cultivation of that plant. It has been shown that it is capable of yielding three profits, one from the fibre, another from the seed, and a third from the refuse materials for paper-making. The Russian Mennonites, who settled a few years ago in Manitoba, started the cultivation of flax seed, burning the fibre as being of no value. There was no market for it, railroad communication not having as now been opened up. An English manufacturer who started a mill at Winnipeg, bought the seed grown in that locality, and has found the yield to be sixteen pounds of linseed oil to the bushel. This year (1886) the Mennonites have sown 16,000 acres in flax. Without any special direction, the area of cultivation both of flax and hemp, is extending not only in Ontario but in the North-West, whilst it has been steadily diminishing in the United Kingdom. Last year, less than 450 tons of flax was produced in England, and in Ireland under 21,000 tons. The amount imported into the United Kingdom in the same

period, 100,000 tons, of which not less than 83,000 tons came from Russia, or in round numbers, £2,000,000 worth of flax. The manufacturers of this country openly state that on no sentimental, but purely on business grounds they would give the preference to Canadian flax and hemp, provided the raw material were offered in the English market, equal in price and quality to the Russian. This they would do because of the numberless difficulties and annoyances they are subjected to in carrying through transactions in that country. Their letters are opened, delayed and occasionally sent to the wrong people by the iniquisitorial Russian postal officials, and the prompt execution of orders is never effected. Subject to these and other vexatious annoyances the Russian trade has been carried on, and both in England and Ireland, from Manchester and Belfast, manufacturers have expressed their readiness to assist in any proper way to give a fair start to the extended cultivation of these fibres in Canada. A number of small samples of Canadian-grown flax and hemp have been sent to this countay, and the reports are highly satisfactory, the result showing a fair margin of profit to the growers when freight and other charges have all been met. This year a firm in Ontario sent over 1,000 tons of flax to Belfast, which has been pronounced much superior to the Russian. As has been stated, the crop grown in the North-West is of better quality still, and will, it is thought, when offered for sale, hold a place in the market fully as high as that grown in Ireland. The North-West possesses exceptional advantages for the cultivation of these two fibres. Not only is the soil rich and of great depth, but the weather is bright and clear, there is a heavy dew at night, and in many parts of the country there are small lakes, the waters of which are slightly alkaline. The two last advantages are most favourable in that portion of the preparation of raw material known as "setting." As to the area available for the crop, there are over 250 millions acres of wheat land, every foot of which could be made to produce flax and hemp, if necessary. Farmers, it is argued, will find these much more profitable than wheat with the present glutted state of the market. As to the contention about the impoverishment of the soil, the depth of the loam and the fertilizing character of the Canadian rains and snows puts that out of consideration. In addition to the land within the wheat belt, there is beyond it, up to a degree of latitude not as far north as Archangel in Russia, where these crops are cultivated in Europe, over 100 millions acres of land in the North-West admirably suited for growing flax. The growing season in that region, although a short one, is longer than in Russia and finer in every way. In the great Canadian wheat belt, if the soil were, when for the first time turned by the plough, sown but for a single year in flax, the yield would equal in quantity the supply of Russia for eighty years to come."

The first agricultural settlement in the country now comprising Manitoba dates back to 1812, during which year a small colony of Scotch Highlanders came out under the auspices of Lord Sel-

kirk, and settled along the banks of Red River. During the first two years they experienced much hardship owing to the opposition of the North-West Fur Trading Company, but in 1814 this opposition was overcome and they finally became established in their settlement which they named Kildonan. The progress of the settlement was slow owing to the lack of a market for any large quantity of farm produce, but these early colonists seem to have enjoyed an abundance of all things necessary to make them contented and happy.

With the acquirement of the country by the Dominion of Canada, and the creation of the Province of Manitoba in 1870, a new era of prosperity commenced, the influx of immigrants, the extensive surveys, and other public works undertaken by the Government, created a home market for all kinds of farm produce, and from that date the growth and prosperity have been rapid. The population of the province in 1870 was estimated to be about 20,000: the census of 1891 shows a present population of 152,505.

In common with most of the western territories on this continent, the growth of the cities and towns in this western province has been phenomenal. A detailed description of these is not within the scope of a work of this kind, ample and reliable information regarding them is, however, easily procurable.

Nature has very bountifully endowed this fair province with many magnificent lakes and rivers, descriptions of which will be found in their proper place. These natural highways will in the near future materially assist in the growth and development of the country.

Considering its age, the province is exceptionally well provided with transportation facilities, the railway mileage in 1891 being about 1,520 miles which, with the natural highways already alluded to, afford access to almost all parts of the prouince.

At the present time, wheat is the leading product, but large quantities of other grains are produced, and the exceptionally nutritious qualities of the wild grasses make stock-raising very successful; large quantities of the best cheese and butter are manufactured- and the growth of the dairy products alone afford a bright future for the agricultural population.

The yield of wheat per acre is large when compared with the other wheat areas of the world, and its superior hardness and consequent value in the manufacture of flour has been recognized by all grain dealers and millers: the flour made from this wheat commands a higher price than that made from wheat grown in any other portion of the globe.

The first wheat was exported in 1877: the crop of 1891 was estimated at over twenty-three million bushels. In addition to this, there were about eighteen million bushels of barley and oats.

With these brief remarks, we will proceed with the detailed descriptions of the surface, soil, timber, &c., of the province. For convenience of reference, the main geographical features are first

described : the country is then divided into three divisions, viz., central, western and eastern ; following which the characteristics of each county are treated of by themselves.

It should be further premised that the system under which the province has been surveyed consists of townships of six miles square, the boundaries of which are east and west, north and south, and that these townships number north consecutively from the southern boundary of the province, and lie in ranges numbered east and west from a principal meridian, which lies a few miles west of the Red River. This system will be readily understood by reference to the accompanying map.

CHAPTER II.

Central Manitoba.

The first division, or Central Manitoba, includes the so-called Valley of the Red River, in the southerly and centre portion of the province and northwards embracing Lake Winnipeg, the associated lakes westerly thereof, and the flat land surrounding the same. The eastern boundary of this tract follows the eastern shore of Lake Winnipeg and the right bank of Winnipeg River, and the base of the rocky terraces surrounding the Lake of the Woods. To the west it is bounded by the more or less abrupt edge of the second prairie level, forming an escarpment which, though very irregular in some places, is scarcely perceptible where the broad valley of the Assiniboine River breaks through it. The escarpment, where the international boundary line crosses it, is known as Pembina "Mountain," and is continued northward by the Riding, Duck and Porcupine Mountains.

The average height above the sea of this lower level of Manitoba is about 840 feet, the lowest part being Lake Winnipeg, which has an elevation of about 710 feet. From this it rises to the south, along Red River, and attains an elevation of 790 feet at Emerson; east and west of the river, notwithstanding the apparent horizontality of the prairies, there is a gradual and imperceptible rise. Between Lake Winnipeg and Lakes Manitoba and Winnipegosis the watershed is approximately about 150 feet above that of the first mentioned lake. West of Lake Winnipegosis the rise of the land is very rapid. In a distance of twelve miles from the mouth of Pine Creek, the rise is approximately about 200 feet.

The area of this division may be estimated at about 42,000 square miles, of which the great system of lakes in its northern part, within the province, occupies about 12,000 square miles. A great part of the prairie-level is wooded more or less densely, particularly that portion adjacent to the lakes, and east of Red River, much of which, however, of late years has been damaged by fire. The southern portion, extending southerly from Lakes Winnipeg and Manitoba, includes the true prairie region of Manitoba, and has an area of about 7,000 square miles.

Of the alluvial prairie of the Red River it is said, "the uniform fertility of its soil cannot be exaggerated. The surface, for a depth of two to four feet, is a dark mould, composed of the same material as the subsoil, but mingled with much vegetable matter. Its dark colour is, no doubt, in part due to the gradual accumulation of the charred grasses left by the prairie fires. The soil may be said to lie ready for the plough, and in turning the tough prairie sod, the first year, a crop of potatoes may be put in, though it is not efficiently broken up till it has been subjected to a winter's frost. When the sod has rotted, the soil appears as a light

friable mould, easily worked, and most favourable for agriculture. The marly alluvium underlying the vegetable mould, would in most countries be considered a soil of the best quality, and the fertility of the ground may therefore be considered as practically inexhaustible.

"Small swamps are scattered pretty uniformly over its surface, and in some places very large areas of swampy land occur. The greater part of these swamps are, however, so situated as to be easily drained, either into the Red River or some of its tributaries, which are usually depressed thirty or forty feet below the level of the surface."—*Dr. Dawson, Geological Survey.*

"Of the Valley of Red River I find it impossible to speak in any other terms than those which may express astonishment and admiration. I entirely concur in the brief but expressive description given to me by an English settler on the Assiniboine, that the Valley of Red River, including a large portion belonging to its great affluent, is a 'paradise of fertility.' During my visit to Assiniboia, a district embracing the settlements on both rivers, I paid particular attention to the objections which have been urged against the climate and soil of the country with reference to agricultural operations, and I have no hesitation in saying that erroneous impressions respecting the available area of cultivable land, the soil, the crops and the climate still exist and find publicity.

"The summer climate appears to be well adapted for agricultural operations. The temperature is nearly four degrees warmer than at Toronto, as ascertained by a comparison of corresponding observations.

"Indian corn, if properly cultivated, and an early variety selected, may always be relied on. The melon grows with the utmost luxuriance without any artificial aid, and ripens perfectly before the end of August. Potatoes, cauliflowers and onions, I have not seen surpassed at any of our provincial fairs.

"The character of the soil in Assiniboia (now Manitoba), within the limits of the ancient (Lake Agassiz) lake ridges, cannot be surpassed. It is a rich black mould, ten to twenty inches deep, reposing on a lightish coloured alluvial clay about four feet deep, which again rests upon lacustrine or drift clay to the level of the water, in all the rivers and creeks inspected.

"As an agricultural country I have no hesitation in expressing *the strongest conviction that it will one day rank amongst the most distinguished.*"—*S. J. Dawson, C.E.*, 1857.

The Valley of Red River is thus described:—"To the most recent of these"—referring to the superficial deposits—"belong the lower prairies which surround Lake Winnipeg and the lakes of that group, including the marshy (?) country to the west of Manitoba Lake. In the vicinity of Red River settlement, its composition is of argilaceous marl with a deficiency of sandy matter, and is invariably stratified in thin layers. Underlying this, at various depths from the surface, is a bed of stiff clay which forms the immediate margin of the rivers at many places. The upper layer of

the deposits contains leaves and fragments of wood and reeds, and the whole is undoubtedly a fresh water deposit, indicating a time when the Winnipeg group of lakes covered a much more extended area than at present. The surface of this deposit is about 75 to 125 feet above Lake Winnipeg, but it slopes gradually from the west. This ancient lake extended south beyond the 49th parallel, and everywhere presents a rich level prairie, only broken by slight gravel ridges which have formed shoals in the ancient lake."—*Dr. Hector.*

"Over nearly the entire prairie portion of Manitoba, both in the lacustrine area of Lake Agassiz and upon the higher and more undulating or rolling country that stretches thence westward, a sandy clay, often with some intermixture of gravel and occasional boulders, forms the soil, which has been coloured black to a depth of one or two feet below the surface by decaying vegetation. The alluvial and lacustrine beds, or the glacial drift, the same as the soil, excepting that they are not enriched and blackened by organic decay, continue below, being usually yellowish grey to a depth of ten to fifteen feet but darker and bluish beyond, as seen in the wells. The glacial drift contains many fragments of cretaceous shale, magnesian limestone, granites, and crystalline schists; and its fine detritus and the silty deposits carried into Lake Agassiz by its tributaries are mixtures of these rocks pulverized, presenting in the most advantageous proportions the mineral elements needed by growing plants. The natural prairie supplies rich pasturage." *Mr. Warren Upham, United States Geological Survey.*

Professor Blodgett, in his work on the Climatology of North America, states "that the basin of Winnipeg is the seat of the greatest average wheat product on this continent, and probably *in the world.*"

The limestone sub-strata of this region, with its rich, deep, calcareous loam and retentive clay sub-soil is always associated with a rich wheat development, and with its hot and humid summers fulfil all the climatological conditions of a first-rate wheat country. Some fields on the Red River have been known to produce twenty successive crops of wheat without fallow or manure, and the yield has frequently reached as high as forty bushels to the acre. An important feature in the soil of Manitoba and the North-West is, that its earthy materials are minutely pulverised, and the soil is everywhere light, mellow and spongy. With these uniform characteristics, the soils are of different grades of fertility, according to local situations. A general ingredient of the soil is sand, of which silica is the base of all good soils. It plays an important part in the economy of growth, and is an essential constituent in the organism of all cereals. We are told that about 67 per cent of the ash of the stems of wheat, corn, rye, barley, oats, &c., is pure silica, or flint. It is this which gives the glazed coating to the plant and gives strength to the stalk. Now, this silica is an acid and is insoluble but readily combines with lime, soda, magnesia, potash and other ingredients of our soil, and in this condition is readily available to the use of the plant, and forms an essential

element in the growth of the cereals; to this and other causes is attributable the superiority of our wheat over all other grown east or south.—*Mr. Thomas Spence.*

Professor Gilbert, of Rothamsted, England, tested samples of soil taken from Niverville, 23 miles south-easterly of Winnipeg, Selkirk, 22 miles north, and also a sample from the immediate neighbourhood of Winnipeg. He says:—"This soil show a very high percentage of nitrogen; that from Niverville nearly twice as high a percentage as in the first 6 or 9 inches of ordinary arable land about as high as the surface soil of the pasture land of Great Britain. The soil from Selkirk showed an extremely high percentage of nitrogen in the first twelve inches, and in the second twelve inches as high a percentage as any ordinary surface soil. Lastly, both the first and second nine inches of soil from Winnipeg were shown to be very rich in nitrogen, richer than the average of old pasture surface soil."

It may be remarked that the Dominion Land Surveyors who surveyed the lands in the vicinities of Niverville and Selkirk considered these lands of only second-class quality.

Professor Tanner, lecturer on agriculture at South Kensington, England, writes:—"Here it is that the champion soils of the world are to be found, and we may rejoice that they are located within the British Empire. Take as an illustration of their powers of fertility the simple fact that on a Kildonan farm, near Winnipeg, I saw their 50th crop of wheat growing—crops which had followed each other year after year, and had maintained their full yield from first to last, without the soil losing any of its productive power. Year by year, had the winter frosts renovated that soil with fresh stores of fertility from its rich preserves, and thus the land became better prepared than ever for its work."

As bearing on the particular advantages of Manitoba for the cultivation of wheat, the following analysis of a specimen of the alluvial soil from the prairie is given. It is by Professor V. Emmerling, Director of the Chemical Laboratory of the Agricultural Association of the University of Kiel, Holstein, Germany:—

(Translation of letter to Senator Emil Klotz.)

KIEL, 29th April, 1872.

"HON. SENATOR,—The analysis of the Manitoba soil is now completed, and the result in 100.000 parts:—

Potash	228·7
Sodium	33·8
Phosphoric acid	69·4
Lime	682·6
Magnesia	16·1
Nitrogen	486·1

"Yours truly,

(Signed) "V. EMMERLING

(Extract from letter of Senator Klotz to Jacob E. Klotz, agent for the Dominion Government.)

"KIEL, 4th May, 1872.

"After considerable delay, I succeeded in obtaining the analysis of the Manitoba soil from Professor Emmerling. * * * Annexed I give you our analysis of the most productive soil in Holstein, whereby you will see how exceedingly rich the productive qualities of the Manitoba soil are, and which fully explains the fact that the land in Manitoba is so very fertile, even without manure.

"The chief nutrients are, first, nitrogen, then potash and phosphoric acid, which predominates there; but what is of particular importance is the lime contained in the soil, whereby the nitrogen is set free, and ready to be absorbed in vegetable organisms. The latter property is defective in many soils, and when it is found defective, recourse must be had to artificial means by putting lime or marl (a clay which contains much lime) upon the same.

"According to the analysis of the Manitoba soil, there is no doubt that to the farmer who desires to select for his future home a country which has the most productive soil and promises the richest harvest, no country offers greater attractions than the Province of Manitoba.

"*Analysis of the Holstein soil and Manitoba soil compared.*"

	Holstein soil.	Excess of Properties of Manitoba soil.
Potash	30·	198·7
Sodium	20·	13·8
Phosphoric acid	40·	29·4
Lime	130·	552·6
Magnesia	10·	6·1
Nitrogen	40·	446·1

The following is an analysis by Dr. Macadam, of the University of Edinburgh :—

"ANALYTICAL LABORATORY, SURGEON'S HALL,
EDINBURGH, 14th December, 1876.

"*Analysis of Sample of Manitoba soil.*

Moisture		21·364
Organic matter containing nitrogen equal to ammonia,		11 223
Saline matter—		
Phosphates	0·472	
Carbonate of lime	1·763	
Carbonate of magnesia	0·937	
Alkaline salts	1·273	
Oxide of iron	3·115	
	———	7·560
Silicious matter—		
Sand and silicia	51.721	
Alumina	8·132	
	———	59·853
		100·000

"The above soil is very rich in organic matter, and contains the full amount of the saline fertilizing matters found in all soils of a good bearing quality.

"(Signed) STEVENSON MACADAM, M.D.,
"*Lecturer on Chemistry, etc.*"

"The soil of the province being mainly of the rich black alluvium of the Red and Assiniboine valleys, from four to eight and even twelve feet deep, is unsurpassed even by that of the famous Valley of the Nile, while that of its gentle uplands is a quick rich loam."—*Mr. Thomas Dowse, of St. Paul, Minnesota, U.S.*

That part of the country east of the sixth range of townships, south of the Winnipeg River, and west of the high-lying rocky country surrounding the Lake of the Woods, is more or less, swamp and muskeg, with occasional tracts of dry land: These swamps and muskegs are as a rule very shallow, and might be easily drained. The watershed dividing this section of country from the Lake of the Woods is within a few miles of that lake. There is a fall westerly, of about 220 feet from the watershed to the western limit of this section. From White Mouth Lake to the discharge of White Mouth River into Winnipeg River, the fall, approximately is 200 feet.

The area of this tract is about 5000 square miles, but a very small proportion, in its present state is fit for tillage, though the greater portion is swamp, if drained, at least one-half will be found to have a rich and productive soil, in many places equally as good as that west of Red River. It is intersected by a number of rivers and creeks, among which are La Barriere, White Mouth, Broken Head and Roseau rivers and their tributaries; also by the upper portions of the Seine and Rat rivers, thus affording many natural facilities for drainage. At a comparative small expense, a large proportion or the country might be made available for settlement.

Regarding this locality, it is said: "a comparatively small proportion appears to be fit for cultivation, though much of the surface could be reclaimed at small expense. The areas formerly occupied by small lakes show better soil than the ridges and higher grounds, which are generally sandy or gravelly. The chief present value of the region would however seem to be as a reserve of fuel, and timber for construction, for the more fertile prairie land bordering the Red River."—*Dr. Dawson.*

The country between Red River and the Lake of the Woods is remarkable, inasmuch as it divides the wooded from the prairie region, partaking to some extent of the character of both. Its eastern border, on the Lake of the Woods and the Winnipeg River, is of a crystalline formation, of an uneven surface, and densely wooded. Its western, on the Red River, presents wide prairie openings, and for a distance of thirty miles east of the river is of an alluvial soil. Immediately to the westward of the Lake of the Woods, and but slightly above it, there is a marshy plateau, scantily wooded, from which the Roseau River flows westerly to Red

River, White Mouth River northward to the Winnipeg, and several inconsiderable streams eastward to Lac Plat, and to the Lake of the Woods itself. Westward of this plateau the land descends evenly to the prairie bordering on the Red River, and to the northward it declines very gently to Lake Winnipeg; another river, the Broken Head, takes its rise on the slope between White Mouth River and Red River, about six miles to the westward of the former flows northerly into Lake Winnipeg.—*S. J. Dawson, C.E.*

For a further description of this tract see the general description of the counties of Manchester, Carillon and La Verendrye.

Between Lake Winnipeg and Duck, Riding and Porcupine Mountains a considerable portion of the land area is occupied by swamps. "That most of them are mere marshes, with a bottom of alluvial soil, similar to that of the dry prairie, but not so deep. These marshes appear to owe their existance solely to the flatness of the country, and as they are at a much higher level than the streams which as a general rule run in deep channels, they might be easily drained; indeed, with a proper system of drainage, the expense of which would be comparatively small, the whole of this great alluvial flat might be brought under cultivation, except, of course, where it is periodically overflowed, and the extent to which it is subject to be so is quite insignificant as compared to the whole area."—*S. J. Dawson, C.E.*

Further information will also be found included in Mr. Tyrell's report on North-Western Manitoba, page 18.

CHAPTER III.

WESTERN MANITOBA.

The second division, or Western Manitoba, comprises the territory between the first division and the western boundary of the province. It includes the elevated plateaux known as the Pembina, Turtle, Riding, Duck and Riding "Mountains," including the high tract lying between the Pembina and Riding "Mountains," through which the Valley of the Assiniboia lies.

The second prairie steppe, which is marked by the long range of low hills, successively known as Pembina, Riding and Duck Mountains, is generally undulating or rolling and often hilly. Some of the hills rise from 200 to 300 feet, and occasionally to as much as 400 feet above the general level of the prairie, and afford from their summits extensive views of the surrounding country, which everywhere presents a park-like aspect; belts, patches and clumps of woodland with intervening richly grassed meadows or wide stretches of open undulating prairie, interspersed with countless lakes and pools, are seen on all sides, while the wonderful variety and beauty of the flowering plants, roses, lilies, gentians, sunflowers, larkspur—a beautiful purple aromatic mint-like plant—and a host of others lend an additional charm to the beauties of this picturesquely, lovely landscape. — *Dr. Selwyn, Geological Survey.*

The rivers all flow through deep, wide valleys, the streams being of remarkably small size compared to what they were apparently at one time. Chief among the phenomena which at first sight seem to imply the action of large bodies of running water, are the great valleys which the streams, themselves often so insignificant, have produced in the yielding strata. The valleys, like that of the Pembina river, are sometimes more than three hundred feet in depth below the plain, and over a mile in width ; and are frequently depressed more than one hundred feet below the general surface. The stream generally occupies but a very narrow strip of the bottom of the valley, and winds often in the most turtuous manner from side to side, of its level floor. It is usually the first idea of a traveller, that a great river has occupied the valley at some former time, and completely filled it. A little consideration, however, serves to modify this belief, and it is *very generally* found on examination that the comparatively puny stream by reason of its tortuous character, is still in some places excavating and undermining the banks of the main valley. Evidence is also found of the constant change of the position of the stream. in the flat valley bottom, and places may be seen where the excavations of late years are being covered by a sod of grass. Given only time enough, and the formation of these great troughs in the

prairie is accounted for by forces still in operation. There are valleys, it is true, which do not show any erosion of their sides now going on, and in which the immediate hollow of the stream is deeply cut, and a condition of comparative equilibrium attained. Some of these may require for their explanation a period of greater rain; but at a certain stage of development every valley is apt to fall into this state, if the flow of water be not actually increasing.

The extreme western margin of the Red River prairie, in the vicinity of the slope of Pembina Mountain, is diversified by groves of oak, which stretch out from its base, and would no doubt be much more extensively wooded but for the constant recurrence of prairie fires. The front of the escarpment and its summit, forming the edge of the second prairie steppe, are in some places thickly wooded, and always show extensive patches of timber. The forest-covered area increases north-westward. In the vicinity of the international boundary line the woods owe their preservation to the protection against fires afforded by the broken nature of the escarpment, by the great valley of the Pembina River and its system of tributary coulées, and to the frequent occurrence of patches of swamp. Poplar is probably the most abundant tree, though even after ascending the escarpment groves of oak are found. The wooded region has, however, in all localities suffered much from local fires. Most of the trees at present living are small, while traces of a former heavy forest growth frequently appear.

In some places pretty extensive prairie areas occur between Pembina escarpment and Pembina river, and with the exception of a few localities near the edge of the escarpment, where the cretaceous clays are near the surface, the soil is of excellent quality, and differs from that of the Red River valley by the addition of a considerable portion of sandy material. Swamps are here pretty thickly scattered, and some of them attain large dimensions in spring. Those parts of them which are permanently wet, however, bear luxuriant crops of natural hay-grass, and the general aspect of this region is favourable (for settlement).

On crossing the Pembina river the eastern margin of the great treeless plain is entered on. No woods now appear, except those forming narrow belts along the valleys of the streams, and soon even the smaller bushes become rare. The shrubs met with are generally stunted, from the absence of shelter against the wind and the frequent passage of prairie fires. The little thickets consist, according to situation, of dwarfish snow-berry (*symphoricarpus occidentalis*), spiræa, roses and willows fringing the small swamps and pools. The metallic leaved silver-berry (*elægnus argentea*), comparatively rare in the Red River valley, now begins to occur in abundance on the drier areas.

With reference to the soil west of Pembina river, nearly the same remarks apply as to that east of it. It is fertile, though not so deep or inexhaustible as that of the Red River Valley, and rests on a gravelly drift sub-soil. Swampy bottoms bearing a good

growth of hay-grass abound, but their area is quite small as compared with that of the dry ground. Toward the end of the summer most of these swamps dry up completely, and extensive regions are then without other water supply than that derived from the streams and rivers, which lie in deep valleys, and are often far apart. I do not think, however, that difficulty will be found in obtaining water by wells sunk in any of the lower parts of the prairie. The rainfall of this region is probably slightly less than that of the Red River Valley, but appears sufficient for agricultural purposes.

It seems probable that at a period not very remote a great part of this district was covered with forest trees. The humidity of the soil and climate is sufficient for their growth, and in some places little hummocks, resembling those formed in the forest, and known as "cradle hills," were observed. On approaching Turtle Mountain the tendency of this part of the prairie to reclothe itself is shown by the occurrence of thickets of seedling poplars on the sheltered sides of the undulations, wherever the fires have not passed for a few years.

The water of the swamps and ponds of this part of the prairie is generally sweet, but one distinctly saline lake was seen. It had not the thick fringe of grasses and sedges of the other ponds, and here, for the first time, the *salicornea* was met with in abundance.

Westward from Turtle Mountain the prairie rapidly loses its abruptly undulating character and becomes almost perfectly level before reaching the Souris River. There are, however, still many shallow basin-shaped hollows, which must be filled with water in early spring but soon show a fine tall growth of swamp-grass, which in the autumn was found in many places to stand considerably higher than a horse's back, and contrasts strikingly with the short crisp sod of the surrounding prairie. The vegetable soil is not very deep, often only six or eight inches, and is somewhat light and sandy, but is based on whitish marly drift, which forms a good sub-soil.

The valley of the Souris River, near the international boundary, is nearly a mile wide. It includes some flat and very fertile alluvial land, and a limited quantity of timber, chiefly elm, is found along the immediate banks of the stream and is massed in fine groves on the peninsulas formed by its devious windings.

The region between the first and second crossings of the Souris River presents features similar to those of that last described. It is gently undulating, with a soil which is in some places, perhaps, rather thin and gravelly, but which is deeper and richer in the vicinity of the North and South Antler Creeks—tributaries of the Souris. Along the valley of the South Antler a good belt of trees extends for many miles. The surface is everywhere covered with a strong sod of short grass. The only shrub growing on the general surface of the prairie is the *elægnus*, which forms little thickets scarcely two feet in height. The vegetation of this part of the second prairie steppe appears to be slightly in advance of that of the Red River Valley. In the early part of September, 1873, the

liatris, still showing bloom in the latter region, was here found past flowering and with seed well advanced. This may arise as much from the warm and dry character of the soil as from any absolute difference of temperature.—*Dr. Dawson, Geological Survey.*

The Riding Mountains lie a little to the north-west of us, and there, together with the hills and rough country, indicate that we are about to ascend to the second prairie steppe. From Point du Chêne (Oak Point), 30 miles east of Fort Garry, to this point, making a distance of 125 miles from east to west, and extending from the forty-ninth parallel on the south of Lakes Winnipeg and Manitoba on the north, stretches a region of country not to be excelled for the raising of cereals by any other tract of the same size in America.

For eight miles the trail led through a rich country; vegetation of every kind most luxuriant. The whole of this region was evidently covered with forest at no distant date, as there are still oaks and many aspens remaining. Fires are gradually denuding the whole country of wood, as the margins of all groves show the action of fires. Passing out of this, we came to a region of sand dunes. Here we observed the first coniferous trees since leaving Oak Point. White spruce (*abies alba*), common juniper (*juniper communis*), and the creeping variety (*J. sabina var procumbens*) were abundant, and underneath grew many of the flowers of the pine woods of eastern Canada. Pine Creek, a small stream, winds amongst these hills, which stretch for about four miles on either side of the stream. Gradually the hills melted into the plain, and a wide dry prairie extending for miles spreads out before us. The soil is well suited for cultivation, but wood is scarce. About the centre of this prairie we crossed Boggy Creek, and six miles beyond came to a gravelly tract thickly strewn with boulders. For 21 miles the surface of the country is much diversified by pond, lakelets, small groves of aspen and thickets of willow, with broad dry expanses of prairie, covered with grass and flowers. Since we struck the hill we have been gradually rising higher and higher, and the vegetation shows a drier climate. We are now on the banks of the Little Saskatchewan, which runs in a valley about 200 feet deep; evidently scooped out of the drift by its own waters. The leading characteristics of the vegetation remain unbroken. On low spots sedge grass mixed with wheat grass, cord grass and various species of blue joint.

The valley of the river is very beautiful and formed a pleasing contrast to the monotonous country passed over before reaching it. The timber on its banks is nearly all destroyed (*Prof. Macoun presumably only refers to the immediate vicinity of the crossing*) by the recklessness of travellers. From the river, the country still kept ascending, ridge after ridge coming into view until at last we reached the level of the steppe. Before reaching this the vegetation showed a considerable retardation, owing to the want of heat and moisture; except this there was no change. At the Salt lakes there is a slight depression of the general level of the plateau. The

shores of the lakes produce many saline plants. these have a wide range over the whole interior wherever salt lakes are found.

After passing over the plateau we came to the Shallow Lakes (now generally known as Shoal Lake) beautiful sheets of pure sweet water with their discharge to the southward. Here I saw the maple (*Negundo aceroides*) for the first time since leaving Rat Creek. Many large willows and thorn bushes were observed on the neck of land that joins the two lakes, and over these hung in festoons the trailing vines of the wild hop, which in fact is found more or less along every water-course. Between the Shallow Lakes and Bird Tail Creek the land is good, and was until very lately almost wholly covered with timber. Now the greater part remains as dead trees killed by last year's fires. The next fire will probably take the rest. After leaving the creek a marked change takes place in the character of the country, the surface becomes covered with boulders; so thick do they lie in many places that it is difficult to pass among them. As we near the Assiniboine, the surface of the country becomes much broken up by various depressions and ridges, which seem to run in all directions without any apparent order.

Both banks of the Assiniboine and Qu'Appelle rivers are densely wooded, but the wood is of no value, except for fuel, as it is principally aspen and balsam poplar. A few maples and birch were observed at the crossing, but were of small size. *Prof. Macoun*, 1872.

North of the Assiniboine River the country rises gradually and imperceptibly to the eye up to the crown of Riding Mountain, 2,000 feet above the level of the sea. The southern portion of this district is chiefly prairie, the soil good but light in some places, and in others largely mixed with boulders. The depth of the soil increases northwards and its quality changes to a heavy loam well suited for wheat growing; groves and belts of poplar become frequent and ultimately merge into a solid forest, in which are good spruce and tamarac. The north-eastern slopes of Riding and Duck Mountains are precipitous and the flat between them and Lakes Manitoba and Winnipegosis in places marshy, intersected with sand and gravelly ridges covered with spruce, tamarac and some maple.

From Fort Ellice up the east side of the Assiniboine to Shell River, is a belt of gravel ridges, evidently a former beach or river bed, some 10 miles wide, covered with a thin sod. Between that and Bird Tail Creek the southern part is a fine prairie and the northern a dense poplar bush. North of Shell River and extending from the Assiniboine to the base of Duck Mountain is a beautiful inclined plain, partially wooded, and the soil is very rich, especially near Big Boggy Creek where we saw very heavy crops of wild peas and vetches.

The Duck and Riding Mountains are separated by a deep valley over a mile in width, with a fine soil in the bottom. The slope of the latter is heavily wooded but that of Duck Mountain is open pasture and more precipitous on the south-west side. On the north side there are belts of spruce and tamarac.

In this general description it will be understood that in detail there will be found tracts of good land in those districts where the soil is generally represented as poor and vice versa. There is great variation in the character of the country and the soils. In the southern side of the belt above described the country is chiefly prairie and the soil light or shallow, with a sub-soil of sand or gravel, so that the crops ripen early, but there is a deficiency of good water and hay lands, and the grass is in general short. Northward the country is well supplied with fresh water, and there are belts and groves of poplar suitable for fuel and fencing. On the northern side of the belt these merge into dense forests and are mixed with spruce, tamarac, and some pine suitable for lumber for building and other purposes. Most of the country on the northern half of the belt has been covered with woods, so that the surface is rougher and will require more labour in cultivating. But the soil is deeper and stronger and yields heavy crops of wheat and other cereals. The natural crops of grass, wild peas and vetches, northward, are very heavy. This great variety will facilitate settlement, as it affords a choice of soils and other conditions to suit people of various partialities. *Marcus Smith, C. E.*, 1879.

NORTH-WESTERN MANITOBA, embracing Duck and part of Riding Mountains, with the included and surrounding valleys, and the more level country east of these mountains, lying between them and Lakes Winnipegosis and Dauphin.

It is drained on the north by Swan River, which flows northeastward through Swan Lake into Lake Winnipegosis, its main tributaries being the Bear's Head, Favell, Rolling and Sinclair rivers, flowing northward from the north face of the Duck Mountain. On the west, it is drained by the Assiniboine, with its tributaries Little-Boggy and Big-Boggy creeks and Shell River. On the south, some of the small upper tributaries of Bird-tail Creek drain a limited area in the Riding Mountains. On the east, Turtle, Ochre, Vermilion, Wilson and Valley rivers pour their waters into Lake Dauphin, flowing across the fertile plain south and west of this lake. Fork, Pine and Duck rivers flow from the face of Duck Mountain, the former into Mossy River and the latter into Lake Winnipegosis.

In its general physical features it presents very great diversity of character. The mountains, or rather the one mountain cut in twain by the great depression of Valley River, cross the country in a north-north-westerly direction, forming a high, rugged ridge rising in different places from thirteen to nineteen hundred feet above Lake Winnipegosis. To the eastward these mountains descend in a steep, wooded slope to an even, almost unbroken, alluvial plain, which inclines gently to the lake shore. Westward it descends much more gradually, and except in the vicinity of latitude 51° 30′, without any abrupt escarpment, towards the plains.

Over a great portion of the higher lands, the surface is dotted with beautiful little lakes of clear, fresh water, those in the more open country being encircled with green wreaths of small poplar

and willow, while in the more thickly wooded tracts in the higher parts of the mountains, tall spruces are growing to the edge of the water. Many of these lakes are drained by permanent brooks, but most of the smaller ones are isolated during the greater part of the time, and overflow only in rainy seasons or when the water is at its highest stages. They are all of glacial origin, lying in the depressions of the irregular surface of the till or unstratified glacial deposits.

The whole land surface is more or less thickly timbered, the woods varying, however, from a few scattered clumps of willows in the townships in the south-west, through groves of poplar severed by open glades in the country bordering the Assiniboine, to coniferous forest on the summit and northern and eastern flanks of the mountains. In the valley of Swan river, and in the tract of country south-west of Lake Dauphin, the forest again gives place to a partly wooded country, the open areas of which are often covered with a luxuriant growth of rose bushes and other small shrubs.

Lake Dauphin is a shallow body of water twenty-eight miles long and ten to twelve miles wide, with an approximate elevation above the sea of eight hundred and forty feet. Mossy River flows from its northern end into the south-west angle of Lake Winnipegosis. Its shores, where seen along its southern boundary, were either low and marshy, or bordered by beach-ridges of well-rounded limestone gravel, behind which stretched extensive meadows of rich, tall grass. In high water these meadows are doubtless flooded, but at present they are quite dry, and will be so in all ordinary seasons. Behind these meadows, a wide and apparently flat plain stretches back to the foot of the Riding Mountain. Instead of being level, however, it rises gradually and regularly, being generally well drained by the numerous small clear streams that flow through it in narrow, winding channels. These streams are skirted with rows or narrow belts of timber consisting of elm, oak, birch and cottonwood. Between these wooded belts, the plain is dotted with groves of poplar and willow. The soil is a rich alluvial clay loam, on which abundant crops of wheat, oats, barley, maize, as well as all the ordinary garden produce grown in eastern Canada and the central and eastern United States, can be raised. On the 3rd of August, 1887, barley was ripe and being cut, and the fields of wheat were quite tinged with yellow. On the 17th of August, the settlers were reaping the dead-ripe wheat, which gave promise of a very heavy yield.

The summer frosts, too, which have occasionally proved prejudicial to the crops in some parts of Manitoba and the North-West Territory, appear to avoid this favoured district. This is, no doubt, in part due to the slope of the surface, the cold air sinking down the gentle incline till it reaches the lake, where it is warmed by radiation from the surface of the large body of water which has been warmed by the hot sun of the day before, and which, on account of its shallowness, gives out its heat rapidly to the overlying air. The great luxuriance of the grasses and herbage in this district has

also much effect in hindering the occurrence of summer frosts. By increasing the amount of water evaporated in the day time it renders latent a large amount of heat, which again becomes sensible when this moisture is deposited in the evening in the form of dew. Growing grain would also have precisely the same effect. Its sheltered position is also very much in its favour. A wind flowing from the east across the great lakes of the Winnipeg basin will be loaded with moisture, which, if it does not fall as rain, will form into clouds or be deposited as a heavy dew, and will avert a frost eitheir by hindering the radiation of the heat from the lower stratum of air, or by raising its temperature. If the wind is blowing from the drier plains to the west it will be partly diverted to the south-west along the Duck and Riding mountains, and what crosses the mountains, though very dry, will be so much warmed by condensation in descending thirteen to eighteen hundred feet that little danger of frost need be feared from it. In this connection, it may be remarked that it appears very probable that the planting of trees around the fields on the plains of Manitoba and the North-West Territory would have considerable influence in preventing the occurrence of summer frosts by breaking the winds and hindering the free circulation of air. The moisture that was evaporated from a field of growing or ripening grain or other crop would then, to a considerable extent, remain over the field, whereas now it is often replaced by dry air from the plains, which offers no obstruction to the rapid loss of heat from the earth by radiation. The circumstances under which frost occurs are often as follows :— During the day a stiff wind is blowing from a westerly direction, carrying off the moisture as fast as it is evaporated. In the evening the weather becomes very calm, and on account of the absence of any moisture in the atmosphere the stars shine with exceptional brilliancy. The earth is warm from the heat of the day, but radiation proceeds so fast that by one or two o'clock in the morning its immediately available supply of heat is exhausted, and the overlying air falls below the freezing point. The presence of a greater amount of moisture in the air will prevent this rapid dissipation of heat, and one of the means of insuring the presence of this moisture is by constructing wind-breaks in the form of rows of trees in order to retain the damp atmosphere over the fields rather than to allow it to be replaced by the drier air of the plains.

Smudges, the smoke from which on those quiet, bright nights will settle down over the land, would doubtless also have a very beneficial effect in hindering the occurrences of frost.

The breaking up and tilling of the soil will also have a great effect in reducing the diurnal variations of temperature. The direct rays of the sun during the day do not raise the temperature of ploughed land as high as that of the unbroken plains, but they warm it to a greater depth, a fact which may readily be observed in walking across the drier plains on a hot day in summer. The dry sod, covered with short withered grass, will be felt to be very hot, but if ploughed land is reached, the ground will at once be found to be much cooler. By taking a spadeful of earth from

the two places the lower part below the sod will be found to be very much cooler than that under the ploughed land. The effect that this will have on the night temperature of the air will be that the radiation of heat from the ploughed land will be much more slower than from that which is unbroken, but which is practically bare on account of the withering of the short grass. The temperature will be lowered comparatively slowly, and which in the latter case a frost might have set in at four or five o'clock in the morning, in the former the air will be kept above freezing point till the sun rises again.

But to return to the alluvial Lake Dauphin plain, the surface is so level or evenly sloping that lakes or ponds are very scarce, but plenty of good water can easily be obtained in wells ten to fourteen feet deep. In ascending from the lake to Riding Mountain, the surface rises by slow steps to the foot of the more abrupt escarpment. The steps are occasionally replaced by ridges of rounded gravel, both the steps and the ridges representing old shore lines of the ancient lake which formerly occupied the whole of the basin of Lake Winnipeg and the valley of the Red River, a lake the former existence of which was first clearly pointed out by Prof. H. Y. Hind in 1859, and which was afterwards named by the late General Warren, Lake Agassiz, in honour of Louis Agassiz, the first great exponent on this continent of the force of glacial erosion and of the former distribution over the northern portion of America of a great ice sheet in glacial times. The full comparison of these ancient shore lines with the shores of the present adjoining lakes must be left to the final report on this area.

Most of the steps are low, seldom reaching a greater height than ten or twelve feet, but one of the higher ones, which is crossed on the Vermillion River trail, and the bottom of which may be considered the foot of the mountain, rises to the height of one hundred feet. Its face is now a steep slope wooded with poplar and small bushes, but when the waves of the ancient lake beat against it it rose above the waters as a naked cliff of white cretaceous chalk-marl. Following the shore lines northward to beyond the Valley River, the low coast-cliffs almost entirely disappear, and the ancient shores are represented entirely by gravel beach-ridges. This change of conditions is caused by the fact that the base of the escarpment of Duck Mountain is much higher than the foot of Riding Mountain, and higher than the highest level to which Lake Agassiz appears to have risen. From this escarpment the land slopes gently down a long easy grade to the level of Lake Winnipegosis.

The beaches consist of more or less rounded gravel, the pebbles, which are chiefly of limestone, though a few are of granite, varying from the size of pigeons' eggs down to that of No. 6 shot, but, however fine, they are still distinct pebbles, mixed with little or no quartz sand. The ridges follow in a long sweeping curve the general direction of the face of the escarpment. The highest of these ridges, seen on Shanty Creek, has an elevation of 1,365 feet above the sea, and as far as one could judge is about two hundred

feet below the level of the base of the mountain escarpment. The pebbles in it have their angles worn off by water action, but are not at all well rounded, and between it and the next lower ridge there is very little alluvial deposit, showing that the water stood at this height for a, comparatively, very short time. Above the ridge the surface is lightly undulating, and composed entirely of unstratified glacial till, scattered over with irregular pebbles and boulders, it having never been buried under the waters of this great post-glacial lake.

The northward extensions of these ridges form remarkably straight natural roads through the otherwise level and often swampy or marshy country. One, having an elevation of 1,084 feet at Valley River, was followed northward with buckboard and carts for twenty-three miles, to beyond Shanty Creek, while another, about seventy feet above the last, was followed from a little south of Wilson River northward for twelve miles to a branch of Valley River, where the extension of the forest across the ridge obliged us to descend to its lower neighbour. At Shanty Creek we returned to the higher beach, and continued to follow it northward for nineteen miles, at which point it was still quite well marked. Half a mile to the eastward the lower beach was also typically developed. Thus these two ridges were found to extend, the lower one at least forty and the upper one forty-four miles.

A few miles further north, near Duck River, similar gravel ridges are found to obtain, though here, instead of being generally open and grassy, they are covered in part with a scattered growth of small Banksian pines. Looking southward from Duck River along a ridge, the height of which is given on the profile of the old location of the Canadian Pacific as 1,201 feet, a high knoll is seen to rise above and just to the westward of it. This knoll, when reached, was found to be the northern end of a gravel ridge running off to the southward, and rising sixty feet above the ridge immediately to the east of it. Its face is steep, the slope being apparently as great as that at which the gravel would stand. The point is bent around to the westward in the form of a knob or hook, the whole appearing as if it had projected out into the lake as a gravel spit or hook, as the land behind as well as in front of it is from fifty to sixty feet below its summit.

This point was somewhat peculiar in being scattered over with a great number of large gneissoid boulders, lying on a surface of sand filled with rounded, waterworn pebbles of gneiss, limestone, ironstone, etc. As a rule, the ancient beaches are composed entirely of small rounded pebbles, in this particular differing very materially from the beaches of the lakes which now occupy the lower levels of the Winnipeg basin. On the existing lakes the shores are very thickly strewn with gneissoid boulders, which in winter have been, and are still being frozen into the ice, and then shoved outwards by its expansion till they are placed up beyond its reach, or packed into a very regular wall. Many of the boulders on the above mentioned ancient gravel bar or spit have probably been placed there in a similar way, the bay to the west-

ward having doubtless been frozen over during the winter, while the general absence of boulders on the long straight beaches would seem to indicate that the whole lake was never covered with ice.

North of Duck River the high ridges, which alone have been followed here, bend sharply round the north-east corner of the Duck Mountain into the valley of Swan River.

The presence of these ridges influences in a very marked degree the character of the country they traverse. Although they furnish magnificent natural highways they also act as dams in preventing the ready drainage of the country down its easy natural slope, except in a few places where these dams are broken through by streams such as the Duck and Fork rivers. There is very commonly a marsh or marshy lake just above or west of the ridge, or a little sluggish stream may flow northward or southward beside it. The country in the latter case is somewhat better drained and generally supports a close growth of small black spruce and tamarac. The lower side of the ridge is drier and sometimes supports a growth of poplar, but generally is thickly covered with small black spruce. Some fine groves of large white spruce are met with close to the banks of the larger streams. Stunted oaks on the ridges in the more open parts and some beautiful groves of tall, stately elms were seen, a very noticeable one of the latter being a grove near the foot of the Duck Mountain, a few miles south of Duck River. A few pleasant prairies here and there occur, but they are not numerous, and the country may be said to be generally thickly wooded. Forest fires in recent years have, however, destroyed the greater part of the timber that could have been converted into lumber, and instead there is now a close growth of small sticks as yet comparatively valueless. As we stated above, large areas are now covered with swamp or marsh, but this wet land could be drained with very little difficulty, since the surface everywhere slopes towards the east, except where the incline is broken by gravel ridges from fifty to one hundred and fifty yards in breadth. Drains could be readily cut through these at intervals sufficiently close to allow the water to flow off freely to the lake.

Of the two largest streams that flow eastward within the district, the Valley River winds in a beautiful sloping valley which doubtless represents an ancient drainage channel in pre-glacial times. Above or west of the gravel ridges that cross this valley is a wide sandy plain, representing an old delta deposit when Lake Agassiz was at its highest stages, and when a stream flowed into it through the valley of Short Creek from the west side of Duck Mountain. The Swan River valley is much wider and is cut down to a much greater extent. The lower part, below what is locally known as the "Coast Ridge," is covered with alluvial deposits of sand or sandy clay, while further west are some rough morainic tracts, among which lie extensive flood plain deposits. In both of these valleys Indians and Métis have at different times had thriving little villages, the soil being very rich and fertile. On the latter there is now a Métis settlement about a mile or two beyond

Swan River. Two Indian reserves were formerlv occupied on the banks of this river, and on them the Indians raised grain and the ordinary root crops. Lately these Indians have been removed to Fort Pelly, for the greater convenience of communication and trade.

On Valley River there was formerly an Indian settlement in Township 25, Range 24, west, and now there is a thriving village at the mouth of Short Creek, at the point where the river leaves the Duck Mountain. A good cart-trail runs from Russell, on the Manitoba and North-Western Railway, to this village, and carts can also pass eastward from it to the Lake Dauphin settlement. Here in the summer of 1887 some good crops of the ordinary grains and roots were being raised.

West and south-west of the alluvial plain of the ancient Lake Agassiz, the Duck and Riding Mountains rise to from two thousand to two thousand seven hundred feet above the sea, in most places faced by a steep escarpment, but between Vermillion and Valley Rivers the slope is gradual, no appreciable escarpment being seen guring the ascent. This slope is generally well drained, and in places supports a strong growth of poplar and spruce, but unfortunately much of it is fire-killed and useless.

The higher parts of the mountains are very rough and uneven, being composed of drift hills and ridges from one to three or four hundred feet high, among which nestle beautiful lakes of pure clear water or sparkling brooks flow to the main watercourse, most of which have a general north or south direction. Many of the hills are thickly clothed with spruce and balsam fir (*A. balsamia*) mixed with birch and poplar, and in the more southern portions with maple (*Acer spicatum*) and more northerly with an occasional tree of mountain ash. Some of the knolls in the northern and north-eastern areas are so thickly strewn with large gneissoid boulders that the land is almost barren, supporting but a short stunted growth of Banksian pines, and where these have been burned, as they have been over considerable areas, the ground is almost entirely uncovered by either grass or herbage of any kind. Between these rough hills stretch considerable areas of level swampy country, covered with a close growth of black spruce, in most cases too small to be of any general economic importance.

The northern face of the Duck Mountain has formerly supported much excellent forest, but most of this area has now been burnt over, and is being overgrown with poplar. A fine grove of white spruce, however, yet remains near the head of Favell River and between Favell and Rolling Rivers.

The thickly wooded areas of these mountains are the favourite hunting grounds of Indians who have their reserves by the lakes or along the Assiniboine. One of these latter bands, under Chief Coté, has cut a good cart trail from its reserve north of Little-Boggy Creek to Angling Lake, where it has built a number of substantial log houses. These houses are deserted during the summer, but in the autumn, when the season for hunting and trapping returns, a portion, if not the whole, of the band moves here from the village

and farms on the reserve, and supports itself during the winter on the proceeds of the chase.

West of Duck Mountain stretches away to the westward the rich alluvial plain through which the Assiniboine River flows in a direction 25° east of south. The eastern side of this plain, between Lac la Course and Little-Boggy Creek, is a steep slope or escarpment from two to five hundred feet high, but south of Little-Boggy Creek this escarpment soon disappears, and the plain rises through a gradual though generally undulating or rolling incline to the summit of the mountains. The soil in this plain or valley bottom is exceedingly fertile, being composed of a rich alluvial dark sandy loam, which produces abundant crops of grain.

The course of the river itself is a very peculiar one. Just above Fort Pelly it flows in an almost northerly direction, making straight for the wide valley at the bottom of which at present a small stream, Shake Creek, rises in a quagmire just north of the Fort, and flows into Swan River. Instead of following this valley northward, however, the Assiniboine turns abruptly and flows a little east of south in the bottom of a shallow and indefinite valley. This valley, however, gradually becomes better defined and increases in depth lower down, and though the country on either hand becomes higher, the river maintains its direction, at length cutting a valley about four hundred feet deep. The land on either side of the valley north of the mouth of Shell River consists of alluvial deposits which appear to have been laid down in the bottom of an ancient lake which stretched westward from the western base of Duck Mountains. Its further shore has not yet been determined.

This lake, as well as Lake Agassiz, is closely associated with the former glacial conditions of the country, and a brief statement of the conditions then probably existing may be here given.

During the continuance of the glacial period, a huge glacier moved in a south-south-easterly direction in the great valley east of the Duck, Riding and Pembina escarpment, while another flowed parallel to it down the valley of the Assiniboine on the western side of these mountains. At times these glaciers doubtless coalesced into one vast ice sheet, while at other times they were separated by the mountains either in part or entirely and along the tops of the mountains threw up a medium, or rather what has been called by Professor Chamberlin an "interlobate" moraine consisting almost entirely of boulders and debris of the Archæan rocks to the north. This is what has given the mountains their rough, rugged and broken character, a character which is most pronounced in the more northern portions. Where the Indian trail crosses the north-eastern corner of the Duck Mountains, much of the country is so completely a mass of boulders that it supports but a few small stunted Banksian pines. A length a rise of the land took place in the southern or central portion of the continent, which rise is doubtless accountable in part for the high elevation of some of the plateaux of the Western States and of the Rocky Mountains.

The glaciers now rapidly receded down the valleys, leaving large bodies of fresh water occupying the depressions along their fronts. It was apparently in this way that the Lake Agassiz, the ancient lake of the Red River valley, and the lake which occupied the upper part of the Assiniboine valley, were originated. The ice front a last receded to a point where it again became relatively stationary, the flow of ice from the higher lands making up for the portions that were being melted off and carried away.

Whether this ice front formed the northern or north-eastern shore of the above-named lakes it is impossible as yet to say, but the fact that the old shore lines of Lake Agassiz rise by a very gradual and even incline to the north as far as they have as yet been traced, showing a northern elevation of the land since the lake stood at its higher level, rather than a very considerable northern depression or southern elevation of the land, which must have occurred if the northern border of the lake was any of the land lying to the northward, lends great strength to this theory. However, for the complete determination of this question, further systematic investigation is necessary, but the existence of the lakes themselves admits of no doubt whatever. The relation of the two lakes to each other is somewhat difficult to make out completely, having doubtless been quite different at different times. At one time Lake Assiniboine was possibly only a bay of Lake Agassiz, being perhaps connected with it through the valley of Swan River, but if this was the case the alluvial deposits in the upper part of the Swan River have been covered by succeeding glacial deposits. At all events, at one time a glacial dam appears to have stretched across the north end of this portion of the Assiniboine valley, and the superfluous waters of Lake Assiniboine flowed into Lake Agassiz through the deep valley which is now in part dry, and in part drained by Short Creek into Valley River. It was at this period that the delta plains of the Valley River were formed. When Lake Assiniboine receded towards the north a considerable stream still flowed through the valley of Shell River, fed in all probability by local glaciers on the Duck Mountain, while other streams flowed in from the south in the lower part of the same valley, and in a deep valley to the east of it now abandoned. After this time the valley of Snake Creek was formed and Lake Assiniboine was doubtless drained. The glaciers on the mountains, however, now gradually extended, closing all these valleys and the water from the ice front was obliged to find some other outlet, which it did down the valley of the Assiniboine below the mouth of Shell River, this valley having in all probability been first marked out, in part at least, by a stream flowing from the foot of Riding Mountain northward into Lake Assiniboine. These glaciers have left marks of their presence in moranic dams stretched across the valleys of Short Creek, Shell River and Snake Creek, &c. The flow of water was thus established towards the south, and a valley was torn out through which the Assiniboine River continues to flow up to the present time, though it is probable that now the amount of sediment carried away by the river exceeds by very little, if it

exceeds at all, the amount of sediment brought down into it by small affluent streams, and consequently it has ceased to deepen its valley.

The geological structure of the country will be discussed in the final report, but it may be here stated that the floor underlying the whole country is a white or cream-coloured Devonian limestone. Its surface is somewhat undulating, but on the whole it exhibits a slight slope towards the west or south-west. On this floor are heaped up successive beds of sands, marls and shales of Cretaceous age, constituting all the older rocks seen in this area west of the lakes. These form, under the glacial deposits, the entire mass of the Duck and Riding Mountains, and extend from them westward across the Assiniboine, and under the Great Plains to the foot of the Rocky Mountains.—*J. B. Tyrrell, Geological Survey.*

CHAPTER IV.

Eastern Manitoba.

The third division, or Eastern Manitoba, comprises that part of the province lying east of Lake Winnipeg and Winnipeg River, up the same to where it intersects the westerly base of the rocky country surrounding the Lake of the Woods, and from thence along said base to the international boundary line.

The rocky country referred to, lies almost entirely within the four eastern ranges of townships, and south of the Winnipeg River.

The area of this division is about 14,000 square miles, very little of which has been surveyed, as, with the exception of some of the land along Winnipeg River, the country is not a very attractive one for settlers at the present time. The greater portion consists of rock, marsh and muskeg, with numerous small lakes and rivers. The descriptions of the country along Beren's and Winnipeg Rivers are applicable to the whole country east of Lake Winnipeg. From the information on record, it is believed that the area of land suitable for cultivation occurs only in small and isolated areas.

A description of the eastern shore of Lake Winnipeg, by Mr. F. W. Wilkins, which is comprised in this district, will be found at page 32.

PART II.

DESCRIPTION OF THE COUNTRY IN THE VICINITY OF THE LARGE LAKES.

CHAPTER I.

LAKE WINNIPEG.

Lake Winnipeg is 308 miles in an air line from Lake Superior, and 616 by canoe route. The altitude of this extensive sheet of water above the level of the sea is 628 feet.*

The lake is 280 miles long, by an average of 35 wide. It contains an area exceeding 9,000 square miles,† about one-half as large again as Lake Ontario. Connected with Lake Winnipeg by navigable channels (for York boats ?) are two other large bodies of water, Lakes Manitoba and Winnipegosis. The water area of these lakes may, with some small connections, equal, if it does not exceed, that of Lakes Ontario and Erie combined.

Among the numerous tributaries received by Lake Winnipeg are the Red River, which drains in part a region which is in some degree tributary to the Mississippi, the Winnipeg River, 163 miles long, draining the Lake of the Woods region and its tributaries 300 miles to the east, and numerous rivers coming in from the eastern belt of the granitic rock which separate the valley of Lake Winnipeg from Hudson Bay and James' Bay. On the west side it receives the noble Saskatchewan, bearing its tribute from the Rocky Mountains, 1,000 miles to the west, besides many minor streams which drain the prairies to the west.

The numerous rivers which unwater the valley of this great lake, with an area of 400,000 square miles, are most of them canoe or boat routes for many hundred miles up their streams. Lake Winnipeg is very shallow at its southern extremity, and the marshy shores abound with fresh water shells, and are the haunts of innumerable aquatic birds.

The west shore of Traverse Bay is high, and shows an excellent soil, thickly covered with balsam, poplar, aspens and birch. The temperature of the water of the bay at 6 a.m. on the 4th September was 64.05.

For many miles the southern coast of Lake Winnipeg consists of alternate strips of sand, sustaining willows, with marshes in the rear running parallel to the coast line. Some of these sand strips show many years of duration when well protected by drift timber, others are of recent origin, clear and bare, enclosing ponds in which rushes are only just beginning to show themselves. They are the records of the progress made by new land in its invasion of the lake at and near the mouth of Red River. A northerly gale

* Later determinations show the altitude of the lake to be 710 feet.

† The latest estimate of the area of the lake is 9,746 square miles, less the area of the various islands, which are estimated to contain about 300 square miles.

throws up a bar or beach about a hundred yards from the main shore. On the new beach drifted timber accumulates, and in process of time becomes consolidated by the gravel and sand which is washed between the logs. Willows soon grow on the new soil thus formed, and bind the whole into a firm beach with a marsh in the rear. A heavy gale may sweep the new land away or throw up another beach about one hundred yards in advance of it, on which the process of consolidation is renewed. For ages past this work of construction and destruction has been greatly in favour of the former. Hence it arises that, with the exception of the newly formed spit at the mouth of the river, there is no accessible camping ground for several miles up the stream, marshes surrounding the spits or old beaches on which the willows grow, and extending in all directions as far as the eye can reach.

There are four mouths to the Red River, the depth of the main channel varies from 20 to 28 feet, and on either side shelves rapidly from four to eighteen feet of water.

The west coast of the lake for a few miles north from the mouth of Red River, is elevated from five to six feet above the lake, here and there a low beach of limestone gravel, sand, and a few granite boulders, is fringed with a belt of tall aspens which grow within twenty feet of the water's edge. Behind the belt of aspen is a marsh, then another belt of aspens followed by a marsh. This succession continues for a distance of about three miles before good land supporting heavy aspens is to be found in large areas. Near to the spot where we landed, an excellent illustration of the prevailing character of the west coast thus far, occurs. A sandy beach covered with shingle had separated a former bay from the main body of the lake. On this beach which was not twenty feet broad, or more than five above the lake level, willows, dogwood and grasses were growing ; a large pond lay inside, fringed with rushes. In the rear of this pond a narrow strip of land, clothed with aspen, separated a marsh from it, which had doubtless once been a bay of the lake, then a pond, and finally, a marsh.

Inland ponds cut off from the lake by low beaches appear as far as the Willow Islands ; these were found to consist of a few small sandy areas and one long narrow strip of sand and gravel, stretching into the lake in an easterly direction, and separated from the shore by a narrow channel. The depth of water near the coast is very small, soundings showed 29 feet of water one mile north of the islands, the deepest yet observed.

I landed to examine some cliffs of clay which appear about twenty-three miles from the mouth of Red River. They were about sixteen feet in altitude, and exposed a clean surface of stratified marl, reposing on a brownish black clay.

The timber in the forest consisted of aspens and birch, with a few oak, elm, and ash. Our steersmen, who knew the country well, informed me that good land on which large timber grew, did not extend more than one mile back from the lake. It is succeeded by spruce and tamarac marshes, the trees being of dwarfish dimensions.

Drunken River, is a small stream, which would make an excellent boat harbour if widened at its mouth. The clay cliffs and marl disappeared before we arrived here; the shore again consists of a beach, with a swamp or marsh, fringed with small spruce and tamarac in the rear.

The first exposure of limestone was seen on a small island opposite Big Black Island, which we named Guano Island*. On Big Black Island, and those adjacent to it near the Little Grindstone Point, limestone appears in the form of mural cliffs on the west shores, which were all we had seen.

Limestone appears for some miles on the west coast south of Big Grindstone Point. This part of Lake Winnipeg is very beautiful, with wooded islands rising from the lake in clusters and rows.

On the north-east side of Punk Island, above the purple sandstone, a thin stratum of buff coloured limestone occurs, possessing some peculiarities. On raising slabs, between each stratum a soft and very pure ochre, of a beautiful yellow colour is found, from one-eighth to half an inch in thickness. The ochre when moist and fresh is easily worked by the fingers, quite destitute of gritty or hard particles, of a uniform pale yellow, and when burnt, of a beautiful cinnabar red. The limestone in which it occurs is extremely porous and often honeycombed.

At a point half way between Bull's Head and Whiteway's Point**, the limestone cliffs are about thirty feet high. The coast is fringed with broken masses. Ascending the cliff, I found large portions detached from the main body, forming deep clefts or cracks. Some of these fissures were twelve feet wide and twenty feet in length, others of three feet and of a greater length. We named the spot Limestone Cave Point. Voyageurs who have wintered near this place report, that the rock along the coast from Bull's Head to Pike Head is fissured in the manner described.

Jack Fish River issues from a marsh separated from the lake by a belt of sand and shingle about one hundred yards broad. The river runs in an easterly direction from a series of small lakes and swamps, through a level, low country abounding in fine spruce and tamarac forests, broken by gravelly ridges, supporting poplar and birch. The breadth of the river at its outlet is thirty feet, but where it passes through the swamp it is broad and deep, and so continues for some distance into the country.

The coast of Cat Head is very precipitous; the limestone cliffs rise about thirty-five feet from the water, without any intervening beach.—*Prof. Henry Youle Hind*, 1858.

On the coast of Lake Winnipeg, immediately east of the mouth of the Saskatchewan River, there are several deep narrow bays, or estuaries, marshy at their inner extremities, and separated by narrow points or spits of gravel.

From the mouth of the Saskatchewan to Cape Kitchinashi† the coast trends to the south-east, and is indented in a remarkable

*This island lies close to the shore of the lake, about one mile north of Grassy Narrows.

**Whiteway's Point is now generally known as the Dog's Head, the latter name was applied to the point on the opposite shore, until the last few years.

†This cape is shown on all recent maps as Long Point.

manner by a series of deep bays of every size and shape. The northern coast line of the promontory being nearly straight with fine sand beaches. This immense promontory begins to stretch out into the lake in a direction a few degrees north of east, about fifteen miles south of the Saskatchewan. Its extreme point is about twenty-four miles in an air line from the general line of the coast, and its width varies from three to six miles and upwards; its neck is indented by several deep bays, some of which could be used as harbours or roadsteads. The formation of the cape is peculiar; it is very low and flat on the north side, while on its southern boundary the coast is comparatively high and abrupt. Its northern side consists of a series of marshes separated from the lake by a narrow sand beach; these marshes gradually blending into a tamarac and spruce swamp. Along the south side of the cape there is a continuous escarpment of light coloured clay, from twenty-five to forty feet high, yet even on the top of these high banks the character of the land is of the poorest description, being nothing but a muskeg or mossy swamp containing a thin growth of very scrubby tamarac and spruce, covered with drooping moss.

The extremity or apex of the promontory is a very low and broad sand beach covered with water worn boulders; the lake is also dotted with boulders a long way out from the shore there being a sand-bar or continuation of the point under water on which they rest.

From Cape Kitchinashi to the Little Saskatchewan the coast trends generally to the south-east. Between these points limestone is exposed in six places. The exposures are the precipitous extremities of ridges, forming points at intervals along the coast. The stratification in every instance is horizontal, but the escarpments vary in height above the lake; they increase in height from four to fourteen feet towards the south. These ridges are generally wooded with aspen and other deciduous trees; and the swamps intervening are timbered with tamarac and spruce; some of the spruce near the coast are pretty large. Between the ridges low sand beaches extend along the coast. These beaches separate ponds and open marshes averaging from a quarter to one mile wide, from the lake; in the rear of the marshes is the great tamarac and spruce swamp or "muskeg."

The tributary streams in this part of the coast are not numerous and they are generally of no great size. The chief are the Gull Egg Rivers and the Two Rivers, the War Path River, Jumping River and one or two others without name; they are not in themselves large, but their estuaries might be available as harbours for boats.

Although the country here described is quite unfit for agricultural purposes, it is not altogether valueless; there are large areas of good timber along the coast, available for fuel, and the limestone cropping out at the various points is well adapted for building.—*John Fleming*, 1858.

Starting from Selkirk, for about ten miles down the Red River, a most excellent country was passed, all thickly inhabited

by the half-breeds of St. Peter's Parish. The remainder of the course to the lake, about twelve miles, is bounded by marsh, but the immediate bank of the river being much higher than the marsh furnishes a good camping ground almost anywhere along. From the easterly one of the mouths of the Red River we turned along the south shore of the lake to the east, and for about nine miles we skirted along the marsh just spoken of before reaching high land.

We now turned almost due north, and from this point until near the mouth of the Winnipeg River in Traverse Bay, the lake shore has an altitude of from ten to thirty feet or more, and apparently rises higher at the back. As far as Point des Grand Marais the soil appears to be good, and the trees consist of poplar, birch and spruce, of fair size. A number of settlers, mostly half-breeds, are located along here. Further on, in places, there is tamarac swamp, and the soil all along is evidently a very light sandy one; the timber, in some places, being composed of pine and spruce, and at others of small poplar and birch. A few miles before the mouth of the Winnipeg was reached the country suddenly falls, becomes, in general, very swampy, and so remains to the west limit of the Indian Reserve at the mouth of the river. The shore now attains the height of about eight feet, which increases as we cross the mouth of the river to about twenty feet. The soil along here is a most excellent clay loam and the timber growing on it is very fine poplar, with some white ash and grey elm.

The Winnipeg is a very fine stream and is the second river, in the volume of its contribution, entering the lake. The Indians on the reserve (Ka-ke-pe-nais) here appear to be very comfortable, to have good houses and to cultivate considerable land. I was told that all kinds of crops do quite as well here as in any part of the province. About a mile up the river is situated the Hudson Bay Company's post, Fort Alexander, and the Roman Catholic Mission, and farther up, the Episcopal Mission. At the mouth of the river on the north side, the first rock was seen in the occurrence of beds of gneiss at water level, and from this on, until we reached the head of the Nelson River, the outlet of the lake, similar rock of the Laurentian age constantly appeared.

Shortly after leaving the Winnipeg the shore again falls and becomes swampy, with small timber as far as Point Metassé. Shortly after passing this point, which is composed of a small island-like ridge of clay-holding boulders resting in a very level gneiss, the rock, which until now has only just been at water level, rises to a maximum of about twelve feet, and in consequence a rougher and bolder shore is now met with. Quite a thick covering of good soil was, however, seen frequently on this rock as we proceeded, and from the appearance of the timber, which was often of a good size, I would judge that some excellent land might be found.

At Black River, a small, insignificant stream, the country again drops, the rock again just appears at intervals at water level

and the shore is bounded by about one-half to three-fourths of a mile of muskeg, which in its turn is bordered by spruce and tamarac swamp. Occasionally small patches of poplar are seen, but to no great extent. This holds to the vicinity of Sand River, where, from the fact that more soil remains on the top of the rock, which is still at water level, there is a higher shore and some tracts of undoubtedly good land. The timber along here is much better than along the former stages of our course, some of the poplar being of fine size. As we proceeded northerly the country still improves, the shore becomes higher and there is less swamp.

Passing Bad Throat River, another small stream, the better tract of country still continues, with a rising shore—the height in places attaining twenty to thirty feet—until the Hole River was reached. The Hole River is a small stream, and is so called because it enters the lake through a small opening in the rough rocks which here form the shore.

At this river, as well as at Black River some distance back, a small band of Indians is located, but I could not learn that they had attempted to grow anything. At the Bad Throat River, however, some white people located there had been very successful with garden stuff, among other things, growing and ripening tomatoes, so that I am perfectly satisfied that all kinds of grain will do as well here as farther to the south. At the Hole River it appeared to us that we had come to a dividing line in the country, and nowhere, farther down the east shore, does the country again present as good an appearance.

For some miles beyond the Hole River the shore is very rugged and uneven, with a maximum height of about twenty-five feet; there is a little soil and less good timber, what there is being Banksian pine and spruce, both scrubby.

We now passed, near the mouth of the Wild Rice River, an unimportant stream, thousands and thousands of islands, in size from a square yard to an acre or two, huddled together with very shallow water between them, and bounded by a very marshy main shore. Here we had great difficulty in keeping to the main shore, and often we were obliged to have stations on the islands, it being impossible to get to the real shore, so shallow was the water. These islands, or more properly speaking, islets, were composed entirely of low gneissoid rock, with no soil worth mentioning, and having only bushes and small trees growing on them. The marshy tract along the shore seemed to reach in about a mile, when the land, apparently, rose a trifle. Considerable poplar timber could be seen some distance back, so that it is possible that even here some good land exists.

Emerging from the islands, which extended for about ten miles, we still found a rocky shore, the rock being only just out of the water, and bordered by half a mile or more of muskeg; in places poplar was seen, which seemed to indicate better land. Here and there along the shore small clumps of poplar and spruce were seen. This kind of country continues to Loon Creek, after which are rough, rugged rocks, with little or no soil on them, on

which grow only scrub pine and spruce. It again rises, in places perhaps 15 feet in height, but in general not half so much.

At the inner ends of a few coves a little soil and some fair-sized poplar timber was noticed.

When about opposite the Bull's Head we again came to islands, with much the same characteristics as the others passed, only somewhat higher. These islands continued until we turned round the point at Dog's Head towards the Blood Vein River. The shore again becomes marshy, with its usual border of muskeg with swamp at back, and so continues with little change until the vicinity of the Pigeon River is reached. The Blood Vein River, just passed, seemed to be a nice little stream, but the bay is so full of rocks and shoals that large boats will never be able to enter it. The Indians located here lived up the stream some little distance, so that I did not see anything of them. I believe, however, that they grow potatoes, so that there must be some soil, but they do not grow anything else. At the Pigeon River as well as at Beren's River the rocks rise higher again, which seems to be the rule at all river mouths, and some soil again appears, with considerable poplar timber. I should judge that quite a bit of arable land exists at the mouths, and perhaps up the streams as well. Both streams are nice ones, though I am told rapids are numerous a short distance up. At Beren's River is another Indian reserve, and also a Hudson's Bay Company post and two mission stations, the Roman Catholic and the Methodist. A large band of Indians are located here, who possess an unlimited number of dogs. These latter in the daytime make things lively by continual fighting, and when daylight is gone render the night hideous by their dreadful howling.

Here, although the soil is a strong grey clay, and not nearly so good as farther to the south, all garden stuff, oats and barley do remarkably well. I was told that wheat has been tried as an experiment merely, and had done well.

North of Beren's River to the vicinity of Poplar River the old story of swamp and muskeg is repeated. In the bay around Flat Head Point, not far from Beren's River, a bed of peat was noticed, and in this locality it was almost impossible to get ashore, so soft and boggy was it. In the vicinity of Poplar River the rock again rises a little, with some soil, and to all appearances some arable land is to be found. At the Hudson's Bay Company post good vegetables, oats and barley are grown, but wheat has never been tried. The river seemed to be quite a fine stream, but I was informed was full of rapids a short way up. There is a good deal of poplar timber in the vicinity, which circumstance, I would suppose, gave rise to the name of the river.

Shortly after leaving the river we entered among small, low and barren islands, with a very marshy main shore, which, as before, we had great difficulty in reaching. These islands continue, more or less, all the way to Black River, where they become less numerous; the rocky shore becomes higher, some soil again appears, and there are groves of fine poplar mixed with spruce.

The Black River is a small stream, and, as is the case with all these small streams, contains water of a dark colour.

On leaving the Black River we soon came to the usual muskeg, from half a mile to a mile in breadth, with a backing of spruce swamp. With little change this condition of things remained until we passed the Little Black River, a small, slow stream about four miles on, when the shore becomes higher and the muskeg disappears.

At Montreal Point the bank along the shore appears to be about 15 feet in height, and to be composed of grey clay holding boulders. The rock, however, does not change, and is still a gneiss of a hard description, and only slightly elevated above water level. On the top of the bank there is spruce and tamarac swamp all along, with occasional clumps of poplar and birch on the extreme edge of the bank. This swamp on top has been a good deal burnt in places, and the timber, where green, is small and of no account. Except that the bank falls to about six feet in elevation, there is no change along to the Nelson River opposite Warren's Landing.

The Nelson River, which is a magnificent stream of great depth and strong current, is divided, just at its head, into two channels by an island, the westerly channel, used by the steamboats, being about three-fourths of a mile in width, while the easterly is about half that distance. It is the outlet of Lake Winnipeg, draining perhaps 400,000 square miles of territory, is one of the grandest streams I have ever seen, and is entirely in keeping with the immense country from which its supply is drawn. Warren's Landing is upon the west side of the river, and just here the shore is low and sandy.

At a short distance below the Landing we noticed, for the last time in our journey, Laurentian rock, a characteristic showing of gneiss, at about water level, occurring here. Farther to the west the shore begins to rise, and at Mossy Point attains an elevation of about 60 feet, about 50 feet of which is yellowish clay holding boulders, and covered by about 10 feet of peat. The cliff thus formed is as steep as the material of which it is composed will admit. On the top of this bank is a mossy tamarac swamp, with small timber, in places a good deal burnt over.

This steep bank of clay occurs almost all the way across the north end of the lake, when, just before we had reached the inner end of Limestone Bay, it had dwindled down to nothing, and had merged into the almost universal muskeg. At places along the high bank just referred to, where old fires had cleared the peat off, I noticed that poplar and other high land timber had commenced to spring up, and from this circumstance I would suppose that if the peat were cleared off the surface of the clay a good soil might perhaps be obtained. At Norway House, a few miles farther north, garden stuff, oats and barley do well.

The long point shown on the maps and called Limestone Point is certainly misnamed, being composed wholly of sand, and being nothing less than a long and very narrow sand-bar, from six to twenty chains in width, upon which, in the course of time,

has grown a belt of spruce timber. This spruce is in general of good size, and a considerable quantity of timber could be obtained here.

Continuing our course, the remainder of the north end of the lake is at first low spruce and tamarac swamp, then muskeg backed by the same; and this description is equally applicable to the west side of the lake, along to the mouth of the Saskatchewan River, with this variation that, going southwards, the muskeg along the shore is replaced by low wet tamarac and spruce swamp, the timber of which is small and little use.

In general, the shore along this portion of the lake is very muddy and soft, the only exception to this being in the vicinity of the William River, where a few points of limestone rock occasionally occur just above water level. Farther to the south, however, there are island-like cliffs of limestone rock, apparently of the Trenton age, rising to the height in one case of about sixty feet, and invariably backed by the usual swamp. Distant to the west some miles from the lake shore a higher range of country can be seen, no doubt connected with the high country down which the Saskatchewan pitches to form the Grand Rapids; and there can be little doubt but that these high limestone cliffs just spoken of are outlines of the same.

In all the last stretch of country neither any good land nor valuable timber was seen, though both might occur a few miles inland. A little good land, though at a low elevation, is again seen at the mouth of the Saskatchewan River, which is here less than 25 chains wide, though apparently very deep and having a strong current. Southerly from this for a short distance the land is again low and swampy, and then for some miles it rises, showing in places along the shore a yellowish coloured clay bank from 6 to 12 feet in height. The shore is covered with huge boulders, evidently washed out of the clay bank just mentioned. The timber seen is, in general, small, though a few small clumps of poplar and spruce of fair size were noticed. From appearances I should say that some good land exists in this locality.

From this, and following out the whole length of Long Point, little else but low swampy land was seen. The timber, except in a few small clumps in which grow some nice poplar and spruce, was in general very small and of no value. Along the south side of Long Point, a yellowish clay bank of from 10 to 20 feet in height occurs, having from 2 to 3 feet of peat on the top, and occupied wholly by mossy tamarac and spruce swamp, the timber in which, as is always the case in mossy swamps, is very small.

South from Long Point the land drops to almost the lake level, and again there is half a mile of muskeg backed by tamarac and spruce swamp, and seemingly this swamp reaches a considerable distance inland. The timber near the lake is of small size and of no value.

At one place there was noticed, about two miles inland, a cliff about 70 feet in height, and evidently of limestone rock, the swamp bordering the shore evidently reaching to the foot of the rock.

With little change the same kind of country occurs as far as Warpath River. A good deal of poplar was noticed, apparently becoming more plentiful farther inland. As we proceeded southerly the country rises a little, the limestone rock, in places, forming cliffs up to 15 feet in height, is more frequently seen, and although the surface is still swampy enough, very little muskeg was noticed, and this appearance continues the same to the Little Saskatchewan River in Sturgeon Bay. All along the section just referred to a good deal of fine poplar and spruce was noticed, and, although very little of it was of a size suitable for saw-logs, a good many spruce ties might be obtained.

For a few miles before reaching the Little Saskatchewan, along the west side of Sturgeon Bay, some good land is seen, though at a low elevation, and growing on it the finest timber—poplar, spruce and birch—we have yet seen. The Little Saskatchewan River is about five chains in width at its mouth, is apparently very deep, at the time I was there the current was very slow.

Almost immediately after leaving the Little Saskatchewan the shore becomes very low, and once more we met with muskeg, the usual half mile or more backed by spruce and tamarac swamp, and this continues until we are well around the bay, when the country gradually rising, some patches of good land with spruce and poplar timber appear along the shore. Farther inland, however, the poplar seems to become more general, so that the probability is that some tracts of good land exist. As we leave Sturgeon Bay the underlying rock, which is Trenton limestone, comes up more prominently, and after we passed Lynx Bay, rises into cliffs, reaching an altitude of some 15 to 80 feet. Apparently no great depth of soil occurs, although there is a good deal of poplar and spruce timber all along. Turning Cat Point into Kinwow Bay, the country again falls, although for some miles it holds a good elevation, and although there is rather fine timber, burnt a good deal in places, the soil appears to be but a thin coating upon the underlying rock.

Again we passed low swampy land for some miles with small timber, backed, however, by higher land, a good deal of poplar being visible a mile or so from the shore, and before reaching the inner end of the bay there is a considerable stretch of good land with a general elevation of about 8 feet above the lake and having growing on is some very nice poplar and spruce. As we turned to come out of the bay the shore is again low and swampy and so continues for a considerable distance. Back about three-fourths of a mile from the shore, however, fine poplar and birch with some spruce timber occurs, thus indicating good land. Farther on, the high land comes down to the shore in places and again patches of muskeg show up. Behind the muskeg poplar and birch are generally to be seen.

As we turned out of the bay a swampy and marshy shore is general, evidently backed by higher land, poplar and birch being seen all along until we approached the Jackfish River. There is now some excellent land with a reasonable elevation, the surface in this locality being, I should judge, about equally divided be-

tween swamp and high land. There is some fine poplar and spruce along here, but for some distance farther south it has been badly killed by fire.

As we proceeded southerly a very similar country to the last described occurs without much change well down into Fisher Bay, where the country changes somewhat for the better and far less swamp was encountered, there being considerable stretches of good land having an elevation above the lake of about 8 feet, the soil of which is an excellent clay loam, and the timber, poplar, spruce and birch, being of fair size and of a healthy appearance.

About five miles from the inner end of the bay there is a small saw-mill, and judging from appearances, it seems to cut considerable lumber. The size of the logs on the skidways seemed to be about 14 inches in diameter on an average. The whole of the inner end of Fisher Bay is marsh, a mile or more in depth, and through this marsh flows the Fisher River, a small stream having very little current. Large tracts of this marsh produce hay of very good quality, and the Indians of Fisher River get their winter's supply of hay here. I was told that excellent vegetables, oats and barley were grown here, and have no doubt but that wheat would do well also, if tried. The east side of the bay is, in general, of a low character, having island-like ridges and points, showing a clay bank in places 12 feet in height. A little flat limestone rock was also noticed at some of the points. The poplar, birch and spruce were not very large, and nothing to compare with those on the west side of the bay. In the swamps the river was, as usual, small.

Five miles from the Dog's Head, at Ebb and Flow Lake, there is another saw-mill, which is quite an extensive one, and is the property of the North-west Trading Company. The logs cut here are obtained up the Ebb and Flow Lake, and are of a similar size to those described at the last mill.

Shortly before reaching the Dog's Head, the limestone rock comes up more prominently, and at the head forms a cliff about 25 feet high. There is a thin covering of soil in places, and the timber, spruce, poplar, birch and balsam, is small. From this to the Bull's Head there is, as a rule, the highest shore around the lake. At all points and along the more prominent shore there is a high cliff, as much as 70 feet in places, but here and there badly broken down, as the lower beds of rock being soft have been easily torn away by the action of the waves, causing the upper and harder rock to fall. In many places these fallen rocks have broken off in large pieces, and have evidently come down gradually, as they stand at an angle to the cliff from which they fell. At the backs of the bays the elevation is always much less, and in some places descends to wet tamarac and spruce swamp. In all the bays more or less good land occurs, and in places some fine tracts, on which there is mixed spruce and poplar of good size. Along the very high shore the timber is mostly spruce, and judging from the size of the logs cut and piled along the bank, there must have formerly been a very good average of timber, though not much of any value

is now left. A considerable quantity of land suitable for farming purposes exists in this locality, the soil of which is generally an excellent clay loam.

At the Bull's Head I saw samples of potatoes and other garden stuff grown there, and without doubt they were as fine as I have seen grown in the country. I am also perfectly satisfied that grain, as well as other things, will do as well here as on any portion of the prairie country to the west.

A few miles beyond the Bull's Head the country again drops to a general level of about 8 feet above the lake, with the limestone rock showing out all along in a low cliff. There is generally a fair coating of soil, and the spruce, poplar and birch are of a fair size. The appearance of the shore would indicate good land to the rear, but on going back a short distance it appeared to be growing swampy. Some miles before reaching the inner end of Humbug Bay the rock dips, and again we have a shore of low altitude. There is a good deal of swampy land intersected by some very good high land, and from the appearance of the timber the surface rises considerably inland. The timber, though of fair size in the high land, is a good deal burnt, while that in the swamp is usually of small size. For about 17 miles around the inner end of this bay there is a marshy tract for about a mile in width, and to the rear of it appeared to be tamarac swamp, with some poplar in places. The Washow River, a small, insignificant stream, here enters the bay. We were obliged to wade every yard of this marsh and the shallow water bordering it, which caused us more aches and pains than the rest of the survey put together. After passing it, however, we came to a low shore with flat limestone rock frequently showing up, bordered by swamp and muskeg, which, in its turn, seemed to be bordered by higher land to the back. Here and there along the shore some higher spots of small extent were seen, having good soil and a little fine poplar and spruce timber growing on them. When about half way out of the bay the rock again rises, and a cliff, ranging from 10 to 20 feet in height, is of frequent occurrence. There is also some swampy land at the inner ends of some of the bays, but, in general, the land is high and dry, with poplar, spruce and birch timber of a small average size.

At Grindstone Point the cliff attains a height of about 70 feet, and appears to consist of about 12 feet of limestone rock resting on soft sandstone, with bands of ironstone at the bottom, and just at the water's edge is a greenish coloured compact sandstone rock, from which the name of the point is derived.

Going south from Grindstone Point the cliff gradually decreases in altitude, until, at a short distance south of the Little Grindstone Point, the rock finally disappears altogether. In many places the debris caused by the breaking down of the cliff almost hides the rock from sight, and from the general character of this debris I am satisfied that good land exists at the top of this high bank. The timber, poplar and birch, which is growing along here is rather small, but I am satisfied that it will be found to improve

a little way back. Farther south the general altitude of the shore is about 8 feet above the lake, and there is most excellent land, with swamps in places. The timber, poplar, birch and some spruce, is not of a large size, but improves farther back.

About twelve miles south of the Little Grindstone Point we again came to marsh, which extends to the sandy bar, a distance of about twelve miles south, and appears to be about a mile in depth. There is at the back of the marsh a good deal of poplar mixed with spruce timber.

At the mouth of the Icelander's River, a small, though to all appearances a deep stream, which joins the lake about one-third way down the marsh, there is a large tract of hay marsh, producing excellent hay, from which the Icelanders cut large quantities for winter's use. This marsh almost connects Big Island with the mainland, the disconnection consisting of two quite narrow passages called the Grassy Narrows, about one-half mile in length, the water in them being only sufficient to float York boats. From the sandy bar south to the marsh, at the upper end of the lake, the general height of the shore is from 8 to 10 feet, though in a few places it is somewhat higher. The country is evidently of an excellent character, with only a small proportion of swamp land and generally good soil, the timber is principally poplar and birch with some spruce.

We now again reached the marsh, through which the Red River finds its way to the lake, and skirting the same for a few miles we entered the easterly mouth of the Red River from which we had started. Thus we have made a complete circuit of this large body of water, about 270 miles in length, by a width ranging from 2 to 60 miles, and this too without having had one dangerous accident, despite its reputation for roughness, which is well deserved.

In conclusion, it may be said of Lake Winnipeg, that it is large, shallow, rough and stormy, and that in view of these facts must ever be a difficult and dangerous body of water to navigate. The east coast is especially bad almost all the way down, having, from one to five miles out, a succession of reefs, rocks and rocky shoals.

On the west coast, the water though deep in some places, is generally very shallow, and though rocky shoals are not met with on this side of the lake, there are sandy and muddy ones.

Of the surrounding country, extending back from the lake shore at least some miles, fully four-fifths of the east side and the north end, and fully one-half of the west side, can never by any possibility become a farming country. The rocky nature of the land on the east, and the exceedingly swampy character of the country on the north and northern portion of the west side, make this conclusion a certainty. Neither, to all appearances, will this section just mentioned ever be much of a lumbering district. The only valuable timber found is spruce, and that is always of a small size in swampy land, and is apparently of a small size in the rocky portion.

With the exception of a slight disturbance noticed in the vicinity of Hole River, no indication of any valuable mineral was noticed either in this large tract, or, for that matter, anywhere around the lake, if we except a thin bed of ironstone which was seen at Grindstone Point, and, from report, the existence of a bed of hematite iron ore on Black Island.

As a general thing both large and small game are exceedingly plentiful all around the lake, especially is this so on the north and west side as far south as the Grindstone Point, caribou and moose being found in numbers. Fur, also, is still reasonably plentiful, notwithstanding the presence of the Hudson Bay Company for so many years. The waters of the lake are also filled with fish of many kinds which are exceptional in point of size and quality.

Whitefish seem to be the predominating variety in point of numbers and are sometimes taken of large size, and for quality, they already have the reputation of being the finest in the world. The other varieties of fish found in the lake are sturgeon, maskinongé, jackfish, catfish, sunfish, toolabies (a variety of whitefish), pickerel, gold eyes, perch and suckers. Thus it will be seen that, if the district visited by us is barren in some respects, vast wealth exists in Lake Winnipeg in fish, and if proper regulations are enforced its waters may be made to yield a large revenue for all time to come.—*F. W. Wilkins, D.T.S.*, 1886.

CHAPTER II.

LAKE MANITOBA.

Lake Manitoba is about one hundred and twenty miles long by twenty-four broad in its widest part, from headland to headland, but if estimated from Oak Point to the mouth of White Mud River on the west side, the breadth does not fall far short of thirty miles. In the parts sounded, which were sometimes twelve to fifteen miles broad, the depth never exceeded twenty-three feet; this occurred half way between Cherry Island and Sandy Point, in the upper portion of the lake. In the two traverses between Manitoba Island and Cherry Island not more than twenty-one feet was recorded, while within four miles of the coast in the southern or larger portion of the lake, eighteen feet was the greatest depth found.—*Prof. Henry Youle Hind*, 1858.

We arrived at Totogan on the 10th June, and had to wade up to our knees in mud and water to the hotel door. Two days afterwards the water entered the bar-room.

At every point along the lake the water had risen at least three feet—possibly four, as accounts differed. All the meadows, which formerly produced so much hay, were under water ranging in depths from three feet to six inches. The water, however, had not reached the wood, and from this I was led to infer that the lake was subject to periodic overflows such as the present.

As is well known, the lake is very shallow, and is subject to fierce gales; these winds, and doubtless the movement of ice cause large quantities of limestone, gravel and granite boulders to be forced up along the shore. When the water is low I am told that this barrier is of considerable height, and a wide beach extends out lakewards. At this time the meadows within the barrier are quite dry, and many of them have been broken up and heavy crops of grain and potatoes raised on them. During the last two summers the water has been gradually rising, and is now in many places over the barrier, and all the meadows are covered with it.

These remarks apply to every part of the lake, and it can be easily seen that there is no way of escaping it. But this is not all, the forest bordering on these meadows is fast changing into a bog, as there is no drainage, the country being almost a dead level.

At the Narrows it was with the utmost difficulty we could find a spot on which to pitch a tent. In conversation with the telegraph man I learned that the whole country is afloat (to use their own expression) between the Narrows and Duck Mountain. All the trouble on account of water is not caused by the lake, but by the rainfall of the last three years, which has been far above the average, and as the country is almost a dead level and covered

with forest or tall grass and bushes, very little is evaporated and none runs off.

When the line of the Canadian Pacific Railway was located, in the autumn of 1874, it is probable that the country was in a dry state, and reports made then were just as truthful as those made now. The fine meadows of that day are now marshes, and the muskegs are floating bogs. From all the information I could pick up I am led to believe that the very wet land lies on each side of the lake in a belt about ten or twelve miles wide, and after that the country becomes more elevated and therefore drier.

The soil is everywhere rich, and the growth of all kinds of plants on the warm, moist earth is astonishing. Out of four hundred and ninety-two species of plants observed along the lake and in the woods all but a dozen grow in the County of Hastings. All of these exceptions were western species, and indicate a drier climate and soil than I found. In the woods the timber was generally balsam, poplar and aspen, but it was seldom of large size. Oak groves near the shore and on ridges away from it were not unfrequent, but the trees were not large. Ash and maple (negundo) were not uncommon, and north of the Narrows large elms were frequently seen on the islands and points.

All the gravel noticed was of white limestone, and this, with boulders, seemed to cover the bottom of the lake in many places. Out in the lake we could often pass great heaps of enormous boulders, piled one on the other without earth or sand between them, and around which gulls and terns were gyrating as we passed. These heaps were always in shallow places, and showed their glacial origin by their position.

Rock *in situ* was only observed at one point on the lake, about one and a half miles north of the Narrows. The exposure is at the northern end of an island, and is a creamy yellow limestone, with reddish veins running through it. A steep cliff about ten feet high is exposed, with the beds in horizontal layers, not broken up by frost.

From this island (named by the Indians Manitobah, meaning the Narrows of the Manitou) the lake takes its name.

Large deposits of salt are known to exist at a point on the west side of Lake Manitoba, some distance north of the Narrows.—*Prof. J. Macoun, M.A., Exploratory Survey of* 1881.

CHAPTER III.

LAKES MANITOBA AND WINNIPEGOSIS.

The country generally lies very little above the level of the lakes, which will render it very difficult to drain. It will probably be found, when soundings are taken, that Water-Hen Lake and at least all that part of Lake Winnipegosis lying south of the north end of Birch Island are very shallow. Were Lake Manitoba lowered, say two feet, and it is said that it could be very cheaply done, by blasting out to that depth a ledge of limestone which crosses its outlet, its area would be reduced probably seventy-five per cent. Then, by cutting a canal across at Meadow Portage, Lake Winnipegosis could be lowered at least twenty feet. This would make both lakes more like rivers than lakes, and in that case they would be more valuable for navigation purposes than in their present condition. Craft of light draught of water could navigate them, and they would not be subject to storms as at present, which storms render navigation on these waters very dangerous. Flat-bottomed vessels of low draught can now only be employed thereon. Should a canal ever be constructed from the north-west part of Lake Winnipegosis to the Saskatchewan then river steamboats and barges could start from the southerly part of Lake Manitoba and proceed to the head waters of the Saskatchewan River.

By lowering the lakes as above mentioned all the surrounding land now out of water would become dry. By the removal of those large fields of ice the climate of the surrounding country in the spring would be greatly improved. The north-west winds passing over these ice fields cause the temperature of the air to be very much lowered, and these chilled winds greatly retard vegetation in the spring. The only great objection to their drainage would be that the fisheries would be partially destroyed.

Where the land is dry its agricultural capabilities are very good. Finer vegetables than are grown there could not be met with anywhere.—*W. Pearce*, D.L.S., 1879.

If the drainage of many thousand square miles of swamp and marsh in this part of the country should ever become a question of national interest, I know of no enterprise of the kind which could be executed with so little cost of time and labour and promise at the same time such widespread beneficial results.—*Prof. Henry Youle Hind*, 1858.

CHAPTER IV.

LAKE WINNIPEGOSIS.

Lake Winnipegosis is about 100 miles long. Its north-western portion, Dawson Bay, is nearly cut off from the main body by a long peninsula. This bay has an extreme length of about forty miles, and a breadth varying from five to twenty miles. Both shores are deeply indented with smaller bays. On some of the projecting points, cliffs of a coloured limestone occur. There are several islands on which solid rock is also exposed, as well as many submerged reefs. The highest rocky promontory is Point Wilkins, on the west side of the lake. Most of the points have ice-formed beaches, composed entirely of boulders and pebbles, and behind them there are extensive swamps. The north end of the lake is especially low, and the barrier between Winnipegosis and Cedar Lakes is little more than a swamp, from three to five miles across. The greatest elevation of the lowest traverse between them was ascertained by Mr. Bender, of the Canadian Pacific Railway Survey, while I was in the neighbourhood, to be forty-four feet over the water at either end (the two lakes being on the same level(. The character of the main body of Lake Winnipegosis is the same as that of Dawson Bay, being studded with islands and reefs· On the east side, between Elm and Gun Points, there is a cliff of limestone of considerable extent. The beaches of almost every point and island are made up of Laurentian boulders and fragments of Devonshire limestone, overgrown with trees, behind which are swamps, often of considerable extent, and small lakes.

Salt was formerly made from the brine springs near the mouth of Belt River.

The salt springs at the south end of Lake Winnipegosis have been worked for a long time. At these springs the saline waters percolate through the drift, which in this region covers but thinly the Devonian limestones, and destroys vegetation for some distance around. The manufacture of salt is conducted in a rude manner. Pits are dug four or five feet deep, and into them the waters infiltrate. Besides these temporary furnaces are erected, on which are placed evaporating pans made of iron plate one-eighth of an inch thick and five or six feet long, by about three feet wide and eight or ten inches deep. Beside the pans, are trays on which the salt is raked. No pumps are used, the water being lifted into the pans directly from the pits by means of pails. The operation is conducted entirely in the open air. The manufactured salt is put into birch-bark boxes or "mococks," holding about 100 pounds each, and is then ready for market. During the season, Mr. McKay, the only person engaged in the business, made about 500 bushels, or less than half the quantity which had been manufactured in some previous years.

The following is an analysis by myself, of a sample of the salt which I brought from the works :—

Sodium (Chloride)	95·123
Magnesium (Chloride)	0·600
Calcium (Sulphate)	3·400
Sodium (Sulphate)	3·394
Moisture	0·044
Residue	0·439
	100·000

The residue consists of silica, alumina, iron and lime. The salt has a light brown tint, and is very coarse-grained, owing to the manufacturer allowing the crystallization to go too far undisturbed.

I went up Mossy River (the outlet of Lake Dauphin) for a few miles. Here also are limestone exposures. This river has a depth of from two to four feet for a distance of three or four miles from its mouth, where it is about two hundred feet wide.—*J. W. Spencer, Geological Survey,* 1874.

The various settlements on the west shore of the lake were visited, and in every case alarm was expressed regarding the rise in the lake and the flooding of the low land. At Duck Bay we saw some settlers farming, and we were informed that all kinds of garden vegetables, including corn, and melons, came to maturity.

The general appearance of this lake is much finer than that of Manitoba, as there is little or no marsh, except that at the southern end, or at the mouths of the numerous small streams entering the lake. Numerous islands are a marked feature, and sandy beaches are much more common than on the other lake. Boulders, however, are still a characteristic, and the more so as they appear only along the margin of the lake, or forming the outer line of the various islands, which were formerly shoals, but now, by ice action, changed to islands.

As we proceeded up the lake, the country constantly improved. The shore marshes became less and less, and finally disappeared. In their places beaches of white limestone glittered in the sun, and fine forests came down to the beach. The timber increased in size, and at Pine River, spruce of a large size were abundant. Very fine forests were noticed at Duck Bay, but oak had disappeared, and the balsam fir had taken its place. On the various islands were very large elms, and mountain ash over ten inches in diameter were frequently seen. Impassable thickets of wild hops, nettles, ostrich fern, and cow parsnips were so plentiful on the islands and points that the observer was almost tempted to believe he was in the tropics, and not in latitude 50° north. On the 1st July, on Spring Island, near Duck Bay, I found nettles and ostrich ferns over seven feet high, and all other plants correspondingly luxuriant.

The great drawback of the country immediately adjoining the lake is its slight elevation above the lake, which is seldom above

six feet*. Limestone soils prevail everywhere, and were the country more elevated or the soil drained, it would produce enormously, as the surface soil is deep and very rich.

Duck Bay is noted for its brine springs, which are said to be of considerable extent. These are situated between two rivers, which issue from Duck Mountain, and are only five miles off. About six miles south of the Salt Springs, in the direction of Mossy River, are springs said to be as good as those where the salt is made.

Large salt springs also occur at a point about seven miles from Water-Hen River, on the east side of Lake Winnipegosis; also at Salt Point, where the lake shore turns north.

At Pine River, 40 bushels of salt were made last year by merely boiling down the brine.

As we went north from Duck Bay, the richness and luxuriance of the vegetation increased, the banks became higher, and the forest trees of a large size. Birch Island, as seen from a distance, contains large quantities of spruce, and between it and the western shore numerous lovely islands, covered with thick fruit and an abundance of spruce, towering above the other trees.

Between Duck Bay and Swan Lake, there is an Indian horse trail, which passes through a fine country all the way, and which (my informant, who was brought up on Duck Bay, says) is the prevailing character of the whole country. At present the whole district, whether high or low, is sodden, but the excessive rains of the last two years have caused this. It would be altogether out of place to condemn this country because the located line near the lakes is at the present time under water. I am quite sure that further and more careful examination will reveal large areas of good dry land in the very region which I am now tempted to condemn, and which in the near future will be spoken of in the highest terms.

Many exposures of rock were noticed around Dawson's Bay, and most of the islands showed rock in horizontal layers. The land is much more elevated at the northern end, and hence is drier and much better suited for farming purposes.

Directly opposite Swan Lake House a river issues from the Porcupine Mountain and empties into Dawson's Bay, east of the Red Deer River. This stream is named Salt River (shown as Bell River on some maps) and the point north of its mouth Salt Point. Here the Hudson's Bay Company have manufactured salt for the last thirty years.

The northern end of Lake Winnipegosis is filled with lovely islands, which are margined with fine drooping elms of a large size. The sail across Dawson's Bay on a lovely day in July reveals more natural beauties than I ever before beheld on our inland waters. Green islands, with white sand or gravel beaches, covered with drooping elms or other fine trees, the mainlands rising

*According to Mr. Tyrrell, of the Geological Survey, Mr. Wells, of Dawson's Survey of 1858, and the Canadian Pacific Railway Surveys, there is a constant and imperceptible rise of several hundred feet within the first twenty or twenty-five miles from the lake.

gradually up from the water covered with an unbroken forest of tall poplar intermixing with the gloomy spruce, deep bays backed with the distant forest, and high over all the steep escarpment of Porcupine Mountain form a picture as seen from the lake which has few equals in any part of the world. Point Wilkins, a bold promontory pushing out into the bay, and rising almost perpendicularly to a height of 70 feet, is a prominent and beautiful object. Crossing a bay to the north of this, and rounding a low point, we enter the mouth of Red Deer River.

In order to show the quantity of water pouring into Lake Winnipegosis and thence by Water-Hen River into Lake Manitoba I append a list of rivers:—

Mossy River, discharging Lake Dauphin, 125 feet wide and with a depth of from five to seven feet, in the summer of 1874, when the water was low; Pine River and two rivers discharging into Duck Bay; Shoal River, discharging Swan Lake, 200 feet wide, and at least ten feet deep last July; Salt River (shown on some maps as Bell River), emptying into the head of Dawson's Bay, and over 200 feet wide, and draining all the eastern part of Porcupine Mountain; Red Deer River, at least 300 feet wide, and twelve feet deep in July last. Farther to the north, and draining the Pasquia Hills, is another river at least 100 feet wide, and on the east side two others which drain a large area. All the rivers enumerated flow into Lake Winnipegosis, and its surplus waters are carried away by Water-Hen River, which is 500 feet wide. This past summer the latter river was unable to discharge the surplus water and overflowed the country bordering on Water-Hen Lake, and at the present writing the southern part of Lake Winnipegosis is encroaching on the surrounding country just as Lake Manitoba is doing.

This mighty flood is constantly pouring into Lake Manitoba, and owing to its peculiar position and form, a very slight augmentation of its waters begins to tell on the surrounding country. From what I saw last summer, I can but conclude that Lake Manitoba will be higher next season than this:—*Prof. Macoun, Exploratory Survey*, 1881.

The surface of the country where the Salt Springs† are found is only a few feet above the level of the lake. The barren area occupied by the Springs may include several hundred acres. The trees in the vicinity consist of spruce, aspen, willow, birch, and a few stunted oak. The wells are five feet deep, and the water in them was two feet five inches above the level of the lake on the 5th October. The wells are found upon a slight elevation, probably mechanically raised by the ascending brine, to about two feet above the country in the rear which, in a southerly direction, gently inclines and blends with a vast marsh connected with Mossy River. The woods fringing this marsh approach within a mile of the Springs, west and north-west.

†The Springs referred to are presumably in Township 32, Ranges 17 and 18, West of the Principal Meridian.

The level country extends across the peninsula from Red Deer Point, about three miles in breadth, to a deep indentation of Lake Winnipegosis, after which it continues low and marshy, with tamarac, aspen, and white spruce woods to the foot of Duck Mountains,‡ a distance of sixteen to eighteen miles. From Snake Island, and even from the level of Lake Winnipegosis, a few miles from shore, the country between the foot of Duck Mountain and the lake, does not present a single eminence to break the level from which the Duck Mountain rises. It resembles, in every important physical feature, the level tract at the base of Riding Mountain. These observations apply only to that part visible from Snake Island and the lower portion of Lake Winnipegosis.

The soil at the Salt Springs is a very retentive yellowish white clay, containing small limestone boulders and pebbles, with boulders of the unfossiliferous rocks. The wells for obtaining a supply of brine, are sunk wherever a small bubbling spring is observed to issue from this retentive clay. The Springs are constantly changing their position, and as the wells become exhausted from time to time, a fresh excavation is made where a new spring is observed to issue. No doubt boring, or deeper wells, would prevent these changes, and not only secure a larger flow of brine, but insure its permanency. The wells at present are twenty-five in number; but some of them appear to have been lately abandoned, and others have long since ceased to yield brine. They are situated four hundred yards from the lake shore, and were first worked forty years since, by James Monkman. He has made salt at Swan River and Duck River. The manufacture is now carried on with profit for the Hudson's Bay Company, at Swan River, and at Winnipegosis Lake by Monkman's sons.

At the "Works" there are two small log-houses and three evaporating furnaces. The kettles of English construction are well made rectangular vessels of iron, five feet long, two feet broad, and one foot deep. They are laid upon two rough stone walls, about twenty inches apart, which form the furnace. At one extremity is a low chimney. The whole construction is of the rudest description; and at the close of the season the kettles are removed, turned over, and the furnace permitted to go to ruin, to be rebuilt in the following spring.

The brine is very strong. From one kettle, two bushels of salt can be made in one day in dry weather. There are nine kettles at the "Works," seven being in constant use during the summer season. An Indian guide assured me that all along the west coast of Winnipegosis and Manitoba Lakes, there are salt lagoons and springs. The Indians we met on Dauphin Lake made the same acknowledgment.—*Prof. H. G. Hind*, 1858.

By far the greater portion of the lands bordering on Lakes Manitoba and Winnipegosis is unquestionably well adapted for settlement. Experience already shows that wheat yields an abun-

‡According to Mr. Tyrrell, of the Geological Survey, Mr. Welis, of Dawson's Survey of 1858, and the Canadian Pacific Railroad Surveys, there is a constant and imperceptible rise of several hundred feet in the first twenty or twenty-five miles from the lake. *See their reports elsewhere.*

dant return along Lake Manitoba and at the Little Saskatchewan (the Fairford River). At the latter place even Indian corn is said to be a sure crop. This being the case, it is reasonable to conclude that wheat would thrive also at Water-hen Lake and at Lake Dauphin, and along the western coast of Lake Winnipegosis.—*S. J. Dawson, C.E.*, 1858.

The western shore of Lake Winnipegosis, in common with the other lakes through which I passed (*i.e.*, from Lake Winnipeg) is much better adapted for settlement than the eastern one, inasmuch as the land is higher and the climate, if anything, a little better. In crossing Lake Winnipegosis from east to west, a distance of only about 12 miles, I found vegetation somewhat further advanced than that on the side I had just left; the soil is also better, inasmuch as it is higher. Timber, such as maple, elm, oak and poplar covers the country to the water's edge. I visited several places where sugar had been made, and saw specimens of that article equal to any that I have ever seen in Eastern Canada.

The Duck Mountain, which covers almost the entire background, commences to rise not far from the lake shore, keeping a gentle ascent for 20 or 25 miles back, where it attains an elevation of 600 or 700 feet above the lake.

I learned from the people who reside at Duck Bay that the entire face of the mountain is a succession of gentle slopes and flat tablelands, and the summit itself is an extensive plateau of alluvial soil covered with a fine growth of timber.

There are some 40 or 50 half-breed Indians who reside at Duck Bay, and, though assured by them that all kinds of grain succeed well, yet they cultivate only a few potatoes, as fish and game are so plentiful and of such good quality that they may be said to live almost without exertion.—*A. W. Wells*, 1858.

From the western end of Meadow Portage, in Township 30, Range 16 west of the Principal Meridian, to the centre of Township 30, Range 17 west, the water is very shallow near the shore; the banks of the lake are formed of limestone strata, which are covered in places with boulders.

The timber (poplar, birch and oak) along that part of the lake has been all killed by fire.

The open dry shore in most places is but a few links wide; this peculiarity necessitated the use of many short courses when surveying around the points of land. Since both canoes were heavily loaded, great care had to be taken when landing, the lake being so shallow that we had generally several chains to walk to reach the strand.

On the 6th of July, we arrived at the Salt Springs, from which the Red River settlement was supplied with salt, until the facility of transport brought this necessary article from places outside the province. These springs are about 15 chains from the shore of the lake, and they lie in a small opening in the woods. There we found the ruins of two or three log houses and a few large old iron kettles, which probably served for boiling the water to extract the salt.

The timber for a few miles north of the Salt Springs is about half fire-killed, and is composed of poplar, elm, spruce in clumps, and a few oaks.

Here, as before, the strand of the lake is only a fraction of a chain in width from the water's edge to the woods. The lake near the shore is in some parts deep and in others shallow, with limestone bottom.

The lake is generally deeper along the shore than it was before, but the beach presents the same formation and aspect, except, however, that for the first half of the way there is a good deal of hay land. The shore of the lake on the west side of Red Deer Point is very crooked; there are numerous bays, some of which are several miles deep.

The distance from the north end of Coleman's Island to the main land is only some twelve chains, and it is separated from Red Deer Point by a large marsh. At first sight I took the island itself to be the main land, and I consequently proceeded to survey the west side of it. When I was about half way south, seeing no larger island as indicated on the map, it struck me that I was on the island itself, but I decided to continue its survey, having a great doubt as to the possibility of finding my way on the east side of the island.

All along the west side of Red Deer Point, and on the numerous islands adjacent, the wood is very dense and of good size, varying from 5 to 20 inches. The timber is poplar, with a good proportion of spruce. The actual growth of the forest is surprising, if we take into account that there is not more than 5 to 6 inches of soil overlying the limestone, as I could often ascertain in windfalls.

We reached the south-west of Red Deer Point on the 18th of July. Thence to a few miles south of Pine Creek, the timber is about half fire-killed and generally of smaller size.

For the first half of the distance the lake is shallow near the shore, and much hay land is met with. The beach has the same formation as before, varying from marly soil to sand, limestone and boulders.

Here, at Pine Creek, the soil is of good quality, and all ordinary vegetables are easily raised. About thirty families of Indians form the whole settlement of Pine Creek and Duck Bay.

The timber is small (3 to 13 inches) and poplar predominates, though spruce and birch are found in good quantity.

At about seven miles north of Duck Bay, we again find the forest has been destroyed, presenting a scene of desolation as far as Devil's Point. The trees standing, poplar and spruce, are nearly everywhere fire-killed. The timber on Birch Island has been apparently more than one-half destroyed by fire.

The shore of the lake being only a few links from the border of the woods, presents the same general aspect as before. Limestone and sand, almost everywhere, form the beach and the lake bottom along the shore. We reached Devil's Point on the 2nd of August.

From here to Pelican Bay there is very good timber, chiefly poplar, spruce and tamarac.

The shore is very irregular, and presents a fresh scene of fairy-like beauty at every turn. Good sized timber, poplar and spruce, is found all around Pelican Bay. The contour line of this bay is very broken; in fact there are really three bays united by narrows.

The most southerly of these bays is very shallow and marshy. Several islands, well timbered, are found in the bay. Proceeding northward on the west side of the bay we come to what was formerly "Channel Island," but now is a peninsula thickly timbered with good sized spruce. I was told by reliable persons that this change has occurred within the last ten or fifteen years. The former island is now united to the main land by a meadow a quarter of a mile wide and a mile in length, being several feet higher than the actual level of the lake. From this point to Dawson Bay, and along the east shore of that bay, the timber is plentiful, consisting of poplar and spruce of good size.

There is no hay land, and the water is generally deep along the shore, which is composed of limestone covered with boulders.

Here, for the first time during the summer, we could enjoy the sight of a mountain, the horizon to the south-west being formed by the outline of the Porcupine Mountains.

The country along the south of Dawson Bay and northward as far as Deep Rock River is well timbered with poplar and spruce, and the shore is generally rocky although marshy in places. The mouth of Deep Rock River is about four chains wide. This river and Red Deer River are famous for the abundance of game in the country through which they flow, the game consisting principally of moose, deer and black bear; also fur-bearing animals, such as fox, lynx and skunk. From Deep Rock River to Red Deer River the forest is nearly all fire-killed. The general aspect of the shore is about the same as before, although the water is not so deep and the beach consequently wider.

Returning we coasted the northern and eastern shores of Lake Winnipegosis.

Good timber is found from Red Deer River to Long Point, but from the latter to the coast opposite Birch Island the forest is all fire-killed; from thence to Water Hen River good timber is again found. The northern and eastern shore lines of the lake are very straight compared with the other sides; the water is deep nearly everywhere.—*J. I. Dufresne*, D.T.S, 1887.

CHAPTER V.

ST. MARTIN'S LAKE.

St. Martin's Lake once reached, small eminences, which in this flat country almost deserve the names of hills, appear on the south side, so also on the north side, before entering "the Narrows." In general the shores are very low, particularly to the south-east. The Narrows are caused by a remarkable barrier of boulders, chiefly consisting of the unfossiliferous rocks, about six feet above the lake and twenty feet broad. On the west side of the barrier there is an extensive wide-spreading marsh, but the water of the lake is clear, as in most limestone regions.

We arrived at this isolated body of water soon after noon, and camped on a beach or barrier thrown up in the form of semi-circular ridges about half a mile across the arc and connected in the form of the letter S. In the formation of these ridges granite or gneissoid boulders are first pushed by ice upon a limestone gravel bar; aspens and willows grow on the ridges rapidly formed by sand and gravel washed up in the rear of the boulders, and the space partly enclosed or sheltered by the curve is soon filled with reeds, thus forming extensive marshes at the eastern extremity of St. Martin Lake. Near the channel which separates the maze from the main body of the lake a new beach is now in process of formation, and consists at present of a long semi-circular line of stranded boulders, over which the water washes in easterly or westerly gales. Round about the boulders limestone gravel is accumulating, and thus in this direction at least the lake is slowly diminishing in size, the materials being in great part supplied from the wearing away of islands and the adjoining coast.

We made our way into the main lake through a channel varying from three to nine feet in depth, kept open by the Partridge River, which takes the name of the Little Saskatchewan River after it has passed through St. Martin's Lake.

On Sugar Island I found what appeared to be partially metamorphosed sandstone rock, tilted at an angle of 50°, with S. 30° W. and N. 30° E. strike. At one end of the island it approached the character of gneiss; at the other extremity it presented the appearance of impure sandstone layers tilted at a high angle. Sugar Island is about a mile from the Narrows, and lies S. 75° E. from three small islands, which upon examination were found to cousist of gneiss intersected with quartz veins. The rock on Sugar Island is exposed on one side in the form of a precipitous cliff twenty feet high. On the opposite side it slopes gradually to the water's edge. Sugar Island is so named from a grove of the ash-leaved maple, the trees of which bear old marks of tapping.

Proceeding along the south-west coast of the lake we found a barrier of beaches along the shore, about 300 yards distant from it,

on which boulders of the partially metamorphosed sandstone and gneiss were piled up. Farther on were worn and large unworn fragments of a silicious limestone, which, however, was nowhere found in position. The occurrence of these gneissoid islands in a flat limestone country is very interesting; the metamorphosed sandstone shows that the epoch of their elevation must have been before the deposition of the limestone found on Thunder Island, to which we next proceeded. The three gneissoid islands having no name, we called them St. Martin Rocks. At noon we arrived at a semi-circular island of beaches similar to those at the eastern end of the lake. They are due to the great shallowness of St. Martin's Lake, which, with an area of three hundred square miles, was nowhere found to be more than eighteen feet deep, and often only five and six feet for long distances.—*Prof. Henry Youle Hind*, 1858.

Lake St. Martin is a shall evaporating basin or expansion at the head of the Little Saskatchewan River. It has an elevation of eighty-four feet above Lake Winnipeg or 794 feet above the sea, a shore line of 85 miles, an area of 118¼ square miles, and a greatest depth, as far as at present ascertained, of fifteen feet. In it are situated a number of islands, with a total area of 3¼ square miles, some of which, however, are chiefly interesting from the fact that they, along with several hills in the vicinity, are composed of trap and gneiss which rises as bosses above the surface of the surrounding bedded Silurian limestone, though these limestones abut sharply against the gneiss, &c., and are undisturbed by it. The islands and hills are thus shown to be original inequalities in the paleozoic ocean floor on which the limestones were laid down, and as there are probably unusually high points on this floor, so there may be unusually deep depressions holding rocks much lower than any now known in Manitoba, the existence of which, however, will in all probability be determined only by close and long continued investigrtion.

The total distance through St. Martin Lake from the head of the Little Saskatchewan to the mouth of the Fairford River is twenty-two and a half miles.—*J. B. Tyrrell, Geological Survey*, 1889.

CHAPTER VI.

SWAN LAKE.

Swan Lake is about twenty miles in length. Besides the Swan River, it receives two or three smaller streams. The shores are all low and swampy, except a few points which are made up of gneiss boulders and slabs of limestone. On one of these points in particular, an ice-formed beach occurs, on which boulders, weighing from half a ton to twenty tons, have been piled up with as much apparent ease as if they had been small pebbles. The lake contains several islands, on which the country rocks are exposed. These consist of limestones, and are best seen on two of the largest islands situated in the northern part of the lake, viz., Warren and LaFavorita Islands. The whole lake is very shallow, not averaging more than six feet in depth. The bottom consists of soft loose silt.—*J. W. Spencer, Geological Survey*, 1874.

Swan Lake is about fourteen miles long by five miles in breadth, and is filled with beautiful islands covered with woods. It is quite shallow in many places, but contains great quantities of fish, though I was unable to ascertain whether whitefish were caught there or not. Jackfish, gold-eyes, and suckers were very plentiful in July. The beach at Swan Lake House is as usual composed of gravel; but there is a large percentage of other material besides limestone.

An examination of the land in the vicinity shows some wet ground, but the greater part is thickly covered with moss, and necessarily damp. Strange to say, white spruce grows on drier ground than poplar in this neighbourhood, but this may be accounted for by better drainage. As usual, the soil is very rich, and all that is needed to make farming successful is drier seasons or better drainage.

From Swan Lake House the Porcupine Mountains lie almost due west, and seem to rise at least one thousand feet above the plain. Lying between the lake and the base of the hills is an expanse of forest, possibly fifteen miles wide, which seems to consist of mixed poplar and spruce. The half-breeds say that the soil there is damp and moist, but do not call it muskeg. Many beaver are said to still inhabit this region, and muskrat being scarce, I would infer that it is a land of small brooks and poplar forest. This agrees with the statements of the half breeds with whom I had conversations regarding the country. After five days' careful examination of the soil east of Swan Lake, I conclude that the land here is well suited for cultivation. Any person passing in the winter finding the woods principally spruce, would be led to call it wet, whereas no wet land was found where the spruce grew. This statement holds good in every part of the country. The wettest land is near the lake, and as you recede from it, the soil becomes

drier and better. The climate here seems like that of Thunder Bay as regards moisture, but the summer heat is very much greater. When this country is cleared of wood, and the sun allowed to shine down on it, it will become drier and much warmer, and all grains and garden vegetables be a sure crop.—*Prof. Macoun, Exploratory Survey of* 1891.

This lake is nearly 80 miles in circumference and contains several well wooded islands. The eastern side of the lake is very picturesque ; it is formed of continuous bays which generally run far into the land.

The water is deep and clear, and the limestone strata of the shore are covered usually with boulders of moderate size. The south-west shore of the lake is mostly of marly soil, and generally marshy weeds grow in the water some distance from the shore, sometimes as far as sixty chains, and their floating leaves render landing or coasting difficult. Near the lake the timber (poplar and spruce) is not as good as on the eastern side.—*J. I. Dufresne*, D.T.S., 1887.

CHAPTER VII.

DAUPHIN LAKE.

Dauphin Lake is 30 miles long, has a greatest breadth of 12 miles, and an area of 262½ square miles. Its approximate elevation is 834 feet above the sea or 124 feet above the mean level of Lake Winnipeg. It is very shallow, in some places it is not more than six feet deep half a mile from shore.

It abounds in fish, principally pike. Prof. Hind speaks of having taken five out of one net, weighing fifteen pounds each.

The immediate shores of the lake are low, affording excellent meadow land, covered with long luxuriant grass. There are many belts of oak, elm and poplar timber along and in the immediate vicinity of the shores.

There are many places around the lake that should prove attractive to stock-raisers.

PART III.

DESCRIPTION OF PRINCIPAL RIVERS AND COUNTRY ALONG THE SAME.

CHAPTER I.

RED RIVER.

Red River enters Lake Winnipeg by four distinct channels. Its junction with the lake by the channel, through which we entered, is marked by a bar, in which there is not more than three feet of water close to a spit of sand, which was the only piece of land seen amidst the tall reeds extending far to the south, and beyond the point where the river channel unites some three miles from the mouth of the main channel. Land which is dry during the summer months, and at the stage of water in the river on the 5th September, about 2½—4 feet above its level, begins five miles from the mouth of the main channel. Half a mile above this point, Netley Creek comes in from the west, and by means of this small affluent, much of the water during floods from the upper country reaches Lake Winnipeg. Large numbers of hay stacks were seen here in September last (1857). An immense area is flooded during spring, producing a very rank profusion of those grasses, which delight in a rich marshy soil.

A little below the Indian Village, fourteen miles from the mouth of the river, the whole country rises; the banks are about twenty feet high, the timber imposing, and in considerable variety; and all the aspects of a level, fertile country gradually come into view. The sameness in the general aspect of the banks at this season of the year becomes monotonous, after the wild and varying beauties of the Winnipeg River.

Three miles below the Stone Fort (Lower Fort Garry), and about four from the Indian Village, a remarkable bend in the course of the stream gives rise to a sharp projection of the level plateau of the prairie. Sugar Point, as it is termed from the groves of maple which covers it, is probably preserved from the abrading action of the stream by numerous fragments of limestone which lie at the bottom of the river bank and continually increase in number and size in its ascending course, as far as the exposed strata of limestone, at and above the Lower Fort, where their place is supplied in part by exposures of the parent rock.

The maple, which at one time grew in considerable quantities near Sugar Point, is not the true sugar maple (*acer saccharifum*) so common in Western Canada (now Ontario), but another species, also furnishes an abundance of juice from which sugar is made as far north as the Saskatchewan. It is the ash-leaved maple (*negundo flaxinifolium*). The common sugar maple is, however, found in the valley of Red River, south of the 49th parallel. The banks on both sides are very heavily timbered close to the river, and between this point and the Stone Fort, there are very few farm houses. The scenery and objects which meet the eye in ascending

the river between the Lower Fort and 49th parallel are uniform, but singular and interesting.

First, with reference to physical features, it is merely necessary to imagine a river from 200 to 350 feet broad, with a moderately rapid current, having in the course of ages excavated a winding trench or cut to the depth of from 30 to 40 feet, in tenacious clay, through a nearly level country for a distance exceeding 100 miles, and the general physical aspect of Red River, within British territory, is reproduced. Here and there local diversities occur which give some appearance of variety. Such are noticed at the Grand Rapids (Parish of St. Andrews), where the even flow is broken and disturbed by a ledge of limestone, which may occasion a fall of four feet within a mile. A lower plateau has here and there been perhaps ten feet below the general level of the prairie banks. Occasionally sand, mud, and gravel bars are formed at numerous sharp turns in the general course of the stream, similar to those which may be observed at Point Douglas, also above Fort Garry, near la Riviere Sale, Scratching Creek, &c. These projecting bars or points are often covered with fragments of limestone, primitive boulders, and large numbers of fresh water shells. The current round them is rapid, and they present a formidable obstacle to the navigation of the river by means of steamers exceeding 100 to 120 feet in length. Often, too, on one side or the other, and sometimes on both sides, a narrow belt of heavy forest timber closes upon the river, and seems suddenly to narrow and darken its abrupt windings. The most uniform character, however, and one which is more frequently found on the western side, is a clean and steep line of bank about 30 feet in altitude, perfectly level to the eye, and forming the boundary of a vast ocean of prairie, whose horizon or intermediate surface is rarely broken by small islands of poplar or willow, and whose long, rank and luxuriant grasses show everywhere a uniform distribution, and indicate the character of the soil they cover so profusely. A subsequent closer inspection of the soil never failed to establish its fertility and abundance, as well as its distribution over areas as far as the eye can reach, both eastward and westward, on the banks of this remarkable river.

The objects which arrest the attention in ascending the river between Sugar Point and the Stone Fort, are limited to precipitous clay banks, fringed with elm, poplar, maple, oak and ash, all of large growth, but not fair representatives of the forest which once occupied its banks, having been subjected to a culling process for twenty years to supply the necessities of the settlement above. Among the underbrush, the Virginia creeper and occasionally a wild grape, with a profusion of convolvulus twining round hazel, and rose bushes are most conspicuous. At the Stone Fort, massive layers of limestone crop out, which have been extensively quarried, and their application is seen in the walls and bastions of the fort built on the bank here, about forty feet in altitude, and forming the abrupt termination of the prairie stretching westward, which for some distance sustains a small, but dense, growth of aspens. When nearly two miles above the Stone Fort, we arrived at

Whirlpool Point, and immediately above this, at the Big Eddy; these are obstacles to further progress, formidable only in name, and, like most other local descriptive titles on this river, must be accepted with the mildest interpretation, and only understood to designate marked differences from the general, even flow of the waters of the river. A short distance above the Big Eddy, limestone is seen in heavy layers on the western bank, and detached fragments in great abundance protect the base of the cliff, which in no instance rises above forty feet from the water level. The east side of the river is wooded to a depth varying from a few yards to a mile, and generally this feature prevails along the eastern bank to Fort Garry; the timber is similar to that already described at the Grand Rapids, which, during the low stage of water in September, offer no formidable obstacle to freighter's boats carrying four or five tons. Four miles above Grand Rapids, Mill Creek (Park's Creek) enters the river, having cut its way through the yielding clay substratum of the prairie, to a depth of twenty-five feet, half a mile from its mouth. Here the water mill is situated. It is fed to a great extent by a large, but shallow, marshy tract, called the Big Swamp, occupying some thousands of acres.

It is to be well observed that the "Big Swamp" did not assume its present formidable dimensions until after the flood of 1852, and the construction of the mill dam at Mill Creek now effectually prevents it from drying up, and restoring many thousands of acres of admirable pasture land.

In St. Paul Parish, the main highway is situated 27½ feet above the level of the river, as it was on the 17th of September. From St. Paul the course of the river is gently winding between the high prairie banks, which generally maintain an altitude of about 30 feet. Above the mouth of the Assiniboine River, the course of the Red River is exceedingly tortuous.

Above Mill Creek (Park's Creek) there does not appear to be any rise of land sufficient to afford security against extraordinary floods, such as those of 1826 and 1852, when the waters rose above the road, or more than 30 feet above the present river level.—*Prof. Henry Youl Hind*, 1857.

The Red River is still not far below the level of its bordering prairie, and from the fixed elevation of its out-fall in Lake Winnipeg, cannot be lowering its bed appreciably, though the bordering prairie is no doubt gradually gaining somewhat in height from the sediment deposited in seasons of flood. The course of the river is exceedingly tortuous, and it is yearly becoming more so. An examination will show that all the concave sides of the bends are being eaten away by the stream, and the stumps of old half-buried oak and elm trees, being there exposed; while the opposite, or convex sides are almost invariably gaining by the addition of banks of sediment which, as soon as they are formed, are taken possession of by thickets of young willows, and consolidated by their roots. When this process has been carried to an extreme, it is naturally remedied by the breaking of the water across one of the narrow necks separating two of the bends, during some period of

excessive flood, and the formation of a new course. I do not know of any modern instance of this, but old portions of the river-channel may frequently be observed forming ponds and small lakes on the prairie, sometimes more than a mile from the present stream. These, like the parent stream, may be fringed with trees, and are generally surrounded by a dense growth of reeds, and filled with rank aquatic vegetation.

The floods of this river, arising from the melting snow in spring are intensified by its northern course; the sources being broken up and in flood, while the ice at its mouth is still quite firm. Extensive ice jams are apt to form, and a small increase in the elevation of the water above the banks, serves to overflow a great area of country. The silting up of the mouth of the river may also, as has been suggested, have something to do with the recurrence of great floods at somewhat regular intervals, and may require some natural paroxysm for its remedy.

The system of ramifying coulées with gently sloping grassy banks, but with neither brooks nor regular stream courses, when seen during the dry weather of summer, seem to require for their explanation some aqueous agency more potent than the present, and appear to resemble the disused beds of large tributary streams. To any one, however, who has examined them in early spring, and during seasons of flood, their origin is apparent. The whole thickness of the prairie alluvium is then completely saturated with moisture, and the coulées are brimful with water, holding in suspension a great quantity of fine earthy matter, and flowing with a regular, gentle and often scarcely perceptible current, toward the main stream. At their extreme ramifications, little streams may be found, gathered together almost imperceptibly from the half-flooded surface of the prairie, and directed into a certain course—perhaps by means of snow-banks, which have not yet entirely disappeared—and just engaged in cutting through the tough prairie sod in the first process of the extension of the valley.

During the post-glacial emergence of the country, every stream must at one time have flooded, as the Red River now does, into a great lake not much below its own level, and have been in the same way, more or less subject to floods and overflows. Many of the coulées now found bordering the river valleys in the higher prairies may date back to this time, and may not have since received important increment.

An examination of the beds of the rivers and streams, while probably leaving some balance in favour of a period of greater rainfall, does not appear to offer any evidence of its great intensity. Other facts seem to point to the occurrence of a period when the rainfall was greater than at present, and it would even seem that a gradual dessication is yet proceeding over great areas to the west. This does not appear, however, to be more than can be accounted for by the decreasing area of forest. It is hardly probable that the prairies as a whole have been at any time wooded, but that large areas of forest have existed where bare plains now spread, is undoubted. — *G. M. Dawson*, 1873.

CHAPTER II.

ASSINIBOINE RIVER.

The Assiniboine joins Red River in lat. 49° 53′. At the confluence of these rivers Fort Garry is situated. It rises in lat. 52° 15′ and pursues a south-easterly course for a distance of two hundred and sixty miles parallel to the basins of the Great Lakes on the east of the Riding and Duck Mountains. Within eighteen miles south of the 50th parallel it takes a sudden bend to the east, which direction is preserved until it falls into Red River, a distance of about two hundred and forty miles from the great bend. At Lane's Post (St. François Xavier), twenty-two miles from Fort Garry the Assiniboine is one hundred and twenty feet broad (28th June, 1858), with a mean sectional depth of six feet. Its greatest depth here is seven and a half feet and the rate of the current is one and a half miles an hour. Near Portage la Prairie, sixty-seven miles from Fort Garry, the speed of the current is two miles an hour and its fall as ascertained by levelling is 1·18 feet in a mile. At its junction with the Little Souris, an affluent which it receives one hundred and forty miles from its mouth, the breadth of the river is two hundred and thirty feet, its greatest depth twelve feet and its mean sectional depth 8·6, the speed of the current being one and a half miles an hour. It thus appears that this river is considerably larger one hundred and forty miles from its outlet, than twenty-two miles from the same place. Even at Fort Ellice two hundred and eighty miles from its junction with Red River, the Assiniboine is one hundred and thirty-five feet wide, 11·9 feet deep in the channel, with a mean sectional depth of eight feet, and a current flowing at the rate of one and three-quarter miles an hour; in other words this river, two hundred and eighty miles from its mouth carries a larger body of water than at a point twenty-two miles from it.

The following table shews the quantity of water which the Assiniboine carries at three different points, distant respectively in round numbers, twenty-two miles, one hundred and forty miles, and two hundred and eighty miles from its outlet by the windings of the river, valley, but not by the windings of the river itself, which will be at least double that distance:

Volume of water in the Assiniboine.

	Cubic feet per hour.	Distance from outlet at Fort Garry.
Lane's Post.....	5,702,400	22 miles.
Mouth of Souris.....	12,899,040	140 "
Opposite Fort Ellice..	9,979,200	280 "

It thus appears that the volume of water in the Assiniboine is nearly twice as large at Fort Ellice as two hundred and fifty-eight

miles lower down the river, if the foregoing table affords sufficient data on which to rest an oppinion. It is very probable that the character of the season would modify these results in different years. The measurements were not made simultaneously, and the rainfall in the neighbourhood of the Touchwood Hills and in the region about Fort Pelly was represented to be more in the extreme, than usual during the summer months. But, judging from the appearance of the river, and the statements of Indians and half-breeds familiar with the summer level at the localities where the sections were made, there is no reason to suppose that its waters were in excess of their ordinary summer level. It is therefore very probable that evaporation during a long and tortuous course through an open valley, is adequate to diminish the volume of water in the Assiniboine very much in excess of the supply which it receives from tributaries or springs during its course to Red River.

East of Portage la Prairie the Assiniboine flows through a flat, open prairie country, not sixteen feet below its general level where it is cut by the stream. The whole country rising in steps above or west of the Portage, the Assiniboine has excavated a deep, broad valley, in which it meanders with a rapid current.

At the mouth of the Souris this valley is eight hundred and eighty yards across and eighty-three feet below the general level of the prairie. At Fort Ellice the valley is one mile and thirty chains across and two hundred and forty feet below the prairie.

The Assiniboine River receives numerous and important affluents. On the eastern watershed are the Two Creeks, Pine Creek, Shell River, Birdstail River and Rapid or Little Saskatchewan River. From its western watershed it receives the White Sand River, from the Touchwood Hills, the Qu'Appelle, Beaver Creek, a small rivulet on which Fort Ellice is situated, and the Souris, from the Grand Coteau of the Missouri.

The Qu'Appelle falls into the Assiniboine about three miles above Fort Ellice. At its mouth this stream is eighty-eight feet broad, twelve teet deep in the main channel, and shows a mean sectional depth of eight feet. Its current is at the rate of one and a half miles an hour.—*Prof. Henry Youle Hind*, 1858.

Assiniboine River in the Parish of St. James.

One mile from the mouth of the river, upwards, the depth is good—from nine to twelve feet; banks of stiff clay and very steep (twenty-eight to thirty feet); bed of river stiff clay; current mild, from one to two miles per hour. Half a mile beyond Colony Creek rapids begin. There are no less than four rapids in this parish of a very serious nature. The aggregate fall of these four rapids is 13.24 feet. The whole four present the same characteristic bars of boulders and gravel running right across stream from side to side, leaving no passage for any vessel larger than a canoe.

The boulders are from two to four feet diameter, and are for the most part of a silicious nature, though a few are compact limestone. The bed they lie on is argillaceous, though a thick coating of gravel protects it from the force of the current, which in some places reaches as high as four miles per hour. Banks throughout are steep, ranging from ten feet to twenty-five high, and of a stiff clay nature. Little or no timber is to be found in the parish.

On the whole, the river through this parish may be set down as unfit in its present state for any kind of navigation. In the spring floods, however, the level rises sixteen feet. The ordinary summer level during the months of June, July and August is three feet above present level.

Parish of St. Charles.

In the length of this parish two rapids occur—very serious ones, as they totally obstruct navigation. They are similar to the rapids in St. James, with the exception of the boulders, which are in these much larger. A few stretches of deep water occur.

Current in general is mild, though in some places it increases to three miles per hour. In general the river presents a much btteer appearance than it does in St. James.

Navigation for two feet draught might be obtained throughout. Banks of stiff clay and from ten to twelve feet high. In a few places good timber of elm and cottonwood may be obtained. Average rate of inclination of river's surface in this portion is 1·34 feet per mile.

Parish of Headingly.

In this parish there are no rapids. The main obstructions are sand shoals and isolated boulders. These boulders are very dangerous, as many are covered with a foot of water. Banks are ten to twelve feet high, and composed of sand and clay in combination, clay predominating.

Some good timber may be found on both sides, consisting of elm, oak and poplar but not in large quantities. A two feet six inches or even three feet passage might be made, under good guidance, throughout this parish. Average rate of inclination of river's surface throughout this parish, 0·80 feet per mile.

Parish of St. François Xavier.

Navigation throughout the whole of this parish is impossible, sand shoals, and sand banks eighteen inches and two feet above the river's level occur in every direction. It is impossible to find a single mile of the river free from these obstructions. At every bend the convex bank shoals out gradually into the stream, having only a narrow passage of from fifty to one hundred feet on the opposite side. Occasionally a half mile stretch of deep water may be found, but this is the exception, not the rule.

The sand banks and shoals above mentioned show evident signs of constantly changing. In many places they show a sharp frac-

tured contour, as if large pieces were frequently broken off by the force of the stream.

The banks are from ten to twelve feet high, and composed of sand and clay, sand predominating.

The current is rapid, averaging two miles an hour. Good timber may be found in great abundance on both sides. A passage of eighteen inches to two feet might be found throughout this parish. Average rate of inclination of river's surface 0·70 feet per mile.

Parish of Baie St. Paul.

This parish is rather worse than the preceding one. From beginning to end the river is one continuous series of sand and gravel shoals. Any part of the river that is free from these is very much obstructed with snags and submerged boulders from one to two feet diameter. As a rule the current is mild.

Banks of clay and sand, from ten to fourteen feet high, and well wooded with elm, ash, cottonwood and soft maple. Bed of river is mainly pure sharp sand, but in all probability, underlined by a layer of clay. The deepest channel throughout may be taken at eighteen inches. Average rate of inclination of river's surface is one foot to one mile.

Parish of Poplar Point.

The river in this parish has several stretches of deep water, with gentle currents. However, many sand shoals and banks occur, leaving but little room for navigation. It is possible a channel of two feet might be found throughout. In general, the current is mild. Banks of clay and sand mixed, and from ten to twelve feet high. Bed of river, of pure sand, which by its ribbed nature, shows its constant instability. Average rate of inclination of river's surface throughout this parish, 1·18 feet in a mile.

Parish of High Bluff.

The river in this parish is totally impassable. From beginning to end it is one continuous series of shoals and shallows. Banks ten to twelve feet high, of a clayey nature and well wooded. Current alternately swift and mild; bed of river, sand. Average rate of inclination of river's surface 1·18 feet in a mile.

The River Assiniboine, in its present state, seems to be unfit for any navigation on a more extensive scale than canoeing. As a river naturally navigable at all seasons of the year, it never could exist. The grade is much too great, being, on an average, thirteen inches to a mile. This grade, on a hard gravelly bottom, with firm banks and regular channel, would only produce a rapid current of about three miles per hour, but in the Assiniboine River, its effects are of an entirely different nature.

Inasmuch as the banks are of a soft yielding nature and in many places of pure sand, the action of the water in passing down this steep grade tends continually to carry away their particles

and distribute them over the bed of the stream. Hence the formation of sand banks and shoals

According to the accounts of old settlers, the river seems, some forty or fifty years ago, to have been much narrower and deeper. The constant slips of different parts of the bank, and their present appearance, confirm these accounts. Every year in the spring floods large portions are carried off. Great slides take place, when often masses of earth many tons in weight are precipitated into mid-stream.

It must be borne in mind that the river is very seldom as low as at present (October and November). Old settlers tell me that, as a general rule, during the months of April and May the river is ten feet deeper, and that a channel of three feet may be relied on all through June, July and August. Since this is the case, steamboats such as navigate the Red River could, with light loads, navigate the Assiniboine during some months of the year with but little difficulty.—*H. B. Smith, C.E.*, 1874.

(*Since this report was written, steamboats have ascended the Assiniboine as far as Fort Pelly.*)

The valley of the Assiniboine, adjacent to that of the Shell River, is about a mile wide, and some two hundred feet deep. The alluvial flat at the bottom of the valley is three-quarters of a mile wide, and the banks rise steeply on either side. Through this level flat the river pursues a meandering course, with an occasional small rapid, caused by the obstruction of Laurentian boulders. Twenty miles farther up, the valley is nearly three miles wide, but at this place in the bottom, and following the valley longtitudinally, there are four or five series of hills rising irregularly, one above the other, till the highest reaches nearly to the level of the plain above. Between these hills there are small deep valleys. The western bank is often strewn with gravel and boulders, while the flats below are nearly free from them, excepting in places along the bed of the river. The sides of the valley are often deeply gorged, but the ravines do not extend to any great distance back from the valley. Many of them appear to have been cut out by the waters from springs. These springs usually hold a considerable quantity of iron in solution, and I observed several places where yellow ochre was being deposited around them. In several localities on the banks of the Assiniboine, extensive land slides are to be met with, sometimes showing stratified deposits of clay or sand.

The Assiniboine Valley, in the vicinity of Fort Pelly, is not sharply defined, as it is further south, by a limited breadth and steep escarpments. North-east of Fort Pelly the land gradually rises for six or eight miles to the water-shed, between the Assiniboine and the Swan River, and then descends to the latter.—*J. W. Spencer, Geological Survey*, 1874.

Within the immediate valley of the Assiniboine, and subject to summer floods, are immense marshy meadows or bushy flats, which would produce millions of tons of hay every year, with a very trifling outlay. These marshes extend from Fort Pelly to far

below the mouth of Shell River, but it is above this point where they are of the most value. Owing to the land near the river margin being often a foot or two higher than these marshes, they retain their water in many cases for months after it has fallen within the banks. Last September, I passed lakes many miles in length that could have been drained by one day's labour, and this land would produce from three to five tons of hay to the acre. The tracts not covered with water later than early in July, were covered with grass often four feet high and as thick as it could stand. No finer tract for dairy farms could be found than the Assiniboine River Valley from Fort Pelly to very near Fort Ellice.—*Prof. Macoun*, 1881.

CHAPTER III.

THE WINNIPEG RIVER.

Issuing from the Lake of the Woods through several gaps in the northern rim of the lake, the river flows through numerous tortuous and distinct channels for many miles of its course in a general north-west direction. Some of the channels unite with the main stream, from ten to fifteen miles below Rat Portage, and one pursues nearly a straight course for a distance of sixty-five miles, and joins the main stream below the Barrière Falls.

In its course of one hundred and sixty-three miles, it descends by a succession of magnificent cataracts, three hundred and forty-nine feet. Some of the falls and rapids present the wildest and most picturesque scenery, displaying every variety of tumultous cascades, and foaming rapids with treacherous eddies, whitened with foam, and huge swelling waves rising massive green and over-hidden rocks. Neither sketch nor language can portray an impression of their beauty and grandeur or the astonishing variety they present under different aspects,—in the grey dawn of morning, or rose-colored by the setting sun, or flashing in the brightness of noon-day, or silvered by the soft light of the moon.

The river frequently expands into large deep lakes, full of islands, bounded by precipitous cliffs, or rounded hills of granite. The fort in the occupation of the Hudson's Bay Company at Rat Portage is very prettily situated at one outlet of the Lake of the Woods. It is surrounded with hills about two hundred feet high, and near the fort some white and red pine are standing, amidst a vigorous second growth. The rock about Rat Portage is chlorite slate, which soon gives place to granite, so that no area capable of cultivation was seen until we arrived at Islington Mission. We did not pursue the usual canoe route, but in the hope of overtaking the other members of the expedition, followed an Indian route for some miles, which was said by our guide to be half a day's journey shorter than that by the Great Winnipeg.

At our first camp, after leaving Rat Portage, I ascended a hill about two hundred feet high, and obtained from its summit a very extensive view of the surrounding country. The broad river, with its numerous deep bays, was seen stretching far to the north, and all around dome-shaped hills, similar to the one on which I stood, showed their bare and scantily wooded summits in every direction; generally, they seemed to be thickly covered with small stunted pine, but in the hollows or valleys between them, pine and spruce of large dimensions, with fair-sized aspens and birch, flourished abundantly. The pine on the granite hill on which I stood, grew in little hollows, or in crevices of the rock. The general surface was either bare, and so smooth and polished as to make walking dangerous, or else thickly covered with cariboo moss and tripe de

roche. The aspect of the country was similar in its outline to the region about Mille Lacs, but the vegetation could not be brought into comparison with it. Until we arrived at Islington Mission, the general features of the country mantained an appearance of hopeless sterility, and inhospitable seclusion.

Islington occupies an area of what seems to be drift clay, extending over two hundred and fifty acres, surrounded by granite hills. The soil of this small oasis is very fertile, and all kinds of farm and garden crops succeed well. Wheat sown on the 20th of May was reaped on the 26th of August; in general, it requires but ninety days to mature. Potatoes have never been attacked by spring or fall frosts (five years); Indian corn ripens well; spring opens, and vegetation commences about the 10th of May; and winter sets in generally about the 1st of November. These facts are noticed in connection with the small cultivable area at Islington Mission, on account of the occurrence of other available areas, varying from fifty to three hundred acres in extent, between the Mission and Silver Falls, about eighteen miles from the mouth of the river. From Silver Falls to where the river flows into Lake Winnipeg, poor and rocky land is the exception, alluvial and fertile tracts, bearing groves of heavy aspens and other trees, prevailing.

Below James' Falls, the poles of wigwams are numerous, and many Indians were seen at the foot of the different rapids, engaged in fishing. The scarcity of animal life of all kinds was very remarkable, eagles, fish-hawks, ducks and rabbits being the only representatives seen. This scarcity is, however, confined to the autumnal months, as to the time, and to the great Winnipeg River in respect to area. Some distance from the river there are extensive rice grounds (*Zizania aquatic*) covering many thousands acres, and continuing for many miles on either bank. Here the game congregates, and revelling in the midst of such an abundant supply of nutritious food; vast flocks of ducks geese, and all kinds of aquatic birds, common in the regions, are to be found. The Indians, too, assemble at stated periods, and visit the rice grounds, procuring without any difficulty, in favourable seasons, a large supply for winter consumption.

Instead of following the course of the Great Winnipeg, after arriving at the Otter Falls, I passed down the Penawa River into Bonnet Lake, thus avoiding the dangerous "Seven Portages," and saving several miles of route. Near the entrance of the Penawa into Bonnet Lake, the little river winds through an immense marshy area covered with wild rice, and I succeeded in collecting a considerable quantity, as the Indians paddled through it with undiminished speed. There too, were seen vast numbers of different species of duck, and many other kinds of birds, such as herons, pigeons, woodpeckers, cedar birds, jays, &c.

Fort Alexander is situated within one mile and three-fourths of Lake Winnipeg, and here I saw wheat in process of being harvested on the 3rd September, and obtained some new potatoes of great size and excellent quality; and I was informed by the

gentlemen in charge of the fort that Indian corn succeeded well. The temperature of the river at its mouth was 66°5″, at 6 p.m.—*Prof. Henry Youle Hind*, 1857.

Between Islington and Lake Winnipeg, the shores of the river and the islands are, in cases, rocky, and on approaching Lake Winnipeg, the climate becomes evidently colder. The prevailing growth of timber in this long distance is poplar, but oak and elm are to be seen occasionally, and also balm of Gilead, a species of poplar which indicates a good soil.

Much of this extensive country is no doubt, well fitted for settlement; so far as we have yet explored it, in point of soil, it is not inferior to most other parts of Canada.

The Winnipeg River is of immense volume, not much inferior in size, I should say to the Ottawa.—*S. J. Dawson, C.E.*, 1857.

There is a fall of sixteen feet where the Lake of the Woods discharges by several channels into the Winnipeg River, and a portage is made of thirteen chains over a rock at the foot of which is the Hudson's Bay Company Post. The river from Rat Portage is wide, and bears more the appearance of a lake, being full of islands, but at nine miles it contracts to narrows, where the first rapid, the Dalles of three feet fall, are run.

Below these rapids the river again resumes its lake-like appearance, for eighteen miles, the second rapid of 5·50 feet, which are portaged, the canoes running over light. The Yellow Mud Falls of 22 feet is next portaged five chains, followed by a heavy pitch at its foot of seven feet, and three-quarters of a mile further down is the River Portage of ten chains, passing over a fall of eight feet. A small rapid next occurs called the Cave Rapids of four feet fall, which is run, and three miles lower down is the missionary station, Islington; about fifty acres of land is under cultivation. To this point the shores of the Winnipeg are rocky, barren, and covered only with a small growth of pine, spruce and poplar timber.

Continuing down the river from Islington, thirteen miles, is the Island Rapid, of 3 $\frac{40}{100}$ feet fall, with a short portage of three chains. The Island Rapid is sometimes run, but is considered dangerous from the heavy eddies at its foot.

To the Chute à Jacquot, a distance of twenty-one miles, the river is navigable, with a current of variable pace; the chute is thirteen feet, and the portage five chains over a bare rock. With the exception of one small rapid of one foot, the river continues a distance of several miles of unbroken water to the head of the Point of Woods Falls, which descends thirty-eight feet in one and a quarter miles, and is passed by a portage. The second portage is made from the immediate head of the fall, and is exceedingly dangerous to approach from above.

The river continues with an average width of fifteen chains for three and à half miles, when Slave Falls of nineteen and eighty hundredths feet are portaged over a distance of thirty chains.

Leaving the foot of Slave Falls, a reach of six miles brings us to the Barrier Chute of five feet, which is portaged three chains,

below which the current is very strong for a distance of six miles, where the Otter Falls of three feet are run in descending the river.

At the foot of Otter Falls, the Pinewa, a small branch of the Winnipeg, leads off to the north into Bonnet Lake. This branch is often used at high water in preference to the main river, as it is less obstructed by falls and has fewer portages; but when the water is low it is impassable for large canoes, which continue down the main river.

The Seven Portages, three miles below the mouth of the Pinewa, form the most dangerous and difficult portion of the Winnipeg River. With a fall of forty-seven and twenty-six hundredths feet in a distance of about two miles: these portages are only passed with great caution.

The river below the Seven Portages widens gradually into Bonnet Lake, which forms a navigable reach of eleven and a half miles to its discharge, where a chute of seven and thirty hundredths feet, called the First Bonnet Rapid occurs, and is portaged two chains over a rock. The Second Bonnet Rapid, of five feet fall and four chains portage next follows; and three miles further down is the Grand Bonnet of thirty-four feet fall, with a land portage of fifty-one chains. One mile lower down are the Little Bonnet Rock Rapids, with a fall of eight and a quarter feet, passed by a portage of three chains; next three miles lower down are the White Mud Falls, of thirteen feet, passed by a portage of fifteen chains. Continuing on for four and a half miles, we come to the Silver Falls (two in number), of twenty-one and a half feet fall, and avoided by a portage of twenty-three chains.

The river has now a strong current for four and a half miles to the Pine Falls, the last portage in the river, of twelve chains, with a fall of eight and thirty-five hundredths feet. Below the Pine Falls the river becomes wider, and a moderate current to Fort Alexander (five miles below the falls), where the current almost ceases; two miles below Fort Alexander the river enters the lake.

The lands upon the banks of the river gradually improves after we leave the Silver Falls, and in the neighbourhood of Fort Alexander the soil appears of excellent quality.—*W. H. E. Napier, C.E*, 1857.

TABLE shewing the heights and distances of the different breaks on the Winnipeg River; also their levels above the datum of Lake Winnipeg.

Locality.	Height.	Length.	Above Lake Winnipeg.	Remarks.
Lake of the Woods	.....	.....	357·24	Height above Lake Winnipeg; latest
Rat Portage	15·98	0·13	341·26	data show 332 feet to be the height.
current	2·00	9·28	339·26	
1st Rapide des Dalles	3·00	0·10	336·26	Run by canoes; river 2½ chains wide.
current	0·75	5·02	335·51	Through islands; occasional narrows.
do	0·25	1·00	335·26	
To Semi-discharge Rapid	1·00	12·59	334·26	
Semi-discharge	5·50	0·03	328·76	One chain wide; high rocky bank; generally portaged.
current	0·25	1·00	328·01	High rocky cliffs; river 5 chains wide.
rapid	3·00	0·03	325·01	River 5 chains wide.
current to head of Yellow Mud	0·25	0·24	324·76	do
Yellow Mud Falls	22·02	0·05	302 74	Heavy falls; portage steep; bad ap-
to small pitch at foot	.....	0·05	302·74	proach.
Demi-discharge	7·00	0·04	295·74	Very heavy pitch; run occasionally at high water.
current to Pine Portage	0·25	0·54	295·49	River 6 chains wide; high banks.
Pine Portage	8·24	0·10	287·25	River narrows to 3 chains.
current to Cave Rapid	....	0·05	287·25	
Cave Rapid	4·00	0 03	283·25	Run; river narrows to 1½ chains.
river to small rapid	. .	0·27	283·25	
small rapid	2·00	0·01	281·25	River 1 chain wide.
river to Island Portage	4·71	17·00	276·54	Varying in width from 8 to 40 chains; rocky.
Island Portage	3·40	3·00	273·14	Sometimes run, but dangerous in three channels,
river (Lake Tetû)	. . . .	3·24	273·14	60 chains wide with many islands.
current	0·75	0·08	272·39	7 chains wide.
do	3·00	11·12	269·39	From 3 to 8 chains wide; islands.
do	0·75	0·59	268·64	do do
do to head of rapid	3·00	5·32	265·64	Rapid current.
rapid	1·50	0·40	264·14	
current to head of Jacquot	0·25	0·16	263·89	
Chute à Jacquot	13·00	0·05	250·89	8 chains across the river.
small rapid	1·00	0·02	249·89	Run; heavy water.
current	0·50	0·70	249·39	
do to head of Point of Woods Falls	3·00	6·60	246·39	River 20 chs. wide; numerous islands.
1st Point of Woods Falls	10·50	0·13	235·89	do 15 do
river to head of 2nd Chute	.....	0·05	235·89	do 15 do
2nd Point of Woods Falls	19·92	0·05	215·97	do 20 do in three channels.
current to 3rd Chute	1·50	1·16	214 47	do 15 do
3rd Point of Woods Falls	7·80	0·03	206·67	do 20 do do
current	1·00	0·72	205·67	
do to Slave Falls	0·25	2·74	205·42	do 20 do
Slave Falls	19·80	0·30	185·62	Perpendicular fall; dangerous portage.
current	1·00	5·44	184·62	River 15 chains wide.
rapid	1·50	0·18	183·12	Run, at the head of Barrière Chute.
Barrière Chute	4·97	0·03	178·15	Very heavy whirlpool below the fall.
small rapids	1·00	0·24	177·15	
current	0·25	1·22	176·90	River 20 chains wide.
do	0·50	0·24	176·40	do
do to Otter Falls	1·00	4·75	175·40	do
Otter Falls	3·00	0·10	172·40	Run; this rapid very bad and danger-
current	1·50	2·42	170·90	ous.
do	0·75	2·34	170·15	
rapid	2·00	0·06	168·15	River 4 chains wide.
current to head of the Seven Portages	0·33	1·68	167·82	River banks low; 10 chains wide.

TABLE shewing the heights and distances of the different breaks on the Winnipeg River; also their levels above the datum of Lake Winnipeg—*Concluded.*

Locality.	Height.	Length.	Above Lake Winnipeg.	Remarki.
1st of the Seven Portages	10·23	0·06	157·59	These portages are all on short rocky points; the approaches are exceedingly dangerous. The fifth and seventh Cascades are sometimes run, but are very dangerous.
current to 2nd Cascade	0·13	0·05	157·46	
2nd Cascade	8·47	0·05	148·99	
current to 3rd Cascade	0·16	0·10	148·83	
3rd Cascade	5·60	0·08	143·23	
current to 4th Cascade	0·25	0·40	142·98	
4th Cascade	7·68	0·03	135·30	
current to 5th Cascade	0·75	0·48	134·55	
5th Cascade	2·90	0·04	131·65	
current to 6th Cascade	0·30	0·05	131·35	
6th Cascade	8·13	0·05	123·22	
current to 7th Cascade	1·50	0·60	121·72	
7th Cascade	4·75	0·06	116·97	
current to Bonnet Lake	3·50	10·44	113·47	
Bonnet Lake	.....	6·09	113·47	Land improves; clay soil; poplar and birch.
current at outlet of lake	1·00	0·07	112·47	River 3 chains wide; rocky.
1st Bonnet Rapid	7·31	0·01	105·16	Short rocky fall.
current to 2nd rapid	0·16	0·74	105·00	
2nd Bonnet Rapid	5·00	0·04	100·00	
current to head of Big Bonnet Falls Bonnet	2·00	3·51	98·00	River 8 to 10 chains wide.
Big Bonnet Falls	34·23	0·51	63·77	Fine level portage.
current	1·00	0·72	62·77	
Little Bonnet Falls	8·25	0·06	54·52	
current to head of White Mud Falls	1·00	2·02	53·52	River 30 chains wide.
White Mud Falls	13·05	0·15	40·47	do
current to Silver Falls	0·75	2·68	39·72	
1st Cascade (Silver Falls)	6·06	0·07	33·66	
current to 2nd falls	.....	0·05	33·66	
2nd Cascade (Silver Falls)	15·56	0·13	18·10	
current	1·50	3·18	16·60	River 15 chains wide.
rapid	2·00	0·06	14·60	do 10 do
current	0·75	0·68	13·85	
rapid	3·00	0·07	10·85	do 9 do
current to Pine Falls	0·25	0·68	10·60	
Pine Falls	8·35	0·12	2·25	do 15 do
current	0·50	1·34	1·75	
Manitou Rapid	1·00	0·02	0·75	
current to dead water, Lake Winnipeg	0·75	4·28	0·00	do 8 do

W. H. NAPIER, C.E., 1857.

MEMO.—The latest data show that the level of the Lake of the Woods is only 332 feet above that of Lake Winnipeg, instead of 357·24, as shown by Mr. Napier.

Mr. Napier's figures regarding the various falls and portages are from actual measurements, the drop in the current between these places are only approximate; he, therefore, appears to have over estimated the drop in the aggregate by 25·24 feet.

The length of the river is approximately 163 miles.

At Rat Portage I secured a half-breed who was acquainted with the canoe route. This I found a great advantage, as the river formed a series of expansions and contractions; bays extending in places for two or three miles, islands and channels in all directions, making it difficult for anyone unacquainted with the river to find the right channel.

On the evening of the second day after we had started we reached the 3rd correction line, which here intersects the river, and tied on our survey to the post at the north-east corner of section 31, township 10, range 22, east of the principal meridian, adopting this as the initial point from which to compute our latitude and longitude throughout the survey. The surface of the country along the banks of the river thus far was composed of a series of undulations, with occasionally an abrupt face of rock—the rock cropping out nearly the whole distance. Timber, mostly pine and poplar, extended as far as observation could be made, in some places of fair size and pretty good quality, indicating a quantity of surface soil, and then scrubby and small, indicating the absence of soil. Many pines were seen standing on the bare rock. The soil, although generally light and sandy, in some localities was found to be a clayey loam, chiefly in those parts where poplar timber predominated. It was usually found, upon examination, that where poplar grew to a good size and was thrifty in appearance the surface was covered with a quantity of fertile soil, either sandy or clayey loam. In many places where the timber changes from poplar to pine the division is distinctly marked, sometimes in a straight line extending for some distance and coursed by a rocky elevation, upon which the pine is found. I did not see any extended tracts where good soil might be expected until I reached the settlement called Islington, forty-three miles down the river from Rat Portage Here we found a village or settlement containing two stores, a church and school house. Some of the settlers had resided at the place for over thirty years. Here grain and root crops of all varieties commonly met with were seen growing, and presented a thrifty appearance. The settlers say they never knew of wheat having been destroyed by frost, that they generally expected to thresh about fourteen bushels for each bushel of seed sown, and that other varieties of grain yielded about the same proportion. Potatoes and other roots do not yield as many bushels per acre as they do in Manitoba, yet they consider that the labour expended in their cultivation is well repaid by the crop realized. The village is situated at the south-west corner of the reserve assigned to about 400 Indians, under chief David Sand. From Islington the Winnipeg River bears nearly west for twelve miles in a large expansion. It is there joined by the English River, which point was reached on the 4th July. We proceeded up the English River, a stream which, in size and appearance, differs very little from the Winnipeg, judging by the volume of water passing over a fall six miles up the stream The water of this stream also expands into numerous lakes, some of which are several miles in width, and during windy weather are very difficult of navigation with canoes, such as we used, when loaded down with supplies and camp equipage. The timber seen along the shores is mostly poplar and pine, although spruce, birch, oak and ash are to be found in some localities. Poplar trees in many places exceed 12 inches in diameter, and are tall and straight, while the pine is chiefly knotty pitch pine, covered with branches

nearly to the ground. Near the east end of One Man Lake, Station 125, the granite rock is overlaid with a dark grey gneiss, having almost vertical planes of cleavage, which bear nearly east and west. The disintegration of this rock, together with the vegetable mould, forms a dark clay loam, which, where formed, is covered with a dense growth of trees, scrub, flowers and plants of various kinds. Wild pea vines, 6 feet in height, were seen growing on some of the portages.

Frequently, where the shores of the stream or lakes present a barren appearance, on entering the woods a thicket of brush is met with through which it is difficult to force one's way.

From this I would infer that the country is not so bad as its appearance might lead one to suppose, but that, while a large percentage would not be suitable for agricultural purposes, yet if the country in the future should become inhabited, on account of its minerals or from other cause, good land suitable for farming purposes could be obtained, and I believe all kinds of grain and vegetables could be grown successfully.

We found strawberries ripe, raspberries ripening and huckleberries turning colour on the 12th of July, which is not much later than these mature in many parts of Ontario. Since I left Winnipeg, on the 18th of June, there has been no indication of frost. Up to date the temperature has been uniform to a surprising degree, ranging from 50 to 80 degrees Fah., with several showers, yet very little rain on the whole.—*Thos. Fawcett*, D.T.S., 1885.

CHAPTER IV.

FAIRFORD RIVER.*

A few hundred feet above the mouth of the river, horizontal lower silurian limestone shows itself on both sides, and it is through this rock that the Little Saskatchewan River* has excavated its bed. The limestone contains fossils is abundance, but in a very bad state of preservation in many of the layers. They are similar to those found on Lake Winnipeg at Cave Point (this point is a few miles north of Bull's Head), and in its lithological aspect there is no appreciable difference between the exposures in either locality. The Little Saskatchewan, as its name implies has a very rapid current, varying from one to four miles an hour. The banks are not more than twenty to twenty-five feet above its level near the mouth, and diminish in alititude in ascending the stream. They are fringed with aspen, poplar, spruce and tamarac. In the rear, swamps occur, often covered with deep moss, and sustaining clumps of tamarac and spruce of fair dimensions, but scarcely suitable for any other purposes than those which limited settlement might occasion.

The river proving too rapid for using the oars, we were compelled to track up, a difficult and tedious labour to the men, but offering an excellent opportunity for making traverses into the country, which, however, never extended any great distance, the swamps soon arresting progress inland. The general aspect of the river for the first four miles, is very attractive, resembling in many particulars Rainy River. About three miles from the lake the limestone disappears, being covered with drift or alluvial clay. The banks rise gently with the stream, which is rapid and shallow. The yellow autumnal foliage of the aspens contrasts beautifully at this season of the year with the spruce and tamarac, and gives a charming appearance to the river banks. Towards evening we arrived at a camp of Ojibways, containing four tents. They had an abundance of white fish, and told me that the river was full of them. Anxious to test the statement I intimated a wish to purchase a score of fresh fish, and offered an Indian some tea and tobacco if he would catch them immediately. He accepted the offer, entered his canoe, crossed over to a well known eddy, and in fifteen minutes brought back twenty white fish, weighing on an average three pounds each.

The banks of the river are here about twenty feet above the present level of the river, but the country is very marshy, and clothed

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*This description includes the river which is known as the Fairford River, Partridge Crop River, St. Martin's River } from L. Manitoba to St. Martin's Lake and also the section of the same river from Lake St. Martin's to Lake Winnipeg, which is generally known as the Little Saskatchewan, and which is also known as the Dauphin River.

with tamarac and spruce behind the belt of aspens which fringe the river banks. The banks of the river are not more than ten feet above the present level about nine miles from its mouth but are rarely flooded. They consist of alluvial clay, and sustain many groves of fine spruce and aspen. At some of the bends there is a large accumulation of boulders consisting chiefly of unfossiliferous rocks.

About five miles from St. Martin's Lake a marsh begins. Here some Indians were anxious to show me some specimens of "money" they had carefully folded in bits of cloth or birch bark. The "money," respecting which they have no distinct idea except that it is "white," according to information they have obtained from half-breeds, consisted of fragments of selenite, iron pyrites, and silver mica. They profess to know where a large quantity of this "money" is to be found, and demand tea and tobacco for the intelligence.

The Indians say there is some fine land and large trees in the rear of this part of the river. The river from our camp (about thirteen miles in an air line from Lake Winnipeg) has marshy banks.

We found great difficulty in discovering the mouth of Partridge Crop River of St. Martin's River as it is also called. A maze of rushes inland, extending as far as the eye can see, hides it from view. Half a mile up the stream we saw the houses of the Mission. The country is very low, and liable to be flooded in the spring and autumn. There are but a few hundred acres of land fit for agricultural purposes four or five feet above the level of the river.

We passed through a narrow passage, between beds of rushes, which covered many square miles, and constitute the "crop" so named by Indians on account of the resemblance which the outline of the reedy expanse bears to the "crop" of a partridge. We threaded our way through the mazes of a marsh supporting rushes, so tall that, without climbing the mast of the boat, it was impossible to see beyond the masses which surrounded us. The rushes measured from ten to twelve feet in length, and grew so thickly together that they formed a compact green wall, past which the current flowed as if they were formed of solid, stable materials. Through little openings, which were now and again disclosed, we saw tranquil ponds, with a scarcely perceptible current.

We arrived at Fairford at three o'clock in the afternoon, having occupied about two hours in passing through the "crop."

Fairford is very prettily situated, on the banks of the Partridge Crop River, about two miles from Lake Manitoba. The banks are here about twenty feet high, and show alluvial clay, with boulders; but the limestone approaches the surface a short distance in rear of the river. It is covered with eight or ten inches of vegetable mould; and although the appearance of the country is attractive, the shallowness of the soil would not permit of extensive agricultural operations. The dip of the rock is towards the south-west, but at so small an angle as to be imperceptible, except when a surface of several square yards is exposed.

Fossils are few in number, and obscure; the limestone breaks up into thin slabs, being very compact and hard.

The appearance of the Fairford Mission is very promising, and in every way most creditable. The farm is in capital order, and although the area adapted for cultivation is not likely to induce the establishment of a large settlement, yet Fairford will become an important centre.—*Prof. Henry Youle Hind*, 1858.

The country in the vicinity of the Little Saskatchewan River presents every inducement for settlement, as is proved by the flourishing state of the present settlement at Fairford, or, as it is more generally called, "Partridge Crop."—*A. W. Wells, C.E.*, 1858.

The waters of Lakes Manitoba and Winnipegosis flow north-easterly to Lake Winnipeg, through Partridge Crop River, into St. Martin's Lake, thence through the Little Saskatchewan to Lake Winnipeg, a total distance of 68 miles, with about 41* feet fall.

Partridge Crop River is nine miles in length, flowing through a channel 500 feet wide, constantly broken by rapids and obstructed by boulders, the depth being only 2 feet 6 inches on the crest of the rapids.

As these soundings were taken when the water was high, according to the best information obtainable, about ten inches may be deducted for low water. Near the bend of the river it widens out to 1,300 feet, and here the depth is only 3 feet for a distance of 1,300 feet, with a gravelly bed covered by boulders.

Through St. Martin's Lake a channel was found with 8 feet of water, bottom muddy, with weeds. At the Narrows it shoals to 4 feet, and afterwards passes over a mud bar with only 2 feet 6 inches water; Shoal Bay is entered near the mouth of the Little Saskatchewan; there is no regular channel; the bottom is of fine clay, covered with boulders, making navigation very dangerous. The total length of this lake on navigable route is 21 miles.

The average breadth of the Little Saskatchewan River is 260 feet, with a depth of from 3 to 4 feet; it flows in a northerly direction at a rate of from one to seven miles an hour; the banks are low and marshy on the northern branch, while on the eastern branch they are from six to twenty feet high. There are thirty rapids on this stream, and the bottom, composed of coarse gravel, is covered with very large boulders. In some of the rapids the greatest depth is not more than two feet, and the current from seven to eight miles an hour. Timber is poor in this section. Juniper and tamarac, from eight to fifteen inches through, may be found.

Before entering Partridge River, Lake Manitoba is very shallow—for a distance of a mile not more than three feet can be obtained.—*Henry B. Smith, C.E.*, 1873.

The Little Saskatchewan River, from Lake St. Martin to Lake Winnipeg, is for much of the way a swift stream 250 feet

*This is evidently a clerical error in Mr. Smith's report: the fall is about 85 feet.

wide, and with a depth, varying according to the seasons, from one to five or six feet. It has a total length of 31·2 miles, and a fall in this distance of eighty-five feet, the larger part of which is accumulated into the lowest seven miles of its course.

Following the river upwards from its mouth for 1·1 mile, the banks are generally low, and consist of stratified alluvial clay, without pebbles or boulders. The water is moderately deep, and flows with an easy current. At this point, however, a light brown calcareous sandstone makes its appearance at the bottom of the bank. This sandstone is in general horizontally bedded, though sometimes slightly undulating, and a few obscure fossils found in it show it to be of the age of the Hudson River formation. It is exposed in low outcrops along the banks for 1·75 mile, when it finally disappears. Throughout the distance it is overlain by stratified blue clay, five or six feet in thickness.

Above the last outcrop of bedded rock the banks rise rapidly to a height of twenty feet above the bed of the stream, and are here seen to be composed of light grey unstratified boulder or clay till, containing pebbles and boulders, chiefly of white limestone, though some are of gneiss; above which the banks again fall, relatively to the stream, till at the distance of 7·5 miles from the mouth they are only four feet above the water. At this latter point there is another low exposure of rock, consisting of a soft, light, buff-coloured, semi-crystalline, horizontally stratified dolomitic limestone, in which are very few traces of organic remains.

The river between the highest and lowest rock exposures here mentioned is one succession of heavy rapids, the bed of the stream being covered with gravel and boulders. Very few of these latter are of any great size, and it is rather their number than their magnitude that gives rise to the rapids. The channel is very clearly defined; there is no valley other than the channel itself, and there is no bottom-land, though an occasional slide from some of the higher banks has sometimes the appearance of a kind of grassy terrace. The banks were once very generally timbered with poplar and spruce, but much of this has lately been burnt, and there is now little else to be seen but a succession of dead tree-trunks.

This long rapid is, as will be seen, a very serious obstruction to the general navigation of the river, but, on the other hand, it will furnish a water-power that will be of the greatest value to Northern Manitoba in years to come. Above this rapid, which, on account of our heavy load, cost us two days of incessant labour to surmount, the river up to the Elbow, a distance of 8·36 miles, is, on the whole, remarkably beautiful. It consists of stretches a mile or more in length of quiet water, severed by six short though often swift rapids or shoals, where considerable care must be exercised in navigating the boat, though it was rarely necessary to lighten it. The grassy banks, not more than two or three feet in height, descend in a graceful curve to the edge of the water or break down in little scarps covered with sliding clay and pebbles. Often park-like woods of aspen poplar fill in the centre of the

picture, and it is only now and then that occasional glimpses can be had of the coniferous forest in the distance.

Above the Elbow to Lake St. Martin, the river has a length of 15·28 miles, in which distance there are three short rapids, and three other short stretches of river where the current is very swift. For the rest it is generally wide and sluggish, with low, flat meadow banks, evidently often flooded, stretching back to a forest of poplar and spruce.

The Fairford River flows from Lake Manitoba into Lake St. Martin, expanding in the middle of its course into a shallow, marshy lake, known as Partridge Crop Lake. The river has a total length of ten miles, and a total fall in this distance of about fifteen feet. Most of this fall occurs in two rapids, one a short distance below Partridge Crop Lake and the other (a mile and a third in length) between the Fairford Mission and Lake Manitoba. This latter is caused by a bed of compact white limestone which crosses the river at the head of this rapid, while most of the other rapids, both in this and the Little Saskatchewan River, owe their origin to banks of hard boulder clay and the great numbers of boulders that fall from them and dam back the water.

The total distance by water from Lake Winnipeg to Lake Manitoba is sixty three miles and three-quarters, and the time occupied in the journey was a little more than five days.—*J. B. Tyrrell, Geological Survey*, 1889.

CHAPTER V.

WATER-HEN RIVER.

We entered one of the many mouths, and pulled up a broad channel through a vast marsh, whose limits are well defined by a belt of aspens on either hand. Having reached an attractivs camping place, we landed to make a short traverse of the country. The river is swift, very broad, and prettily varied with well-wooded islands. At our camp the trees consisted of white spruce, 1 foot 6 inches in diameter; poplar, aspen, birch and tamarac. The land is low, not 10 feet above the water. In the rear we found a tamarac swamp, with belts of white spruce. The channel through which our course lay was about 300 feet broad and 3 feet deep, with a flat limestone bottom. The water was clear and brilliant, fish very numerous and water fowl abundant. The river appears to contain many low islands here, and its aggregate breadth must be several hundred yards near our camp. From here to the Great Bend, islands, low and reedy, continue to appear as we proceed. From Water-hen Lake to Lake Winnipegosis the river is broad, shallow and reedy, a low belt of aspens a mile off, on either side, shows the only land visible.—*Prof. Henry Youle Hind*, 1858.

The total distance by this river between Lakes Winnipegosis and Manitoba is 30 miles, and the difference of level is $18\frac{73}{100}$. feet.

After traversing a long reach of Lake Winnipegosis, the Water-Hen River is entered, flowing in a north-easterly direction between low marshy banks, with a current of 3 miles an hour over a muddy bottom, its average width is from 500 to 600 feet, and a depth of 5 to 6 feet; the difference of level in this section known as the "North Branch" is about 6 feet.

Water-hen Lake is now reached, a very shallow sheet of water, filled with boulders lying on a stiff clay bottom, and so close together that no channel can be found; the average depth in July, 1872, was only 3 feet, but Hudson Bay Company's servants state thas in 1871 the depth did not exceed 2 feet, and that they have known it as low as 1 foot 6 inches.

Leaving Water-hen Lake the river flows at an average rate of from 3 to 4 miles an hour in a southerly direction to the "Forks." The depth varies from 3 to 17 feet, and the channel is in many places obstructed by large boulders, so as to seriously interfere with navigation.—*Henry B. Smith, C. E.*, 1872.

The river connects Lakes Manitoba and Winnipegosis, and is rather peculiar in character. It is divided into two sections—the upper one flowing north-easterly in Water-hen Lake, when it at once turns southerly and flows into Lake Manitoba. The upper reach of the river flows between two marshy banks, and has various channels separated by reedy marshes. From the timber line on either side the distance across is often half a mile, channels are so numerous and so intricate that it is difficult to select the right one.

The lower reach is altogether different in character, and, with the exception of one rapid of no great length, it is easily ascended. No difficulty would be experienced in ascending the river, if the boulders were removed from the rapids mentioned. The total length of the river is about 30 miles, and in this distance we only used the line about 1 mile. For the whole distance the fall is only 18 feet, and yet there is a perceptible current all the way, except at "The Turn," which is at Water-Hen Lake. Average breadth of river about 150 yards, and depth of water very great, as it was flooded when we passed up.

Along the lower part of the river the country is somewhat elevated, but the timber, as far as seen, is not large. Spruce was seen on the west side of the river, but its extent was not learned.

At "The Turn" is a large settlement of Indians, which seems to be well located as regards food, because here white-fish can be caught in quantities every day in the year.

A permanent rise of the water had taken place in the river the preceding summer, and when I was there it was still increasing so that all the low land was then under water, and I could with difficulty walk through the woods near the marshes bordering the river. This proved that some course, other than the blocking up of Fairford River, caused the overflow around Lake Manitoba.

Salt springs occur on the river, about three miles from Lake Winnipegosis.—*Prof. Macoun, Exploratory Survey of* 1881.

CHAPTER VI.

BEREN'S RIVER.

From the mouth of the river to the first portage, a distance of eleven and a half miles, the country is made up of many low, hummocky, gneiss hills, which seldom rise twenty feet above the water, and are partially covered with a heavy clay soil. In the valleys and along the river banks the soil is deeper, the Hudson Bay Company, and the Indians on the reserve grow good crops of potatoes and other roots. Little or no grain is raised, and the locality seems unfavourable for such crops. The tree growth is small and poor, consisting of black spruce, aspen-poplar, tamarac, white birch, banksian pine, and balsam. None of these attain a diameter of eighteen inches, and branching near the ground, are mostly covered with knots, thus being of little value for the manufacture of lumber. The river flows between rocky banks from ten to twenty feet high, alternating with low swampy ground. The current is sluggish, the water deep and of a dark brown colour, although comparatively free from suspended matter.

From the first portage to Family Lake, the river's course is broken by a great number of small chutes, varying from two to forty feet in height, and all have to be passed by short portages; between the chutes there is little or no current in the river, and it somewhat resembles the locks and stretches of a canal.

There are considerable areas of good land along the shores of Family Lake, although they are often very rocky. The trees are somewhat larger than those along the river, and at the Hudson's Bay Company's post good crops of potatoes are grown.

The total length of our measured line from Lake Winnipeg to the inlet of Beren's River into Family Lake is one hundred and two miles. The greater part of the timber has been destroyed by fire. One mile up the river from Family Lake, there is a fall and rapid of thirty-five feet; above this the river is deep and rapid for one mile, when it widens into Back or Fishing Lake. This lake is nine miles from north to south, and from two to four miles wide, with a large number of islands along the eastern side. A large stream, called the Mattawa River, which rises in the neighbourhood of Cat Lake, enters on the east side. From here to Black Birch Lake the country—with the exception of some patches of bog, is rocky, with very little soil. The trees do not exceed eight inches in diameter and are chiefly banksian pine, black spruce, and tamarac, with some birch and poplar.—*A. P. Low, Geological Survey*, 1886.

CHAPTER VII.

SOURIS RIVER.

The Souris or Mouse River joins the Assiniboine one hundred and forty miles from Fort Garry, by the windings of the river valley, and one hundred and sixteen by the trail. At its mouth the Souris is one hundred and twenty-one feet broad, three feet six inches deep in the channel, with a mean sectional depth of two feet four inches, and a current of half a mile an hour. Its valley at the Back Fat Creek, twenty-five miles from the Assiniboine, is one and a half miles broad, and two hundred and twenty-five feet deep, with a level prairie on either hand. Near Snake Hill, sixty-one miles from the outlet, the valley is only one hundred and ten yards broad, and sixty-six feet deep, with open prairie on both sides. The river here is one hundred feet wide and fovr feet deep in the channel. At this spot, several beaches of a former lake were exposed in making a cutting in the bank, with a view to ascertain the nature and extent of the deposits of Tertiary coal or Lignite, which the occurrence of numerous waterworn masses of that material in the bed of the river and on its banks appeared to indicate. In its passage through the Blue Hills (the Brandon Hills), the river has excavated a ravine or valley between four and five hundred feet deep, making a sudden turn from a due easterly course to one almost northerly, and avoiding what appears to be an ancient channel, but slightly elevated above its present level. The old channel pursues a straight course to the Pembina River, with which it is connected.

Near the Hudson Bay Company's house found extensive deposits of bog iron ore, capped by shell marl, covered with drifted sand. The country becomes very low after passing the last sand hill. The valley of the Souris here varies from one-quarter to one mile in breadth. The river is twenty-five feet broad and very shallow, flowing through a rich open meadow, twenty to twenty-five feet below the general level of the prairie.

(The Hudson's Bay Company's house, referred to by Prof. Hind, was a wintering post, situated at or about township 6, range 23, west of the principal meridian.)

Along the Souris, especially in the neighbourhood of the Blue Hills, the country is fertile and beautiful, but the areas adapted for settlement lose much of their value which would otherwise belong to them from the absence of wood.—*Prof. Henry Youle Hind*, 1858.

Everywhere in the valley of the Souris a magnificent crop of wild hops may be obtained, of larger size and better quality than is generally procured from hop gardens in the Province of Ontario.—*W. Pearce*, 1879.

CHAPTER VIII.

SHOAL RIVER.

Shoal River, the discharge of Swan Lake, enters Dawson Bay at the northern extremity, and this season discharges an immense volume of water into the lake. As its name implies, it it not usually very deep, and owing to multitudes of boulders in its bed it is difficult to ascend in low water. The current is quite strong all the way up to Swan Lake, a distance of about six miles; general breadth of stream about two hundred feet, with well defined banks, yet no place rising more than five feet above the water. Frequent examinations of the land on both sides of the river showed good soil everywhere, and comparatively dry ground.

For the greater part of the distance fine groves of young poplars grow on either side, tall and straight, with occasional clumps of spruce, tamarac and balsam between. Thickets of hazel, cherry and June cornis were so thick as to be almost impassable in places, while in others diervilla, honeysuckles and raspberries blocked the way. Vegetation was very rank, and everything betokens rapid and continuous growth.

In ascending the river I saw two tracts where brine springs were flowing, but no attempt has been made to manufacture salt here.—*Prof. Macoun*, 1881.

Shoal River discharges Swan Lake into Lake Winnipegosis. The Hudson's Bay Company's post, Shoal River House, is situated at the outlet of Swan Lake. Shoal River is only from two to four feet deep, and has a width of from one hundred and fifty to two hundred and fifty feet. The banks are low on both sides. The current is of considerable velocity, the fall being about thirty feet in the course of eight miles. It empties itself into the south extremity of Dawson's Bay.—*J. W. Spencer, Geological Survey*, 1874.

This river is the only outlet of Swan Lake into Lake Winnipegosis, and is well named, being very shallow and full of rapids.

It is a little over nine miles long, and from 3 to 5 chains wide, averaging generally 4 chains. It is much influenced by the winds prevailing on the lakes; if the wind is north, the current is much less rapid, and the water deeper the nearer we come to Dawson Bay; if the wind be south the contrary is the case.

The woods on each side are thick and consist chiefly of poplar. —*J. I. Dufresne*, D.T.S., 1887.

CHAPTER IX.

SWAN RIVER.

From the Swan River Crossing (where we started to descend the river) the distance to Swan Lake, by stream, is 130 miles, although by the trail it is only about half as great. In descending the river I noted no less than 446 rapids. These are generally caused by the descent of the water over Laurentian boulders, but sometimes over the country rock. The whole descent of the river, from a point abreast of Thunder Hill, was estimated at from 450 to 500 feet, and Thunder Hill rises 300 to 350 feet over this point. The average width of the river is about 100 feet, but sometimes it becomes very much wider, enclosing picturesque islands, while in other places it is quite narrow, but deep. The river for the last thirty miles before reaching Swan Lake is free from rapids and is navigable for boats drawing two feet of water. In the spring of the year the Hudson's Bay Company send down some of the returns of their inland trade in flat boats, but of course these cannot return. Swan River enters the lake of the same name through a swampy projection of land extending several miles into the lake. Indeed, all the country for some distance west of the lake is low, but is generally wooded.

Sander's River is a branch of Swan River, flowing from the south, and emptying itself into the latter about fifty miles from its mouth. The country through which it passes is similar to the Swan River Valley. One day was devoted to the exploration of this branch, and eight or ten miles of its course was examined. Pieces of lignite were found in the bed of the stream, and afterwards along Swan River, below its influx. After I arrived at Shoal River House, I was informed by a half-breed that the lignite (called by him coal) was found in beds from a few inches to two feet in thickness on Sander's River, a few miles above the point I had reached.—*J. W. Spencer, Geological Survey*, 1874.

Ascending from Swan Lake for two miles or so the banks of Swan River are rather low. In the succeeding ten miles they gradually become higher, until they attain the height of nearly one hundred feet above the level of the river. The current is here remarkably swift, and the channel much embarrassed by round boulders of granite mixed with fragments of limestone, which latter is the rock proper of the country, although it does not crop out so far as we could see on any part of Swan River. Land slips occur in many places where the banks are high, exposing an alluvial soil of great depth resting on drift clay or shale, of a slightly bituminous appearance.—*S. J. Dawson*, 1858.

Swan River is a very rapid stream, the descent from the Crossing to Swan Lake amounting to about five hundred feet, and its bed is so encumbered with boulders as to render its navigation difficult at all times.—*Dr. Bell, Geological Survey*, 1874.

CHAPTER X.

MOSSY RIVER.

The Mossy River is a fine stream of 40 yards broad, and having five feet of water in the shallowest places. Its banks are of a strong grey clay, covered with black mould, and timbered with oak, elm and poplar. There are several places along the river where the Indians grow potatoes, Indian corn and melons. The wild grape, wild hop and wild vetch, are also common on the banks of the river.—*A. W. Wells, Assistant to S. J. Dawson, C.E.*, 1858.

At Mossy River (6th October) we found four feet of water on the bar, and nine feet at its mouth. A low exposure of limestone occurs near the entrance, and another one mile and a half up the stream. The dip is very irregular. The fossils are few in number and obscure.

The first rapids on Mossy River have a fall of two feet, and consist of an accumulation of boulders resting on rock. The second rapids are formed by similar obstructions. The river is here 120 feet broad, and very shallow. The bank, ten feet above the water, sustains fine aspens, with a very thick undergrowth. The soil is clay, and evidently fertile near the river, but in the rear the country passes into muskeg. Ascending the river the bank continues from ten to fifteen feet high, and sustains some very fine aspens, twelve to fifteen inches through, with a growth of young trees springing up in the place of a former fine aspen forest, of which the large trees are the remains. The river continues very shallow and contains many boulders of the unfossiliferous rocks. There is a large area of good land on the west side near to Lake Dauphin.—*Prof. Henry Youle Hind*, 1858.

CHAPTER XI.

THE ROSEAU RIVER.

The Roseau River, after keeping a westerly course south of the boundary, finally crosses at a point thirty-three miles east of Red River, and flowing for the rest of its course through Manitoba, enters Red River thirteen miles north of the line (the international boundary). This stream is used by lumbermen in floating out logs from the pineries near Lake Roseau. It is interrupted at one point by rocky rapids, but, with that exception, is a clear flowing stream. Its average fall is not less than two feet to the mile, from which it is quite evident that it can never be made navigable excepting above the rapids. It is quite probable that, by cutting down the rapids a few feet, the river might be made to drain, much more thoroughly than it does now, the vast region of swamps through which it takes its course. The first effect of cutting down the barrier would be to increase the current, which would again establish nearly the present regimen, but at a lower level. Lateral channels would then rapidly form through the soft material of the marshes, and a general system of natural drainage would establish itself, which would ultimately render available for settlement many hundreds of square miles now covered by bogs. The greatest depth found in the Roseau Swamp was about fourteen feet, at which a sounding pole would strike a hard clay pan. The river flows through the swamp, at the same level, for many miles. We may say, then, that a gradual wearing-out of the river channel to the depth of ten feet would effect the drainage of the greater part of this immense swamp. This is the process which is now actually going on, and which will be completed, like all the operations of nature, slowly but none the less surely.—*Capt. Twining, International Boundary Commission*, 1873.

PART IV.

DESCRIPTIONS OF COUNTIES AND TOWNSHIPS.

CHAPTER I.

COUNTY OF MANCHESTER.

West of the Lake of the Woods, is an extensive wooded, and very generally swampy region, which extends to the eastern edge of the alluvial prairie of Red River, where crossed by the road from the North-west Angle of Winnipeg, the wooded region is about sixty miles in breadth; on the forty-ninth parallel, about seventy-five miles.

An examination of the southern part of the region lying west of the lake, was made by crossing it by the Reed and Roseau Rivers; the former, a small stream flowing into the Lake of the Woods, the latter, inoscolating with it in the watershed swamp, is one of the largest tributaries of the Red River. The route thus indicated, in the main nearly follows the Boundary-line, though a considerable portion of the Roseau River, and the whole of Roseau Lake, lie a short distance south of it, and in the northern part of Minnesota. The crossing was effected in latter part of August, 1873.

On entering the mouth of Reed River, a sand bar is crossed, the water on which is, apparently, not more than four or five feet deep. The lower portion of the river itself, for about four miles, is both wide and deep, and not very tortuous. Near the mouth, it passes through a grassy swamp, and for some miles the shores continue swampy, though generally covered by bushes and small trees. Beyond this the river, though still deep, becomes narrow and tortuous, and retains this character throughout its upper part, which for several miles before reaching the source is often not more than sixteen feet in width. At the same time, the current becomes much stronger, thougth not assuming anything of the character of a rapid. For about two and a half miles from the beginning of the narrow portion of the river, in a general south-westerly course, the banks rise several feet above the water, and support a moderately good growth of aspen and balsam poplar, with some oaks, and a few tamaracks. Most of this higher ground has, however, been burned over years ago, and the greater part of the timber thus destroyed. The soil is rather retentive, being composed of a fine, grey, sandy clay. Beyond this, and to its source, the stream is fringed with grassy swamps, bordered at a short distance by a dense growth of tamarac, scarcely, if at all above the level of the water. The current, however, is still strong, and the stream, though very narrow and tortuous, remains ditch-like and deep.

On approaching the east end of the Portage the tamarac first retreats further from the stream, and the latter remains merely as a narrow rut among the reeds. The bottom of the swamp, though here covered by a few inches of water and decayed vegetable matter, is hard, and firm, and consists of fine whitish arenaceous clay, of such a nature as to be almost completely impermitable to water. It here becomes necessary to track the canoe with ropes, and for a few hundred yards the swamp was found so shallow that it was best to lighten the canoe, and portage the stuff by hand. On thus entering the Muskeg Portage Swamp, the tamarack trees become small and scattered, and soon remain only in small isolated groves, standing out like islands in the grassy expanse. After passing the shallow edge of the swamp thus described, which may be about half a mile in width, it becomes softer and deeper, and is entirely composed of peaty matter and soft swamp muck, in which in some places one sinks from knee to waist deep, and often no firm bottom exists for a depth of five or six feet, and probably much more. In some spots, small fishes were seen among the grass. In the softer parts, gas arising from the decomposing vegetable matter, buoys up portions of the sod, which, however, easily sink under any weight.

The surface of the swamp is usually grassy, but some extensive patches of *Spiræa* bushes occur. *Ledum latifolium* or Labrador tea, *Sarracenia purpurea*, the pitcher plant, and *Andromeda polifolia*, also occur abundantly; *Lobelia Kalimi*, *Parnassia Caroliniana*, and *Drosera longifolia* were found in flower.

The source of the North-East Roseau River, is six and three-quarter miles from that of the Reed River, in a south-westerly direction; but the track through the muskeg deviates considerably in some places to avoid tamarac groves, &c., and increases the actual distance which must be passed over in taking a canoe from one river to the other. On approaching the source of the Roseau River, the swamp again becomes shallow and hard-bottomed. The stream, as at first found, is a runnel scarcely wide enough for a canoe, but falling westward with a swift current. The height of land muskeg, judging from the line of levelling on the 49th parallel—about six miles south—and from the current of Reed River, cannot be more than ten or twelve feet above the Lake of the Woods. It has all the appearance of having been at one time a shallow lake-basin, with a hard bottom of drift material; and has been gradually filled by the growth and decay of vegetable matter.

I believe that this and other swamps of the region of the water-shed, might yield important supplies of peat fuel to the woodless prairie country to the west. The peat would, of course, require to be manufactured by one of the processes now employed elsewhere, and advantage might be taken of the upper part of the Roseau for its shipment. The peat here found must be pretty pure, though not formed by the accumulation of the *Sphagnum* or peat moss, but from grasses and other *phænogamia*.

The North-East Roseau is at first narrow and tortuous, like the upper part of Reed River, and the surrounding country is swampy

and covered with tamarac and willow bushes. The banks soon, however, begin to rise higher, and poplar becomes the prevailing wood. Fine oaks, elms, and ash-leafed maple also fringe the stream. The forest retains this character as far as Roseau Lake, and where small openings occur, rose bushes, asters, convolvulus (*Calystegia sepium*), wild hop (*Humulus lupulus*), the prickly cucumber (*Echinocystis lobata*), and high bush cranberry (*Viburnum opulus*) form a tangled thicket.

About three miles from the source of the river, and two and a half miles from its crossing with the forty-ninth parallel, a tributary nearly as large as the main stream enters from the north. A few miles above Roseau Lake, a second large stream comes in from the south-east, and may be called the South-East Roseau. The banks of this part of the Roseau are usually high, and are as much as fifteen feet above the water level where it crosses the line. As far as can be seen from the edge of the river, the land continues in most places dry, and supports a good growth of timber. For several miles before reaching Roseau Lake, however, the dry banks merely form narrow ridges at the sides, and an open grassy swamp lies both north and south of them. The whole upper part of the North-East Roseau River is at present much encumbered by jams of drift timber and beaver dams.

Roseau Lake is a shallow expanse of open water in the midst of a great region of reedy swamp. It lies about four miles south of the line. The East Roseau enters at its southern part, and the West Roseau on the same side, at less than a mile distance from it.

The upper part of the West Roseau River, for about ten miles following its course, has banks sufficiently high to support a small growth of poplar, oak, and willow bushes. The trees then disappear, the current is much more sluggish, and the river enters the Great Roseau Swamp. This vast muskeg is absolutely without trees or bushes of any kind, but is covered by a rank growth of grass and reeds, and interspersed with small ponds and lagoons. The distance through the swamp following the course of the river, which is exceedingly tortous, must be at least twenty miles. For a few miles before reaching the forty-ninth parallel, the river is again fringed with trees, oak and elm being abundant.

A short distance south of the line, and before re-crossing it, the first island occurs, and boulders become plentiful in the bed of the river, which, though unencumbered and deep from Roseau Lake to this point, now becomes shallow and rapid, and so continues until the border of the Red River prairie is reached. The banks are high throughout, and this belt of country, about 20 miles in width, is of much improved appearance. The sub-soil is of gravel and fine sand, and most of the surface is dry, though large swamps still occur. It is partly of a prairie character, but is broken up by extensive groves, which are usually of poplar. The soil, though lighter than that of the Red River Valley, shows in some places a considerable depth of vegetable mould; and would be warm and easily worked, and bring crops rapidly to maturity with careful

cultivation. The presence of so much limestone debris in the drift has a favourable influence.

Poplar, oak and elm attain a large size along the margin of the river in this part of its course.

In this region of oak and poplar openings, there is, to some extent, a mingling of eastern and northern woodland plants, with those of the plains. East of the edge of the true prairie land, the coniferous forest comes to an end, in about longitude 96° 39′ (*i. e.*, the eastern boundary of range 7, east of the principal meridian); and the coniferous trees are not again found in force with the single exception of the mountains known as the Three Buttes, till the immediate flanks of the Rocky Mountains are reached.

The Roseau River would seem navigable by steam launches or stern wheel boats of light draught, from the Red River nearly to its intersection with the old St. Paul and Fort Garry trail (*i. e.*, about section 4, township 3, range 4, east of the principal meridian.) From this place to its crossing of the forty-ninth parallel, it is barred by the rapids mentioned, which, from their shallow and boulder-strewn character, are difficult, even in a bark canoe. From a point a few miles south of the line, a small steamer might pass through the Roseau Swamp and Roseau Lake, and possibly ascend the East Roseau, nearly to its intersection with the forty-ninth parallel

Of the wooded country between the Lake of the Woods and the margin of the Red River prairie, a comparatively small proportion thereof appears to be fit for cultivation, though much of the surface could be reclaimed at a small expense. The areas formerly occupied by small lakes show better soil than the ridges and higher grounds, which are generally sandy or gravelly. The chief present value of the region would, however, seem to be as a preserve of fuel and timber for construction, for the more fertile prairie land bordering the Red River. A large quantity of valuable red pine (*Pinus resinosa*) lumber has been cut during the past few years on the dry ridges near the Pine River, which runs into Roseau Lake from the north; and similar pine-bearing highlands will probably be found in other parts of the area. The timber cut on Pine River was floated into Roseau Lake, and thence by the West Roseau River to Red River. It therefore passed for a portion of its course through the northern part of the State of Minnesota.

Of the alluvial prairie of Red River much has already been said, and the uniform fertility of its soil cannot be exaggerated. The surface for a depth of two to four feet, is a dark mould, composed of the same material as the subsoil, but mingled with much vegetable matter. Its dark colour is no doubt in part due to the gradual accumulation of the charred grasses left by the prairie fires. The soil may be said to lie ready for the plough. After ploughing and when the sod has rotted, the soil appears as a light friable mould, easily worked, and most favourable for agriculture. The marly alluvium underlying the vegetable mould would in most countries be considered a soil of the best quality, and the fertility of the ground may therefore be considered as practically

inexhaustible.—*Dr. G. M. Dawson, Geologist and Botanist to the B. N. A. Boundary Commission*, 1873.

The difference of level between Red River and the Lake of the Woods is two hundred and fifty feet. Of this the greatest rise takes place in the first sixteen miles from Red River. The total rise here amounts to one hundred and seventy feet. This swamp region is, therefore, a summit-level cut off from the Red River valley by a ridge through which the Roseau River, the natural channel of drainage, breaks in a series of abrupt rapids, obstructed with boulders, but through which in course of time it will wear a deep and easy channel.

From the sixteen mile ridge begins the valley proper of the Red River of the North. Its characteristics at the boundary line are identically the same as those at any other point of section—a valley apparently perfectly level, but in reality sloping toward the river quite rapidly, intersected by small running streams, which are simply the lines of drainage of the prairies, and which, therefore, are exceedingly variable in the amount of their discharge. Along these water-courses, as well as on the main river, and in fact wherever protection from prairie fires is offered, will be found lines of forest, mostly of whitewood, but in some cases of oak. The valley is immensely fertile, as has been proved by actual settlement.—*Capt. Twining, International Boundary Commission*, 1873.

TOWNSHIPS WEST OF THE PRINCIPAL MERIDIAN.

RANGE I.

1. *Outlines.*—An undulating prairie. The soil is a clay loam of a first class quality. Good agricultural land.—*Milner Hart*, D.L.S., 1871.

Sub-division.—Comprises very rich soil, well drained by a water-course. The only timber that this township contains stands in section 31, and will soon be appropriated for building purposes. Generally the township is rolling prairie adapted for immediate cultivation, there being little or no low land.—*L. Kennedy*, D.L.S., 1875.

2. *Outlines.*—An undulating and level prairie. The soil is a black clay loam of a first-class quality.—*Milner Hart*, D.L.S., 1871.

Sub-division.—This township is a level prairie; soil black loam; and is all fit for cultivation.—*W. and D. Beatty*, D.L.Ss., 1872.

3. *Outlines.*—Is all level prairie, with a first-class black loam soil.—*W. Beatty*, D.L.S., 1871.

East boundary.—A level prairie; soil a stiff clay, and of a second class quality.—*Milner Hart*, D.L.S., 1871.

Sub-division.—This township is open, level prairie, generally with a stiff, heavy clay soil. In the south-western portion the soil is a light clay loam, and the land is higher and has a gentle slope to the south. In this part there is a fine body of water, abounding in wild fowl.—*John Grant*, D.L.S., 1872.

Analysis of saline water from an artesian well at Rosenfeld Station, in this township :—The sample was procured from J. M. Egan, Esq., at the instance of Dr. Dawson. The latter gentleman states that the brine was first struck at a depth of two hundred and thirty-five feet, that the flow continued to increase as the boring progressed, rising to the surface and forming a strong flowing well.

The water, when received, contained a small quantity of reddish-brown coloured, suspended matter, which, for 1,000 parts by weight of the brine, amounted to 0·0103, and of this 0·0067 consisted of ferric oxide, which latter had, doubtless, at one time been present in the water as ferrous carbonate. The filtered water was perfectly colourless; taste, strongly saline, with a very slightly bitter after taste; it did not affect the colour of turmeric paper, but exhibited a slightly alkaline reaction with reddened litmus paper. The reaction for boric acid, although faint, was quite distinct. Bromine and iodine are both present—the amount of the former exceeding, apparently, that of the latter—but owing to a total insufficiency of material, the determination of the respective amounts of these constituents could not be carried out. The specific gravity of the water, at 15°5C., was found to be 1032·86. Its analysis gave as follows, for 1,000 parts by weight :—

Potassa	·2640
Soda	19·3545
Lime	1·9538
Magnesia	·8252
Ferrous oxide	traces
Sulphuric acid	2·4418
Boric acid	traces
Carbonic acid	·0342
Silica	·0126
Chlorine	23·8783
Bromine	undet.
Iodine	undet.
	48·7644
Less oxygen equivalent to chlorine	5·3871
	43·3773
Less oxygen equivalent to bromine and iodine	unascertained.
Total dissolved solid matter, by direct experiment, dried at 180° C.	43·4280

It may be reasonably assumed that the foregoing acids and bases exist in the water in the following state of combination :—

(The carbonate being calculated as mono-carbonate, and all the salts estimated as anhydrous.)

Chloride of potassium	·4179
" sodium	36·4971
" calcium	·3982
" magnesia	1·7225
Sulphate of lime	4·1511
Borate of soda	traces
Carbonate of lime	·0777
" iron	traces
Bromide of magnesium	undet.
Iodide of magnesium	undet.
Silica	·0126

The proportion of magnesium assumed to be present as bromide and iodide, amounts to 0·0596.

This water, in common with those of Hallowell, St. Catherines, and Ancaster, belongs to the first class of D. T. Sterry Hunt's classification of mineral waters (Geology of Canada, 1863, p. 531). It almost equals in strength the strongest of these saline waters —viz., one from Hallowell, which was found by Dr. T. S. Hunt to contain, in 1,000 parts, 38·7315 of chloride of sodium—and would be far superior to either of them for the manufacture of salt, in that it contains a very much smaller amount of the deliquescent chlorides of calcium and magnesium.—*Geological Survey Report*, 1885.

RANGE II.

1. *Outlines and Sub-division.*—Is more or less intersected by dry water-courses, of which the head of the Marais River is the principal, its bed in many places containing ponds of water which must prove of great value during the dry season. The water is better adapted for domestic use than that obtained by digging. A few solitary second-growth trees exist along its banks. The soil is first-class, and the township generally well adapted for immediate cultivation.—*L. Kennedy*, D.L.S., 1875.

2. *Outlines and Sub-division* —This township is prairie. Soil good. Surface water to be had in the gullies.—*W. & D. Beatty*, D. L.S., 1872.

3. *Outlines and Sub-division.*—This township is all prairie. In the north-eastern and north-western portions it is low and flat, with a heavy clay soil, which forms excellent hay land. The western part of the township is high, with a rich clay loam, and is well watered. In the eastern part there is a fine body of water, with good high land surrounding it.—*John Grant*, D.L.S., 1872.

TOWNSHIPS EAST OF THE PRINCIPAL MERIDIAN.

RANGE I.

1. *Outlines.*—An undulating prairie, soil a first-class clay loam. No timber, no water. Good agricultural land.—*Milner Hart*, D.L.S., 1871.

The soil consists of the best clay loam, and is very fertile, beautifully undulating. The only timber grows on the banks of the Marais River; it is very limited in quantity. The surface is dry, but water can be easily obtained by digging a moderate depth.—*L. Kennedy*, D.L.S., 1874.

2. *Outlines.*—The western portion is an undulating prairie; soil a first-class clay loam. No timber, no water. Good agricultural land.—*Milner Hart*, 1871.

North is an undulating prairie. The soil is of a first-class quality.—*L. Kennedy*, D.L.S., 1871.

Sub-division.—Has a very good soil, and is well adapted for farming purposes.

There is no running water in the township, but many parts of the north-western sections are low and marshy during the spring months. No timber is available nearer than the Red River, which is five or six miles distant from the centre of the township.—*L. Kennedy*, D.L.S., 1872.

3. *Outlines.*—West, a level prairie, soil, a stiff clay of a second-class quality.—*Milner Hart*, D.L.S., 1871.

South is an undulating prairie. The soil is of a first-class quality.—*L. Kennedy*, D.L.S, 1871.

The soil all over this township is of a first-class quality; it is of the very best kind for the production of all kinds of grain.

In this township there is no timber fit for building or other purposes; a plentiful supply of good water can readily be found.—*J. B. Richard*, D.L.S., 1872.

RANGE II.

1. *Outlines and Sub-division.*—The general character is a beautiful rolling prairie, sheltered from the north-west winds by the River Marais timber belt, and from the east winds by the Red River belt. It is wooded only on the borders of the Marais River. The timber consists principally of oak and basswood, with scrub. The oak and basswood are of sufficient growth to be suitable for building, but there is only enough for the use of the occupant of the section in which it grows. Water is found in the bed of River Marais, and there is a small lake in sections eleven and fourteen. Good water may, however, be readily obtained by sinking a moderate depth.—*L. Kennedy*, D.L.S., 1872.

2. *Outlines.*—North is an undulating prairie, with many bluffs of poplar, clumps of willow and basswood, with scattered oak.

The soil is of a first-class quality.—*L. Kennedy*, D.L.S., 1871.

Sub-division.—Is an open prairie with rich soil. The banks of the Marais River are timbered with poplar, oak, ash and elm. Water can be obtained by digging wells.—*A. F. Martin*, D.L.S., 1873.

3. *Outlines.*—Is an undulating prairie, with scattered clumps of willow, bluffs of poplar, a few oak, and some basswood near the banks of the Red and Roseau rivers, both of which flow through this township. The soil is of a first-class quality. —*L. Kennedy*, D.L.S., 1871.

Sub-division.—The soil is a fine clay loam. A considerable part of the centre of the township is open prairie. The eastern and southern portions are covered with scrub willow, brush and poplar. The Roseau River traverses the southern part of the township.—*John Grant*, D.L.S., 1873.

RANGE III.

1. *Outlines and Sub-division.*—The surface is dry level prairie. The Michel or Joe River flows through the south-westerly part, on the banks of which there is some good hay land. The soil is a sandy loam of the best description. The only timber consists of a few small islands of poplar in the south-western part.—*A. L. Russell*, D.L.S., 1873.

2. *Outlines and Sub-division.*—Is generally low, and well drained by the Roseau River, a fine stream having an average width of one chain, and a depth varying from eighteen inches to four feet, frequently even ten feet.

That portion of the township to the north of the river has a very rich soil, heavily covered with undergrowth of willow, poplar, oak, &c. The sections adjoining the river are in general very desirable locations for intending settlers, being well timbered with oak, poplar, elm, basswood, &c.

The greater portion of the township to the south of the river is low, with a luxuriant growth of grass, well adapted for stock raising. No timber except on those sections along the river.

The soil is clay loam, and exhibits indications of being wet during the early part of the season.—*L. Kennedy*, D.L.S., 1871-72.

3. *Outlines.*—South and west is an undulating prairie, with occasional bluffs of poplar and patches of willow. There are some oak, ash and elm along the banks of Roseau River, which flows through the south-easterly part of the township, The soil is of a first and second-class quality.—*L. Kennedy*, D.L.S., 1871.

Sub-division.—It is of excellent quality for agricultural purposes. It is quite dry, and generally slopes towards the Roseau River. The soil is black loam, and the subsoil is blue clay.

Large-sized oak, elm and ash fringe the banks of the river, the water of which is fresh and clear.

The general surface of the township is level prairie. The eastern and north-eastern portions are open ; the remainder is densely covered with small poplars and willows from five to seven feet in height.—*S. O. McGinn*, D.L.S., 1872.

RANGE IV.

1. *Outlines and Sub-division.*—The western and principal portion is level prairie, with a soil of rich sandy loam, dotted with small hay meadows. Proceeding eastward, a rise in the prairie occurs about thirty-five feet, and to the east of this ridge the land is generally of an inferior quality, sandy and gravelly, with scattered boulders and occasional groves of poplar and willow. The eastern section is drained by a coulée, which runs in a north-easterly direction and debouches into the Roseau River.—*A. L. Russell*, D.L.S., 1873.

2. *Outlines and Sub-division.*—The soil in the east half of the township is light, but well adapted for the growth of light grains. Granite stones are numerous. In the west half the soil is good loam.

The water supply is confined principally to the north-east quarter of the township, and consists of two or three streams which retain water the greater part of the season.

In the west half there is no timber of any kind. The east half has many large groves of new growth of poplars and willows.—*L. Kennedy*, D.L.S., 1871.

3. *Outlines.*—East and south is prairie, with small bluffs of poplar and patches of willow. Along the banks of the Roseau River there is some oak, elm, birch, poplar and willows. The soil is of good quality, though stony in places.—*L. Kennedy*, D.L.S., 1871.

Sub-division.—Is of the very best quality for agricultural purposes, having a deep black loam soil, with a blue clay subsoil.

In general, and especially along Mosquito Creek, the timber is of the larger class of poplar and balm of Gilead. Along the Roseau River there is a fringe of large-sized oak, elm, ash, basswood, maple, balm of Gilead and poplar.

This township is well watered, having Mosquito Creek in the north-east, and Roseau River crossing it in the south.—*S. O. McGinn*, D.L.S., 1872.

RANGE V.

1. *Outlines and Sub-division.*—Is well wooded with small timber. A good deal of the best timber has been destroyed by fire.

The soil of the southern portion is of very inferior quality and very swampy ; that of the northern half is generally of rich sandy loam. Good water can be obtained in any part of the township by digging a few feet.—*A. F. Martin*, D.L.S., 1875.

2. *Outlines and Sub-division.*—Is of first-class character, as it consists of rolling prairie. Numerous poplar bluffs with considerable good meadow land in the eastern portion. There are boulders throughout the township. The Roseau River flows through the north-eastern part.—*J. Grant*, D.L.S., 1873.

3. *Outlines.*—West is an undulating prairie, with bluffs of poplar and willow. There is some oak, birch and elm along the banks of the Roseau River. The soil is of a first and second-class quality.

South, there is some heavy timber in section 2, along the right bank of Roseau River. The river here is rapid, averaging one to two feet in depth (month of September); above and below the rapids it becomes suddenly deep. The timber along the river is principally poplar, of superior dimensions, some of which running up to 18 inches in diameter.

The remaining portion of the township consists of very undulating country; in places it is stony, with occasional groves of poplar.—*L. Kennedy*, D.L.S., 1872.

Sub-division.—Contains a good deal of willow and poplar brush. The timber consists generally of poplar, and bluffs of tamarack and spruce. The western branch of Rat Creek runs across the north-eastern corner of the township, supplying clear and good water. The Roseau River crosses the south-western corner. On its banks there is a good supply of oak and poplar fit for building purposes. The land in the southern part is high and dry, and well adapted for agricultural purposes. There are large openings in the woods, producing very good grass for hay and pasturage.—*John Grant*, D.L.S., 1872.

RANGE VI.

1. *Outlines and Sub-division.*—Is unfit for farming purposes, owing to its being low and wet. The greater part of the township is covered with willows. There is some fair-sized poplar scattered through it.—*A. F. Martin*, D.L.S., 1875.

2. *Outlines and Sub-division.*—Is mostly high land, chiefly prairie, interspersed with fine groves of poplar timber. The soil is a dark loam, but is somewhat lighter on the ridges. The Roseau River, a fine stream of good clear water, fringed with a narrow belt of elm, oak and poplar of good size, flows through the township. The whole of it is adapted for farming. Rich soil upon the prairie, and a sufficient supply of timber for fuel and farming purposes.—*John Grant*, D.L.S., 1873.

3. *Outlines.*—East, is an open country, very low, and abounding with groves of tamarack. The drainage of this region is by Rat River, which crosses the township, at about the centre, in a westerly course. It has clear water, gravelly bottom and clay banks, averaging from five to ten feet in height. Wild

hops, which are very large, grow along the banks. To the south of the river the country merges into an extensive muskeg, luxuriant in grass. This continues beyond the southern boundary of the township

South, sections 1 and 2 are low and marshy; the remaining four sections are table land, abounding with ridges, which are generally very stony, and covered in many instances with scrub willow and poplar.—*L. Kennedy*, D.L.S., 1872.

Sub-division.—Is generally low and level. The southern part is wet, with heavy clay soil, producing grass fit for pasturage, and the northern fairly wooded with tamarac and spruce; and there are large openings in the woods, affording fine hay and pasturage. There is a good deal of gravel in the soil. The western branch of Rat River flows across the centre of the township, supplying good clear water. The bed of the stream is gravelly, and its banks are skirted with willow brush.—*John Grant*, D.L.S., 1873.

RANGE VII.

1. *Outlines and Sub-division* —Is useless (without thorough drainage) for agricultural purposes, three-fourths being covered with either water, floating bog or swamp with willows. The few dry spots are stony and strewed with large boulders, and are the only parts on which the timber (poplar) grows to any size. This township could be easily drained into Roseau River, which flows through it.—*A. F. Martin*, D.L.S., 1875.

2. *Outlines and Sub-division.*—The greater portion is covered with swamps, in which long marsh willows, reeds, sedge grass and rushes predominate. The only sections at all fit for settlement are the western tier, which are wooded with poplar. The southern branch of Rat River flows through the middle of the township.—*A. F. Martin*, D.L.S., 1875.

3. *Outlines.*—Along the western boundary it is low and abounding with groves of tamarack. The drainage of this region is by Rat River, which flows through this township in a westerly direction; it has clear water, a gravelly bottom and clay banks averaging ten feet in height. Towards the centre of the township the land becomes elevated, on which are groves of poplar. Wild hops of a very large size grow in abundance along the banks of Rat River. The soil is of a third-class quality.—*L. Kennedy*, D.L.S., 1872.

Sub-division.—The soil is unfit for agricultural purposes, being of inferior quality with many bogs and swamps. The timber on the dry land is poplar and willows, of little value except for fuel. In some parts there boulders of various sizes. —*John Grant*, D.L.S., 1875.

RANGE VIII.

1. *Outlines.*—South, the Roseau River flows in a north-westerly direction through Section 6, along the banks of which, there

is some timber, consisting of oak, elm and black ash, with thick undrbrush. Away from the river, the country is generally timbered with belts of poplar and spruce, poplar and pitch-pine, spruce and tamarack; much of which has been killed by fire. The land is of a second and third-class quality. —*W. Pearce*, D.L.S., 1877.

3. *Outlines.*—East, is nearly all swamp, timbered with spruce and tamarack, and occasionally with cedar, much of the timber, however, is fallen. Rat River flows in a westerly direction through Section 13.

South, there is a good deal of grass land along this boundary, with bluffs of poplar, and willow bush. The land is of a second and third-class quality.—*L. Kennedy*, D.L.S., 1873.

RANGE IX.

1. *Outlines.*—South, Sections 4, 5 and 6 are covered with heavy spruce and poplar woods, with a thick underbush. The remaining three sections have a scattering of small poplar, with a good deal of fallen timber. The land is of a second-class quality.—*W. Pearce*, D.L.S., 1877.

3. *Outlines.*—South and west is nearly all swamp, timbered with spruce, tamarack and a small quantity of cedar. On the southern boundary there are a number of tracts of grassy marshes alternately with belts of poplar, birch, and small red-pine. The land is of a third-class quality.—*L. Kennedy*, D.L.S., 1873.

RANGE X.

1. *Outlines.*—The southern boundary runs nearly the whole length through an open muskeg; a very short distance to the north, there is dry land timbered with poplar. On the eastern boundary the land is marshy, and covered with spruce, cedar and tamarack.—*W. Pearce*, D.L.S., 1877.

2. *Outlines.*—East, has many high sandy ridges, on which there are some fair sized pine, poplar, spruce, tamarack and willow brush. The land generally, is of a third-class quality.—*W. Pearce*, D.L.S., 1877.

3. *Outlines.*—South and east, is a rolling country, with ridges, small tracts of swamp, and grassy marshes. It is timbered with the exception of a few prairie openings, with red-pine, tamarac, spruce, cedar, poplar and willow. Rat River flows in a westerly direction through Section 13.—*L. Kennedy*, D. L.S., 1873.

CHAPTER II.

COUNTY OF CARILLON.

West of the Lake of the Woods, is an extensive wooded, and very generally swampy region, which extends to the eastern edge of the alluvial prairie of the Red River. Where crossed by the road from the North-west Angle to Winnipeg, the wooded region is about sixty miles in breadth; on the forty-ninth parallel, about seventy-five miles. On the northern line of section the character of the country is as follows:— From the North-west Angle to Birch Creek Government Station*, is for the most part thickly wooded, but almost a continuous swamp, with here and there a rocky or sandy ridge rising from the general level. Much of the soil would dry up if the woods were removed, but appeared to be sandy and poor, and of little or no use for agricultural purposes. There is much tall, but slight, pine timber, suitable for railway sleepers, but of not much use for manufacturing purposes. The sand of the ridges is generally of yellow ferruginous colour, and the gravel, when it occurs, is chiefly of small limestone fragments. Ten miles east of Birch Creek, is the watershed swamp, here known as the Caribou Muskeg. It is a flooded savannah, of perhaps, a mile and a half in width, and is an extension of the swampy watershed region, crossed further south. From Birch Creek to Whitemouth River, the surface slopes gently westward, yet more than half the area is occupied by swamps. The dry tracts are covered with a sandy soil, which though warm, is too light to attract the agriculturist. The Banksian pine abounds. From this place to Brokenhead River, thence to the edge of the wooded region, near Point du Chêne (Parish of St. Anne), the surface is not so wet, but still shows numerous swamps: and the soil in no place compares favorably with that of the prairie to the west.

Many of the less deeply submerged swamps would yield large quantities of natural hay. Those in the vicinity of the North-west Angle are already made to furnish hay for the stock kept there, which though coarse, is found nutritious.

The flora of the country surrounding the Lake of the Woods, closely resembles that characteristic of the Laurentian region, north of the St. Lawrence River, and differs from that of the prairie country to the west. A few western and southern forms, however, occur in association with those of the eastern and northern aspect. The majority of the forest trees are

*Birch Creek station is situated, approximately, in the northern part of township 6, range 14, east of the principal meridian.

For further dercription of the eastern portion of this county, see the reports of Messrs. Wells, S. J. Dawson and Pearce, in the description of the County of La Verandrye.

coniferous, and from the swampy character of the country, the tamarack is perhaps most abundant. The cedar was in a few places observed, forming groves of limited extent. The red pine, Banksian, or scrub pine, and white pine, also occur where the ground is dry, and especially on the sandy ridges separating the swamps; but not in very large groves. All the ordinary eastern spruces and firs are also represented. Of deciduous trees, the poplar is most common, and generally represented by the aspen or balsam poplar, willows of many species form thickets in the swamps and along the edges of the woods. Elm, oak, birch and the ash-leaved maple, also occur sparingly. *Dr. G. M. Dawson*, 1873.

RANGE III.

4. *Outlines.*—North and west, is an open prairie with an occasional bluff of poplar and a few scattering oak and willow. The land is low in places. The soil is of a first-class quality.—*L. Kennedy*, D.L.S., 1871.

Sub-division.—May be considered first-classs agricultural land. The soil is black loam on a blue clay subsoil.

The south-western sections are covered with a thick growth of scrub, poplar and oak. Wetweather Creek in the south-western part of the township contained in several places on the 2nd of July, good, clear, fresh water. Good water can be obtained in nearly any part by digging.—*S. O. McGuin*, D.L.S., 1872.

5. *Outlines.*—West and south, is an open prairie with an occasional small bluff of poplar and a few scattering oak and willow. The land is low in places. The soil is of a first-class quality. *L. Kennedy*, D.L.S., 1871.

Sub-division.—Is not well adapted for agricultural purposes, it being low and marshy in places. Nearly one-half of the township was formerly covered with timber, which has all been taken away.

The Riviere aux Marais or Marsh River runs through the western tier of sections, which with the adjacent tier of sections may be said to have a very good soil.—*C. Leber*, D.L.S., 1872.

6. *Outlines.*—West, is an open, undulating prairie with a few scattered willow bushes. The soil is of a first-class quality. North, along this boundary, there are a few scattered oak and poplar groves. The soil is of a first-class quality.—*L. Kennedy*, D.L.S., 1871.

Sub-division.—Sections 25, 36, 26, 35, 27, 34, 23, 29, 32, 30, 19, 18 and 17 are covered with timber, consisting of oak, ash, elm and poplar, the last predominating. Several small groves of oak and poplar are to be found in a few other sections. Rat River flows from the south-eastern to the north-western part of the township.

Generally the soil is excellently suited for agricultural purposes. The surface is mostly fine rolling land, but is level in places.—*C. Leber*, D.L.S., 1872.

RANGE IV.

4. *Outlines.*—North, is an undulating prairie with bluffs of poplar with occasional patches of willow and some oak and basswood along the banks of Rat River. The soil is of a good quality, but rather stony in places.

East the surface is slightly undulating and generally covered with burnt poplar and willows. There is some large poplar, oak, elm and balm of Gilead timber along Rat River. The land is stony,granite and limestone.—*L. Kennedy*, D.L.S., 1871.

Sub-division.—The western part of this township is excellent farming land, good deep soil; a few scattered clumps of poplar. The centre is only fit for hay or pasturage, being low and flat, and in wet seasons is covered with water from six to fifteen inches in depth, being caused by the overflow of Mosquito Creek and Rat River.

Mosquito Creek, coming in on the south, averages about sixty links in width, about four feet deep, and contains pure water.—*S. O. McGuin*, D.L.S., 1872.

5. *Outlines.*—South and east, is an undulating prairie with bluffs of poplar and patches of willow. There is some oak and basswood along the banks of Rat River. The land is rather stony in the south easterly portion of the township. The soil is of a first and second-class quality. The land is well drained by two branches of Rat River.—*L. Kennedy*, D.L.S., 1871.

Sub-division.—Is generally well adapted for agricultural purposes. The surface, though level in parts, is considerably broken. The western branch of Rat River crosses the township from the south to the north, and its east branch runs through sections 24, 25, 36, 35 and 34. The water is excellent in both streams. Some rafts of timber have already been made on the western branch, and taken down in the spring season. Oak, elm, ash and poplar are to be found along the banks of both streams extending on either side from five to twenty chains. The timber is of good quality for building purposes.—*C. Leber*, D.L.S., 1872.

6. *Outlines.*—North and east, is an undulating prairie with scattered willows and an occasional small bluff of poplar. The soil is of a first-class quality.—*L. Kennedy*, D.L.S., 1871.

Sub-division.—This township is well adapted for agricultural purposes, the surface undulating gently, excepting in the vicinity of Rat River, where several ravines with small elevations are to be met with. The main river, towards the south of this township, receives the waters of two streams, the larger of which is called the western branch, and the smaller the eastern branch. On the banks of both these streams belts of timber are to be found, consisting of oak, ash, elm and poplar.—*C. Leber*, D.L.S., 1872.

RANGE V.

4. *Outlines.*—North and west the surface is undulating and covered generally with burnt poplar. There are some scattered clumps of poplar untouched by fire. The soil is of a second-class quality.—*L. Kennedy*, D.L.S., 1871.

Sub-division —Is generally well timbered, and contains very inferior soil. The timber consists generally of poplar and willow. The soil is chiefly sandy, gravelly and stony. Considerable portions are covered with drift, consisting of large granite and limestone boulders. The southern branch of Rat Creek flows through the south-western portion and the eastern branch across the north-eastern corner of the township.—*W. Burke*, D.L.S., 1872.

5. *Outlines.*—West, is an undulating prairie with bluffs of poplar and willow brush. The land is stony and of a second-class quality.

South, undulating surface, the timber has been nearly all killed by fire. The soil is of a second-class quality. Rat River flows in a north-westerly direction across the township. *L. Kennedy*, D.L.S., 1871.

Sub-division.—Is generally well timbered, and contains very inferior soil. The timber is principally poplar with a good deal of willow. The soil is chiefly sandy, gravelly and stony. Considerable portions are covered with drift, consisting of large granite and limestone boulders. The eastern branch of Rat River flows across the south-westerly part of the township.—*W. Burke*, D.L.S., 1872.

6. *Outlines.*—West is an undulating prairie with scattered willows and occasional small bluffs of poplar. The soil is of a first-class quality.

North, the poplar is nearly all burnt along this boundary,—*L. Kennedy*, D.L.S., 1871.

Sub-division.—Contains no timber, and is not well adapted for agricultural purposes.—*A. W. Lippe*, D.L.S., 1872.

RANGE VI.

4. *Outlines.*—North, has an undulating surface, timbered with poplar, spruce, tamarack, willows, and a few scattered elms. There are a few prairie openings. The soil is of second-class quality.—*L. Kennedy*, D.L.S., 1871.

East, passing along this boundary the soil is generally light, covered for the greater part with timber consisting of poplar, tamarack and willow, occasionally broken by prairie. There is a luxuriant growth of grass, even in the timbered portions. Water is readily obtained by sinking from 3 to 11 feet. The timber has mostly been killed by fire, and is now being replaced by a young growth of poplar.—*L. Kennedy*, D.L.S., 1872.

Sub-division.—The two northern tiers of sections are well wooded with tamarack, poplar and spruce. The soil is chiefly

a light clay loam, except in the south-western part, where it is stony and gravelly and chiefly covered with dead poplar and willow. The southern branch of Rat Creek runs diagonally across the township. On both sides of this stream there are some fine bottom lands, part of which are well wooded with poplar.—*John Grant*, D.L.S., 1872.

5. *Outlines.*—South and east is generally covered with timber. The timber consists of oak, ash, elm, poplar, spruce, tamarack and willows. There are occasional prairie openings. The soil is of a second-class quality.—*L. Kennedy*, D.L.S., 1871.

Sub-division—Owing to its level surface it is totally unfit for farming purposes, the land alternating from a marsh to a coarse, sandy, stony soil. In a few places good trees can be found large enough to be used in the construction of buildings. In general the timber consists of aspen, elm, spruce and tamarack. Water pure and good, can readily be found all over the township either on the surface or by digging.—*J. B. Richard*, D.L.S., 1872.

6. *Outlines.*—North and east, is an undulating prairie with bluffs of poplar and patches of willow, both of which are nearly all killed by fire. The soil is of a first-class quality, although it is stony with a number of boulders in places.—*L. Kennedy*, D.L.S., 1871.

Sub-division—Is nearly all bush. At one time it was heavily timbered with large poplar, but the only large timber which has escaped the fire consists of groves of tamarack, fit for building purposes. The principal part of the bush is small poplar with willow underbrush. The land is of poor quality with a rolling surface. The western tier of sections is covered with large boulders, and in its present state is quite unfit for settlement. The soil is light and generally mixed with sand and gravel.—*D. Sadler*, D.L.S., 1872.

RANCE VII.

4. *Outlines.*—West, the soil is generally light. The township is mostly timbered, consisting of poplar, spruce and tamarack. There are numerous prairie openings and hay meadows. There is a very luxuriant growth of grass, even in the timbered portions. Most of the timber has been destroyed by fire and a new growth of poplar is springing up. Water is readily obtained by digging wells for a short depth.—*L. Kennedy*, D.L.S., 1872.

North, the land is rather low and swampy, timbered with spruce, tamarack and poplar; the trees are from 3 to 18 inches in diameter.—*L. Kennedy*, D.L.S., 1873.

Sub-division.—The soil is poor, shallow and sandy, with frequent marshes; unfit for farming, but there is much good poplar, tamarack and Norway pine in the township.—*John Grant*, D.L.S., 1872.

5. *Outlines.*—West, has an undulating surface covered with timber, consisting of poplar, ash, oak, spruce and tamarack, a good deal of which, however, has been killed by fire. The soil is of a second-class quality.—*L. Kennedy*, D.L.S., 1871.

South, the land is rather low and swampy and timbered with spruce, tamarack and poplar: the trees are from 3 to 18 inches in diameter.—*D. Kennedy*, D.L.S., 1873.

Sub-division.—The soil is light and the timber is small. Only about one.third of the township is fit for immediate settlement.—*Duncan Sinclair*, D.L.S., 1874.

6. *Outlines.*—West, is an undulating prairie with occasional bluffs of poplar and willow brush, the most of which, however, have been killed by fire. The soil is of first-class quality.—*L. Kennedy*, D.L.S., 1871.

North, sections 31, 32 and 33 are of the same description as the above. The surface of the remaining three sections are generally level and marshy, and in many places there is a growth of tamarack and willows. The land is of a second and third-class quality.—L. *Kennedy*, D.L.S., 1872.

Sub-division.—The soil generally is light. The timber, consisting of bluffs of small poplar and occasional bluffs of tamarack, has mostly been killed by fire —*D. Sinclair*, D.L.S., 1874.

RANGE VIII.

4. *Outlines.*—North and east, is mostly swamp, timbered with spruce, tamarack, cedar, balsam and pine. The trees are from two to twenty inches in diameter. The soil is of a third-class quality.—*L. Kennedy*, D.L.S., 1873.

Sub-division.—Is generally timbered, which consists of spruce, tamarack, poplar and cedar. There are a number of marshy tracts. The soil is of a second and third-class quality. —*L. P. de Courval*, D.L.S., 1884.

5. *Outlines.*—South and east, are nearly all swamp, with occasional dry ridges, which are timbered with spruce, tamarack, cedar, balsam, Norway pine: the timber is from three to twenty-four inches in diameter. The surface is strewn in many places with granite boulders. The land is of a third-class quality.—*L. Kennedy*, D.L.S., 1873.

Sub-division.—About one-third of the township is swampy. The soil generally is light and sandy. There is a large quantity of timber, consisting of cypress, pitch-pine, spruce and tamarack, fit for building purposes, and some excellent cedar in the eastern part of the township.—*Duncan Sinclair*, D.L.S., 1874.

6. *Outlines.*—North is alternately timbered land, with prairie openings and occasional tamarack and cedar swamps. On the dry land the timber is poplar and spruce. The Seine River flows in a northerly direction, through section 31, along the

banks of which there is some scrub oak, elm, ash, cherry and balm of Gilead.—*L. Kennedy*, D.L.S., 1872.

East, there is a very small percentage of swamp along this boundary. The surface is strewn with large granite boulders, and timbered with oak, elm, poplar, spruce, tamarack, Norway pine, cedar and balsam, some of the trees running up to twenty-four inches in diameter.—*L. Kennedy*, D.L.S., 1873.

Sub-division.—Is nearly all timbered with a second growth of small pine, tamarack and poplar. In the north-eastern part there are some groves of spruce and tamarack fit for lumber. The soil is mostly light, dry and sandy. There are a number of swamps throughout the township. The Seine River, which flows through the township, is large enough to carry down the timber if it was cleared of brush.—*Duncan Sinclair*, D.L.S., 1874.

RANGE IX.

4. *Outlines.*—North, is a rolling, stony country. It is timbered with oak, elm, poplar, birch, spruce, tamarack, cedar and Norway pine. There are occasional marshy tracts.

West is nearly all swampy land, timbered with spruce and tamarack; on the drier portions there are some cedar, balsam and birch.—*L. Kennedy*, D.L.S., 1873.

5. *Outlines.*—South and west is generally a rolling, stony country, with occasional marshy tracts. It is timbered with spruce, cedar, tamarack, Norway pine and balsam, the diameter of the trees running from twelve to twenty inches. The land is of a third-class quality.—*L. Kennedy*, D.L.S., 1873.

6. *Outlines.*—North and west is mostly swampy, the surface being strewn with granite boulders, and timbered with small spruce and tamarack; in a few places the timber measures up to twenty-four inches in diameter; it is intermixed with large cedar and balsam. There are a number of dry ridges, covered with poplar, spruce, birch, Norway pine, balsam and tamarack, from four to eighteen inches in diameter.—*L. Kennedy*, D.L.S., 1873.

RANGE X.

4. *Outlines.*—North, is timbered with young red-pine, from fifteen to twenty feet high. There are some small bluffs of spruce and tamarack intermixed with the pine. An occasional open grassy tract is to be found along this line.

East is timbered with spruce, tamarack, poplar, Norway pine and cedar, except in sections 12, 1 and part of 13, which are mostly open prairie. The timber is generally young and small.—*L. Kennedy*, D.L.S., 1873.

5. *Outlines.*—South, is timbered with young red-pine from fifteen to twenty feet high. There are some small bluffs of tamarack and spruce intermixed with the pine. There are a number of small grassy tracts along this boundary.

East is timbered with red-pine, spruce, tamarack, poplar, birch and cedar, together with a small quantity of elm and ash. A great deal of the timber is of young growth. The land is of a third-class quality.—*L. Kennedy*, D.L.S., 1873.

6. *Outlines.*—North and east is nearly all swamp, timbered with small spruce, tamarack, red-pine and cedar. In some of the drier spots there are clumps of poplar and willow.—*L. Kennedy*, D.L.S., 1873.

RANGE XI.

4. *Outlines.*—West is timbered with spruce, tamarack, poplar, Norway pine and cedar, except in sections 6, 7 and part of 18, which is mostly open prairie. The timber is generally young, and therefore of small size.—*L. Kennedy*, D.L.S., 1873.

5. *Outlines.*—West is timbered with pine, spruce, tamarack, poplar, birch and cedar, with occasional elm and ash. A great deal of the timber is of young growth and of small size. The land is of a third-class quality.—*L. Kennedy*, D.L.S., 1873.

6. *Outlines.*—West is timbered with small spruce, tamarack and cedar. The land generally is swampy.—*L. Kennedy*, D.L.S., 1873.

CHAPTER III.

COUNTY OF LA VERANDRYE.

From the first lake* to the south-east branch† of White-Mouth River, I dug holes upon every mile, so as to be able to state accurately the nature of the surface and bottom earth; the latter is a whitish yellow clay, the surface is of a black vegetable mould, varying in depth from two inches to three feet; the depth of three feet occurs only once, and from the nature of the timber I am certain that it does not extend more than three-quarters of a mile. Over the whole distance there may be an average of ten inches of black mould on top of the clay. I examined the south-east branch of the White Mouth River for about ten miles, westerly from where the line crosses it. So far as I saw the river, it is not very crooked, it is from forty to sixty feet wide, has from six to ten feet of water, with but little current, and has banks rising to a height of from five to eight feet above the ice. All the streams here have high banks. Those at the main Whitemouth River are from forty to fifty feet in height.—*Alex. Wells, Assistant to S. J. Dawson*, C.E., 1857.

In its general aspect, the country is flat, presenting an appearance of an almost uniform level, with but slight elevations. It rises, nevertheless, though gradually and almost imperceptibly to an elevation of nearly 400 feet above the level of Red River; and as there must be everywhere a sufficient fall for drainage, the prevalence of marshy ground can only be accounted for on the assumption that the surface soils rests on a bottom impervious to the absorption of water which, indeed, we have found to be generally the case where we have dug down in the low grounds.

From the prairie to White Mouth River, the soil is good, consisting, in general, of a dark loam, mixed with small angular pebbles of limestone. For some distance to the eastward of the river, the country is of the same character. It then becomes more marshy, and on approaching Lac Plat, the growth of timber indicates a poorer soil. The whole region having been swept at no distant period by fire, is not heavily wooded; and, as is usual in such cases, the prevailing growth on the higher grounds is poplar, while on the lower, cypress and spruce predominate. On the worst part of the line between White Mouth River and Lac Plat (Shoal Lake) there is not over four miles which can properly be called swamp, and even where the ground partakes of that character, it presents no serious obstacle to the construction of a road, for beneath the surface coating of vegetable mould, the subsoil is either of a stiff clay, or coarse and mixed with water-worn pebbles.—*S. J. Dawson*, C.E., 1858.

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*The lake referred to here is supposed to be what is now known as Indian Bay, in the north-eastern part of township 7, range 17, east of the principal meridian.

†This branch is now known as Boggy River.

Between the Lake of the Woods and Red River the country presents to the eye, in its general character, the appearance of an undeviating flat. From the Lake of the Woods, for a distance of twenty-five or thirty miles westward, swamps of great extent, covered with moss and stunted evergreens, are of frequent occurrence. In other sections, considerable areas are occupied by marshes or shallow lakes, with bull-rushes and other aquatic plants standing out of the water. In the latter cases, the bottom, after a certain depth is attained, is generally firm, while, in the swamps, in some instances, the surface covering is itself afloat, and heaves and undulates beneath the feet, presenting a quagmire or peat bog, on an extensive scale. This description applies more particularly to the section nearest the Lake of the Woods. On approaching the prairie the swamps are less extensive and the ground in general more favourable. In the swampy sections, however, there are some areas of dry ground and good soil, and, where the bogs are deepest, they are intersected by low gravelly ridges which rise but a few feet over the general level. These ridges are firm, and their direction can be traced by the heavy growth of wood which they carry. Flat and level as the country appears to be, it is susceptible of being drained. The section most swampy, although but slightly higher than the Lake of the Woods, is at an elevation of over 300 feet above the valley of Red River, and wherever a run of water is met with, except in the lake-like swamps, it is seen gliding on with a speed which indicates a sufficient fall for drainage.—*S. J. Dawson*, C.E., 1868.

Between High and Falcon Lakes, along the second base line a rocky country covered with brulé and intervening swamp was met with. On this line we crossed a narrow belt of very good spruce and tamarack with a few black ash. As viewed from Falcon Lake the country to the south appears to rise to a considerable height and covered with small green timber. On the north side of the lake, the country generally is rocky and rough with brulé and some scattering clumps of green timber each of a few acres in area lying in valleys, in some of these the timber is of fair size suitable for building timber. On this brulé, which extends westerly for several miles, the timber was destroyed by fire several years ago, it is now nearly all fallen and in many places the ground is covered with a dense undergrowth or pitch-pine. This rocky country extends westerly to the centre of range 16. From this to about the centre of range 14, the country is about one-half rocky and covered with brulé: the hills gradually getting lower and lower towards the west, till at last they rise only to the height of a few feet above the spruce and tamarac swamps which compose the remainder. All the swamps met with are covered to a great depth with moss. From the centre of range 14 to range 10 the country is wholly swamp excepting on the banks of Bog and White Mouth rivers. Along the former there are belts of dry land varying from ten to twenty chains in width, the greater portion of the timber on these belts has been destroyed by fire. Some very large spruce, tamarack and balsam trees are yet standing; but no great quantity as far as

could be seen from the vicinity of the line. The soil is light, sandy and rather stony. On the right bank of White Mouth River the belt of dry land is only a few chains in width and there is no timber of any account. On the left bank there is a belt of land nearly a mile in width, the greater portion of the timber has been destroyed by fire. The soil is light, sandy and stony. There are some large poplars, birch, spruce and a few cedars. About half the distance across ranges 12 and 11 is through muskeg having a few small scattered dead tamaracks, that in range 12 extends at least two or three miles north and south of the second base line; the one in range 11 does not appear to extend so far. When nearing range 10 some dense belts of cedar were crossed and to the north some sandy ridges covered with pitch-pine, destroyed by fire.

The meridian between ranges 14 and 15 across townships 8 and 7 is almost entirely through swamps having small tamarack and spruce timber. On the south bank of Bog River, there is a belt of light sandy land on which the timber has been almost wholly destroyed by fire. There were some very large poplars growing here; the stumps of some of them are upwards of two feet in diameter. About the southerly half of township 7 is alternately rocky or sandy ridges, with brulé and swamps, with spruce and tamarack.

On the meridian between ranges 12 and 13 across townships 9 and 10 the country is chiefly swamp and muskeg. Some narrow belts of very good cedar were met with, but of no considerable area, also some fair sized spruce and tamarack timber. On the same meridian across townships 8 and 7, the country is chiefly swamp, with some belts of fair cedar. Nearly all the good timber has been destroyed by fire. From the Dawson Road, for about one and a half miles to the northward, the country consists of light sandy ridges, alternately, with swamps, generally, with very little timber on the ridges, some portions being covered with pitch-pine and a few scattering poplars. In the swamps the timber is chiefly small spruce and tamarack.

The whole country gone over might be briefly described thus: Wherever rocky or sandy ridges were met with, whatever timber may have been growing on them is now nearly all destroyed by fire, which has also burned up all the soil on the rocks. The only green timber of any extent is in the swamps, which are generally so wet that the timber is of very little value excepting for fencing material and ties. The largest of it would do for railway trestles.

Bog River runs in a northerly direction through township 9, range 12. Its average width is about seventy-five links; banks about ten feet high; channel very crooked; full of boulders and very little current. The water is of a very bad quality. — *W. Pearce*, 1875.

For further description of this county, see Report of Dr. G. M. Dawson, in the description of the County of Carillon.

RANGE IV.

7. *Outlines.*—South and east, is rolling prairie with an occasional small bluff of poplar, and hay meadow. The soil is of a first-class quality.—*John Johnston*, D.L.S., 1872.

Sub-division.—A large part of this township is covered by marshes, interspersed with high ridges of prairie. Timber is very scarce throughout the township. Notwithstanding these disadvantages, about one-half of the township is good farming land.—*A. W. Lippe*, D.L.S., 1872.

8. *Outlines.*—North, the surface is rather low, with a number of narrow ridges; between these ridges it is mostly hay land of excellent quality There are a few clumps of poplar and willow here and there. The soil is of a second-class quality.

East, is an open rolling prairie, with an occasional clump of poplars and a number of hay meadows. The Seine River flows through section 25. The soil is of a first-class quality. —*John Johnston*, D.L.S., 1871.

Sub-division.—Excellent land, and well adapted for farming.—*A. W. Lippe*, D.L.S., 1872.

9. *Outlines.*—South, the surface is rather low, with a number of narrow ridges. There are a few scattered clumps of poplar and willow. The most of the land may be classed as hay land. The soil is of a first-class quality.

East, is an undulating prairie, with bluffs of poplar and scattered poplar with stunted oak and willow brush. The Seine River flows in a north-westerly direction, through section 24. The soil is of a first-class quality.—*John Johnston*, D.L.S., 1871.

Sub-division.—A large portion of this township consists of deep marsh, quite unfit for cultivation in its present state. The remainder is flat; the land is nowhere of really good quality; on the whole, the north-eastern part is the best.

Towards the south and east, the land is flat, with black soil, and in general, clumps of willow and poplar.

Large quantities of coarse hay are cut on these lands. The south-western part is pretty good land; to form an opinion, however, was difficult, by reasons of the late fires, which had entirely destroyed every trace of vegetation, and in many cases consumed the surface soil itself.—*F. H. L. Staunton*, D.L.S., 1871.

RANGE V.

7. *Outlines.*—West, is a rolling prairie, with an occasional small bluff of poplar and hay meadow. The soil is of a first-class quality.—*John Johnston*, D.L.S., 1871.

Sub-division.—Is chiefly level prairie, with a heavy clay soil, undulating slightly on the western side through sections 17, 19, 20 and 30. There is a considerable tract of wet land which produces, when not too much flooded, an abundance of

tall rank grass. There is but little wood in the township and that is of inferior growth, and much damaged by fire; it is composed chiefly of poplar and willow, with some tamarack on sections 6 and 8.—*T. Cheeseman*, D.L.S., 1872.

8. *Outlines.*—North, is nearly all a good prairie with occasional patches of hay land; part of section 36 is in "The Great Marsh." There is some small poplar with willow in sections 34 and 35. The soil is of a first-class quality.

West, is a rolling prairie, with an occasional small bluff of poplar and hay meadow. Seine River flows through section 30. The soil is of a first-class quality.—*John Johnston*, D.L.S., 1871.

Sub-division.—The northern part of this township, extending from the north boundary nearly to the road which leads from Winnipeg to Oak Point, is either bog or level wet land, broken occasionally, by low, dry willow or poplar ridges. In the south-west corner there is also a quantity of low flooded land, which renders some four or five sections unfit for farming. From the west boundary of the township at its intersection with the Winnipeg and Oak Point Road, there is a belt of good clay loam prairie land, running along the north side of the above mentioned road to the east boundary, and running along the south of the road about one-third of the distance across the township, at which point it widens out and extends to the south boundary of the township.—*T. Cheeseman*, D.L.S., 1872.

9. *Outlines.*—South, is nearly all prairie and hay land, part of section 1 is in "The Great Marsh." There is some small poplar and oak with willow in sections 1 and 2. The River Seine flows through sections 1, 2 and 3.

West, is an undulating prairie, with bluffs of poplar and scattered poplar trees with stunted oak and willow brush. The land is swampy in section 6.—*John Johnston*, D.L.S., 1871.

The greater part of this township is taken up by the parish of Lorette.

Sub-division.—The surface of this township is generally level prairie, interspersed with islands of poplar, with a fair quantity of low rich bottom land, good for hay, which, with a small amount of drainage could be made first-class farming land.

The Seine River runs through the southern part of the township from east to west, the banks of which descend abruptly, averaging about ten feet in height, and are generally wooded with poplar and small oak. The water is fresh and good, and the soil deep rich loam well mixed with clay.—*E. C. Caddy*, D.L.S., 1872.

RANGE VI.

7. *Outlines.*—East, is an undulating prairie, with willow scrub and occasional clumps of poplar and tamarack. There are some

small hay swamps here and there. The soil is of a first-class quality.—*John Johnston*, D.L.S., 1872.

Sub-division.—The two northern tiers of sections of this township are chiefly level prairie. The southern part is undulating, and intersected by gullies or ravines which effectually drain it of all surface water. The beds of these gullies, when drained off in summer, produce heavy crops of hay of a superior quality. The soil is a deep clay loam, easily worked, and well adapted for agricultural purposes. The timber is chiefly young poplar of vigorous growth, though, as is frequently the case, it has been much injured by fire. On parts of sections 4, 8, 11 and 14 there is some tamarack of good size.—*T. Cheeseman*, D.L.S., 1872.

8. *Outlines.*—North, sections 35 and 36 are open prairie with a first-class soil; the remaining four sections are within "The Great Marsh."—*John Johnston*, D.L.S., 1871.

Sub-division.—About one-third of this township is included within the parish of Ste. Anne. The portion subdivided is a level prairie, with a deep strong soil. The only woods are a few small bluffs of poplar and willow.

The northern part of the township is nearly all composed of marsh, of little value in its present state.

The River Seine enters the township near the middle of the eastern boundary, flows across the township, and leaves it in section 31. The river averages about one hundred links in width and from eight to ten feet deep, without any perceptible current in places.—*T. Cheeseman*, D.L.S., 1872.

9. *Outlines.*—South, the northern boundary of the "Great Marsh" encroaches slightly on this boundary. The land is a first-class prairie, with a good soil. The River Seine flows in a westerly direction through sections 4, 5 and 6.

East, is an open prairie, with an occasional bluff of poplar. There are many marshy tracts. The soil is of a first-class quality.—*John Johnston*, 1871.

Sub-division.—Is chiefly level prairie, with a large area of hay land in the southern part. On the southern side of the Seine River there is a large marsh, totally unfit for cultivation, a part of which could not be surveyed.

The Seine River runs through the south-western corner of the township, the water in which is fresh and good.

The soil is generally a rich deep clay loam.—*E. C. Caddy*, D.L.S., 1872.

RANGE VII.

7. *Outlines.*—West, is an undulating prairie, with willow scrub and occasional clumps of poplar and tamarack. There are some small hay swamps here and there. The soil is of a first-class quality.—*John Johnston*, D.L.S., 1872.

Sub-division.—All the eastern part is covered by a very bad marsh (two miles in width) called "The Devil's Swamp."

The soil of the rest of the township is of second-class quality, excepting two miles of the westerly part, which is superior. The Seine River traverses the township from south to north, furnishing an abundance of pure good water, and is generally wooded on both sides, and in some places building timber is met with.—*A. F. Martin*, D.L.S., 1872.

8. *Outlines.*—North, sections 31 and 32 are open prairie, with a small belt of poplar. The remaining sections are mostly timbered with poplar. There is an open muskeg in section 35. There are a number of small creeks draining the township. The soil is a sandy loam of a good quality.—*John Johnston*, D.L.S., 1871.

Sub-division.—The westerly part comprises part of the flourishing settlement of "Oak Point" (Parish of Ste. Anne). The remainder of the township is wooded with poplar, spruce and willow. The northern part contains building timber; elsewhere the timber is fit for firewood only. The Dawson Road crosses this township. The soil is generally sandy. The south-easterly part is all marsh.—*A. F. Martin*, D.L.S., 1872.

9. *Outlines.*—South, sections 1, 2 and 3 are prairie, with occasional clumps of poplar. The remaining sections are timbered with poplar. There is an open muskeg in section 2. The soil is a sandy loam of a good quality.

West, is an open prairie, with an occasional bluff of poplar. There are many tracts of marshy land. The soil is of a first-class quality.—*John Johnston*, D.L.S., 1871.

Sub-division.—The soil and timber in the easterly part are of inferior quality. The westerly part is well adapted for settlement, and the timber and the water are of good quality. A branch of Cook's Creek flows across the north-eastern part of the township.—*A. H. Vaughan*, D.L.S., 1872.

RANGE VIII.

7. *Outlines.*—East, the surface is undulating and generally timbered with Norway pine, spruce, tamarack and a few cedars. There are some tracts of marshes. The soil is of a second-class quality.—*John Johnston*, D.L.S., 1872.

Sub-division.—The whole township is almost unfit for settlement in its present state, being composed of swamps and stony land, but is well wooded.—*A. F. Martin*, D.L.S., 1872.

8. *Outlines.*—North, is timbered with poplar, black oak, spruce, tamarack and willows. There is an open muskeg in section 33. The land is of a second-class quality.—*John Johnston*, D.L.S., 1871.

East, has an undulating surface and many ridges; is timbered with small poplar, white birch, spruce, tamarack, and a few cedars. The soil is of a second-class quality. The Dawson Road passes through section 13, where there is some first-class land along a creek.—*John Johnston*, D.L.S., 1872.

Sub-division.—Though wooded, has but little timber suitable for building purposes, excepting in sections 18 and 19, which contain some groves of good spruce. The land is hardly suitable for agricultural purposes, in its present state, it being either swampy or sandy The Dawson Road crosses this township.—*A. F. Martin*, D.L.S., 1873.

9. *Outlines.*—South, is timbered with poplar, black oak, spruce, tamarack and willows. There is an open muskeg in section 4. The land is of a second and third class quality.

East, about one-half of the land along this boundary is low and marshy, and covered with tamarack, spruce and cedar; the drier portion is timbered with poplar, elm, black ash and white birch. The land is of a second-class quality. A branch of Broken-head River runs north-easterly through section 24. —*John Johnston*, D.L.S., 1871 and 1872.

Sub-division.—The soil and timber are of an inferior quality, the timber being generally small, and the land swampy and sandy.—*A. H. Vaughan*, D.L.S., 1872.

RANGE IX.

7. *Outlines.*—West, the surface is undulating, and timbered generally with Norway pine, spruce, tamarack, and a few cedars. There are a few small tracts of marshy land. The soil is of a second class quality.—*John Johnston*, D.L.S., 1872.

8. *Outlines.*—North, is timbered with small poplar, tamarack, spruce, cedar and white birch. There is a muskeg in the northern part of section 31. There is a stream, fifty links wide, in section 33, and the Brokenhead River in section 35. The land is of a second-class quality.—*John Johnston*, D.L.S., 1871.

West, has an undulating surface and many ridges; is timbered with small poplar, white birch, spruce, tamarack and a few cedars. The Dawson Road passes through section 18, where there is some first-class land.—*John Johnston*, D.L.S., 1872.

9. *Outlines.*—South, is timbered with small poplar, tamarack, spruce, cedar and white birch. There is a muskeg in section 6. Brokenhead River flows through section 2. The soil is of a second and third-class quality.

West, about one-half of this boundary runs through low and marshy land, covered with tamarack, spruce and cedar; the drier portion is timbered with poplar, elm, black ash and white birch. The land is of a second-class quality. A branch of Brokenhead River runs in a north-easterly direction through section 24.—*John Johnston*, D.L.S., 1871 and 1872.

RANGE X.

7. *Outlines.*—East, is timbered with tamarack, spruce and Norway pine, much of which, however, is burnt. There are a number

of swamps on which there is a growth of small tamarack.—*John Johnston*, D.L.S., 1872.

8. *Outlines.*—North, is timbered with red pine, cedar, white birch, balsam, poplar and tamarack. Sections 31, 32 and 33 are mostly muskeg. There is a shallow lake partly in sections 33 and 34.—*John Johnston*, D.L.S., 1871.

East, is timbered with spruce, tamarack, red pine and cedar. The timber is burnt in a number of places. The soil generally is of a first-class quality.—*John Johnston*, D.L.S., 1872.

9. *Outlines.*—South and east, is timbered with red pine, cedar, white birch, balsam, poplar and tamarack. Sections 31, 32 and 33 are mostly muskeg. There is a shallow lake partly in sections 3 and 4.—*John Johnston*, D.L.S., 1871 and 1872.

RANGE XI.

7. *Outlines.*—West, is timbered with tamarac, spruce and red pine, much of which, however, has been burnt. There are a number of swamps in which there is a growth of small tamarack.—*John Johnston*, D.L.S., 1872.

South, in the vicinity of this boundary the surface is chiefly rolling, with ridges of very light sandy soil, with very little timber, which consists of small pine. A portion of this country has been covered with pitch-pine which was destroyed by fire several years ago, and is now covered with a dense growth of pitch-pine brush. There are some patches of cedar of fair size and quality, but of no great extent.—*W. Pearce*, D.L.S., 1875.

8. *Outlines.*—West, is timbered with spruce, tamarack, Norway pine and cedar. The timber has been burnt in a number of places. The soil is generally of a first-class quality.—*John Johnston*, D.L.S., 1872.

North, is generally all swamp or muskeg, timbered here and there with small spruce, tamarack and cedar. In sections 35 and 36 there is some fairly good land and large poplar, cedar, tamarack, spruce and birch.—*W. Pearce*, D.L.S., 1875.

9. *Outlines.*—West, is timbered with red pine, cedar, white birch, balsam, poplar and tamarack.—*John Johnston*, *D.L.S.*, 1872.

South, is nearly all swamp or muskeg, with a few small scattered tamarack, most of which, however, has been killed by fire.—*W. Pearce*, D.L.S., 1875.

RANGE XII.

7. *Outlines.*—South, is chiefly a swamp, covered with spruce and tamarack of small size. Whitemouth River flows in a northerly direction through section 5; on each side of the river there are belts of dry land, averaging half a mile each in depth; the soil is sandy and rather stony. The belts are timbered with large poplar, oak, spruce, balsam, birch and elm.

East, is mostly swamp, with occasional sandy ridges, the former is timbered with small spruce and tamarack, the latter with pitch pine, poplar, etc.—*W. Pearce*, D.L.S., 1875.

8. *Outlines.*—North, is all swamp or muskeg, excepting a belt of dry land on either side of Whitemouth River, these belts extend back from the river from thirty to fifty chains, and are timbered with large poplar, birch and balsam, the land is of fair quality. The swamps are timbered with small tamarack and spruce.

East, the land is rather swampy with an occasional small muskeg, the former is timbered with small spruce and tamarac, the most of which has been destroyed by fire.—*W. Pearce*, D.L.S., 1875.

9. *Outlines.*—South, is all swamp or muskeg, except along the banks of Whitemouth River, on the right bank, the belt of dry land is generally only a few chains in depth, with little timber thereon. Along the left bank the belt is nearly a mile in depth, timbered with large poplar, birch, spruce and cedar, but most of which has been destroyed by bush fires. The soil is light, sandy and stony. The swamps are timbered with spruce and tamarack.

East, Boggy River runs in a north-westerly direction through Section 1; there is a belt of dry land for a short distance on each side of the river; the soil is gravelly and sandy. The timber on this belt consists of oak, black ash, elm, spruce, birch and balsam. The remaining portion of the of the country along this boundary is swamp covered with small spruce, tamarack and cedar.—*W. Pearce*, D.L.S., 1875.

RANGE XIII.

7. *Outlines.*—South and west, is chiefly swamp, which is timbered with small spruce and tamarack and is of little value. Where the land is dry the timber has been destroyed by fire and in such places the soil is gravelly.—*W. Pearce*, D.L.S., 1875.

8. *Outlines.*—North, is all swamp except along the banks of Boggy River which runs diagonally in a north-westerly direction across the township. The swamps are generally covered to a great depth with moss on which there is a growth of small tamarack and a few spruce and cedar. Along the Boggy River the belts of dry land are from ten to twenty chains in depth. The soil is light sandy loam. Here the timber is of good size.

West, the land is rather swampy with an occasional small muskeg, on the former there is a growth of small tamarack, spruce and some cedar, much of which, however, has been killed by fire.—*W. Pearce*, D.L.S., 1875.

9. *Outlines.*—South, is all swamp except along the banks of Boggy River, where there are belts of dry land running back from the river a distance of from ten to twenty chains. There

is a great depth of moss in the swamps, which are generally covered with a small growth of small tamarack, spruce, and a few cedars.

West, is all swamp except a part of section 6. The swamp is timbered with small tamarack and spruce. There are occasional groves of cedars.— *W. Pearce*, D.L.S., 1875.

RANGE XIV.

7. *Outlines.*—East, Sections 36, 25 and 24 are swamp and muskeg, timbered with small tamarack and spruce. The remaining three sections are alternately rocky, sandy ridges with burnt timber, and swamp with small tamarack and spruce.

South, is alternately swamp and rocky or sandy gravelly ridges, there is a good deal of scattered cedar. Birch Lake for a mile and a half is intersected by this boundary.— *W. Pearce*, D.L.S., 1875.

8. *Outlines.*—North, this boundary runs entirely through swamp which is timbered in most places with small tamarack and a few spruce and cedar.

East, is all swamp or muskeg, except along the banks of Boggy River, and timbered with small tamarack, spruce and cedar, some of which has been destroyed by fire. Along Boggy River, which flows in a north-westerly direction through section 1, there is some dry land, timbered with large poplar, spruce and tamarac, with a light sandy soil. The river is very crooked; the water where the line crosses it is seven feet deep, very little current and very bad water.— *W. Pearce*, D.L.S., 1875.

9. *Outlines.*—North, is all swamp, with small tamarack and a few spruce, with occasional areas of open swamp with tall reeds.

East, is alternately swamp and high rocky land, the whole is timbered with pitch-pine, spruce and tamarack; on the rocky land the timber is nearly all burnt off, and a growth of young timber is springing up; in the swamps the timber is of small size. The soil where there is any, is of poor quality. — *W. Pearce*, D.L.S., 1875.

RANGE XV.

7. *Outlines.*—West, sections 31, 30 and 19 are all swamp and muskeg with small tamarack and spruce. Sections 18, 7 and 6 are alternately rocky sandy ridges with burnt timber, and open swamp with scattered tamarack and spruce timber.

South, Sections 1 and 6 are dry and rocky, timbered with tamarac, spruce, poplar, balsam and cedar, much of which, however, has been killed by fire. The remaining four sections are mostly swamp or muskeg. The swamps are generally timbered with small tamarack and spruce, nearly all of which is dead.— *W. Pearce*, D.L.S., 1875.

8. *Outlines.*—North, is nearly all swamp, timbered with small tamarack, spruce and a few scattered cedars. There are

occasional small areas of rocky ground where the timber is generally fire-killed.

West, is almost all spruce and a tamarack swamp, the timber being small. On the left bank of Boggy River there is a belt of light sandy land on which the timber has been almost wholly destroyed by fire. Boggy River runs in a north-westerly direction through section 6.— *W. Pearce*, D.L.S., 1875.

9. *Outlines.*—South and west, these lines run through a country which is about one-half rocky, covered with brulé and the other half swamp with small spruce and tamarack, intermixed with a few cedars. On the rocky ground where the timber has been killed by fire it is nearly all fallen, and a young growth is now springing up.— *W. Pearce*, D.L.S., 1875.

RANGE XVI.

7. *Outlines.*—East, is mostly swamp, with a dense growth of spruce, cedar, tamarac, and in the drier parts mixed with poplar and birch.

South, the character of the country along this boundary is similar to that on the eastern.— *W. Pearce*, D.L.S., 1875.

8. *Outlines.*—North, is generally a rocky and rough country, covered with a second growth of pitch-pine, with occasional patches of spruce, balsam and tamarack. There are a few small swamps on which there is a growth of small tamarack.— *W. Pearce*, D.L.S., 1875.

East, the land generally is rocky and of fourth-class quality with occasional patches of second-class land in the vicinity of Falcon Lake and River. It is mostly timbered with poplar, spruce, birch, tamarack, cedar, and a few scattered pine. Section 12 is a swamp, timbered with small spruce and tamarack. Falcon Lake occupies the greater part of section 36 and a portion of 25. Falcon River along which there are some fine hay lands, runs in a south-easterly direction through section 13.— *W. Pearce*, D.L.S., 1878.

9. *Outlines.*—South and east is generally a rough, rocky country, covered with brulé and occasional patches of green timber, consisting of pitch pine, spruce, tamarack and balsam. There are a number of small swamps on which there is a growth of small spruce and tamarack.— *W. Pearce*, D.L.S., 1875.

RANGE XVII.

7. *Outlines.*—West, is mostly swamp, with a dense growth of spruce, cedar, tamarack, and in the drier parts mixed with poplar and birch.

South, the westerly five miles of this boundary is a very wet spruce and tamarack swamp, with very small timber, the remainder consists chiefly of ridges of rocky country, covered brulé; there is no timber of any value.— *W. Pearce*, D.L.S., 1875.

There is some good land on the peninsula between Indian and Snow Shoe bays in the eastern part of the township ; the timber has been burnt; there is now a growth of young poplar.—*A. H. Vaughan*, 1884.

8. *Outlines.*—North, along the northern shore of Falcon Lake the country is rough and rocky, the timber in many places has been killed by fires.— *W. Pearce*, D.L.S., 1875.

West, the country consists of either ridges of rock or swamp, with a growth of spruce and tamarack, occasionally a few cedars, birch and pine, excepting on the southern shore of Falcon Lake, where there is some soil sandy and rather stony, and in the valley of Falcon River, which averages about a fourth of a mile in width, here the land is rather wet, but is very fine hay land, the grass being of a very heavy growth. Along this boundary in several places there is some fair sized timber of good quality.— *W. Pearce*, D.L.S., 1878.

9. *Outlines.*—South, on the north side of Falcon Lake the country is generally very rough and rocky, covered with brulé, with occasional clumps of green timber, each of a few acres in extent, and lying in valleys. In some of these the trees are of a fair size and suitable for building purposes.

On the brulé referred to. which extends westerly several miles, the timber was destroyed several years ago, it is now nearly all fallen, and in many places the ground is covered with a dense undergrowth of pitch-pine.

West, is chiefly rocky, covered with brulé, with occasional swamps, timbered with small spruce and tamarack, the quality of which is good, but the quantity is small.— *W. Pearce*, D.L.S., 1875.

CHAPTER IV.

County of Selkirk.

RANGE I.

11. *Outlines.*—West, a level prairie, suitable for pasturage. The soil is a clay loam of a first-class quality.—*Milner Hart*, D.L.S., 1871.

North, an undulating prairie, with occasional tracts of hay meadows. The soil is a black clay loam of a first-class quality, though rather gravelly in places.—*R. W. Hermon*, D.L.S., 1871.

Sub-division.—Is a level prairie with a few willow bushes. Sturgeon Creek, running through it from west to east and about the middle from north to south, gives this township a great advantage. The soil in general is of first-class quality, and very well adapted for agricultural purposes.—*W. Wagner*, D.L.S., 1871.

12. *Outlines.*—West, mostly pasture land; some portions suitable for agricultural purposes. There are a few belts of poplar and scrubby oak timber. There are a number of gravelly ridges.—*Milner Hart*, D.L.S., 1871.

North, is a beautiful prairie, with occasional bluffs of poplar and patches of hay meadow. The soil is of a first-class quality.—*Bolton Magrath*, D.L.S., 1871.

Sub-division.—Is a rolling prairie with a good many depressions thereon, forming meadows. Some of these meadows are covered with a most luxuriant growth of grass, reaching upwards of five feet.

In places where these meadows had been mowed the second crop of grass was found to be eighteen inches high. Two crops of hay may be procured in one season with ease.

A prominent ridge runs from the north-west to the south-east, containing lime, marl and gravel. There is no running stream or natural spring of water in this township, but wells have been dug by the hay-makers, of which one contained some water in a depth of eight feet, at dry season, leading to the conclusion that a supply of water will never fail when properly looked for.

At the places where the wells have been dug the section of the ground was two to four feet of black mould, and under it blue or yellow clay.

On the higher prairie the surface soil has a depth of from six inches to one foot, with clay under it, except in those places where the gravel predominates.

There is not much wood in this township; the whole may be estimated at about three hundred and fifty to four hundred

acres, consisting of young poplars and scrubby oak.—*W. Wagner*, D.L.S., 1871.

RANGE II.

11. *Outlines.*—North, is an undulating prairie, with occasional patches of hay meadow. The soil is a rich black clay loam of first-class quality.—*R. W. Hermon*, D.L.S., 1871.

Sub-division.—There is no timber, excepting a small quantity of swamp willow. Water is plentiful. The entire township will make valuable agricultural land. A stony or rocky ridge traverses this township from north to south. Stone is quarried in section 34 and brought to Winnipeg for building purposes; it is a soft greyish limestone.—*S. L. Brabazon*, D.L.S., 1871.

12. *Outlines.*—North, is an undulating prairie, with a number of patches of good meadow land. There are a number of gravelly and stony ridges in sections 32 and 34. The soil is of a first and second-class quality.—*Bolton Magrath*, D.L.S., 1871.

Sub-division.—Is for the most part an open prairie, there being but three or four groves of poplar, a few oak and some swamp willows intermixed with it. It is quite likely that the whole of this has been since destroyed by fire.

With the exception of some small areas of alkaline land, where a very scanty herbage grows, the entire township may be classed as very superior agricultural land.—*S. L. Brabazon*, D.L.S., 1871.

RANGE III.

12. *Outlines.*—North, is a level prairie, with patches of low willow. The soil is of a first-class quality.—*Bolton Magrath*, 1871.

Sub-division—(Fractional township). Is fine rolling prairie, well suited for cultivation Salt appears in the soil in many places.—*R. W. Hermon*, D.L.S., 1871.

RANGE IV.

10. *Outlines.*—North and east, is an open prairie, with patches of willow and occasional small bluffs of poplar. There is quite a large extent of hay meadow. The soil is of a first and second-class quality.—*John Johnston*, 1871.

Sub-division.—The soil is generally good, although to the south and west there is a quantity of marsh.

There are no streams, and no timber of any value except for firewood. There is a good deal of hay land. At the time of the survey the great fire which had recently passed over the whole district had destroyed all grasses, and left the country a blackened waste; it was therefore difficult to judge of the quality of the land.—*F. H. L. Staunton*, D.L.S., 1871.

11. *Outlines.*—South and east, is an open prairie with patches of willow brush, and an occasional small bluff of poplar. There are a number of shallow marshes, with good hay meadows along the southern boundary. The soil is of a first-class quality.—*John Johnston*, D.L.S., 1871.

Sub-division.—The land in this township is of the best quality, with few exceptions. There is a considerable quantity of timber.—*Donald Sinclair*, D.L.S., 1871.

12. *Outlines.*— East, has an undulating surface, with bluffs of poplar, scattered oak, and an occasional small swamp, on which there is a growth of small tamarack. The soil is a sandy loam of first-class quality.—*John Johnston*, D.L.S., 1871.

Sub-division.— This is a fractional township, containing only about 2,600 acres; the land is of the best quality; there are a number of small hay marshes and an occasional bluff of small poplar.—*Donald Sinclair*, D.L.S., 1871.

RANGE V.

10. *Outlines* —West, is an open prairie, with patches of willow brush, and an occasional small bluff of poplar. There are a number of small hay marshes. The soil is of first and second-class quality.—*John Johnston*, D.L.S., 1871.

North, is prairie, with willow brush and a number of tracts of meadow land. The soil is of a first-class quality.—*Edgar Bray*, D.L.S., 1872.

Sub-division.—A great part of this township is open level prairie, with a large portion of hay land which lies principally to the south. There are some groves of poplar timber in the south-eastern part of the township. The soil is a deep rich loam, well mixed with clay.—*E. C. Caddy*, D.L.S., 1872.

11. *Outlines.*—West, is an open prairie with patches of willow brush and an occasional small bluff of poplar. The soil is of a first-class quality.—*John Johnston*, D.L.S., 1871.

South, is prairie covered in many places with willow bushes. There are many tracts of hay meadow. The soil is of a first-class quality.—*Edgar Bray*, D.L.S., 1872.

Sub-division.—This is a first-class township for farming purposes, furnishing fine pasture lands, with soil of the richest quality. About one-sixth of the area of the township is taken up by marshy meadow land, very valuable for its hay. The marshy land has a considerable fall and outlet to the north-east and north-west, the water emptying into Cook's Creek. Though springs are numerous, there are no creeks in the township.

Strawberries, raspberries, cherries, plums and currants are the principal wild fruits.—*H. Lawe*, D.L.S., 1872.

12. *Outlines.*—North, is nearly all timbered with poplar, some of which is fire-killed. There are a few patches of marsh, here

and there. The soil is of a first and second-class quality. Cook's Creek flows in a northerly direction through section 35.—*Bolton Magrath*, 1871.

West, has an undulated surface, with bluffs of poplar, scattered shunted oak. There are a number of small hay swamps here and there. The soil is a sandy loam of a first and second-class quality.—*John Johnston*, D.L.S., 1871.

Sub-division.—The soil is of first-class quality, excepting in the centre of the township, where it is inferior. The timber consists of large poplar, from twelve to eighteen inches in diameter, and spruce and tamarack in the swamps of similar dimensions.—*D. Sadler*, D.L.S., 1872.

RANGE VI.

10. *Outlines.*—East, the land is rather swampy in places. There are many bluffs of poplar. The land is of second-class quality. *John Johnston*, D.L.S., 1871.

North, is good prairie land with occasional hay meadows. Cook's Creek flows in a northerly direction through section 33. The soil is of a first-class quality.—*Edgar Bray*, D.L.S., 1872.

Sub-division.—Has generally a low level surface, with large portion of hay land in the south-western part. On the southern side of the Seine River there is a large marsh, totally unfit for cultivation in its present state.

The Seine River runs through the south-western corner of the township, the water in which is fresh and good.

The soil is generally a rich deep clay loam.—*E. C. Caddy*, D.L.S., 1872.

11. *Outlines.*—South and east, is nearly all prairie ; was formerly nearly all wooded with poplar, which has been burnt. Some of the dead timber is still standing. The land is wet and gravelly in places, and is generally of a third-class quality.—*Edgar Bray*, D.L.S., 1872.

Sub-division.—The soil is a rich clay loam on the westerly two-thirds, the easterly third has a gravelly loam on the top of the ridges, in some places stony, and a rich loam at their foot. One-sixth of the area is taken up by marshy meadow, most of which is unfit for cultivation in its present state, but is valuable for the hay which it produces. The largest portion of this marshy land lies on the western side, and appears to be a good deal higher than the bottom of Cook's Creek, into which it drains ; most of it could be drained at very little cost. Several sections are timbered with poplar.

Water can be found by digging to no great depth.—*H. Lawe*, D.L.S., 1872.

12. *Outlines.*—North, the surface is rolling and covered with poplar woods and many tracts of marsh. The land is stony in a number of places. The soil is of a second-class quality.

Cook's Creek flows in a northerly direction through Section 36.—*Bolton Magrath*, D.L.S., 1871.

East is nearly all timbered with poplar. There are many marshy tracts. The land is of a second-class quality. Cook's Creek flows in a northerly direction through Section 1.—*Edgar Bray*, D.L.S., 1872.

Sub-division.—Rolling land, traversed by numerous ridges and marshes mostly bearing north-west and south-east. Some of the marshes are very extensive and miry, though very valuable for hay. Nearly half the township is covered by poplar bush. There are several small creeks in the township, one of which, Cook's Creek (a spring creek) furnishes water during the whole year.—*H. Lawe*, D.L.S., 1872.

RANGE VII.

10. *Outlines.*—West, the surface is rather low and swampy in places. There are many bluffs of poplar. The land is of a second-class quality.—*John Johnston*, D.L.S., 1871.

North, there are some spruce and tamarac woods alternating with poplar with a dense bottom growth of willow and hazel. There are several tracts of marsh on some of which there is a growth of willows. The land is of a second-class quality.—*Edgar Bray*, D.L.S., 1872.

Sub-division.—The western part is well adapted for settlement. The timber being so near the adjoining prairie, makes the wooded sections very valuable. The principal kinds of timber are spruce, juniper and poplar. The surface of the township is undulating, and water in all the brooks is good.—*G. A. Bayne*, D.L.S., 1872.

11. *Outlines.*—South and west is alternately covered with burnt woods and marshy land. The timber consisted of spruce, tamarack and poplar, with willow and hazel underbrush. In places there is a new growth of poplar, spruce and tamarack. The land is of a second-class quality.—*Edgar Bray*, D.L.S., 1872.

Sub-division.—Rolling prairie, broken by numerous swamps and gullies. In Sections 7 and 8 are a few clumps of small poplar and willows, from two to four inches in diameter. In September, 1882, most of the swamps and marshes were dry. Water can easily be obtained by digging a few feet. Soil sandy, gravelly and yellow loam, averaging in depth from three to eight inches; chiefly second-class, with some first.—*G. A. Bayne*, D.L.S., 1873.

12. *Outlines.*—North and west is alternately poplar or spruce woods and marsh or meadow land. The land is of a second-class quality.—*Edgar Bray*, D.L.S., 1872.

Sub-division.—Rolling prairie, with very few marshes, and these contain good fresh water. No timber whatever. Soil, a clay loam, mixed very much with gravel in places; uniformly first-class.—*G. A. Bayne*, D.L.S., 1873.

RANGE VIII.

10. *Outlines.*—East, fifty per cent of the land along this boundary is low and marshy. The whole is timbered with tamarack, spruce, white birch and poplar; in some places much of the timber has been destroyed by fire. The soil is of a second-class quality.—*John Johnston*, D.L.S., 1872.

North, is alternately covered with spruce, tamarack poplar and willows and marshy tracts, on some of the latter, there are some small spruce, and on others tamarack. Much of the timber is fire-killed with wind-falls, and a new growth is springing up. The land is of a third-class quality.—*Edgar Bray*, D.L.S., 1872.

Sub-division.—Is chiefly low flooded swamps, with excellent groves of spruce and tamarack suitable for building purposes. The easterly part is traversed by a stream.—*John Grant*, D.L.S., 1872.

11. *Outlines.*—South and east, the surface is covered alternately with spruce and tamarack woods or poplar, with an occasional marshy tract. There are a number of extensive windfalls and areas of burnt woods. Where the poplar has been killed, there is a new growth. The land is stony and of a third-class quality. Broken Head River flows through sections 1 and 13.—*Edgar Bray*, D.L.S., 1871.

Sub-division.—Is unfit for settlement. The principal timber is spruce and juniper. Broken Head River flows through the eastern part of the township. On its banks are some fine groves of hardwood.—*G. A. Bayne*, D.L.S., 1873.

12. *Outlines.*—North and east, the surface is undulating and timbered with poplar, spruce, tamarack, red pine and birch, and along Broken Head River there is a heavy growth of oak, elm, ash and balm of Gilead. The soil is sandy, stony and rocky, except along the river, where there is good sandy loam. There are a number of small marshy tracts. Broken Head River flows in a northerly direction, through the centre of the township.—*Edgar Bray*, D.L.S., 1872.

Sub-division.—Is generally unfit for settlement, excepting a few sections on the Broken Head River, which are rich and loamy. The remainder of the township is composed, principally of spruce swamps and hay land, with a large area of heavy poplar.—*G. A. Bayne*, D.L.S., 1873.

RANGE IX.

10. *Outlines.*—West, fifty per cent of the land along this boundary is low and marshy. The whole is timbered with tamarack, spruce, white birch and poplar; in some places much of the timber has been destroyed by fire. The soil is of a second-class quality.—*John Johnston*, D.L.S., 1872.

11. *Outlines.*—West, the surface is covered alternately with spruce and tamarack, or poplar woods, with an occasional

marshy tract. There are a number of extensive areas of windfalls and burnt woods. Where the poplar has been killed, a new growth is springing up. The land is stony and of a third-class quality. A branch of Broken Head River flows in a northerly direction through section 18.—*Edgar Bray*, D.L.S., 1872.

Sub-division.—Two-thirds of this township is composed of muskeg, overgrown with spruce and tamarack, which vary in size, from two to ten inches in diameter; a considerable portion of this timber has been destroyed by fire, and is now of no value. On the drier portion of the township there is a growth of poplar, birch and pine, with thick willows. The soil throughout is fair, and a large area of it can, by a moderate expenditure, be drained into Broken Head River, which affords ample facilities for drainage purposes. There is a fair average of good land in the township, as fully indicated by the turned-up roots of the fallen timber; it is of clay sand and clay loam on a bed of stiff clay and gravel, and varies from four to twelve inches in depth.—*J. W. Fitzgerald*, D.L.S., 1886.

12. *Outlines.*—North and west is timbered with red pine, spruce, birch, balsam, poplar and tamarack. The surface is rolling, sandy and stony. There are a number of marshy tracts.—*Edgar Bray*, D.L.S , 1872.

Sub-division.—With the exception of a few sections in the north-westerly part, the soil throughout is of an inferior quality; the north-easterly portion is too light for agricultural purposes, and the rest of the township being composed principally of muskeg overgrown with spruce and tamarack, which varies in size from two to ten inches in diameter.

The soil in sections 19, 29, 30, 31 and 32 is excellent clay loam, with clay sub-soil; timbered with poplar, willows and scattered spruce.

The township is almost uniformly flat, but can easily be drained into Brokenhead River.—*J. W. Fitzgerald*, D.L.S., 1886.

RANGE X.

10. *Outlines.*—East, is nearly all a swamp, with spruce, tamarack and balsam timber. There is some Norway pine in section 25.—*John Johnston*, D.L.S., 1871.

Sub-division.—The southern boundary, with the exception of section 1, runs through a low swampy country, yielding spruce, and tamarack, the average of which is about six inches in diameter.

The surface soil is soft and spongy, being composed mainly of vegetable mould or muck, from ten to twenty inches deep, resting generally on sub-soil of stiff bluish-white clay and gravel.

Fully two-thirds of the township, northwards from the southern boundary, is of the above description, with intervals

of open muskeg windfall and brulé interspersed. In the northern part of the township the dry land is more general.

The easterly branch of Broken Head River enters the south-west quarter of section 1, and flows in a north-westerly direction, leaving the township in section 31; along its course, on either side, are occasional belts of bush, consisting of large spruce, tamarack and birch.

There is a ridge running south-easterly through sections 34, 26 and 24, on which there is a growth of jack-pine timber of small size.—*J. Fitzgerald*, D.L.S., 1887.

11. *Outlines.*—East, sections 1, 25 and 36 are swampy with a growth of spruce and tamarack; the remaining three sections are dry in places. The dry patches are timbered with poplar, birch and balsam, in addition to the general growth of spruce and tamarack which prevails throughout. The soil is of a second and third-class quality.—*W. Pearce*, D.L.S., 1878.

Sub-division.—A large portion of the easterly half of the township is swampy, though containing limited tracts of firm soil yielding poplar, birch, tamarack and spruce, varying in diameter from four to fourteen inches.

In the dry parts the soil is mostly composed of clay loam and sand, on a sub-soil of stiff white clay. In places the sub-soil is gravelly and stony, with small boulders.

The timber along the eastern and southern sides is of fair marketable average, a large portion of it being suitable for railway ties, cordwood, &c.

In the westerly part, especially towards the northern part, there is a considerable brulé which is now being covered by a young growth of spruce, tamarack, poplar and white birch.

Of the swamp lands and muskegs, the greater part can, by clearing and drainage be rendered suitable for cultivation.

Peat of an excellent quality is found at many points in the open muskeg.—*J. W. Fitzgerald*, D.L.S., 1886.

12. *Outlines.*—East and north, is mostly a swamp covered with spruce and tamarack, with patches of dry land on which there is poplar, birch, balsam and cedar. The land is of second and third-class quality. A small creek with banks nineteen feet high, flows in a north-easterly direction through section 24.—*W. Pearce*, D.L.S., 1878.

Sub-division.—A considerable portion is fair land consisting of clay and sandy loam, generally on clay sub-soil, but frequently also on gravel, stone and small boulders, which occur only where any perceptible rise in the table-land takes place.

A large portion of the township is covered with a growth of tamarack and spruce, the northern half yielding a plentiful supply suitable for railway ties, &c. Poplar and birch grow to a large size, sometimes up to 20 inches in diameter Here the soil is deep and firm, and is composed of rich clay loam,

varying in depth from 8 to 20 inches, and of a most fertile character.

The settlers in this township have grown some excellent wheat and oats.

Much of the township requires drainage.—*J. W. Fitzgerald*, D.L.S., 1886.

RANGE XI.

10. *Outlines.*—West, is nearly all a swamp, timbered with spruce, balsam and tamarack, with a few red pine in section 25.—*John Johnston*, D.L.S., 1872.

11. *Outlines.*—West, section 6, 30 and 31 are situated in a spruce and tamarack swamp; the three remaining sections are dry in places. The dry patches are timbered with poplar, birch and balsam in addition to the general growth of spruce and tamarack which prevails. The soil is of a second and third-class quality.—*W. Pearce*, D.L.S., 1878.

Sub-division.—Nearly all of this township is swamp, with a growth of spruce and tamarack. A few small patches of poplar and birch are met with. Where tamarack predominates the country usually is wet and covered with willows. The tamarack averages in diameter 5 to 6 inches, the spruce probably a little more. When poplar and birch occur the soil is sandy loam on clay sub-soil, comparatively dry and ready for cultivation.

In the swamp there is generally about 14 to 20 inches in depth of muck composed of moss and moist vegetable matter of clay and decayed mould.

White Mouth River, which flows through this township is a winding stream about two chains wide. Its average depth is probably four feet. The banks are clay, holding small boulder, at a few points up to ten feet high, but generally slope to the river side.

If the timber was cut off and the township properly drained a large part of it might be profitably cultivated.—*J. W. Fitzgerald*, D.L.S., 1889.

12. *Outlines.*—West, is mostly a spruce and tamarack swamp; on the drier portions there is a growth of poplar and birch. The land is of a second and third-class quality.—*W. Pearce*, D.L.S., 1878.

Sub-division.—The surface generally is level, covered with spruce and poplar, most of which, however, is burnt. There are a number of shallow muskegs. The soil is of good quality.

White Mouth River traverses the township from the south-eastern to the north-western corner.—*J. W. Fitzgerald*, D.L.S., 1888.

RANGES XII AND XIII.

10. The country is chiefly swamp and muskeg, covered generally with spruce and tamarack. There are also some narrow belts of very good cedar.—*W. Pearce*, D.L.S., 1875.

RANGES XIV, XV, XVI, XVII.

10. *Outlines.*—The country is alternately swamp and muskeg, or rocky ridges; the swamps and muskegs are generally timbered with small spruce and tamarack; the ridges with pitch pine, spruce, tamarack, poplar and white birch, some of which is of fair size. Much of it, however, has been destroyed by fire. There is no soil except in small patches. There are numerous lakes in the eastern part of this tract of country. The Canadian Pacific Railway line passes diagonally through this district. — *W. Pearce*, D.L.S., 1875.

CHAPTER V.

COUNTY OF PLESSIS.

Bear River, which empties into Winnipeg River in the vicinity of Manitou Rapids, has but a small discharge. In the rapids (in September, 1862), there was not sufficient water to run a canoe over.

The river is much broken up by rapids; there is a rise of about eighty feet in the first fifteen miles from its mouth.

The adjacent country for the first eight miles is well timbered with poplar, birch, and some scattered spruce, the latter being of a very poor quality. The poplar and birch average about nine inches in diameter; is of good quality, sound and straight. The land is well adapted for cultivation along the river, and for a mile back therefrom, in rear of which it becomes swampy. Higher up the river, the land becomes more or less wet, and is not so well fitted for cultivation as that farther down.—*G. C. Rainboth*, D.L.S., 1872.

For a description of the country adjoining the east shore of Lake Winnipeg, which forms part of this county, see Wilkin's Report on Survey of Lake Winnipeg.

RANGE IX.

13. *Outlines.*—South, the surface is rolling and timbered with poplar, birch, tamarack, spruce, red pine and balsam; the spruce and tamarack generally growing on swampy land. There are many small marshy tracts. The soil is of a third-class quality.—*Edgar Bray*, D.L.S., 1872.

Sub-division.—The greater part of this township is rather heavily timbered with poplar birch, spruce, tamarack and jack-pine, interspersed with tracts of thick scrub and willow. The poplar and birch run up to twenty inches in diameter, and larger tracts of tamarack and spruce yield up to twenty inches in diameter.

The north-eastern sections are rolling, the soil light and sandy, with rocky autcrops. The sub-soil in these sections is sandy and gravelly, with stone and rock.

The township might easily be drained either into the Winnipeg or Broked Head River at comparatively little expense.—*J. W. Fitzgerald*, D.L.S., 1886.

17. *Outlines.*—North, is all muskeg, except in section 36, where the land is of a second-class quality. There are occasional rock exposures and bluffs of poplar, spruce, pine and tamarack in this section. In the muskeg there are occasional small bluffs of tamarack. There is a small creek running northerly through section 31.—*W. Pearce*, D.L.S., 1878.

18. *Outlines.*—South, is all muskeg except in section 1, where the land is of second-class quality. Here there are a number of

rock exposures. This section is timbered with bluffs of poplar spruce, pine and tamarack. In the muskeg are a number of bluffs of small tamcrack. There is a small creek running northerly through section 6.—*W. Pearce*, D.L.S., 1878.

Sub-division.—Nearly all this township consists of spruce and tamarack swamps and muskeg. In some places there are islands of dry land of all sizes, up to fifty or sixty acres in extent, covered with tamarack and spruce or mixed with poplar, birch and balsam.

In its present state, the township is not suitable for agricultural purposes. With comparatively a small expense, the township could be drained into Catfish Creek, and much land made valuable for farming purposes.—*Joseph Doupe*, D.L.S., 1885.

RANGE X.

13. *Outlines.*— South and east, is covered with a growth of tamarac, spruce, poplar, birch and balsam. There is some elm timber along the banks of the three small creeks which flow in a north-easterly direction through section 36. The land generally is swampy, and is of a second and third-class quality.—*W. Pearce*, D.L.S , 1878.

Sub-division.— Much of this township is covered with large poplar, spruce and tamarack, with dense underbrush. The poplar, spruce and tamarack ranges from 6 to 20 inches in diameter. The soil generally is a clay loam where the clay is firm, but is of a sandy character in the flats and wet places. It varies in depth from 4 to 10 inches, and rests usually on clay, sand or gravel sub-soil.—*J. W. Fitzgerald*, D.L.S., 1886.

14. *Outlines.*—East, is mostly all a spruce and tamarack swamp, with an occasional dry ridge, on which there is poplar and birch timber. There are six small creeks running in an easterly direction through sections 1 and 12. The land is of a second and third-class quality.—*W. Pearce*, D.L.S., 1878.

15. *Outlines.*—East, is timbered with spruce, tamarack, balsam, poplar, birch, ash and elm, except on section 25 and part of 24, which is a muskeg. The land is of second-class quality.—*W. Pearce*, D.L.S., 1878.

16. *Outlines.*—East is nearly all muskeg, with occasional patches of dry land, on which there is a growth of spruce, tamarack and poplar. Section 36 is a swamp, covered with a growth of small spruce and tamarack.—*W. Pearce*, D.L.S., 1878.

17. *Outlines.*—East and north is heavily timbered with poplar, birch, spruce and tamarack, interspersed with a small quantity of balsam. Along the banks of the Winnipeg River there is a very thick undergrowth of hazel brush. There are occasional patches of swamp, timbered with spruce and tamarack. The land is of a second-class quality. The Winnipeg River flows through sections 25, 36 and 24.—*W. Pearce*, D.L.S., 1878.

18. *Outlines.*—South, the Winnipeg River flows north-westerly through section 1, along the banks of which the land is of a second-class quality, with a heavy growth of poplar, spruce and tamarack, with a thick undergrowth of hazel; back of this there are numerous swamps, on which there is a growth of spruce and tamarack timber; the timber is generally of small size, and the land of a third-class quality.—*W. Pearce*, D.L.S., 1878.

Sub-division.—This township is densely wooded with poplar, spruce and tamarack. A few birch trees are scattered through the poplar, and they are also found intermixed with the pitch or jack-pine, which is the principal timber on the numerous ridges of rock.

The soil in the immediate vicinity of the Winnipeg River and as far back as the edges of the muskegs is of excellent quality. The muskegs are, as a rule, covered with moss to the depth of 18 inches, under which is a rich black loam, said to be 3 feet in depth. These muskegs can easily be drained at comparatively a very small cost.

There is an abundance of fish in both the Winnipeg and Bear Rivers.—*George McPhillips*, D.L.S., 1885.

RANGE XI.

13. *Outlines.*—West, the surface is timbered with spruce, poplar, birch, tamarack and balsam, generally of small size. There is some elm timber along the banks of the three creeks which flow in a north-easterly direction through section 31. The land is of a second and third-class quality.—*W. Pearce*, D.L.S., 1878.

Sub-division.—The township is intersected by the Winnipeg and White Mouth Rivers, which form a junction in section 33. The township is generally level, but gullies are not infrequent. The timber is chiefly spruce, tamarack, birch and poplar. Muskegs occupy a large area, they are covered generally with small spruce and tamarack, and in places dense alder, underbrush and willows. The bottom is stiff blue clay, varying in depth from 2 to 20 feet. The surface as usual is composed of springy wet moss, roots, &c.

The uplands or ridges are covered with large spruce, running up to 50 inches in diameter, with branches to the ground. Spruce, poplar, white birch and tamarack from 10 to 12 inches in diameter are also found on these ridges.

The surface soil is generally a sandy loam.

Large granite boulders are often met with.

Whitemouth River averages about two chains wide; after it passes through section 16 it begins to widen gradually to 8 chains at its mouth. Its average depth is about 3 feet, with a current of probably two miles an hour, except in freshets, when it is considerably greater. The banks are low and generally covered with a thick growth of willows. Rapids and boulders are numerous. A tract of spruce timber suitable

for the manufacture of good lumber is on the right bank of the river, from the north boundary of section 10 to the Winnipeg River. The latter river averages about 30 chains wide, with almost a continuous series of rapids, and an average current of about 4 miles an hour. Its shores are high and rocky.—*J. W. Fitzgerald*, D.L.S., 1888.

14. *Outlines.*—West, is mostly all a spruce and tamarack swamp with an occasional ridge, on which there is poplar and birch timber. There are six small creeks running in an easterly direction through sections 6 and 7. The land is of second and third-class quality.—*W. Pearce*, D.L.S., 1878.

Sub-division.—The township is intersected by the Winnipeg River which enters it in section 4, and flows nearly due north, leaving it in section 33.

Though broken in some places by gullies and ravines of from 20 to 60 feet deep, and averaging two to three chains wide, the township is generally a flat or nearly level surface. The timber consists chiefly of spruce, tamarack, poplar and white birch, with dense underbrush of alder, willows and maple scrub. The spruce is pretty heavy and of fair quality.

The soil on the dry lands is sandy and clay loam, 8 to 10 inches in depth on blue clay sub-soil. In the low lands the muck runs from 1 to 10 feet in depth and rests on blue clay.—*J. W. Fitzgerald*, D.L.S., 1888.

15. *Outlines.*—West is timbered with spruce, tamarack, balsam, poplar, birch, ash and elm, except on section 30 and part of section 19, which is a muskeg. The land is of a second-class quality.—*W. Pearce*, D.L.S., 1878.

Sub-division.—The township is generally flat, though in a few places partly broken by narrow gullies and hills. The Winnipeg River flows in a north-easterly direction through the township; it varies in width from 10 to 100 chains; its shores are generally bold and rocky.

The timber consists of spruce, tamarack, birch and poplar, with a few scattered oak. The spruce is fairly adapted for lumbering purposes.

The soil generally is of a second and third-class quality.—*J. W. Fitzgerald*, D.L.S., 1888.

16. *Outlines.*—West, is mostly muskeg, with occasional patches of dry land on which there is a growth of spruce, tamarack and poplar. Section 31 is a spruce and tamarack swamp.—*W. Pearce*, D.L.S., 1878.

Sub-division.—The western portion of the township is level and swampy for a mile east of the western boundary; the balance is gently undulated. A few rocks of from twenty to forty feet in height are met with on the eastern and northern portions, which portions are covered with small red pine averaging four to eight inches in diameter. The remainder of the township is thickly timbered with spruce, tamarack, balsam,

poplar, birch and willow. Oak and elm were seen along the banks of the Winnipeg River. The best part of the merchantable timber was cut by limit proprietors some years ago.

The soil is generally a good black loam of an average depth of four inches, with a clay sub-soil.

Lac du Bonnet abounds in fish.—*P. C. T. Dumais*, D.L.S., 1888.

17. *Outlines.*—West, is heavily timbered with poplar, birch, spruce and tamarack, intermixed with a small quantity of balsam. Along the banks of Winnipeg River there is a very thick undergrowth of hazel. There are occasional patches of spruce and tamarack swamp.—*W. Pearce*, D.L.S., 1878.

Sub-division.—This township is generally level or gently undulated. Here and there are many rocky exposures of a few acres in extent, varying in height from 15 to 60 feet, especially on the right bank of Winnipeg River, where they are rather numerous. The soil is of a very good quality, being a black loam with a clay sub-soil.

The township is entirely covered with heavy timber, consisting of spruce, balsam, poplar, birch, oak and elm, from ten to thirty-eight inches in diameter.—*P. C. T. Dumais*, D.L.S., 1888.

CHAPTER VI.

COUNTY OF MORRIS.

RANGE I.—EAST OF PRINCIPAL MERIDIAN.

4. *Outlines.*—West, a level prairie. Soil, a stiff clay of a second-class quality.—*Milner Hart*, D.L.S., 1871.

North, is an open, level prairie. The Red River flows in a northerly direction through section 35. The soil is of a first-class quality.—*L. Kennedy*, D.L.S., 1871.

Sub-division.—The soil throughout this township is of the very best quality, and will compare favourably with the finest in the province. There is, however, no timber which can be utilized.

Good water can be found in several places.—*J. B. Richard*, D.L.S., 1878.

5. *Outlines.*—West, a level prairie. The soil is a clay loam of a first-class quality, suitable for agricultural purposes.—*Milner Hart*, D.L.S., 1871.

South, is an open, level prairie. The Red River flows in a northerly direction through section 2. The soil is of a first-class quality.—*L. Kennedy*, D.L.S., 1871.

Sub-division.—Is high dry land with a very rich soil. It is open prairie, with the exception of one poplar grove in section 33, three-fourths of a mile long by one fourth broad, and a few small patches of willows. The Rivière aux Gratias runs in a south-eastern direction through the township.—*J. A. Snow*, D.L.S., 1872.

6. *Outlines.*—West, is a level prairie. The soil is a clay loam of a first-class quality, suitable for agricultural purposes.—*Milner Hart*, D.L.S., 1871.

North, is an undulating prairie with a first-class soil.—*L. Kennedy*, D.L.S., 1871.

Sub-diviston.—The soil of this township cannot be surpassed for richness. Its surface is beautifully diversified with dry prairie, suitable for cultivation, and moist prairie producing a heavy growth of wild grass.

The Rivières aux Gratias is the only stream in this township.

With the exception of a few willows in the south-west angle, and a small part of the poplar grove, which extends southward into township 5 in the same range, it is entirely destitute of timber.—*J. A. Snow*, D.L.S., 1872.

RANGE II.—E.

4. *Outlines.*—North and east is an open prairie with an occasional small bluff of poplar and a few scattering oak and willow. The

land is low in places. The soil is of a first-class quality.—*L. Kennedy*, D.L.S., 1871.

Sub-division.—There is a fine ravine running through the eastern part, on the banks of which are clumps of oak with a few poplar. The west side is chiefly prairie : the south side is covered with poplar, poplar brush and willow. The soil is a heavy clay loam. The township is interspersed with hay land.—*John Grant*, D.L.S., 1873.

5. *Outlines.*—South and east is an open prairie with an occasional small bluff of poplar and a few scattering oak and willow. The land is low in places. The soil is of a first-class quality. There is a small river flowing in a northerly direction through Section 12.—*L. Kennedy*, D.L.S., 1871.

Sub-division.—The soil of this township is very rich, and covered with thickets of poplars and willows, with beautiful tracts of open prairie between.

There is sufficient wood for all immediate purposes, including building timber, which is abundant along the eastern side of Red River.

There is only one small stream, and this was dry in the month of July, except in holes here and there; but water was easily obtained by digging in the bed of the stream.—*J. A. Snow*, D.L.S., 1872.

6. *Outlines.*—North and east, is an open undulating prairie with a few scattered willow bushes. The soil is a first-class quality. Red River flows in a northerly direction through Section 35. —*L. Kennedy*, D.L.S., 1871.

Sub-division.—Is all good land, being partly high dry prairie, and level, low, marsh or hay land.—*J. A. Snow*, D.L.S., 1872.

RANGE I.—WEST OF PRINCIPAL MERIDIAN.

4. *Outlines.*—Is all level prairie, with a first-class black clay loam soil.—*W. Beatty*, D.L.S., 1871.

A level prairie. The soil is a stiff clay of a second-class quality.—*Milner Hart*, D.L.S., 1871.

Sub-division.—Is all prairie. The north half being high and dry with clay loam- The south half is somewhat lower and wet in the spring. There are no streams or lakes in the township, and the surface water which accumulates in the spring is completely evaporated by July.—*John Grant*, D.L.S., 1872.

5. *Outlines.*—Is all level prairie, with a first-class black clay loam soil.—*W. Beatty*, D.L.S., 1871.

A level prairie. The soil is a clay loam of a first-class quality.—*Milner Hart* D.L.S., 1871.

Sub-division.—Is clear open prairie, with a fine clay loam soil. It is well fitted for agricultural purposes.

Towards the south it is very level and free from bush, but towards the north it is somewhat rough and rolling. There

is no timber of any description in the whole township.—*John Morris*, D.L.S., 1872.

6. *Outlines.*—Is a level prairie. The soil is a clay loam of a first-class quality. There is a good deal of willow scrub in Sections 1, 12 and 13. Scratching River runs through this township draining the large marsh to the north-west.—*Milner Hart*, D.L.S., 1871.

North, a level prairie, the land is rather low in places, with good pasture. The soil is of a first-class quality.—*W. Beatty*, D.L.S., 1871.

Sub-division.—Its well suited for settlement. The soil in most places a clay loam. In the vicinity of the Rivier aux Gratias, the banks of which are some eighteen or twenty feet high, it is a stiff, heavy clay.

This township is entirely destitute of timber.—*J. Morris*, D.L.S., 1872.

RANGE II.—W.

4. *Outlines.*—Is all level prairie, with a first-class black clay loam soil.—*W. Beatty*, D.L.S., 1871.

Sub-division.—This township is wholly prairie. The northern tiers of sections are low and flat, the remainder is rolling land with rich clay loam.

There is no running water in the township.—*John Grant*, D.L.S., 1872.

5. *Outlines.*—Is all level prairie, with occasional small patches of hay marsh. The soil is a clay loam of a first-class quality.—*W. Beatty*, D.L.S., 1871.

Sub-division.—Is prairie land, well adapted for agricultural purposes. The land throughout is very level. There being no gullies to drain the surface water, it gathers in low places which make good hay land.

There is no timber in this township. The land is clear of stones.—*J. Morris*, D.L,S., 1871.

6. *Outlines.*—Is all level prairie, with a heavy loam soil of a first-class quality.—*W. Beatty*, D.L.S., 1871.

Sub-division.—Is a clear open prairie of very good quality, and well adapted for agricultural purposes. The soil is a black mould with a clay or loamy clay sub-soil. There is no timber in the township, the nearest bush being some three miles to the westward.—*J. Morris.* D.L.S.—1872.

CHAPTER VII.

County of Iberville.

RANGE I.

7. *Outlines.*—West, is a level prairie, with good pasture land; not very suitable for cultivation.—*Milner Hart*, D.L.S., 1871.

South, is an excellent open prairie, with a first-class soil.—*John Johnston*, D.L.S., 1872.

Sub-division..—Is a beautiful plain, with a rich and productive soil, but totally devoid of timber and running water.—*J. B. Richard*, D.L.S., 1872.

8. *Outlines.*—West, excellent undulating prairie. Soil, a first-class loam. The River Sale flows in a south-easterly direction across the township. A belt of timber skirts the river. The township is eminently adapted for cultivation.—*Milner Hart*, D.L.S., 1871.

North, is prairie, with an occasional small bluff of poplar and hay meadow. The soil is of a first-class quality.—*John Johnston*, D.L.S., 1871.

Sub-division.—Has exceedingly fertile soil. A fine belt of oak and poplar timber fringes the River Sale, a river so called from the smell, taste and appearance of its waters.—*J. B. Richard*, D.L.S., 1872.

9. *Outlines.*—West, excellent undulating prairie. The soil is a black loam of a first-class quality. The township is very well adapted for settlement.—*Milner Hart*, D.L.S., 1871.

South, is prairie, with occasional small bluffs of poplar and hay meadows. The soil is of a first-class quality.—*John Johnston*, D.L.S., 1871.

Sub-division.—Is all prairie, with the exception of a few small bluffs of poplar and willow. The land is high and of good quality. There is no running water in the township; the nearest is that in Red and Sale Rivers.

During the time of survey the whole township was devastated by fire, which destroyed nearly all the wood growing upon it.—*D. Sadler*, D.L.S., 1871.

10. *Outlines.*—West, is excellent land, with many bluffs of poplar. The soil is a black clay loam of a first-class quality.—*Milner Hart*, D.L.S., 1871.

Sub-division.—This is a fractional township, consisting of a portion of the southern halves of the southern tier of sections. It is an excellent prairie, with occasional small bluffs of poplar and willow. The soil is of a first-class quality.—*D. Sadler*, D.L.S., 1871.

RANGE II.

7. *Outlines.*—South and east, is an excellent prairie, with a first-class soil.—*John Johnston*, D.L.S., 1871.

Sub-division.—A considerable portion of the surface is wet and marshy. The greatest part is, however, dry and fit for agricultural purposes. It contains no timber of any kind.—*J. B. Richard*, D.L.S., 1872.

8. *Outlines.*—North, is an undulating prairie, with an occasional clump of poplar and willow. There is some stunted oak along the River Sale, which flows through sections 35 and 36. The soil is of a first-class quality.

East, is an open prairie, with first-class soil.—*John Johnston*, D.L.S., 1871.

Sub-division.—The soil of this township is excellent for both tillage and grazing purposes, but it is defective in two very essential things—wood and water. What little water there is in the river is impregnated with salt. There are a number of small clumps of poplar, but the timber is very small.—*J. B. Richard*, D.L.S., 1872.

9. *Outlines*,—South, is an undulating prairie, with an occasional clump of poplar and willow. The soil is of a first-class quality.—*John Johnston*, D.L S., 1871.

Sub-division.—Is low, wet prairie land; about one-half of it is covered with small poplar and willow.

Sections 1, 2, 3, 4, 31, 32, 33, as well as the western tier of quarter-sections, are dry prairie of good quality and fit for cultivation. Large quantities of hay are cut yearly in this township.—*D. Sadler*, D.L.S., 1871.

10. *Sub-division.*—This is a fractional township, consisting of a portion of the southern halves of the southern tier of sections. It is an excellent prairie, with occasional bluffs of poplar and willow.—*D. Sadler*, D.L.S., 1871.

RANGE III.

7. *Outlines.*—South has an undulating surface, with bluffs of poplar, oak and willows. The soil is of a first-class quality. Rat River flows in a northerly direction through section 4. —*John Johnston*, D.L.S., 1871.

Sub-division.—Is well suited for agricultural purposes. It is wooded in the southerly part, and along the banks of Rat River.—*A. W. Lippe*, D.L.S., 1872.

8. *Outlines.*—North, is an undulating prairie, with occasional bluffs of poplar; there are some ash, elm, maple and stunted oak along the banks of Red River, which flows in a northerly direction through the township. The soil is of a first-class quality.

West, is an open prairie, with a first-class soil.—*John Johnston*, D.L.S., 1871.

Sub-division.—This is a fractional township, consisting of the western and eastern tier of sections, the balance being in the settlement belt. The land is suitable for farming. Timber is scarce.—*A. W. Lippe*, D.L.S., 1872.

9. *Sub-division.*—Sections 1 and 12 (fractional) are rather low and wet. Section 36 (fractional) is partly rolling prairie and partly covered with small poplar, oak and elm, through which the Seine River flows. The soil is of first-class quality, being a rich black loam.—*J. Lynch Staunton*, D.L.S., 1871.

(*The portion of this township not described is within the limits of the settlement belt.*)

CHAPTER VIII.

County of Lisgar.

RANGE I.

13. *Outlines.*—West, is an undulating prairie, with bluffs of poplar and gravelly ridges. The soil is a light clay loam.—*Milner Hart*, D.L.S., 1871.

South, is a beautiful prairie, with occasional bluffs of poplar and patches of hay meadow.—*Bolton Magrath*, D.L.S., 1871.

Sub-division.—Three-fourths of this township comes under the head of "first-class." The soil is a rich loam, in some places mixed with gravel. The remaining one-fourth rates second or third-class, being covered by boulders and marshes; some of the latter are very extensive.

No valuable timber is to be found, the chief being poplar, with a few scattered scrubby oak.

Wild fruits, such as plums, cherries, strawberries and raspberries, and hazel nuts, are very plentiful.—*H. Lawe*, D.L.S., 1872.

14. *Outlines.*—West, an undulating prairie, with many bluffs of poplar and an occasional gravel ridge. The soil is a light clay loam.—*Milner Hart*, D.L.S., 1871.

North, is open prairie, with a number of small bluffs of poplar. The soil is of a first-class quality.—*J. Lestock Reid*, D.L.S., 1872.

Sub-division.—This township is partially covered with poplar bluffs. The northern sections have the largest quantity. The fire having run over the greater part of them, young poplar is growing rapidly among the burnt timber. The western portion of the township is stony and gravelly, with scattering stunted oaks.

There is some excellent hay land in the south-eastern part. The soil is generally a fine clay loam; and water may be obtained at a moderate depth from the surface. Narrow ridges of stone and gravel are to be found throughout the township. Taken altogether, this township is well adapted for agricultural purposes.—*John Grant*, D.L.S., 1872.

15. *Outlines.*—West, undulating land, covered with gravelly and stony ridges, which are timbered with poplar. There is an occasional hay swamp here and there.—*Milner Hart*, D.L.S., 1871.

Sub-division.—The surface of this township is principally wooded; the best timber extends in a strip about a mile wide from the north boundary of section 35 into section 11. The remainder is more broken, and principally dense

thickets of poplar saplings, with very bad and frequent windfalls.

The southern and eastern tiers of sections are excellent land, but the remainder is alternate marshes and ridges.—*E. C. Caddy*, D.L.S., 1872.

16. *Outlines.*—West, undulating land, covered with gravelly and stony ridges, timbered with poplar. There are occasional swamps and muskegs. The soil is gravelly, and not well suited for tillage.—*Milner Hart*, D.L.S., 1871.

Sub-division.—The greater part is covered with heavy poplar timber. The soil is generally a light loam with clay bottom, except in the north-west part, where it is mixed with limestone and gravel. Water can be obtained by digging from fifteen to twenty-five feet in any part of the township. There is a small lake of fresh and good water in the north-east corner, and a little prairie in the south-west.—*E. C. Caddy*, D.L.S., 1873.

17. *Outlines.*—West, the surface is nearly all timbered with poplar, cottonwood, scrub oak and willow, with a number of long narrow marshes, in some of which there is good hay and in others willow scrub. The land is high and the soil is of a first-class quality.—*A. H. Vaughan*, D.L.S., 1874.

Sub-division.—A large portion is well wooded, principally with poplar, and the soil is of an excellent quality for settlement There is a lake—four miles long—in the centre of the township, and a few small ponds in the southerly part.—*A. H. Vaughan*, D.L.S., 1874.

18. *Outlines.*—North and west, is high undulating land, timbered with poplar, balm of Gilead, cottonwood and willow, much of which, however, is killed by fire. There is an occasional small willow swamp. The soil is of a first-class quality. Lake Dennis is intersected by the northern boundary in sections 33 and 34. There is some good hay land along the shores of the lake.—*A. H. Vaughan*, D.L.S., 1874.

Sub-division.—Is well wooded and watered, the timber being principally poplar, with a small quantity of spruce. The soil is of good quality, with a large proportion suitable for settlement. There are a few swamps and muskegs, which can easily be drained.—*A. H. Vaughan*, D.L.S., 1874.

RANGE II.

13. *Exploratory Survey.*—Near, and west of, Stony Mountain, many small barren areas occur, covered with a saline efflorescence. They may be traced to the Assiniboine and beyond that river. These saline deposits are important, as they will in all probability serve to denote the presence of salt-bearing rocks beneath them, similar to those from which the salt springs of Swan River, Lake Manitoba and la Rivière Sale issue.

In the vicinity of Stony Mountain are found wide beautiful prairies, covered with a rich profusion of long grass.—*Henry Youle Hind*, 1858.

Outlines.—South, is an undulating prairie, with an occasional small bluff of poplar. There are gravel ridges in sections 3 and 5. Stony Mountain is partly within section 2. There are a number of good hay meadows. The soil is of a first and second-class quality

East, section 1 is an open prairie, with a first-class soil; the remaining five sections are low and wet.—*Bolton Magrath*, D.L.S., 1871.

Sub-division.—The south-eastern two-thirds of the township is chiefly open prairie of the best description. The soil is composed of black vegetable mould, from eight to twelve inches deep, with sub-soil of clay and gravelly loam, and cannot be surpassed for richness. The north-western part is principally barren, the soil a gravelly loam, and somewhat stony in places. It is thickly covered with bluffs of poplar and clumps of willow and alders.—*John Morris*, D.L.S., 1872.

14. *Outlines.*—North, is an open prairie, with bluffs of poplar and willow, except in sections 36 and part of 35, where it is marsh. The soil is of a first-class quality.—*J. Lestock Reid*, D.L.S., 1872.

Sub-division.—Is, for the most part, level prairie. An extensive marsh lies in the easterly part of the township, through which flows Jack Fish Creek.

On the south-western part there is a good deal of poplar, a large portion of which is fit for building purposes. There are some small bluffs of poplar on some of the prairie land. The soil is generally loam mixed with clay.—*E. C. Caddy*, D.L.S., 1872.

15. *Outlines and Sub-division.*—The surface is generally undulating, except in the extreme east, where the land is low and flat, with a large marsh and bog in the south-east corner, on the edge of which there is a large extent of hay land. This township is well wooded. The timber is principally poplar, of large growth, good for building purposes. The soil is chiefly rich loam mixed with clay. It is well supplied with water from living springs and small streams, and water can be obtained by digging from twelve to fifteen feet in any part of the township —*E. C. Caddy*, D.L.S., 1873.

16. *Outlines and Sub-division.*—The surface is rolling prairie in the easterly and southerly parts, with a large quantity of good building timber, chiefly poplar, in the north-west, with some spruce and oak of good quality. It is well supplied with good water from springs and small streams. The soil is a deep, rich loam, with a clay bottom.—*E. C. Caddy*, D.L.S., 1873.

17. *Outlines and Sub-division.*—A large portion is well wooded, principally poplar. The soil is of excellent quality.—*A. H. Vaughan*, D.L.S., 1873.

18. *Outlines and Sub-division.*—Is well timbered, mostly with poplar. There is, however, a quantity of spruce. Along the northern boundary the land is high. There are a number of small lakes and hay meadows. The land generally is of a first-class quality.—*A. H. Vaughan*, D.L.S., 1874.

RANGE III.

13. *Outlines.*—South and west, is level prairie, with patches of low willows and occasionally a hay meadow. The soil is a rich black loam of first-class quality.—*Bolton Magrath*, D.L.S, 1871.

Sub-division.—Sections 13, 24, 25, 26, 35 and part of 27, 34 and 36 are generally timbered with small poplar, oak and elm, with occasionally glades of prairie. Between this and the "Great Marsh" there is some fine meadow land. The soil is of a first-class quality.

The "Great Marsh," averaging about a mile wide, runs through the centre of the township from north to south.—*T. Cheeseman*, D.L.S., 1872.

Sub-division.—West of the "Great Marsh" it is generally a level prairie, with patches of meadow land. The soil is a rich black loam of first-class quality.—*E. C. Caddy*, D.L.S., 1872.

14. *Outlines and Sub-division.*—The "Great Marsh" is about a mile wide at the southern boundary of sections 3 and 4. Going north from thence, it gradually widens out, until it occupies the whole northern part of the township, excepting sections 36 and 25. South-west of the marsh, the land is a level prairie. East of it, it is generally prairie, with many bluffs of small poplar. The soil throughout is a rich black loam of first-class quality.—*E. C. Caddy*, D.L.S., 1872-73.

15. *Outlines and Sub-division.*—The surface is generally level and low prairie, with a great marsh in the centre. The soil is, however, very rich, being a strong clay mixed with loam. There is a large quantity of the best quality of hay land.

There is very little large timber, but groves of small poplar, with some scattering oak.—*E. C. Caddy*, D.L.S., 1873.

16. *Outlines and Sub-division.*—In the north-eastern part there is a large area of woods, containing a quantity of good building timber, mostly poplar, with a few oaks of medium size. The rest of the township is hay land, low prairie and deep marsh. The soil is generally good, being a rich loam, with a good supply of water from streams and springs.—*E. C. Caddy*, D.L.S., 1873.

17. *Outlines and Sub-division.*—A large proportion is good land, and a part of it is well wooded. In the northern portion there is a large windfall, and about three sections of fine prairie in the

south-western corner. It is well adapted for settlement.—*A. H. Vaughan*, D.L.S., 1873.

18. *Outlines and Sub-division.*—Contains a large quantity of excellent land, well wooded, and slightly undulating. The north-western part is quite marshy, and drained by a brook of considerable size.—*A. H. Vaughan*, D.L.S., 1873.

RANGE IV.

13. *Sub-division.*—With the exception of the bogs on the west side, which cover parts of sections 19, 30 and 31, this township is level, with a deep light loam soil, producing, where cultivated, heavy crops of wheat of very superior quality. There are numerous groves of willow, poplar and hazel scattered over the township, none of very large extent, and although thickly, they are not heavily timbered. The lands not thus occupied are chiefly covered with willow, oak and hazel scrub, there being but little prairie.

Several enclosures have been made in the township, and large quantities of wheat raised by persons living on the Red River.—*E. C. Caddy*, D.L.S., 1872.

14. *Outlines and Sub-division.*—Is generally level and dry, with the exception of parts of sections 2, 3, 10 and 11, and a large morass extending from the centre of section 6 to the centre of section 17, which makes excellent hay lands. The soil is very suitable for farming purposes, especially that portion which is covered with short oak and hazel, being a dark friable loam.—*Thos. Cheeseman*, D.L.S., 1872.

15. *Outlines and Sub-division.*—Contains a soil of a very good quality, and is timbered with large poplar, oak and willow. It is well watered by the Nipon Sipi or Netley Creek.—*H. Leber*, D.L.S., 1883.

16. *Outlines and Sub-division.*—With the exception of the eastern tier of sections, is nearly all wooded with poplar of a large size and best quality. There are a few hay marshes interspersed. The soil is of very good quality. There are no rivers or creeks in it.—*H. Leber*, D.L.S., 1873.

17. *Outlines and Sub-division.*—Is bounded on the east by Lake Winnipeg. The land is of good quality, well wooded and watered.—*A. H. Vaughan*, D.L.S., 1873.

RANGE V.

13. *Outlines.*—South, is timbered with poplar. There are a number of small scattered hay marshes. The soil is of a first-class quality. Cook's Creek flows in a northerly direction through section 2.—*Bolton Magrath*, D.L.S., 1871.

Sub-division.—Is well adapted for cultivation. Though there are numerous swamps, they are neither deep nor large in extent.

The prevailing timber is poplar, and it is not of any great size, except along the banks of Cook's Creek. A large part of the township is covered with scrub. The creek is supplied by springs along its course, and is consequently never dry in summer or much frozen in winter. The water is pure and good.

Large quantities of hay are cut from the swamp land each year.—*G. A. Bayne*, D.L.S., 1872.

Building stone—Dolomitic limestone—from Selkirk, Manitoba. Geological position—Cambro-Silurian. Colour, white, with a faint greyish or brownish tinge, with numerous patches of a light brown colour—the stone, in consequence, presenting a blotched appearance. It has a close texture.

Specific gravity (temp. 60° F.) 2·7025. Weight of one cubic foot (calculated from the specific gravity) 168·90 pounds.

Absorbing power—(the numbers represent the absorption obtained by the aid of the air-pump.)

Water absorbed, per cent, 3·471. Weight of water absorbed by one cubic foot of the rock, 5·86 pounds.

After drying at 100° C., its composition was found, by Mr. F. D. Adams, to be as follows:—

Carbonate of lime	82·612
Carbonate of magnesia	16·922
Ferric oxide and alumina	0·302
Silica (dissolved)	0·032
Insoluble matter	0·913
	100·781

Geological Survey Report.

15. *Outlines and Sub-division.*—This fractional township consists only of the two northern tiers of sections, the balance being within the limits of St. Peter's Indian Reserve.

Sections 28, 39, 31, 32 and 33 lie almost entirely within a lake. The remaining sections are only from six to twelve feet above the level of Lake Winnipeg. The land is generally wet, with an exceedingly rich soil and a luxuriant growth of hay, interspersed with sloughs and deep marshes.

Along Devil's Creek there is some oak and elm timber. There is here a narrow belt of land that might not be too wet for cultivation, but the area of it is very small. It is well adapted for stock-raising.

Red River flows through sections 28 and 34.—*R. C. McPhillips*, D.L.S., 1888.

16. *Outlines and Sub-division.*—None of this township is fit for cultivation, and only a small portion near the banks of the river and creeks is dry enough for hay land. The rest is deep marsh, with reeds and rushes.—*R. C. McPhillips*, D.L.S., 18??

RANGE VI.

13. *Outlines.*—South, the surface is rolling, and covered alternately with poplar woods and marshy tracts. The hay on these marshes is of excellent quality. The land is rather stony in places. The soil is of a second-class quality. Devil's Creek flows in a northerly direction through section 1.

East, the land is rather low and marshy, and timbered with bluffs of poplar, spruce and tamarack.—*Bolton Magrath*, D.L.S., 1871.

Sub-division.—Is not well adapted for tillage, excepting in sections 19 and 30. The swamps are large, numerous, and impassable, except in midsummer and the winter season. (These swamps might be easily drained at comparatively a small outlay). The remaining portions of the township are heavily wooded with poplar and a few scattered oak and spruce.

The soil, however, along the banks of Devil's Creek, is good, as is shown by the heavy growth of underbrush amongst the poplars. Fires have, at some former time, run over the principal part of the township, leaving extensive and heavy windfalls.—*G. A. Bayne*, D.L.S., 1872.

14. *Outlines.*—North and east, the surface is generally low and wet, with alternate belts of poplar, spruce and balsam, and marsh. A considerable portion of the timber has been burnt and blown down. Devil's Creek flows in a northerly direction through section 32, and a small creek through section 24. The soil is of good quality, but owing to wet land is not a desirable locality for settlement in its present state.—*Bolton Magrath*, D.L.S., 1871.

Sub-division.—This township is traversed by numerous trails, which are used for lumbering purposes.

The best of the timber has been cut off, though there are still considerable quantities fit for building and fencing purposes.

Were a channel cut through the swamps to Devil's Creek, it would, by draining them, make good farming land, the soil being dark loam and very deep.—*G. A. Bayne*, D.L.S., 1872.

15. *Outlines and Sub-division.*—This is one of the most favourable townships in this section of the country for the purpose of settlement; the land throughout is rolling, and covered for the most part with poplar, spruce and tamarack of the best quality. There is also some good ash and oak. It is also dotted with numerous small, good hay marshes. The soil is a good black loam, with a sub-stratum of white clay.—*John Johnston*, D.L.S., 1874.

16. *Outlines and Sub-division.*—The northerly two-thirds of the township lies in an extensive marsh, intersected with numerous deep sloughs and open ponds. There are a few ridges of land sufficiently dry to produce an excellent growth of hay.

The southerly third of the township is timbered with large oak, elm, poplar, and a small quantity of spruce and tamarack, all of the best quality. The land is undulating and the soil is a black loam, with a sub-soil of white clay and sand.—*John Johnston*, D.L.S., 1874.

RANGE VII.

13. *Outlines.*—West, the surface is low and generally wet, covered with poplar, spruce and tamarack. There are a number of marshes and bogs. The land is of a third-class quality.—*Bolton Magrath*, D.L.S., 1871.

South, is alternately meadow and timbered land, consisting of poplar, spruce and tamarack. The soil is of a second-class quality.—*Edgar Bray*, D.L.S., 1872.

Sub-division.—The easterly part is meadow land; the westerly portion is heavily timbered with poplar, spruce, and some oak and elm. Most of the land is fit for settlement.—*John Johnston*, D.L.S., 1872.

14. *Outlines.*—West, is thickly timbered with poplar, tamarack, spruce and willows, much of which, however, is windfall and brulé. There are occasional marshy tracts. The land is of a third-class quality. There is a small stream flowing in an easterly direction through section 19.—*Bolton Magrath*, D.L.S., 1871.

Outlines and Sub-division.—Is alternately covered with poplar and red pine woods. There are a number of scattered swamps, covered with a growth of small spruce and tamarack. The timber in places has been burnt; where this occurs a new growth is springing up. The soil is of a second-class quality.—*John Johnston*, D.L.S., 1873.

15. *Outlines and Sub-division.*—The soil is generally of an inferior quality, being sandy and swampy, with burnt woods, except along Broken Head River, which flows through the north-easterly part of the township, where the land is of excellent quality, thickly wooded with fine oak, pine, poplar and ash.—*John Johnston*, D.L.S., 1874.

16. *Outlines and Sub-division.*—For the greater part consists of an elevated sandy ridge running from north to south, wooded with timber of small size and dense brush. The south-western part of the township forms part of Broken Head Indian Reserve.—*John Johnston*, D.L.S., 1874.

17. *Outlines and Sub-division.*—Lies on the easterly shore of Lake Winnipeg, and with the exception of the land along the shore of the lake, is generally swampy, covered with spruce and tamarack.—*John Johnston*, D.L.S., 1874.

18. *Outlines and Sub-division.*—This township is all timbered, and has a moderate rolling surface. There are extensive tracts of low, swampy land, where spruce and tamarack timber predominate, and others where large poplar predominates, but

with a large proportion of spruce of fair quality up to twenty inches in diameter.

The soil in the greater part of the township is clay loam, in many places inclining to sandy loam; much of it is very good. Where the land is covered with red pine exclusively, as in parts of sections 2, 3, 10, 21, 24, 25, 26, 28, 33, 35 and 36, the soil is sand, and is useless for farming purposes. However, a large proportion of the township has a soil of very good quality.

There are a few settlers in sections 18 and 19.—*Joseph Doupe*, D.L.S., 1885.

19. *Outlines and Sub-division.*—Is all wooded, about one-third being spruce and tamarack swamp. One-third may be classed as good to fair soil, which is covered with poplar, mixed with spruce and tamarack and birch, with some balsam; the remaining third consists of sandy ridges, covered with banksian or jack pine, with, in some places, a mixture of poplar and birch.

The poplar, spruce and tamarack attain a diameter of 18 to 20 inches. The pine is generally small, seldom reaching 12 inches in diameter.—*Joseph Doupe*, D.L.S., 1885.

20. *Outlines and Sub-division.*—This township embraces a point of land which, during the normal state of Lake Winnipeg, is a peninsula, but with a strong north wind, becomes for the time an island, known as Little Elk Island. The connection with the main land is merely a low sand-bar from one to three chains wide.

The soil is mostly light clay loam, inclining to sand, and is covered with poplar, intermixed with birch and some banksian pine around the north shore of the island, while along the west and south spruce and poplar appear.—*Joseph Doupe*, D.L.S., 1885.

RANGE VIII.

13. *Outlines*—South, is timbered with poplar, spruce, tamarack, red pine, oak, elm, ash, birch and balm of Gilead. The soil is very good along Broken Head River, which flows in a northerly direction through section 5. There are a number of hay meadows.—*Edgar Bray*, D.L.S., 1872.

Sub-division.—The land is chiefly of an inferior quality, excepting along the banks of Broken Head River, where it is rich and loamy. The remainder of the township is composed principally of spruce and tamarack swamps and hay land, with a large extent of poplar.—*J. Johnston*, D.L.S., 1873.

14. *Outlines and Sub-division.*—Is similar to the foregoing township.—*J. Johnston*, D.L.S., 1873.

15. *Outlines and Sub-division.*—Is largely composed of marsh, with a growth of tamarack and willows, except a narrow strip along Broken Head River, from two to five chains wide,

where the soil is good, and contains some good-sized spruce, elm and poplar.—*J. H. Reiffenstein*, D.L.S., 1873.

16. *Outlines and Sub-division.*—The easterly part is all muskeg. The remainder is swamp, supporting a growth of spruce and tamarack; the trees average from six to seven inches in diameter.—*J. H. Reiffenstein*, D.L.S., 1873.

17. *Outlines and Sub-division.*—The easterly part is muskeg, with a growth of tamarack and willows. The remainder is timbered with pine, tamarack, spruce, birch, poplar and willow. The surface is rolling. The soil of the westerly part is of good quality. There is no difficulty in obtaining water in any part of the township.—*J. H. Reiffenstein*, D.L.S., 1873.

18. *Outlines and Sub-division.*—About one-half of this township has a soil of a fair quality for farming purposes, very unevenly distributed, the largest portion being along Catfish Creek. This creek is from 40 to 70 feet wide. The good land along the creek is of very variable width, say from 10 to 40 chains on each side. Beyond this is an extensive swamp, which, with some other swamps in the township, occupy about eleven thousand acres.

Banksian pine, poplar, birch, spruce and ash, are found throughout, all of which are fit for building purposes.

Much of the land that is at present wet and useless can be made valuable by a system of drains emptying into Catfish Creek.

On the whole, this township is not a favourable one for settlement in its present state.—*Joseph Doupe*, D.L.S., 1885.

19. *Outlines and Sub-division.*—There is but a small proportion of good land in this township. Parts of sections 1, 2, 11 and 14, adjacent to Catfish Creek, another block comprising parts of sections 4, 5, 8 and 9, and a third piece along the lake shore, consisting of parts of sections 30 and 31, would probably make nearly 2,200 acres of fair land for cultivation. Much more might be added by draining. The remainder of the township is swamp, supporting a growth of small spruce and tamarack. *Joseph Doupe*, D.L.S., 1885.

CHAPTER IX.

County of Gimli.

RANGE III.

19. *Outlines and Sub-division.*—Is well timbered in the westerly sections with poplar and some large spruce and tamarack, but in the easterly sections muskegs and hay swamps are overgrown with thickets of willow and small tamarack. The soil is of light quality, of little depth, with sub-soil of compact gravel and boulders. Along the western boundary, however, the land appears to be of a better quality.—*Geo. McPhillips*, D.L.S., 1877.

20. *Outlines and Sub-division.*—Presents no attraction to the settler. A portion of the township is light sandy soil, very stony in places and of second quality. The remainder consists of muskeg, and tamarack and spruce swamps. The dry part of the township is covered with a dense growth of small poplar, which in some places attains a diameter of twelve to fifteen inches.—*Joseph Doupe*, D.L.S., 1877.

21. *Outlines and Sub-division.*—This township is densely covered with poplar, tamarack and spruce. Except, perhaps, a few dry spots where poplar appears, could anything be cultivated. The whole township is unfit for tillage. The timber is only fit for fuel and fencing purposes.—*W. Wagner*, D.L S., 1883.

22. *Outlines and Sub-division.*—The only land in this township fit for tillage is that along the Icelander's River; the remainder is wet, and covered with a growth of tamarack and spruce of small size. Here and there are a few stony ridges, on which there is a growth of poplar and heavy hardwood underbrush. There is a layer of rich black loam soil from five to ten inches in depth.—*W. Wagner*, D.L.S., 1883.

23. *Outlines and Sub-division.*—Owing to the wet condition of the surface of this township, the whole of it is unfit for tillage, with the exception of a few lots lying along Icelander's River. The township is entirely covered with timber, principally spruce and tamarack; there is also a considerable quantity of poplar. None of the timber is of large size.—*W. Wagner*, D.L.S., 1883.

RANGE IV.

18. *Outlines and Sub-division.*—Is also bounded on the east by Lake Winnipeg. The land is of good quality, slightly undulating and well wooded.—*A. H. Vaughan*, D.L.S., 1873.

19. *Outlines and Sub-division.*—Is an Icelandic township, situate on the shore of Lake Winnipeg, and contains the Icelandic

village of Gimli. Along the shore of the lake the soil is generally good clay loam; the western portion is chiefly spruce and muskeg. Timber is principally poplar, with some spruce, black and white ash, balm of Gilead and willows. Many small but good hay meadows are scattered through the township.—*Joseph Doupe*, D.L.S., 1876.

20. *Outlines and Sub-division.*—Another township of the Icelandic reserve of a similar character to the preceding one. Adjacent to the lake the soil is good, but the westerly portion is much cut up by tamarack swamps and muskegs. There is a good deal of large poplar, spruce and tamarack in the township.—*Joseph Doupe*, D.L.S., 1876.

21. *Outlines and Sub-division.*—Is also an Icelandic township, and many of their people have already built small log houses along the shore of Lake Winnipeg. The soil for one or two miles back from the lake is of a very inferior quality. The remainder of the township is composed chiefly of tamarack swamps and muskeg. Timber consists of tamarack, spruce, poplar, and a few birch and ash trees.—*Joseph Doupe*, D.L.S., 1876.

22. *Outlines and Sub-division.*—Is also an Icelandic township, and very similar in character to the preceding township No. 21, in this range. Well wooded with tamarack, spruce, poplar and balsam.—*Joseph Doupe*, D.L.S., 1876.

23. *Outlines and Sub-division.*—About one-third of the area of this township is good, dry, first-class land. The general topographical features consist of low-lying ridges, or gentle undulations, having a general north-westerly and south-easterly direction, composed of clay, with a covering of rich loam of varying depth. In the hollows formed by these ridges the land is wet, composing tamarack and spruce swamps, with numerous small hay marshes and several muskegs of considerable extent. The timber on the ridges is principally poplar of small size, but sometimes attaining to fifteen inches in diameter. Icelander's River intersects this township and enters Lake Winnipeg in section 34. For about $3\frac{1}{2}$ miles above its mouth it has a depth of from four to six feet, and an average width of about seven chains. The land and timber on the banks of the river are the best in the township. The town plot of "Sandy Bar" is laid out on the south-west quarter of section 11, from which a road has been cleared through the woods to the plot of "Riverton," on Icelander's River, on the south-east quarter of section 20.—*Joseph Doupe*, D.L.S., 1877.

24. *Outlines and Sub-division.*—Contains but little land fit for cultivation. During the prevalence of northerly winds nearly one-half of the township is flooded by the rising of the waters of Lake Winnipeg. Considerable quantities of tamarack suitable for railway purposes, and spruce for

timber, are met with in the township.—*W. Beatty*, D.L.S., 1877.

RANGE V.

23. *Outlines and Sub-division.*—This township comprises the south-westerly portion of Big Island. The greater portion is slightly rolling land, covered with poplar, birch, spruce and tamarack. The western and south-western portion, extending from the shore about a half mile inland, is swampy, with scattered bluffs of willow and reeds. There are a few settlers in the township, some of whom have considerable improvements. There is an abundance of hay in the marshes.—*R. C. McPhillips*, D.L.S., 1887.

24. *Outlines and Sub-division.*—In the immediate vicinity of the western shore of Big Island, within the limits of this township, the shore is very low and marshy for a mile or so back from the lake; the swamp or marsh is covered with a small growth of tamarack. In rear of this the surface is rolling, and timbered with poplar, spruce and birch.

On the mainland the land is low and marshy, timbered with small spruce and tamarack. Along the shore it is marsh, with reeds and rushes. The township does not offer any attractions for settlement, either for tillage or stock-raising.—*W. Wagner*, D.L.S., 1883.

25. *Outlines and Sub-division.*—The portion surveyed by me in this township is the westerly part of Goose Island, which lies between the northern end of Big Island and the westerly shore of Lake Winnipeg. With the exception of a settler's cultivated land and a small extent of hay land, it is covered with clumps of poplar and willow. The central portion has an elevation of about six feet above ordinary high water.—*R. C. McPhillips*, D.L.S., 1887.

RANGE VI.

23. *Outlines and Sub-division.*—This fractional township is situated in the south-eastern part of Big Island. It is covered with spruce, tamarack, poplar and birch timber. There is but little marsh within the limits of the township.—*R. C. McPhillips*, D.L.S., 1887.

24. *Outlines and Sub-division.*—Is almost entirely covered with timber, principally spruce, tamarack, poplar, birch and balsam, the poplar and birch being near the lake shore.

The only part suitable for settlement is that in the immediate vicinity of the lake.

The interior of Big Island, on which this township is situated, is principally a spruce and tamarack swamp.—*R. G. McPhillips*, D.L.S., 1888.

24. *Outlines and Sub-division.*—This township is situated on Big Island, Lake Winnipeg. It is almost entirely covered with timber, principally poplar, spruce, tamarack, birch and balsam,

the poplar and birch being near the lake shore. The interior of the island is principally swamp, with a growth of spruce and tamarack. Without a system of drainage, the only part at present suitable for settlement is along the lake shore. There are a number of settlers in the township.—*R. C. McPhillips*, D.L.S., 1888.

25. *Outlines and Sub-division.*—Is thickly timbered with spruce, tamarack and a few poplar and birch.

The surface is too wet for tillage, and, being destitute of meadows, is useless for stock-raising purposes.

The swamps on the western shore of the island are too wet and the grass too rank to be of any use for cattle.

There is some splendid limestone suitable for building purposes; and, being near the lake shore, it might easily be loaded on to barges for shipment.—*W. Wagner*, D.L.S., 1883.

D. T. S. Wilkins gives a description of the country adjoining the shore line of Lake Winnipeg, which forms the eastern boundary of this county, in his report on the survey of Lake Winnipeg. *See* description under that heading.

CHAPTER X.

County of Marquette.

The southerly shore of Shoal Lake is particularly attractive. Ridges supporting heavy oak fringe the shore. Beautiful meadows bordered with aspen and oak woods reveal themselves in making a short traverse to the south. Although the shores of the lakes are marshy, yet the oak ridges, some few hundred yards south of it, are high and dry. For a grazing establishment on the largest scale, Shoal Lake is admirably fitted. Wild hay in any quantity exists around its marshy shores, and timber of excellent quality for building purposes and fuel may be procured in abundance ; in the spring and autumn the lake is covered with wild fowl of almost every variety.

Proceeding (towards Fort Garry) we passed through an excellent prairie country, studded with aspen groves, and occasionally relieved by a broad shallow ridge, probably of subaqueous origin. The Big Ridge of the Assiniboine is not well defined where we descended it, about eight miles west of Stony Mountain. It appears to be divided into two portions, part expanding into an undulating tract of country a few hundred yards broad, the other preserving the outline and character of the Big Ridge, but named, in consequence of its diminished altitude, the Little Ridge. The level country at the base of either is very beautiful, fertile, and admirably adapted for settlement.—*Prof. Henry Youle Hind*, 1858.

La Rivière Sale. Its valley is very winding, through which the river meanders in a remarkable manner. In the valley and along both sides there is oak, elm and ash timber, many trees being two feet in diameter. They extend the whole way up the river.

The country lying between it and the Assiniboine is very marshy, and is covered with willows and clumps of small aspen. On the southern side there is a level and apparently boundless prairie, the grass on which is most beautiful and luxuriant, indicating the richness of the soil.

The valley is about twenty chains wide and forty feet deep; there are many salt springs in it, which make the water in the river quite brackish, from which it derives its name. The river higher up opens out into small lakes, and rises from a marsh which is very extensive.

In the vicinity of the Rivière aux Isles des Bois the country is all a level prairie, the greater part of it being wet and marshy, except near the river, where it is quite dry ; the land is a rich sandy loam, yielding most luxuriant grass. On both sides of the river there is a skirting of trees, chiefly oak, averaging one foot six inches in diameter.—*James A. Dickinson*, 1858.

RANGE I.

7. *Outlines.*—Level prairie, good pasture land and hay marshes. The soil is a black loam of a second-class quality.—*Milner Hart*, D.L.S, 1871.

Sub-division.—This township is watered and drained by the east branch of the Scratching River, which takes its rise partly in this township and partly in the adjacent one on the west.

A large portion of the land is high No. 1 prairie. On the west of the Scratching River the township skirts and takes in a part of the Great Hay Marsh, which divides the Rivière aux Iles des Bois from the Scratching River.

This township is entirely destitute of timber.—*J. A. Snow*, D.L.S., 1872.

8. *Outlines.*—An undulating prairie. Along the river, which flows across the north-easterly corner, there is a belt of timber, consisting of oak and poplar. There are some good hay lands. The soil is of a first-class quality, and the township is eminently adapted for agricultural purposes.—*Milner Hart*, D.L.S., 1871.

Sub-division.—Twenty sections of this township are sufficiently dry for cultivation, and the balance good hay land.

The river runs through section 36, and touches the north-east angle of section 35.

This stream has running water in it all through the summer. Its banks are tolerably well wooded.—*J. A. Snow*, D.L.S., 1872.

9. *Outlines.*—East, excellent undulating prairie, with occasional bluffs of poplar, and a belt of timber along the Sale River, consisting of oak and poplar. The soil is of a first-class quality.—*Milner Hart*, D.L.S., 1871.

South, excellent prairie land, with very rich soil, but rather low in places.—*J. Doupe*, D.L.S., 1871.

Sub-division.—Is suitable for grazing purposes. That portion contiguous to the River Sale is wooded and watered, and is well adapted for agriculture.—*O. B. Davidson*, D.L.S., 1872.

10. *Outlines.*—Excellent land, watered by the Assiniboine River. Belt of timber along the river, consisting of oak, elm and basswood. Soil is a clay loam of first-class quality.—*Milner Hart*, D.L.S., 1871.

North, is a fine level prairie, with an occasional bluff of poplar in addition to the belt of timber, consisting of oak, ash, elm and maple, found along the Assiniboine River. The soil is a black clay loam of a first-class quality.—*J. Doupe*, D.L.S., 1872.

Sub-division.—The land is a little undulating. It is made up of dry land, fit for immediate cultivation, and moist hay

land. The whole may be easily drained. The soil is very rich, being an alluvial deposit, overlying a porous clay or marl.

There is no waste land in this township. Water can be easily obtained in many places by digging a few feet. There is no timber.—*A. H. Vaughan*, D.L.S., 1872.

11. *Outlines.*—East, level prairie, suitable for pasture land. The soil is a clay loam of a first-class quality.—*Milner Hart*, D.L.S., 1871.

Sub-division.—This township is all open, level prairie, the land gently sloping to the south and south-east.

The soil is dark clay loam, very deep and rich, and well adapted for farming purposes.

No stones are to be seen, and no timber grows on the part surveyed. The township is very dry, there being scarcely any wet land, and very little hay land. There are no running streams of water, but there is no difficulty in getting water by digging. The water is good and free from any brackish taste.—*J. Warren*, D.L.S., 1872.

12. *Outlines.*—North, is high rolling prairie of a first-class quality, excepting sections 32 and 33, which are low swamp hay land. —*A. C. Webb*, D.L.S., 1871.

East, mostly pasture land, some portion suitable for agricultural purposes; intersected by a few belts of poplar and scrubby oak timber. Soil, a light clay loam of a first-class quality, excepting on an occasional gravelly ridge.—*Milner Hart*, D.L.S., 1871.

Sub-division.—This township is nearly all open prairie, gently sloping to the south. There is no timber in it, except a few small poplar groves on sections 23, 24, 25 and 36, but the timber is very small.

There are a few hay swamps; the one on and near the northerly limit of the township is large and good.

There are no running streams of water, but water can be had by digging at no great depth.

The soil is very rich, being dark clay loam, and is well adapted for agricultural purposes.—*J. Warren*, D.L.S., 1872.

13. *Outlines.*—South, is high rolling prairie of a first-class quality, excepting sections 4 and 5, which are low, swamp hay land.—*A. C. Webb*, D.L.S., 1871.

East, an undulating prairie, with bluffs of poplar. No water. Soil, light clay loam with gravelly ridges. There are a number of hay marshes here and there.—*Milner Hart*, D.L.S., 1871.

Sub-division.—The south and west parts of this township are prairie. The north is well wooded with poplar. Fire has run through the principal portion of the bush. The land is generally of good quality; where the groves of wood occur, it is slightly stony.

The prairie is full of hay marshes, but in places dry ridges are to be found.

On section 1 a ridge of limestone exists about half a mile in circumference; here a limekiln has been built, which burns a large quantity of first-class lime.—*David Sadler*, D.L.S., 1872.

14. *Outlines.*—North, is a broken and uneven prairie, low and swampy, with clumps of poplar and brush. The land is stony and gravelly, and is poor farming land. The soil is of a third-class quality.—*A. C. Webb*, D.L.S., 1871.

East, an undulating prairie, with gravelly ridges and bluffs of poplar. No water. The soil is a light clay loam of good quality.—*Milner Hart*, D.L.S., 1871.

Sub-division.—Consists of groves of poplar and glades of prairie. The prairie and bush are about equally divided. A large portion of the latter has been killed by fire.

The soil is dry and of an average quality; a gravel ridge extends along the northern tier of sections, the soil in which is light and sandy.

At the foot of the ridge the soil is stony. From about one mile south of the ridge to the base line the soil is of good quality.

Good water can be obtained by digging.—*David Sadler*, D.L.S., 1872.

15. *Outlines.*—An undulating prairie, with numerous bluffs of poplar and willow. There are many gravelly ridges, hay marshes and muskegs. Shoal Lake cuts off the north-westerly portion of the township. The soil is generally light and of a second-class quality.—*Milner Hart*, D.L.S., 1871.

Sub-division.—About two-thirds of this township is good land for settlement. Scattered groves of small poplar woods occur, fit for fencing and fuel, but none of sufficient size to be of value for building.

In the vicinity of Shoal Lake a few stony ridges are to be met with. The water in the lake mentioned is slightly brackish, but not unwholesome.—*Wm. Wagner*, D.L.S., 1872.

16. *Outlines.*—East and north, undulating prairie, with gravelly and stony ridges, and timbered with poplar. There are occasional swamps and muskegs. The soil is gravelly, and not well suited for tillage.—*Milner Hart*, D.L.S., 1871.

Sub-divisoin.—The greater part of this township is suited for settlement. The northern portions are more or less thickly wooded with poplar. The smallness of the trees met with restricts their use, for the present, to fencing and fuel.

Stony patches or ridges occur in a few places.—*Wm. Wagner*, D.L.S., 1872.

17. *Outlines.*—East, the surface is timbered with poplar, cotton-wood, scrub oak and willow, with a number of long, narrow tracts of marsh, in some of which is hay and other willow scrub.

The land is high and the soil of a first-class quality.—*A. H. Vaughan*, D.L.S., 1874.

Sub-division.—Is suitable for settlement, having, with the exception of a few stony ridges, a good soil for cultivation, and is well supplied with wood for fencing and fuel.

The surface is undulating; in some of the low grounds hay marshes occur.—*Wm. Wagner*, D.L.S., 1874.

RANGE II.

7. *Outlines.*—South, is a high, dry prairie, with an occasional hay meadow. West, is rather low, with good hay and pasture land. The soil is of a first-class quality throughout. The "Great Marsh" encroaches in places into this township.—*J. Doupe*, D.L.S., 1871.

Sub-division.—About two-thirds of this township is occupied by the great hay marsh, over which the waters of the Rivière aux Iles des Bois must pass in spring to reach and be discharged by the Rivière aux Gratias, which may be said to take its rise in this marsh.

There are but few spots which are not solid prairie, and oxen have been driven with heavy loads in every direction over the marsh without difficulty.

The soil is very rich, and produces a fine clean growth of grass, from two to five feet in height at full growth.

If a channel were cut for the water from where the Rivière aux Iles des Bois enters the marsh to the Rivière aux Gratias, these lands would become sufficiently dry for all purposes.

In the south-west angle of this township there is one block of about eight square miles of beautiful high rolling prairie with an excellent sandy loam soil.—*J. A. Snow*, D.L.S., 1872.

8. *Outlines.*—North and west, is excellent prairie, with an occasional hay meadow. The soil is a rich sandy loam of a first-class quality.—*Joseph Doupe*, D.L.S., 1871.

Sub-division.—The surface of this township is generally very level, and a large portion is dry during the summer months. In the spring the greater part of the township is covered with water. Large tracts of the surface have a hard and cracked appearance when dry.

About nine square miles are included in the hay marsh. The rest, with a few exceptions, is dry prairie.

There is stream in this township.—*J. A. Snow*, D.L.S., 1872.

9. *Outlines.*—South and west, is generally a level prairie, with occasional small hay swamps. The soil is a rich black mould of a first-class quality.

The Sale River flows in a south-easterly direction across the township. Along this stream is some good oak, mixed in

many places with poplar and a dense growth of willow.—*Joseph Doupe*, D.L.S., 1871.

Sub-division.—The soil of this township is very good, consisting of a considerable depth of rich mould, underlaid by a strong clay sub-soil. The land is generally dry. The only marshes of any consequence are in the southern part of the township, and they are surrounded by good hay land.

The chief timber is oak, elm and poplar. It is of poor quality, being short and scrubby. The greater part of the wood is on the River Sale, running through the northern part of the township in a south-easterly direction. The water in the stream is fresh and good.—*D. S. Campbell*, D.L.S., 1872.

10. *Outlines.*—North and west, is a high, dry, rich prairie, with occasional hay marshes in sections 32 and 33. There are a few scattered willow bushes. The land is of first-class quality.—*J. Doupe*, D.L.S., 1872.

Sub-division.—The soil is excellent, being an alluvial deposit, overlying a sub-soil of clay, valuable for growing either grass or grain.

A branch of the River Sale flows through one corner of the township, watering twelve quarter sections. The water is good. There is oak and poplar along the river, but not in sufficient quantities to supply the whole township.—*A. H. Vaughan*, D.L.S., 1872.

11. *Outlines.*—West, is low, level land, in some places rather swampy. There are occasional clumps of poplar and willow. The soil is excellent, very deep, and of a first-class quality.—*A. C. Webb*, D.L.S., 1871.

South, is a high, dry prairie, with occasional hay marshes in sections 4 and 5. There are a few scattered willow bushes. The soil is of a first-class quality.—*J. Doupe*, D.L.S., 1872.

Sub-division.—The soil in this township is well adapted for agriculture, it being for the most part clay loam. The land gently slopes to the north and north-east. There are a few poplar groves, but these are not of any extent, and the timber is very small.

There are also a few hay swamps yielding good grass. On sections 19 and part of 20 there is a large gravel ridge, which will be of great value for road-making, as there are no other gravel ridges near it. The ridge is deep, and the gravel is of good quality. There are no streams, but water can be easily found by digging.—*Jas. Warren*, D.L.S., 1872.

12. *Outlines.*—North, is a slightly undulating prairie; the land is excellent; there are a number of hay marshes.

West, is a level prairie, with occasional bluffs of poplar and brush. There is a belt of heavy oak, elm and ash, with thick underbrush, along the Assiniboine River, which intersects this line in section 18. The soil is of a first-class quality.—*A. C. Webb*, D.L.S., 1871.

Sub-division.—The soil in this township is dark clay loam, very rich, and well adapted for agriculture. The surface is very uniform, gently sloping to the south and south-east.

A few hay swamps are to be found, but of no great size. There is an entire absence of timber, and no running water. —*Jas. Warren*, D.L.S., 1872.

13. *Outlines.*—South, is a slightly undulating prairie; the land is excellent; there are a number of hay swamps.

West, level prairie land, with scattered poplar bush and brush, and occasional small hay marshes. The soil is of a first and second class quality.—*A. C. Webb*, D.L.S., 1871.

Sub-division.—This is a prairie township; the soil is good, and dotted with hay marshes. There are a few groves of poplar on sections 21, 20 and 19.

Section 13 is half covered with wood.—*David Sadler*, D.L.S., 1872.

14. *Outlines.*—North and west, are covered with a growth of oak, poplar and thick underbrush, with an occasional prairie glade and hay marsh. Along the northern boundary the land is gravelly and stony. The soil is nearly all of a second-class quality.—*A. C. Webb*, D.L.S., 1871.

Sub-division.—This township is well fitted for settlement. The land is of the best quality, and along the western portion of the township is covered with large poplars suitable for building purposes. A fine ridge crosses the two northern tiers of sections, elevated about twenty feet above the surrounding country to the south and sloping gradually to the north. Anywhere along the ridge a good supply of water can be obtained a few feet from the surface.—*David Sadler*, D.L.S., 1872.

15. *Outlines.*—South, is nearly all covered with poplar and willows, with occasional prairie glades, and hay marshes. The soil is inclined to be gravelly and is of a second-class quality.

West, is nearly all poplar woodland, with occasional oak. There are many prairie openings. Marsh Lake lies across this boundary; it is shallow with good water. There are some patches of good meadow land. The soil is of a first and second-class quality.—*Milner Hart*, D.L.S., 1871.

Sub-division.—On the south side of Shoal Lake is all fit for settlement, being good land, partially wooded with a growth of poplar serviceable for fencing and fuel, and some oak of a size suitable for building. A few good hay marshes are found in this township.—*David Sadler*, D.L.S., 1872.

16. *Sub-divison.*—(The only portion of this township lying within the County of Marquette is part of sections 25 and 36), the land is rather low, but affording fine hay and pasture land.—*Wm. Wagner*, D.L.S., 1872.

17. *Outlines and Sub-division.*—The fractional portion of the township lying east of Shoal Lake is timbered with poplar, oak

and elm. The soil is a rich black loam. The land is generally low. There are extensive hay meadows along the borders of the lake.—*Wm. Wagner*, D.L.S., 1872.

RANGE III.

7. *Outlines.*—South, is high dry prairie. West, is rather low, with good hay and pasture land. The soil throughout is all of a first-class quality.—*Joseph Doupe*, D.L.S., 1871.

Sub-division.—About two-thirds of this township is occupied by the great hay marsh lying between and dividing the Rivière aux Iles des Bois from the Rivière aux Gratias. It produces excellent hay about its margin, but the central parts, and particularly the west side of the township, are overgrown with black rushes.

The remaining part of this township is excellent, high prairie, especially that block extending the whole length of the southern boundary, of about ten square miles.

Except a few isolated clumps of willows, there is no timber in the township.—*J. A. Snow*, D.L.S., 1872.

8. *Outlines.*—East, sections 1 and 12 are rather ; low the other four are a high, dry prairie.

North, is a high, dry, level prairie, with an occasional hay marsh. The soil throughout is a rich dark mould of first-class quality.—*Joseph Doupe*, D.L.S., 1871.

Sub-division.—Only a small portion of this township is covered by the great hay marsh. Of the remaining thirty-two sections, about twenty-nine are high, slightly undulating prairie, and the remainder excellent hay land.

There can be no better land than the dry portion of this country, and the hay land, with the exception of some places in the great hay marsh, is good, solid prairie soil.

There is neither wood nor water in this township.—*J. A. Snow*, D.L.S., 1872.

9. *Outlines.*—South and east is totally destitute of timber. The surface is a high, dry, level prairie, with an occasional hay marsh. The soil is a rich black mould of first-class quality. —*Joseph Doupe*, D.L.S., 1871.

Sub-division.—This township consists of level, open prairies, with here and there a few small marshes and some patches of scattering willows and small poplars. The soil is generally black loam.—*T. W. Cooper*, D.L.S., 1872.

10. *Outlines.*—North : Sections 36 and 35 are high, dry prairie land ; the remaining four sections are hay lands. There are some scattering willow bushes. The soil is of a first and second-class quality.—*Joseph Doupe*, D.L.S., 1872.

Sub-division.—This township consists partly of low, rich, bottom prairie, with heavy hay grass, and partly of dry level, prairie.

The township is traversed near the north boundary by the dry channel of a stream from three to four chains in width, having clay banks rising from six to eight feet above the bed. The bed (which consists of about eighteen inches of black mud) is grown up with tall grass. Clear, fine sand underlies the mud, good clear water being found in this sand at about a depth of three feet. This dry channel is timbered on both banks with oak and poplar; the latter timber, however, prevails.—*T. W. Cooper*, D.L.S., 1872.

11. *Outlines.*—East, is low, level land, in some places rather swampy. There are occasional clumps of willow. The soil is excellent, very deep, and of a first-class quality.—*A. C. Webb*, D.L.S., 1871.

South, sections 1 and 2 are high, dry prairie lands, with a first-class soil. The remaining four sections are hay lands, with a second-class soil.—*Joseph Doupe*, D.L.S., 1872.

Sub-division.—This township is better adapted for grazing than for agricultural purposes, water and shelter for stock being both convenient.

The upper portion of it is traversed by the River Sale, and a creek running parallel with it. The land between these is covered with thick underbrush and some oak and elm, although the greater portion of the latter has been already cut. South of these streams the country is much intersected by wet sloughs and hay swamps, with occasional poplar islands.—*C. F. Chapman*, D.L.S., 1872.

12. *Outlines.*—East, is a level prairie, with occasional bluffs of poplar and brush. There is a belt of heavy oak, ash and elm, with thick underbrush along the Assiniboine River, which intersects this line in section 13. The soil is of a first-class quality.

North, is an excellent prairie; good farming land, excepting sections 31 and 32, which are rather low and marshy. The soil is of a first-class quality.—*A. C. Webb*, D.L.S., 1871.

Sub-division.—This is a small fractional township of dry prairie.—*C. F. Chapman*, D.L.S., 1872.

13. *Outlines.*—South, is an excellent prairie; good farming land, excepting sections 5 and 6, which are rather low and marshy. The soil is of a first-class quality.

East, level prairie land, with scattered poplar bush and brush, and occasional small hay marshes. The soil is of a first and second-class quality.—*A. C. Webb*, D.L.S., 1871.

Sub-division.—About three-fourths of this township is good, arable prairie, well adapted for settlement. It is near the leading line of road along the north bank of the River Assiniboine, and close to it are the extensive meadows of Long Lake.

Plenty of good fencing and building timber may be found along the ridges which cross the northern part of the township.

North of these ridges the land becomes gravelly and stony, and is only fit for grazing purposes.—*Hermon and Bolton*, D.L.S., 1872.

14. *Outlines.*—North and east, are covered with a growth of oak, poplar and thick willow underbrush, with an occasional prairie glade and hay marsh. Along the northern boundary the land is gravelly and stony. The soil is nearly all of a second-class quality.—*A. C. Webb*, D.L.S., 1871.

Sub-division.—Is of inferior soil throughout, but more especially along the east and south limits, where there is a heavy gravel ridge, like the beach of an ancient lake. For some distance north of this ridge the land is low and swampy, in addition to being gravelly and stony.

There is plenty of timber suitable for fencing poles throughout the township, and some good building timber along the east side.—*Hermon and Bolton*, D.L.S., 1872.

15. *Outlines.*—South, is poplar woodland and scrub willow, with occasional prairie openings. The land is gravelly and stony in places, and is generally of a third-class quality. Stock farming could be carried on advantageously in this district. East is nearly all poplar and woodland, with occasional oak. There are many prairie openings. Marsh Lake lies across this boundary. It is shallow, with good water. There is some good meadow land. The soil is of a first and second-class quality.—*Milner Hart*, D.L.S., 1871.

Sub-division.—The land is chiefly rich loam, broken only by a few swamps. About one-tenth part is open prairie. The remainder is covered partly by good green timber and partly by young bushes and willow. The best timber (some of which may be used for erecting buildings) stands in the northern part of the township. The southern part is thickly wooded with small poplar.— *Wm. Wagner*, D.L.S., 1873.

RANGE IV.

7. *Outlines.*—West, the surface is a gently undulating prairie, with bluffs of poplar and clumps of willows. There are a number of small scattered hay swamps. The soil is a sandy loam of a first and second-class quality.

South, is a dry, rich prairie; the Rivière aux Iles des Bois flows in a north-easterly direction through the township, along the banks of which there is some oak, elm and ash timber with thick underbrush.—*Joseph Doupe*, D.L.S., 1871.

Sub-division.—About twenty-six square miles of this township are beautiful undulating prairie, with sandy loam soil. Wood is within a short distance of every part of the township.

Along the eastern margin is the Great Marsh, covering about seven sections. The marsh is here very wet and boggy

and overgrown with rushes. In summer cattle roam at liberty over the greater part of it, but it is not safe for loaded carts, especially near the mouth of the Rivière aux Iles des Bois.—*J. A. Snow*, D.L.S., 1872.

8. *Outlines.*—West and north, is a high dry prairie, with clumps of willow and bluffs of poplar. The soil is of a first-class quality.—*Joseph Doupe*, D.L.S., 1871.

The surface of this township is generally level or slightly rolling. The soil is sandy loam, which allows the surface water to disappear early in the spring. Nearly all the township is suitable for cultivation, and sufficient wood for fuel and fencing is everywhere convenient.—*J. A. Snow*, D.L.S., 1872.

9. *Outlines.*—West, is a level prairie with bluffs of dead poplar and willow and occasional hay marshes. The soil is a sandy loam of a first-class quality.—*J. Lestock Reid*, D.L.S., 1872.

North, is all marsh and muskeg.—*Joseph Doupe*, D.L.S., 1871.

Sub-division.—This township consists partly of prairie land and partly of poplar bush. A large portion of the prairie land is of a low marshy character, covered with coarse rank grass, and having scattering willows and small poplar and oak groves. The poplar timber (which is found at the south-west corner of the township) is very small, and has been much destroyed by fire. The soil on the high land consists of a black loam.—*T. W. Cooper*, D.L.S., 1872.

10. *Outlines.*—North, the northern part of this township is a marsh; towards the centre it is a rich level prairie with scattering oak, poplar, willow and hazel brush.—*Joseph Doupe*, D.L.S., 1872.

West, is open prairie with scattered willows and marshes, except in section 31 where there is heavy poplar timber. The soil is a sandy loam of first-class quality.—*J. Lestock Reid*, D.L.S., 1872.

Sub-division.—A large portion of this township consists of low bottom prairie with tall rich grass and low wet marshes. The high prairie is generally of a fair quality, and has in places scattering willows and poplars.

The township is traversed by a dry channel of a stream (near the northern boundary) from three to four chains in width, having banks from six to eight feet high. The bed of this channel consists of black mud about eighteen inches deep, and is grown up with tall grass. Clean, fine sand underlies the mud, in which good, clear water can be obtained. This dry channel is timbered on both banks with oak, poplar and elm; the timber, however, has been destroyed in some places by fire.—*T. W. Cooper*, D.L.S., 1872.

11. *Outlines.*—South, is nearly all marsh.—*Joseph Doupe*, D.L.S., 1871.

West, is timbered with poplar, oak and elm, with thick underbrush. There is an occasional small marsh. The soil is of a first-class quality. The township is drained by two branches of a creek flowing in an easterly direction.—*A. L. Russell*, D.L.S., 1872.

Sub-division.—This ranks as a second-rate township. The northern half is covered with poplar, willows and underbrush. On the third mile south there is a heavy belt of poplar and oak. South of this the country is more open, and on the third correction line a large wet marsh exists, covered with long thick reeds.

Some good timber is still standing on the northern half; it is being rapidly destroyed year after year by fire.—*A. F. Chapman*, D.L.S., 1872.

12. *Outlines.*—West, undulating land, with heavy poplar timber, with a thick undergrowth of hazel and cherry. There are some fine patches of rich meadow land. The soil is of a first-class quality.—*A. L. Russell*, D.L.S., 1872.

Sub-division.—(South half.)—This township is covered with thick poplar and underbrush, some heavy oak and elm occurring on the banks of the River Sale and Mill Creek. A few hay meadows of no great extent are interspersed.

The timber, particularly on the northern portion of the township, has been much thinned for fencing, although a great deal is still standing which is unfit for rails.

The land in this half of the township is of second-rate quality.—*C. F. Chapman*, D.L.S., 1872.

13. *Outlines.*—West, is a high rolling prairie, gravelly and stony in places. There are one or two clumps of young poplar on sections 19 and 31. The soil is of a first to third-class quality.—*A. C. Webb*, D.L.S., 1871.

Sub-division.—A very attractive township for settlement; the soil is excellent in quality, being a rich clay loam. Along the ridge in the northern part of the township is plenty of timber for fencing, fuel and building purposes. Long Lake affords an abundant supply of good water, and the meadow lands in the vicinity are extensive and good.—*Hermon and Bolton*, D.L.S., 187?.

14. *Outlines.*—North, is rolling prairie, with occasional bluffs of poplar and willow brush. The land is gravelly and stony. The soil is of a second-class quality.

West, the land is level, gravelly and stony, and covered generally with thick poplar, oak and willow bush, with occasional glades of prairie. The soil is of a second and third class quality.—*A. C. Webb*, D.L.S., 1871.

Sub-division.—Is better adapted for grazing and stock-raising than for farming. The south and east portions are stony and gravelly; the north and west are free from stones,

and have a slightly deeper soil, while here and there are many fine prairie glades.

The timber is mostly small poplar, and fit only for fencing purposes.—*Hermon and Bolton*, D.L.S., 1872.

15. *Outlines.*—South, is an undulating prairie, with bluffs of poplar and good pasture land. The land is stony. Lake Manitoba and bordering marshes cut off a large portion of the north-westerly part of the township. The marshes extend in some places up to the southern boundary.—*Milner Hart*, D.L.S., 1871.

Sub-division.—Is bounded on the north-west by Lake Frances, an arm of Lake Manitoba. A large marsh lies in the westerly part of the township. The easterly part is generally level prairie, with some excellent building timber of poplar and oak. Two roads, one to White Horse Plains and the other to Poplar Point, traverse this township.—*William Wagner*, D.L.S., 1872.

CHAPTER XI.

County of Fairford.

From the Narrows as far as Swan Creek (twelve miles from Oak Point) the whole coast of Manitoba is very low, and bordered by beaches enclosing marshes. Here and there wooded points, ten to twelve feet above the lake level, separate the marshes from one another. On one of these points we observed some very fine elm, but the prevailing timber consists of aspen. A mission was established at Elm Point some years ago, but abandoned soon after. The shore continues low as far as Sandy Point; it is bounded by beaches fringed with fine aspen forests, in the rear of marshes filled with rushes, which occupy part of every sheltered cove and bay open to the lake. At Monkman's Point, Mr. Monkman pointed out a marsh which, he said, was once dry ground and afforded splendid pasturage for horses. It is separated from the lake by a gravelly beach. This probably occurred during a period of low water. A fall in the level of the lake to the extent of two feet would not only drain and dry this marsh, but many thousand acres of marshy tracts formed under similar circumstances, at the same period.

On the 29th of October we left Oak Point for the Red River settlements. The country in the neighbourhood of Oak Point is very attractive; its general level is about ten feet above the lake; it resembles in every respect the region about White Mud River. Our road, for a few miles, lay across a very rich and fertile tract, until an almost imperceptible ascent introduced us to a low, gravelly ridge, upon which aspen woods grow in narrow strips, the forest preserving a uniform outline as far as the eye could reach, in a direction corresponding to the present form of Lake Manitoba, indicated, without glancing at the soil, the direction of the subaqueous ridges, afterwards a low coast line, which was formed over the floor of Lake Manitoba at a higher level. Succeeding this low flat ridge is a broad plateau, slightly undulating, and studded with straggling clumps of young poplar and small oak, with willows in the shallow depressions. The soil becomes rich in vegetable mould again as we approach Shoal Lake, an extensive sheet of water, shallow, reedy, connected with numerous lakes lying to the north, and a favourite haunt of aquatic birds.—*Prof. Henry Youle Hind*, 1858.

The country in the vicinity of Fairford presents every inducement for settlement as is proved by its flourishing condition.—*A. W. Wells, Assistant to S. J. Dawson, C.E.*, 1858.

Block Outlines, comprising Townships 21 *to* 24, *Ranges* 4 *to* 9, *west.*

The surface throughout the whole extent of country above mentioned is comparatively level or gently undulating,

there being alternate stretches of low wooded ridges, in the highest places not exceeding twelve or fifteen feet above the general level, and swampy land with marshes and muskegs. These alternate ridges and marshes have a general north-westerly direction about parallel to the shore of Lake Manitoba. The ridges are composed of clay or clayey loam with limestone gravel, and in some places, beyond a distance of ten or fifteen miles from the lake, are very stony. The marshes and muskegs are numerous, many of the latter being impassable for carts and contain numerous small lakes and ponds. There are also several lakes of fair size, which during the summer season, are the abode of numberless wild fowl. The largest of these lakes is "Dog" Lake, which is over twelve miles long by six or seven wide, occupying the westerly part of range 8 and the easterly part of range 9, in townships 23 and 24, and is about forty square miles in extent. In this lake fish of several kinds, including goldeyes, whitefish and pike, abound.

In township 24, range 4, is another marshy lake, which, with its marshy shores includes not less than a whole township in extent. The third is Swan Lake, occupying the north-west part of range 5 and the north-east part of range 6, in township 21, and, with its surrounding marsh, is over ten square miles in extent.

The fourth in extent, and which is nearly as large as the last, is situate in the easterly part of township 23, range 5. From these, in decreasing extent are lakes and ponds almost innumerable, one of which about half a square mile in extent, situate in the northerly part of section 13, township 22, range 5, is remarkable on account of its being surrounded (except three or four short breaks) by a natural stone wall from four to eight feet thick, and two to five feet high above the surrounding marsh. The lake is shallow with shelving beach of clay and small gravel and bottom of fine soft mud. It has some small fish, but no apparent inlet or outlet.

The soil of that part along the shore of Lake Manitoba and extending from ten to fifteen miles inland, and also that around Dog Lake, is rich black loam of excellent quality, though in some places the limestone gravel crops out in some of the ridges. At greater distances from Lake Manitoba the ridges are in many places very stony.

The timber throughout is chiefly poplar of the three kinds found in Manitoba and commonly known as white poplar or aspen, black poplar or balm of Gilead, and cottonwood the latter, though less plentiful, attains greater size than the others.

On the points of ridges which terminate at lakes or large muskegs some oak is to be found, generally of small size; some of fair size and quality is found along the shore of Lake Manitoba, while scattered over the country east of Dog Lake and from about the sixth correction line, northwards, some spruce is found, generally of small size, though in some instances attaining a diameter of two feet or more at the stump.

The old location of the Canadian Pacific Railway and telegraph line runs from section 5, township 21, range 5, about north 53° west to the "narrows" of Lake Manitoba, about section 23, township 24, range 10.—*Joseph Doupe*, D.L.S., 1875.

The country between these points (Winnipeg and Grand Rapids, on the Saskatchewan, a distance of 242 miles) is very flat, and almost free from rock, except in the immediate neighbourhood of certain parts of Lake Winnipeg shore. The first 30 miles of it is prairie land, similar to that in the rest of Manitoba. After passing through this there is a well-wooded country with many open plains, extending as far as Fairford, on the Partridge Crop River. All of this country offers great inducements to the settlers, and it is already occupied by farmers and fishermen along a portion of the lakes and Swan Creek, which flows into Lake Manitoba, north of Oak Point Mission. It is well watered with many lakes, round which there are splendid hay lands and clearings suitable for cattle-grazing; especially is this the case at the Rat Lakes, about 75 miles from Winnipeg.

Fairford itself has already a good settlement, and only awaits a means of outlet to rapidly establish itself as an important agricultural and lumbering centre. There is a great quantity of exceedingly fine spruce and poplar all through this country, the spruce attaining a large size, often growing 3 to 4 feet across the stump. After leaving Fairford, the Partridge Crop River is crossed by a line at a point about two and a half miles from its exit from Lake Manitoba. The whole of this section of country is excellent for settlement, and there is plenty of fine timber in its vicinity. A bridge 250 feet long would be required to cross the Partridge Crop, which here has high banks of clay and a gravel bottom. From Fairford to the Saskatchewan is about 110 miles, and, with the exception of the first few miles after leaving Fairford, the country around the Fish Lakes and head waters of the War Path and Twin Rivers is a lumbering district.—*Mr. Neilson, C.E., Hudson Bay Railway Survey.*

I followed the Oak Point trail, along which the line is now located. The best land is north of Clarkleigh, which consists of timber and open prairie. The land I consider the best I have seen in this country. The timber is mostly poplar, with a little spruce.

From Lundyville, I proceeded on foot as far as Sea Falls, 320 miles from Winnipeg. The land gets more heavily timbered as we go northward; it lies high and dry, and is well fitted for cultivation. The open prairie and timber are about equal in quantity as far as the Saskatchewan River, 250 miles from Winnipeg.

At Fairford, 100 miles from end of track, or 140 miles from Winnipeg, the heavy spruce commences, and the same, mixed with tamarack large enough for railway purposes or fuel, is continuous as far as Grand Rapids, at the mouth of the Saskatchewan. This land is very good, though there is about 15 or 20 per cent of hay land, which, in a wet season, might be flooded.

Along Dog Lake, west of the Indian trail, to Fairford, there exists a large quantity of spruce and tamarack. The former is large enough for sawing. From my personal observations, I consider the land between Lakes Manitoba and Winnipegosis on the west and Lake Winnipeg on the east as being better adapted for mixed farming than any other portion of Manitoba or the North-West Territories that I have visited. It is fairly distributed between open prairie and timber. The former is well adapted for grazing and cultivation, and there is an abundance of hay lands for stock. The timber is plentiful, and fitted for building purposes as well as fuel.—*James Gillespie.*

TOWNSHIPS WEST OF THE PRINCIPAL MERIDIAN.

RANGE I.

18. *Outlines.*—East, is generally high, undulating land; the country is nearly all timbered with poplar, balm of Gilead and willow, much of which, however, has been killed by fire. The soil is of a first-class quality.—*A. H. Vaughan*, D.L.S., 1874.

Outlines and Sub-division.—This township is mostly timbered with young poplar, grown up within the last few years, amidst a large brulé caused by fires in 1871 and 1872. There is some good building timber untouched by fire. The land is high and dry; the soil is a black loam, with an average depth of seven inches, with a sub-soil of clay and gravel.—*W. Wagner*, D.L.S., 1884.

19. *Outlines and Sub-division.*—This township is unfit for tillage, having a very shallow soil resting on limestone rock.

The eastern half is well timbered with poplar up to eight inches in diameter; the western half is all brulé and windfall.

The openings in the brulé are muskegs and hay marshes.

The surface is rolling.—*W. Wagner*, D.L.S., 1884.

20. *Outlines and Sub-division.*—Is unfit for tillage, having a very shallow soil, with a sub-soil of limestone rock. It is well timbered, with the exception of the south-eastern quarter, which is brulé and windfall. There is some very fine spruce and tamarack in sections 24, 25, 26, 35 and 36.—*W. Wagner*, D.L.S., 1884.

RANGE II.

16. *Outlines.*—West, the land is an undulating prairie, with bluffs of poplar and scattered oak. There are many patches of meadow. Along the shore of Shoal Lake there is a strip of marsh with tall reeds, the width of which varies from a few feet to many chains wide. The soil generally is black loam, and in some places it is gravelly; it is of first and second-class quality.

North, sections 31, 32, 33 and 34 are high, undulating land, with occasional bluffs of poplar and scattered oak; there are good-sized hay marshes in sections 32 and 33. The soil is of a second-class quality Sections 35 and 33 are in Shoal Lake and the surrounding marshes.—*Milner Hart*, D.L.S., 1871.

Sub-division.—Is a broken township on the western shore of Shoal Lake, of about one-third the full area. It is well fitted for settlement, has a rich soil, a supply of wood of small growth, and excellent hay marshes along the lake shore.—*W. Wagner*, D.L.S., 1872.

17. *Outlines*—South, sections 1, 2, 3 and 4 are high, undulating land, with occasional bluffs of poplar and scattered oak. There are hay marshes in sections 4 and 5. The soil is of a first-class quality. Sections 1 and 2 are in Shoal Lake and the surrounding marsh.—*Milner Hart*, D.L.S., 1871.

Sub-division.—Adjoins the western shore of Shoal Lake; is adadpted for settlement, has a black loam soil. The township is about half prairie and half wood land; the timber consists principally of poplar. There are extensive hay meadows along the borders of the lake.—*W. Wagner*, D.L.S., 1872.

18. *Outlines.*—West, is alternately prairie and poplar bush. There is a marsh along the shore of Shoal Lake, which interesects this boundary in sections 19 and 31. The soil is of a first-class quality.—*M. J. Charbonneau*, D.L.S., 1883.

Sub-division.—Nearly one-half of the township is occupied by Shoal Lake, which divides it in two parts. The portion lying to the west of the lake is well adapted for settlement. This portion is generally covered with bluffs of small poplar and clumps of willow. The most of the timber has been injured by fire. There are a number of small hay marshes. The surface is rolling, and the soil is of a first-class quality.

That portion lying east of the lake is almost all timbered, consisting generally of poplar and willows, with a small percentage of balm of Gilead and scrub oak. The timber in some places has been destroyed by fire. There are a number of small hay marshes. The surface is generally dry and the soil of a good quality.—*W. Wagner*, D.L.S., 1884.

19. *Outlines and Sub-division.*—The soil is very shallow and generally unfit for tillage. The timber has all been destroyed by fires, excepting a small quantity in the south-eastern portion of the township, and that is only large enough for fencing purposes.—*W. Wagner*, D.L.S., 1884.

20. *Outlines and Sub-division.*—The surface is rolling and generally covered with poplar and willows, much of which, however, has been destroyed by fires. There are a great number of hay marshes and muskegs, with reeds and rushes, scattered throughout the township. The soil generally is very shallow, but of good quality, being a black loam.—*W. Wagner*, D.L.S., 1884.

RANGE III.

16. *Outlines.*—East, the land is undulating. There is a strip of marsh with tall reeds along the shore of Shoal Lake; back from this it is prairie land, with bluffs of poplar and scattered oak, with occasional patches of meadow land. The soil generally is a black loam, and in some places gravelly; it is of first and second-class quality.

North, is a high, dry, undulating prairie, with bluffs of poplar and an occasional small hay swamp. The land is of a second-class quality.——*Milner Hart*, D.L.S., 1871.

Sub-division.—Is all good farming land; undulating prairie, with scattered groves of poplar of moderate size.

Adjoins Shoal Lake.—*W. Wagner*, D.L.S., 1872.

17. *Outlines.*—South, is a high, dry, undulating prairie, with bluffs of poplar and an occasional hay swamp. The land is of a second-class quality.—*Milner Hart*, D.L.S., 1871.

Sub-division.—Is well suited for settlement; has an undulating surface, good soil, and a fair supply of timber for fencing and such buildings as would require pieces of no great size. Has no streams, but water can be obtained by digging.—*W. Wagner*, D.L.S., 1872.

18. *Outlines.*—East, is alternately prairie and poplar bush. There is a marsh which intersects this line in sections 24 and 36. The soil is of a first-class quality.

West, is an undulating prairie, with scattered bluffs of poplar and small hay marshes. The soil is of a first-class quality.—*M. J. Charbonneau*, D.L.S., 1883.

Outlines and Sub-division.—This township is situated between Lake Manitoba and Shoal Lake. It is well wooded with numerous bluffs of poplar. The soil is a black loam with sandy or gravelly sub-soil. The eastern part is rather low and wet.

It is particularly adapted for stock-raising.—*W. Wagner*, D.L.S., 1883.

19. *Outlines.*—West, is prairie, with many bluffs of poplar and brush and an occasional marsh. The soil is of a first and second-class quality.—*M. J. Charbonneau*, D.L.S., 1883.

Outlines and Sub-division.—On an average, the land in this township is only of a second-class quality. The township excels in good meadow land, which renders it well adapted for mixed farming.

There is no large timber, yet enough will be found for building purposes.—*W. Wagner*, D.L.S.

20. *Outlines.*—West, is prairie, with small poplar and groves of brush. There are many hay marshes throughout the township and a small lake in section 19. The soil is of a first and second-class quality.—*M. J. Charbonneau*, D.L.S., 1883.

Outlines and Sub-division.—The western portion of this township lies rather low, and is occupied by several lakes, which, during high water in the spring, form one large lake and extend for miles beyond the northern boundary of the township. The eastern portion is high land, covered with poplar and willow.

The soil is a black clay loam, with a depth of about six inches; the sub-soil is white clay mixed with fine gravel.—*W. Wagner*, D.L.S., 1884.

21. *Outlines and Sub-division.*—The eastern half is generally low and wet, with extensive shallow marshes. The western half is higher, and timbered with poplar, spruce and tamarack, a good deal of which, however, has been burnt. The soil is of a second-class quality.—*C. P. Brown*, D.L.S., 1888.

22. *Outlines and Sub-division.*—Is almost entirely covered with poplar and spruce forest. There are a number of scattered shallow marshes. The soil is of a second-class quality.—*C. P. Brown*, D.L.S., 1888.

RANGE IV.

16. *Outlines.* North, is nearly all covered with poplar and oak. There is some hay land and occasional glades of prairie. The soil is of second-class quality. Lake Manitoba cuts off about one-third of the area of this township.—*Milner Hart*, D.L.S., 1871.

Sub-division.—Lies to the east of Lake Manitoba, and contains the French half-breed settlement, known as the Indian Mission. The easterly part is wooded with poplar, oak and willow, some of which is fit for building purposes. The north-easterly part is marshy.—*W. Wagner*, D.L.S., 1872.

17. *Outlines.*—South, is nearly all covered with poplar and oak. There is some hay land and occasional glades of prairie. The soil is of a second-class quality. The remainder of the township is nearly all undulating prairie, with a belt of timber near the eastern boundary. There are a number of small hay marshes throughout.—*Milner Hart*, D.L.S., 1871.

Sub-division.—The southerly as well as the easterly portion is wooded. The remainder of the township is prairie, broken by swamps and hay grounds. The soil is a rich loam, but stony.—*W. Wagner*, D.L.S., 1872.

18. *Outlines.*—East, is alternately prairie and poplar bush. The soil is of a first-class quality.—*M. J. Charbonneau*, D.L.S., 1872.

Outlines and Sub-division.—It is well adapted for tillage and stock-raising. There is an ample supply of timber for fuel, building and fencing.—*W. Wagner*, D.L.S., 1883.

19. *Outlines.*—East is prairie, with many bluffs of poplar and brush. There are a number of scattered hay marshes. The

soil is of a first and second-class quality.—*M. J. Charbonneau*, D.L.S., 1883.

Outlines and Sub-division.—This township has, particularly in the western half, splendid soil, and enough wood to give fuel and fencing to the settler, and is therefore well adapted for mixed farming.—*W. Wagner*, D.L.S., 1883.

20. *Outlines.*—East is prairie, with small poplar and bluffs of brush. There are many small hay marshes. There is a lake in sections 24, 25, 35 and 36.

North: rolling land, with bluffs of poplar and brush, hay marshes and a number of small lakes. The soil throughout is of a second and third-class quality.—*M. J. Charbonneau*, D.L.S., 1883.

Sub-division.—Is mostly all timbered with poplar. The soil is light on the numerous ridges of gravel; most of it is of a third-class quality. There are four lakes near the centre of the township, and also a number in the north-easterly part.—*W. Wagner*, D.L.S., 1883.

21. *Outlines.*—West, is alternately poplar bush and shallow marshes, in which, occasionally, there are open ponds or small lakes. The soil is of a second-class quality.—*Joseph Doupe*, D.L.S., 1873.

South: rolling land, with bluffs of poplar, brush and hay marshes, and a number of small lakes. The soil is of a second and third-class quality.—*M. J. Charbonneau*, D.L.S., 1883.

Sub-division.—The greater portion of the land in this township is broken by numerous marshes; some of them yield an abundance of hay, and afford excellent pasturage. This portion is well adapted for stock-raising.

On the high lands there is from four to ten inches of alluvial soil, with a sub-soil of mixed clay and stone of the nature of hard-pan. The land is stony in places, and generally of a third-class quality.—*I. Traynor*, D.L.S., 1889.

22. *Outlines.*—West: the surface is alternately dry land, covered with poplar and an occasional oak, and marsh. The land is of a third-class quality. There is part of a small lake in section 30.—*Joseph Doupe*, D.L.S., 1875.

Sub-division.—This township generally is not a desirable one for settlement, the land being low, flat and wet, with many marshes, without any natural drainage to discharge the surface water. The timber in the north-easterly part is poplar of a fair size; in the south-easterly and westerly parts there is a young growth of poplar intermixed with willow and brush. The soil is generally a sandy loam, with a stony surface in places.—*M. Deane*, D.L.S., 1888.

23. *Outlines.*—West, is timbered with poplar, intermixed with brush. There are a number of hay marshes and muskegs, the latter with tall reeds and rushes. The land is stony, and of third-class quality.—*Joseph Doupe*, D.L.S., 1875.

24. *Outlines.*—West, is nearly covered with poplar bush, alternately with a number of hay marshes, and marshes with a growth of tall reeds and rushes. There is a large lake in the north-westerly portion ; it has low shores. The soil along the whole of this boundary is of third-class quality.—*Joseph Doupe*, D.L.S., 1883.

RANGE V.

18. *Outlines and Sub-division.*—This is also a fractional township east of Lake Manitoba, the greater part of which is an extensive marsh with lagoons and lakes. The rest of the township is good dry land, well adapted for settlement; a mellow, rich soil, with few stones. The easterly tiers of sections are wooded with oak and poplar.—*W. Wagner*, D.L.S., 1874.

19. *Outlines and Sub-division.*—Is on the easterly shore of Lake Manitoba. There is an extensive marsh on the shore of the lake. The easterly half is of splendid soil, and is very well wooded with oak and poplar, with extensive prairies. There are several small lakes, affording a good supply of water.—*W. Wagner*, D.L.S., 1874.

20. *Outlines and Sub-division.*—The northern part is mostly wooded, part of which has been destroyed by fire. The southern part comprises hay swamps and small bogs and ponds, all connected with Swan Creek.—*W. Wagner*, D.L.S., 1874.

21. *Outlines.*—East, is alternately poplar bush and shallow marshes, with patches of willow and occasionally some open ponds or small lakes in the marshes. The land is of a second-class quality.—*Joseph Doupe*, D.L.S., 1873.

Outlines and Sub-division.—The township is almost entirely covered with timber, chiefly poplar. The soil is black loam, eight inches in depth, with a gray clay sub-soil. The surface is but slightly undulating, with an inclination towards the east. There is an abundance of water, good hay meadows, and shelter, which makes the township specially adapted for stock-raising. There is a lake on the western boundary ; it has an area of about five square miles.— *W. Wagner*, D.L.S., 1885.

22. *Outlines.*—East, the surface is alternately dry land, covered with poplar, and occasional oak and marsh. The land is of a third-class quality. There is a small lake in section 3, and part of another in section 24.—*Joseph Doupe*, D.L.S., 1885.

Sub-division.—Without drainage, this township presents but few inducements for settlement. It is very much cut up by marshes, which retain the surface water at all seasons of the year. There is no timber of any value, except small

poplar, which is only fit for fuel and fencing.—*M. Deane*, D.L.S., 1888.

23. *Outlines.*—East, is timbered with poplar and brush. There are a number of marshes and muskegs, the latter having tall reeds and rushes. There is a lake in section 12 and part of 13, and another small one in section 24. The land is stony, and of a third-class quality.—*Joseph Doupe*, D.L.S., 1875.

Sub-division.—This township, though stony in places and considerably cut up by marshes, is tolerably good. The soil generally is a sandy loam. The prevailing timber is poplar; there are occasional groves of spruce and birch, intermixed with willow brush.—*M. Deane*, D.L.S., 1889.

24 *Outlines.*—North and east, is nearly all poplar bush, with many scattered hay marshes. There is a lake in the north-easterly part of the township. There are a few oak trees on the points of land stretching out into the lake. The shores of the lake are low and marshy. The soil is a sandy loam, stony, and of a third-class quality.—*Joseph Doupe*, D.L.S., 1875.

RANGE VI.

19. *Outlines and Sub-division.*—Is a small fractional township to the east of Lake Manitoba, containing about three thousand acres. The land is of a first-class quality, excepting that immediately along the shores of the lake, which are low and marshy. All the land in this township is occupied by settlers. —*W. Wagner*, D.L.S., 1873.

20. *Outlines and Sub-division.*—This township is also to the east of Lake Manitoba. It is timbered with poplar, oak, elm and ash, fit for building timber. The surface is level, and the soil is a good black loam.—*W. Wagner*, D.L.S., 1873.

21. *Outlines.*—West, is alternately rolling land, timbered with poplar and marsh, in which there are occasional small ponds. In some of the marshes there is a growth of willows, and in others reeds. The soil is all of first-class quality. The land in the marshes is rated as third-class, although the soil there is as good as that on the dry land.—*Joseph Doupe*, D.L.S., 1875.

Outlines and Sub-division.—This township is generally level, with a slight descent to the south-east. The land is good, but much broken by marshes, covered with reeds and willows. The soil consists of an alluvial layer of black loam, from eight to twelve inches in depth, with a sub-soil of clay. There is some splendid timber, especially in the northern part. The township is well adapted for settlement. There is a lake along the eastern boundary, with an area of about five square miles.—*W. Wagner*, D.L.S., 1885.

22. *Outlines.*—West, is generally level, timbered with poplar and a few patches of spruce. There are a number of marshes and

muskegs. The timbered land has a first-class soil.—*Joseph Doupe*, D.L.S., 1875.

Sub-division —The township is entirely covered with bush, except where the surface is broken by lake or marsh. The timber is chiefly poplar, much of which, however, is of an inferior quality. There is a limited supply of excellent spruce. The water is generally poor, owing to the presence of alkali. The surface is gently rolling. The land appears cold, owing to the hard, impervious nature of the sub-soil.

On the whole, I do not consider the township a very desirable location for settlement.—*J. H. Brownlee*, D.L.S., 1888.

23. *Outlines.*—West, is timbered with poplar, oak, birch, a few spruce and cottonwood. There are a number of willow; marshy swamps and muskegs. The land is of a second-class quality.—*Joseph Doupe*, D.L.S., 1875.

24. *Outlines.* North and west, is nearly all covered with poplar bush. There are a number of scattered marshes. Along the northern boundary the soil is a clay loam, stony, and of a second-class quality; along the western boundary it is of a first-class quality.—*Joseph Doupe*, D.L.S., 1875.

25. *Outlines.*—Is timbered land, with some hay marshes; section 31 is covered with poplar and pine of fair quality; sections 6, 7, 18, 19 and 30 are timbered with poplar, of which a considerable portion has been killed by fire. The township is nearly level, and appears to have a very fair soil.—*Edgar Bray*, D.L.S., 1888.

26. *Outlines.*—The surface of the western portion of the township is nearly level, with occasional hay marshes. It is covered with timber consisting of poplar, pine and spruce, the greater part of which has been much damaged by fires.

The soil is either sandy or clay loam, and is of a fair quality.—*Edgar Bray*, D.L.S., 1888.

27. *Outlines.*—Is nearly all composed of level land with a fair soil. It is mostly covered with pine, spruce and poplar, but the greater part has been killed by fire.—*Edgar Bray*, D.L.S., 1888.

28. *Outlines.*—Along the western boundary the land is generally level and of good quality. It is timbered with poplar, pine and spruce, which has been more or less damaged by fire. There is a windfall in section 31 and part of 32, from which point easterly pine woods extend for about three miles, when marshy and swampy land occurs.

The land is level and the soil good in sections 31, 32, 33 and 34, and swampy in sections 35 and 36, excepting on a couple of ridges in section 35.—*Edgar Bray*, D.L.S., 1888.

29. *Outlines.*—Along the western boundary the surface is generally level and the land of fair quality, broken by marshes,

excepting in section 31, where a stony tract is entered. Formerly there was a good growth of timber, consisting of pine, spruce and tamarack, but it is now nearly all dead and mostly fallen.—*Edgar Bray*, D.L.S., 1888.

30. *Outlines.*—The western boundary passes through a country covered with standing dead pine and spruce, which was killed by fires. The surface is rolling, the soil stony, and of third-class quality.—*Edgar Bray*, D.L.S., 1888.

31. *Outlines.*—Along the western boundary the soil is poor, the southern four miles being rocky, while the northerly two sections are swampy, the timber on the rocky land being all dead. The swampy land is covered with a growth of spruce and tamarack of about four inches in diameter, and in some places pine of six inches in diameter.—*Edgar Bray*, D.L.S., 1888.

32. *Outlines.*—The western boundary is intersected by St. Martin's Lake. In section 6 the land is low and swampy. In section 7 along the lake shore the soil is good, and is rated at second-class. There is some good spruce, tamarack, poplar and birch.—*Edgar Bray*, D.L.S., 1888.

RANGE VII.

20. *Outlines and Sub-division.*—This is a fractional township, consisting of a point of land running out into Lake Manitoba, and known as Long Point, the area of the dry land being 158 acres. There is a small supply of timber, consisting of spruce, ash, elm and poplar. The soil is of good quality.—*W. Wagner*, D.L.S., 1873.

21. *Outlines.*—East, is alternately a rolling surface, timbered with poplar and marsh, in which there are occasionally small ponds; in most of the marshes there are reeds, rushes and willows. The soil is all of first-class quality. The land in the marshes is rated as third-class, although the soil may be of much better quality.—*Joseph Doupe*, D.L.S., 1875.

Outlines and Sub-division.—There is a fine meadow land in this township along the shores of Lake Manitoba. Back from the lake it is thickly timbered with poplar, averaging seven inches in diameter, and suitable for building and fencing purposes.—*W. Wagner*, D.L S., 1885.

22. *Outlines.*—East, is generally a level surface, with a number of hay marshes and muskegs. It is timbered with poplar and a few scattered spruce. The timbered land has a first-class soil.—*Joseph Doupe*, D.L.S., 1875.

Outlines and Sub-division.—This township is chiefly wooded with poplar, averaging seven inches in diameter. There are numerous hay meadows. There is a lake in the south-easterly part of the township with an area of about four square miles. The land generally is of good quality.—*N. R. Freeman*, D.L.S., 1888.

23. *Outlines.*—East, is timbered with poplar, oak, birch, a few spruce and cottonwood. There are a number of marshes and muskegs; the former in some cases have an abundant supply of hay, and in others are covered with a growth of willows. The soil is of a second-class quality.—*Joseph Doupe*, D.L.S., 1875.

24. *Outlines.*—North and east is nearly all covered with poplar bush; there is an occasional hay marsh. There are a few scattered spruce throughout. There are a number of muskegs in sections 31 and 35. Along the northern boundary the land is of second-class quality; along the eastern it is of a first-class quality.—*Joseph Doupe*, D.L.S., 1875.

25. *Outlines.*—Along the eastern boundary the land is timbered, interspersed with hay marshes. Section 36 is covered with poplar and pine of fair quality. The remaining five sections are timbered with poplar, of which a considerable portion has been killed by fire. The surface is nearly level, and appears to have a very good soil.—*Edgar Bray*, D.L.S., 1888.

26. *Outlines.*—The surface of the eastern portion of the township is nearly level, with occasional hay marshes. The dry land is timbered with poplar, pine and spruce; the greatest part, however, has been damaged by fire.

The soil is either sandy or clay loam, and is of good quality.—*Edgar Bray*, D.L S., 1888.

27. *Outlines.*—Along the eastern boundary of this township the surface is nearly level, with a good soil. It is mostly covered with pine, spruce and poplar, the greater part of which has been killed by fires.—*Edgar Bray*, D.L.S., 1888.

28. *Outlines.*—Along the eastern boundary the land has a level surface, the soil good, timbered with poplar, pine and spruce, which has been more or less damaged by fire, except on and about section 24, where the woods have been injured.

Near the northern boundary the timber has mostly fallen, and a new growth of pines is springing up.

Along the northern boundary the surface is nearly level, and broken by hay marshes. The soil is of good quality. Part of section 36 contains windfall and marsh; the rest of the section, with all of section 35 and about one-half of 34, is timbered with pine, spruce and some good poplar. Going west from section 34 we find the timber all dead and mostly fallen.—*Edgar Bray*, D.L.S., 1880.

29. *Outlines.*—The surface along the eastern boundary is level, broken by hay marshes, excepting in section 36, where a stony tract is entered. This boundary was formerly covered with good timber, but it is now nearly all dead and fallen.

Along the western boundary the land is good, with a sandy loam soil. It is timbered with a mixture of spruce, pine, poplar and tamarack of fair size, but mostly damaged by fire. —*Edgar Bray*, D.L.S., 1888.

30. *Outlines.*—The eastern boundary passes through a country covered with standing dead pine and spruce, which has been killed by fire. There is a small quantity of pine, averaging seven inches in diameter, untouched by fire, in section 13.

The surface is rolling, and the soil is rather stony, and may be classed as of third-class quality.

Along the western boundary and south of Lake St. Martin, the land generally is of fair quality, and is heavily timbered with mixed woods, of spruce, pine, tamarack and poplar.—*Edgar Bray*, D.L.S., 1888.

31. *Outlines.*—Along the eastern boundary the soil is poor, the southerly four miles being rocky, while the northerly two are swamp. Sections 20 and 46 are timbered with small spruce and tamarack. There is some pine in sections 1 and 12. In the other sections the timber is dead.—*Edgar Bray*, D.L.S., 1888.

32. *Outlines.*—The southerly three-fourths of section 1 is swampy, and covered with small spruce and tamarack; thence going north, along the eastern boundary of the township, comes a tract of good land, which extends about fifty chains in width, covered with good spruce, tamarack, poplar and birch; then a hay marsh as far as St. Martin Lake. On the point of land extending out into the lake, in section 25, there is an extensive hay marsh.

Along the northerly boundary the land is nearly level, with a good soil, covered with poplar, spruce and tamarack, often of good size and quality, though in some sections damaged by fire.

Along the western boundary the surface is nearly level, and, excepting in the marshes, the soil is good. Nearly all the timber has been killed by fire.—*Edgar Bray*, D.L.S., 1888.

RANGE VIII.

21. *Outlines and Sub-division.*—This is only a small fractional township, consisting of parts of two sections, both of which are occupied by settlers. The land is of good quality, with occasional bluffs of poplar intermixed with birch.—*N. R. Freeman*, D.L.S., 1888.

22. *Outlines and Sub-division.*—About two-thirds of the township is covered with poplar, averaging six inches in diameter, suitable for building purposes; the other third is meadow and muskeg. During the summer of 1888 the meadows were covered with from three to ten inches of water. The soil on the dry portion of the township is of good quality.—*N. R. Freeman*, D.L.S., 1888.

23. The land along the shores of Dog Lake is low for a depth of a chain or two, back from which it is high and dry, with a rich black loam soil, and timbered with poplar, cottonwood and oak.

24. *Outlines.*—North and west, is timbered generally with poplar, scattered oak and birch. There is a good deal of oak on all the points running out into Dog Lake. The immediate shores of the lake in many places are low, with reeds and rushes. The land is of a first and second-class quality.—*Joseph Doupe*, D.L.S., 1875.

28. *Outlines.*—Along the northern boundary the land is generally level, with good soil, broken by numerous hay marshes. Some dead and fallen timber is found in section 33, but the remainder is well timbered with poplar, spruce and tamarack of good size.—*Edgar Bray*, D.L.S., 1888.

32. *Outlines.*—There is good land along the northern boundary, though somewhat broken by hay marshes, and, excepting a ridge in section 34, the surface is nearly level. The easterly sections of the townships are timbered with spruce, tamarack and poplar, while those on the west are timbered mostly with poplar, with some scattered spruce. This timber is generally of good size and quality, but a considerable part has been destroyed by fire.—*Edgar Bray*, D.L.S., 1888.

RANGE IX.

22. *Outlines and Sub-division.*—That portion of this township not taken up by an Indian reserve, or lying in Lake Manitoba, is beautifully and advantageously situated, and should be a most desirable place for settlement.

There is an abundant supply of fish in the lake, and moose and elk are very plentiful in the surrounding forest.

The township is slightly undulating, and well wooded with poplar of a sufficient size for building and fencing. The soil is a rich clay loam, easily worked either in wet or dry seasons. There is a considerable quantity of hay land in the prairie-like glades about the lake.—*J. H. Brownlee*, D.L.S., 1888.

23. *Outlines.*—East, along the shores of Dog Lake, the land is low, with reeds and rushes. A few chains back it rises, and is mostly timbered with poplar, balm of Gilead and oak, with a few scattered spruce. The soil is a rich black loam of a first-class quality.—*Joseph Doupe*, D.L.S., 1875.

24. *Outlines.*—North and east, is generally timbered with poplar, with a few oak and birch. On the points of land running out into Lake Manitoba and Dog Lake there is a considerable quantity of oak timber. There is some very rich land in this township, although it is generally of a second-class quality.—*Joseph Doupe*, D.L.S., 1875.

28. *Outlines.*—The surface along the northern boundary is alternately low ridges of good land and hay marshes. The ridges are timbered with poplar, spruce, etc., of good quality, and frequently of very fair size. The north-westerly part of the township is rather wet.—*Edgar Bray*, D.L.S., 1888.

32. *Outlines.*—Along the northern boundary there is good level land, alternating with marshes. It is mostly timbered with poplar and scattered spruce, the timber often being of considerable size. In section 35 a rough, rocky tract is found, which probably is a part of the Gypsum Hills, though only a common limestone was noticed. Where the boundary passes these hills the elevation is only a few feet above the surrounding country.—*Edgar Bray*, D.L.S., 1888.

RANGE XVI.

31. *Outlines.*—Along the eastern boundary we found the timber exceedingly dense, most of it dead, and in places there was much fallen spruce. The timber throughout this part, if used soon, would make first-class fuel, and in the case of the spruce, it would make lumber, but if left for a few years the greater portion of it will be valueless, and another great fire would leave a large portion of the land black and bare, and stripped of the most valuable constituents of the soil.—*Thos. Fawcett*, D.L.S., 1890.

CHAPTER XII.

County of Dufferin.

The prairie here is a light, sandy soil, with clumps of aspen and willows growing here and there; it is intersected by many small valleys, in all of which, with one exception, the creeks that formed them are now dried up. The valley of Tobacco Creek is seven chains wide and twenty feet deep; there was but little water at this time (the first week in October) in the creek, but in the spring time there is a rapid flow.

The prairie on the south and west is bounded by what is generally called the "Pembina Mountain," which is rather a series of steps rising up from the prairie below to one above. There are three steps, from 20 to 25 feet high, together with a gradual ascent for two miles; the whole of it is thickly strewn with boulders of granite. The "mountain," which consists of clay, gravel and sand, runs in a south-easterly direction, from a little above Portage la Prairie to Pembina. Where we crossed it there is no timber, but on both sides it is well covered, particularly on the south, where the trees seemed large and good. Here the forest is said to begin, which reaches to the Assiniboine, but with the exception of some oak on the mountain, there is no good timber, nothing but young aspen, from 20 to 30 feet high, growing very close together, forming a dense thicket.

On reaching the summit of the "mountain" the trail turns to the west, across a prairie called "the round prairie," which is perfectly level and open for six miles; on the north and south it is bounded by woods of poplars. On its western limit, within a few hundred yards of the trail, there is a conical hill, about two hundred feet high, called the "Calf's Tent," rather a remarkable-looking object, rising as it does so abruptly from out the level plain and standing alone.

We then crossed an undulating prairie, ten miles wide, covered with willows and clumps of aspen from 20 to 40 feet high; the soil is a rich sandy loam. This part of the country is quite destitute of water; there are no creeks, and the ponds, which are said to be generally full of water, were now quite dry.—*James A. Dickinson*, 1858.

RANGE III.

1. *Outlines and Sub-division.*—Comprises rolling prairie, with a luxuriant growth of grass, more particularly in the north-western corner; is also well drained by water-courses. During the dry season water is only found by sinking wells. The township commands an imposing view of the Pembina Mountains to the west. It is rapidly filling up with Mennonite settlers. No timber exists.—*L. Kennedy*, D.L.S., 1875.

2. *Outlines and Sub-division.*—This township is level prairie. The soil is a black loam.—*W. and D. Beatty*, D.L.S., 1872.

3. *Outlines.*—Is all level prairie, with occasional patches of hay land. A dry water-course runs across the township. The land is a rich black loam of a first-class quality.—*W. Beatty*, D.L.S., 1871.

Sub-division.—Is entirely open prairie, all of which, with the exception of a small swamp on the western side, is excellent arable land, free from stones. A small creek of good water crosses the township, and there are a few water-runs.—*W. Burke*, D.L.S., 1872.

4. *Outlines.*—Is all a level prairie, with a rich, black, sandy soil of a first-class quality.—*W. Beatty*, D.L.S., 1871.

Sub-division.—Consists of open, fertile prairie. The northern part is level, the centre low, and the southern portion good, and undulating. In addition to the few water-runs, which were found quite dry, a small creek of good water winds its course through the northern portion of the township. These water-runs, though dry in the summer season, are full of water in the spring and autumn. Water can be obtained by digging to a depth of from three to four feet.—*W. Burke*, D.L.S., 1872.

5. *Outlines.*—Is all level prairie, rather low in places, with a number of hay marshes. The soil is a rich black loam of a first-class quality.—*W. Beatty*, D.L.S., 1871.

Sub-division.—About one-quarter of this township is swamp; good hay ground, but much too low for cultivation. The central and western portions are good, level prairie. The soil is black loam.—*W. and D. Beatty*, D.L.S., 1872.

6. *Outlines.*—Is level prairie, with one small bluff of oak timber. In the northern part there are extensive marshes, liable to be flooded in the spring of the year, but perfectly dry during the summer months. The soil is of a first-class quality.—*W. Beatty*, D.L.S., 1871.

Sub-division.—Is good, level prairie, with a soil of black loam. There is no running water in this township, and but two small islands of oak timber, one in sections 16 and 21, and the other in the north-easterly part of section 18. In a gully running along the line, between sections 20 and 21 and sections 17 and 16, are pools of good water, which remain throughout the season.

There is a good hay swamp extending across the southern part of the township, where a number of settlers from township 6, range 4, west, got their winter's supply.—*W. and D. Beatty*, D.L.S., 1872.

RANGE IV.

1. *Outlines and Sub-division.*—The land generally is of a low character, well supplied with water in places by small lakes

and ponds and pools in dry water-courses. The land is more adapted for stock-raising, owing to the abundance of hay land and water.

The principal settlement, which is Mennonite, and designated "Bloomfield," stands on sections 15, 16, 17, 20, 21 and 22.

There is some timber in the south-western portion of the township.—*L. Kennedy*, D.L.S., 1875.

2. *Outlines and Sub-division.*—This township is level prairie; soil, black loam. Two small islands of oak and black ash woods lie near the centre.—*W. and D. Beatty*, D.L.S., 1872.

3. *Outlines.*—Is very good undulating prairie, with occasional patches of hay land. There is some timber, consisting of oak, ash, elm and ash-leaved maple, along the banks of a coulée in section 30. The soil is a black loam, of first-class quality.—*W. Beatty*, D.L.S., 1871.

Sub-division.—Is almost entirely open prairie, well adapted for hay and grazing purposes. A belt of splendid heavy timber, consisting of elm, oak and poplar, lies in the north-western portion. Two creeks of excellent water traverse the wooded portion.

There are a number of water-runs in other parts. By digging to the depth of three or four feet an abundance of water can be obtained.—*W. Burke*, D.L.S., 1872.

4. *Outlines.*—Is a slightly undulating prairie. The soil is a first-class black loam, with a clay sub-soil. There are a number of dry water-courses.—*W. Beatty*, D.L.S., 1871.

Sub-division.—Is altogether open prairie, one of the finest in the province. The surface is alternately level and undulating, and the soil a rich loam, with clay sub-soil. There are a number of water-runs, which are dry during the summer, but a good supply of water can be obtained by digging to the depth of three or four feet.—*W. Burke*, D.L.S., 1872.

5. *Outlines.*—Is a slightly undulating prairie, with occasional small bluffs of oak and willow brush. There are some maple, oak and elm along the banks of Tobacco Creek, which runs in an easterly direction through the centre of the township. The soil is black loam, of a first-class quality.—*W. Beatty*, D.L.S., 1871.

Sub-division.—Is good land, with the exception of some 1,500 acres in the north-easterly portion of the township, which is swampy.

Through the centre runs a stream of good water, along the banks of which there is some fine timber, such as oak, ash, maple and elm.—*W. and D. Beatty*, D.L.S., 1872.

6. *Outlines.*—Is an undulating prairie, with a number of clumps of thorn and willow brush. Along the banks of the River aux Iles des Bois there is a belt of good timber, about half a mile in width, consisting of oak, poplar, elm, ash, basswood and ash-

leaved maple. The soil is a black loam of first-class quality. *W. Beatty*, D.L.S., 1871.

Sub-division.—Every section in this township is fit for settlement. The soil is a very deep, black mould, overlying white clay. The River aux Iles des Bois flows across the north-westerly part of the township, the banks of which are about twelve feet in height, and the current about three miles an hour. A belt of good oak timber, intermixed with elm, poplar and basswood, averaging about twelve inches in diameter, extends along either bank of the river, having a width of from ten to twenty chains. Another belt of oak timber, of the same quality and width, extends in a south-easterly direction from section 28 to section 12. All the sections containing wood, as well as some of the adjacent prairie lots, have been taken up, and more or less improvements made thereon. Very fine crops of wheat, barley and oats were raised here during the past season.—*W. and D. Beatty*, D.L.S., 1872.

RANGE V.

1. *Outlines and Sub-division.*—Commencing from the eastern portion of the township, we begin to enter scrub and timber in section 1, along the international boundary, and also to ascend the first steppe of the Pembina Mountains, which encroach on the south-western corner of the township, extending from section 33 on the north to section 2 on the south. As we leave the prairie and approach the base of the mountains the land becomes lighter and boulders abound. The ascent for about one and a-half miles is gradual by different terraces of table-land, until finally the steep ascent of 100 to 150 feet brings us to the first grand elevation, which still further ascends on the international boundary, from which point to westward it gradually assumes the character of the table land, which is covered with dense scrub and poplar, and towards the north with oak groves. This township in many places presents beautiful locations for settlement, well supplied with water and fuel, although in some places difficult of access.—*L. Kennedy*, D.L.S., 1875.

2. *Outlines and Sub-division.*—This township is chiefly prairie; soil, a black loam. A belt of very fine oak, say thirty chains in width, runs through the southerly tier of sections, in which are laid off twenty-six wood lots.—*W. and D. Beatty*, D.L.S., 1872.

3. *Outlines.*—Is an undulating prairie, with occasional small patches of hay land. In section 25 there is some timber, consisting of oak, ash, elm and ash-leaved maple along the banks of a coulée. The soil is black loam of first-class quality.—*W. Beatty*, D.L.S., 1871.

Sub-division.—A belt of timber passes through this township; with this exception, it is all prairie land.—*C. J. Bouchette*, D.L.S., 1872.

4. *Outlines.*—Is a slightly undulating prairie. The soil is a black loam of a first-class quality.—*W. Beatly*, D.L.S., 1871.

Sub-division.—Is prairie. There is no timber, but for settlement purposes it could be brought from the slopes of Pembina Mountains, which are immediately to the west of this township. —*C. J. Bouchette*, D.L.S., 1872.

5. *Outlines.*—Is a slightly undulating prairie, with a small belt of oak, elm and ash-leaved maple along the banks of Tobacco Creek, which runs easterly across the northern portion of the township. The soil in some places is black loam, and in others a sandy loam, all of a first-class quality.—*W. Beatty*, D.L.S., 1871.

Sub-division.—The surface of this township is level. There are some small patches of hay land and a few dry gullies. The soil is a very rich black loam. Tobacco Creek passes through the northern part of the township, running from west to east. The water is fresh.

The scattered trees along Tobacco Creek form the only timber to be found.—*W. and J. McG. Otty*, D.L.S., 1872.

6. *Outlines.*—Is an undulating prairie, with scattered clumps of thorn and willow brush. Along the banks of River aux Iles des Bois, which flows easterly across the northern portion of the township, there is a belt of good timber, about half a mile in width, consisting of oak, poplar, elm, ash, basswood and ash-leaved maple. North of the river there are a few scattered bluffs of poplar. The soil is a sandy loam of a first-class quality.—*W. Beatty*, D.L.S., 1871.

Sub-division.—The surface of this township is generally level, with a slight inclination towards the River aux Iles des Bois for about a mile and a half on either side of the river.

The soil is a black loam.

The township is well watered by the river above mentioned, the water of which is fresh and sweet.—*W. and J. McG. Otty*, D.L.S., 1872.

RANGE VI.

1. *Outlines and Sub-division.*—Is altogether comprised of the mountain range, and for the most part intersected with deep ravines from one hundred to two hundred and fifty feet in depth, occasioned by the various small streams which take their rise from the low lands and marshes met with on the top of the mountains. It is along these streams and ravines that the greater part of the timber stands. It is composed of poplar, with some elm in the central and southern portions of the township. The timber on the northern tier of sections is for the most part oak of fair dimensions. The south-west portion of the township is intersected by the Pembina River and valley, the latter being of an average width of about one mile and three-quarters, although frequently the section lines cross the valley for a distance of two to three and a-quarter

miles. The different terraces which comprise the formation of the ravine are more or less covered with poplar and scrub, more particularly on the east side, and the elevation from the bed of the river to the height of land must be from two hundred and fifty to three hundred feet. The formation is generally a bluish shale (slate), and unstable when exposed.

The Pembina River is about one chain wide, strong current, and an average depth of one foot and a-half where the course is rapid, but where the course is not so strong the depth is greater. The bed of the river is stony; the banks on each side indicate a general overflow during the early part of the summer. Willows abound along its banks, and farther away from the river dense scrub and alders.

Owing to the prevalence of fallen timber and the abundance of grass, the mountains are visited with many destructive fires.—*L. Kennedy*, D.L.S., 1875.

2. *Outlines and Sub-division.*—One half of this township is prairie soil, black sandy loam. The remainder is covered with good oak timber, averaging eight inches in diameter. Six wood lots have been laid off in section 15.

There is good water in a gully which runs across the township.—*W. and D. Beatty*, D.L.S., 1872.

3. *Outlines.*—There is some very good prairie land in the south-western portion, but it is much broken up by a number of gullies. These gullies and the slopes of the Pembina Mountains are for the most part covered with a heavy growth of poplar, oak and hazel brush. In the rest of the township there are scattered bluffs of poplar and oak. The soil is a black sandy loam, with gravel and stones in places; it is of a second and third-class quality. In the north-eastern part there are a great number of large granite boulders, and the land there is of a gravelly nature.—*W. Beatty*, D.L.S., 1871.

Sub-division.—Prairie and woodland. The greater part of this township is rather stony.—*C. J. Bouchette*, D.L.S., 1872.

4. *Outlines.*—The greater part of this township is an undulating prairie. In the western part there are some groves of good oak. The south-westerly corner of the township is on the slopes of Pembina Mountains. There are occasional sandy and gravelly ridges of small extent. The soil generally is a black loam of a first-class quality.—*W. Beatty*, D.L.S., 1871.

Sub-division.—Prairie and wood. The eastern part of township is well adapted for settlement. An abundance of oak is to be found on the slopes of the Pembina Mountains.—*C. J. Bouchette*, D.L.S., 1872.

5. *Outlines.*—The land is generally an undulating prairie, with a considerable quantity of oak timber and brush in the western part. Throughout the township there are clumps of willow, brier and dead poplar. The soil generally is of a first-class quality.—*W. Beatty*, D.L.S., 1871.

Sub-division.—The surface of this township is level. In the south-western part, at the foot of the Pembina Mountains, it is low and wet. The soil is a dark loam.

The township is well watered by Tobacco Creek, which flows through it from west to east. The south-western part is well wooded with basswood, oak and elm.—*W. and J. McG. Otty*, D.L.S., 1872.

6. *Outlines.*—There is a considerable quantity of oak timber, but the greater part of the township is covered with small poplar brush, willow, brier and hazel. The River aux Iles des Bois runs in an easterly direction across the northern part of the township. The land to the north of the river is of poor quality, being very sandy; the remainder is good.—*W. Beatty*, D.L.S., 1871.

Sub-division.—The surface is level, or slightly inclined towards the River aux Iles des Bois. The soil in the eastern part is a dark loam; in the western it is of a sandy nature. The River aux Iles des Bois passes through the township, flowing from west to east.

A belt of timber consisting of oak, elm and basswood extends along the river on each side, varying from five to ten chains in width. There are also some poplars in the northern and western parts, but the growth is small. There is a quantity of willow brush in the western part.—*W. and J. McG. Otty*, D.L.S., 1872.

RANGE VII.

1. *Outlines and Sub-division.*—The northern portion of this township is much broken by the Pembina River and valley, the latter having an average width of from two to three miles, and being intersected by numerous small ravines, is so uneven as to render it almost unfit for settlement. The southern portion is the best, but the soil is light. Sufficient timber exists for fuel, though difficult of access, while the running water is good.—*L. Kennedy*, D.L.S., 1876.

2. *Outlines and Sub-division.*—About three-fourths of this township is undulating prairie. Soil, black loam. On the remainder there is poplar wood of average size—say, eight inches. Sixty timber lots have been laid off in the southern part. Pembina River runs through sections 4 and 5. The south-western corner is much broken by steep hills and gullies.—*W. and D. Beatty*, D.L.S., 1872.

3. *Outlines.*—Is an undulating prairie, with scattered patches of willow and brush, with some poplar. The soil is a black loam of a first-class quality.—*W. Beatty*, D.L.S., 1871.

Sub-division.—Consists partly of prairie and partly of timbered lands. The south-eastern portion is for the most part prairie; the rest is covered with poplar and brush, mixed in some places with oak. Sections 34, 35 and 36 are intersected by a spur of Pembina Mountains. They are unfit for settle-

ment, as the surface is broken by deep ravines, with banks 100 feet high. At the bottoms of the ravines there are creeks containing water, all running in a south-easterly direction.

The north-westerly part of the township contains good land, well timbered with poplar and oak, but the prairie portion in the south-east of the township is of inferior quality.

There are many marshes where hay and water can be procured.—*J. McArthur*, D.L.S., 1872.

4. *Outlines.*—Nearly half of this township is covered with good timber, principally poplar; there is some oak and birch. The soil is of a second-class quality.—*W. Beatty*, D.L.S., 1871.

Sub-division.—Is heavily timbered with oak and poplar. There are also some elm, ash, maple and white birch. There is not one section of prairie land in the township, but there are some clearings made by recent fires.

Pembina Mountain intersects the township diagonally, and the surface is so much broken by ravines as to render one-third of the area unfit for settlement. The rest of the township is well suited for farming. There are numerous creeks of good water running down the side of these mountains. No fixed rocks are visible, but boulders are met with occasionally.—*J. McArthur*, D.L.S., 1872.

5. *Outlines.*—Is nearly all timbered with poplar and balm of Gilead, with a few oaks and a heavy growth of willow and poplar brush. In sections 3 and 4 there is a dry water-course, the banks of which are seventy to eighty feet high. The soil is a black loam of first and second-class quality.—*W. Beatty*, D.L. S., 1871.

Sub-division.—The soil and timber are generally of an inferior quality and the surface is very much broken. It is traversed by several branches of Tobacco Creek, the water of which is of excellent quality.—*O. B. Davidson*, D.L.S., 1873.

6. *Outlines.*—The land is undulating; there is very little prairie; the township is nearly all covered with bluffs of poplar, balm of Gilead, willow and brush. There is a belt of oak, elm, basswood and ash-leaved maple along the the River aux Iles des Bois, which runs through the township. The soil is a sandy loam of second-class quality.—*W. Beatty*, D.L.S., 1871.

Sub-division.—About 60 per cent of this township is fit for agricultural purposes. Pembina Mountains traverse the southern and western portions, and the River aux Iles des Bois and its tributaries flow through the northerly part of the township, affording a supply of good water. The soil is, however, sandy. The timber, which is mostly poplar and oak, is not of heavy growth, except on the banks of the streams.—*O. B. Davidson*, D.L.S., 1873.

RANGE VIII.

1. *Outlines and Sub-division.*—The soil is inclined to be light. Pembina River and valley intersects the township from west to east. That portion best adapted for settlement comprises the northerly tier of sections, together with sections 1 to 10 inclusive, being the most southern portion of the township. The valley of the river is for the most part well timbered, principally with poplar, some of which may be available for building.—*L. Kennedy*, D.L.S., 1876.

2. *Outlines and Sub-division.*—The western portion of this township is rough prairie; the eastern contains oak timber and willow bush. Soil, second rate. Nearly one half of the township is covered with brush. There is no water, except a small spring creek in the south-eastern corner.—*W. and D. Beatty*, D.L.S., 1872.

3. *Outlines.*—Is an undulating prairie, with scattered clumps of willow, brush and some poplar. The soil is a black clay loam of a first-class quality.—*W. Beatty*, D.L.S., 1871.

Sub-division.—Consists partly of prairie and partly of timbered land. The surface is undulating, and the soil is what is usually denominated as "drift." There are some groves and belts of oak, but the prevailing timber is poplar.

There is an abundant supply of water at all seasons.—*J. McArthur*, D.L.S., 1872.

4. *Outlines.*—Along the western boundary the land is generally an undulating prairie, with scattered bluffs of poplar and small willows. The soil throughout the township is of second-class quality.

Along the northern boundary, where not covered with poplar and willow brush, it is heavily timbered with poplar, oak and balm of Gilead.—*W. Beatty*, D.L.S., 1871.

Sub-division.—This township is situated on the Pembina Mountains. It has a good soil, and is well suited for settlement.

There is a sufficient supply of water, but that on the surface is neither pure nor good.

The northern part is heavily timbered with oak and poplar. Fire has destroyed a good deal of this timber. The south-western part is nearly all open prairie. There are a number of good hay marshes. There is no fixed rock, but a few boulders are strewn over the surface.—*C. J. Bouchette*, D.L.S., 1872.

5. *Outlines.*—Is generally covered with a growth of willows and brush, and in places heavily timbered with poplar, oak and balm of Gilead. There is a marsh in section 1, and a small lake and marsh in section 4. The land is gravelly in places, and the soil is of a second-class quality.—*W. Beatty*, D.L.S., 1871.

Sub-division.—The land is rolling and hilly, and for the most part thickly timbered ; on the eastern side the timber is of excellent quality. Through the centre from north to south there is a belt about one mile wide, covered with a dense scrub, consisting of dry hazel and willow, with occasional bluffs of poplar. The soil is good in the southern portion, but to the north it is of inferior quality; it is, however, well supplied with water, which is fresh and good.—*O. B. Davidson*, D.L.S., 1873.

6. *Outlines.*—West, an almost unbroken stretch of heavy poplar timber. The surface is level, and the soil a good rich black loam.

North, rolling land, timbered with oak, poplar and birch. The soil is of a first-class quality.—*W. Beatty*, D.L.S., 1872.

Sub-division.—The soil is of inferior quality, and the surface so broken by ravines that it could not be cultivated. A branch of the River aux Iles des Bois crosses the township, and there are several smaller streams, the water of which is excellent and never-failing. The timber consists of poplar, oak, elm, white birch, ash and basswood. On the south-east quarter of section 14 I found a small quantity of fossil limestone.—*O. B. Davidson*, D.L.S., 1873.

CHAPTER XIII

County of Rock Lake

RANGE IX.

1. *Outlines and Sub-division.*—This township presents considerable attractions to the settler. The southern and western portions are mostly open prairie, with here and there stretches of hay land. The Pembina River valley, passing through in a south-easterly direction, is generally well timbered with poplar and, in many places, oak. The soil is of a fair quality, and the township easy of access by means of the Mission Trail, which passes through the north-western portion.—*L. Kennedy*, D.L.S., 1872.

1. *Outlines and Sub-division.*—The western portion is level prairie, with a black loam soil.

Pembina River runs through the eastern portion, and averages one chain in width. The valley of the river on an average is one and a half miles wide. The alluvial deposits, common in such places, have been carried off by the flood in this section of the country, leaving in many places only a sub-soil of clay mixed with shale. Good oak and poplar timber is found in many places.— *W. and D. Beatty*, D.L.S., 1872.

3. *Outlines.*—Is intersected by the Pembina River, which is about seventy feet wide and two feet deep, with a steady current of about two miles an hour. It has a very serpentine course through its valley, which is about a mile in width, and lies about one hundred feet below the surrounding country. The bottom land of the valley is of good quality; some of it is rather marshy, but bearing heavy crops of good grass; the drier portions are mostly covered with brush. The high land on each side of the valley is black clay loam of good quality, mostly brushy, except in the south-eastern corner.— *W. Beatty*, D.L S., 1871.

Sub-division.—Is in part timbered and part prairie, the prevailing timber being poplar and oak. The surface is in many places broken. It is well watered, and easy of access at all seasons of the year. There are a few boulders scattered over the surface, but no fixed rock. About one half is suited for settlement. Pembina River flows through the south-westerly part of the township.—*J. McArthur*, D.L.S., 1873.

4. *Outlines.*—Is a rolling prairie, with a number of patches of willow brush and scattered poplar and bluffs of poplar. The soil is a black loam of a first and second-class quality.— *W. Beatty*, D.L.S., 1871.

Sub-division.—Is composed partly of timber land and partly undulating prairie, covered in many places with willows and brush. The prevailing timber is oak and poplar, sufficiently large to supply building timber and fuel. There are several hay marshes in the northerly portions. It is well watered by creeks flowing westerly to the Pembina River. A good road passes diagonally across the township; it is easy of access at all seasons of the year. The soil is a rich, dark alluvial deposit.—*J. McArthur*, D.L.S., 1873.

5. *Outlines.*—Is nearly all covered with poplar, willows and oak in places. There is very little prairie land. There are small lakes in sections 2 and 24, and a dry bed of a lake in section 3, with a hay marsh surrounding the same. The soil is a good black loam of a second-class quality.—*W. Beatty*, D.L.S., 1872.

Sub-division.—The surface is rolling. One quarter of the township is covered with poplar, balm of Gilead and oak, and about one-third of the remainder is sparsely covered with poplar, burnt timber, windfalls, &c.

The quality of the land is excellent. The soil, a very rich loam, has an average depth of two feet.

Good fresh water can easily be obtained in almost any part of the township by digging to the depth of four feet in the low ground. In the vicinity of the lakes never-failing springs of cold fresh water are to be found. At least thirty-six sections will make most excellent farms.—*O. B. Davidson*, D.L.S., 1872.

6. *Outlines.*—North, thick poplar bush, with fallen trees and heavy underbrush; the land is undulating, with occasional small swamps. The soil in sections 33 and 34 is first-class; the remaining sections are second and third-class.

East, heavy poplar timber; level land. Soil, a good, rich black loam.—*W. Beatty*, D.L.S., 1872.

Sub-division.—The surface is rolling and hilly, and covered with small groves of poplar, willow and scrub.

There are several small lakes and creeks. The soil generally is of second-class quality.—*O. B. Davidson*, D.L.S., 1872.

RANGE X.

1. *Outlines and Sub-division.*—The soil of this township is very good, and the character of the country rolling prairie. There is no timber whatever in the township. Good water is to be had in all the ponds and marshes. Would be well adapted for settlement but for the absence of timber —*E. Stewart*, D.L.S., 1877.

2. *Outlines and Sub-division.*—This township is slightly undulating prairie. Soil, black loam; excellent farming land. There are several good hay swamps, but with the exception of these, there is no water.—*W. and D. Beatty*, D.L.S., 1882.

3. *Outlines.*—South and west, is an undulating prairie; rather stony in places. The soil is of a second-class quality.—*W. Beatty*, D.L.S., 1871.

Sub-division.—Is almost entirely open prairie, the surface undulating; and there are some muskegs. Pembina River flows through the north-easterly part. There is some timber on its banks, but the southern and western portions of the township are entirely destitute of timber. The international boundary survey road passes about two miles to the south, and affords easy access to the lands.—*J. McArthur*, D.L.S., 1873.

4. *Outlines.*—North and west, Pembina River enters the township at the north-westerly corner and flows diagonally across, leaving it in section 2. The river valley is about a mile wide, and lies about 100 feet below the level of the surrounding country. The bottom lands are of good quality, some of it being rather marshy, but bearing heavy crops of grass. The drier portions are mostly covered with small brush. The plateau on each side of the valley has a soil of black clay loam. The land here is covered in many places with small brush.—*W. Beatty*, D.L.S., 1871.

Sub-division.—The surface is very uneven, broken by numerous ravines. Pembina River traverses it. The valley is about one mile and a quarter wide. The river is from forty links to three chains in width; the depth varying from two to ten feet, and the banks very steep. The surface of the greater part of the township is covered with timber and brush; there are very few sections of open prairie.—*J. McArthur*, D.L.S., 1873.

5. *Outlines.*—Is undulating prairie, mostly bush, with scattered clumps of poplar and oak. There is some good pasture land. The soil is a black loam of first-class quality.—*W. Beatty*, D.L.S., 1871.

West, good rolling land, generally covered with a thick growth of young poplar. In sections 6, 7 and 18 the soil is first-class, and in the remaining three it is of second-class quality.—*W. Beatty*, D.L.S., 1872.

Sub-division.—With the exception of sections 6, 7 and 18, the land in which is rough and broken, this township is excellent for farming purposes.

A belt of poplar timber of good quality runs along the south, east and north boundaries of this township. The central and western portions are chiefly covered with dense oak and willow scrub. In the north-east corner there is a small brook of good fresh water, with several fine cold springs on its banks, and in the south-west a deep ravine, with a creek which has its head about four miles from the Pembina River. In sections 2 and 29 there are two small lakes, the water in which is salt and stagnant.

Water can be obtained at any place in the township at a depth of from eight to twenty feet.—*O. B. Davidson*, D.L.S., 1872.

6. *Outlines.*—The northern boundary runs through a country timbered with oak, poplar, balm of Gilead, thick willow and brier brush. Section 31 has first-class soil; the remainder is second-class land.

Along the western boundary there is a heavy growth of poplar timber, with a few scattered oak along Cypress River. The soil is of first and second-class quality.—*W. Beatty*, D.L.S., 1872.

Sub-division.—The north-western portion is quite hilly, too much so for cultivation, excepting very small portions, adjacent to marshes, which are very numerous. The remaining portion of the township is very well adapted for cultivation. The land is rolling and the soil excellent. There is good water and a fair quantity of wood; this is almost entirely poplar.

There are a great number of hay flats growing an excellent quality of hay; nearly every section has one or more of these.—*O. B. Davidson*, D.L.S., 1872 and 1873.

RANGE XI.

1. *Outlines and Sub-division.*—Is rolling prairie, with a number of small ponds and hay marshes. Is well adapted for settlement, the land being of a first-class quality.—*E. Stewart*, D.L.S., 1887.

2. *Outlines and Sub-division.*—This township consists of rolling prairie; excellent land. Soil, black loam. Water, none, except on the surface.—*W. and D. Beatty*, D.L.S., 1872.

3. *Outlines.*—South and west, is rolling prairie, rather stony in places. The soil is a black clay loam of a second-class quality.—*W. Beatty*, D.L.S., 1871.

Sub-division.—This township is well suited for settlement. It is nearly all rolling prairie, and the soil is in most places very fine. There is good hay land in nearly every section. In most of the sloughs good water may be had by digging.

Settlers can be supplied with wood from the adjacent townships.—*H. Leber*, D.L.S., 1872.

4. *Outlines.*—North, along the valley of Pembina River are scattered poplars and willow brush, and on the banks of Swan Lake is heavy poplar, oak and balm of Gilead. There is fine rolling prairie in section 33. The soil is of a second-class quality.

East, is generally a brushy prairie, with clumps of poplar in the valley of Pembina River, which flows across section 36. The valley is about a mile wide. The soil generally is of a second-class quality.—*W. Beatty*, D.L.S., 1871.

Sub-division.—Is principally woodland. There is a belt of poplar and oak timber along the northern boundary, about

four miles long and from one to three wide. Portions of this have been destroyed by fire. The oak is of poor quality.

The surface of the ground is broken in some places, and in others undulating. The soil is good.—*H. Leber*, D.L.S., 1872.

5. *Outlines.*—South, along the valley of Pembina River there are scattered poplars and willow brush; on the hills facing Swan Lake is heavy poplar, oak and balm of Gilead timber. The soil is of a second-class quality.—*W. Beatty*, D.L.S., 1871.

East, the surface is very hilly; the soil on the hills is mixed with shale. It is timbered alternately with bluffs of poplar and scrub. Pembina River flows through section 1.—*W. Beatty*, D.L.S., 1872.

Sub-division.—The northern and eastern parts of this township consist of poplar woods of good quality. The rest is a brushy prairie, suitable for cultivation, excepting the valley of Pembina River, the land in which is for the most part of a slaty formation. Swan Lake, an expansion of Pembina River, lies in the southern part of the township; it is about six miles in length by one in breadth; its banks are about fifty feet high, and are of a slaty formation. The hill-tops are for the most part sandy, and the level portions sandy loam. Several fresh water springs may be found in the interior of the township.—*W. and D. Beatty*, D.L.S., 1872.

6. *Outlines.*—East, the land is very hilly; the soil on the hills is mixed with shale. It is covered alternately with bluffs of poplar and scrub. Cypress River flows through section 12. The soil is of a first and second-class quality. North, the land is hilly, with thick brush and poplar timber, excepting in section 31, which is prairie.—*W. Beatty*, D.L.S., 1872.

Sub-division.—Contains but little land fit for cultivation, hills, morasses and alkaline lakes being its characteristic features. There is a small second-growth of poplar and cherry growing in the old windfalls. A stream flows through the south-easterly portion of the township.—*W. and D. Beatty*, D.L.S., 1872.

RANGE XII.

1. *Outlines and Sub-division.*—Is partly a rolling and hilly prairie. The soil is very good. There are a few trees along the banks of Crystal River. The township is well adapted for settlement.—*E. Stewart*, D.L.S., 1877.

2. *Outlines and Sub-division.*—This township consists of a rolling prairie, having good soil. Crystal River, a small stream of the purest water, which flows through a large gully, crosses the township in a south-easterly direction. There is some good timber in the northerly portion of the township, and also in some places in the gully.—*W. and D. Beatty*, D.L.S., 1872.

3. *Outlines.*—Is mostly a brushy prairie, with a good deal of poplar and oak timber in the south-westerly and westerly parts. Pembina River flows through a deep valley across the northern part. The soil is a black loam of a first-class quality.—*W. Beatty*, D.L.S., 1871.

Sub-division.—Offers good advantages to the settler. It consists partly of woodland and partly of prairie. The soil is good, water is abundant and excellent, and timber is plentiful and of good quality. Hay and grass can also be had in abundance. Pembina River and a tributary brook pass through the township.—*H. Leber*, D.L.S., 1872.

4. *Outlines.*—The south-westerly part is prairie. The north-easterly part has scattered groves of poplar in a thick growth of willow brush. The soil is of a first-class quality.—*W. Beatty*, D.L.S., 1871.

Sub-division.—Is partly woodland and partly prairie. It is abundantly supplied with good water and timber. The latter consists for the most part of small oak and poplar. On the banks of Pembina River, which passes through this township, are some very fine large elms.

The immediate valley of Pembina River is from half a mile to a mile in width. The soil here is excellent.—*H. Leber*, D.L.S., 1872.

5. *Outlines.*—South, is an undulating prairie, with scattered bluffs of poplar. The soil is of first-class quality.—*W. Beatty*, D.L.S., 1872.

West, the land is rolling, and is hilly in places. It is generally covered with a growth of brush. The soil is of a first-class quality.—*W. Beatty*, D.L.S., 1872.

Sub-division.—This township is nearly all covered with brush, generally growing among fallen timber. The soil in most parts is good, excepting on the hills, where it is slaty. The lakes are in most cases shallow, some being little more than marshes, fast filling up and becoming solid. There is some poplar fit for building and fencing. The most of the swamps afford good hay. Cyprus River runs through the northern portion of the township.—*W. and D. Beatty*, D.L.S., 1872.

6. *Outlines.*—North, in sections 36, 35 and 34, the land is hilly; in sections 36 and 34 the hills are covered with brush; in section 35 it is open prairie. Sections 33, 32 and 31 is an undulating prairie. Soil, a black loam, gravelly in places, and of a first and second-class quality.

West, the land is covered with a thick growth of willow brush and brier. There are a few glades of prairie. The soil generally is of a first-class quality.—*W. and D. Beatty*, D.L.S., 1872.

RANGE XIII.

1. *Outlines and Sub-division.*—Well adapted for settlement. The timber, which is principally oak, is in sufficient quantity for building purposes and fuel, obtainable within six miles of the northern boundary. Soil, a rich black loam, with sub-soil of clay; uniformly first-class. Surface, open, rolling prairie, very dry towards the north. There is an abundance of hay in the southern portion.—*J. Morris*, D.L.S., 1881.

2. *Outlines and Sub-division.* Is rolling prairie, with good soil. No water is to be found, excepting in swamps and gullies and by digging. Some timber grows in the north and north-eastern parts of the township.—*W. and D. Beatty*, D.L.S., 1872.

3. *Outlines.*—Along the southern boundary is a good rolling prairie. In section 4 there is a creek; on the slope of its valley there is a quantity of oak and poplar timber.

The eastern boundary is intersected by Pembina and Crystal rivers, the slopes of the valleys generally being covered with oak, elm and poplar woods, with brush. The soil is black loam of first-class quality.—*W. Beatty*, D.L.S., 1871.

Sub-division.—The surface of this township is rough and broken, particularly in the neighbourhood of Rock Lake, which is situated about 300 feet below the level of the surrounding prairie. The ground for about hall a mile on all sides slopes towards the lake, and is very much broken by knolls and gullies. The soil on the south side of the lake, on the high lands, is sandy, and in the valleys is of a loamy nature. The soil to the north of the lake is in most places a sandy loam. The water in the lake is of considerable depth, and quite fresh and good.

The Pembina River flows eastward from the lake; it is about one chain and fifty links wide, and about four feet deep in summer, very crooked, and with a slow current. A large quantity of oak grows along the northern shore of the lake, and on the southern shore a quantity of poplar.

In the northern part of the township oak and poplar is to be found in large quantities.—*W. and J. McG. Otty*, D.L.S., 1872.

4. *Outlines.*—North, is a slightly rolling prairie, with a number of small grassy marshes.

East, is an undulating prairie, with occasional wooded hills and ridges. The soil throughout the township is of first-class quality.—*W. Beatty*, D.L.S., 1871.

Sub-division.—The surface in this township is in most places broken with knolls and ponds. In the north-eastern part it is very low, and in the spring of the year is generally flooded.

The soil is a dark loam, except on the tops of the knolls, where it is gravelly.

There are no streams in the township, but there are a great number of lakes, most of which are impregnated with salt, so much so that the water cannot be used.

There is not much large timber, though small poplars, stunted oak and willows abound, particularly around the largest lake, which is situated in the south-western part of the township.

There is no stone nor indication of minerals of any kind. —*W. and J. McG. Otty*, D.L.S., 1872.

5. *Outlines.*—South, is a slightly rolling prairie, with a number of small grassy hay marshes.—The soil is of first-class quality.—*W. Beatty*, D.L.S., 1871.

East, is rolling and hilly, and covered with a growth of brush. The soil is of first-class quality.—*W. Beatty*, D.L.S., 1872.

Sub-division.—The northern part of this township is a series of broken hills, covered chiefly with brush, scrub oak and poplar. Alkaline lakes are to be found in sections 33, 34, 35, 36, 29 and 31. The southern part is made up of patches of brush and prairie.

Two deep gullies, with standing pools of good spring water, run across the township.

The soil on the hills is rather gravelly, but good black loam may be found in the lowlands.—*W. and D. Beatty*, D.L.S., 1872.

6. *Outlines.*—Along the eastern boundary the land is generally covered with a growth of brush. It is rolling, and very hilly in places.

North, is a good rolling prairie, with small willow swamps in section 33. The soil throughout the township is generally of a first-class quality.—*W. Beatty*, D.L.S., 1872.

Sub-division.—Is rolling land; the southern part very hilly. Cypress River runs through the north-east corner. A large creek runs through the centre of the township and empties into a swamp at the north, which has an area of some 1,200 acres. A very large spring of good water rises near this creek in section 29. There is some good timber along the banks of the Cypress River and the above-mentioned creek, and also in the south-east corner of the township.

The soil is good, with the exception of that on the hill-tops, which is very gravelly.—*W. and D. Beatty*, D.L.S., 1872.

RANGE XIV.

1. *Outlines and Sub-division.*—Open, rolling prairie. No timber available for building or fuel. The township is traversed by a

small creek, valuable for general purposes, but not of sufficient power to drive machinery, except for a month or two during the spring freshets. Soil, a rich gravelly loam, from two feet to two feet six inches in depth, with rich clay sub-soil; first-class throughout.—*J. Morris*, D.L.S., 1881.

2. *Outlines and Sub-division.*—Is chiefly good rolling prairie. A ravine about sixty feet in depth runs through the western part of the township, in which pools of standing water are to be found.

There is some good timber in the north-east.—*W. and D. Beatty*, D.L.S., 1872.

3. *Outlines.*—Along the southern boundary it is rolling prairie, with scattered oak and poplar. There is some balm of Gilead with oak and poplar along the valley of a creek, which flows through section 6.

The western boundary is a rolling, brush prairie, with scattered oak and poplar. The soil throughout is a black loam, of a first-class quality.—*W. Beatty*, D.L.S., 1871.

Sub-division.—The soil of this township is a dark loam, somewhat inclined to be sandy. On the top of the knolls it becomes gravelly.

Oak, elm, poplar and basswood are abundant along the shores of the lake, and in the valley of the river. There is likewise a large quantity of timber in the southern part of the township.

The Pembina River, which empties into the lake, is a crooked, sluggish stream. It averages about one and a half chains in width, and about four feet in depth in summer.

On the north side of the timber, along the Pembina River, there is a fine strip of rich hay land, running from the marsh at the end of the lake to the west boundary of the township. —*W. and J. McG. Otty*, D.L.S., 1872.

4. *Outlines.*—Is all a rolling prairie, with some scattered boulders. The soil is a black loam of a first-class quality.—*W. Beatty*, D.L.S., 1871

Sub-division.—The surface of this township is rolling or broken. The soil in most places is good, being of a dark loamy nature. It produces a good growth of grass.

There are no streams in the township, and few ponds or springs, but what there are, are fresh.

There is little or no timber, the greater part being prairie, with occasional clumps of willow. No stone or indication of minerals.—*W. and J. McG. Otty*, D.L.S., 1872.

5. *Outlines.*—Is a beautiful rolling prairie; good soil, but stony. There are some boulders scattered over the surface in places. In section 19 there is a hill covered with rock. There is some scattered oak in section 31. Near the western boundary there are some alkaline lakes. The soil is of a first-class quality.—*W. Beatty*, D.L.S., 1871.

Sub-division.—This township is rough rolling land. Hay swamps are numerous. The water is nearly all alkaline, and the soil gravelly. At the north and centre there are hills covered with thrifty oak and poplar. The southern part is chiefly brushy prairie.—*W. and D. Beatty*, D.L.S., 1872.

6. *Outlines.*—North is an undulating prairie. Soil is of first and second-class quality.

West is a rolling prairie. Section 6 is hilly; there is a marsh in section 31. The soil is of second-class quality.—*W. and D. Beatty*, D.L.S., 1872.

Sub-division.—Is principally composed of good rolling prairie. About one-sixth is irreclaimable swamp; the remainder is fit for farming purposes. Some good timber is to be found in the south-western part. The low lands have a black loam soil, and the uplands a gravelly soil.—*W. and D. Beatty*, D.L.S., 1872.

RANGE XV.

1. *Outlines.*—Is rolling prairie soil, one foot in depth; clay loam, good clay subsoil.—*W. Pearce*, D.L.S., 1879.

Sub-division.—Is better adapted for stock-raising than grain-growing. It is entirely composed of prairie land, and totally devoid of timber. Soil, generally a sandy loam. Good water can easily be obtained by digging.—*M. Deane*, D.L.S., 1879.

2. *Outlines.*—White Earth River runs across the northerly portion, on which there is some good timber; the soil is very fair, except on the tops of ridges, where it is rather gravelly.—*W. Pearce*, D.L.S., 1879.

Sub-division.—This township is composed of prairie land, except in the valley of Long River, which flows through the northern sections. Along the valley of this stream there is a belt of oak, poplar and birch timber. The land towards the northern part of the township is generally fit for cultivation, but the southern part, having a light, sandy soil, stony in places, is better adapted for grazing.—*M. Deane*, D.L.S., 1879.

3. *Outlines.*—It is rolling prairie along the eastern boundary, with a good deal of brush with scattered oak and poplar. The soil is of a first-class quality.—*W. Beatty*, D.L.S., 1871.

Along the southern boundary it is a rolling prairie, with patches of willow and hay swamp. The soil is of a first-class quality.—*W. Beatty*, D.L.S., 1879.

Sub-division.—The western part has good soil, but is rather low; it can easily be drained. The eastern portion is more rolling. The White Earth, a branch of the Pembina River, is a stream of pure cold water flowing through sections 1, 12 and 13. There is a good deal of timber in the township.—*W. Beatty*, D.L.S., 1879.

4. *Outlines.*—Along the eastern boundary it is a rolling prairie, with some scattered boulders. The soil is a black loam of first-class quality.—*W. Beatty*, D.L.S., 1871.

Sub-division.—The north-easterly portion is level prairie, with occasional hay swamps and ponds. Good soil. The south-easterly part is fine rolling land, covered with scrub and poplar. Much of the township is covered with a heavy growth of hazel and cherry.—*W. Beatty*, D.L.S., 1879.

5. *Outlines.*—It is a beautiful prairie along the eastern boundary. There are some scattered boulders and small alkaline lakes. In section 24 there is a hill covered with oak; there is some scattered oak in section 36.

South, is a rolling prairie. There are a few bluffs of poplar intermixed with oak. There are also many grassy ponds throughout. The soil is a rich sandy loam of first-class quality.—*W. Beatty*, D.L.S., 1871.

Sub-division.—This township is for the most part undulating prairie. The land where high is of a very gravelly nature. There are numerous lakes, ponds and muskegs, the water in nearly every case containing alkali. There is a little poplar and oak in the northern part of the township, and in the south some bluffs of poplar suitable for fuel and fencing. The soil generally is of inferior quality.—*J. J. McArthur*, D.L.S., 1879.

6. *Outlines.*—Along the northern boundary it is an undulating prairie, generally with a first-class soil. The whole of section 36 and a small portion of 35 is taken up by a lake. There is a marsh in section 34.—*W. Beatty*, D.L.S., 1879.

West, is a rolling prairie. Section 1 is hilly; there is a marsh in section 36. The soil is of a second-class quality.—*W. Beatty*, D.L.S., 1872.

Sub-division.—The easterly tiers of sections contain some excellent farming land. The remainder of the land is of inferior quality, and in some cases covered with boulders. There is a little good land also in the south-west, but much broken by small hay swamps. There is some timber suitable for fuel and fencing in the south-eastern corner; otherwise this township is quite devoid of wood.—*J. J. McArthur*, D.L.S., 1879.

RANGE XVI.

1. *Outlines.*—South and west, is all rolling prairie; soil, one foot in depth; clay loam; good clay sub-soil.—*W. Pearce*, D.L.S., 1879.

Sub-division.—Is entirely composed of prairie, and totally devoid of timber. The soil generally sandy loam, tolerably good, and suitable for cultivation, but the township as a whole is better adapted for stock-raising.—*M. Deane*, D.L.S., 1879.

2. *Outlines.*—Is rolling prairie. White Earth River runs across the northerly portion, on which there is some good timber;

soil very fair, except on the tops of the ridges, where it is rather gravelly.— *W. Pearce*, D.L.S., 1879.

Sub-division.—Is almost entirely composed of prairie. There are a few narrow belts of scattered oak timber along the banks of White Earth River (also called Long River), which flows through this township. It is also watered by several other smaller streams, and water can be had in almost any part by digging.—*M. Deane*, D.L.S., 1879.

3. *Outlines and Sub-division.*—Rolling prairie; the northerly portion of the township along Pembina River is excellent land; the southerly portion is broken by small ponds and grassy marshes. There is a narrow belt of mixed oak and poplar along the banks of the Pembina.— *W. Beatty*, D.L.S., 1879.

4. *Outlines and Sub-division.*—South and west of Pelican Lake the land is rolling prairie, with small grassy ponds and hay swamps. The soil is fair, chiefly clay loam. The hill tops are either sandy or disintegrated clay slate. North-east of the lake the land is excellent, mixed wood and prairie, with a good deal of bottom scrub. Water of lake is slightly akaline.— *W. Beatty*, D.L.S., 1879.

5. *Outlines.*—Along the southern boundary the country is timbered with poplar, heavy oak, and patches of short willow and poplar. Pelican Lake, which occupies a considerable portion of the south-westerly part of the township, is a large, deep, fresh-water lake, with banks almost two hundred feet high, and perpendicular.

Along the western boundary are patches of willow and poplar scrub; bordering the lake there is heavy poplar and oak. The soil throughout is mostly first-class.— *Walter Beatty*, D.L.S., 1879.

Sub-division.—Is traversed from the south-east to the north-west corners by a gravelly ridge, while Pelican Lake, a large body of water, slightly akaline, occupies the south-western quarter of the township. The belt of land lying between the ridge before mentioned and the lake is of excellent quality; soil of a fine sandy loam, and well supplied with good water, and timber for fuel and fencing. In the remaining portion of the township the soil is of an inferior quality.— *J. J. McArthur*, D.L.S., 1879.

6. *Outlines.*—In sections 6, 7 and 18 the land is a rolling prairie, covered with bluffs of oak, poplar, willow and poplar scrub. The soil is light and sandy. There is gravel on the hills. In sections 19, 30 and 31 it is level prairie, with first-class rich dark loam.

Along the northern boundary it is a rolling prairie, with patches of scrub and swamps. The soil is of a first-class quality.— *W. Beatty*, D.L.S., 1879.

Sub-division.—Contains no good farming land. The southern part is very undulating, and much broken by marshes. The northern half has a very hard and dry soil, and in many places covered with boulders. In the south-western corner there are some fine bluffs of poplar, suitable for fuel and fencing. There are three small lakes, of an alkaline nature.—*J. J. McArthur*, D.L.S., 1879.

CHAPTER XIV.

COUNTY OF TURTLE MOUNTAIN.

Turtle Mountain forms a more or less thickly wooded area, which may be estimated as over three hundred square miles, and an elevation at the highest point of about five hundred feet above the plain around it. It cannot but be a valuable nucleus for the utilization of the surrounding treeless plains, serving as a supply of fuel and building material, and as a refuge for wintering stock, which, during summer, has been herded at large over the prairie. Though the elevated and broken area of the "mountain" is pretty nearly equally divided by the line, the northern half is more uniformly covered with woods, and probably embraces two-thirds of the forest area. There are also large regions of so-called mountains, which, though more boldly undulating than the prairie, show good soil, and will eventually be cleared for agriculture. There are indications that this wooded area receives a much more copious rainfall than that of the surrounding country.

The wood is chiefly poplar (*P. tremuloides, P. balsamifera, &c.*) But oak (*Quercus macrocarpa*), however, occurs abundantly along the margins of the forest, and forms groves on the ridges, or grows interspersed with other trees. White birch (*Betula alba*) is abundant, though not forming large groves, and black birch (*B. lenta*) also occurs. The ash-leaved maple, or "box elder" (*Negundo aceroides*) and the elm (*Ulmus Americana*) are also found, the latter attaining considerable dimensions in some of the more sheltered valleys. The largest poplars observed must have been over two feet in diameter at the base, and of good height. The average size in many groves is about eighteen inches. The oak and birch are seldom over two feet in diameter, and the latter are generally much less, but growing in thick masses, and very tall. Most of the swamps are grassy, and would yield excellent hay. They are generally fringed thickly with willows of different species. The underwood is composed of hazels (*Corylus Americana*), choke cherries (*Prunus Virginiana*), thorns (*Cratægus coccinea*), roses, raspberries (*Rubus strigosus*), &c. Pease and vetches are abundant, and occur with the fireweed (*Epilobium augustifolium*), and various species of solidago and aster.—*Mr. G. M. Dawson, Geologist and Botanist to the B. N. A. Boundary Commission*, 1873.

The timber and undergrowth on the mountain were very dense, and in some places we encountered a network of lakes, some of which contain islands. Very little timber was met with, excepting on the mountain, where it consists almost wholly of poplar; on the outskirts there is some scrub-oak. In some places the poplar is of good size, especially along the meridian be-

tween ranges twenty and twenty-one, but it is generally small, very suitable, however, for fence rails and small log buildings. About one-third of the mountain north of the international boundary was burned over some six or seven years ago, and the timber totally destroyed. It is now covered with a dense growth of young poplar. Last autumn, shortly after the survey of this locality was finished, the fires ran in from the prairie, and probably some of the remaining timber has been destroyed. The soil generally is stony, and not altogether suitable for cultivation. In some places, however, there is some very good farming land. About one-fourth of this mountain is covered with lakes, ponds, muskegs and a few very good grass swamps. Some of the lakes abound in fish, chiefly pike or jack-fish. All along the slope of this mountain there are, at short intervals, spring streams which flow all summer. When these streams reach the distance of four or five miles from the timber the evaporation is so great that they become dry during the hot weather. The water is very sweet, and contains much lime. In some places springs are met with, strongly impregnated with iron.

On the prairie portions embraced within this survey the black loam varies from six inches to two feet in depth; the sub-soil is very well adapted for the cultivation of grain.—*W. Pearce*, D.L.S., 1879.

RANGE XVII.

1. *Outlines.*—Is rolling prairie; soil, one foot in depth; clay loam; good clay sub-soil.—*W. Pearce*, D.L.S., 1879.

Sub-division.—Rolling prairie, broken by deep ravines, marshes, ponds, and a lake which has an area of over twenty-five acres; good water; timber easily procurable; granite and limestone on the banks of ravines. Soil is a light black loam, eight or ten inches deep, with clay sub-soil. Plenty of hay in marshes.—*Jos. G. Kirk*, D.L.S., 1879.

2. *Outlines.*—North of White Mud River the land is very good; to the south it is rolling; tops of knolls stony and gravelly. —*W. Pearce*, D.L.S., 1879.

Sub-division.—Of the same character as the preceding township. Well suited for settlement.—*Jos. G. Kirk*, D.L.S., 1879.

3. *Outlines.*—Along the southern boundary of this township the land is a rolling prairie, interspersed with grassy ponds. There are some ridges, the tops of which are gravelly. The soil is second-class.—*W. Pearce*, D.L.S., 1880.

Along the eastern boundary it is rolling prairie, with patches of poplar and willow scrub and small grassy ponds. —*W. Beatty*, D.L.S., 1879.

Sub-division.— Chiefly rolling prairie, and especially adapted for settlement. Well watered by Oak Lake, ex-

tending along the southern boundary of the township, and a small creek crossing the middle of it from west to east. A belt of timber, principally oak, with a proportion of poplar, extends through this portion from the creek southward to the lake and partly round it, being sufficient for present building and fuel requirements of the settlers. Soil, a black loam, gravelly on surface towards the north; also ininclined to be wet in spring, but capable of drainage; first and second-class.—*J. Morris*, D.L.S., 1881.

4. *Outlines.*—Along the northern boundary the country is a rolling prairie, with small grassy ponds. The soil is second-class.—*W. Pearce*, D.L.S., 1880.

On the eastern boundary the surface is rolling prairie, with some small hay swamps and patches of gray willow in places. The soil is first-class.—*Walter Beatty*, D.L.S., 1879.

Sub-division.—Much broken up by sloughs. The township is not suitable for settlement, but would make good grazing land, the only drawback in that respect being the absence of hay marshes to supply winter feed for the cattle.—*J. Morris*, D.L.S., 1880.

5. *Outlines.*—Along the southern boundary the country is a rolling prairie, with many small grassy ponds. The soil is second-class.—*W. Pearce*, D.L.S., 1880.

On the eastern tier of sections there are patches of willow and poplar scrub; bordering the lake there is heavy poplar and oak. The soil generally is first-class.—*Walter Beatty*, D.L.S., 1879.

Sub-division.—There are two lakes and many hay marshes in the northern portion of this township, and a good deal of brush and small timber. The other portion of the township is open prairie, broken by occasional ravines. The soil throughout is a black loam and clay, from fifteen to twenty inches deep. The greater portion of the township is well adapted for farming.—*Cotton and McAree*, D.L.S., 1880.

6. *Outlines.*—Sections 36, 35, 34 and 31 are rolling prairie, with grassy ponds. The soil is second-class. In sections 32 and 33 are some very high hills, with basins of water and small lakes.—*W. Pearce*, D.L.S., 1880.

Along the eastern boundary, in sections 1, 12 and 13, the land is rolling prairie, covered with bluffs of oak, willow and poplar scrub. The soil is light and sandy. There is gravel on the hills. In sections 24, 25 and 36 it is level prairie, with a rich dark loam soil.—*Walter Beatty*, D.L.S., 1879.

Sub-division.—The land is high and rolling, and in some sections is broken into small irregular hills. Numerous sloughs and hay marshes occur throughout, and in the northern part there are a few small lakes. The soil is a black clay loam. The water is abundant and good. A great deal of second growth timber exists, but hardly large enough for building purposes.—*Cotton and McAree*, D.L.S., 1880.

RANGE XVIII.

1. *Outlines.*—The south-eastern quarter of the township lies on the Turtle Mountain. This portion is timbered with wood fit for rails and buildings. The soil in the prairie portion is very good.—*W. Pearce*, D.L.S., 1879.

Sub-division.—This soil of this township is a black loam, with clay sub-soil. Occasional patches of alkali. On the whole, it is well adapted for settlement, being high and rolling, well watered, and plenty of hay and timber. Numerous hay marshes and small ponds. A small stream of excellent water runs in a north-easterly direction through the township, and its current could be utilized for milling. Abundance of oak, with average diameter of 12 inches, and poplar of 18 inches.—*Jos. G. Kirk*, D.L.S., 1879.

2. *Outlines.*—Is rolling prairie, with some ravines with very stony banks. Generally a good depth of loam; clay sub-soil.—*W. Pearce*, D.L.S., 1879.

Sub-division.—Rolling prairie, broken by occasional ravines. Good water in all the creeks and ponds. Long River runs north-easterly through the township. Soil is good black loam,with clay sub-soil. A few alkaline patches. Boulder stone of granite and limestone along the banks of ravines. Timber only good for firewood and fencing.—*Jos. G. Kirk*, D.L.S., 1879.

3. *Outlines.*—Along the southern boundary it is rolling prairie. There are some very stony ridges in section 2. The soil is generally first and second-class. On the western boundary, in sections 31, 30, 19 and 18, it is rolling prairie, with many small hay swamps, and soil second-class. In sections 7 and 6 it is first-class dry prairie.—*W. Pearce*, D.L.S., 1880.

Sub-division.—Much broken by sloughs and ponds, although the soil is generally very good. A creek traverses the township, running easterly and south-easterly. The wood is only useful for fuel and fencing.—*J. Morris*, D.L.S., 1880.

4. *Outlines.*—Along the western boundary it is rolling prairie, with many grassy ponds and hay swamps. The soil is second-class. On the northern boundary the ponds and swamps are not so numerous.—*W. Pearce*, D.L.S., 1880.

Sub-division.—Unfit for settlement, being broken up by sloughs and ponds. The dry land is of good quality, but in small patches. No timber.—*J. Morris*, D.L.S., 1880.

5. *Outlines.*—The country is a rolling prairie, along the southern part of the township. There are many small grassy swamps and ponds. The soil is second-class.

Along the western boundary the land is better, but more level. The soil generally is first-class.—*W. Pearce*, D.L.S., 1880.

Sub-division.—Is level or very gently rolling prairie. In the southern portion, however, there are a few small sloughs and one or two ravines. The soil is rich black or brown loam, with clay sub-soil. Not very much timber.—*Cotton and McAree*, D.L.S., 1880.

Inspection Survey.—The soil is a clay loam; open prairie; north-west corner rolling; the balance level. A coulée runs easterly through section 21.—*G. U. Ryley*, D.L.S., 1880.

6. *Outlines.*—Along the western boundary it is hilly prairie land, with some poplar and oak timber along the valley of the Souris River. The river flows through a deep valley, diagonally, across the township, from sections 7 to 35. Along the northern boundary, excepting where the Souris River crosses it, the land is a rolling prairie. The soil throughout is first and second-class.—*W. Pearce*, D.L.S., 1880.

Sub-division.—Many sections are well suited for settlement, but on account of their broken character stock-raising is recommended in other sections The Souris River runs through this township, and in many places the banks are heavily timbered. Throughout there is a good deal of scrub. —*Cotton and McAree*, D.L.S., 1880.

Inspection Survey —The Souris River, having an average width of 150 feet, runs with a strong current through this township; its banks are skirted with oak and poplar. The elevation of the township above the Souris is about 200 feet. Land rolling and broken. A valley extending from the Souris easterly to Pelican Lake is heavily timbered on the south side with elm, ash, maple, poplar, and some oak, averaging about ten inches in diameter—*G. U. Ryley*, D.L.S., 1880.

RANGE XIX.

1. *Outlines.*—The north-eastern portion of the township is rolling prairie, with first-class soil. The remainder of the township is on Turtle Mountain, which is nearly all timbered, the timber being good for rails and buildings. The soil on the mountain is second-class.—*W. Pearce*, D.L.S., 1879.

Sub-division.—Densely wooded, with the exception of a small prairie portion in the north-east corner of the township, with rich sandy loam soil. Some of the timber has a diameter of 24 inches, but the average of the grown wood is about 16 inches in diameter and 50 feet in height.—*O. J. Klotz*, D.L.S., 1879.

2. *Outlines.*–Is rolling land, with some ravines, with very stony banks; there is generally a good depth of loam; clay sub-soil. —*W. Pearce*, D.L.S., 1879.

Sub-division.—Prairie, well watered; rich soil, two or more feet deep, with yellow clay sub-soil. Wood can be procured in abundance from the adjoining township. Abundance of hay and good water.—*O. J. Klotz*, D.L.S., 1879.

3. *Outlines.*—In sections 1 and 12 the land is first-class dry prairie; in sections 13, 24, 25 and 36 it is rolling prairie, with many small hay swamps; the soil is second-class. Along the southern boundary the land is rolling prairie, with first-class soil.—*W. Pearce*, D.L.S., 1879.

Sub-division.—This township is well drained by ravines, the sides of which contain good building stone. The soil is exceptionally rich and deep. The northern half is somewhat broken by sloughs.—*Duncan Sinclair*, D.L.S., 1880.

4. *Outlines.*—Along the northern boundary the country is a rolling prairie, with grassy ponds. The soil is first-class.—*Milner Hart*, D.L.S., 1880.

Along the eastern boundary it is a rolling prairie, with many grassy swamps. The soil is second-class.—*W. Pearce*, D.L.S., 1880.

Sub-division.—Rolling prairie, broken by hay marshes. Fair average soil. No timber.—*Duncan Sinclair*, D.L.S., 1880.

Inspection Survey.—Rolling land; open prairie, interspersed with a number of sloughs. Soil, clay loam; gravelly bottom.—*G. U. Ryley*, D.L.S., 1880.

5. *Outlines.*—Along the southern boundary the country is a rolling prairie, with grassy ponds. The soil is first-class.—*Milner Hart*, D.L.S., 1880.

On the eastern boundary the land is a level prairie, with a first-class soil.—*W. Pearce*, D.L.S., 1880.

Sub-division.—The northern half is well adapted for farming, being excellent land, with very few sloughs, which are rather numerous in the southern half. The township may be described as rolling prairie, interspersed with sloughs.—*Geo. McPhillips*, D.L.S., 1880.

Inspection Survey.—Open level prairie in part; the remainder heavy rolling land. Soil, clay loam, in some parts gravelly.—*G. U. Ryley*, D.L.S., 1880.

6. *Outlines.*—Along the northern boundary it is a rolling prairie, with many grassy ponds. On the eastern boundary it is rather hilly near where the Souris River runs across. Along the valley of the river the banks are timbered with poplar and oak.—*W. Pearce*, D.L.S., 1880.

Sub-division.—Intersected by the Souris River, from which run numerous ravines. The banks of the river and ravines are fringed with timber of good size. South of the Souris the soil is of good quality.—*Geo. Phillips*, D.L.S., 1880.

RANGE XX.

1. *Outlines.*—This township is situated on Turtle Mountain. It is timbered with poplar and oak. The surface is rough, and broken with many lakes and swamps. The timber is suitable

for fence rails and building purposes. The soil is second-class. —*W. Pearce*, D.L.S., 1879.

Sub-division.—Forms part of Turtle Mountain, and is wholly covered with woods. The land is broken and hilly. The soil is inferior. Poplar attains 24 inches in diameter; the average is about 12 to 16 inches. There is a number of lakes containing fish, and the creeks supply an abundance of water. —*O. J. Klotz*, D.L.S., 1879.

2. *Outlines.*—Is rolling prairie, with some ravines with very stony banks. There is some good poplar in the south-western part. Generally there is a good depth of loam, with a clay sub-soil. —*W. Pearce*, D.L.S., 1879.

Sub-division.—Two-thirds prairie, one-third wood. The soil is a sandy mould, with clay sub-soil. There is a number of hay marshes, and the creeks contain good water. The township is well adapted for farming and grazing.—*O. J. Klotz*, D.L.S., 1879.

3. *Outlines.*—Along the southern boundary it is rolling prairie, with occasional small grassy ponds. The soil is of first and second-class quality.—*W. Pearce*, D.L.S., 1880.

Sub-division.—The northern half contains several very fine hay meadows; the southern is rolling, with good soil. Excellent building material can easily be quarried from the sides of the ravines.—*Duncan Sinclair*, D.L.S., 1880.

4. *Outlines.*—Along the northern boundary the country is a rolling prairie, with grassy ponds. The soil is first-class.—*Milner Hart*, D.L.S., 1880.

Sub-division.—Rolling, interspersed with numerous sloughs and hay meadows. The soil is of excellent quality.—*Duncan Sinclair*, D.L.S., 1880.

Inspection Survey.—Rolling land; open prairie. Soil, sandy loam. Turtle Mountain trail runs through this township in a south-westerly direction.—*G. U. Ryley*, D.L.S., 1880.

5. *Outlines.*—Along the southern boundary the country is a rolling prairie, with grassy ponds. The soil is first-class.—*Milner Hart*, D.L.S., 1880.

Along the western boundary it is rolling prairie, with grassy ponds. The soil is first and second-class.—*W. Pearce*, D.L.S., 1880.

Sub-division.—Rolling prairie. The many ponds could easily be drained; and most of the land is of excellent quality. —*Geo. McPhillips*, D.L.S., 1880.

6. *Outlines.*—The Souris River flows south-east through section 36 in a deep and wide valley. Away from the river the land is a level prairie of first-class quality.—*W. Pearce*, D.L.S., 1880.

Sub-division.—Prairie, with good soil. In section 11 there is a remarkable hill about 100 feet high, known as St. Luke.

There is a small quantity of timber along the ravines and in the valley of the Souris.—*Geo. McPhillips*, D.L.S., 1880.

Inspection Survey.—Open prairie, with the exception of the north-west corner, through which the Souris River flows; said river is lined with small poplar, oak and red willow; the land is partly level and slightly rolling.—*G. U. Ryley*, D.L.S., 1880.

RANGE XXI.

1. *Outlines.*—Situated on the Turtle Mountain; it is timbered with poplar and oak; the surface is rough, and broken with many small lakes and swamps. The lakes abound in fish, chiefly pike. The timber is suitable for fencing and building purposes. The soil is second-class.—*W. Pearce*, D.L.S., 1879.

Sub-division.—Much broken up by lakes and marshes. The Ich-ha-ha Creek crosses section 7. The soil is a dark clay loam, with a grayish clay sub-soil. There is plenty of timber for fuel, but none of any account for building.—*J. McAree*, D.L.S., 1879.

2. *Outlines.*—Is rolling prairie, with some ravines with very stony banks. There is some good poplar in the south-eastern part. Generally there is a good depth of loam, with a clay sub-soil. —*W. Pearce*, D.L.S., 1879.

Sub-division.—Half of this township is gently rolling prairie; the other half is woodland. The soil throughout is a black clay loam from 1 to 2 feet in depth, with a reddish clay sub-soil. The timber is large enough for building purposes.—*J. McAree*, D.L.S., 1879.

3. *Outlines.*—This township is mostly all rolling prairie. The soil is of good depth and quality; clay sub-soil. A portion of Whitewater Lake occupies the north-western portion of the township; along the shores of the lake is an extensive tract of hay land.

Whitewater Lake has no outlet. In the spring of the year the low-lying lands on its margin are submerged, and as evaporation lowers the lake, these lands becomes dry, and by the time the grass is fit to cut the ground is in splendid condition for utilizing hay-saving machinery. The vicinity is particularly well adapted for stock farms.—*W. Pearce*, D.L.S., 1880.

Sub-division.—The north-eastern portion of this township is occupied by Whitewater Lake, which abounds with game during the season. The land is capital in every respect, and well adapted for farming, although there is not much timber. —*J. McArthur*, D.L.S., 1880.

4. *Outlines.*—Along the northern boundary the country is a rolling prairie, with grassy ponds. The soil is first-class.—*Milner Hart*, D.L.S., 1880.

Is rolling prairie, with a first-class soil. There are magnificent hay lands around the northern shore of Whitewater

Lake. The place is particularly well adapted for stock farms. —*W. Pearce*, D.L.S., 1880.

Sub-division.—Open prairie, sloping towards Whitewater Lake. The soil is a rich black loam, and there is abundance of hay and water, but no timber nearer than Turtle Mountain. —*J. McArthur*, D.L.S., 1880.

Inspection Survey.—A large meadow covers sections 1 and 2, and the land to the south; open prairie. Soil, clay loam. Southern half of this township slopes slightly to the south.—*G. U. Ryley*, D.L.S., 1880.

5. *Outlines.*—Along the southern boundary the country is a rolling prairie, with grassy ponds. The soil is first-class.—*Milner Hart*, D.L.S., 1880.

On the eastern boundary the surface is a rolling prairie, with grassy ponds. The soil is of first and second-class quality. —*W. Pearce*, D.L.S., 1880.

Sub-division.—Open prairie. Rich soil. Abundance of hay and water. No timber.—*F. Bolger*, D.L.S., 1880.

Inspection Survey.—Open prairie; rolling land. Soil, sandy loam.—*G. U. Ryley*, D.L.S., 1880.

6. *Outlines.*—Is generally level prairie, with a first-class soil.—*W. Pearce*, D.L.S., 1880.—*F. Bolger*, D.L.S., 1880.

Sub-division.—Rolling and level prairie. Rich soil. A creek and hay marshes afford abundance of good water and hay. No timber.—*F. Bolger*, D.L.S., 1880.

Inspection Survey.—Slightly rolling, open prairie, with several ravines intersecting, through which small creeks containing good water flow. The soil in the south-east corner is clay loam; the remainder of the township a heavy sandy loam.—*G. U. Ryley*, D.L.S., 1880.

RANGE XXII.

1. *Outlines.*—Situated on Turtle Mountain; it is timbered with poplar and oak; the surface is rough, and broken with many small lakes and swamps. The lakes abound in fish, chiefly pike. The timber is suitable for fencing and building purposes. The soil is second-class.—*W. Pearce*, D.L.S., 1879.

Sub-division.—Rolling prairie, broken in some parts by hills, ravines, lakes and marshes. The Ich-ha-ha Creek flows through the township. The soil is a dark clay loam with brownish clay sub-soil.—*J. McAree*, D.L.S., 1879.

2. *Outlines.*—Is rolling prairie, with some ravines with stony banks. Generally, there is a good depth of loam, with a clay sub-soil.—*W. Pearce*, D.L.S., 1879.

Sub-division.—About one-fourth of the township is well wooded; the remainder is prairie; abundance of good water. The soil is dark clay loam, with brownish gray sub-soil.—*J. McAree*, D.L.S., 1879.

3. *Outlines.*—Is nearly all rolling prairie of first-class quality. Whitewater Lake occupies the north-easterly portion of the township; along the western shore of the lake there are magnificent hay lands. Around the lake is particularly well adapted for stock farms.—*W. Pearce*, D.L.S., 1880.

Sub-division.—The eastern portion of this township is mainly occupied by the western part of Whitewater Lake. There is a small quantity of timber in sections 1 and 36. Abundance of hay and water. The lake abounds with game during the season.—*J. McAree*, D.L.S., 1880

4. *Outlines.*—Along the northern boundary the country is a rolling prairie, with grassy ponds. The soil is first-class.—*Milner Hart*, D.L.S., 1880.

This township is rolling prairie, with first-class soil. Whitewater Lake occupies the south-easterly part of the township, along the shores of which are magnificent hay lands.—*W. Pearce*, D.L.S., 1880.

Sub-division.—Open prairie. The soil is first-class. The swamps afford abundance of good water and hay. No timber. *J. McArthur*, D.L.S, 1880.

Inspection Survey.—Two-thirds of the township slopes to the south; the east and west sides of the township is a sandy loam, with occasional beds of gravel; the central part a clay loam.—*G. U. Ryley*, D.L.S., 1880.

5. *Outlines.*—Along the southern boundry the country is a rolling prairie, with grassy ponds. The soil is first-class.—*Milner Hart*, D.L.S., 1880.

For quality of soil and natural drainage the land in this township cannot be surpassed. There is, however, very little hay land.—*W. Pearce*, D.L.S., 1880.

Sub-division.—Splendid farming land; abundance of hay and water. Coal can be obtained from the Souris.—*F. Bolger*, D.L.S., 1880.

Inspection Survey.—Open, rolling prairie, the land in the north-west corner being clay loam, the balance sandy loam and gravel.—*G. U. Ryley*, D.L.S., 1880.

6. *Outlines.*—This township generally is a level prairie, with a first-class soil.—*W. Pearce*, D.L.S., 1880.

Sub-division.—Alternating level and undulating prairie of rich soil. Every section is fit for settlement. The numerous hay marshes afford abundance of hay and water.—*F. Bolger*, D.L.S., 1880.

RANGE XXIII.

1. *Outlines.*—Situated almost altogether on Turtle Mountain, which is timbered with poplar and oak, suitable for building and fencing purposes; the surface is rough, and broken with many small lakes and swamps. The lakes abound in fish, chiefly pike. The soil is second-class.—*W. Pearce*, D.L.S., 1875.

Sub-division.—Rough and hilly land, covered with timber and brush, lakes, ponds, muskegs and swamps. Inferior soil. —*J. Carbert*, D.L.S., 1880.

2. *Outlines.*—This township is rolling prairie. The soil is a good depth; clay loam; clay sub-soil.—*W. Pearce*, D.L.S., 1879.

Sub-division.—Is well situated for settlement, being generally rolling prairie, with soil of a black, rich, sandy loam. What little timber there is lies on the south boundary, and is small. Vegetation is luxuriant, and a plentiful supply of good spring water can be obtained.—*J. Carbert*, D.L.S., 1880.

3. *Outlines.*—This township is nearly all rolling prairie. Soil, not very good, in some places too much alkali. Surface drainage would, no doubt, in most places where there is an excess of those salts, carry it off in solution, so that in a very few years there would not be too much remaining for the successful cultivation of cereals.—*W. Pearce*, D.L.S., 1880.

Sub-division.—Beautifully situated, with perfect natural drainage and rich, deep, loamy soil. The absence of timber is the only drawback to this township.—*J. Morris*, D.L.S., 1880.

4. *Outlines.*—Along the northern boundary the country is a rolling prairie, with grassy ponds. The soil is first-class, excepting in section 34, where the land is stony, and third-class.—*Milner Hart*, D.L.S., 1880.

This township is rolling prairie. Soil not very good in some places; there is too much alkali.—*W. Pearce*, D.L.S., 1880.

Sub-division.—Rich soil; in every respect well adapted for settlement. The nearest timber, however, is ten miles away.—*J. Morris*, D.L.S., 1880.

5. *Outlines.*—Along the southern boundary the country is a rolling prairie, with grassy ponds. The soil is first-class, excepting in section 3, where the land is stony, and third-class.—*Milner Hart*, D.L.S., 1880.

The southern portion of this township is not very good, being rolling and broken, and some places stony; on the summit of knolls and ridges, rather gravelly. The remainder of the township is fair.—*W. Pearce*, D.L.S., 1880.

Sub-division.—Rolling prairie, diversified by hills and lakes; rich soil; swamps easily drained; well adapted to agriculture.—*J. F. Garden*, D.L.S., 1880.

Inspection Survey.—Is an open prairie. Soil, clay loam. —*G. U. Ryley*, D.L.S., 1880.

6. *Outlines.*—This township generally is a level prairie, with first-class soil, excepting the north-western portion beyond a mile from the river, where the soil is light.

On the flats in the valley of the Souris is to be found oak, maple, elm and poplar timber. On the northern boundary of the township it is more rolling than elsewhere.—*W. Pearce*, D.L.S., 1880.

Sub-division.—Traversed by the Souris River, south-east of which the soil is first-class. North-east of the river the land is prairie; inferior soil, dotted with clumps of timber.—*J. F. Garden*, D.L.S., 1880.

Inspection Survey.—The Souris River, with its banks covered with elm, oak and poplar, runs north-easterly through the north-west corner of this township. The land in this township to the north of the river is composed entirely of sand hills, dotted with small oak and poplar scrub. The soil on the south side of the Souris is a black clay loam. The land is slightly rolling.—*G. U. Ryley*, D.L.S., 1880.

CHAPTER XV.

County of Souris River.

RANGE XXIV.

1. *Outlines.*—The township is all rolling prairie. Soil, a first-class clay loam; good clay sub-soil.—*Wm. Pearce*, D.L.S., 1879.

Sub-division.—Rolling prairie, broken by hills and ravines. The soil is generally a rich black loam, well watered by streams. The marshes contain an abundance of hay. Wood can be obtained from the adjoining township.—*J. A. Carbett*, D.L.S., 1880.

2. *Outlines.*—Is rolling prairie. There are a few ridges, which are rather gravelly and stony. The soil is fair.—*Wm. Pearce*, D.L.S., 1879.

Sub-division.—Rolling prairie. The soil is a rich black clay loam, averaging 12 inches in depth, with a clay sub-soil. There are numerous hay marshes and a lake, affording abundance of good water and hay.—*J. A. Carbett*, D.L.S., 1880.

3. *Outlines.*—Along the western boundary the country is a rolling prairie, with gravelly ridges. The soil is a sandy loam, first and second-class quality.—*Milner Hart*, D.L.S., 1880.

The township is nearly all rolling prairie. Soil not very good in some places, there being too much alkali.—*Wm. Pearce*, D.L.S., 1880.

Sub-division.—Rich soil in every respect, well adapted for settlement. The nearest timber, however, is about six miles away.—*J. Morris*, D.L.S., 1881.

4. *Outlines.*—Along the northern boundary it is a level prairie, with grassy ponds. The soil is first-class, excepting in sections 33, 32 and 31, where the soil is poor and sandy. The north-west quarter of section 31 is almost all marsh, with open water. On the western boundary the soil in sections 30 and

31 is third-class; section 19 is second, and sections 18, 7 and 6 are first-class.—*Milner Hart*, D.L.S., 1880.

Sub-division.—Open prairie, rolling towards the north. The soil is a rich black loam. Well drained by ravines.—*J. Morris*, D.L.S., 1881.

5. *Outlines.*—Along the southern boundary it is level prairie, with grassy ponds. In sections 1, 2 and 3 the soil is first-class; in sections 4, 5 and 6 it is poor sandy loam, rated at fourth-class.

Along the western boundary the land is poor and sandy. The Souris River flows through section 30, along which are sand dunes, scrub poplar and ash.—*Milner Hart*, D.L.S., 1880.

Sub-division.—Alternately rolling and level prairie. The soil is a rich loam, from 12 to 15 inches deep, with clay sub-soil. The Souris River runs through and drains the township, and its banks are sparsely fringed with timber.—*J. F. Garden*, D.L.S., 1880.

Inspection Survey.—Is an open prairie. Soil, clay loam. In the south-eastern part there is a range of sand hills.—*G. U. Ryley*, D.L.S., 1880

6. *Outlines.*—Along the western boundary it is rolling sandy land. The soil is light. In sections 6, 7, 8, 18 and 19 there are some poplar, willow and scrub oak. In section 36 the land is level and marshy.—*Milner Hart*, D.L.S., 1880.

Rolling prairie along the northern boundary, with grassy ponds and bluffs of poplar and willow. The soil is second and third-class.—*Wm. Pearce*, D.L.S., 1880.

Sub-division.—Much broken by irregular sand hills and knolls. The land is inferior in quality, and marshy. There is a thin scattering of poplar over the township.—*J. F. Garden*, D.L.S., 1880.

RANGE XXV.

1. *Outlines.*—This township is all rolling prairie. Soil, a first-class clay loam; good clay sub-soil.—*Wm. Pearce*, D.L.S., 1879.

Sub-division.—Undulating prairie; abundance of hay and water. Rich soil. Wood and coal can be obtained from the banks of the Souris.—*A. W. Lippe*, D.L.S., 1880.

2. *Outlines.*—Is rolling prairie. There are a few ridges and small hollow hay swamps. The ridges are rather gravelly and stony. The soil is fair or second-class quality.—*Wm. Pearce*, D.L.S., 1879.

Sub-division.—Undulating prairie, with rich sandy loam soil, and abundance of hay and water in the marshes.—*A. W. Lippe*, D.L.S., 1880.

3. *Outlines.*—Along the eastern boundary the country is a rolling prairie, with gravelly ridges. The soil is a sandy loam, partly first and second-class quality.

Along the southern boundary there are many small, shallow, grassy ponds. The soil is first-class quality.—*M. Hart*, 1880.

Sub-division.—Open prairie, with large meadows containing hay and water. Rich soil.—*Duncan Sinclair*, D.L.S., 1880.

4. *Outlines.*—Along the northern boundary it is level prairie. The soil is poor and sandy, and is rated as third-class. In section 36 there is a marsh, with open water. Section 35 is rolling prairie. Section 24 is level prairie. Sandy soil; second-class. Sections 13, 12 and 1 is level prairie, with a first-class sandy loam soil.—*M. Hart*, D.L.S., 1880.

Sub-division.—Open prairie, with a few sloughs and hay meadows. A little timber can be obtained from the Souris, which traverses the north-west corner of the township. The soil is of fair average quality.—*Duncan Sinclair*, D.L.S., 1880.

Inspection Survey.—Open prairie, excepting the land bordering on the Souris River, which is covered with oak and poplar, from 8 to 12 inches in diameter. Land slightly rolling; soil, sandy loam.—*G. U. Ryley*, D.L.S., 1880.

5. *Outlines.*—Along the southern boundary it is level prairie. The soil is poor and sandy, and is rated as third-class. The Souris River flows through a wide and deep valley in section 5. The valley is timbered with ash, elm and maple.

Along the eastern boundary the land is poor and sandy. The Souris River flows through section 25, along which are sand dunes, scrub, poplar and ash.—*M. Hart*, D.L.S., 1880.

Sub-division.—Traversed by the Souris. The prairie is occasionally broken by small ridges of sand hills, covered in some places by oak. The soil elsewhere is exceptionally good, and there is an abundance of hay and water.—*S. L. Brabazon*, D.L.S., 1880.

Inspection Survey.—The Souris River runs almost through the centre of this township, in a north-easterly direction. A range of large sand-hills traverse the westerly part of the township; similar ranges are situated in the north-eastern and south-eastern corners. These are dotted over with oak and poplar, averaging from eight to ten inches in diameter. A long marsh of about three square miles occurs in the northern part of the township and extends northerly across township 8. The soil is a sandy loam.—*G. U. Ryley*, D.L.S., 1880.

6. *Outlines.*—Along the eastern boundary it is rolling sandy land. The soil is light. There are some bluffs of poplar and willow. Sections 13 and 24 are low and marshy.

Along the northern boundary there is a deep marsh, with open water. There is no dry land along this line.—*Milner Hart*, D.L.S., 1880.

Sub-division.—Swamps, sand hills and brush, the former largely predominating. It contains no land fit for cultivation,

but would make a splendid run for cattle, furnishing plenty of shelter and an abundance of feed. It is nearly all low land, with a dead level country from here to Souris River. Soil, third-class.—*S. L. Brabazon*, D.L.S., 1882.

RANGE XXVI.

1. *Outlines.*—Is nearly all rolling prairie, with first-class soil, excepting along the western side of the township, where it is rather stony. The Souris River runs through the western portion of the township.—*W. Pearce*, D.L.S., 1879.

Sub-division.—Rolling prairie, traversed by the Souris River from north to south. Coal for fuel is to be found in large quantities on the banks of the upper part of the Souris. The soil throughout is excellent, and the marshes contain an unlimited supply of hay and good water.—*A. W. Lippe*, D.L.S., 1880.

2. *Outlines.*—Is rolling prairie, with a few ridges which are rather gravelly and stony. The soil is fair. On the western side of the township there is a good deal of stone.—*W. Pearce*, D.L.S., 1879.

Sub-division.—Undulating prairie. The soil is a rich, black, sandy loam. The Souris River drains the south-western part of this township. The marshes contain hay and good water.—*A. W. Lippe*, D.L.S., 1880.

3. *Outlines.*—Sections 1, 2 and 3 are rolling prairie land, with grassy ponds. The soil is first-class. On section 4 there is a wide valley, where the land is stony, with a light soil—third-class. On sections 5 and 6 the land is light, in a wide valley, where there is also marsh.—*M. Hart*, D.L.S., 1880.

Sub-division.—Good soil. Only a few hay meadows.—*Duncan Sinclair*, D.L.S., 1880.

Inspection Survey.—Is watered by Souris River, which is fringed with oak and poplar from 8 to 12 inches in diameter. The township is an open prairie, with a slightly rolling surface and a sandy loam soil.—*G. U. Ryley*, D.L.S., 1870.

4. *Outlines.*—Along the northern boundary, in sections 36, 35 and 34, the land is undulating prairie. Soil, sandy; third-class. Section 33 is undulating prairie, with first-class sandy loam soil. Sections 32 and 31, the land is level prairie, with second-class sandy loam soil.

On the western boundary it is rolling prairie, with a sandy soil.—*Milner Hart*, D.L.S., 1880.

Sub-division.—The Souris River traverses this township diagonally. Its banks are well wooded. The soil throughout is fairly good.—*Duncan Sinclair*, D.L.S., 1880.

5. *Outlines.*—Along the southern boundary, in sections 1, 2 and 3, the land is undulating prairie. Soil, sandy; third-class. Section 4 is undulating prairie, with first-class sandy loam soil.

In sections 5 and 6 the land is level prairie with second-class sandy loam soil.—*M. Hart*, D.L.S., 1880.

Along the western boundary it is rolling prairie, interspersed with small sloughs. The soil is black loam with a clay sub-soil.—*G. U. Ryley*, D.L.S., 1880.

Sub-division..—The greater part of this township is well adapted to cultivation. There is plenty of good hay and water in the marshes.—*S. L. Brabazon*, D.L.S., 1880.

6. *Outlines*.—The township along the western boundary is open prairie, with many sloughs and some gravel ridges. The soil generally is third-class. On the northern boundary the soil is poor and sandy.—*G. U. Ryley*, D.L.S., 1880.

Sub-division.—Rather marshy, but where the land is dry it is good for agriculture. The marshes contain hay and water.—*S. L. Brabazon*, D.L.S., 1880.

RANGE XXVII.

1. *Outlines*.—Is generally a rolling prairie, with a few small shallow hay swamps. The soil to the south of the South Antler Creek is especially good; to the north it is lighter. There is some timber along the creek.—*Wm. Pearce*, D.L.S., 1879.

Sub-division.—Slightly rolling prairie, watered by South Antler Creek and the Souris River. The soil is a dark sandy loam, rather gravelly towards the south.—*R. J. Jephson*, D.L.S., 1880.

Inspection Survey.—Open, rolling prairie, with the exception of that part along South Antler Creek. Soil, light sandy loam.—*G. U. Ryley*, D.L.S., 1880.

2. *Outlines*.—Is generally a rolling prairie. The Souris River flows through a wide valley, which is a low flat, and the land is stony. Throughout the township the soil generally is fair.—*Wm. Pearce*, D.L.S., 1879.

Sub-division.—Slightly rolling prairie. There is a little timber along the banks of the Souris River and the North and South Antler Creeks. The soil is a dark rich loam, with clay sub-soil.—*R. J. Jephson*, D.L.S., 1880.

Inspection Survey.—Open prairie, with the exception of that part covered by the Souris, South and North Antler Creeks, which are lined with oak and poplar. The soil is a light sandy loam, with the exception of the flats in the Souris valley, which is a heavy clay loam.—*G. U. Ryley*, D.L.S., 1880.

3. *Outlines*.—The southern boundary passes through an open level prairie, with occasional sloughs. The soil is a clay loam, rated at second-class.

The Souris River passes through sections 2 and 3, at the bottom of a deep valley about sixty-one chains wide. The bottom of the valley is timbered, principally with oak, some

of which measures from 8 to 14 inches in diameter.—*G. U. Ryley*, D.L.S., 1880.

The Souris River runs through this township at the bottom of a wide valley, the land in which is poor and stony. The rest of the township is rolling prairie with grassy ponds. The soil generally is first-class.—*Milner Hart*, D.L.S., 1880.

Sub-division.—Level prairie, with rich clay loam soil. Traversed by the Souris River and a creek. The banks of both are fringed with elm and soft maple.—*J. McArthur*, D.L.S., 1880.

4. *Outlines.*—Along the northern boundary the land is a level prairie. Soil, a poor sandy loam; second-class.

On the eastern boundary the land is a rolling prairie, with a sandy loam soil.—*Milner Hart*, D.L.S., 1880.

Sub-division.—Level prairie, with few swamps or muskegs, traversed by a creek. The land throughout is first-class.—*J. McArthur*, D.L.S., 1880.

5. *Outlines.*—Along the western boundary it is rolling prairie, interspersed with small sloughs. The soil is black loam, with a clay sub-soil.—*G. U. Ryley*, D.L.S., 1880.

Along the southern boundary the land is level prairie. Soil, a poor sandy loam; second-class.—*Milner Hart*, D.L.S., 1880.

Sub-division.—Open, rolling prairie, broken at places by sloughs. A creek runs through from the south-west to north-east. The soil is a dark rich sandy loam.—*R. J. Jephson*, D.L.S., 1880.

6. *Outlines.*—Along the northern boundary it is undulating prairie. Soil, first and second-class sandy loam. There are numerous grassy ponds here and there.—*Milner Hart*, D.L.S., 1880.

On the eastern boundary it is open prairie, with many sloughs, and some gravel ridges. The soil generally is third-class.—*G. U. Ryley*, D.L.S., 1880.

Sub-division.—Is uniformly open, rolling prairie, without wood of any kind. It is broken by small swamps, and contains hay marshes of considerable extent. There are no running streams in the township. The soil is a dark sandy loam, varying from six to twelve inches in depth, with a sandy and gravelly sub-soil. I consider the township to be fairly well adapted for agricultural purposes.—*G. McPhillips*, D.L.S., 1884.

1. *Outlines.*—Is generally a rolling prairie, with a few small shallow hay swamps. The soil to the south of the South Antler Creek is especially good; to the north it is lighter. There is some timber along the creek.—*W. Pearce*, D.L.S., 1879.

Sub-division.—Slightly rolling prairie, watered by the North Antler Creek. The soil is a dark clay loam.—*R. J. Jephson*, D.L.S., 1880.

Inspection Survey.—Open, rolling prairie, with the exception of the valley of South Antler Creek, which is lined with oak and poplar. The soil is a light sandy loam.—*G. U. Ryley*, D.L.S., 1880.

2. *Outlines.*—Is generally a rolling prairie, with small shallow hay swamps, which could be easily drained, the pasturage is good. There are a few ridges, the soil on which is gravelly and stony.—*W. Pearce*, D.L.S., 1879.

Sub-division.—Slightly rolling prairie, watered by the North Antler Creek. The soil is a dark sandy loam with clay subsoil.—*R. J. Jephson*, D.L.S., 1880.

3. *Outlines.*—Along the southern boundary it is level prairie, with occasional grassy ponds. The soil is a second-class sandy loam.—*G. U. Ryley*, D.L.S., 1880.

Along the western boundary it is undulating prairie, with gravelly ridges. Soil, a sandy loam; second-class.—*M. Hart*, D.L.S., 1880.

Sub-division.—Level prairie. The soil is first-class. Hay and water in abundance. No timber.—*J. McArthur*, D.L.S., 1880.

4. *Outlines.*—Along the northern boundary the surface is an undulating prairie, with sandy and gravelly ridges. The soil is rated at second and third-class.—*M. Hart*, D.L.S., 1880.

Sub-division.—Open, undulating prairie. The soil is of excellent quality, but there is no timber. There is plenty of hay and water.—*J. McArthur*, D.L.S., 1881.

5. *Outlines.*—Along the southern and western boundaries it is an undulating prairie, with a number of sandy and gravelly ridges. The soil is of second and third-class quality.—*M. Hart*, D.L.S., 1880.

Sub-division.—Rolling, open prairie, rather broken by sloughs. Two creeks cross the northern half of the township. The soil is a dark, sandy loam of good quality.—*R. J. Jephson*, D.L.S., 1880.

6. *Outlines.*—Along the northern boundary the land is an undulating prairie, with grassy ponds. Soil, first-class sandy loam. Section 32 is rather stony, and is only third-class land.—*M. Hart*, D.L.S., 1880.

Sub-division.—Rolling and level prairie, with a large proportion of very wet land; and if drainage facilities cannot be obtained, it may be considered unfit for cultivation. A creek, believed to be permanent, flows through the centre of the township, and there is an abundance of feed for cattle. There is no wood. Soil very rich; chiefly second, with some third and first-class.—*R. J. Jephson*, D.L.S., 1880.

RANGE XXIX.

1. *Outlines.*—South Antler Creek passes through the southern portion of this township; there is some timber along the creek. The soil to the south of the stream is especially good; to the north it is rather lighter. Water at any place at a few feet from the surface.—*W. Pearce*, D.L.S., 1879.

Sub-division.—Rolling prairie, traversed by the North and South Antler Creeks. There is a small quantity of timber to be found on the banks of the latter. The soil is of fair quality; plenty of hay and water.—*J. F. Garden*, D.L.S., 1880.

Inspection Survey.—Open, rolling prairie. Soil, light sandy loam, with gravel ridges.—*G. U. Ryley*, D.L.S., 1880.

2. *Outlines.*—The township is a rolling prairie, with a few small hay swamps, which could easily be drained and make good hay lands; pasturage good; well watered. There are a few gravelly and stony ridges. The soil generally is second-class. —*W. Pearce*, L.D.S., 1879.

Sub-division.—Rolling prairie of gravelly loam and clay; there are numerous ridges of gravel and surface stone; the water in the marshes is good, and there is plenty of hay.—*J. F. Garden*, D.L.S., 1880.

Inspection Survey.—Rolling prairie. Soil, light sandy loam, with gravel ridges running through the township. South Antler Creek runs through the southerly part of the township; its banks are fringed with small oak, interspersed with poplar.—*G. U. Ryley*, D.L.S., 1880.

3. *Outlines.*—Along the southern boundary the land is an undulating prairie with gravelly ridges, with a soil of sandy loam, with a few small hay marshes here and there. The land on the eastern boundary is of the same character. The soil is second-class.—*Milner Hart*, D.L.S., 1880.

Sub-division.—Open prairie, dotted with clumps of small poplar; the muskegs are numerous, containing good water. The soil is second-class.—*J. McArthur*, D.L.S., 1881.

4. *Outlines.*—The eastern boundary passes through an undulating prairie, with a sandy soil and gravel ridges; soil is rated at third-class. Along the northern boundary the soil is more of a sandy loam, and is rated at second-class.—*Milner Hart*, D.L.S., 1880.

Sub-division.—Undulating prairie, with a sparse scattering of timber; drained by a creek running into the Souris. The land is well adapted for grazing purposes.—*J. McArthur*, D.L.S., 1880.

5. *Outlines.*—Along the eastern boundary the land is an undulating prairie. Soil, a sandy loam; second-class.—*Milner Hart*, D.L.S., 1880.

Sub-division.—Open prairie; two creeks traverse the township, affording an abundance of good water. The soil is a clay

loam, from four to six inches in depth, with clay sub-soil; small willow bush is the only timber. This township is not a good one, agriculturally, as it is much broken by marshes, and the soil is shallow.—*F. W. Wilkins*, D.L.S., 1881.

6. *Outlines.*—Along the northern boundary the land is undulating prairie, with numerous grassy ponds and gravelly ridges. The soil is a sandy loam, and classed at second and third-class; the land along the eastern boundary is of the same description.—*Milner Hart*, D.L.S., 1880.

Sub-division.—Open prairie; two creeks traverse those parts of the township between sections 33 and 2, and 19 and 5, respectively, and contain good water. There is but little timber, and there are occasional marshes and stony places.—*F. W. Wilkins*, D.L.S., 1881.

CHAPTER XVI.

County of Portage la Prairie.

The southern end of Lake Manitoba is bounded by a narrow bank of sand varying from one hundred to two hundred feet in width, and four to ten feet in height.

This bank encloses a deep marsh, producing reeds and rushes from six to eight feet in height. Numerous water holes or ponds are also found, with an average depth of seven feet, until the mouth of Portage Creek is reached.

This creek is from three hundred to five hundred feet in width, with from one to two feet of soft mud, and a clear depth of three and one-half feet to five feet of water.

From the head of Portage Creek to the Assiniboine River the distance is seven miles across a rolling prairie, but to reach water communication in Portage Creek of three feet six inches in depth the distance would be ten miles.

The waters of the Assiniboine River were, on the 8th October, 1872, fourteen and eighty-two hundredths feet above the level of Lake Manitoba.—*Henry B. Smith, C.E.*, 1872.

TOWNSHIPS WEST OF THE PRINCIPAL MERIDIAN.—RANGE V.

7. *Outlines.*—South and east, the surface is a gently undulating prairie, with bluffs of poplar and clumps of willows. There are a number of small hay swamps. The soil is a sandy loam of first and second-class quality.—*Joseph Doupe*, D.L.S., 1871.

Sub-division—The soil in this township is generally too sandy for good agricultural land. The timber consists mainly of poplar, the best of which has been killed by fire. In places, however, some good oak and poplar wood are to be found.—*F. H. L. Staunton*, D.L.S., 1872.

8. *Outlines.*—North and east, is a high, dry prairie, with bluffs of poplar and clumps of willow. There are a number of small hay swamps here and there. The soil is of a first and second-class quality.—*Joseph Doupe*, D.L.S., 1871.

Sub-division.—The timber in this township is chiefly poplar, willow and scattered oak. The greater part of this timber is fit for building, fencing, &c.; a considerable quantity has been destroyed by fire.

Water is found in several places, but with the exception of that supplied by Elm Creek, it is generally very bad.

The soil is light and sandy.

There are some very good hay marshes.—*F. H. L. Staunton*, D.L.S., 1872.

9. *Outlines.*—East, is level prairie, with bluffs of dead poplar and willow, and occasional hay marshes. The soil is a sandy loam of a first class quality.—*J. Lestock Reid*, D.L.S., 1872.

South, is a high, dry prairie, with bluffs of poplar and clumps of willow. There are a few small hay swamps. The soil is of a first-class quality.—*Joseph Doupe*, D.L.S., 1871.

Sub-division.—One-half of this township is suitable for farming purposes, that is all the prairie (marshes excepted), and that portion of the woodland, for a depth of about a mile, which borders on the prairie. The soil here varies from clay to sand, and is generally of an inferior quality. The other parts of the township, comprising the whole of the westerly and south-westerly sections, are of no value, having for the most part a very light sandy soil.

Poplar timber covers about two-thirds of the township. Of this, only that part which lies near the prairie is of any value; the remainder is very thick, scrubby poplar, mostly dead, and only about ten feet high.

The land is slightly rolling, with a gradual descent towards the north and north-east. Good water can be found in marshes by digging from one to three feet.—*Edgar Bray*, D.L.S., 1872.

10. *Outlines.*—North, is covered with heavy poplar woods, with occasional prairie openings.

East, is open prairie, with scattered willows and marshes, except in section 36, where it is heavy poplar woods. The soil throughout is a sandy loam of a first-class quality.—*J. Lestock Reid*, D.L.S., 1872.

Sub-division.—With the exception of the hay marshes, this township is composed of good agricultural land, especially in the northerly sections, where the soil is of a very superior quality.

The hay marshes are too wet for cultivation, but are valuable for hay, of which they produce a large quantity each year. The timber is chiefly poplar, of good quality, and in quantities only sufficient for the use of settlers.

The greater part of the township is almost level prairie. The soil is black loamy clay, full of vegetable and mineral deposits. Running water is not plentiful within the township, but where it can be found it is of good quality.—*Edgar Bray*, D.L.S., 1872.

11. *Outlines.*—Is generally timbered with poplar, elm and oak, with thick underbrush. There is an occasional stretch of prairie and meadow land. This soil is of a first-class quality. Two branches of a creek flowing in an easterly direction drain the township.—*A. L. Russell*, D.L.S., 1872.

Sub-division.—Is well adapted for settlement, the soil throughout being of the best quality; also the timber along the banks of the two rivers which traverse the township. The waters of these rivers are not of the best quality, but excellent

water can be obtained by digging to the depth of six feet.—*G. N. Albright*, D.L.S., 1873.

12. *Outlines.*—North, is a level prairie, with occasional small grassy marshes. Good farming land. The soil is of first-class quality.—*A. C. Webb*, D.L.S., 1871.

Sub-division.—The land is of first-class quality, and is excellent for agricultural purposes.—*R. W. Hermon*, D.L.S., 1871.

13. *Outlines.*—South, is a level prairie, with an occasional small grassy marsh. Good farming land. The soil is of a first-class quality.

East, is a high rolling prairie, gravelly and stony in places. There are a few poplar bluffs in sections 34 and 36. The soil is of first to third-class quality.—*A. C. Webb*, D.L.S., 1871.

Sub-division.—The southern portion of this township is excellent farming land, but towards the north it becomes stony and gravelly. The timber along Stony Ridge is small poplar and oak, affording an abundance of good fencing material. The stones are of the boulder character; these will prove useful for building.

The north-westerly quarter of the township is very good for agricultural purposes.—*R. W. Hermon*, D.L.S., 1871.

14. *Outlines.*—North and east, level land, gravelly and stony, covered generally with thick poplar, oak and willow bush. There are occasional glades of prairie land. The soil is of a second and third-class quality. Lake Manitoba and adjacent low lands cut off the north-western portion of the township.—*A. C. Webb*, D.L.S., 1871.

Sub-division.—Is only suited for grazing and stock-raising. The surface is stony, and the water for the most part alkaline. There are extensive meadows along the margins of the great marsh.—*Hermon and Bolton*, D.L.S., 1872.

15. *Outlines.*—Sections 1, 2 and 3 are level prairie, pasture land and marsh. The remaining portion of the southern boundary is marsh, with deep water, and is impassable.—*Milner Hart*, D.L.S., 1871.

Sub-division.—Is a small fractional township lying to the south-east of Lake Manitoba. On the shores of the lake the land is wet and marshy. The dry lands are good prairie.—*W. Wagner*, D.L.S., 1873.

RANGE VI.

7. *Outlines.*—West, rolling land, with scattered poplar and willow brush. The land is rather marshy in sections 19, 30 and 31. The soil is a light sandy loam of a second-class quality.—*Joseph Doupe*, D.L.S., 1872.

South, is a rolling prairie, with light willow brush, bluffs of poplar, and a few scattered oak. The soil is rather sandy, and of a second-class quality.—*Joseph Doupe*, D.L.S., 1871.

Sub-division.—Is timbered with a dense growth of willows, and a sufficient quantity of poplar and oak for settlement purposes. The water is good, and there is an abundance of hay. The soil is of a black sandy nature, and very fertile.—*G. N. Albright*, D.L.S., 1874.

8. *Outlines.*—North, is a leval prairie, with willow brush, bluffs of poplar and a few scattered oak. There are a number of small hay marshes. The soil is rather sandy and of second-class quality.—*Joseph Doupe*, D.L.S., 1871.

West, is generally covered with poplar bush and a thick growth of willows. The soil is of a second-class quality.—*Joseph Doupe*, D.L.S., 1872.

Sub-division.—Is well adapted for settlement, being well watered, with an abundance of timber and hay. The soil is light but fertile. The timber is chiefly poplar and oak, of sufficient size for building and fencing.—*G. N. Albright*, D.L.S., 1874.

9. *Outlines.*—South is a level prairie, with willow brush and many bluffs of poplar and a few scattered oak. There are a number of hay swamps here and there. The soil is rather sandy, and of a second-class quality.—*Joseph Doupe*, D.L.S., 1871.

West, poplar woods with fallen timber; swamps with heavy willows between sand ridges. The soil is of a second-class quality.—*J. Lestock Reid*, D.L.S., 1872.

Sub-division.—Is not good either for agricultural or lumbering purposes, the soil being of a very boggy nature, with the exception of the sand hills, and is liable to heavy floods in the spring.—*G. N. Albright*, D.L.S., 1873.

10. *Outlines.*—North, heavy poplar woods, with willows in places; the land is swampy in sections 32, 33 and part of 31. The soil is a sandy loam of a first and second-class quality.

West, poplar woods, with a number of wet willow swales alternately with sandy ridges. The soil is of a second-class quality.—*J. Lestock Reid*, D.L.S., 1872.

Sub-division.—There are many ridges of light sandy soil, alternating with low lands, which are flooded in the spring. The ridges are covered with small poplar, light brush and scrubby oak. The low lands are timbered with black ash and basswood, and are well watered.—*G. N. Albright*, D.L.S., 1873.

11. *Outlines.*—West, timbered with poplar, a considerable portion of which is windfall and brulé. There is a great deal of willow and hazel underbrush, and a number of small swamps in the woods.—*A. L. Russell*, D.L.S., 1872.

Sub-division.—It is well adapted for settlement, having an exceedingly good soil, but the westerly tier of sections require

draining. The timber is large poplar, oak and elm. It is well watered by a large creek.—*G. N. Albright*, D.L.S., 1873.

12. *Outlines.*—North, is a rolling prairie. The soil is of a first-class quality.—*A. C. Webb*, D.L.S., 1871.

West, is an excellent prairie, generally level, but sloping towards the south. The soil is a rich loam. The settlement of Portage la Prairie is situated partly in the southern part of the township.—*Milner Hart*, D.L.S., 1871.

Sub-division.—This township is almost entirely open prairie. The soil is most excellent; the surface gently undulates, and owing to the proximity of heavy bush along the Assiniboine River, it is a desirable location to settle in.—*R. W. Hermon*, D.L.S., 1871.

13. *Outlines.*—South, is a rolling prairie, with excellent land. The soil is of a first-class quality.—*A. C. Webb*, D.L.S., 1871.

This township is an excellent high, dry, prairie. The soil is a rich loam of a first-class quality. There are a few scattered clumps of oak. The northern portion of the township is rather marshy.—*Milner Hart*, D.L.S., 1871.

Sub-division.—This may be justly considered a most desirable locality for settlement.

There are numerous wooded groves towards the northern portion of the township, and the soil is everywhere most excellent for farming purposes.

An abundance of good water can be had at a depth of from six to eight feet in the low grounds, and from twelve to twenty feet in the high grounds.—*R. W. Hermon*, D. L. S., 1871.

14. *Outlines.*—A portion of the southern tier of sections consists of excellent hay and pasture lands; the remaining portion of the township appears to be flooded by the waters of Lake Manitoba.—*R. W. Hermon*, D.L.S., 1871.

RANGE VII.

7. *Outlines.*—South, light, sandy, rolling land, with scattered poplar and a few scrubby oak, some willow and poplar brush. Rivière aux Iles des Bois runs through section 4; along its banks are elms, poplars, oaks and maples. The soil is of a second-class quality.

East, the character of the country along this boundary is similar to that on the southern, except that there are numerous hay marshes in sections 24, 25 and 36.—*Joseph Doupe*, D.L.S., 1872.

Sub-division.—The soil is of second-class quality, being sandy, but improves somewhat in the southerly tier of sections, especially along the north branch of the Rivière aux Iles des Bois (Elm Creek?), a stream about three feet in depth and thirty feet wide, which flows in a south-easterly direction, across sections 6, 5 and 4. There are many marshes and

patches of prairie. The timber is poplar, with willows and brush. The poplar is generally so small as to be fit only for fencing and fuel.—*Joseph Doupe*, D.L.S., 1874.

8. *Outlines.*—East, is generally covered with poplar bush and a thick growth of willows. The soil is of a second-class quality.

North, level, sandy land, poplar bush, with brush and windfall; a few scattered oak, elm and ash. In section 36 the land is rolling.—*Joseph Doupe*, D.L.S., 1872.

Sub-division.—The soil throughout this township is a sandy clay, and, except in a portion of the south-western quarter, it is of second-class quality. In the north-western quarter the soil is sandy loam, partly of a first-class quality. In this portion the best timber is to be found, being principally poplar, in some places mixed with oak, suitable for building timber and sawlogs, while over a portion of the western half and in many portions of the eastern half there are extensive tracts of timber suitable for fuel and fencing. The surface of nearly the whole township is level.—*Joseph Doupe*, D.L.S., 1873.

9. *Outlines.*—South, level, sandy land, poplar bush, with brush and windfall, some oak, ash and elm. In section 1 the land is rolling. The soil is of a second-class quality.—*J. Doupe*, D.L.S., 1872.

East, poplar woods, with fallen timber; heavy willow swamps, with a good deal of water therein, alternating with sand ridges. The soil is of a second-class quality.—*J. Lestock Reid*, D.L.S., 1872.

Sub-division.—Is low and marshy, the soil being of a sandy and worthless nature and the timber small, and only fit for fuel and fencing. The township is quite unfit for settlement.—*C. J. Bouchette*, D.L.S., 1873.

10. *Outlines.*—North, the general appearance of the land along this boundary appears to be sand ridges, marsh and poplar woods; the latter is full of fallen timber. There are a few scattered oaks and elms in the vicinity of the Assiniboine River, which flows north-easterly through sections 31 and 32.

East, poplar woods, with a number of wet willow swales and sand ridges. The soil is of a second-class quality.—*J. Lestock Reid*, D.L.S., 1872.

Sub-division.—The character of this township is similar to that of the preceding one.—*C. J. Bouchette*, D.L.S., 1871.

11. *Outlines.*—East, is timbered with poplar, a great quantity of which, however, has been blown down; some of it has been killed by fire. With this is a great depth of willow and hazel underbrush. There are a number of hay swamps through the woods.—*A. L. Russell*, D.L.S., 1872.

Sub-division.—Is a very small fractional township, containing about one section of dry land. The remainder is marshy, with reeds and rushes.—*G. McPhillips*, D.L.S., 1874.

12. *Outlines.*—Is an excellent prairie, generally level, but sloping towards the south. The soil is a rich loam of a first-class quality. It is excellent farming land. The settlement of Portage la Prairie is partly situated in the southern part of the township.—*Milner Hart*, D.L.S., 1871.

North, is a rolling prairie, with excellent farming land. The soil is of a first-class quality.—*A. C. Webb*, D.L.S., 1871.

Sub-division.—Is all excellent rolling prairie. The soil is a fine rich, black loam, with a slight mixture of sand. The sub-soil is clay. This township, though well suited for farming, is without timber of any value, there being only a few clumps of poplar, willow and small oak.—*John McLatchie*, D.L.S., 1871.

13. *Outlines.*—South, is a rolling prairie, with excellent farming land. The soil is of a first-class quality.—*A. C. Webb*, D.L.S., 1871.

This township is an excellent high, dry prairie. The soil is a rich loam of a first-class quality. There are a few clusters of oak scattered throughout the township. The northern portion is rather marshy.—*Milner Hart*, D.L.S., 1871.

Sub-division.—Is well suited for settlement; has a rich soil and an undulating surface. There is hardly any wood in the township.—*Donald Sinclair*, D.L.S., 1871.

14. *Outlines and Sub-division.*—This township borders on Lake Manitoba. It consists of very fine prairie land, well watered by several streams which discharge into the lake. There is very little timber in this township.—*Donald Sinclair*, D.L.S., 1871.

RANGE VIII.

7. *Outlines.*—South, is a hilly country; the hills are sandy, and are covered with timber, chiefly poplar; some birch, oak and ash. The soil is of a second-class quality.—*Milner Hart*, D.L.S., 1872.

Sub-division.—Is nearly equally divided by the north branch of the Rivière aux Iles des Bois, which is from 2 to 3 feet deep and about 25 feet wide, and flows with a good current in a general south-easterly direction. The soil of the northerly portion is sandy loam of a second-class quality, and on the slope of Pembina Mountain is rough and hilly. The greater part is well wooded with poplar. There is some oak, birch and basswood on the mountain.—*Joseph Doupe*, D.L.S., 1874.

8. *Outlines.*—North, rolling land, covered with poplar and brush, with occasional oak, ash, elm and birch. There is a marsh in

section 33. The soil is a rich sandy loam of a first and second-class quality.—*Joseph Doupe*, D.L.S., 1872.

Sub-division.—The eastern part is timbered with poplar of good size, suitable for rails and firewood; the westerly part is covered with a thick growth of willows; the greater part is wet. The soil is a black clay loam, which, with proper draining, will become very productive.—*M. McFadden*, D.L.S., 1874.

9. *Outlines.*—South and west, rolling land, covered with poplar and brush, with some oak, ash, elm and birch. There is a marsh in the southern part of section 3. The soil is a rich sandy loam of a first and second-class quality.—*Joseph Doupe*, D.L.S., 1872.

Sub-division.—The Assiniboine River traverses this township; it is from 3 to 4 feet in depth. The soil is sandy, and in places pure red sand, altogether unfit for cultivation. The timber along the margin of the river is good; it consists of oak, poplar, white birch and cottonwood.—*C. J. Bouchette*, D.L.S., 1873.

10. *Outlines.*—North, heavy poplar woods, much of which, however, is windfall. There is occasionally a willow swamp through the woods.

West, the timber along this boundary is small. There are a number of willow marshes. The land throughout is of a second-class quality.—*J. Lestock Reid*, D.L.S., 1872.

Sub-division.—The soil and timber are much the same as in the foregoing township, except that there is no oak of any value in the township.—*C. J. Bouchette*, D.L.S., 1873.

11. *Outlines.*—South and west, the greater portion is timbered land, which consists of small poplar, a few oak in places, and a great deal of brush, consisting of hazel, cherry and willow. There are a few prairie openings and stretches of meadow land. The soil is of a first-class quality.—*A. L. Russell*, D.L.S., 1872.

Sub-division.—The northern portion is generally well adapted for farming. The soil is of a dark loamy nature, and well timbered with poplar and oak sufficiently large for building purposes. The north-eastern portion is open prairie, occupied by settlers. The south-eastern and south-western portions are timbered with small poplar, thick willows and heavy windfalls. The soil is light and sandy. Rat Creek traverses the north-westerly part of the township.—*C. J. Bouchette*, D.L.S., 1873.

12. *Outlines.*—North, is a level prairie, with good hay swamps in places. The soil is of a first-class quality.—*A. C. Webb*, D.L.S., 1871.

West, is excellent prairie. There are a few bluffs of poplar and willow brush in the southern portion of the township. The soil is a rich loam of a first-class quality.—*Milner Hart*, D.L.S., 1871.

Sub-division.—Well adapted for farming. The land slopes gradually towards the south, and several sloughs intersect it, draining the surface water into Rat Creek, which runs in a northerly direction through the township. Excepting in the south-western part, the soil is rich loam, under which, at various depths, lies a hard blue clay. The eastern part is bare of all bush, except along the right bank of Rat Creek, where a few willows are to be found. The western portion is studded with groves of poplar and willows.— *W. Wagner*, D.L.S., 1871.

13. *Outlines.*—West, a low, level prairie, suitable only for hay and pasture land.—*Milner Hart*, D.L.S., 1871.

South, is a level prairie, with a number of scattered hay swamps. The soil is of a first-class quality.—*A. C. Webb*, D.L.S., 1871.

Sub-division.—Is composed of prairie. There is one grove of small oak timber, partly in section 35 and partly in section 36. The land to the east of Rat Creek is dry, rolling prairie, of excellent quality; that to the west is low and marshy, with the exception of a small strip of dry prairie, about 10 chains wide, lying along the "White Mud Road."—*D. Sadler*, D.L.S., 1871.

14. *Outlines.*—West, is rolling prairie, with oak timber along the banks of Rat Creek, and bluffs of small poplar here and there. There are extensive hay marshes bordering along the vicinity of the shores of Lake Manitoba. The soil is rich clay loam of a first-class quality.—*Milner Hart*, D.L.S., 1871.

Sub-division.—Borders on Lake Manitoba, and is composed of beautiful prairie land, with very little timber. There is a considerable tract of marshy or low land on the border of the lake, and several sloughs or creeks running thereinto from the south.—*Donald Sinclair*, D.L.S., 1871.

CHAPTER XVII.

County of Norfolk.

RANGE IX.

7. *Outlines and Sub-division.*—Is heavily wooded with poplar, oak, ash, birch and elm, and is well watered by brooks which take their rise in springs. The surface is very rugged and hilly, but the soil is excellent.—*G. A. Bayne*, D.L.S., 1875.

8. *Outlines.*—North, prairie, with scattered poplar, willow, rose, hazel and cherry brush. The soil is a rich sandy loam of a first-class quality.—*Joseph Doupe*, D.L.S., 1872.

Sub-division.—It is well adapted for agricultural purposes, as the soil is excellent and the water is good. The surface is level, and covered with hazel, brier and other scrub, where not heavily timbered with poplar and oak. There are good hay lands along the Rivière aux Iles de Bois.—*Lewis Bolton*, D.L.S., 1874.

9. *Outlines.*—South and east, is nearly all covered with willow, rose, hazel, and scattering poplar. The soil is a rich sandy loam of a first-class quality.—*Joseph Doupe*, D.L.S , 1872.

Sub-division.—Is rolling land, timbered with small poplar, gray willow and thick underbrush. The Assiniboine River traverses the centre of the township. The soil is of inferior quality, a sandy loam with clay sub-soil.—*M. McFadden*, D.L.S., 1883.

10. *Outlines.*—North, is thick poplar woods, with dead timber and windfall. The soil is a rich, black, sandy loam of a first-class quality.—*Joseph Doupe*, D.L.S., 1872.

East, the surface is covered with a growth of small poplar. There are a number of willow marshes. The soil is of a second-class quality.—*J. Lestock Reid*, D.L.S., 1872.

Sub-division.—Is level, covered a few years ago with a fine growth of medium-sized poplar, but is now a dense windfall, grown up with all kinds of brush. The soil is a rich sandy loam.—*M. McFadden*, D.L.S., 1873.

11. *Outlines.*—Along the southern boundary it is thick poplar woods, with dead timber and windfall. The soil is a rich, black, sandy loam of a first-class quality.—*Joseph Doupe*, D.L.S., 1872.

Sub-division.—The soil in this township, being chiefly black clay loam, is well adapted for agricultural purposes. The surface is undulating, having a few small swamps, which, if drained, would produce good hay ; it also contains several small streams. The remainder is covered with bush of small size, chiefly poplar and birch.—*James Warren*, D.L.S., 1872.

12. *Outlines.*—North, is low, level and swampy, affording excellent hay. The soil is clay loam of first-class quality.—*A. C Webb*, D.L.S., 1872.

East, is an excellent prairie, with bluffs of poplar and willow brush. The soil is a rich loam of a first-class quality.—*Milner Hart*, D.L S., 1871.

Sub-division.—The greater part of this township is open prairie. In the southerly part there are a few poplar groves, but the timber is small, scarcely any of it being fit for building purposes. A good deal of it could be used for fencing. In the western portion there is a good deal of willow bush. There are a number of hay swamps.

The soil, with the exception of that in a few sections, is very good, being chiefly black clay loam, and is well fitted for agricultural purposes.

Water can be easily obtained, except in the north-easterly part of the township, where it is necessary to dig for it.—*James Warren*, D.L.S., 1872.

RANGE X.

7. *Outlines and Sub-division.*—Although hilly, is well adapted for settlement. The Rivière aux Isles de Bois flows in a northerly direction through the northern half. Its valley is well adapted for grazing. There are a number of small lakes and ponds, the water in which is of good quality. The timber is chiefly oak, with a great deal of hazel brush.—*G. A. Bayne*, D.L.S., 1875.

8. *Outlines.*—North, generally a level prairie, covered with dry poplar, a thick brush of small poplar, hazel, oak and maple, with vines and briers. The soil is a rich sandy loam of a first-class quality.—*Joseph Doupe*, D.L.S., 1872.

Sub-division.—The surface is rolling, with deep ravines along the water courses. The soil is excellent, and there is plenty of good water. There is only a small quantity of poplar timber, and part of it has been killed by fire.—*Lewis Bolton*, D.L.S., 1874.

9. *Outlines.*—South, generally a level prairie, covered with dry poplar, and thick brush of small poplar, hazel, oak and maple, with vines and briers. The soil is a rich sandy loam of a first-class quality.—*Joseph Doupe*, D.L.S., 1872.

West, sections 6 and 7 are covered with a heavy growth of poplar timber, with mountain ash and hazel in the vicinity of the Assiniboine River, which flows through these two sections.

Sections 18, 19, 30 and 31 are open prairie, with a number of sand ridges, scattered oak, and bluffs of poplar. The soil throughout is of a second-class quality.—*J. Lestock Reid*, D.L.S., 1872.

Sub-division.—Consists of rolling land, timbered with small gray willow and underbrush, with numerous small muskegs

and much windfall. The timber is small, and altogether the township presents few attractions to the settler, either for agricultural or grazing purposes. The soil is a light sandy loam, with clay subsoil. The River Assiniboine traverses the township.—*M. McFadden*, D.L.S., 1873.

10. *Outlines.*—North, gently rolling land, covered with poplar, oak, birch, ash and elm timber, also willow and cranberry brush. There are a few scattered shallow hay marshes. The soil is a rich black sandy loam of a first-class quality.—*Joseph Doupe*, D.L.S., 1872.

West, open prairie, with scattered oak, poplar and willow. There are a number of sand ridges. The soil is of a second-class quality.—*J. Lestock Reid*, D.L.S., 1872.

Sub-division.—The soil is sandy loam, with clay sub-soil which may be rated as third-class. The north-easterly portion is covered with small poplar and thick undergrowth of hazel and other bushes. The south-western portion is prairie, with a growth of brushwood.—*M. McFadden*, D.L.S., 1873.

11. *Outlines.*—South, is nearly all covered with poplar woods and willow bush. There is some oak, ash, elm and birch in sections 5 and 6. The soil is a black sandy loam of a first-class quality.—*Joseph Doupe*, D.L.S., 1872.

West, rolling prairie, with bluffs of heavy poplar, birch, elm, ash, intermixed with dense hazel, willow and other scrub. In places the land is very low, swampy and boggy.—*A. C. Webb*, D.L.S., 1872.

Sub-division.—Is, on the whole, well adapted for settlement. The land is only of a second-class quality, but the facilities for obtaining wood and water counterbalance in a great measure this drawback. The main trail to the Saskatchewan runs through the township. The surface is generally level, with small ridges. In the south-western quarter the wood is especially abundant, and in some places of large growth. The water is good but hard, and is procurable nearly everywhere by sinking to a moderate depth. There are no ledges of rock, but granite boulders may be seen here and there.—*G. A. Bayne*, D.L.S., 1873.

12. *Outlines.*—North, sections 34, 35 and 36 are low and level, with clumps of willow scrub. The soil is clay and sandy loam. In sections 31, 32 and 38 the land is high, and covered with poplar, scattered oak, and poplar with willow underbrush. The soil is sandy loam of a second-class quality.—*A. C. Webb*, D.L.S., 1871.

West, is rolling prairie, nearly all covered with poplar and scrub. In places the land is low and swampy. The soil is black sandy, of a third-class quality.—*A. C. Webb*, D.L.S., 1872.

Sub-division.—Is well adapted for settlement. The surface is generally level, with occasional ridges. The land is of

a second-class quality. There are a number of bluffs of poplar, clumps of willow, and a few scattered oak.—*G. A. Bayne*, D.L.S., 1873.

RANGE XI.

7. *Outlines and Sub-division.*—Is broken by several ravines and hills from 50 to 75 feet in height. It is not well watered. The soil for the most part is good, particularly in the valleys; on the tops of the hills it is somewhat gravelly. There is a large quanity of burnt poplar standing and fallen, likewise green poplar in bluffs, but scarcely large enough for fencing, with stunted oak and hazel and other brush.—*J. McG. Otty*, 1873.

8. *Outlines.*—North, is hilly, with scattered oak, poplar and maple, with willow, cherry and hazel brush. The Assiniboine River flows through sections 31, 32, 33 and 36. The soil is a sandy loam of a first-class quality.—*Joseph Doupe*, D.L.S., 1872.

Sub-division.—The township is traversed by the Assiniboine and the Cypress rivers, the former averaging about 8 chains in width, and varying in depth from 2 to 8 feet, the current in many places being very swift. The latter river is about 2 chains wide, 4 feet deep, and has a swift current, affording some good mill sites. There is a considerable quantity of oak, poplar, willows and scrub along the western side of the township; it is stunted, and is suitable only for firewood. Along the Assiniboine River the timber is of better quality, being larger. The soil is good, excepting along the western side, where there are a number of sand hills.—*J. McG. Otty*, D.L.S., 1873.

9. *Outlines.*—South, there are a number of sandy hills, with scattered oak, poplar, and brush of willow, cherry and hazel. The Assiniboine River flows through sections 1 and 6. The soil is a sandy loam of a first-class quality.—*Joseph Doupe*, D.L.S., 1872.

East, sections 1 and 12 are covered with a heavy growth of poplar timber, with mountain ash. Sections, 13, 24, 25 and 36 are open, with a number of sand ridges. There are a few bluffs of poplar and scattered oak. The soil is of a second-class quality.—*J. Lestock Reid*, D.L.S., 1872.

Sub-division.—The general features of this township are rolling sand hills, with muskegs intervening, and offers few attractions for settlers. It is generally timbered with small poplar and oak, intermixed with thick scrub.—*J. Lestock Reid*, D.L.S., 1874.

10. *Outlines.*—North and east, are open prairie, with scattered oak, poplar and willow. There are occasional sand ridges. The soil is of a second-class quality.—*J. Lestock Reid*, D.L.S., 1872.

Sub-division.—Is rough and hilly. The soil is light and sandy. Is generally timbered with small poplar and oak, with willow and other scrub. Squirrel Creek flows northerly through the centre of the township. There are a few scattered swamps.—*J. Lestock Reid*, D.L.S., 1874.

11. *Outlines.*—East, rolling prairie, with heavy poplar, birch, ash, elm, with dense hazel, willow and scrub. In places the land is low and boggy, and is of a third-class quality.—*A. C. Webb*, D.L.S., 1872.

Sub-division.—Consists for the most part of land unavailable for cultivation, being low and marshy in places. The south-eastern part is hilly, with large quantities of heavy poplar, elm, &c., some of which measures two feet in diameter. There are occasional small tracts of swamp in this locality.

A branch of White Mud River traverses the township. The township is generally well timbered, excepting the north-eastern portion. The most desirable lands are in the vicinity of the Saskatchewan road, which crosses the township.—*L. Kennedy*, D.L.S., 1873.

12. *Outlines.*—East, is rolling land, generally timbered with poplar and scrub. In places the land is low and swampy, and of a third-class quality. The soil is a black sandy loam.

North, is all timbered with poplar, with dense willow and scrub. There are some heavy elm, oak and ash in section 32, near a creek which flows in a northerly direction.—*A. C. Webb*, D.L.S., 1872.

Sub-division.—Is composed principally of low table land, abounding with marshes. That portion to the east of White Mud River comprises for the most part the only desirable lands for cultivation. The northerly half abounds with poplar and willow, some of the former being of considerable dimensions. Poplar clumps with scrub are found in the southern part of the township.—*L. Kennedy*, D.L.S., 1873.

RANGE XII.

7. *Outlines and Sub-division.*—The surface is generally undulating, and the soil good, with the exception of the northern tier of sections, where the sand hills begin. It is not well wooded. There are only some small clumps of good poplar, and a few oak and elm, and on the sand hills a growth of stunted spruce. The Cypress River runs through the township; its water is excellent. There are some limestone boulders in the southern part, but no fixed rock. There are some good hay meadows.—*W. McG. Otty*, D.L.S., 1873.

8. *Outlines.*—North, the Assiniboine River flows in an easterly direction through the north-western part of the township. The country is hilly, and covered with bluffs of poplar, spruce

and tamarack, with scattering oak and birch. The soil is a sandy loam of second-class quality.—*Joseph Doupe*, D.L.S., 1872.

Sub-division.—Is quite unfit for cultivation, with the exception of the valley of the Assiniboine, being composed of sand hills covered with poplar, elm and cottonwood. The timber in the valley is good, but the spruce which grows on the sand hills is worthless, being limbed down to the stump. The soil in the valley of the Assiniboine is a very rich loam. There are some good mill-sites on the Cypress River, which flows through the south-eastern part of the township. There is no water to be found on the sand hills.—*J. McG. Otty*, D.L.S., 1873.

9. *Outlines.*—South, the Assiniboine River flows in an easterly direction through the south-eastern part of the township. The country is sandy and hilly, with bluffs of poplar, spruce and tamarack, also a scattering of oak, birch and maple. The soil is a sandy loam.—*Joseph Doupe*, D.L.S., 1872.

Is unfit for cultivation, being all sand hills, with swamps intervening. The timber is useless for manufacturing purposes.—*J. Lestock Reid*, D.L.S., 1874.

10. *Outlines and Sub-division.*—Is unfit for the cultivation of the soil, it being all sand hills, with swamps intervening. The timber is useless for manufacturing purposes.*—*J. Lestock Reid*, D.L.S., 1874.

11. *Outlines.*—West, the surface is rolling and hilly. It is generally wooded with poplar, willow, hazel and low scrub; there is some oak in section 6. The soil is rather sandy, and is of a third and fourth-class quality.—*A. C. Webb*, D.L.S., 1872.

Sub-division.—There is an abundant supply of good water; and suitable timber for building, as well as the quality of the soil in parts, and its proximity to the Great Saskatchewan trail, will all conduce to the early settlement of the township. The best land is in the centre.—*Hermon & Bolton*, D.L.S., 1873.

12. *Outlines.*—West, the surface is rolling, and timbered with heavy poplar, balm of Gilead and whitewood, with willow and hazel scrub. The soil is sandy, and of a third-class quality.

North, the surface is level and low. There are many bluffs of poplar, with willow and other scrub. The land generally is wet, with many marshes and muskegs, and therefore is rated as of a third-class quality.—*A. C. Webb*, D.L.S., 1872.

Sub-division.—Almost the entire surface consists of low wet swamps, useless for settlement purposes until drained. There are, however, a few good quarter-sections along the left bank of the Pine River, which flows across the township. The timber consists chiefly of poplar, and the lower parts are thickly grown over with willow and other scrub.—*Hermon & Bolton*, D.L.S., 1873.

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* These townships are reported to be admirably adapted for grazing purposes, on account of the luxuriant hay in the low lands intervening between the sandy hills.

RANGE XIII.

7. *Outlines and Sub-division.*—The soil of the most northerly sections is of poor quality, being a light yellow sand, drifted into small irregular hills, with patches of small scrubby poplar, with occasional spruce and small thick scrub. Further south the land improves in quality; a belt running across the centre of the township, comprising about one-third of its area, is first-rate black loam. The southerly part is about one-half swamp, but the dry land between the swamps is of good quality. The Cypress River—a never-failing stream of good water, running in a north-easterly direction—crosses the south-east corner.—*W. and D. Beatty*, D.L.S., 1873.

8. *Outlines.*—North, is a hilly country, with bluffs of poplar, spruce and tamarack, interspersed with prairie openings and hay marshes. The soil is sandy, and is of a second-class quality. The Assiniboine River flows in an easterly direction across the northern portion of the township.—*Joseph Doupe*, D.L.S., 1872.

Sub-division.—The soil, excepting in the valley of the Assiniboine River, is very poor, consisting of light sand drifted into small irregular hills, covered with a small growth of bushes and scrubby spruce, oak and poplar. The soil and timber along the Assiniboine River, which runs across the northern part, are of good quality. The depth of the river is between three and six feet, with a current of about three miles per hour.—*W. & D. Beatty*, D.L.S, 1873.

9. *Outlines.*—South, is a hilly and sandy country. These hills are high and sharp; northwards the hills diminish in size, and are less numerous, and the soil is better. There are many bluffs of poplar, spruce and tamarac, interspersed with marshes and prairie openings. The soil is of a second-class quality.—*Joseph Doupe*, D.L.S., 1872.

Sub-division.—The western part consists of sand hills, with bush but no timber. The eastern part has a considerable quantity of oak timber, and the southern portion quantities of spruce and tamarack, situated along the banks of a stream adapted for floating it. Excellent timber, suitable for railway ties, with good water everywhere abundant.—*C. P. Brown*, D.L.S., 1875.

10. *Outlines and Sub-division.*—The north-eastern and the south-western parts are sandy, and are of no value for the cultivation of the soil. The remainder is fine prairie, with oak and poplar scattered in clumps.—*C. P. Brown*, D.L.S., 1875.

11. *Outlines.*—East, the surface is rolling and hilly, and generally wooded with poplar, willow, hazel and low scrub; there is a quantity of oak in section 1. The soil is sandy, and of a third-class quality.—*A. C. Webb*, D.L.S., 1872.

Sub-division.—The surface is very hilly, and cut up by numerous gullies; Pine Creek, a stream about twenty-five

links wide, crosses the township. The soil throughout is very sandy, and not above second-class quality. In the north-eastern part there is a large quantity of tall poplar, averaging about seven inches in diameter.—*W. and D. Beatty*, D.L.S, 1873.

12. *Outlines.*—East, the surface is rolling, and timbered with heavy poplar, balm of Gilead, whitewood, willow and hazel scrub. The soil is sandy, and of a third-class quality. North, sandy land, with hills, ravines, small marshes and muskegs. The hills and ravines are generally timbered with poplar and scattered oak, intermixed with hazel and other scrub. The soil is third-class.—*A. C. Webb*, D.L.S., 1872

Sub-division.—The surface is very hilly, and the soil only of a second-class quality. The easterly two-thirds is timbered with heavy poplar, some birch and balm of Gilead; the western part has a good many openings of sandy land, with scrub, and in some places nothing but a scanty growth of grass. There are numerous muskegs. Pine Creek crosses the south-easterly part of the township, running through a low, swampy valley. —*W. and D. Beatty*, D.L.S., 1873.

RANGE XIV.

7. *Outlines and Sub-division.*—In the south-eastern quarter about one-half the land is good black loam; the remainder low and swampy. In the south-western quarter the swamps are less frequent, the westerly part of it being good, dry, level prairie. About one-half of the north-eastern quarter is covered with poplar timber of a poor quality, and a great many muskegs; the remainder is covered with scrub. The Assiniboine River flows through the north-westerly part; it is a little over three chains in width, runs about three miles an hour, and the depth is about four feet. Near the banks of the river there is poplar of good size and quality.—*W. and D. Beatty*, D.L.S., 1872.

8. *Outlines.*—North and west is a rough, sandy and hilly country, with numerous sandy ridges and hills, with bluffs of spruce, poplar and oak. The soil is of a third-class quality.—*Joseph Doupe*, D.L.S., 1872.

Sub-division.—The soil is generally very poor, being little else than yellow sand, which is drifted into irregular hills, varying from twenty-five to one hundred feet in height. The larger hills have no vegetation, while the smaller ones are covered with a scant growth of grass and stunted poplar and spruce. The Assiniboine River flows through the eastern part of the township; the soil in the valley is very good. The north-easterly sections are well timbered.—*W. and D. Beatty*, D.L.S., 1872.

9. *Outlines.*—This township is rough and hilly. The soil is sandy. There is a considerable quantity of poplar and brush. There is quite a large patch of level prairie about the centre of the

township. Pine Creek runs in an easterly direction through the township.—*Joseph Doupe*, D.L.S., 1873.

Sub-division.—The soil in the northern and southern parts is rather sandy, with good grass; the central portion is well timbered with pine, tamarack and spruce, etc. Pine Creek runs through the midst of the timber; its water is clear and rapid, four feet deep, thirty-three feet wide, and banks one hundred feet high.—*C. P. Brown*, D.L.S., 1875.

10. *Outlines.*—As seen from the western boundary, this township appears to be a gently-undulating prairie, with a few scattered bluffs of poplar. The soil is a sandy loam of fair quality; it is very good towards the north-western corner of the township. —*Joseph Doupe*, D.L.S., 1873.

Sub-division.—The southern portion is broken with sand hills, with a growth of good poplar and scrubby oak. The remainder is fine prairie, well watered by Pine Creek, with a fair quantity of timber and hay.—*C. P. Brown*, D.L.S., 1875.

11. *Outlines and Sub-divison.*—The easterly part is very hilly and the soil very sandy, covered with scrub, and scrubby poplar and oak. The remainder is level prairie, with a few small gullies, with a sandy soil, but of good quality. There are two small streams in the township, A much frequented trail to Fort Ellice and the west crosses the township.—*W. and D. Beatty*, D.L.S., 1873.

12. *Outlines.*—North, rolling land, with low scrub and some poplar on sections 31 and 36. The soil is a sandy loam of a second-class quality. In section 36 there are some large hills and ravines.—*A. C. Webb*, D.L.S., 1872.

Sub-division.—About one-third of the township is covered with scrub and dead poplar. The remainder is undulating prairie, with patches of small brush. There is no water, excepting in the swamps, which are dry during the greater part of the summer months The soil is light and rather sandy, but of good quality, and can be easily cultivated.—*W. and D. Beatty*, D.L.S., 1873.

RANGE XV.

7. *Outlines.*—An undulating prairie along the southern boundary, with good soil. In places it is rather low and swampy, and gravelly on the higher ground.—*Walter Beatty*, D.L.S., 1879.

Sub-division.—Is almost all first-class land, chiefly rolling prairie, with a fine rich loam, in places mixed with heavy clay. The Assiniboine River runs through the northern part of the township, and in its vicinity there is a considerable quantity of oak and spruce timber, suitable for the manufacture of sawn lumber. The water in the river is fresh and good, and abounds with fish, such as pike, pickerel, &c. The southern part of the township is watered by Oak Creek, a stream of good fresh water, also abounding in fish. There is plenty of

good timber in the northern part of the township suitable for fuel or fencing.—*E. C. Caddy and Thos. Hewson*, D.L.S., 1879.

8. *Outlines* —East, is rough and hilly, with numerous ridges and sandy hills, with scattered bluffs of poplar, intermixed with oak and spruce.—*Joseph Doupe*, D.L.S., 1872.

North, generally rough and hilly, with sandy ridges 20 to 40 feet in height. There are some stretches of rolling prairie, with scattered spruce and poplar, with patches of brush. The soil throughout the township is of a third-class quality. —*Joseph Doupe*, D.L.S., 1873.

Sub-division.—The northern part is generally rough and hilly, with a light sandy soil, and generally unfit for cultivation, timbered with spruce, oak and poplar, some of which, though much scattered, is suitable for the manufacture of sawn lumber. The Assiniboine River runs through the southern portion, and in its vicinity the soil is generally a good clay loam, on which there is some good timber, chiefly oak. The remainder of the township has a light sandy soil. —*E. C. Caddy and Thos. Hewson*, D.L.S., 1879.

9. *Outlines.*—Very rough and hilly, with numerous broken sand ridges running north-westerly and south-easterly across the township. The soil is poor and sandy There is a considerable quantity of spruce and poplar woods, the former among the sand ridges, the latter more prevalent towards the northern part of the township, especially around and on the northern side of a large muskeg which stretches from the south-eastern corner of the township, and changes towards the north-western corner to a tamarack swamp.—*Joseph Doupe*, D.L.S., 1873.

Sub-division.—Presents few attractions to the settler; the greater part consists of a marsh formed by Pine Creek, while the remainder is high, sharp sand hills, bare on the tops, but covered on the sides with a dense scrub of spruce, &c. Along the banks of Pine Creek there is some poplar and spruce timber suitable for sawing into lumber.—*C. P. Brown*, D.L.S., 1875.

10. *Outlines.*—Rough, rolling land, with scattered spruce and a good deal of poplar. In the north-eastern part there is some oak timber of small size. In the south-western part there is a large quantity of tamarack suitable for railway ties or for building purposes. The soil is generally rather light and sandy, though in some places it is of a fair quality.—*Joseph Doupe*, D.L.S, 1873.

Sub-division.—Consists chiefly of sand hills, and the soil is of a very poor description. The south-western portion is a deep swamp, through which Pine Creek flows. The timber throughout the township consists of scattered poplar, oak and spruce, with scrub. A small strip of prairie about a mile in

width runs parallel with Pine Creek. There is a small lake in sections 27 and 28.—*A. L. Poudier*, D.L.S., 1882.

11. *Outlines.*—South, is an undulating prairie, with many sand hills, poplar bluffs, dense scrub and scattered oak. There are a number of hay marshes, muskegs, and small shallow lakes. The soil in section 1 is a first-class sandy loam; the remaining five sections are of a third-class quality.—*A. C. Webb*, D.L.S., 1873.

Sub-division.—The soil in the northern and western parts is of first-class quality—a rich black clay loam. The south-westerly portion is a succession of sharp sand hills, which are quite worthless for cultivation. There are a few ponds, in which the water is good. In the south-westerly portion there is some good timber, principally of poplar.—*James Warren*, D.L.S., 1873.

12. *Outlines.*—North, a rolling prairie. Section 36 is broken by sand hills. There is a willow swamp in section 35. The soil is a black sandy loam of a first and second-class quality. The southerly branch of White Mud River flows through section 35.—*A. C. Webb*, D.L.S., 1873.

Sub-division.—The soil throughout the township is of a first-class quality—a rich, black loam. There are a few good hay swamps. There is very little timber. Willow Creek flows in a north-easterly direction across the north-westerly part of the township. The water in the streams and ponds is very good.—*James Warren*, D.L.S., 1873.

RANGE XVI.

7. *Outlines.*—South to west, is a rolling prairie, with scattered patches of scrub and occasional spruce. There are a number of small hay swamps. The land is nearly all of a first-class quality. The Souris River flows through section 30. In section 31 there is a high ridge of sand hills seventy feet in height.—*Walter Beatty*, D.L.S., 1879.

Sub-division.—Is chiefly rolling prairie, with a soil of rich clay loam. The Souris River traverses the township in the north-westesly part and Oak Creek in the north-east. In the north-eastern portion of the township there is a small quantity of timber, chiefly spruce, suitable for sawn lumber, and also a small quantity along the banks of the Souris River. The township on the whole offers many attractions to the settler.—*E. C. Caddy and Thos. Hewson*, D.L.S., 1879.

8. *Outlines.*—North, is a rolling sandy prairie, with patches of poplar bush, brush and willows. The soil is of a second-class quality.—*Joseph Doupe*, D.L.S., 1873.

West, in sections 36, 25, 12 and 1, is an undulating prairie with a first-class soil. In sections 24 and 13 there are numerous bluffs of poplar and scrub oak; the soil here is light and sandy, of a second-class quality.—*W. Beatty*, D.LS., 1879.

Sub-division.—That part lying north of the Assiniboine River is generally rolling land, with scattered oak and poplar timber, with willow and poplar scrub. In the north-eastern part, there are some low sand hills covered with spruce, oak, and poplar timber, nearly all of which would be suitable for sawn lumber. South of the Assiniboine the land is for the most part rolling prairie, with a soil of rich clay loam, and excellent for agricultural purposes. It is well watered by the Assiniboine and Souris Rivers, which form a junction in this township. The water in both these streams is excellent, and abounds with fish of different kinds. There is a quantity of timber, suitable for fencing and fuel, scattered throughout the township.—*E. C. Caddy and Thomas Hewson*, D.L.S., 1879.

9. *Outlines.*—The east half is rough and hilly ; the west half is a fairly level prairie with a few patches of poplar. The soil is light and sandy.—*Joseph Doupe*, D.L.S., 1873.

Sub-division.—The western and south-western parts of the township are mostly prairie, with small clumps of poplar. The remainder consists of sand hills, generally covered with thick brush. The soil is of a very inferior character.—*C. P. Brown*, D.L.S., 1875.

10. *Outlines.*—A large muskeg extends diagonally from a little north of the south-eastern corner of the township to the north-western. The south-eastern part of the muskeg is surrounded by tamarack in large quantities, some of which is suitable for railway ties. The south-eastern part of the township is very rough and hilly, with spruce and poplar woods ; the soil is poor. The south-western portion is rolling, with considerable poplar towards the centre of the township ; the soil is light and sandy. The portion lying northerly of the muskeg has a fair soil, with a considerable quantity of timber along the muskeg.—*Joseph Doupe*, D.L.S., 1873.

Sub-division.—There appears to be a little first-class land in this township. The whole of the north-eastern part is composed of sand hills, generally covered with clumps of spruce and poplar. A chain of small lagoons and marshes runs diagonally across the township from north-east to south-east, and densely covered with tamarack and spruce, nearly all of which is dead and dry. Fur-bearing animals, such as mink, otter, &c., abound in this township, as also moose and deer.—*C. P. Brown*, D.L.S., 1875.

11. *Outlines.*—South and west, an undulating prairie, with bluffs of poplar. The soil is a sandy loam of first, second and third-class quality. There is a large muskeg and floating bog in section 6.—*A. C. Webb*, D.L.S., 1873.

Sub-division.—The greater part is rolling prairie, with poplar and oak timber. The soil is sandy and of inferior quality. There are no streams.—*John Holmes*, D.L.S., 1873.

12. *Outlines.*—West, is a high rolling prairie, with occasional gravel ridges. Good farming land. The soil is a sandy loam of a first and second-class quality.

North, a rolling prairie. The soil is a black sandy loam of a first-class quality.—*A. C. Webb*, D.L.S., 1873.

Sub-division.—The soil is first-class; the surface rolling prairie, with much hay lands and some swamps, but no streams.—*John Holmes*, D.L.S., 1873.

CHAPTER XVIII.

County of Brandon.

RANGE XVII.

7. *Outlines.*—Along the southern boundary it is slightly rolling prairie, with scattering bluffs of poplar and oak. The soil is rated at first and second-class.—*J. L. P. O'Hanly*, D.L.S., 1880.

On the eastern boundary the land is a rolling prairie of first-class quality, excepting on section 26, where there is a ridge of sand hills, 70 feet high; the soil here is third-class. The Souris River passes through section 25, along the valley of which is oak and poplar timber and thick scrub.—*Walter Beatty*, D.L.S., 1879.

Sub-division.—This township is crossed diagonally and drained by the Souris River. The northern tier of sections is traversed by a fine creek of good water. There is very little timber. The soil throughout is first-class, being a heavy black loam, with clay bottom.—*Caddy and Hewson*, D.L.S., 1880.

8. *Outlines.*—On the eastern boundary, in sections 31, 30, 7 and 6, is an undulating prairie, with a first-class soil. In sections 18 and 19 there are numerous bluffs of poplar and oak scrub. The soil is light and sandy, and of a second-class quality.—*Walter Beatty*, D.L.S., 1879.

North, is a rolling prairie, with occasional bluffs of poplar and clumps of willow. There are some small oak and tamarack near the Assiniboine River, which flows in a south-easterly direction through section 35. The land is of a first-class quality, excepting in section 34, where it is gravelly and stony.—*J. L. P. O'Hanly*, D.L.S., 1879.

Sub-division.—Chiefly level prairie, rolling towards the north and west. Soil is generally a rich clay loam. The water in the streams and ponds is good. The Assiniboine River runs through the north-east part of this township. The river abounds with pike, pickerel and other smaller fish. Timber is scarce, and only good for firewood and fencing.—*Caddy and Hewson*, D.L.S., 1880.

9. *Outlines.*—Prairie; fair soil. The Assiniboine River flows southerly through about the middle of the township.—*Joseph Doupe*, D.L.S., 1873.

South, is a rolling prairie, with occasional bluffs of poplar and clumps of willow. There is some small oak and tamarack near the Assiniboine River, which flows through section 2. The soil is of a first-class quality, excepting in

section 3, where it is rather gravelly and stony,—*J. L. P. O'Hanly*, D.L.S., 1879.

Sub-division.—The southern two-thirds are light, dry,sandy prairie. Of the remainder, nearly one-half is muskeg and meadow. On the whole, the township is inferior, but sufficiently good for grazing purposes.—*Thos. Breen*, D.L.S., 1880.

10. *Outlines.*—A large muskeg extends across the northern part of the township from section 36 to 32; section 31 is mostly a low, flat prairie, and marshy in places.—*Joseph Doupe*, D.L.S., 1873.

The northern boundary runs through a large marsh. The soil is light and gravelly.—*J. L. P. O'Hanly*, D.L.S., 1879.

Sub-division.—The soil is rather inferior, being light, dry, sandy prairie, interspersed with occasional meadows and swamps, and a few bluffs of small poplar.—*Joseph Doupe*, D.L.S., 1881.

11. *Outlines.*—South and east, is a rolling prairie, with a first-class black sandy loam soil. Sections 1, 2 and 3 are situated in a muskeg and floating bog.—*A. C. Webb*, D.L.S., 1873.

Sub-division.—Is rolling prairie, with a few gullies. Surface water can be had in some of the gullies, but not running water. Good water can be got by sinking from six to twelve feet. The soil is a good dark loam.—*J. McG. Otty*, D.L.S., 1873.

12. *Outlines.*—East, is a high rolling prairie, with occasional gravel ridges. Good farming land. The soil is a sandy loam of a first and second-class quality.

North, is a rolling prairie, with a few poplar and willow scrub. Soil of a first-class quality.—*A. C. Webb*, D.L.S., 1873.

Sub-division.—The surface, soil and timber are the same as in the foregoing township.—*J. McG. Otty*, D.L.S., 1878.

RANGE XVIII.

7. *Outlines.*—South and west, the land is first-class rolling prairie. There is some small poplar and oak on sections 1 and 2. The Souris River passes through section 1.—*J. L. P. O'Hanly*, D.L.S., 1880.

Sub-division.—The soil is a heavy clay loam. The eastern half is well adapted for settlement, but the other half is too low, with numerous swamps. The Souris River runs through section 1, and in that section only is timber to be found.—*Caddy and Hewson*, D.L.S., 1880.

8. *Outlines.*—The western boundary runs through nearly all prairie land of first and second-class soil. There is some small oak and poplar on sections 6, 7, 18 and 19.

North, is a rolling and hilly prairie, with a number of small hay swamps. There are a few bluffs of poplar on the

hills. The soil is a sandy loam of a first-class quality.—*J. L. P. O'Hanly*, D.L.S., 1879 and 1880.

Sub-division.—Principally fine, rolling prairie, with a quantity of good hay land. The soil is generally a rich clay loam, very black on the surface. The Brandon Hills are on the west of this township; there the land is broken; but in the valley the soil is good. Abundance of good water.—*Caddy and Hewson*, D.L.S., 1880.

9. *Outlines.*—South and west, is generally a rolling prairie. Sections 3, 4, 5 and 6 are situated in the Brandon Hills, where the surface is much broken, and covered with small poplar timber, oak and willow.

The Little Souris River runs through section 18 in an easterly direction. The soil is a sandy loam of a first-class quality.—*J. L. P. O'Hanly*, D.L.S., 1879.

Sub-division.—Admirably adapted for settlement. Enough timber for building purposes. Soil is a rich black loam and clay. The Little Souris runs through the township, affording good water. The Brandon Hills are at the base of the township.—*Thos. Breen*, D.L.S., 1880.

10. *Outlines.*—Is altogether prairie, and the soil in the northerly portion is very good, being a first-class rich, sandy loam.—*J. Doupe*, D.L.S., 1875.

North and west, is a rolling prairie, with occasional bluffs of poplar near the Assiniboine River, which intersects the western boundary in sections 19 and 30. The soil, generally, is of a first-class quality.—*J. L. P. O'Hanly*, D.L.S., 1879.

Sub-division.—All the best part of this township is taken up; the remainder is stony.—*Thos. Breen*, 1880.

11. *Outlines.*—South, is a slightly undulating prairie; excellent farming land. The soil is a sandy loam of a first-class quality. There is a small creek flowing southerly through section 1, the banks of which are forty feet high.

West, an undulating prairie. Soil, a clay loam. Excellent farming land.—*A. C. Webb*, D.L.S., 1873.

Sub-division.—Is undulating prairie, excepting some clumps of scrub trees in the south-westerly parts. There are no running streams, but good water in pools in the water-courses in the southern part. The soil is rather red and gravelly, except in the southern part, where it inclines to be a black loam. There are some small patches of hay meadow.—*W. Otty*, D.L.S., 1875.

12. *Outlines.*—West, rolling prairie, with occasional gravel ridges. Soil, a first-class sandy loam.

North, is an undulating prairie, with dead poplar and dense scrub. The soil is a clay loam.—*A. C. Webb*, D.L.S., 1873.

Sub-division.—The surface is broken prairie, with a hard and gravelly soil, except in the north-east quarter, which is

covered with scrub and small poplar, and contains a greater quantity of black loam. It is not well watered.—*W. Otty*, D.L.S., 1878.

RANGE XIX.

7. *Outlines.*—Along the eastern boundary the land is first-class rolling prairie. Along the southern boundary the land is rolling, with many small hay marshes or ponds. There is a gravel hill on section 5. The Souris River runs through a deep valley in section 6. The sides of the valley are timbered. —*J. L. P. O'Hanly*, D.L.S., 1880.

Sub-division.—Rolling, and in some places hilly. Soil is good. Post office within nine miles and steamboat landing sixteen miles.—*W. Wagner*, D.L.S., 1880.

8. *Outlines.*—The eastern boundary runs generally through prairie of first and second-class soil. There are some small poplar and oak on sections 1, 12, 13 and 24.

North, is mostly a hilly prairie, with a number of shallow hay swamps. There are some bluffs of poplars on the hills. The soil generally is of a first-class quality.—*J. L. P. O'Hanly*, D.L.S., 1879 and 1880.

Sub-division.—Forms a portion of the western boundary of the Brandon Hills. There is some level land, with good soil; but, for the most part, the township is hilly, with a scattering of timber.—*W. Wagner*, D.L.S., 1880.

9. *Outlines.*—South and east is a rolling prairie. The southern part is on the Brandon Hills, where there are many bluffs of poplar, brush, and a few scattered stunted oaks. There is a small lake in section 2. The soil in the hilly portion is rather light, and of a second-class quality; the remainder is of a first-class quality.—*J. L. P. O'Hanly*, D.L.S., 1879.

Sub-division.—Crossed by the Little Souris River in a north-easterly direction. The soil is a good sandy loam. Timber can be procured from the Brandon Hills and the banks of the Little Souris There is a fine lake on the southern boundary.—*G. B. Abrey*, D.L.S., 1880.

10. *Outlines.*—North, is altogether prairie. The soil is a rich sandy loam of a first-class quality.—*Joseph Doupe*, D.L.S., 1873.

East, is a rolling prairie, with occasional bluffs of poplar and clumps of willow. The soil generally of a first-class quality.—*J. L. P. O'Hanly*, D.L.S., 1879.

Outlines and Sub-division.—The Assiniboine River traverses this township; also a trail from Winnipeg. The soil is fairly good, and there is a good deal of timber throughout.—*G. B. Abrey*, D.L.S., 1880.

11. *Outlines.*—East, and undulating prairie. Soil a first-class clay loam. Excellent farming land. South, sections 1, 2 and 3 are of the same character as the above. The soil in sections 4, 5

and 6 are rather lighter, the soil being sandy loam, with ridges of sand and gravel—class one and two.—*J. McLatchie*, D.L.S., 1873.

Sub-division.—The soil is a good dark loam. There is no timber, brush or scrub in the township, nor any surface water; but water can be obtained by sinking about 10 feet.—*J. McG. Otty*, D.L.S., 1873.

12. *Outlines.*—North, rolling prairie, with a few bluffs of poplar and willow scrub. Good farming land. Soil, a first-class sandy loam.

East, rolling prairie, with occasional gravel ridges. Soil, a first-class sandy loam.—*A. C. Webb*, D.L.S., 1873.

Sub-division—Is prairie, with islands of poplar and scrub. The soil is a good dark loam. Water is scarce (though there are a few ponds); yet it can be easily obtained by sinking about 8 feet; the timber is large enough for fencing purposes.—*J. McG. Otty*, D.L.S., 1873.

Water from shallow well north of Brandon, Township 12, Range 19.

This water when received had a most offensive odor, smelling strongly of sulphuretted hydrogen; on standing it deposited a large amount of sediment, consisting of a fine brownish-black calcareous mud. This having been filtered off, the clear water was found to contain total dissolved solid matter—dried at 100°C.—267·9 grains to the imperial gallon. A qualitative analysis of the water showed the more important constituents of the dissolved solid matter to consist of:

Potassa and soda...A large quantity, soda predominating.
Lime.....A large quantity.
Magnesia.....A large quantity.
Sulphuric acid.....A very large quantity.
Carbonic acid.. .....A rather large quantity.
Chlorine.....A rather small quantity.
Sulphuretted hydrogen.....

The presence of the last-named is doubtless due to the reducing action of the organic matter on the sulphates, converting the latter into sulphurets, which in turn are decomposed by carbonic acid, giving rise to carbonates on the one hand and sulphuretted hydrogen on the other.

The examination was conducted by Mr. F. D. Adams, Geological Survey.

RANGE XX.

7. *Outlines.*—The sections along the southern boundary are all level prairie, excepting the south-east quarter of section 5, through which flows a small creek, and along which there are groves of poplar and small oak. The land along the western boundary is of the same character. The Souris River flows through a deep valley in section 30. The land throughout the township is nearly all first-class soil.—*J. L. P. O'Hanly*, D.L.S., 1880.

Sub-division.—The soil is black, rich mould, from 15 inches to three feet deep. The banks of the Souris Creek, which crosses the township, are fringed with scattered timber and shrubbery.—*Wm. Wagner*, D.L.S., 1880.

8. *Outlines.*—Along the western boundary the land is generally a level prairie, interspersed with many small grassy ponds. The soil is first-class.—*J. L. P. O'Hanly*, D.L.S., 1880.

North, is a level prairie, with a few scattered small bluffs of poplar, and an occasional hay meadow. The soil is of a first-class quality.—*J. L. P. O'Hanly*, D.L.S., 1880.

Sub-division.—The easterly part of the northern half is unfit for cultivation, being alkaline; the remainder of the township is rolling prairie, with a rich soil, and is well adapted for grain-growing. Abundance of hay and water. No timber.—*Wm. Wagner*, D.L.S., 1880.

9. *Outlines.*—South and west, is a level prairie, with a few scattered small bluffs of poplar and an occasional hay meadow. The soil is of a first-class quality.—*J. L. P. O'Hanly*, D.L.S., 1879.

Sub-division.—Level prairie of rich sandy loam; marshy towards the west and south. Abundance of hay and water. Poplar large enough for building, but no great quantity, grows in the centre of the township.—*G. B. Abrey*, D.L.S., 1880.

10. *Outlines.*—West, is a rolling prairie, with sand hills in parts of sections 6, 7 and 19. The hills are covered with small poplar and brush. The soil is of a first-class quality, except in the sandy hills. The Assiniboine River flows in an easterly direction, through a wide and deep valley in section 31.—*J. L. P. O'Hanly*, D.L.S., 1879.

Sub-division.—Crossed by the Assiniboine River and trail to Winnipeg. The Little Saskatchewan River runs into the township and joins the Assiniboine. The soil is fairly good, and there is sufficient timber for the first wants of settlers.—*G. B. Abrey*, D.L.S., 1880.

11. *Outlines.*—South, is generally a level prairie. Soil sandy and gravelly, of a first and second-class quality. The Little Saskatchewan River passes through section 3, in a deep and wide valley, between 150 and 200 feet below the level of prairie. The valley is nearly half a mile wide.

West, sections 36 and 25 are undulating prairie, and approaching the Little Saskatchewan River, in sections 24, are very high hills and deep ravines. Soil, a black sandy soil. Sections 13, 12 and 1 is a high, hilly and rolling prairie.—*John McLatchie*, D.L.S., 1873.

Sub-division.—The surface is undulating prairie; the soil is rich, dark loam. There is no timber of any value, although there are some small patches of poplar along the banks of the

Rapid River, which flows through the township and affords some good mill-sites.—*W. Otty*, D.L.S., 1873.

12. *Outlines.*—West, rolling prairie, with ridges of gravel and large stones. Bluffs of poplar scrub. Soil, second and third-class.

North, rolling land, with thick poplar bluffs, willow scrub and occasional glades of prairie. Gravel ridge in section 33. Soil, a first-class sandy loam.—*A. C. Webb*, D.L.S., 1873.

Sub-division.—The surface is undulating, and covered for the greater part with dense clumps of poplar, hazel and willow. The soil is a rich, deep, dark loam, stony in places.

There are a few ponds of alkaline water. The only good water is in the Little Saskatchewan River, which flows through the north-westerly part and has some good mill-sites.—*W. Otty*, D.L.S., 1873.

RANGE XXI.

7. *Outlines.*—Along the southern boundary it is level prairie. The soil is first-class. The eastern tier of sections are all level prairie, with first-class soil, excepting section 25, through which the Souris River flows in a deep valley, the sides of the valley being covered generally with a growth of small timber.—*J. L. P. O'Hanly*, D.L.S., 1880.

Sub-division.—Traversed by the Souris River. The soil is a rich, black, sandy loam. There is some timber along the banks of the Souris and at the mouth of Pipestone Creek. Well adapted for settlement.—*Cotton and McAree*, D.L.S., 1880.

8. *Outlines.*—Along the northern boundary the land is gently rolling prairie, with many small hay marshes. The soil is first-class. The land along the eastern boundary is of the same character.—*J. L. P. O'Hanly*, D.L.S., 1880.

Sub-division.—The south-west corner of this township is cut off by the Pipestone Creek; the remainder is well adapted to stock-raising, owing to the numerous hay marshes. The soil is fairly good.—*Cotton and McAree*, D.L.S., 1880.

9. *Outlines.*—Along the southern boundary the land is gently rolling prairie, with many small hay marshes. The soil is first-class.—*J. L. P. O'Hanly*, D.L.S., 1880.

East, is a level prairie, interspersed with many small grassy ponds. The soil is of a first-class quality.—*J. L. P. O'Hanly*, D.L.S., 1879.

Sub-division.—Is open prairie, with the exception of a few poplar bluffs in the eastern part. The soil in the northern and western parts is a good loam, with clay sub-soil. In the eastern part it is light and sandy. The central portion of the township will require draining before being of any use for agricultural purposes. There are numerous grassy and other ponds.—*Milner Hart*, D.L.S., 1882.

10. *Outlines.*—Along the northern boundary it is rolling prairie. In section 33 there is a deep ravine, in which there is some small poplar and oak. In section 34 there are three deep ravines. The Assiniboine River passes through sections 35 and 36. There is a limited supply of small poplar along the river. The soil throughout is first-class.—*J. L. P. O'Hanly*, D.L.S., 1878.

East, is a rolling prairie, with sand hills in parts of sections 1, 12 and 13. The hills are timbered with small poplar and brush. The soil is of a first-class quality, except in the sandy hills.—*J. L. P. O'Hanly*, D.L.S., 1879.

Sub-division.—Rolling prairie, with a fair supply of hardwood timber, for settler's purposes, along the course of Assiniboine River. Plenty of good fresh water can be had in any part. The "Big Slough," a morass or old watercourse, traverses the whole of the south side of the township, which is crossed by the Canadian Pacific Railway. Soil, excellent, being a clay and sandy loam, mostly resting on a gravelly clay sub-soil; chiefly first class, with some second and third.—*R. W. Hermon*, D.L.S., 1882.

11. *Outlines.*—The Assiniboine River crosses the southern boundary of the township in section 1. Immediately above the river valley the country is rough and hilly, with gravel and sand. Section 2 is hilly, sandy and scrubby. In remaining sections the land is better, the soil being a sandy loam.

The country along the eastern boundary is of a similar character.—*A. C. Webb*, D.L.S., 1873.

Sub-division.—The general surface is very hilly, and broken by the valleys of the Assiniboine and Little Saskatchewan rivers, which traverse the township. The soil in the bottoms is of a rich quality, but a good deal of the uplands stony. The River Assiniboine is on an average three chains wide, in some places deep, and in others too shallow for large boats. The current is very slow. The valley in some places is about three miles wide. The Little Saskatchewan is about one chain in width, with a very strong current, affording some good mill sites. The banks are very steep, and in many places over 100 feet high. The only timber is along the banks of the rivers, and the greater part of that is small.—*James Warren*, D.L.S., 1873.

12. *Outlines.*—Along the northern boundary the country is a rolling prairie, with bluffs of poplar and willow scrub. The soil is a light sandy loam, with some gravel.

East, the country is an undulating and hilly prairie, sandy and gravelly in places. There are a few scattered bluffs of poplar and scrub.—*A. C. Webb*, D.L.S., 1873.

Sub-division.—The general surface of the northern and eastern parts is level prairie. The south-eastern part is broken by the Little Saskatchewan River, which presents many good mill sites, as its current is very rapid, and it has a large sup-

ply of water. The soil on the banks of the river is very stony, but in the northern part of the township it is good deep loam. There is a little timber along the banks of the river.—*James Warren*, D.L.S., 1873.

RANGE XXII.

7. *Outlines.*—Along the southern boundary it is level prairie, rolling in some places. Along the western boundary the land is rolling. The Souris River passes through sections 7 and 18. Everywhere the soil is first-class.—*J. L. P. O'Hanly*, D.L.S., 1880.

Sub-division.—Open prairie, traversed by the Souris River. There are a few marshes in the southern and northern parts. The land is well adapted to agriculture, and there is sufficient timber for settlers' requirements.—*Cotton and McAree*, D.L.S., 1882.

8. *Outlines.*—Along the western boundary the land generally is level, with many small hay marshes. Pipestone Creek passes through section 7. Along the northern boundary the character of the country is the same. The land is all first-class.—*J. L. P. O'Hanly*, D.L.S., 1880.

Sub-division.—Gently rolling prairie, well wooded, and watered by the Pipestone Creek and marshes. There are a number of small sand hills, on which grow a species of cactus. —*Cotton and McAree*, D.L.S., 1882.

9. *Outlines.*—In sections 6, 7 and 18 the land is slightly rolling, with many small hay marshes. The soil is second to fourth-class. In sections 19, 30 and 31 the soil is first-class. Along the southern boundary the county is level, with many small grassy ponds. The soil is first-class.—*J. L. P. O'Hanly*, D.L.S., 1880.

Sub-division.—Is almost all open prairie, with the exception of some small poplar on the southern parts of sections 5 and 6. The eastern portion is fairly good land, with clay subsoil. The south-western part is of indifferent quality, with sandy soil, and much broken by grassy ponds. A large slough or marshy lake lies in the north-west portion of the township, and the land to the north of this is of much better quality, and nearly all settled upon and improvements made.—*M. Hart*, D.L.S., 1882.

10. *Outlines.*—Along the northern boundary the land is first-class rolling prairie. The Assiniboine River passes through sections 34 and 35. Along the western boundary the land is all first-class.—*J. L. P. O'Hanly*, D.L.S., 1880.

Sub-division.—Rolling prairie, with good drainage. A fair supply of good hardwood timber for settlers' purposes is found along the Assiniboine River, and plenty of good fresh water can be obtained in any part. The "Big Slough" crosses the south-east corner of the township, and the above river the

northern part. The Canadian Pacific Railway traverses the south part. Soil excellent, being clay and sandy loam, with mostly sandy and gravelly sub-soil; generally first-class, with some second.—*R. W. Hermon*, D.L.S., 1882.

11. *Outlines.*—In the valley along the Assiniboine River the land is low, rich bottom land, with dense willow scrub in many places. On the high lands beyond the valley it is prairie, with gravel and stony hills; the soil is second and third-class. Along the western boundary the land is rolling and hilly. The soil is good, and well adapted for agricultural purposes.—*A. C. Webb*, D.L.S., 1873.

Sub-division.—The surface is generally prairie. The northern part is broken by deep ravines; in the middle there is a level flat about one mile in width; and the southern part is a broken, stony prairie. The soil is very good, being black loam, especially on the level flat, where it is deep and rich. It is well watered, nearly all the ravines containing water in springs and swamps. There is some very good poplar in the western sections, and some elm, oak and ash on the banks of the Assiniboine River, which flows through the south-east corner of the township.—*W. Otty*, D.L.S., 1873.

12. *Outlines.*—Along the western boundary the land is undulating, with many bluffs of poplar and willow scrub. The soil is a light sandy loam, with gravel in some places. The character of the country along the northern boundary is similar. The soil is first and second-class. Oak River passes through section 36, in a valley about 50 feet below the general level of the prairie.

Sub-division.—The surface is generally prairie, broken by deep ravines. The timber is dead and green poplar, a small quantity of which may be used for fencing, which is situated in the bottoms of the ravines. The soil is a good dark loam. Oak River, a stream about ten feet wide and one foot deep, traverses the township; but the water is dead, standing in ponds along the bed of the stream. Water may be had in any of the ravines by sinking from eight to ten feet.—*J. McG. Otty*, D.L.S., 1873.

CHAPTER XIX.

COUNTY OF DENNIS.

RANGE XXIII.

7. *Outlines.*—South and east, the surface is rolling prairie. The soil is of first-class quality. Souris River passes through sections 1, 12 and 13.—*J. L. P. O'Hanly*, D.L.S., 1880.

Sub-division.—Much of this township is broken by marshes and hay meadows; but there are a few sections of very fine arable land. It is traversed by Souris River and a small creek.—*Evans and Bolger*, D.L.S., 1881.

8. *Outlines.*—Along the eastern boundary the land generally is level, with many small hay meadows. Pipestone Creek passes through section 12. On the northern boundary it is more rolling, with small hay meadows and bluffs of poplar. The soil is all a first-class quality.—*J. L. P. O'Hanly*, D.L.S., 1880.

Sub-division.—Light soil, extensive hay marshes and abundance of good, pure water, render it better adapted for grazing than for agricultural purposes. There is a densely covered timber belt in the centre of the township.—*Evans and Bolger*, D.L.S., 1882.

9. *Outlines.*—In sections 1, 12 and 13 the land is slightly rolling, with many small hay meadows. The soil is second to fourth-class. In sections 24, 25 and 36 the soil is first-class.

South, rolling prairie; soil first-class. There are a number of scattered small hay swamps and bluffs of small poplar. —*J. L. P. O'Hanly*, D.L.S., 1880.

Sub-division.—The land for two miles along the southern side of the Assiniboine River is well adapted for agriculture. The remainder of the township is hilly and marshy, with bush in some parts.—*G. McPhillips*, D.L.S., 1880.

10. *Outlines.*—Along the eastern and northern boundaries the land is all of a first-class rolling prairie.—*J. L. P. O'Hanly*, D.L.S., 1880.

Sub-division.—Rolling prairie, with clumps of willow, poplar, etc. Nearly all the easterly part is taken up by an Indian reserve. There is a good deal of fine agricultural land and sufficient timber for the requirements of settlers.— *G. McPhillips*, D.L.S., 1880.

11. *Outlines.*—Along the eastern boundary the land is hilly and rolling. The soil is good, and well adapted for agricultural purposes. Along the southern boundary the land is rolling. The soil throughout is a good clay loam of first-class quality. —*A. C. Webb*, D.L.S., 1873.

Sub-division.—Is rolling prairie, broken by several ravines, from 50 to 100 feet deep. In most of the ravines good water can be had in ponds. The soil is a dark loam. There are a few groves of poplar in the northern part of the township, but the supply is very small.—*J. McG. Otty*, D.L.S., 1873.

12. *Outlines.*—Along the eastern boundary the land is undulating, with many bluffs of poplar and willow scrub. The soil is a light sandy loam, with gravel in places. Sections 36, 35, 34 and 33 are rolling prairie, with light clay loam soil. Sections 31 and 30 are rolling and hilly, with bluffs of poplar windfall, willow and other scrub.—*A. C. Webb*, D.L.S., 1873.

Sub-division.—The surface is rolling, partly prairie and partly woods. The soil is good. Good water can be obtained anywhere by digging a little depth.—*J. B. Richard*, D.L.S., 1873.

RANGE XXIV.

7. *Outlines.*—Alternately sand ridges, muskegs, and rolling sandy land, with bluffs of poplar. There are also a number of scattered grass swamps. Plum Lake, in the northern portion of the township, is surrounded by hay meadows. The soil is of second and third-class quality.—*W. Pearce*, D.L.S., 1880.

Sub-division.—Sandy soil, covered with willow clumps and poplar brush. Some parts are cultivable. There is a long narrow lake towards the north, an enlargement of Plum Creek.—*Evans and Bolger*, D.L.S., 1881.

8. *Outlines.*—The portion not occupied by Oak Lake has a number of sandy ridges and swamps, and occasional bluffs of poplar. The soil is of second and third-class quality.—*W. Pearce*, D.L.S., 1880

Sub-division.—Contains the larger portion of Oak Lake. Much broken by sloughs and ponds. Traversed by Plum Creek. Some of the sections are good arable land. There is plenty of game in season.—*Evans and Bolger*, D.L.S., 1881.

9. *Outlines.*—The surface is alternately ridges, with very light soil, and in some places sand and hay meadows. There are a few scattered bluffs of poplar. The soil is of a second and third-class quality.—*W. Pearce*, D.L.S., 1880.

Sub-division.—The Assiniboine River runs south-easterly through sections 34, 35 and 36. For about two miles south of the river the soil is of fair quality, being a sandy loam. South of this a large swamp extends across the township. In width the swamp is from two to three miles.

The timber along the river is chiefly ash and elm. In narrow belts back of this timber, swamps or hay lands extend to near the slopes of the prairie level. Along these slopes, oak and poplar, with a dense underbrush, are found. There are a number of sand hills, and at intervals on the prairie are clumps of poplar, hazel, willow, etc.—*Geo. McPhillips*, D.L.S., 1880.

10. *Outlines.*—Along the northern boundary the surface is an undulating prairie, with a light clay loam soil of first and second-class quality.—*J. L. P. O'Hanly*, D.L.S., 1880.

Sub-division. The Assiniboine River flows south-easterly through the township,and there is a fair quantity of timber along its valley. The soil is good. A creek runs diagonally through the township.—*Geo. McPhillips*, D.L.S., 1880.

11. *Outlines.*—Along the southern and western boundaries the surface is an undulating prairie, with a light clay loam soil of first and second-class quality.—*A. C. Webb*, D.L.S., 1873.

Sub-division.—Two ridges, about 20 chains in width and 50 feet in height, traverse the township from north to south. The soil on these ridges is hard and gravelly, but elsewhere it is of the finest quality. There is no running water. Two beautiful small lakes, surrounded by woods, lie in the southerly part; but the water being salty, is useless for domestic purposes. Excellent water can, however, be found in several parts, by digging from four to eight feet deep. The absence of wood is the greatest objection to the settlement of this township.—*J. B. Richard*, D.L.S., 1873.

12. *Outlines.*—It is high, rolling, and in some places a hilly prairie along the northern boundary. In section 36 there are some bluffs of poplar.

West, is a rolling prairie. The soil along both boundaries is of first-class quality.

Sub-division.—The surface is generally rolling prairie, almost without wood, excepting a few scattered groves of poplar, chiefly in the north-east part. The soil is a deep dry loam, free from stones, and is well adapted for agricultural purposes —*J. B. Richard*, D.L.S., 1873.

RANGE XXV.

7. *Outlines.*—Alternately sand ridges and marsh; rolling sandy land, with bluffs of poplar, willow and hay swamps. There is an impassable swamp, partly in sections 23 and 10. Soil, second and third-class.— *W. Pearce*, D.L.S., 1880.

Sub-division.—Open prairie, with clumps of poplar in the south; towards the north the surface is broken with a number of sloughs and marshes, but there are some sections of excellent land.—*Evans and Bolger*, D.L.S., 1880.

8. *Outlines.*—Is sand ridges and muskegs where not occupied by Oak Lake; there are some good hay lands and rolling prairie. Soil, generally second-class.— *W. Pearce*, D.L.S., 1880.

Sub-division.—Traversed by Pipestone Creek; along Oak Lake there are one or two large sloughs, from which excellent hay can be obtained; towards the north there are a few clumps of poplar. The soil is a good black loam.—*Evans and Bolger*, D.L.S., 1880.

9. *Outlines.*—Along the southern boundary it is a rolling prairie, with sand ridges and hay swamps. Oak Lake occupies parts of sections 1 and 2. The soil is of second-class quality.—*W. Pearce*, D.L.S., 1880.

Sub-division.—The northern part of the township is broken by sand hills, covered with a thick growth of stunted oak and poplar; seventy-five per cent. of the land is good for settlement.—*F. Bolger*, D.L.S., 1880.

10. *Outlines.*—North and east is an undulating prairie, with occasional bluffs of poplar. The soil, generally, is of first-class quality.—*J. L. P. O'Hanly*, D.L.S., 1880.

Sub-division.—Well adapted for sheep-raising, but almost equally well for cultivation; the Assiniboine River and Boss Hill Creek run through the township; there is plenty of timber for all ordinary requirements of settlers.—*F. Bolger*, D.L.S., 1880.

11. *Outlines.*—Along the eastern boundary it is a rolling prairie. The soil is a clay loam of a first-class quality. The Assiniboine River flows through the township. There is very rich bottom land along the valley of the river; the valley is from half to one mile in width, the banks on either side varying from 100 to 300 feet in height. A fringe of bush follows the river on either side, consisting of oak, elm, ash and other kinds of valuable timber for building and other purposes.—*A. C. Webb*, D.L.S., 1873.

Sub-division.—Undulating prairie, rather marshy in places. The land improves in quality as it approaches the Assiniboine River, and some parts is well wooded.—*W. Wagner*, D.L.S., 1871.

12. *Outlines.*—Along the northern and eastern boundaries it is an undulating prairie, with a light clay loam soil of a first-class quality.—*A. C. Webb*, D.L.S., 1873.

Sub-division.—Is situated on the eastern side of the Assiniboine River; it has a rolling surface. The western part is broken by deep ravines running towards the river; in these ravines there are poplar and birch not exceeding five inches in diameter; in the valley of the river there are some elm and poplar, with a few ash, not exceeding one foot in diameter. The soil of the valley is a rich loam; generally, the township has a rolling surface.—*J. H. Reiffenstein*, D.L.S., 1873.

RANGE XXVI.

7. *Outlines.*—Is rolling prairie, with grassy meadows. The northerly half of the township has a very good soil.—*W. Pearce*, D.L.S., 1880.

Sub-division.—Traversed by Pipestone Creek; the land generally is first-class, although towards the south it grows lighter, and the grass is short and stunted. The water is

very good. There are two or three clumps of building timber in sections 27 and 34.—*Evans and Bolger*, D.L.S., 1881.

8. *Outlines.*—Is a rolling prairie, with numerous small hay meadows. The soil is a light sandy loam; it will average second-class land.— *W. Pearce*, D.L.S., 1880.

Sub-division.—Traversed by Pipestone Creek. There is a large slough in the north-eastern corner. Generally, the land is rich and heavy, but better adapted for grazing than tillage. —*Evans and Bolger*, D.L.S., 1881.

9. *Outlines.*—Sections 1 and 2 are mostly covered with muskegs and hay swamps; 3 and 4, level prairie; 5 and 6, rolling prairie. Along the western boundary it is an undulating prairie. The soil throughout is light, and of a second-class quality.— *W. Pearce*, D.L.S., 1880.

Sub-division.—Level prairie. The soil is fairly good, and there is an abundance of hay and water in the marshes.—*F. Bolger*, D.L.S., 1880.

10. *Outlines.*—Along the western boundary it is prairie, with a light clay soil, intermixed with gravel in places.— *W. Pearce*, D.L.S., 1880.

Sub-division.—Excellent farming land. Boss Hill Creek runs through the township. Deposits of salt and soda are found in places.—*F. Bolger*, D.L.S., 1880.

11. *Outlines.*—South and west, is a rolling prairie, with sandy loam soil of first-class quality, excepting in a few places, where it is rather gravelly and stony.—*A. C. Webb*, D.L.S., 1880.

Sub-division.—Is well adapted for agricultural purposes.—*W. Wagner*, D.L.S., 1881.

12. *Outlines.*—Along the western boundary it is a rolling prairie, with occasional ponds of water. The soil is a sandy loam, though rather gravelly in places. Good land for farming purposes.—*A. C. Webb*, D.L.S., 1880.

Sub-division.—The north-eastern part is cut off by the Assiniboine River. The land is very good, but stony in places, and there is a great deal of brush.— *W. Wagner*, D.L.S., 1881.

RANGE XXVII.

7. *Outlines.*—South and east, is a rolling prairie, interspersed with small sloughs. The soil is a light sandy loam of a second-class quality. Pipestone Creek flows through this township; the quality of its water cannot be surpassed.— *W. Pearce*, D.L.S., 1880.

Sub-division.—Open prairie, traversed by Pipestone Creek; along its banks there is a belt of timber, consisting of oak, elm and some poplar. The soil, generally, is good. There is an abundant supply of hay and water.— *W. Wagner*, D.L.S., 1880.

8. *Outlines* —Is a rolling prairie, interspersed with many small grassy ponds. There are a few gravelly ridges, the summits of which are stony. The soil is second-class.— *W. Pearce*, D.L.S., 1880.

Sub-division.—Rolling prairie, with many swamps and hay marshes. The soil is good. Pipestone Creek passes through the south-western portion of the township, and a little wood grows along its banks.— *W. Wagner*, D.L.S., 1880.

9. *Outlines.*—Is rolling prairie, interspersed with many small grassy ponds. There are a few gravelly ridges, the summits of which are stony. The soil is second-class.— *W. Pearce*, D.L.S., 1880.

Sub-division.—Open prairie, with no wood of any kind, the surface being generally undulating. Many small ponds occur; they contain good water, in which grass is growing, and mostly dry during the summer. A small stream, which is a branch of Gopher Creek, runs easterly across the township. It had good water in June, but would probably be dry as the summer advanced. The Moose Mountain trail crosses the township. The soil is very good, being black clay loam, from six to eight inches deep, with a clay sub-soil; rated second-class on account of the numerous ponds.—*James Warren*, D.L.S., 1882.

10. *Outlines.*—Is an undulating prairie, with many small grassy ponds. The soil is rather sandy and gravelly in places.— *W. Pearce*, D.L.S., 1880

Sub-division.—Undulating prairie, watered by Gopher Creek and two other small creeks. The banks of these are all very high, and in the bottom flats is a good deal of hay land. Water generally is good. Soil from six to ten inches deep, of rich alluvial deposit, being black clay loam, with a clay sub-soil.—*James Warren*, D.L.S., 1882.

11. *Outlines.*—South and east, is generally a rolling prairie, rather hilly in places. The soil is a sandy loam of first and second-class quality —*A. C. Webb*, D.L.S., 1880.

Sub-division.—Undulating prairie; good soil; well adapted for farming. Water can be obtained by sinking a few feet.— *W. Wagner*, D.L.S., 1881.

12. *Outlines.*—North and east, is a rolling prairie, with occasional ponds of water. The soil is a sandy loam, and rather gravelly in places. Good land for farming purposes.—*A. C. Webb*, D.L.S., 1880.

Sub-division.—Undulating prairie; good soil; very few marshes.— *W. Wagner*, D.L.S., 1881.

RANGE XXVIII.

7. *Outlines.*—South and west, is a gently rolling prairie, rather stony. There are a number of scattered grassy ponds. The soil, generally, is a clay loam. A small creek passes through

section 4 ; the water is about three feet deep, with no perceptible current.— *W. Pearce*, D.L.S., 1880.

Sub-division.—Rolling prairie. Hay and water in the sloughs and marshes. The soil is of excellent quality.— *W. Wagner*, D.L.S., 1880.

8. *Outlines.*—Is generally a rolling prairie, with many gravel ridges, the summits of which are usually stony ; interspersed with many small grassy ponds. The soil is rated at second-class. Pipestone Creek traverses this township, affording a quality of water that cannot be surpassed.— *W. Pearce*, D.L.S., 1880.

Sub-division.—Rolling prairie. The north-eastern part is crossed by Pipestone Creek. The soil is very good and deep. — *W. Wagner*, D.L.S., 1880.

9. *Outlines.*—Is generally a rolling prairie, with many gravelly ridges, the summits of which are stony. There are many small grassy ponds throughout the township. The soil is second-class. Pipestone Creek, fifty feet wide, passes through the township ; the quality of its water is excellent.— *W. Pearce*, D.L.S., 1880.

Sub-division.—Nearly all open prairie, with a great many small ponds. Pipestone Creek runs through the north-western corner ; it is a large stream with a slow current, and in many places over ten feet deep, its water being very good. Along its banks are a few trees, and on section 3 are about forty acres of small timber that might be used for logs for building. The soil is from six to ten inches deep, with a clay sub-soil, especially good in the part sloping towards the creek, but on its southern side very stony and hard ; chiefly first and second-class, with some third.—*James Warren*, D.L.S., 1882.

10. *Outlines.*—Is rolling prairie, with gravelly ridges and numerous small grassy swamps and ponds. The soil is second-class.— *W. Pearce*, D.L.S., 1880.

Sub-division.—All open prairie ; the surface, generally, is undulating, and in some places hilly. Two small streams were running in July, but seemed likely to dry up as the summer advanced. They meander through deep valleys or ravines, affording excellent facilities for drainage. Many small ponds occur, in which, as well as in the streams, the water is good. Soil, on the whole, is very good, being from five to eight inches in depth ; chiefly second, with some first and third-class.— *James Warren*, D.L.S., 1882.

11. *Outlines.*—Sections 1, 2, 3 and 4 are prairie land, considerably broken by hills and ravines. The land is stony and gravelly. Sections 5 and 6 are rolling prairie, with sandy loam soil of a first-class quality.

Along the western boundary it is a hilly prairie, with some groves of willow scrub. Good grazing land. Soil, a sandy loam, of first and second-class quality.—*A. C. Webb*, D.L.S., 1880.

Sub-division.—Rolling prairie. The soil is deep, rich black loam, with clay sub-soil. The land is well drained into old watercourses.—*W. Wagner*, D.L.S., 1881.

12. *Outlines.*—North and west, is a rolling prairie, with many small grassy ponds. The soil is a sandy clay loam of first and second-class quality.—*A. C. Webb*, D.L.S., 1880.

Sub-division.—Rolling prairie; a few swamps in the hollows. There is little or no timber; otherwise the land is well adapted for settlement.—*W. Wagner*, D.L.S., 1881.

RANGE XXIX.

7. *Outlines.*—South and east, is rolling prairie, with a number of gravelly ridges, the summits of which are stony. The soil is rather light.—*W. Pearce*, D.L.S., 1880.

North and west, rolling land, with many small grassy ponds. The soil is second-class.—*J. L. P. O'Hanly*, D.L.S., 1880.

Sub-division.—Open prairie. Two creeks traverse the township from north to south. The soil is a clay loam, about six inches deep generally, although in some sections it is much deeper; clay sub-soil. This township is better adapted for stock-raising than agriculture.—*F. W. Wilkins*, D.L.S., 1881.

8. *Outlines.*—Is rolling prairie, with many small grassy ponds. The soil is generally good throughout the township.—*W. Pearce*, D.L.S., 1880.

South and east, the surface is rolling, with a number of gravelly ridges, the summits of which are stony.—*J. L. P. O'Hanly*, D.L.S., 1880.

Sub-division.—Open prairie. Two creeks traverse the township from the north to south. The soil is a clay loam, with clay sub-soil. The water is everywhere good, and the pasturage excellent; would be better adapted for stock-raising than for agriculture.—*F. W. Wilkins*, D.L.S., 1881.

9. *Outlines.*—Is generally a rolling prairie, with many gravelly ridges, the summits of which are stony. There are many small grassy ponds throughout the township. The soil is of a second-class quality.—*W. Pearce*, D.L.S., 1880.

Sub-division.—Rolling prairie. The soil is sandy and gravelly on the hills, blacker and more friable in the valleys. There are a few small bluffs of poplar along Pipestone Creek. Abundance of hay and fresh water.—*P. R. A. Belanger*, D.L.S., 1881.

10. *Outlines.*—Rolling prairie, with many small ponds, gravelly ridges, and bluffs of willow. The soil is third-class. Pipestone Creek passes through this township; the stream is about fifty feet wide; the quality of the water is excellent.—*W. Pearce*, D.L.S., 1880.

Sub-division.—Undulating prairie, dotted with small bunches of poplar and shrubbery, and traversed by Pipestone Creek. The soil is generally a sandy loam, without stones.—*P. R. A. Belanger*, D.L.S., 1881.

11. *Outlines.*—East and south, is a rolling and in some places hilly prairie, with bluffs of willow and poplar scrub. There is some very good grazing land. The soil is a sandy loam of a first-class quality.—*A. C. Webb*, D.L.S., 1880.

Sub-division.—Chiefly rolling prairie, with a small quantity of building timber in the various groves of poplar, though the wood is mostly fit only for fencing or fuel. The land is much broken by small marshes, containing good water. There are also some small streams of good fresh water, which probably run dry in summer. The marshes could be drained into the ravines through which these streams run. Soil, a rich clay loam, mixed with limestone gravel on the ridges, and in many places scattered granite boulders, useful for building purposes; generally first-class.—*E. C. Caddy*, D.L.S., 1881.

12. *Outlines.*—North and east, is a rolling prairie, with many small grassy ponds. The soil is a sandy loam, mostly of a first-class quality.—*A. C. Webb*, D.L.S., 1880.

Sub-division.—This township is of similar description to the preceding one.—*E. C. Caddy*, D.L.S., 1881.

CHAPTER XX.

County of Westbourne.

It may be said that the region between Riding Mountain and Lake Manitoba, in the direction of Ebb and Flow Lake and south of that body of water, is but recently drained or in process of draining, being removed from the surface of Ebb and Flow Lake by a very few feet and covered with water to a large extent in the spring. At present it consists of marsh, bog and ridge, in continued succession. When completely drained the country will resemble the present prairies of the Assiniboine, with the gentle rich depressions, and the low, dry, gravelly ridges.

Manitoba House is very prettily situated near the narrows of the lake. Immediately before it is a cluster of low islands, on which some fine ash-leaved maple and elm grow; they are the favourite camping grounds of the Indians who hunt and fish in the country about Lake Manitoba. The land in rear of the house is stony, but good, and there is an area of many thousands of acres in extent, well adapted for a settlement. The timber, consisting almost altogether of aspen on the main land, is of fair dimensions, trees from twelve inches to fifteen inches in diameter being common. Near the post, but on the opposite side of the lake, there is a considerable quantity of balsam, spruce and tamarack. There are no rock exposures visible near the post.

I visited the marshes at the mouth of Ebb and Flow Lake, and the country in rear of the post. Its extraordinary features are shown by the great expanse of marsh about the islands, and along the coast north of the Hudson Bay Company's post. At the narrows the straits are not more than three or four miles across, studded with low islands, and on the east side the coast is indented with deep bays. The strait is shallow, twenty-one feet of water close to the narrows being the greatest depth recorded.

The prairie drained by White Mud River is second only in beauty and fertility to the valley of Rapid River*. Not only is the herbage of surprising luxuriance, but the trees in the river bottoms are of very large dimensions, and consist of oak, elm, ash, maple, aspen and poplar. The woods fringing the river at the crossing place are very important. The oak and elm are of the largest size—2 feet to 2 feet 6 inches in diameter—with tall, clean trunks. The hop and vine twine around the underbrush, and give a very attractive appearance to the belt of woods.—*Henry Youle Hind*, 1858.

*The Rapid River referred to is the Little Saskatchewan River, which flows through the County of Minnedosa.

RANGE VIII.

16. *Outlines and Sub-division.*—Is a small fractional township, containing about six sections of land, most of which is timbered with poplar; there is some good oak here and there. The soil is of a good quality. A large marsh, from 3 to 40 chains wide, intervenes between the dry land and Lake Manitoba.—*C. P. Brown*, D.L.S., 1873.

17. *Outlines and Sub-division.*—Is a fractional township, containing about 800 acres of dry land, part of which is timbered with poplar and oak, and the balance is hay land. A large marsh borders the township, along the lake shore.—*C. P. Brown*, D.L.S., 1873.

RANGE IX.

13. *Outlines.*—South, the land is low, level and swampy, affording excellent hay. The soil is a clay loam of a first-class quality.—*A. C. Webb*, D.L.S., 1871.

East, a low, level prairie, suitable only for pasture. The White Mud River flows through the northern portion of the township.—*Milner Hart*, D.L.S., 1871.

Sub-division.—White Mud River runs through the northern quarter of the township, and is bordered on its banks, at the south side with oak chiefly, and on its northern side with oak and poplar forest, interspersed with willow.

The soil north of the river is of a light, loamy character. Most of it is covered with timber or brush. The south side, excepting about half-a-mile back, is wet, and without drainage can only be used in a very dry season.—*W. Wagner*, D.L.S., 1871.

14. *Outlines.*—North, the land along the shore of Lake Manitoba is covered with water, reeds and rushes, as far as the eastern boundary of section 34; thence west it is rather low, with bluffs of poplar and clumps of willow. The soil is a sandy loam of a first-class quality.—*A. C. Webb*, D.L.S., 1871.

East, a rolling prairie, with oak woods along White Mud River and Rat Creek, and occasional hay marshes. The soil is a rich clay loam of a first-class quality.—*Milner Hart*, D.L.S., 1871.

Sub-division.—This township is well suited for agricultural purposes. The timber is chiefly small poplar, through which frequent fires have passed. It is in general valuable only for roofing houses and firewood; but towards the north there is some fit for the manufacture of lumber.—*F. H. L. Staunton*, D.L.S., 1872.

15. *Outlines.*—South, in section 1 and part of 2, and along the banks of White Mud River, it is marshy hay land and muskeg; the remaining sections along this boundary are dry, with numerous bluffs of poplar, willow scrub and occasionally a

small hay marsh. The soil is stony and gravelly in places, and is of a second-class quality.—*Milner Hart*, D.L.S., 1871.

Sub-division.—Lies on the western shore of Lake Manitoba. A deep marsh with reeds and rushes borders the lake. The remainder of the township is timbered with poplar and willows. The soil appears to be mixed with shale and gravel. —*C. P. Brown*, D.L.S., 1873.

16. *Outlines and Sub-division.*—The soil, although shallow, is of very good quality, especially on the lake shore, where there is some excellent hay land. Along the southern and western boundaries first-class poplar is to be found in considerable quantity. The greater part of the rest of the township is covered with dead poplar, interwoven with willow brush, together with occasional bluffs of green poplar. In the west there are numerous very bad muskegs.—*C. P. Brown*, D.L.S., 1873.

17, 18, 19, 20. The general character of the country in these townships is similar to that in the preceding township.—*C P. Brown*, D.L.S., 1873-74.

RANGE X.

13. *Outlines.*—South, sections 1, 2 and 3 are low and level, with clumps of willow scrub. The soil is clay and sandy loam. In sections 4, 5 and 6 the land is high, and covered with poplar, scattered oak and poplar, with willow underbrush. The soil is sandy, and of a second and third-class quality.

West, is covered with very thick poplar and windfall, with heavy underbrush, except the north-west quarter of section 19, where there is an impassable bog, with deep water, rushes and reeds. The soil is of a third-class quality.—*A. C. Webb*, D.L.S., 1871.

Sub-division.—The northern half is a large floating bog. The southern, although wet in the spring, is dry in the summer. The timber is mostly poplar, with a few oaks and elms. The water in Squirrel Creek, which flows through the south-westerly part, is very good, and the land on its banks is fertile.—*C. P. Brown*, D.L.S., 1873.

14. *Outlines.*—North, is a rolling prairie, with gravelly and stony ridges, and occasional bluffs of poplar and scrub willow. The soil is of a second-class quality.

West, is alternately low hay land and rolling prairie, with occasional bluffs of poplar. The soil is of a first and second-class quality.—*A. C. Webb*, D.L.S., 1871.

Sub-division.—This township offers great inducement to the settler. Its soil is in most places a very rich and deep black mould, resting on a marl sub-soil.

There is plenty of timber for fencing and fuel. For building purposes, good poplar and oak timber may be obtained

along the banks of White Mud River.—*F. H. L. Staunton*, D.L.S., 1872.

15. *Outlines.*—South, an undulating prairie, with small clusters of poplar and willow. There are a number of gravelly and stony ridges. The soil is of a second and third-class quality.

The western boundary runs through the Big Grass Muskeg.—*Milner Hart*, D.L.S., 1871.

Sub-division.—The western part is broken by the Big Grass Marsh. The remainder is land of a second-class quality, near the marsh being alternate ridges of gravel and long narrow muskegs. To the eastward it is better, but not first-class for farming purposes. Near the north-east corner there is some fine poplar timber.—*C. P. Brown*, D.L.S., 1873.

16. *Outlines and Sub-division.*—The surface, soil and timber are the same as in the foregoing township.—*C. P. Brown*, D.L.S., 1873.

17. *Outlines and Sub-division.*—Like the other townships in the vicinity, is composed of bluffs of green poplar and small patches of hay land, and of poplar woods which were burnt over some years ago. To the west is Big Grass Marsh, along the edge of which is some excellent hay land. The soil, though perhaps not superior to arable land, would be well adapted for pasturage.—*C. P. Brown*, D.L.S., 1873.

18. *Outlines and Sub-division.*—There is a large muskeg or marsh lying in a north-westerly direction through the whole length of the centre of the township, and another one in the eastern part, with several small ones here and there. These muskegs or marshes occupy about one-quarter the area of the township. The remaining portion of the township is generally timbered with poplar, much of which, however, has been burnt. The soil is shallow.—*C. P. Brown*, D.L.S., 1873.

19. *Outlines.*—West, the surface is covered with poplar woods, alternately with patches of marsh. The land is of a third-class quality.—*Edgar Bray*, D.L.S., 1873.

Sub-division.—Is thickly wooded, chiefly with poplar and some spruce and willows, with thick underbrush. The land lies low and wet in places, with frequent marshes. The timber would be useful for fuel and fencing. The township is not well adapted for agricultural purposes.—*C. P. Brown*, D.L.S., 1873.

20. *Outlines.*—West, is alternately poplar woods, muskeg and marsh. The poplar is dead in many places, and a dense growth of young poplar is now growing up. The land is of a second and third-class quality.

Sub-division.—This township lies to the west of Lake Manitoba, and for two or three miles inland the timber is excellent. Further to the west it consists more of good green bluffs, interspersed among burnt timber, brush and wind-

fall. The soil is of fair quality.—*C. P. Brown*, D.L.S., 1874.

21. *Outlines and Sub-division.*—The surface is nearly all covered with poplar of a fair quality, but much of it has been destroyed by fires.

The strip of open country along Lake Manitoba is composed of hay land on the side next the woods, and of marsh, with tall reeds, along the lake. During high water the whole of this strip of open country is covered with water.

The soil is of fair quality, averaging a depth of about eight inches of black loam, with a sandy clay sub-soil.—*Geo. McPhillips*, D.L.S., 1886.

23. *Outlines and Sub-division.* — Along the shore of Lake Manitoba there is a marsh extending back to the woods a distance of about twenty chains. The woods are chiefly poplar, with a dense growth of willow and underbrush. The timber is only suitable for firewood and fencing.

The soil amongst the timber is of fair quality, and when cleared would be good for farming purposes.—*Geo. McPhillips*, D.L.S., 1886.

24. *Outlines and Sub division.*—With the exception of a marsh crossing sections 7 and 18, on the water frontage, this fractional township west of the Narrows of Lake Manitoba is, in general, high lands for this vicinity, being some eight feet above the level of Lake Manitoba, but, like the rest of this part of the country, has only a few inches of vegetable soil, covering limestone gravel with occasional outcrops of limestone. In general, the township is covered with a heavy growth of poplar, a considerable portion of which is of sufficient size for fuel and building timber. On the north there is a growth of scrub oak and some birch. Recent fires have killed most of the timber.—*A. H. Macdougall*, D.L.S., 1887.

RANGE XI.

13. *Outlines.*—East, is covered with very thick poplar and windfall, with heavy underbrush, excepting the north-east quarter of section 24, where there is an impassable bog, with deep water, rushes and reeds. The land is of a third-class quality. —*A. C. Webb*, D.L.S., 1871.

South, is all timbered with poplar, dense willow and scrub. There are some heavy elm, ash and oak woods in section 2, along the banks of a creek.—*A. C. Webb*, D.L.S., 1872.

Sub-division.—The soil of this township is mostly sandy loam. Towards the south the land is too wet and low to be of much use unless drained. The surface is gently undulating.

The township is well timbered, and along Pine Creek offers some inducements for settlement. Good water can be obtained by digging from six to twelve feet down. The sub-

soil contains quicksand in places.—*Hermon and Bolton*, D.L.S., 1873.

14. *Outlines.*—North and east, rolling prairie, with bluffs of poplar, brush and some maple along the banks of White Mud River. There are a number of hay marshes throughout the township. The Big Grass Marsh encroaches on sections 34, 35 and 36. The land generally is of a first-class quality.—*A. C. Webb*, D.L.S., 1871.

Sub-division.—Is well suited for settlement. The soil is excellent. Water is abundant and good. Timber is plentiful, and distributed in belts and groves all through the township.

White Mud River flows through the north-westerly portion of the township. A chain of small lakes, known as Dead Lake, the water of which is good, stretch along the southern part.—*Hermon and Bolton*, D.L.S., 1873.

15. *Outlines.*—South, sections 1, 2 and part of 3 are low and marshy hay land: the remaining three and a-half sections are excellent high prairie lands, with a rich loam soil of first-class quality. There are occasional clumps of poplar, with a belt of maple and ash along the banks of White Mud River, which flows through section 4.

East, the lands along this boundary are all marsh.—*Milner Hart*, D.L.S., 1871.

Sub-division.—The westerly portion is well adapted for agricultural purposes, having excellent hay land. Portions of this part are covered with clumps of willow bushes and poplar. The eastern portion of the township is very marshy, and unfit for settlement in its present state.—*C. P. Brown*, D.L.S., 1872.

16. *Outlines.*—The land along the north boundaries of sections 31 and 32 is a first-class level prairie. Soil, a sandy loam. The north boundaries of sections 34, 35 and 36 were not run, owing to an impassable muskeg.—*John McLatchie*, D.L.S., 1872.

Sub-division.—The north-westerly part is mostly prairie; the south-westerly, alternate clumps of willow, poplars and patches of prairie. Good soil for agricultural purposes. Nearly the whole eastern half of the township lies in a marsh, which, if drained, would produce an immense quantity of hay land.—*C. P. Brown*, D.L.S., 1872.

17. *Outlines.*—The westerly portion of this township is a level prairie. The soil is a first-class sandy loam. The eastern half is a marsh.—*John McLatchie*, D.L.S., 1872.

Sub-division.—The easterly half lies within Big Grass Marsh. The westerly part is a beautiful prairie. The northerly portion is traversed by Big Grass River, whose banks are timbered with thick oak, elm, maple, &c., providing a considerable quantity of wood for fuel and other purposes, and making the township a desirable location for the intending settler.—*C. P. Brown*, D.L.S., 1873.

18. *Outlines and Sub-division.*—Is principally covered with poplar and thick willow brush. The land in the south-western part is good, but the rest of the township cannot be recommended for settlement. In the north-eastern part there are some bad muskegs. The Big Grass Marsh covers the four south-eastern sections.—*C. P. Brown*, D.L.S., 1873.

19. *Outlines.*—East and south, is alternately poplar woods and marsh. The land is of a third-class quality.—*Edgar Bray*, D.L.S., 1873.

Sub-division.—Contains a large number of muskegs, covered with reeds. The rest of the township is timbered with fine spruce and poplar, much of which is large enough for saw-logs. A considerable portion of the timber has been destroyed by fire. The soil is of fair quality, and along the margins of the muskegs there is some good hay land.—*C. P. Brown*, D.L.S., 1874.

20. *Outlines.*—North and east, is alternately poplar woods, muskeg and marsh. The poplar is dead in many places. The land is of a second and third-class quality.—*Edgar Bray*, D.L.S., 1873.

Sub-division.—Is timbered with poplar and spruce, much of which is suitable for the manufacture of lumber. There are many small muskegs, on the borders of which there is a considerable quantity of hay land. The soil is only of a medium quality.—*C. P. Brown*, D.L.S., 1874.

21. *Outlines.*—South, is alternately poplar woods, muskegs and marsh. The land is gravelly, and of a third-class quality.—*Edgar Bray*, D.L.S., 1873

22. *Outlines.*—North, is generally covered with poplar and spruce woods, and occasional scrubby prairie and hay meadow. This boundary intersects Ebb and Flow Lake in sections 34 and 35 and Lake Manitoba in section 36. The soil is of a second-class quality.—*Hermon and Bolton*, D.L.S., 1875.

Sub-division.— This township is nearly all covered with poplar woods, a considerable portion of which has, however, been destroyed by fire.

In the south-western part there is a chain of marshes, supposed to be a continuation of Big Grass Marsh ; marsh land overgrown with tall reeds extends through sections 34, 35 and 36, along the shores of Lakes Manitoba and Ebb and Flow. The land may be rated as second-class.

The lands along the lakes are well suited for stock-farms, as there is plenty of hay and water and good shelter in the adjoining woods. The settlement of Manitoba House is situated in this township.—*George McPhillips*, D.L.S., 1886.

23. *Outlines and Sub-division.*—The land along the lake is marshy, the width of the marsh varying from a few chains to nearly a mile ; in rear of the marsh the township is timbered with poplar and spruce, with a limited amount of tamarack.

The soil in the wooded portion is of fair quality and will make good farming land.—*Geo. McPhillips*, D.L.S., 1886.

24. *Outlines and Sub-division.*—The northern part of this township contains some good arable land, but the greater portion is poor, there being but a few inches of vegetable mould on the surface covering the limestone gravel which prevails throughout this vicinity. In many places the solid limestone rock comes to the surface.

In general the township is timbered with poplar of a sufficient size for fuel.—*A. H. Macdougall*, D.L.S., 1887.

25. *Outlines and Sub-divisions.*—There is some good arable land scattered through this township, but most of it is chiefly second-class, with a large area of marsh, particularly through the central portion and on the water frontage, the whole surface is covered by a few inches of vegetable mould, generally covering limestone gravel.

In general the township is timbered with poplar of a sufficient growth for fuel; recent fires have killed most of the timber in the western part and in a few places in the eastern. This township will make excellent grazing ground; although there is no running water, several large bogs project into it, and with a few small lakes afford ready access to water from all parts.—*A. H. Macdougall*, D.L.S., 1887.

26. *Outlines and Sub-division.*—This township is mostly marshy, with a little meadow and timber in the south-east corner. The timber is poplar of considerable size; towards the eastern boundary stumps and logs, scattered through the meadow land, show the remains of what has once been an oak forest, now represented by a few scrub oak. A few small lakes are in the marshy portion of the township. The soil is a black sandy loam of a second-class quality.—*A. H. Macdougall*, D.L.S., 1887.

RANGE XII.

13. *Outlines.*—South, the surface is nearly level; it is low and wet. There are many bluffs of poplar, willow and other scrub. There are many marshes and muskegs. The soil is of a third-class quality.

West, is low sandy land, slightly rolling, with bluffs of heavy poplar woods with dense willow scrub. There are many small muskegs and hay swamps.—*A. C. Webb*, D.L.S., 1872.

Sub-division.—The soil is generally very good, being of a sandy loam character. The entire surface is covered with dense scrub, with poplar in some parts.

Good water can be obtained in abundance, both by digging and from small creeks. The south-western part is low, and swampy. Several belts of low land stretch in different directions through the township.—*Hermon and Bolton*, D.L.S. 1873.

14. *Outlines.*—North, sections 35 and 36 are rolling prairie, with occasional patches of willow scrub. The soil is of a first-class quality. The remaining four sections are covered with a growth of poplar and willow brush, with occasional glades of prairie and small tracts of hay land. The soil is sandy, and of a second and third-class quality.—*A. C. Webb*, D.L.S., 1871.

West, an undulating prairie, with bluffs of poplar and low scrub. Soil, a sandy loam of a third-class quality. White Mud River flows easterly through section 18.—*A. C. Webb*, 1872.

Sub-division.—This township is well adapted for settlement. The soil is a rich loam, mostly dry and arable. White Mud River flows across the township from west to east. The water is of excellent quality. Timber is abundant, suitable for building and fencing purposes—*Herman and Bolton*, D.L.S., 1875.

15. *Outlines.*—South, undulating prairie land, with numerous bluffs of poplar, and an occasional small hay marsh. The soil is of first and second-class quality.—*Milner Hart*, D.L.S., 1871.

West, is a high, dry prairie, excepting section 6, which is rather marshy. There are many bluffs of poplar scattered throughout. The soil is a second-class sandy loam.—*John McLachie*, D.L.S., 1872.

Sub-division.—Is generally adapted for agricultural purposes. In the south-western corner there is a considerable quantity of wood land.—*C. P. Brown*, D.L.S., 1872.

16. *Outlines.*—North and west is a level prairie, with many bluffs of poplar and willow scrub. There are a number of small hay marshes here and there. The soil is a sandy loam of a first-class quality.—*John McLatchie*, D.L.S., 1872.

Sub-division.—Is generally adapted for agricultural purposes. There is a large belt of heavy poplar timber in the centre of the township. The remainder of the township is prairie, with occasional bluffs of poplar and clumps of willows. —*C. P. Brown*, D.L.S., 1872.

17. *Outlines.*—South and west is a level prairie, with scattering bluffs of poplar and willow scrub. The soil is a first-class sandy loam.—*John McLatchie*, D.L.S., 1872.

Sub-division.—Is well watered by a small river, and the soil is of the best quality. There is scarcely enough wood, but a thrifty young growth, at present from six to ten feet in height, will, if protected from the ravages of fire, in a few years make ample provision for fuel and farming purposes.—*C. P. Brown*, D.L.S., 1873.

18. *Outlines.*—West, is level prairie, with many bluffs of poplar and willow. The soil is a third-class sandy loam, with a gravel sub-soil in places. There is a small river running in an easterly direction through section 19; the water is clear and good.—*John McLatchie*, D.L.S., 1872.

Sub-division.—The soil of this township is good, more especially in the southern part, and it contains plenty of wood for the needs of the farmer. It is traversed by Big Grass River, which supplies excellent water.—*C. P. Brown*, D.L.S., 1873.

19. *Outlines.*—West, the surface is nearly all covered with windfall with a dense growth of young poplar. The land is of second-class quality.

South, is an open country, with many bluffs of poplar and patches of willow brush, and an occasional hay marsh. The land is of a second-class quality.—*Edgar Bray*, D.L.S., 1873.

Sub-division.—Is mostly wooded with poplar. In the south-eastern corner there are bluffs of good spruce sufficient for the wants of the settler. The soil is good, and there is an ample quantity of hay land and plenty of good water.—*C. P. Brown*, D.L.S., 1874.

20. *Outlines.*—North and west, is generally covered with poplar and spruce woods, intermixed with willows. There is a large marsh running almost parallel to the western boundary in sections 6, 7 and 18; besides this, there are several small marshes here and there throughout the township. The land is of a second and third-class quality.—*Edgar Bray*, D.L.S., 1873.

Sub-division.—Is timbered with poplar and spruce, with an undergrowth of willows. Much of the spruce is of sufficient size to supply the wants of the townships lying to the south. There are several marshes in the township, and a lake about three miles and a-half long in the middle thereof. The water is excellent, and the land well adapted for stock-raising.—*C. P. Brown*, D.L.S., 1874.

21. *Outlines.*—South and west, is generally covered with poplar and spruce woods, intermixed with willows. There are several marshes and willow swamps. The land is of a second and third-class quality.—*Edgar Bray*, D.L.S., 1873.

22. *Outlines.*—West, about one-half of the land along this boundary is an open marsh; the surface of the remainder is covered with windfall and poplar woods, intermixed with willows. The land is of a second and third-class quality.—*Edgar Bray*, D.L.S., 1873.

North, is alternately willow marshes, intermixed with reeds and rushes, and slightly rolling land covered with poplar and spruce woods. The soil is of a second-class quality. —*Hermon and Bolton*, D.L.S., 1875.

23. *Outlines.*—South, level land, timbered with poplar, scrub and scattered spruce. There are a number of marshes, with hay and willow scattered throughout. There is a small lake in section 2. The soil is of a second-class quality.

West, generally covered with poplar woods, with scattered spruce. There are occasional hay and willow marshes.

The soil is of a first-class quality.—*Hermon and Bolton*, D.L.S., 1875.

24. *Outlines.*—North and west, is alternately poplar wood and willow marsh. The soil is a clay loam of a second-class quality. Ebb and Flow Lake cuts off a large part of the eastern portion of the township.—*Hermon and Bolton*, D.L.S., 1875.

Sub-division.—This township contains very little first-class land, in general there being only a few inches of vegetable mould on the surface covering the limestone gravel, and occasionally limestone rock.

In the northern portion there is considerable meadow and scrub land; the southern is timbered with poplar from three to ten inches in diameter, some of it fit for building timber. Towards the south-west groves of spruce and tamarack occur; a few of the trees are large enough to make railroad ties. Fires have run through recently, and a large portion of the timber, though standing, is dead.—*A. H. Macdougall*, D.L.S., 1887.

CHAPTER XXI.

County of Beautiful Plains.

We reached the south-eastern termination of the Riding Mountain, and obtained a fine view of the successive steppe of which it is composed. They were three in number, each steppes being separated by a gently sloping plateau. The entire mountain appeared to be densely covered with forest tress. The country through which we passed to-day was very wet and swampy in many places. On the ridges the soil is dry and gravelly : we are, in fact, descending the Riding Mountain, which being here extended over a great breadth, is not easily recognized. In the afternoon we arrived at a beautiful ridge, running N. 12° W. One side of the ridge is partly excavated by the White Mud River, and exhibits finely stratified gravel, consisting almost altogether of small limestone pebbles, with a few belonging to the unfossiliferous rocks. Some fine oak and ash-leaved maple grow on the bank of the White Mud River near the ridge.

I proceeded across the country (from the southerly shore of Lake Dauphin to Manitoba House) in as straight a line as possible. For thirty miles we had to wade through marshes and bogs, separated by low ridges; in fact, the distance named may be said to be made up of marsh, bog and ridge in most wearisome succession.—*Prof. Henry Youle Hind*, 1858.

The country under the easterly slope of the Riding Mountains, townships 19 and 20, range 15, west, consists of willow swamps and muskegs, with small bluffs of poplar intervening, and with the exception of the northern tier of sections in Township 20, is wholly unfit for agricultural purposes.

The country in townships 19 and 20, range 16, is so broken by the mountain range as to be almost impassable, and where not covered by muskeg and lake the rock (clay slate) shows within a few inches of the surface; in fact, the whole country, consisting of townships 19, 20, 21 and 22, ranges 15 and 16, is so cut by mountain ranges, muskegs and swamps, as, with a few exceptions, to be quite unfit for cultivation.

The principal timber on the whole of the above-mentioned tract consists of poplar, spruce and birch ; the poplar and birch growing to about thirty inches in diameter, the spruce to forty-two inches.—*J. Lestock Reid*, D.L.S., 1873.

From the south-west corner of township 25, range 14, for a due north distance of thirty miles, the surface is flat, and too low and wet for first-class agricultural lands. The average depth of soil is about twelve inches, resting on a hard clay and gravel bed—the lake bottom previous to the retirement of the waters of Lake Manitoba.

All the higher lands are covered with poplar timber from four to eight inches in diameter. The low portions, extending in a north and south direction, are the drainage bogs from the northerly slopes of the Riding Mountains—and consist of shaking bog, with hay, reeds, rushes and willow. Some good spruce timber is intermixed with other woods, and on the shores of several lakes in the vicinity of townships 29 and 39.

Portions of the land are very well suited for settlement purposes, especially stock-raisers, and in time, when drained, will no doubt be found suitable for the growth of grain.—*Hermon and Bolton*, D.L.S., 1875.

RANGE XIII.

13. *Outlines.*—South, sandy land, with hills and ravines. Is generally covered with poplar woods, some oak, hazel and other bottom scrub. There are many scattered small muskegs and marshes. The land is of a third-class quality.

East, is low sandy land, slightly rolling, covered with bluffs of heavy poplar, with dense willow scrub There are many small muskegs and hay swamps.—*A. C. Webb*, D.L.S., 1872.

Sub-division.—Is, excepting in the marshes, chiefly covered with good timber. The surface is broken by hills, and the soil is not very well adapted for agricultural purposes. Numerous small creeks are to be found, running chiefly through the marshes.—*H. Leber*, D.L.S., 1873.

14. *Outlines.*—East and north, an undulating prairie, with bluffs of poplar and low scrub. Soil, a sandy loam of a third-class quality. White Mud River flows easterly through section 13.

Sub-division.—Is very well adapted for agricultural purposes. The soil in the valley of White Mud River, which crosses the township diagonally from west to east, is very rich, and timber can be found in sufficient quantity to meet the wants of the settler.—*H. Leber*, D.L.S., 1873.

15. *Outlines.*—East, is a high and dry prairie (excepting section 1, which is rather marshy), with numerous bluffs of poplar. The soil is of a first-class quality.—*John McLatchie*, D.L.S., 1872.

South, rolling and sandy land, with scattered poplars and bluffs of poplar and low willow and scrub. The soil is a third-class quality.—*A. C. Webb*, D.L.S., 1872.

Sub-division.—The soil is generally a light sandy loam. The land is in most places level. A few gravel ridges run in a north-westerly direction across it.

On sections 6, 7 and 18 there is a considerable quantity of large poplar timber. The timber in the rest of the township is suitable for fencing and fuel.

White Mud River passes through section 6. It contains an abundant supply of excellent water.—*John McLatchie*, D.L.S., 1872.

16. *Outlines.*—Along the eastern and northern boundaries it is a level prairie, with numerous bluffs of poplar and willow. The

soil is a second-class sandy loam.—*John McLatchie*, D.L.S., 1872.

Sub-division.—The soil generally of an inferior quality, being light sandy loam. In many places, in the north-western quarter of the township, the soil does not exceed six inches in depth, being chiefly composed of gravel and boulders.

The timber is of very little value except for fuel. Fencing and building timber can be procured in the Riding Mountains, some fifteen miles distant.—*John McLatchie*, D.L.S., 1873.

17. Along the eastern and southern boundaries the country is a level prairie with numerous bluffs of poplar and willow. The soil is a sandy loam.—*John McLatchie*, D.L.S., 1872.

Sub-division.—The soil is of light sandy loam. The land, excepting two small gravel ridges, which run in a north-westerly direction across it, is level. The marshes produce good hay.—*John McLatchie*, D.L.S., 1872.

18. *Outlines.*—East and north is level prairie, with many bluffs of poplar and willow. The soil along the eastern boundary is a third-class sandy loam ; that along the northern boundary is rated second-class. There is a small river running in an easterly direction through section 24. The water is clear and good.—*John McLatchie*, D.L.S., 1872.

Sub-division.—Contains very little good farming land. The soil, with the exception of that on the marshy land, is principally light sandy loam.

This township, being very low and level, is flooded with the water from the Riding Mountain.

Nearly one-third of this township is marsh or hay land, and in the spring more than one-half of it is covered with water.

The timber has been all killed by fire, and consequently is of no value except for fuel.—*John McLatchie*, D.L.S., 1872.

19. *Outlines.*—East, the surface is nearly all covered with windfall, intermixed with a dense growth of young poplar.

South, is an open prairie, with some willow brush and an occasional bluff of poplar. The land throughout is of good quality.—*Edgar Bray*, D.L.S., 1873.

Sub-division.— Is, excepting the two southern tiers of sections, unfit for tillage. The soil, even in the marshes, is largely intermixed with gravel. The timber is chiefly poplar. —*H. Leber*, D.L.S., 1873.

20. *Outlines.*—North, is alternately poplar and red pine woods, and muskeg and marsh. There are occasional small patches of spruce woods.

East, the surface is nearly all covered with poplar and occasional spruce. There is a large marsh running parallel to this boundary, through sections 1, 12 and 13. The land is

rather sandy, and of a second and third-class quality.—*Edgar Bray*, D.L.S., 1873.

Sub-division.—The soil is stony and gravelly, and there are many groves of large-sized poplar, spruce and red pine, and a young growth of the same timber spread through the township. Owing to the numerous marshes and the gravelly nature of the soil, it is not well adapted for settlement.—*H. Lebér*, D.L.S., 1873.

21. *Outlines.*—East, is generally covered with poplar and spruce woods, intermixed with willows. There are several marshes, covered mostly with willow.

South, is alternately poplar and red pine woods and muskegs or marsh. There are occasional small groves of spruce.—*Edgar Bray*, D.L.S., 1873.

22. *Outlines.*—East, about one-half of the surface along this boundary is an open marsh; the remaining half is covered with windfall, poplar woods intermixed with willow.

North, is alternately poplar woods, marsh and swamps. The latter is generally covered with a growth of tamarack and spruce. There is a gravel ridge in section 33, with a growth of oak, poplar and spruce. The land throughout is of a third-class quality.—*Edgar Bray*, D.L.S., 1873.

23. *Outlines.*—South, the surface is slightly rolling, and covered generally with poplar, spruce and tamarack woods, with occasional hay and willow marsh. The land is gravelly in places, and the soil is of a first and second-class quality.

East, generally covered with poplar woods, with scattered spruce. There are occasional hay and willow marshes. The soil is of a first-class quality.— *Hermon and Bolton*, D.L.S., 1875.

24. *Outlines.*—North and east, is alternately poplar woods and shallow, marsh with hay, reeds, rushes and willow. The soil is gravelly and of a second-class quality.—*Hermon and Bolton*, D.L.S., 1875.

25. *Outlines.*—South, is alternately poplar woods and shallow marsh, with hay, reeds, rushes and willow. The soil is gravelly, and of a first and second-class quality.—*Hermon and Bolton*, D.L.S., 1875.

RANGE XIV.

13. *Outlines.*—South, rolling land, with low scrub; some poplar, in sections 1 and 6. Soil, a sandy loam of second-class quality. In section 1 there are a number of large sand hills and deep ravines.—*A. C. Webb*, D.L.S., 1872.

Sub-division.—The soil is of an inferior quality. The surface partly prairie and partly timbered with poplar and oak, in

some places of good quality. There are many swamps but no streams.—*J. Holmes*, D.L.S., 1873.

14. *Outlines.*—North, undulating prairie, with numerous bluffs of poplar and willow scrub. The soil is a sandy loam of a third-class quality. White Mud River flows in a southerly direction through section 36.—*A. C. Webb*, D.L.S., 1872.

Sub-division.—This township is of the same description as the preceding one.—*J. Holmes*, D.L.S., 1873.

15. *Outlines.*—West, is an undulating prairie, with many bluffs of poplar, willow and small scrub. There are a number of scattered hay meadows. The soil generally is a sandy loam, but in places it is rather gravelly and stony.—*John McLatchie*, D.L.S., 1872.

South, a rolling prairie, with numerous bluffs of poplar intermixed with willow scrub. The soil is a sandy loam, gravelly and stony in places.—*A. C. Webb*, D.L.S., 1872.

Sub-division.—Is excellent farming land, with the exception of that portion lying east of the Beautiful Plain Ridge and sections 6, 7 and 18, where the soil is a light sandy loam.

The White Mud River, with several other small streams passing eastward through this township, give an unlimited supply of excellent water.

The marshy lands along the streams produce a rank growth of hay.

Large ash, oak, elm and maple are found skirting the banks of the White Mud River. This, with a few groves of poplar, is the only timber in this township available for building purposes.—*John McLatchie*, D.L.S., 1872.

16. *Outlines and Sub-division.*—West of the Beautiful Plain Ridge, this township is all excellent farming land, and owing to its proximity to the Riding Mountain, where fencing and building timber can be procured, is well suited for immediate settlement.

This township is nearly all covered with willow and small poplar, the most of which has been destroyed by fire.—*John McLatchie*, D.L.S., 1872.

17. *Outlines and Sub-division.*—The westerly half of this township contains some excellent farming land. It is nearly all covered with rose and willow bushes and small poplar. The eastern portion of the township is intersected with small gravel ridges.

The soil is a light and sandy loam.

This portion of the township has no timber of any value, except for fuel.

A large marsh is formed near the centre of the township by the spreading out of the waters of two large streams flowing eastward from the Riding Mountains. Those streams supply an abundance of excellent water.

Portions of the marshy land produce an excellent growth of hay.

Building timber can be obtained at a distance of about two miles.—*John McLatchie*, D.L.S., 1872.

18. *Outlines and Sub-division.*—Nearly one-fourth of this township is marsh or hay land. The soil is a light sandy loam. Excepting a few gravel ridges in the west half of the township, the land is very low and level. About one-half of the township is flooded in the spring, the waters of several streams from the Riding Mountains passing through it.

A large portion of the marshy land produces a rank growth of hay.

The timber, except that in sections 6, 7 and 18, has been destroyed by fire.—*John McLatchie*, D.L.S., 1872.

19. *Outlines.*—West, the four southern sections along this boundary are prairie land, with occasional bluffs of poplar and willow. The soil is of first-class quality. Sections 30 and 31 are mostly marsh covered with willows, and the soil is of a second-class quality.—*J. Lestock Reid*, D.L.S., 1873.

South, is prairie, with some willows and occasional bluffs of poplar. The soil is good, and of second-class quality.—*Edgar Bray*, D.L.S., 1873.

Sub-division.—The surface consists almost entirely of marshes and muskegs, excepting the tier of sections adjoining the southern line. The hay in these marshes is of excellent quality and of great abundance. There are groves of good poplar scattered through the township and also a few patches of very good oak. The soil is chiefly gravelly, which, with the marshes, renders it almost altogether unfit for agricultural purposes.—*H. Leber*, D.L.S., 1843.

20. *Outlines.*—West, is mostly all a willow marsh, with an occasional patch of prairie or dry land with poplar bush. The land is of a third-class quality.—*J. Lestock Reid*, D.L.S., 1873.

North, for the most part it is covered with heavy poplar woods. There are many marshes, covered in many places with willow. There is a small stream one chain wide, five feet deep, flowing northerly through section 32.—*Edgar Bray*, D.L.S., 1873.

Sub-division.—One-half of the surface consists of swamps, the bottoms of which are gravelly and stony, the depth varying from two to six feet. The remaining portion is covered with willow brush and poplar timber of inferior quality. The township is unfit for settlement.—*H. Leber*, D.L.S., 1873.

21. *Outlines.*—The south-easterly quarter of the township is nearly all muskeg, through which the water of the east branch of Turtle River flows.—*Joseph Doupe*, D.L.S., 1873.

South, for the most part is covered with heavy poplar woods. There are many willow marshes and muskegs throughout. There is a small stream flowing northerly through section 5.—*Edgar Bray*, D.L.S., 1873.

Sub-division.—Is low and wet, nearly one-half being covered by lakes and muskegs. The timber consists of poplar, balm of Gilead, spruce and oak from four to twelve inches in diameter. The soil of the timbered portion is good, but not first-rate.—*W. Case Eaton*, D.L.S., 1873.

22. *Outlines.*—West, about one-half of the surface along this boundary is muskeg and marsh. The dry land is timbered with thick poplar and willow bush, and is of a second-class quality.—*Joseph Doupe*, D.L.S., 1873.

North, is covered with poplar woods, with occasional patches of willow marsh. The land is gravelly or sandy, and is of a third-class quality. There is a small stream flowing northerly through section 33.—*Edgar Bray*, D.L.S., 1873.

Sub-division.—The soil, timber and surface are similar to those in the last mentioned township.—*W. Case Eaton*, D.L.S., 1872.

23. *Outlines.*—South, the surface is slightly rolling, and nearly all covered with small poplar, spruce and tamarack, with occasional open glades of prairie, hay and willow marshes. There is a small creek running northerly through section 3. The soil is of a first-class quality.—*Hermon and Bolton*, D.L.S., 1875.

West, sections 6, 7, 18 and 19 are covered with heavy poplar timber and an occasional willow marsh of grassy meadow. Sections 30 and 31 are prairie, with small willow bushes and scattered bluffs of poplar. The soil is of a second-class quality.—*Edgar Bray*, D.L.S., 1875.

24. *Outlines.*—North, is alternately poplar woods and shallow marshes, with hay, reeds, rushes and willows. The soil is of a second-class quality.—*Hermon and Bolton*, D.L.S., 1875.

West, is prairie, but mostly covered with scrubby willow and scattered bluffs of poplar. The soil is of a second-class quality. There is a stream eight feet wide, low banks and good water, running in a north-westerly direction through section 7.—*Edgar Bray*, D.L.S., 1875.

25. *Outlines.*—North and west, is alternately poplar woods and shallow marshes, with hay, reeds, rushes and willows. The soil is of a second-class quality.—*Hermon and Bolton*, D.L.S., 1875.

26. *Outlines.*—West, is mostly level and gravelly land, and covered with poplar woods and scrub, with an occasional meadow. The soil is of a second-class quality.—*Hermon and Bolton*, D.L.S., 1875.

27. *Outlines.*—West, the land is low and generally wet, covered alternately with poplar timber and hay marshes, with reeds, rushes and willows. The soil is gravelly, and of a second-class quality.—*Hermon and Bolton*, D.L.S., 1875.

Resurvey.—West boundary, is generally covered with small poplar. There are a number of hay meadows. The soil is of a first-class quality.—*Thos. Fawcett*, D.L.S., 1890.

28. *Outlines.*—North and west, is generally covered with a growth of small poplar with an occasional marsh of hay, reeds and rushes There are also small patches of prairie here and there. The soil is gravelly, and of a second-class quality.—*Hermon and Bolton*, D.L.S., 1875.

Resurvey.—West boundary, is prairie, with numerous bluffs of small poplar, much of which, however, is brulé. In places there are many scattered boulders. The soil generally is second-class.—*Thos. Fawcett*, D.L.S., 1890.

29. *Outlines.*—South and west, is generally covered with poplar woods of small size. There are a number of small shallow lakes throughout. The soil is of a second-class quality. Pike River, a small stream, fifty links wide and from six inches to three feet deep, flows north-westerly.—*Hermon and Bolton*, D.L.S., 1875.

RANGE XV.

13. *Outlines.*—South, a rolling prairie. Section 1 is broken by some sand hills. There is a willow swamp in section 2. The soil is a black sandy loam of first-class quality. The south branch of White Mud River flows through section 2.—*A. C. Webb*, D.L.S., 1873.

Sub-division.—The surface is a beautiful rolling prairie, with groves of poplar. The soil is of good quality. Two branches of White Mud River traverse the township, and good water is easily found by digging from four to fifteen feet.—*J. B. Richard*, D.L.S., 1873.

14. *Outlines.*—North, rolling prairie, with poplar woods, and scattered poplar, oak, with dense willow and other brush. White Mud River flows through section 34. The soil is a black sandy loam of a second and third-class quality.—*A. C. Webb*, D.L.S., 1873.

Sub-division.—Is well watered by White Mud River and its branches. The soil is generally of a rich sandy nature. About one-half is well wooded with poplar and other kinds of wood of small growth.—*J. B. Richard*, D.L.S., 1873.

15. *Outlines.*—South, the soil east of White Mud River is light sandy loam; while west of the same stream it is generally good farming land. The boundary passes through some open level prairie in sections 5 and 6. White Mud River passes through section 2; the stream is about thirty feet wide. The timber is mostly small poplar and willow, and is of no value for building purposes.

East, is mostly rolling prairie, with many bluffs of poplar, willow and small brush. It is marshy here and there. There are several small creeks. The soil is a sandy loam of a second and third-class quality.—*J. McLatchie*, D.L.S., 1872.

Sub-division.—The soil is a sandy loam, traversed from north to south by high sand ridges, covered with short grasses, high willow, rose bushes, hazel, and a few scattered clumps of poplar. There are several creeks which are dry during summer.—*John Johnston*, D.L S., 1873.

16. *Outlines.*—North and east, is generally a level prairie, with occasional bluffs of poplar and small brush. It is well adapted for cultivation, the soil being a sandy loam of a second-class quality. There are a number of boulders along the northern boundary, and the soil there is rather gravelly in places.—*John McLatchie*, D.L.S., 1872.

Sub-division.—Generally the soil is a rich black loam, with substratum of clay. The north-westerly part is situated at the eastern base of Riding Mountain, and is heavily wooded with large maple and poplar, fit for building purposes, with large gray willow, tamarack and stunted oak, intermixed with a dense undergrowth. It is well watered by many small brooks, and some large patches of good hay lands are to be found in the bottoms.—*John McLatchie*, D.L.S., 1873.

17. *Outlines.*—South, the land is generally adapted for cultivation; it is mostly prairie, with occasional bluffs of poplar and small brush. The soil is a sandy loam, with gravel and boulders in places.

East, prairie in places, but is mostly wooded, consisting of ash, maple, poplar, oak and thick willows. The soil is an excellent sandy loam of a first-class quality. There is a large creek with a swift current and good water running through section 13.—*John McLatchie*, D.L.S., 1872.

Sub-division.—The two eastern tiers of sections are low, generally wet, covered with a dense thicket of alder and willow, the soil being rich and deep. In the third tier of sections the riding mountains begin to rise at a steep incline for about half a mile, on the crest of which is a plateau, generally rising towards the west for about one mile and a-half, where another steep incline occurs. The western part is intersected by tortuous and rugged ravines averaging from 400 to 600 feet deep, at the bottom of which run rapid and never-failing streams of good water. The soil of the mountains is very thin, not averaging more than four inches in depth, being of a fine, rich, vegetable mould. The sub-soil is shale and gravel. The plateaux have rolling surface, and are thickly timbered with valuable poplar, ash and oak. The township is, on the whole, better suited for lumbering than agricultural purposes.—*C. J. Bouchette*, D.L.S., 1873.

18. *Outlines.*—North and east is nearly all wooded; there are occasional openings of fine prairie. The woods are principally poplar and willow. There are a few scattered oak and maple. On the east the soil is of a second-class quality; and along the north is first-class.—*John McLatchie*, D.L.S., 1872.

Sub-division.—The soil, timber and surface are similar to those in the last mentioned township.—*C. J. Bouchette*, D.L.S., 1873.

19. *Outlines.*—East, the four southern sections along the eastern boundary are prairie land, with occasional bluffs of poplar, intermixed with willow. Sections 25 and 36 are marsh, covered with willows.

South, is nearly all timbered land, excepting sections 1 and 2. There is a range of hills extending over sections 4, 5 and 6. The soil is a black loam. A large creek flows through section 4.—*J. Lestock Reid*, D.L.S., 1873.

Sub-division.—Is well wooded with cotton-wood, birch, spruce and willow. The south-westerly part (being the base of Riding Mountain) is rough and broken, cut up by many ravines, some of which are from 200 to 300 feet in depth. Good water can be had from many small streams. In the westerly part the soil is very shallow; more easterly, a sandy soil prevails.—*W. Case Eaton*, D.L.S., 1873.

20. *Outlines.*—East and north is mostly all a willow marsh, with an occasional patch of prairie or dry land, covered with poplar. The land is of third-class quality.—*J. Lestock Reid*, D.L.S., 1873.

Sub-division.—The soil is a sandy loam, with a few gravel ridges; there are many streams of good pure water. It is well wooded with poplar, cotton-wood, spruce, elm and oak, also willow in abundance.—*W. Case Eaton*, D.L.S., 1873.

21. *Outlines.*—South, is all a willow marsh with an occasional patch of prairie and poplar bush. The soil is of a third-class quality.—*J. Lestock Reid*, D.L.S., 1873.

This township is more than half marsh and muskeg, the south-westerly quarter may be classed all swamp and muskeg the north-easterly quarter all muskeg. A dry ridge of fair soil extends from the south-easterly angle to about the middle of the north boundary. This ridge is from one to three miles wide, and separates two vast muskegs containing the waters supplying the two main branches of Turtle River.

The ridge is thickly covered with poplar.—*Joseph Doupe*, D.L.S., 1873.

22. *Outlines.*—Has many large muskegs and numerous small wet marshes. Intervening land covered with thick growth of poplar and small brush. The two branches of Turtle River enter the township from the south and uniting in the north-eastern quarter. This river has an average width of about one chain and a quarter and a depth of one foot, strong current, stony bottom, and steep bank of twelve to fifteen feet high. Where the land is dry, the soil is of first and second-class quality.—*Joseph Doupe*, D.L.S., 1873.

23. *Outlines.*—East, sections 1, 12, 13 and 24 are covered with heavy poplar woods and an occasional willow and grassy marsh;

25 and 26 are prairie, with small willow bushes and scattered bluffs of poplar. The soil throughout is of a second-class quality. —*Edgar Bray*, D.L.S., 1875.

West, is open prairie, with occasional bluffs of small poplar, some of which has been destroyed by fire. In places there is a good deal of willow scrub. The soil is a dark sandy loam of first-class quality.—*Thos. Fawcett*, D.L.S., 1890.

Sub-division.—Turtle River flows through this township, through an alluvial plain with a clay sub-soil. The river averages one chain in width, with banks about ten feet in height. There are numerous rapids; the water is good, and affords a never-failing supply.

In sections 8 and 18 are some fine groves of poplar, but none of the trees measure more than five inches in diameter. There are a number of groves scattered throughout the township, but the best of it has been destroyed by fire.

Ridges of gravel and numerous swamps cover the two eastern tiers of sections, and render that part of the township unfit for cultivation. This township is exceedingly well adapted for stock-raising, there being already a number of settlers located therein.—*A. F. Martin*, D.L.S., 1891.

24. *Outlines.*—East, is prairie, but mostly covered with scrubby willow and scattered bluffs of poplar. The soil is of a second-class quality. There is a small stream eight feet wide, low banks and good water, running in a north-westerly direction through section 12.

North, is prairie, with occasional groves of poplar and willow, with patches of meadow land or shallow marsh. There is a marsh and swamp with tall reeds in section 31 and part of section 32. The soil is of a second-class quality.—*Edgar Bray*, D.L.S., 1875.

West, is prairie, with occasional bluffs of small poplar, and scrub in places. The soil is of a first-class quality. Section 31 is marshy.—*Thos. Fawcett*, D.L.S., 1890.

24. *Sub-division.*—This township is generally high and dry; it is traversed by the Turtle River, which flows through an alluvial plain underlaid with a bed of clay. The river affords a large supply of jack-fish or pike.

The land on each side of the river is very good, with the exception of an open plain in the north-eastern corner of the township, where it is very alkaline. A small stream, known as the South Turtle River, flows north-easterly from section 14 through to section 32, where it disappears in a large marsh. The land on each side of this stream, with the exception of parts of sections 32 and 33, is very good, although marshy. Sections 31 and 32 are partly covered by marsh, which becomes dry in August and furnishes a great quantity of hay.

This township is exceedingly well adapted for mixed farming. There are a number of settlers located therein.—*A. F. Martin*, D.L.S., 1891.

25. *Outlines.*—East, is alternately poplar woods and marshes with hay, reeds, rushes and willows. The soil is of a second-class quality.—*Hermon and Bolton*, D.L.S., 1875.

South, is a prairie, with occasional groves of poplar and willow, with patches of meadow land or shallow marsh. There is a marsh with tall reeds and rushes in section 6 and part of 5. The soil is of a second-class quality.—*Edgar Bray*, D.L.S., 1875.

West section 6 is situated within a marsh ; the remaining sections are prairie, with a considerable amount of scrub. The soil is a dark sandy loam of a first-class quality.—*Thos. Fawcett*, D.L.S., 1890.

Sub-division.—Two large marshes cover the south-western and north-eastern corners of this township. The marsh on sections 5, 8 and part of 7 furnishes agreat quantity of good hay ; this marsh could easily be drained into Lake Dauphin. The south-eastern part of the township contains good land, but it is invariably brushy; the land in the remaining portion of the township is rather alkaline. There are numerous groves of poplar throughout the south-western and northern portions of the township. The water throughout is alkaline. One small stream, known as the East Turtle River, contains good water in pools. The shores of Lake Dauphin are rather low. The township is adapted for stock-raising.—*A. F. Martin*, D L.S., 1891.

26. *Outlines.*—East, is mostly level and gravelly, covered with poplar woods and scrub, with an occasional meadow. The soil is of a second-class quality.—*Hermon and Bolton*, D.L.S., 1875.

West, is level prairie, timbered in places with poplar and willow scrub, much of which, however, has been burnt. The soil is a dark loam of first-class quality.—*Thos. Fawcett*, D.L.S., 1890.

27. *Outlines.*—East, the land is low and generally wet, covered, alternately, with poplar timber and hay marshes, with reeds, rushes and willows. The soil is gravelly, and of a second-class quality.—*Hermon and Bolton*, D.L.S., 1875.

West, is generally covered with burnt woods. There are a few prairie openings and patches of meadow land. The soil is a dark loam of first-class quality.

East, there is some green poplar from three to ten inches in diameter, which seems to have escaped the fire which destroyed the timber in a large section of this country. The surface of the ground is less elevated, and was partly submerged at the end of October, when this line was surveyed.—*Thos. Fawcett*, D.L.S., 1890.

28. *Outlines.*—East, is generally covered with a growth of small poplar with occasional hay marshes with reeds and rushes. There are also small patches of prairie here and there. The soil is gravelly and of a second-class quality.—*Hermon and Bolton*, D.L.S., 1875.

West, is generally covered with burnt woods. There are a great number of marshy meadows. The soil is a dark loam of a second-class quality. North and east are more open, not so marshy, and a little better soil.—*Thos. Fawcett*, D.L.S., 1890.

29. *Outlines.*—East, is generally covered with poplar of a small size. There a number of scattered shallow marshes and lakes. The soil is gravelly and of a second-class quality.—*Hermon and Bolton*, D.L.S., 1875.

West and south, is nearly all covered with burnt poplar. There are a number of marshy meadows. The soil, generally, is of a first-class quality.—*Thos. Fawcett*, D.L.S., 1890.

RANGE XVI.

13. *Outlines.*—South and west, is a rolling prairie, with an occasional bluff of poplar or scrub. The soil is a sandy loam of a first-class quality.—*A. C. Webb*, D.L.S., 1873.

Sub-division.—Is clean, rolling prairie, with one small bluff of stunted oak in the centre. The soil is a rich loam. There are no running streams, but water can be had in almost any section of the township.—*J. H. Reiffenstein*, D.L.S., 1873.

14. *Outlines.*—North and west, rolling land, with bluffs of poplar, willow, oak and other scrub, with occasional glades of prairie. The soil is a black sandy loam of first-class quality.—*A. C. Webb*, D.L.S., 1873.

Sub-division.—The surface is rolling, and the most part of it clear prairie, except on the western side, where it is very well wooded with small poplar, cherry and willow, none large enough for building purposes. The soil throughout is good. White Mud River runs through the north-eastern sections. Its water is excellent, and water can be had in any of the sections by digging from three to six feet.—*J. H. Reiffenstein*, D.L.S., 1873.

15. *Outlines.*—South and west, is rolling land, covered with willow and poplar brush, excepting some prairie in section 1. The soil is a sandy loam of first-class quality.—*John McLatchie*, D.L.S., 1872.

Sub-division.—Arable, undulating land, well adapted for settlement. Soil is a deep black loam. The western portion is covered with timber suitable for building purposes. The remainder of the township is covered with poplar bluffs and dense bottom scrub, with small narrows of grassy land.—*G. A. Lloyd*, D.L.S., 1873.

16. *Outlines.*—South, section 1 is suitable for agricultural purposes. In sections 2, 3 and 4 there are several deep ravines. The top of Riding Mountain is reached at the westerly limit of section 4, and at this point probably attains an elevation of 400 feet above the level of the land in range 14. The soil on

the mountain is generally a light sandy loam. The land is rolling and marshy, with a number of small ponds of water.—*John McLatchie*, D.L.S., 1872.

Sub-division.—This township is situate entirely in the Riding Mountains. Although generally hilly, with numerous gullies and ravines, many of the sections are quite flat, and would be suitable for settlement. In the eastern half the timber is of large size, much of it averaging twenty inches in diameter; poplar, oak and white birch, with much willow brush. The entire township is well watered, the streams running all summer.—*G. A. Lloyd*, D.L.S., 1873.

17. *Outlines.*—Along the southern boundary the country is hilly, and covered with a growth of poplar and willow. The poplar is of small size. There are two small lakes in section 1.—*J. McLatchie*, D.L.S., 1872.

Sub-division.—On the slope of Riding Mountain it is well timbered throughout; good building timber; soil generally not very good, but in some parts the land is of the best quality of black loam.—*G. A. Lloyd*, D.L.S., 1873.

18. *Outlines.*—Sections 36 and 35 are very hilly, and timbered with poplar, birch and willow. Sections 31, 32, 33 and 34 are rolling land, timbered with poplar, white birch, pitch pine and willow; there are a few small patches of marsh. The soil throughout is second-class.—*John McLatchie*, D.L.S., 1872.

Sub-division.—Is on the eastern slope of Riding Mountains. The eastern part of the township is very rough and hilly; the remainder is rolling land, with numerous swamps and marshes. The whole is well watered, and heavily wooded with poplar, spruce and tamarack, and a little pine. The soil is a light clay loam.—*G. A. Lloyd*, D.L.S., 1873.

19. *Outlines.*—Sections 1, 2 and 3 are hilly, and wooded with birch, poplar and tamarack; there are a number of swamps between the hills. Section 4 is a willow swamp; sections 5 and 6 are covered with a spruce bush. The land along the western boundary is nearly all swamp covered with spruce and tamarack; poplar and birch are to be found on occasional ridges. The soil throughout is of a third-class quality.—*J. Lestock Reid*, D.L.S., 1873.

20. *Outlines.*—North, is timbered with oak, poplar, spruce, tamarack, balsam, birch, elm and maple. There are several small creeks draining the township. Some first-class land is to be found in sections 34, 35 and 36.

West, is hilly, with heavy poplar, birch and spruce bush.—*J. Lestock Reid*, D.L.S., 1873.

Sub-division.—Is altogether unfit for settlement, being composed of deep ravines, muskegs and low land, with very shallow soil. The whole of the township is forest, the timber being birch, elm, poplar, oak, spruce, maple, alder, hazel and

juniper. It is well watered by small brooks.—*G. A. Bayne*, D.L.S., 1873.

21. *Outlines.*—West, in sections six and seven, there is a deep valley about four hundred feet deep, which is full of "hog-back" ridges, and timbered with birch, poplar and spruce. Sections 18, 19, 30 and 31 are timbered with elm, oak, birch, spruce and tamarack. The soil is of a third-class quality.

South, is timbered with oak, poplar, spruce, tamarack, balsam, birch, elm and maple. There is some first-class land in sections 1, 2 and 3.

Some of the spruce in this township measures as large as forty-two inches in diameter.—*J. Lestock Reid*, D.L.S., 1873.

Sub-division.—Is well wooded with spruce, white birch, elm, oak, ash, cotton-wood and tamarack, much of which is large enough for building purposes. The soil for the most part is good, and there are numerous small streams, two or three of which are well adapted for lumbering and mill purposes.—*J. McG. Otty*, D.L.S., 1873.

22. *Outlines.*—West, is timbered with poplar, spruce, tamarack, oak and elm. There is a creek in section 18; along its banks the land is of a first-class quality; away from it, it is third-class. It is rather swampy in places. Section 31 is all swamp.—*J. Lestock Reid*, D.L.S., 1873.

Outlines.—More than half marsh and muskeg. Crossing the northern boundary in section 34 in a north-westerly direction, and extending several miles both north-westerly and south-easterly, with occasional breaks affording passages eastward for the water flowing down from the Riding Mountains into a vast muskeg along its easterly side, is a gravelly ridge, in some places ten to fifteen feet high, which appears to have been a lake beach. The marshes are generally shallow, covered with a growth of willows. The dry land is covered with poplar, spruce and scattered tamarack and birch.—*J. Doupe*, D.L.S., 1873.

23. *Outlines.*—West, is nearly all covered with timber, consisting of poplar, oak and spruce; a good deal of it is windfall, thickly grown up with willow and young poplar; there are occasional marshes here and there. The soil is of a second-class quality.—*Edgar Bray*, D.L.S., 1875.

East, is open prairie, with occasional bluffs of poplar and patches of scrub. The soil is a dark, sandy loam of a first-class quality.—*Thos. Fawcett*, D.L.S., 1890.

24. *Outlines.*—North, Dauphin Lake encroaches on the northern portion of this township. The lake shore is rather low and marshy; beyond this belt there is good prairie and meadow land. Turtle River empties into the lake in section 33. This river has a slow current here; it is 80 feet wide, 8 feet deep; the water is good; the banks are about 8 feet high. The soil is of a second-class quality.

West, is alternately poplar woods and willow, with windfall and occasional marsh. The land is of a second-class quality. —*Edgar Bray*, D.L.S., 1875.

From the north-east corner of township, 78 chains south, we cross Turtle River. Two miles up this stream the half-breed settlement established a year ago is reached. The people who have settled on both sides of the river have made considerable improvements in the way of building and fencing, considering the short time they have resided in the locality. The land they have selected is of choice quality, and a large proportion of the surrounding country is composed of marsh and meadow lands, while near the river and surrounding their buildings the land is covered with timber. South of Turtle River for seven miles the line passes through excellent land, mostly prairie, timber being found in detached bluffs. The soil here is a rich black loam with clay sub-soil.—*Thos. Fawcett*, D.L.S., 1890.

Sub-division.—The north-easterly portion of the township is nearly all marsh. The banks of the Turtle River are from two to five feet above water in this part.

The remainder of the township is covered with small poplar and willow, much of which has been killed by fire.

The alluvial soil is a dark sandy loam resting on a sandy sub-soil.

The township as a whole is rather too low for tillage.—*W. Beatty*, D.L.S., 1887.

25. *Outlines.*—South, sections 1, 2 and part of 3 are nearly all either marsh or meadow land. There are some heavy poplar and oak timber in section 4. The land is of a second and third-class quality. Dauphin Lake encroaches on about two-thirds of the westerly part of the township.—*Edgar Bray*, D.L.S., 1875.

East, section 1 is marshy; parts of sections 12, 13 and 36 is an open prairie, with a first-class soil.—*Thos. Fawcett*, D.L.S., 1890.

Sub-division.—There are only 1,442 acres in this township, Lake Dauphin covering the whole of the remaining portion.

The soil is impregnated with alkali, and therefore is not very desirable for cultivation. The water in the wells is not even suitable for drinking purposes; that in the lake is not good unless procured from a considerable distance from the shore.

There is a flat of about ten chains in width between the water's edge and the bank, but it is very boggy, and covered with water whenever the wind blows from the north.

I found two squatters in this township, one of whom had ploughed considerable land, in which a great quantity of alkaline was visible. Fish are very plentiful.—*A. F. Martin*, D.L.S., 1891.

26. *Outlines.*—East, the timber along this boundary has been nearly all killed by fire, and is in splendid condition for fuel. In some places the fire which killed the timber has burned off the surface soil to a depth of six inches.

The water in Lake Dauphin is very shallow. Along the northern shore of the lake is a belt of timber, mostly oak, and the land is excellent for pasture.—*Thos. Fawcett*, D.L.S., 1890.

27. *Outlines.*—It is mostly covered with dry timber; the country along the east side of Dauphin Lake being flat and the belts of timber broken up by marshes and marshy meadows. The soil all along here is of a marly nature, in some places stony, and the sub-soil is clay mixed with gravel.—*Thos Fawcett*, D.L.S., 1890.

28. *Outlines.*—North and east, the country along these boundaries is much the same as that in the preceding township, except that it is more open, with larger marshes and some good hay meadows. There is a salt plain in sections 32 and 33, through which a stream of strong brine slowly wends its way towards the north. Narrow belts of timber and marshy meadows are the marked features of this line.—*Thos. Fawcett*, D.L.S., 1890.

29. *Outlines.*—The east boundary passes through a timbered country for nearly the entire distance. West of the boundary, for some distance, there are open meadows, extending north and south, in some cases for several miles. Half a mile west of the five-mile post there is a good situation for a cattle ranche. —*Thos. Fawcett*, D.L.S, 1890.

30. *Exploratory Survey.*—Meadow Portage, between Lake Manitoba and Winnipegosis, is nearly $1\frac{3}{4}$ miles long, and the difference of level 18·73 per 100 feet.

The portage traverses a low marshy neck of land; its general course is easterly, and the greatest elevation above Winnipegosis is ten feet. A test pit sunk at this point gave 12 inches of black loam soil, 3 inches small limestones, 12 inches marl, and then more limestones.

The timber in this section is very poor—a few scrubby oak 12 inches in diameter can be obtained.—*Henry B. Smith*, C.E., 1872.

Block Outlines.—In continuing the line north along the eastern boundary of this township we run parallel with Lake Winnipegosis, and there is a large marshy meadow lying between the line and the lake in sections 1 and 12. This would be another good place for a cattle ranche. At the three-mile point a branch of Lake Manitoba is seen about 20 chains east of the line. After leaving the first mile post we pass through timber (mostly brulé), broken only by a few marshy meadows, until we reach Lake Manitoba, about 10 chains from the north-east corner of the township.

Meadow Portage, crossing from Lake Winnipegosis to Lake Manitoba, is situated south of the 8th Correction Line, and leaves Lake Manitoba 10 chains from the north-east corner of Township 30, Range 16.—*Thomas Fawcett*, D.L.S., 1890.

CHAPTER XXII.

COUNTY OF MINNEDOSA.

The valley of this river (The Rapid or Little Saskatchewan River) is extremely beautiful and fertile until a few miles from its junction with the Assiniboine; it offers the most attractive and desirable place for settlement in any part of the country we have explored. The stream abounds in fish; the flats in the valley are covered with the richest herbage; timber consisting of aspen, poplar and oak, is abundant; the prairies on either side are clothed with the greatest luxuriance of vegetation; the scenery is very attractive, and the river navigable, down stream for canoes and batteaux to the Assiniboine.—*Prof. Henry Youle Hind*, 1858.

RANGE XVII.

13. *Outlines.*—South and east, is a rolling prairie, with occasional bluffs of poplar and scrub. The soil is a sandy loam of a first-class quality.—*A. C. Webb*, D.L.S., 1873.

Sub-division.—The quality of the soil is only second-class, the surface undulating; the bottoms mostly swampy, and the tops of the hills gravelly, and in several places strewn with large granite boulders. The slopes of the hills are generally a rich black soil, but of not great extent. There is very little water, and it is of bad quality. There is not much timber available for building purposes, most of it being either scrub or crooked, or dead. A road to Fort Ellice crosses this township.—*W. and D. Beatty*, D.L.S., 1873.

14. *Outlines.*—North and east, a rolling prairie with a great deal of scrub and a number of bluffs of poplar. There is a very small percentage of the land that is really open prairie. The soil is a clay loam of a first-class quality.—*A. C. Webb*, D.L.S., 1873.

Sub-division.—The surface is undulating, the bottoms being gravelly and stony; the soil on the slopes is tolerably good. There are many small shallow lakes and ponds in the western part, the water of most of them being very bitter, but a few are to be found with good fresh water. About one-third of the area is timbered with poplar, balm of Gilead and a few oaks. The remainder is covered with scrub and gray willow, and reeds and bullrushes in swamps.—*W. and D. Beatty*, D.L.S., 1873.

15. *Outlines.*—The surface is rolling, with clumps of poplar willow. There are numerous small ponds and hay marshes throughout the township. The soil is generally a rich black loam.—*John McLatchie*, D.L.S., 1873.

Sub-division.—A belt of good heavy timber runs diagonally across the township from south-west to north-east, occupying one-half of its area. It is intermixed with swamps, lakes and patches of scrub. The remainder, with the exception of a strip on the western side, is covered with scrub and gray willow, with numerous swamps and small lakes, which are very shallow and muddy. The soil is of an inferior quality.—*W. and D. Beatty*, D.L.S., 1873.

16. *Outlines.*—Rolling land, covered with small poplar and willow, with numerous small lakes or ponds and hay marshes. The soil is a sandy loam of good quality.—*John McLatchie*, D.L.S., 1871.

Sub-division.—The north-eastern quarter contains a quantity of second-class poplar timber; the remainder is covered with dense scrub and gray willow. The surface is undulating, the soil in the low lands being good black loam, except in the muskegs, which are pretty frequent—that on the uplands is rather sandy. There are several lakes, the water of which is bitter, but good water may be obtained in the muskegs and most of the swamps by digging about two feet deep. There is one small brook in the southern part of the township.—*W. and D. Beatty*, D.L.S., 1873.

17. *Outlines.*—The surface is rolling, and is generally timbered, with small poplar, with a dense undergrowth of willow and hazel. Large poplar, suitable for building purposes, may be found in section 36. The soil generally is of second-class quality.—*John McLatchie*, D.L.S., 1873.

Sub-division.—Is chiefly timbered with very small poplar, spruce, and gray willow and tamarack, of little use except for firewood. The soil is of middling quality. The surface is rolling and somewhat rough. There are many muskegs and small lakes, with some fine living springs.—*W. Burke*, D.L.S., 1873.

18. *Outlines.*—The north-eastern portion is covered with a growth of small poplar, pitch-pine, spruce and tamarack; the soil in this portion of the township is a light sandy loam; with this exception, the soil throughout the township is a rich sandy loam.—*John McLatchie*, D.L.S., 1873.

Sub-division.—This township closely resembles the preceding one, with the exception that it is rather more thickly timbered.—*W. Burke*, D.L.S., 1873.

RANGE XVIII.

13. *Outlines.*—West, rolling land, with poplar woods and dense willow, hazel and other scrub. There are occasional small glades of prairie. The soil is a first-class clay loam.

South, an undulating prairie, with dead poplar and dense scrub. The soil is a clay loam.—*A. C. Webb*, D.L.S., 1873.

Sub-division.—The surface is rolling prairie, with hazel, cherry and dogwood bushes, small poplar and willow. The soil is good. The Saskatchewan road crosses the north-eastern corner of the township.—*J. B. Richard*, D.L.S., 1873.

14. *Outlines.*—West, rolling prairie, with a few bluffs of poplar and willow scrub. The soil is of a first-class quality. The Little Saskatchewan River crosses section 31 ; it has a strong current—good water—5 to 10 feet deep.

North, is a hilly and rolling prairie, with poplar bluffs and dense willow scrub. The soil is a sandy loam of a first-class quality.—*A. C. Webb*, D.L.S., 1873.

Sub-division.—The surface is generally rolling, and for the most part the soil is of excellent quality. There are no running streams, but water is readily found by digging from three to ten feet deep. A small portion is prairie ; the remainder is covered with small and scrubby poplar and willows, but no timber of any kind large enough for building is to be found.—*J. B. Richard*, D.L.S., 1873.

15. *Outlines.*—The surface along the southern boundary of this township is rolling prairie, except where the Little Saskatchewan River intersects it. There are a few clumps of poplar and willow scattered here and there. The soil is a good sandy loam.—*John McLatchie*, D.L.S., 1883.

Sub-division.—It is well wooded and watered, the Little Saskatchewan River winding from its northern to its southern limit in a lovely valley. There are several beautiful small lakes ; the waters for the most part are good, although a few of them are alkaline. There is an abundance of good hay land. The Saskatchewan River crosses the centre of the township.—*John Johnston*, D.L.S., 1874.

16. *Outlines.*—The northern boundary passes through a rolling country, generally covered with clumps of poplar and willow. There are many small lakes and marshes. The soil is of a good quality.—*John McLatchie*, D.L.S., 1873.

Sub-division.—Is well adapted for settlement, the land throughout being very fertile, and well wooded with poplar, with willow and hazel brush. There are numerous small lakes, around the margin of which are good hay lands. The Little Saskatchewan River flows across the south-western quarter of the township, and presents some good mill sites.—*John Johnston*, D.L.S., 1874.

17. *Outlines.*—The surface is generally rolling, and covered with numerous groves of poplar and willow. The soil is of good quality. There are many small lakes, ponds and marshes throughout.—*John McLatchie*, D.L.S., 1873.

Sub-division.—Rolling land, well supplied with water, many of the sections containing a lake or a portion of one. There is a good deal of timber, largely composed of birch,

poplar and willow, mixed. The soil is excellent and deep.—*G. A. Lloyd*, D.L.S., 1873.

18. *Outlines.*—Along the northern boundary the surface is rolling, and chiefly covered with timber, principally poplar, intermixed with spruce. There is also a small quantity of tamarack here and there. The soil is a good sandy loam.—*John McLatchie*, D.L.S., 1873.

Sub-division.—Gently rolling prairie. The soil is of a fair quality, but light. There are numerous lakes and ponds; some of the former abound in fish. The township is chiefly wooded with poplar and spruce. Rolling River flows out of Otter Lake, in the south-eastern corner of the township, and crosses it in a south-westerly direction.—*G. A. Lloyd*, D.L.S., 1873.

RANGE XIX.

13. *Outlines.*—East, is rolling land, covered with poplar woods and dense willow, hazel and other scrub. There are occasional glades of prairie here and there. The soil is a first-class clay loam.

South, rolling prairie, with a few bluffs of poplar and willow scrub. Is good farming land. The soil is a first-class sandy loam.—*A. C. Webb*, D.L.S., 1873.

Sub-division.—The surface is undulating; the soil is good. The timber is inferior. Swamps are numerous, but small. The Little Saskatchewan River runs in a south-westerly direction across the north-western part of the township. The current is very rapid; its width is about one chain and depth abouth three feet, and its valley about one mile wide.—*W. and D. Beatty*, D.L.S., 1873.

14. *Outlines.*—East, rolling prairie, with a few bluffs of poplar and willow scrub. The soil is a first-class sandy loam. The Little Saskatchewan River enters the township in section 36. It has a strong current, good water, five to ten feet deep.

Along the northern boundary the country is of a similar character.—*A. C. Webb*, D.L.S., 1873.

Sub-division.—The surface is undulating; the soil good; about one-third is covered with scrub and a few small poplar bluffs. Swamps and small alkaline lakes are numerous. The Little Saskatchewan River flows in a southerly direction through the eastern part. It has a rapid current, and is well adapted for mill sites. The valley of the river is about one mile in width, enclosed by hills nearly 100 feet high.—*W. and D. Beatty*, D.L.S., 1873.

15. *Outlines.*—Along the southern boundary the surface is undulating and open, and dotted with clumps of poplar and brush. The soil is of a good quality.—*John McLatchie*, D.L.S., 1873.

Sub-division.—The surface, soil and timber are same as in the preceding township. There are two small alkaline lakes in this township.—*W. and D. Beatty*, D.L.S., 1873.

16. *Outlines.*—Along the northern boundary the country is open and brushy, with poplar and willow groves. The soil is a good sandy loam.—*John McLatchie*, D.L.S., 1873.

Sub-division.—The surface of the southern half is undulating: the soil good, with frequent small poplar bluffs, lakes and swamps. The Little Saskatchewan river crosses the northerly part. Its valley is swampy and liable to floods. To the north of the river the land is rough and hilly; about one-fourth of it is timbered with small poplar. The remainder is covered with thick scrub and fallen timber. The Rapid River runs through the north-eastern corner. Until it enters the valley of the Little Saskatchewan, it flows through a deep, narrow ravine, and has numerous mill sites.—*W. and D. Beatty*, D.L.S., 1873.

17 *Outlines.*—Along the eastern boundary the land is rolling, and covered with poplar and willow. The soil is a good sandy loam. There are many small lakes. On the southern boundary the country is more open, with groves of poplar.—*John McLatchie*, D.L.S., 1873.

Sub-division.—Is well timbered with poplar, white birch, gray willow and a few spruce, averaging from four to fifteen inches in diameter. The soil is good loam, with a sub-soil of clay. There are numerous lakes and muskegs. Whirlpool (Rapid ?) River runs through the easterly part, affording good mill sites.—*W. Burke*, D.L.S., 1874.

18. *Outlines.*—Along the eastern boundary the surface is undulating, and timbered with poplar, spruce and tamarack, with a considerable amount of willow brush. The soil is a good sandy loam.

On the northern boundary there are several spruce and tamarack swamps and small lakes. The soil is also of good quality.—*John McLatchie*, D.L.S., 1873.

Sub-division.—It is well watered by two large lakes and several small ones, and also by Whirlpool River and a few small brooks. The township is heavily timbered with poplar, white birch, spruce and larch, in the low lands. The timber ranges from four to fifteen inches in diameter. The soil is good, being loam on top, with a yellow clay sub-soil.—*W. Burke*, D.L.S., 1874.

RANGE XX.

13. *Outlines.*—South, rolling land, with thick poplar bluffs, willow scrub and occasional glades of prairie. The soil is of a first-class quality, except on the gravel ridge in section 4.

West, the land is rolling, with bluffs of poplar and scrub. Soil, a second-class sandy loam, black sand and large stones in places.—*A. C. Webb*, D.L.S., 1873.

Sub-division.—The surface is undulating prairie, sloping gradually towards the Little Saskatchewan River, which crosses the township diagonally and contains some good mill sites. The soil is very good.—*Hermon and Bolton*, D.L.S., 1873.

14. *Outlines.*—West, rolling land, with scattered bluffs of poplar and low willow scrub. Soil, a second-class sandy loam.

North, rolling prairie, some willow scrub and a few poplars. Soil, a clay loam. First-class farming land.—*A. C. Webb*, D.L.S., 1873.

Sub-division.—The surface is undulating prairie, and the soil good. There are a few small bluffs of poplar. Alkaline lakes are numerous. Good water may be had by sinking wells a few feet. There are a few fresh water ponds, and numerous small meadows. It is a fair township for settlement. —*Hermon and Bolton*, D.L.S., 1873.

15. *Outlines.*—South and west is undulating prairie, with a few clumps of poplar and willow. The soil is a dark sandy loam. —*John McLatchie*, D.L.S., 1873.

Sub-division.—Is first-class rolling prairie, well watered with small lakes, and has a considerable quantity of poplar in the south-eastern portion.—*J. Holmes*, D.L.S., 1873.

16. *Outlines.*—Is an undulating prairie. The soil is a dark loam. —*John McLatchie*, D.L.S., 1873.

Sub-division.—The surface, soil and timber are the same as the preceding township, but it is not so well watered, except in the northern part, which is traversed by the Little Saskatchewan River.—*J. Holmes*, D.L.S., 1873.

17. *Outlines.*—Along the western boundary the timber has nearly all been burnt; here and there small green poplar is growing up. In sections 3 and 4 there is some good hay land. The soil is a good sandy loam.—*John McLatchie*, D.L.S., 1873.

Sub-division.—This township is all heavily timbered, principally with poplar of large size, particularly in the northern part of the township. Here and there are patches of grass land. The soil is of second quality. The surface of the township is much broken by numerous small lakes.—*J. Holmes*, D.L.S., 1873.

Correction Survey.—Brulé and windfall covers the most of this township. The soil is all of a first-class quality. The township is well suited for settlement.—*J. Vicars*, D. L. S., 1888.

18. *Outlines.*—Along the northern boundary the country is rolling, and covered with large poplar, with a dense undergrowth of willow and hazel. There are also a few white birch. There are numerous small lakes. The soil is a good sandy loam. Along the western boundary fires have run through the timber in several places, and there are many windfalls.—*John McLatchie*, D.L.S., 1873.

Sub-division.—Consists of lakes and woods, the latter containing very heavy timber. The soil is excellent, but everywhere densely covered with timber and brush.—*Joseph Doupe and Angus McFee*, D.L.S., 1880.

RANGE XXI.

13. *Outlines.*—Along the southern boundary the country is a rolling prairie, with bluffs of poplar and willow scrub. The soil is a light sandy loam, intermixed in places with gravel.

East, rolling prairie, with bluffs of poplar, willow and other scrub. The soil is a second-class sandy loam, black sand and large stones in places.—*A. C. Webb*, D.L.S., 1873.

Sub-division.—The soil is first-class. About one-third of the township is timbered with poplar. The remaining is prairie, and is well watered by ponds and marsh springs.—*J. Holmes*, D.L.S., 1873.

14. *Outlines.*—North and east is rolling prairie, with a good deal of low scrubby bushes and scattered bluffs of poplar. The soil is a sandy loam of second-class quality.—*A. C. Webb*, D.L.S., 1873.

Sub-division.—The character of the country is similar to that in the preceding township.—*J. Holmes*, D.L.S., 1873.

15. *Outlines.*—South and east is an open, undulating prairie, with occasional bluffs of poplar and willow. There are a number of gravel ridges here and there. The soil is a sandy loam.—*John McLatchie*, D.L.S., 1873.

Sub-division.—The surface is an undulating prairie. The soil rather gravelly. Small patches of bush are very frequent, and there are several clumps of dry poplar and willow. Swamps are numerous, but small.—*W. and D. Beatty*, D.L.S., 1873.

16. *Outlines.*—Along the northern boundary it is generally an open, undulating prairie, with brush in many places, and gravel ridges here and there. The western half of section 32, and the eastern half of 31, are rather low. The soil is a sandy loam. The general character of the country along the eastern boundary is similar to that on the north.—*John McLatchie*, D.L.S., 1873.

Sub-division.—This township is of a similar nature to that of the preceding one.—*W. and D. Beatty*, D.L.S., 1873.

17. *Outlines.*—Along the northern boundary it is generally an open, undulating prairie, with brush in many places, and gravel ridges here and there. The soil is a sandy loam.

Along the eastern boundary the country is much the same, excepting that there are numerous bluffs of poplar from section 13, northwards, and also several small lakes.—*J. McLatchie*, D.L.S., 1873.

Sub-division.—About one-third is undulating prairie, one-sixth burned woods, with undergrowth of various kinds, and

one-half wooded with a fine heavy growth of poplar, fit for fuel and building purposes. The soil is first-class, except on the high and dry banks of the Little Saskatchewan River, which flows through the easterly part of the township.—*Duncan Sinclair*, D.L.S., 1875.

18. *Outlines.*—North and east, the country is much broken up by numerous small lakes. The surface of the land is nearly covered by brush, principally poplar, much of which has been burnt. The soil is a sandy loam of good quality—*John McLatchie*, D.L.S., 1873.

Sub-division.— About one-fourth is partial prairie, with scrub willow, etc.; the other three-fourths is covered with large poplar, in many places scorched by fire. There are a good many fresh water lakes in the north-western quarter, and a beautiful clear-watered and sandy-beached lake at the north-eastern corner. The Little Saskatchewan River flows through the easterly part. The soil is first-class everywhere.—*Duncan Sinclair*, D.L.S., 1875.

RANGE XXII.

13. *Outlines.*—South and west, is undulating prairie, with many bluffs of poplar and clumps of willow scrub. The soil is a light clay loam of a first and second-class quality.—*A. C. Webb*, D.L.S., 1873.

Sub-division.—Is well wooded and watered. The timber is poplar, large enough for building purposes. The greater part of the surface is rolling prairie, the timber being scattered over it in small clumps. The soil is excellent.—*J. H. Reiffenstein*, D.L.S., 1873.

14. *Outlines.*—Is rolling prairie, with many bluffs of poplar and scrub. The soil is a light clay loam of a first and second-class quality.—*A. C. Webb*, D.L.S., 1873.

Sub-division.—Is of a similar character to that of the preceding township.—*J. H. Reiffenstein*, D.L.S., 1873.

15. *Outlines.*—South and west is an open and undulating prairie, studded with a few clumps of poplar and willow. There are a good many gravel ridges. The soil is a sandy loam of good quality.—*John McLatchie*, D.L.S., 1873.

Sub-division.— Is principally prairie, with good soil, although gravelly in places. In some localities there are small bluffs of poplar. There are numerous and good hay swamps. Oak River flows through the south-westerly part of the township in a stony valley.— *W. and D. Beatty*, D.L.S., 1873.

16. *Outlines.*—North and west, is an open, undulating, brushy country, with occasional clumps of poplar. There are numerous small ponds. The soil is a sandy loam of good quality.—*John McLatchie*, D.L.S., 1873.

Sub-division.—The soil is of good quality, being a dark sandy loam. The surface is principally an undulating prairie,

with patches of willow brush and small swamps; there is a considerable quantity of good poplar along the eastern shore of "Salt Lake," which lies in the centre of the township. The waters of this lake are very bitter and salt. Springs of pure water abound on the north-eastern shore of the lake. There is a dry bed of an alkaline lake in the northerly part, which is coverd to a depth of about two inches with a deposit of salts of soda.— *W. and D. Beatty*, D.L.S., 1873.

17. *Outlines.*—South and west, is an open, undulating, brushy country, with occasional clumps of small poplar and willow. There are a number of scattered small ponds and hay marshes. The soil is a sandy loam of good quality.—*John McLatchie*, D.L.S., 1873.

Sub-division.—Is nearly all rolling prairie, with first-class soil, except a few salt and alkaline patches in the southern half, where there are a few salty lakes; yet every quarter-section has three-fourths of it good arable land.—*Duncan Sinclair*, D.L.S., 1875.

18. *Outlines.*—West, is generally an undulating prairie, with occasional clumps of brush and poplar. The soil is a sandy loam of good quality. There are numerous small lakes and ponds. There is a small creek, ten links wide, running through section 31.

North, is mostly timbered, principally with poplar and white birch. The surface is much cut up by numerous small lakes. The soil in the timbered land is all a rich, sandy loam of a first-class quality.—*John McLatchie*, D.L.S., 1873.

Sub-division.—Is half prairie and half woodland. The soil is good everywhere. The timber is large, sound and clear, much of it fit for sawn lumber. There are a great number of small lakes, many of which are brackish, unpalatable to our taste, but relished very much by our cattle.—*Duncan Sinclair*, D.L.S., 1875.

CHAPTER XXIII.

County of Shoal Lake.

The country between the Little Saskatchewan River and Shoal Lake is well suited for cultivation. The soil is a light black mould. Blocks and boulders of gneiss and limestone are very abundant on the surface of the plain in certain localities. Shoal Lake is a fine sheet of fresh water, several miles in length and about half a mile wide Around the lake the soil is light, sandy and gravelly, but improves again at a short distance. Thence to Bird Tail Creek, the soil is certainly poor, the grass coarse and wiry looking, especially on the ridges, where beneath a rather thin black mould is a poor white gravelly substratum; it presents a brown and withered aspect.—*Lt. A. R. C. Selwyn*, 1872.

From the Little Saskatchewan westerly along the trail, the eastern part is an open, undulating plain, with a fair soil. About Shoal Lake there is some fertile land, partially wooded; from thence west is a poor stony soil, partially wooded. There is a good supply of fresh water in the streams and some of the lakes.—*Henry A. F. McLeod, C.E.*, 1872.

From Forked Creek (shown on recent maps as Two Creeks) to Fort Ellice north-westerly, following the direction of the Assiniboine, the soil is sandy; there are a number of wide and deep gullies, running back a short distance from the river, and the small streams which flow through them generally emerge from swampy lakes a little distance back. The prairies are dotted with groves of poplar. The soil in the neighbourhood is well fitted for the growth of wheat, barley, potatoes, etc.; the pasturage is good.—*Captain Palliser*, 1859.

RANGE XXIII.

13. *Outlines.*—Along the eastern boundary it is an undulating prairie, with many bluffs of poplar and patches of willow scrub. Sections 1, 2, 3 and 4 are rolling prairie, with light clay loam soil. Sections 5 and 6 are rolling and hilly, with bluffs of poplar windfall, intermixed with willow and other scrub.—*A. C. Webb*, D.L.S., 1873.

Sub-division.—The surface is undulating prairie, with small bluffs of poplar The soil is good, and there are many ponds; good fresh water may also be had by sinking wells.—*Hermon and Bolton*, D.L.S., 1873.

14. *Outlines.*—North and east, is rolling prairie, with small bluffs of poplar and scrub. The soil is a light clay loam of first and second-class quality. Oak River runs through section 34. *A. C. Webb*, D.L.S., 1873.

Sub-division.—The surface is undulating prairie, with bluffs of small poplar intermixed with scrub. The soil is of a good quality, and there are many ponds; good fresh water may also be had by sinking wells. Oak river runs in a south-easterly direction across the north-eastern corner of the township.—*Hermon and Bolton*, D.L.S., 1873.

15. *Outlines.*—East and south, is an undulating prairie, with a few small scattering clumps of poplar, and a considerable amount of willow brush. There are a number of gravel ridges. The soil is a sandy loam of a second-class quality.—*John McLatchie*, D.L.S., 1873.

Sub-division.—Is an undulating prairie, with a number of small bluffs of poplar. The soil is good, and there are many small ponds; good water may be had by sinking wells.—*W. and D. Beatty*, D.L.S., 1873.

16. *Outlines.*—North and east, is an undulating prairie, with a considerable amount of willow and poplar scrub, and occasional bluffs of poplar. There are many small ponds. A part of Shoal Lake lies within section 32. There are a number of gravel ridges throughout the township. The soil is a sandy loam of second-class quality.—*John McLatchie*, D.L.S., 1873.

Sub-division.—The soil is a black sandy loam, gravelly in places. The surface is undulating, principally prairie, with numerous small clumps of brush and islands of poplar. Shoal and Raven Lakes lie in the westerly part. The water in both these lakes is good. A road to Riding Mountain House crosses the north-western corner of the township.—*W. and D. Beatty*, D.L.S., 1873.

17. *Outlines.*—South and east, is an undulating prairie, with many clumps of poplar and brush. There are a great number of small shallow ponds scattered throughout. The soil is a sandy loam of a second-class quality.—*John McLatchie*, D.L.S., 1873.

Sub-division.—Rolling prairie, with hay marshes and bluffs of poplar and willow. Two branches of Oak River run into Shoal Lake, of which a part lies in this township. The soil is fertile, and in every respect the land is attractive for settlement.—*Joseph Doupe*, D.L.S., 1879.

18. *Outlines.*—North and east, is an undulating brushy prairie, with a number of poplar bluffs. There are a great number of small ponds throughout. Oak River flows southerly through section 36; it is ten links wide; the water is good. The soil is a sandy loam of a second-class quality.—*John McLatchie*, D.L.S., 1873.

Sub-division.—Rolling prairie, with hay marshes and poplar bluffs. Two branches of Oak River and Three Mile Creek run through the eastern portion of this township. The soil is good, and some of the land was settled prior to the survey.—*Joseph Doupe*, D.L.S., 1879.

RANGE XXIV.

13. *Outlines.*—It is high rolling and in some places a hilly prairie along the southern boundary. On the southern half of section 1 there are poplar woods intermixed with willow and other scrub. The soil is a light clay loam, of a first and second-class quality. Sections 7 and 18 are hilly prairie, with a number of gravel ridges. Soil, second and third-class quality. Sections 6, 30 and 31 are rolling prairie with first-class sandy loam soil.—*A. C. Webb*, D.L.S., 1873.

Sub-division.—The soil is principally a rich, dark clay loam, with occasional gravel hills, the summits of which are thickly strewn with boulders. There are several lakes with good water, and number islands, of timber with underbrush throughout the township.—*Hermon and Bolton*, D.L.S., 1873.

14. *Outlines.*—It is a rolling prairie along the northern boundary, with bluffs of poplar and willow scrub. The soil is a clay loam of first and second-class quality. On the western boundary it is rolling prairie, with low willow scrub. The soil is a first-class sandy loam.—*A. C. Webb*, D.L.S., 1873.

Sub-division.—The general character of this township is similar to that of the preceding township.—*Hermon and Bolton*, D.L.S., 1873.

15. *Outlines.*—South and west, is an undulating brushy prairie, with occasional clumps of poplar. The soil is a sandy loam of first and second-class quality Arrow River flows southerly along the western boundary; there was no water in it at the time of the survey in September.—*John McLatchie*, D.L.S., 1873.

Sub-division.—This township is well adapted for settlement; the soil is generally a rich, dark clay loam; there are a number of gravelly ridges, the summits of which are strewn with boulders. There are a few scattered bluffs of poplar intermixed with underbrush.—*W. and D. Beatty*, D.L.S., 1873.

16. *Outlines.*—North and west, is an undulating prairie, with occasional clumps of poplar and willow. The soil is a sandy loam of a second-class quality. Arrow River flows in a southerly direction through sections 6 and 7.—*John McLatchie*, D.L.S., 1873.

Sub-division.—This township is well adapted for settlement. The soil is a rich, dark clay loam; there are a number of gravelly ridges, the summits of which are strewn with boulders. There are occasional bluffs of poplar, with scrub. There are also a number of marshy ponds, with good hay land.—*W. and D. Beatty*, D.L.S., 1872.

17. *Outlines.*—South and west, is an undulating prairie, with occasional clumps of poplar and willow. There are a few small

patches of hay swamp. The soil is a sandy loam of a second-class quality.—*John McLatchie*, D.L.S., 1873.

Sub-division.—Rolling prairie, with numerous hay marshes and clumps of poplar and willow. The soil is a good clay loam. Three Mile Creek runs through the township. Much of this land was settled on prior to the survey.—*Joseph Doupe and Thomas Drummond*, D.L.S., 1879.

18. *Outlines.*—North and west, is an undulating prairie, with occasional clumps of brush and poplar. There are a number of small patches of hay swamp. The soil is a sandy loam of a second-class quality.—*John McLatchie*, D.L.S., 1873.

Sub-division.—Undulating prairie, interspersed with hay marshes and bluffs of poplar and willow. The soil is a good clay loam. The trail from Fort Pelly to Shoal Lake passes through the township.—*Joseph Doupe and Thomas Drummond*, D.L.S., 1879.

RANGE XXV.

13. *Outlines.*—Along the southern boundary it is an undulating prairie, with light clay loam. Sections 12, 13 and 24 are hilly prairie, with gravel ridges. Soil of second and third-class quality. Sections 1, 25 and 36 are rolling prairie, with a first-clas soil.—*A. C. Webb*, D.L.S., 1873.

Sub-division.—The soil is fair, and the township fit for settlement, being watered by Arrow River and other small streams. There are numerous high gravelly and stony hills.—*Hermon and Bolton.*—D.L.S., 1873.

14. *Outlines.*—Along the eastern boundary the township is a rolling prairie, with low willow scrub. Soil, a first-class sandy loam. Along the northern boundary the country is of the same description.—*A. C. Webb*, D.L.S., 1873.

Sub-division.—The surface is undulating prairie, the soil good, and a fine creek of good water flows through it. There are numerous bluffs of scrub, but not much good timber.—*Hermon and Bolton*, D.L.S., 1873.

15. *Outlines.*—South and east, is an undulating prairie, with occasional clumps of brush. There a number of gravelly ridges. The soil is light, and of a second-class quality. Arrow River runs in a southerly direction along the eastern boundary of the township. There was no water in the river bed at the time of the survey—September.—*John McLatchie*, D.L.S., 1873.

Sub-division.—There is considerable quantity of poplar tim- and scrub in the northern half. The southern half is chiefly prairie. The soil is dark sandy loam of good quality. A

dry ravine, about seventy feet deep, lies at the eastern, and another, about eighty feet deep, in the western part of the township.—*W. and D. Beatty*, D.L.S., 1873.

16. *Outlines.*—North and east, is an undulating prairie, with clumps of willow brush and bluffs of poplar. There are a number of small hay swamps. The soil is a sandy loam of a second-class quality.—*John McLatchie*, D.L.S., 1873.

Sub-division.—The soil is a dark, sandy loam; the surface undulating, principally prairie, but having numerous patches of brush, small swamps, and clumps of poplar and high willow. A road to Fort Ellis crosses the northern part of the township. —*Hermon and Bolton*, D.L.S., 1873.

17. *Outlines.*—South and east, is an undulating prairie, with occasional bluffs of poplar and clumps of willow brush. There are a few patches of hay swamp. The soil is a sandy loam of second-class quality.—*John McLatchie*, D.L.S., 1873.

Sub-division.—The greater part of this township consists of undulating prairie, with small bluffs of poplar and willow, and soil of first-class quality, well adapted for settlement. The greater part of sections 3, 10, 15, 21, and the western half of 22, are occupied by a deep marsh or morass, with bad stagnant water, caused by the discharge of a small stream known as Arrow River, which flows through the north-eastern corner of the township, and empties itself into the marsh in question. There is no building timber, and not enough for fuel, in this township, but there is a sufficient quantity for all purposes in the valley of Bird Tail Creek, which flows through the adjoining townships on the west.—*W. Crawford*, D.L.S., 1879.

18. *Outlines.*—North and east, is an undulating prairie, with occasional bluff of poplar and clump of willow brush. The soil is a sandy loam of second-class quality. Bird Tail Creek flows in a southerly direction through section 31, at the bottom of a deep valley nearly a mile wide.—*John McLatchie*, D.L.S., 1873.

Sub-division.—Is an undulating prairie, soil of fine quality, and well adapted for settlement. There are some small hay marshes and clumps of poplar and willow, but no timber of any consequence. There are quite a number of settlers in the north-western portion of the township, in the vicinity of Bird Tail Creek. The main trail to Fort Pelly runs through this township from the south-eastern to the north-western corner. The eastern tier of sections is much flooded by the overflow of Arrow River.—*W. Crawford*, D.L.S., 1879.

RANGE XXVI.

13. *Outlines and Sub-division.*—The soil is generally a good loam, the surface rolling prairie. Good water is scarce. There are a few small patches of poplar.—*Hermon and Bolton*, D.L.S., 1873.

14. *Outlines.*—North, the land is rolling prairie, with scattered bluffs of poplar and low scrub willow. The soil is a sandy loam of first-class quality.—*A. C. Webb*, D.L.S., 1873.

Sub-division.—Rolling prairie ; the soil is a good clay loam. Good water is scarce. There are a few small patches of poplar. —*Hermon and Bolton*, D.L.S., 1873.

15. *Outlines.*—South and west, is an undulating prairie, with a number of scattered bluffs of poplar and clumps of willow. The soil is a good sandy loam of a second-class quality. There are a number of gravelly ridges, strewn with boulders. There is a hill fifty feet in height in section 6. There are a number of small creeks intersecting the western boundary.—*John McLatchie*, D.L.S., 1873.

Sub-division.—The soil is a sandy loam of good quality. Bluffs of inferior poplar are numerous, as well as small patches of willow brush. The rest of the township is undulating prairie. The township is traversed by two ravines, one ninety and the other fifty feet deep.—*W. and D. Beatty*, D.L.S., 1873.

16. *Outlines.*—North and west, is an undulating prairie, with occasional bluffs of poplar and clumps of willow. The soil is a sandy loam of a second-class quality.—*John McLatchie*, D.L.S., 1873.

Sub-division.—The township is an undulating prairie, with a soil of good sandy loam. Bluffs of inferior quality are numerous, as well as patches of willow brush.—*W. and D. Beatty*, D.L.S., 1873.

17. *Outlines.*—South and west, is an undulating prairie, with occasional bluffs of poplar and willow brush. The soil is a sandy loam of second-class quality. Bird Tail Creek flows in a south-westerly direction through section 6.—*John McLatchie*, D.L.S., 1873.

Sub-division.—This township is broken by Bird Tail Creek, running through it in a south-westerly direction. The valley of the creek is some 250 feet in depth and three-quarters of a mile in width. The valley on the western side is generally open and stony, but on the eastern slope there is some good poplar timber, though not sufficient to supply the settlers for building purposes. The general features of the township are an undulating prairie, with poplar bluffs, clumps of willow, small ponds and hay marshes. The land is of good quality and the township is being rapidly settled up.—*W. Crawford*, D.L.S., 1879.

18. *Outlines.*—North and west, is an undulating prairie, with scattered bluffs of poplar. The soil is a sandy loam of second-class quality.—*John McLatchie*, D.L.S., 1873.

Sub-division.—The eastern tier of sections is much broken by the valley of Bird Tail Creek, which flows through a deep valley from 100 to 200 feet in depth, in a southerly direction. There is no timber of any value in this township, that on the

western side of the creek being of an inferior quality. However, timber may be easily obtained in the forests to the north and floated down the creek during high water. The soil is generally of good quality and fit for settlement.— *W. Crawford*, D.L.S., 1879.

RANGE XXVII.

13. *Outlines.*—Along the southern boundary the surface is a rolling prairie, with many small ponds of water. The soil is a sandy loam, intermixed in places with gravel. The land is good for farming purposes.—*A. C. Webb*, D.L.S., 1880.

Sub-division.—The eastern portion is broken by the valley of the Assiniboine; the western half is rolling prairie of fair character. There are a few ravines here and there, but they are useful for drainage purposes. The soil is a rich black loam about 18 inches in depth. There is sufficient good timber for the requirements of settlement.—*Evans and Bolger*, D.L.S., 1880.

14. *Outlines.*—North, the plateau above the valleys of the Assiniboine River and Miniwaste Creek is a high rolling and hilly prairie with bluffs of popular and oak. The above mentioned river and creek are situated in wide valleys, and from 150 to 200 feet below the level of the surrounding country. Heavy elm, maple, poplar and dense scrub are met with on the slopes of the valleys. Here much of the land is low, and early in the season is liable to flood, rendering it more adapted for grazing purposes and hay land, than for farming.—*A. C. Webb*, D.L.S., 1880.

Sub-division.—Traversed diagonally by the Assiniboine River, which is joined by two streams in the township. Some portions of the land are covered with boulders, but in general the soil is free from stones, and it is rich in quality. There is a good deal of timber.—*Evans and Bolger*, D.L.S., 1880.

15. *Outlines.*—South, is much broken by the valley of the Assiniboine River, and also by two small creeks flowing into the river. The river is about two hundred feet below the level of the prairie. There is some poplar, elm, ash, maple and oak timber along the slopes of the river valley.

East, is an undulating prairie, with a number of scattered bluffs of poplar and clumps of willow. There are a number of small creeks intersecting this boundary.

The surface of the township is strewn with boulders. The soil throughout is a sandy loam of good quality.—*John McLatchie*, D.L.S., 1873.

Sub-division.—The soil is a sandy loam, with some gravelly knolls. The township is traversed by the Assiniboine River and Bird Tail Creek. On the whole it is well adapted for cultivation. There is a Sioux Reserve in the south-western corner of the township. —*Joseph Doupe*, D.L.S., 1880.

16. *Outlines.*—North and east, is an undulating prairie, with occasional bluffs of poplar and clumps of willow. The soil is a good sandy loam of second-class quality. Bird Tail Creek flows through a deep valley in sections 35 and 36. There are some small oaks along the slopes of the valley of this creek. Snake Creek flows in a southerly direction through section 31; it was dry at the time of survey—October.—*John McLatchie*, D.L.S., 1873.

Sub-division.—Rolling prairie, and traversed by Bird Tail Creek. There is a good deal of poplar scattered about, quite enough for settler's requirements. The soil is fair, but stony in places.—*Joseph Doupe*, D.L.S., 1880.

17. *Outlines.*—South and east, is an undulating prairie, with occasional bluffs of poplar and clumps of willow. The soil is a good sandy loam of a second-class quality. Bird Tail Creek flows through a deep valley in sections 1 and 2. There are many large boulders strewn on the prairie flats in the valley.—*John McLatchie*, D.L.S., 1873.

Sub-division.—Rolling prairie, traversed by several small creeks, and dotted with small patches of scrub willow and occasional clumps of poplar, sufficiently large for fencing purposes. The soil is a friable loam from one to two feet deep, with clay sub-soil.—*F. W. Armstrong*, D.L.S., 1880.

18. *Outlines.*—North and east, is an undulating prairie, with scattered bluffs of poplar and clumps of willow brush. There are a number of small hay swamps throughout. The soil is a good sandy loam of second-class quality.—*John McLatchie*, D.L.S., 1873.

Sub-division.—Rolling prairie, rather broken by sloughs and dotted over with clumps of poplar and willow. Two or three creeks traverse the township. The soil is a rich black loam.—*F. W. Armstrong*, D.L.S., 1881.

RANGE XXVIII.

13. *Outlines.*—South and east, the surface is a rolling prairie, with many small ponds. The soil is a first-class sandy clay loam.—*A. C. Webb*, D.L.S., 1880.

Sub-division.—Rolling prairie. There are a good many hay marshes and pond holes. The water is of good quality. The soil is very rich and deep.—*Evans and Bolger*, D.L.S., 1880.

14. *Outlines.*—Along the western boundary the surface is a rolling prairie, with many small ponds. The soil is a sandy loam of a first and second-class quality.

North, is mostly a level prairie, with excellent hay lands. The land is rather stony in places and is of first and second-class quality.—*A. C. Webb*, D.L.S., 1880.

Sub-division.—Rolling prairie. The low lands are rather marshy, but throughout the soil is excellent and deep. There

is plenty of good water and hay.—*Evans and Bolger*, D.L.S., 1880.

15. *Outlines.*—The surface along the western boundary is a high rolling prairie, stony in places, and occasional gravel ridges. The soil is a sandy loam of a first and second-class quality.—*A. C. Webb*, D.L.S, 1875.

South, is an undulating prairie, with a number of boulders strewn over the surface. There are a number of gravelly knolls. The soil is very firm and stiff.—*John McLatchie*, D.L.S., 1873.

Sub-division.—Rolling prairie, traversed by the Assiniboine River. The soil throughout is good, and there is a fair quantity of timber.—*Joseph Doupe*, D.L.S., 1880.

16. *Outlines.*—Along the western boundary it is a high, undulating prairie, with bluffs of poplar and scrub. The soil is sandy, second to fourth-class quality. Beaver Creek passes through section 18; it is 150 feet below the level of the prairie; its water is good, two feet deep, with a strong current. Along the river flats there are poplar woods, dense scrub, and muskeg.—*A. C. Webb*, D.L.S., 1875.

North, is an undulating prairie, with occasional bluffs of poplar and clumps of willow. The Assiniboine River flows through a deep valley in sections 33 and 34. The soil is a sandy loam of second-class quality. Fort Ellice, a Hudson Bay Company's post, is situated in section 33.—*John McLatchie*, D.L.S., 1873.

Sub-division.—Traversed by the Assiniboine River and Beaver Creek. The land is generally of fair quality, but in some places it is stony. There is a good deal of young timber scattered about.—*Joseph Doupe*, D.L.S., 1880.

17. *Outlines.*—The Assiniboine and Qu'Appelle rivers cross the western boundary of this township. There is heavy poplar timber in places along this boundary. The soil generally is of second and third-class quality.—*A. C. Webb*, D.L.S., 1875.

South, is an undulating prairie, with occasional bluffs of poplar and clumps of willow brush. The soil is a sandy loam of a second-class quality. The Assiniboine River flows through a valley about two hundred feet deep, in section 4.—*John McLatchie*, D.L.S., 1873.

Sub-division.—Rolling prairie. The soil is a dark, friable loam, with clay sub-soil. The township is watered by Snake and Assiniboine rivers. There is a fair quantity of timber.—*F. W. Armstrong*, D.L.S., 1880.

18. *Outlines.*—Along the western boundary it is a high, rolling prairie, with occasional bluffs of poplar. The soil is a rich loam of a first-class quality.—*A. C. Webb*, D.L.S., 1875.

North, is an undulating prairie, with occasional bluffs of poplar and willow. The soil is a good sandy loam of a second-

class quality. Section 31 is much broken by the deep valley of a creek.—*John McLatchie*, D.L.S., 1873.

Sub-division.—Rolling prairie, broken towards the north-west by deep ravines and gullies. The soil is very rich and deep. It is well watered by Snake River and two large creeks. There is a fair proportion of timber.—*F. W. Armstrong*, D.L.S., 1880.

RANGE XXIX.

13. *Outlines.*—East and south, is a rolling prairie, rather hilly in places. There are many small ponds. The soil is a sandy loam of a first-class quality.—*A. C. Webb*, D.L.S., 1880.

Sub-division.—Well adapted for settlement, notwithstanding the scarcity of wood. Plenty of hay and grass. Traversed by several coulées.—*Joseph Doupe*, D.L.S., 1880.

14. *Outlines.*—East and north the surface is rolling prairie, with many small ponds. There are a few bluffs of poplar and scrub along the northern boundary. The soil throughout is a sandy loam of a first and second-class quality.—*A. C. Webb*, D.L.S., 1880.

Sub-division.—Rolling prairie, with numerous hay marshes. In the north-western quarter are a few bluffs of poplar and willow. Several ravines traverse the township. The soil is fair, but stony in places.—*Joseph Doupe*, D.L.S., 1880.

15. *Outlines.*—Along the eastern boundary it is a high rolling prairie, and stony in places. The soil is a sandy loam of a first and second-class quality. Along the southern boundary the land is rolling, with occasional clumps of willow and poplar. The soil is gravelly and stony.—*A. C. Webb*, D.L.S., 1875.

Sub-division.—Rolling prairie. A salty creek traverses the township. A few bluffs of poplar, willow and oak towards the southern part. The soil is a sandy loam.—*J. Stewart*, D.L.S., 1880.

16. *Outlines.*—East and north, a high undulating prairie, with bluffs of poplar woods and scrub. The soil is sandy, second to fourth-class. Beaver Creek runs through section 13; it is 150 feet below the prairie level; its water is good, two feet deep, with a strong current. Along the river flat there are poplar woods, dense scrub and muskeg.—*A. C. Webb*, D.L.S., 1875.

Sub-division.—Level prairie; not attractive to settlement, on account of the inferior and stony quality of the land. Beaver Creek, containing good water, crosses from west to east. There are a few bluffs of poplar and willow towards the north-east.—*J. Stewart*, D.L.S., 1880.

17. *Outlines.*—The land along the southern boundary is an undulating prairie, with occasional bluffs of poplar and scrub. The soil is sandy, and of a second and third-class quality. There is a muskeg in section 31.

Along the eastern boundary there are heavy poplar woods in places. The land is very stony in sections 12, 13, 24 and 25. Both the Qu'Appelle and Assiniboine rivers flow through this township.—*A. C. Webb*, D.L.S., 1875.

Sub-division.—The Qu'Appelle valley crosses this township. Its high banks are crowded with timber. The soil in the valley is very good ; elsewhere it is merely coarse sand.—*W. and D. Beatty*, D.L.S., 1880.

18. *Outlines.*—Along the eastern boundary it is a high rolling prairie, with occasional bluffs of poplar and willow scrub. The soil is a rich loam of a first-class quality. On the northern boundary it is stony in places. The Assiniboine River flows through section 3.—*A. C. Webb*, D.L.S., 1873.

Sub-division.—Traversed by the Assiniboine River. The slopes of the valley of this river are well covered with poplar. The valley bottom has good soil, but the remainder of the townhip is inferior.—*W. and D. Beatty*, D.L.S., 1880.

CHAPTER XXIV.

County of Riding Mountain.

The Riding Mountains rise about eight hundred feet from a level county, a few feet above the level of Dauphin Lake, and as far as the eye could judge, present abrupt wooded escarpments towards the east.

We levelled across the country to the ridge which separates the lake from an extensive fertile meadow which lies between it and the mountain. The ridge is $8\cdot\frac{96}{100}$ feet above the present (7th October) level of Lake Dauphin; the meadow, $5\cdot\frac{70}{700}$ feet; and so continues for a distance of one mile, with an almost imperceptible rise until a second low ridge is reached. The meadow is covered with long, luxuriant grass; a few clumps of poplar and thickets of willow vary its uniformity. There are, no doubt, many thousand acres of excellent hay ground on the banks of Dauphin Lake, but the breadth of the tract did not appear to exceed two miles. The oak, on the ridges, occurs in patches, and the trees are from twelve to fifteen inches in diameter.

On the 9th October we started from Dauphin Lake to ascend Riding Mountain For the first mile and a-half the country is quite level and dry, with the exception of three narrow shallow marshes. The soil is excellent, and the hay abundant. We soon arrived at a low ridge which marks the limit of the good land, not averaging more than two miles from Lake Dauphin. To the ridge succeeded marshes and willow brakes. These were bounded by low gravelly ridges, clothed with aspen, which were again succeeded by marshes.

Finding it impossible to outflank the marshes, which appeared to stretch from river to river descending from the mountains, and to be co-extensive with the shores of the lake, we determined to push through to the highest peak, which was in reality the nearest point of the mountain to us—its greater altitude being only apparent on account of its proximity, as we afterwards ascertained. In an hour we arrived at a white spruce swamp, in which many fine trees, fully eighteen inches in diameter, were observed.

Beyond the white spruce swamp we came to an old lake ridge, about fifteen feet above the general level, rounded and composed of limestone gravel, with many boulders of the unfossiliferous rocks on the south or land side. Formidable marshes succeed the ridge. We continued to pass through marshes, aspen islands, and over low ridges clothed with willow, until we reached a quaking bog, the surface of which consisted of a thick elastic covering of moss, sufficiently tough to bear our weight when passing quickly over it, but if we stopped for more than half a minute the moss slowly sank, and a pool of water collected around us. The breadth of this bog where we crossed was about one mile; it was succeeded

by a belt of tall reeds, growing in water one foot deep; wading through this we arrived at a gently sloping ridge, about eighteen feet in altitude. On the other side of this ridge a narrow deep swamp separated us from the foot of the mountain; wading through we ascended a hill about forty feet high and found ourselves on a dry plateau, this point being about eleven miles from Lake Dauphin.

The timber on the hill at the foot of the mountain consists of aspen, with a few small oak. The soil on the plateau is of excellent quality and the underbush very luxuriant.

Leaving the plateau, which is about a mile broad, we ascended a steep embankment about seventy feet high. The plateau ascends very gradually, and is abruptly bounded by a hill bank, from which a broken hilly tract rises towards the escarpment, which forms the eastern limit of Riding Mountain. This broken tract is covered with aspens and spruce of large size, especially in the hollows. We crossed the beds of two or three streams which flowed through deep gullies to the plain below. So far the soil consisted of drift clay, with many large boulders in the beds of the rivulets; but at an altitude of about four hundred feet above Lake Dauphin we arrived at a cliff-like exposure of cretaceous rocks, through which a stream had cut a channel seventy to ninety feet deep.

We now followed a deer path until we arrived at a high conical hill, which promised a fair view of the surrounding country. A wide deep valley separated us from the table land of the Riding Mountain, about one mile distant in an air line, and perhaps two hundred feet above us. Three plateaux were distinctly visible below us; a range of conical hills, the result of atmospheric agencies, lay at the foot of the precipitous escarpment of the mountain, and followed its general direction. The last ascent to the summit was very abrupt; it consisted of a steep escarpment of drift clay with boulders, covered with a fine white spruce, birch and aspen forest. At the foot of the escarpment were ponds, or small lakes, which fed the mountain streams we had crossed.

The summit of Riding Mountain is a vast table land declining in steppes to the Assiniboine. The forest which covers the upper plateau consists of very fine white spruce, birch, poplar and aspen. The circumference of a few trees within fifty yards of our camp were: Aspen, 4 feet 6 inches, 4 feet 6 inches, 4 feet 1 inch, 3 feet 9 inches, 5 feet; white spruce, 7 feet 3 inches, 5 feet 6 inches, 6 feet 6 inches; birch, 3 feet 6 inches, 3 feet; poplar, 4 feet 9 inches, 4 feet 6 inches. These trees represent, as far as observations permitted, the general character of the forest on the summit plateau of the Riding Mountain.

The wild hop grows in great luxuriance and abundance at the south end of Dauphin Lake.

Ponds and lakes are very numerous on the south-western flanks of the mountain, but as far as our opportunities enabled us to judge, the whole of this part of the country, with the exception of narrow ridges, possesses a rich black mould, supporting very

luxuriant herbage, and on the summit of the mountain an ample supply of timber.—*Prof. Henry Youle Hind*, 1858.

The timber at the commencement of the survey at Mossy River (the discharge of Lake Dauphin) is chiefly gray poplar of sound quality, and from 10 to 15 inches in diameter. The country here may be described as alternate strips of land and meadow, a proportion of about two to one. This character of country and timber generally changes as we ascend towards Duck Mountain, the timber becomes larger and the "opens" fewer. At about five miles from Mossy River we met with spruce and tamarack. As we continue, the size and quantity of the timber increases. At 30 miles, many white spruce, 30 inches in diameter and of thoroughly sound quality, together with large tamarack and poplar, can be obtained. From here on for 50 miles, when we turn the north-east corner of Duck Mountain, this heavy character of timber is maintained.

On the banks of Mossy River there is a strong loamy clay, producing rich vegetation. Farther on we reach the meadows before alluded to, where there is a very luxuriant growth of long grass. In these meadows are to be found small lagoons of salt water, whilst sometimes, occasionally in close proximity to salt, there may be a spring of perfectly pure water. This salt water is not met with after the fifth mile. The swamps mentioned between the 15th and 26th miles would for some time be an obstacle to cultivation, though it is probable that the drainage caused by the construction of the railway would be much towards their improvement. After this is passed, we enter on a better drained country, and the strength of the soil is evidenced by the luxuriant and varied undergrowth in the forest, together with the numerous kinds of grasses produced.

The elevation of township 33, range 21, west of the principal meridian, is 1,046 feet above the sea, or about 250 feet above Lake Winnipegosis.—*C. C. Cunningham, C.E., C.P.R. Survey*, 1874.

The Riding Mountains form an elevated plateau arising gently from the south and breaking off sharply to the north at an elevation of from 800 to 1,000 feet above the plain to the north of them, of which I will speak at greater length hereafter. The mean approximate height of the part I was over above the sea level, as deduced from a great many observations with a good aneroid barometer, is 1,750 feet.

The character of this portion of country is very varied, being composed of hills thickly covered with poplar, spruce and some tamarack, thickly lined with underbrush of hazel, willow, cherry, a berry bush peculiar to the country called saskatoon, and in some places wild roses, interspersed with muskegs, small lakes, bogs, some of which will yet yield excellent peat fuel, and meadows, some of which produce good hay of the kind peculiar to the country. The soil, though of a very uneven surface, is not enough so to render it unfit for cultivation, and is of a very good quality, with the exception of one or two sections. This is abundantly testified to by the enormous growth which the ground sustains. I

have frequently made a rough estimate of the number of trees on an acre, and found it to run from 600 to 1,000, along with the brush mentioned, and in most places also a good growth of wild pease, which make excellent food for cattle and horses all the year round.

I think it would be fair to assume that not more than three-fifths of the area of the country is available as arable land, the rest being as described above. In some of the lakes there is a deposit of a grayish-yellow colour, possessed of a peculiarly offensive odour; it is composed of decayed grasses, bird manure and fine fresh-water shells; under the microscope it appears to be composed principally of the latter. I believe it will yet be valuable as a manure for the poorer lands in the Territories. Nearly all the lakes have neither inlets nor outlets, and consequently will in time fill up, becoming muskegs, bogs and marshes. They are, with very few exceptions, devoid of fish; but most of them are frequented by immense flocks of wild fowl.

The character of the timber of this district is very poor, when compared by our Ontario and Quebec standard—the poplar being too small for anything but building the walls of the ordinary log houses generally built in the country. In one or two places I have seen patches of poplar large enough to make good sized planks; but such patches would be of little relative value in such a large extent of country.

The spruce, though always of a fair size and often above the average for the manufacture of lumber, is almost useless, owing to the large number of limbs and consequent number of knots. But in some places, especially in township 22, ranges 19 and 20, west, there are large groves of spruce and tamarack, which would yield one or two logs, each averaging about 15 inches in diameter, which would make a fair quality of lumber. These, if required for the southerly and easterly parts of the country, could be drawn from where they are situated to Lake Audy, a distance of from 10 to 15 miles; thence floated down the Little Saskatchewan River to the Assiniboine, and thence to wherever required. Along the base line between townships 20 and 21, ranges 21 and 22, west, and the meridian exterior between townships 21 and 22, ranges 22 and 23, west, there are numerous small groves of spruce and tamarack nearly as good as the above described, which are from one to fifteen or eighteen miles from Lake Audy.

The timber in townships 22 and 23, ranges 19 and 20, west, if required for the country north of Riding Mountain, could be put into a river, which I have called Robinson River*, and its tributaries, with very little trouble, and then floated down to Lake Dauphin or Lake Winnipegosis, and there distributed: or, if more expedient, the logs could be cut into lumber on the part of the river along which they stand, as there is hardly 100 yards of the stream situated in the mountains which could not be converted into a mill-site. For purposes not requiring large, clean trees, such as

*Robinson River is supposed to be an affluent of the Vermillion, and joins the latter in about the centre of township 23, range 20.

framing timber and railway ties, almost unlimited quantities could be obtained. Robinson River averages from 50 to 100 feet in width and is very crooked. To render it navigable for logs or lumber would require a little labour to clear away barriers of trees and brush which have accumulated in a few places. At the base of the mountain the river divides into numerous smaller streams, runs into a swamp and is lost for a distance of 300 or 400 yards, when it again collects from numerous small streams its original volume, and flows, I believe, uninterruptedly to its mouth. If there was a channel cleared through the bush and trees in the above-mentioned swamp, and the roots cut, the current would soon wear for itself a channel as large as the rest of the stream.

Although there are numerous rock exposures in township 22, ranges 19 and 20, west, they are, with one exception, useless as building material, being a soft, clay-grey-coloured clay-stone. The exceptional exposure is situated on section 24, township 22, range 21, west. It is a whitish-coloured hard stone, which seems to be calcareous sandstone. As to its quantity or the facility of obtaining it, I cannot say much, but if in sufficient quantity and easily quarried, it will be useful to the surrounding country.

In going from the 6th correction line to the 7th base line I had to follow the Robinson River, the country on the mountain slopes being, as far as I could ascertain, practically impassable for my purpose. The river is very crooked.

Immediately at the base of the mountains, and for 3 or 4 miles north, the land is flat, and mostly covered with poplar and willow. The remainder is low, swampy meadow. This is succeeded by fine prairie land with patches of poplar, the soil of which is equal to any I have seen in any part of Manitoba or the Territories. This plain lies along the Vermillion River, extends about 6 or 7 miles on each side of it, and northwards as far as the eye could reach when looking from quite an eminence. Outside of this are large meadows of good hay, which are succeeded by open poplar woods. The river is bordered by a belt of timber about one-half mile on each side, containing oak, elm and ash. The oak is a great deal better quality of wood and much larger size than any I saw in any other part of the territory, frequently attaining 2 to $2\frac{1}{2}$ feet in diameter, but rather shorter than the same diameter would give in Ontario. I used some of the oak in the manufacture of our sleighs, and believe that when properly dried and seasoned it would compare favourably with most of our eastern oak in the manufacture of articles to which that wood is usually applied. The elm and ash are small, and are not of much value. There are also numerous bluffs of a tree peculiar to the territory, which the Indians call the sugar-tree.* In the spring-time, if tapped, it yields a sap which, when properly treated, yields a sugar much resembling our maple sugar. The tree is scrubby, and does not grow more than 8 or 9 inches in diameter; the wood is soft, and would be useless for anything but fuel.

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*The ash-leaved maple (*Negundo Accroides*).

Of the suitability of the climate of this plain for the production of our ordinary grains I can not say anything directly. I kept a daily record of all the meteorological conditions during the time I was in the field, but as my visit to this section was very short my observations are not of much use, as far as its temperature is conerned. I can, however, advance the following views: It is much sheltered from westerly storms by Duck Mountains and from southerly ones by Riding Mountains, and my experience in that country is that in winter storms from these quarters are the coldest; the plain is from eight hundred to one thousand feet below where my observations were taken, and consequently the mean temperature ought to be above that observed by me. The snowfall appears to be light, there being only about six inches of snow when I left (10th January), and, judging from the abundance of wild hops, wild roses and wild gooseberry bushes, I would say that the climate is as suitable for the production of the ordinary grains as that south of the mountains.

In conclusion, with reference to the agricultural capabilities of the townships which my block lines include, I would say that the land is nearly all of a very good quality.—*Wm. Ogilvie*, D.L.S., 1875.

The settlers at Pine Creek are French half-breeds, chiefly from Duck Bay, Lake Winnipegosis, or from St. Laurent, Manitoba, and Indians on the reserve. All subsist, to a greater or less extent, by hunting and fishing, and the employment afforded by the fur trade, although some have cattle, and nearly all cultivate some potatoes.

Marshy land, yielding an inferior grass and hay, is found in considerable areas along Pine Creek, and a large amount of stock might be kept. These open, grassy tracts, which appear in nearly every instance to be of a marshy character, are the results of the saline quality of the soil, in every case due probably to the percolations from brine springs. The vents of some of these springs were pointed out in the marsh at one place by the natives. The springs were then dry, but I was shown a sample of water from a shallow excavation in the cellar of one of the houses, which, although quite clear and icy cold at that season, tasted like a strong solution of common salt.

Outside the grassy areas all is forest, consisting of poplar, spruce, white birch and tamarack of good size. There is no true prairie.

The soil of the woodland appears to be very good, and would no doubt produce abundant crops under cultivation.

Pine Creek itself, from its mouth to the rapids a little above the Hudson Bay Company's post, is a somewhat sluggish stream, with an average width of about two chains. It enters Lake Winnipegosis through marshy land, which extends along the left bank with gradually diminishing breadth, almost to the rapids, but ends on the right bank before the south boundary of the Indian reserve is reached. Above the rapids the stream is about a chain wide.—*John McAree*, D.T.S., 1889.

The country surveyed (including the two partly completed townships) forms a rectangular block and is contained within townships 24, 25 and 26, in ranges 21, 22, 23 and 24, west.

This tract of land is drained by Drifting, Valley and Wilson rivers and their tributaries. Drifting River enters the survey in township 26, range 22, and flows in a south-easterly direction into range 21, where it is turned north by a gravel ridge, and crosses the 7th correction line in section 32, range 21. However, it re-enters the survey in section 33 in the same range and again runs south-east to its junction with Valley River. Drifting River can always be relied on to furnish excellent water.

Valley River comes into the survey in section 19, township 25, range 24, and follows a crooked course, generally to the east, and finally discharges into Lake Dauphin. At and near the line between ranges 21 and 22 (township 25) the banks of this river are rough and about 50 feet in height. These banks rapidly decrease in height to the east, and also to the west, as in ranges 23 and 24 they are never more than 30 feet high, and often slope so gradually that they are hardly noticeable. Valley River is large enough to furnish power for ordinary country mills, and in many places dams for that purpose might easily be built.

Several streams unite in or about township 24, range 22, and form Wilson River, which then flows to the north of east, to Lake Dauphin. We found no water in the branches, and only an occasional pond in the main stream, though, no doubt, in ordinary seasons there would be an abundance of water.

Excepting the streams above mentioned, no surface water was found. However, I noticed that wells from 12 to 16 feet deep gave abundance of good water.

Gilbert Plains is nearly all included within these townships. It lies much higher than the Dauphin Plains further east, and is separated therefrom by a belt of woods in ranges 20 and 21. These so-called plains appear to be nearly level; but, as a matter of fact, the land south of Valley River rises gradually towards Riding Mountains in the south-west, while north of that river the rise is to the north-west or in direction of Duck Mountains. This slope is, in itself, sufficient to carry off the water, but in addition there are numerous small winding streams running into the rivers, thus giving this tract remarkably good natural drainage.

The townships along the 7th correction line are generally well supplied with timber. Township 25, range 21, appears to be nearly all woods. Township 24, range 21, is wooded in the easterly and southerly parts; while township 24, ranges 22 and 23, are wooded along the southerly tier of sections. This timber consists of poplar of all sizes mixed sometimes with spruce. The central and western townships are dotted with bluffs of poplar, and along Valley River woods of poplar, elm and spruce are found. These woods have been badly damaged by fires, and one more dry seasons followed by fires will materially increase the area of Gilbert Plains. However, settlers here will have easy access to the timber on Riding and Duck mountains.

Along Valley River some poor gravelly and sandy ridges were noticed, but these seem to be confined to ranges 23 and 21. The remainder of this tract has generally an excellent soil of deep sand or clay loam, with clay or sand sub-soil. No crops have yet been raised, but it is probable a considerable quantity of grain will be sown this spring. On Dauphin Plains, only a few miles east, both grain and roots have been grown with remarkably good results.

It is claimed by the settlers here that summer frosts do not occur in this district. Whether this is a fact remains to be seen, though its relatively low altitude when compared with the adjoining high lands of Duck Mountains to the north and north-west and Riding Mountains to the west, south-west and south, may, and probably does, have a tendency to keep the summer temperature above the freezing point. As cultivation of the soil will have a beneficial effect, in the same direction it may be regarded as certain that this district will be rapidly filled with settlers.

In townships 24, 25 and 26, in range 21, and townships 24 and 25, in range 22, there are a number of squatters, who have built and are living in their houses. The arrival of these settlers before the survey of the land proves at least the existence of the belief in the comparative freedom of this district from summer frost and the confidence felt in its suitability for successful cultivation.—*Edgar Bray*, D.L.S., 1890.

(Additional information concerning this county will be found in Mr. Tyrrell's report. *See page* 18).

RANGE XVII.

19. *Outlines.*—East, the land is nearly all swampy, covered with spruce, tamarack, poplar and birch. The soil is of a third-class quality.

Along the southern boundary the land is higher, with fewer swamps. The soil is of a second-class quality.—*J. Lestock Reid*, D.L.S., 1873.

20. *Outlines.*— North, is very hilly, and covered with heavy woods, consisting of poplar, birch, tamarack and spruce. There is a valley over one and a half miles in width intersecting this boundary. It is about twenty-five feet deep, and in it are numerous hogs-back ridges, and ranges of hills and deep gullies. There are several small creeks running through the valley, the banks of which are from sixty to eighty feet high. The country is so rough and broken as to render it well nigh impassable. The soil within the valley is rated at third class, and that on the elevated portion as second-class.

East, is a hilly country, covered with woods, consisting of spruce, tamarack, poplar and birch. The soil is of a second-class quality.—*J. Lestock Reid*, D.L.S., 1873.

21. *Outlines.*—East, in sections 1 and 12 there is a deep valley, about four hundred feet deep, which is full of hogs-back ridges, and timbered with birch, poplar and spruce.

Sections 13, 24, 25 and 36 are timbered with elm, oak, birch, spruce and tamarack. The soil is of a third-class quality.

South, the deep valley above referred to is intersected by the south boundary, where it is about two hundred and fifty feet deep. The character of the country is similar to that on the east.—*J. Lestock Reid*, D.L.S., 1873.

22. *Outlines.*—East, is timbered with poplar, spruce, tamarack, oak and elm. There is a creek in section 13. Along its banks the land is of a first-class quality; away from it, it is third-class. There are occasional swamps. Section 36 is all swamp.—*J. Lestock Reid*, D.L.S., 1873.

North, the surface is covered with heavy poplar, oak, birch, tamarack and spruce, with dense undergrowth of hazel and willow. The land is good, and of a second-class quality. Ochre River runs in a northerly direction through section 32. —*Edgar Bray*, D.L.S., 1875.

23. *Outlines.*—East, is nearly covered with timber, consisting of poplar, oak and spruce. A good deal of it is windfall, thickly grown up with willow and young poplar. There are occasional marshes here and there. The soil is of a second-class quality.

The land along the southern boundary is of a similar character to that on the eastern. Ochre River flows in a northerly direction through section 4. Its banks here are eighty-five feet high.—*Edgar Bray*, D.L.S., 1876.

24. *Outlines.*—Along the shore of Dauphin Lake there is a belt of poplar and oak timber, with willow intermixed. Back of this there is good meadow land and bluffs of poplar and oak. Ochre River enters the lake near the southern boundary of section 35. It is seventy feet wide at its mouth and three feet deep.

Along the eastern boundary the timber is nearly all windfall, with a new growth of poplar and willow. The land is of a second-class quality.—*Edgar Bray*, D.L.S., 1875.

Sub-division.—The surface of the township is level. Ochre River enters it in section 4, and running in a north-easterly direction, flows into Lake Dauphin. This river has an average width of about one chain. Its banks are not over ten feet in height.

That portion east of the Ochre River is covered with windfall, and overgrown with a dense growth of young poplar and willow. West of the river it is covered with small poplar and willow. Clumps of spruce and tamarack in sections 4, 5, 6, 7 and 8, and elm and poplar along the banks of the river, are suitable for building timber.

Low prairie openings occur in sections 27, 28, 33 and 34, and there are several large marshes west of the river.

East of the river the soil has an average depth of eight inches of black loam, and is rated as class one.

West of the river the soil is a sandy loam.—*John McLatchie*, D.L.S., 1884.

25. *Outlines.*—South, the surface is generally covered with scrubby willow and an occasional bluff of poplar and oak, together with scattered patches of meadow land.—*Edgar Bray*, D.L.S., 1875.

Sub-division.— This township extends along the west shore of Lake Dauphin. One portion, composed of parts of sections 18, 19, 30 and 31, produces a rank growth of reeds and is worthless for hay or farming land. The other portion, composed of parts of sections 3, 4, 5, 6 and 7, is covered with a dense growth of willow and poplar. The soil is rated as first and second-class, and is fairly well adapted for agricultural purposes.—*John McLatchie*, D.L.S., 1884.

27. *Outlines.*—This township is nearly level, with patches of prairie, but generally covered with poplar timber and scrub, much of which, however, is burnt. There is a strip of hardwood along the shore of Lake Dauphin, consisting of oak, elm, ash and maple.

The soil is a black vegetable loam, from six to twenty inches in depth, with a clay sub-soil; in some places the latter is gravelly.—*Thos. Fawcett*, D.L.S., 1890.

28. *Outlines.*—Has a level surface, covered with poplar, most of which has been burnt. There are a few small prairie openings, tracts of scrubby land, and meadows.

The soil is a black loam, from six to twenty inches in depth, with a clay sub-soil; occasionally the latter is rather gravelly.—*Thos. Fawcett*, D.L.S., 1890.

29. *Outlines.*—The eastern boundary, for two and a half miles from the southern, passes through belts of timber, separated by marshy meadows or marshes, when it intersects a marsh between three and four miles in length. There are a number of saline springs in this marsh. The northern fifty chains of the line passes through burnt timber land.

The soil, where the land is dry, is a black loam, averaging about sixteen inches in depth, and is of good quality.—*Thos. Fawcett*, D.L.S., 1890.

30. *Outlines.*—From the south-eastern corner, running north, the line passes through tracts of burnt timber, alternately with marshy meadows, to Lake Winnipegosis.

The soil is a black loam, varying in depth from three to eighteen inches, with a clay, and, in some places, a gravelly sub-soil.—*Thos. Fawcett*, D.L.S., 1890.

RANGE XVIII.

19. *Outlines.*—South, is rolling prairie, with scattered poplar and small shrubs. The land is of a first-class quality.

West, the surface is rolling, and almost entirely covered with thick poplar, spruce and willow bush. It is marshy in

many places. There are two small creeks flowing across this boundary. A small portion of Clear Lake occupies a part of sections 30 and 31 ; the water thereof is good ; the banks are high.—*J. Lestock Reid*, D.L.S., 1874.

20. *Outlines.*—North, is timbered with poplar, spruce, tamarack and high thick willows. Marshy in places. There are several small creeks flowing southwards. There is a lake, partly in section 33, and extending northwards into the adjoining township.

West, the surface is rolling, and covered with poplar, scattered spruce and willow scrub. The soil is second and third-class throughout.—*J. Lestock Reid*, D.L.S., 1874.

23. *Outlines.*—South, the surface is very hilly, and broken by spurs of Riding Mountain, and is covered with heavy woods of poplar, birch, spruce and elm, with a dense bottom growth of hazel and willow. The land is stony, and of a third-class quality.—*Edgar Bray*, D.L.S., 1875.

North, is prairie, with many bluffs of poplar, scrub and a few ash ; much of the timber, however, has been burnt. The surface is undulating ; there are a number of hay meadows. The soil is a black loam, from eighteen to twenty-four inches in depth, with a clay loam sub-soil.

East and south, is heavily timbered with poplar, oak, elm, maple, birch and some spruce. There are a few small patches of meadow, in which there are willows and alders. The land is all of a first-class quality.—*Thos. Fawcett*, D.L.S., 1890.

24. *Outlines.*—North and west, the surface is mostly covered with scrubby poplar and willow, with scattered bluffs of poplar and occasional spruce swamps and marsh. The soil is of a second-class quality.—*Edgar Bray*, D.L.S., 1875.

Sub-division.—Is much broken by muskegs and swamps. Soil is a light sand of poor quality, and is mostly unfit for tillage.

The timber has been nearly all killed by fire.—*Walter Beatty*, D.L.S., 1887.

25. *Outlines.*—Along the westward boundary it is alternately poplar and willow bluffs, prairie with small willows and occasional hay marshes. The soil is of a second-class quality.

South, the surface is mostly covered with scrubby poplar and willow, with scattered bluffs of poplar and occasional spruce swamps and marsh. The soil is of a second-class quality. —*Edgar Bray*, D.L.S., 1875.

Sub-division.—The soil, where tested, was found to be rich black loam, from one and a half to two feet in depth, with a clay sub-soil. Most of the township is timbered with fine oak, ash, elm, maple and poplar.—*Geo. McPhillips*, D.L.S., 1884.

26. *Outlines.*—West, is alternately poplar woods and windfall, grown up thickly with willow and small poplars. The soil is

of a second-class quality. Valley River flows east through section 31. Average depth of water, 3 feet. There is another small stream running east through section 6.—*Edgar Bray*, D.L.S., 1875.

Sub-division.—All the township is timbered, excepting the two easterly rows of sections adjoining Lake Dauphin. The timber is principally poplar, of good size for building purposes. Along the rivers are belts of oak, ash, elm and maple. The ash, though not very large, is good. The oak and elm are very large.

The soil is a black clay loam of about 1½ feet in depth. In the northern portion of the township some sand and a little gravel are mixed with the loam.—*Geo. McPhillips*, D.L.S., 1884.

27. *Outlines.*—West, is covered with a dense new growth of willows and small poplar, excepting in sections 30 and 31, where there are heavy poplar woods. The land is good, and of a second-class quality.—*Edgar Bray*, D.L.S., 1875.

The soil is of a light sandy loam, but rather low. It is covered with timber suitable for building purposes. Along the shore of the lake there is a strip of elm and ash.—*W. N. Small*, D.L.S., 1887.

28. *Outlines.*—West, is covered alternately with poplar woods, poplar with dense bottom growth of willow, and poplar windfall, with a dense new growth of small poplar and willows. The soil is of a second-class quality.—*Edgar Bray*, D.L.S., 1875.

The soil is of a light sandy loam. The land is low, but well adapted for raising stock. It is well covered with timber, principally poplar. Along the lake shore there is some fine elm and ash.—*W. N. Small*, D.L.S., 1887.

29. *Outlines.*—Soil, a heavy black loam. The land is high along Mossy River, but timbered with large poplar, elm and oak. It is marsh in places. There are a number of scattered bluffs of poplar, tamarack and spruce.—*W. N. Small*, D.L.S., 1887.

RANGE XIX.

19. *Outlines.*—East, the surface is rolling, and covered thickly with poplar, spruce and willow brush. It is marshy in many places. There are two small creeks flowing across the boundary. A portion of Clear Lake lies in the north-eastern part of the township. Its waters are good and its shores are high.

South, timbered with poplar bush and a thick undergrowth of willow. There are a number of small willow swamps. The soil is of a second and a third-class quality. There is a portion of a fine lake in section 5, and extending about 4 miles in a northerly direction.—*J. Lestock Reid*, D.L.S., 1874.

Sub-division.—There are three lakes in this township, fringed with woods. The soil throughout is excellent, but the low lands are marshy.—*Geo. Stewart*, D.L.S., 1880.

20. *Outlines.*—East, the surface is rolling, and covered with poplar, scattered spruce and willow scrub. The soil is second and third-class.

North, the land along this boundary is of a similar character to that on the eastern. There is a lake in sections 32 and 33.—*J. Lestock Reid*, D.L.S., 1874.

Sub-division.—The western and northern portions of the township are covered with a thick growth of heavy timber, principally poplar and spruce; the centre and southern portions down to Clear Water Lake are covered with a thick underbrush of small poplar, spruce, willow, hazel, etc. The soil throughout is first-class.—*Geo. Stewart*, D.L.S., 1879.

21. *Outlines.*—South, has a rolling surface, timbered with poplar, spruce and willow scrub. The soil is of a second and third-class quality.—*J. Lestock Reid*, D.L.S., 1874.

22. *Outlines.*—North, the surface is rolling, with occasional knolls and deep ravines. The knolls are from 20 to 112 feet in height. There are several creeks, with water power sufficient to drive a sawmill. The country is timbered with poplar, spruce, white birch and tamarack. The soil is of a third-class quality. —*W. Ogilvie*, D.L.S., 1875.

23. *Outlines.*—West, this line runs through thick woods and dense underbrush, there being no openings or meadows of any size. Near the northern boundary are scattered trees of large spruce intermixed with poplar. The soil is of a first-class quality.—*Thos. Fawcett*, D.L.S., 1890.

24. *Outlines.*—East, the surface is mostly covered with scrubby poplar and willow, with scattered bluffs of poplar and occasional spruce swamps and marsh. The soil is of a second-class quality.—*Edgar Bray*, D.L.S., 1875.

Sub-division.—The Vermillion River, about one chain wide, enters this township in section 19 and leaves it in section 32. Edward's Creek, about 20 feet wide, enters it in section 4, and running in a northerly and easterly direction leaves it in section 36. Both streams furnish an abundant supply of water at all seasons of the year. The soil along the rivers is a rich black loam, averaging about 2 feet in depth.

The township is well timbered with poplar, elm and oak, the poplar averaging 8 to 12 inches in diameter, the elm from 10 to 18 inches, and the oak 10 to 24 inches.

The township is fairly well adapted for agricultural purposes.—*John McLatchie*, D.L.S., 1884.

25. *Outlines.*—Along the eastern boundary it is alternately poplar and willow bluffs, prairie, with small willows and occasional hay marshes. The soil is of a second-class quality.—*Edgar Bray*, D.L.S., 1875.

Sub-division.—The township is traversed by two rivers, averaging about 1 chain wide, which contain an abundant

supply of good water. The banks of these rivers are about 20 feet in height.

The township presents a level surface, and is covered with a growth of poplar, oak, elm, maple, ash and willow, in a belt about half a mile wide along the river banks, the poplar, oak and elm averaging from 10 to 15 inches in diameter along the river banks.

Wild hops, pea vine and vetches grow luxuriantly, and are profusely scattered throughout the township.

A small portion of the township is composed of hay land.

The soil is a rich black loam, averaging eighteen inches in depth, with a clay sub-soil.—*John McLatchie*, D.L.S., 1884.

26. *Outlines.*—East, is alternately poplar woods and windfall grown up with willow and small poplars. The soil is of a second-class quality. Valley River flows easterly through section 36; average depth of water, three feet. There is another stream running easterly through section 1.—*Edgar Bray*, D.L.S., 1875.

The soil is of a light sandy loam, well adapted for mixed farming, having large tracts of hay land. It is well covered with timber, principally poplar for building purposes. The township is well drained by Valley River.—*W. N. Small*, D.L.S., 1887.

Sub-division.—The township is nearly all good undulating land. The soil is a rich sandy loam.

The Valley River is a fine clear stream, varying from two to three chains in width.

Most of the timber in the township has been killed by fire.—*W. Beatty*, D.L.S., 1887.

The part surveyed by me comprises the two western tier of sections 28 and 33, and the northern boundary of the township. The surface is flat, excepting the slopes along Valley River. South of that stream the soil is good, although light in some places. It is in general a sandy loam, with sandy sub-soil. Most of this area has been repeatedly swept by fire, which has killed all the timber and made extensive openings in the woods. Another good fire will render the whole ready for the plough.

North of Valley River the soil is generally of poor quality, consisting of a thin layer on a substratum of stones—small boulders, mosty of flaggy limestone, coated not unfrequently with a thick film of black mud. The timber in this part of the township has been nearly all killed by fire. It consisted of small-sized poplar, with willows, making in general a very thick woods. There is a good deal of grass and wild vetches through the woods. There is a small quantity of green timber along the valley of the river, and on sections 17 and 18. —*John McAree*, D.L.S., 1890.

27. *Outlines.*—East, is covered with a dense new growth of willows and small poplar, excepting in sections 25 and 36, where there are heavy poplar woods. The land is good, and of a second-class quality.—*Edgar Bray*, D.L.S., 1875.

The soil is a light sandy loam. The land is low, with large marshes. The ridges are well covered with poplar. The eastern half is well adapted for agricultural purposes.—*W. N. Small*, D.L.S., 1887.

28. *Outlines.*—East, is covered alternately with poplar woods, poplar, with dense bottom growth of willow, and poplar windfall, with a dense growth of young poplar and willows. The soil is of a second-class quality.—*Edgar Bray*, D.L.S., 1875.

The soil is a light sandy loam. The land is low, except in the north tier of sections, which is well suited for agricultural purposes, but heavily timbered with large poplar. The timber in the centre of the township is poplar, with scattered spruce and tamarack.—*W. N. Small*, D.L.S., 1887.

29. *Outlines.*—Soil is a sandy loam. The land is high along the banks of Mossy and Fork rivers. It is well suited for agricultural purposes, but timbered with large elm, oak and poplar; the remainder of the township being low and marshy, with bluffs of poplar, spruce and tamarack.—*W. N. Small*, D.L.S., 1887.

RANGE XX.

19. *Outlines.*—South, has a rolling surface, heavy poplar bush, with a few scattered birch and thick underbrush, many small ponds and hay marshes.

West, a hilly country, with fine heavy poplar and thick undergrowth. There are a number of small lakes. The soil is of a second-class quality.—*J. Lestock Reid*, D.L.S., 1874.

Sub-division.—Covered with a heavy growth of poplar, spruce and birch. There are numerous small lakes, marshes, muskegs and sloughs scattered about. The soil is rich. The Hudson's Bay Company have a mill about nine miles away, and saw-logs could be floated down there by Cold Water Creek. —*Geo. Stewart*, D.L.S., 1880.

20. *Outlines.*—North, nearly all covered with poplar, spruce and high willows. There is some fine prairie land in sections 32 and 33. There is a creek running in a westerly direction through sections 33 and 34.

West, a rolling country, covered generally with fine poplar timber. Lake Audy has low shores. The Little Saskatchewan River flows southwards through the township. The land throughout is of a second-class quality.—*J. Lestock Reid*, D.L.S., 1874.

Sub-division.—Composed of woods and swamps, with occasional prairie patches of good soil, and pleasantly situated.

The timber is heavy, and lumbermen have already been attracted to this township. Clearwater Creek affords a connection with the Little Saskatchewan River.—*Geo. Stewart*, D.L.S, 1879.

21. *Outlines.*—West, sections 6 and 7 are timbered with poplar, spruce, tamarack and willow. There are a number of small marshy tracts. Sections 18, 19, 30 and 31 have a gently rolling surface, open, grassy, poplar woods, with a fine loose black clay soil of a first-class quality.—*W. Ogilvie*, D.L.S., 1875.

22. *Outlines.*—West, sections 6, 7 and part of 18 have a gently undulating surface, alternately with prairie and poplar woods. The soil is a fine loose black clay loam of a first-class quality. The surface of the remaining portion of the line is very knolly, and timbered with poplar, spruce and tamarack, with a soil of a second-class quality.

North, the surface is very hilly in sections 31, 32 and 36. The whole is covered with poplar, spruce, birch and willows. There are a number of small meadows. A river from 50 to 100 feet in width flows in a northerly direction through section 31, and a creek south-westerly along the northern boundaries of sections 32 and 33; its banks are from 150 to 250 feet high. The soil is of a second and third-class quality.—*W. Ogilvie*, D.L.S., 1875.

West: as seen from this boundary, the township is mostly covered with timber, principally poplar and scattered patches of spruce. In the northerly part there are several deep ravines, in which are fine spring creeks running in a westerly direction. Most of these streams disappear within half a mile from the line. The soil is first-class, and the timber suitable for the requirements of settlement. Many of the trees are large enough to manufacture into lumber, but scarcely good enough to reserve for limits.

There is a dense growth of small poplar, hazel, rose bushes and other scrub, making it next to impossible to travel through the woods without first cutting away the brush.—*Thomas Fawcett*, D.L.S., 1890.

23. *Outlines.*—East, is heavily timbered with poplar, some birch, spruce and tamarack, with a dense underbrush, there being no openings or meadows of any size.

Vermillion River enters the township about 15 chains from the south-western corner and flows north-easterly. The valley of the stream is not more than 30 feet deep where it enters the township, but is nearly 200 where it leaves it, at the northern boundary.

The soil is all that any person could desire, and every inch of space seems to be taken up with a growth of some kind.—*Thos. Fawcett*, D.L.S., 1890.

24. *Outlines.*—The west half is rolling timbered land, with a large number of cold springs. The soil is a sandy loam. The tim-

ber is poplar, suitable for building purposes.—*W. N. Small*, D.L.S., 1887.

Sub-divsion.—The foot of Riding Mountains, which run diagonally through this township, divides it into two distinct parts, the low land to the north-east, and a high undulating plateau, which rises rapidly, to the south-west. The latter is covered with a heavy growth of poplar, greatly damaged by fire, which has burnt some sections to such an extent as to render them fit for cultivation. Some squatters have now good crops in the heart of this burnt country. There are numerous hay meadows on this plateau.

The country lying below this plateau is partly covered with bluffs of poplar and with scrub, most of which is burnt.

The township is well watered with numerous small streams. Plums, hops, gooseberries, red and black currants grow in a wild state. The soil consists generally of about 12 inches of black loam with a clay sub-soil.—*J. E. Woods*, D.L.S., 1890.

25. *Outlines and Sub-division.*—The banks of the Wilson River are about 20 feet high at the eastern boundary and increase to about 80 feet at the western.

There is a dense growth of poplar, oak, elm, ash, maple and willow, intertwined with wild hop-vines, in a belt of about half a mile wide along the banks of the river. Clumps of poplar and willow are found throughout the rest of the township.

The soil is a rich black loam, averaging about 18 inches in depth.—*John McLatchie*, D.L.S., 1884.

26. *Outlines.*—The soil is of a light sandy loam, well adapted for mixed farming, having large tracts of hay land. It is well covered with timber, consisting of poplar with scattered spruce, suitable for building purposes. The township is well drained by Valley River.—*W. N. Small*, D.L.S., 1887.

Sub-division.—The part of the township south of Valley River is more or less open country, with bluffs of poplar of small size, willows and scrub, most of which have been killed by fire. The soil is a loam, or sandy loam, of very good quality, almost, if not entirely, free from stones. The timber and brush on any quarter section could easily be removed by putting in fire at the proper season, and then the land would be equal to open prairie of class 1.

North of Valley River the soil is a loam or sandy loam, but in the north-eastern part the soil is rather shallow, with a sub-soil of gravel. This part (north of the river) is thickly wooded with poplar and willow, the latter forming a very dense growth in some parts. Except in the westerly and northern tier of sections, the timber has all been killed by fire. In the green poplar woods there is a good deal of timber large enough for building purposes. Along Drifting River there are a number of clumps of spruce trees. The Valley

River has almost everywhere a strong current and banks from 6 to 10 feet high, composed of drift clay and boulders, the latter not very numerous. Generally throughout the township the soil is of a first-class quality.—*John McAree*, D.L.S., 1890.

27. *Outlines.*—The soil is a light sandy loam, the land low, with marshes. The ridges are covered with poplar. The western half is suitable for agricultural purposes.—*W. N. Small*, D.L S., 1887.

28. *Outlines.*—Soil is a light sandy loam. The land is low, with gravel ridges covered with large poplar. The low land is marshy, with bluffs of poplar, spruce and tamarack—*W. N. Small*, D.L.S., 1887.

29. *Outlines.*—The soil is a sandy loam. The land is very low, with gravel ridges, which are covered with heavy poplar, the low land being muskegs and marshes, with bluffs of poplar, spruce and tamarack.—*W. N. Small*, D.L.S., 1887.

RANGE XXI.

19. *Outlines.*—East, is a hilly country, with fine heavy poplar and a thick undergrowth of brush. There are numerous small lakes. The soil is of a second-class quality. There is some open prairie in section 2. Section 3 has a rough rolling surface.—*J. Lestock Reid*, 1874.

Sub-division.—The greater part is covered with spruce, poplar and birch, with a dense undergrowth of hazel, willow and black cherry. The township is crossed by the Little Saskatchewan River. The soil is inferior.—*A. C. Thomson*, D.L.S., 1879.

20. *Outlines.*—East, a rolling country, with fine poplar timber. The soil generally is of a second-class quality.—*J. Lestock Reid*, D.L.S., 1874.

North, the surface is very knolly, and heavily timbered with poplar, spruce and tamarack. There are a number of shallow lakes, grassy marshes and patches of brushy prairie. The soil is a good clay of a second-class quality.—*W. Ogilvie*, D.L.S., 1875.

Sub-division.—There is a good deal of heavy timber in this township. Huron Creek crosses from the west, and after passing through a swamp in the centre of the township, flows on, joining the Little Saskatchewan. The soil is inferior.—*A. C. Thomson*, D.L.S., 1879.

21. *Outlines.*—South, the surface is very knolly, and heavily timtered with poplar, spruce and tamarack, interspersed with shallow lakes, grass marshes and brushy prairie. The soil is a good clay of second-class quality.

East, sections 1 and 12 are hilly, and timbered with poplar, spruce, willow and tamarack; there are a number of marshy

tracts. Sections 13, 24, 25 and 36 have a gently rolling surface, open, grassy poplar woods, and a fine loose black clay soil of a first-class quality.—*W. Ogilvie*, D.L.S., 1875.

East, as far as the township could be seen from this boundary, it is covered with timber, mostly poplar and balm of Gilead. Good spruce appears in patches. The soil is good, being a vegetable mould about four inches deep, underlaid by ten inches of black loam, with clay below.—*Thos. Fawcett*, D.L.S., 1890.

22. *Outlines.*—East, sections 1, 13 and a part of 12 have a gently undulating surface, alternately with poplar woods and prairie. The soil is a fine loose black clay of a first-class quality. The surface of the remaining portion is very knolly, and timbered with poplar, spruce and tamarack, with a soil of second-class quality.

North, sections 34, 35 and 36 have a gently undulating surface, with poplar and willow.—*W. Ogilvie*, D.L.S., 1875.

East, is mostly covered with timber, principally poplar and scattered patches of spruce. In the northerly part there are several deep ravines, in which are fine spring creeks. The soil is first-class, and the timber suitable for the requirements of settlement.—*Thos. Fawcett*, D.L.S., 1890.

23. *Outlines.*—East, there is a dense growth of poplar timber, with a thick underbrush of small poplar, hazel, rosebushes and other scrub. Much of the poplar is large enough for the manufacture of lumber.

The soil is a black loam of a first-class quality.

Along the western boundary the timber is not so thick, and there are a few openings of prairie with scrub and hay marshes. There is some spruce timber scattered along this line. A considerable quantity of the timber has been killed by fire, much of which has been blown down.—*Thos. Fawcett*, D.L.S., 1890.

24. *Outlines.*—The eastern half of the township has a sandy loam. The land is rolling, with a large number of cold springs. The timber is principally poplar, which is suitable for building purposes.—*W. N. Small*, D.L.S., 1887.

This township probably consists of half woods and half scrubby prairie, the woods covering the easterly half. The soil, so far as seen, was of excellent quality.—*Edgar Bray*, D.L.S., 1889.

Sub-division.—The surface is undulating, and rises rapidly to the south-west. The eastern half of the township is heavily timbered, principally poplar, the most of which, however, has been burnt. The western half is much more open, being mostly a scrubby prairie. There is some good hay land in the north-eastern part. The soil is a black loam, with a clay subsoil.—*J. E. Woods*, D.L.S., 1890.

25. *Outlines.*—Along the northern boundary there is excellent soil, and in the remainder of the township good land is plentiful.

Valley River runs through the north-westerly sections of this township, and along the river some light sandy land is found. Except a small area in the south-west corner, this township appears to be wooded with poplar and, in some places, spruce; but a considerable portion of the timber has been killed by fire.—*Edgar Bray*, D.L.S., 1889.

26. *Outlines.*—Has some open country near Valley River, but in all the other sections it appears to be wooded with poplar and small bluffs of spruce, a large quantity of which has been killed by fire. Valley and Drifting rivers run through portions of this township, the former in the south-east and the latter in the north. The soil is of fair quality, except along Valley River, where sand is occasionally met with.—*Edgar Bray*, D.L.S., 1889.

27, 28, 29. *Outlines.*—Are all low, with large muskegs and marshes, and also large bluffs of tamarack, spruce and poplar.—*W. N. Small*, D.L.S., 1887.

RANGE XXII.

19. *Outlines.*—West, has uneven surface, with many small lakes, ponds, meadows and muskegs. The timber, which consists principally of poplar and white birch, has nearly all been killed by fire. There is a fine creek, nine links wide, two and one-half feet deep, with good water, running westerly through section 18. There is some rolling prairie in section 6. The soil is a good gravelly clay, of a second and third-class quality. —*W. Ogilvie*, D.L.S., 1875.

Sub-division.—Very level prairie, only broken by a few marshy lakes and muskegs, containing good water. Plenty of timber, chiefly poplar and balm of Gilead. The soil is rather inferior.—*A. C. Thomson*, D.L.S., 1879.

20. *Outlines.*—North and west, have a very uneven and knolly surface, with numerous small lakes, ponds and marshes. Many of the lakes are very shallow, with bad water. The timber consists of poplar, spruce, tamarack and white birch, much of which, however, has been killed by fire. The soil is of a second-class quality.—*W. Ogilvie*, D.L.S., 1875.

Sub-division.—Rolling prairie, dotted with belts of poplar. There are two or three creeks and lakes in this township, affording an abundance of water. The soil is light and sandy. —*A. C. Thomson*, D.L.S., 1879.

21. *Outlines.*—South and west, the surface is very uneven, heavily timbered with large spruce and poplar. There are many shallow lakes, ponds and marshes; on the latter there is generally a growth of small tamarack. The soil is of a third-class quality.—*W. Ogilvie*, D.L.S., 1875.

22. *Outlines.*—West, section 6 is nearly all timbered, but killed by fire; the remainder is nearly all open, with bluffs of green

poplar, interspersed with open marshes and hay meadows. Some of the marshes are covered with moss, on which there is a growth of spruce, tamarack and willows. Sections 30 and 31 have a first-class black clay loam soil; the other four sections have a second-class soil.—*W. Ogilvie*, D.L.S., 1875.

23. *Outlines.*—East and west, is generally covered with poplar timber, most of which, however, has been killed by fire; in many places there is a dense undergrowth of hazel, rose bushes, &c. The soil is a black clay loam of a first-class quality.—*Thos. Fawcett*, D.L.S., 1890.

24. *Outlines.*—Scrubby prairie, with first-class soil of loam, and in most cases a clay sub-soil. The surface is slightly rolling, with long gentle slopes, affording good drainage. Dead fallen timber is frequently found, but live woods were not visible from the 7th base line.—*Edgar Bray*, D.L.S., 1889.

This township is included in the Gilbert Plains. The land is of excellent quality.—*Thos. Fawcett*, D.L.S., 1890.

Sub-division.—The surface of the township is rolling, and the soil is all of a first-class quality. It is covered to a great extent with scrub, which may easily be removed with very little trouble.

There are numerous bluffs of poplar, with a dense undergrowth of brush, along the many creeks which traverse the township. Sections 9 and the eastern half of 8 are mostly hay lands; there are also a number of small patches of hay lands throughout.—*A. M. Bowman*, D.L.S., 1890.

25. *Outlines.*—The southerly and south-westerly sections are in the Gilbert Plains, and consist of a very scrubby prairie. The balance of the township is pretty well covered with woods of small poplar and scrub, most of which have been killed by fire. The soil is nearly all of a first-class quality, being a sandy loam with a clay sub-soil. Valley River enters the township in section 7, and flows north-easterly, making its exit in section 25.—*Edgar Bray*, D.L.S., 1889.

Sub-division.—The southern portion of the township is a scrubby prairie, with a rolling surface, and numerous bluffs of poplar, and occasional small hay meadows, ponds and sloughs.

North of Valley River is an extended high plateau, and one is struck with the beauty of what seems a natural park. It is beautifully interspersed with the most attractive spruce groves.

The depth of the valley of Valley River is about sixty feet. The stream itself is very winding, and in summer may be forded almost anywhere. There is a considerable amount of water, and a number of good mill-sites.

The soil is all of a first-class quality, being a black loam with a sandy loam or clay sub-soil.—*A. M. Bowman*, D.L.S., 1890.

26. *Outlines.*—Is mostly all good land. Poplar and spruce bush covers the northerly sections, while the remainder is mostly covered with small poplar and scrub, now nearly all dead. Drifting River flows easterly through the north-eastern sections. —*Edgar Bray*, D.L.S., 1889.

CHAPTER XXV.

County of Russell.

The western and south-western slopes of the Riding and Duck mountains support heavy forests of white spruce, birch, aspen and poplar. The trees are of large size, and often exceed one and a-half and two feet in diameter, with an available length of thirty to fifty feet. On the summit plateau of the Riding Mountain the white spruce is the largest tree; here it attains dimensions, and is found in quantity sufficient to give this region a great economic value. The wooded area over which timber, consisting of the four kinds of trees enumerated, is found on the Riding and Duck mountains, has a length of one hundred and twenty miles, with a breadth exceeding thirty miles. The affluents of the Assiniboine will serve during spring freshets to bear these valuable forest productions to areas which will probably first attract settlement, and where they will be most required.—*Prof. Henry Youle Hind*, 1858.

The valley of the Assiniboine River, adjacent to that of the Shell River, is about a mile wide, and some two hundred feet deep. The alluvial flat at the bottom of the valley is three-quarters of a mile wide, and the banks rise steeply on either side. Through this level flat the river pursues a meandering course from side to side, occasionally leaping a small rapid caused by the obstruction of Laurentian boulders. Twenty miles farther up the valley is nearly three miles wide, but at this place in the bottom, and following the valley longitudinally, there are four or five series of hills rising irregularly, one above the other, till the highest reaches nearly to the level of the plain above. Between these hills there are small deep valleys. The western bank is often strewn with gravel and boulders, while the flats below are nearly free from them, excepting in places along the bed of the river. The sides of the valley are often deeply gorged, but the ravines do not extend to any great distance back from the valley. Many of them appear to have been cut by the waters from springs. These springs usually hold a considerable quantity of iron in solution, and I observed several places where yellow ochre was being deposited around them. In several localities on the banks of the Assiniboine extensive landslides are to be met with, sometimes showing stratified deposits of clay and sand. The general course of the Assiniboine valley at the influx of the Shell River is nearly south, but above it has a more westerly direction.

I explored the Shell River valley upward for thirty miles, and Mr. Hagar continued the exploration for ten miles further. Along the upper part of this distance the country on either side has usually a rolling prairie character, while in the lower portion the river flows in a valley nearly as wide and deep as that of the Assiniboine. The general course is nearly from the north. At the bends

of the valley the river usually winds its way to the other side, and on the inner side of the curve there is left a terrace, or series of terraces, rising from the alluvial flat to the plain above. The country is generally wooded, except here and there, where fires have swept over small areas. The Shell River is much more rapid than the Assiniboine, and the sides of the valley are much more deeply gorged than those of the latter river. At the land slides along the Shell River I observed a few stratified deposits, but they generally showed a heterogeneous mixture of gravelly earth with boulders. The bottom of the river often abounds with fresh water mollusca, and hence, perhaps, the origin of the name of the stream.—*J. W. Spencer, Geological Survey*, 1874.

PORCUPINE MOUNTAIN.

On the 28th July we started from Red Deer Lake for the Porcupine Mountain, which seemed quite close. Our route by compass was almost due south, and the point aimed for was an exposure of white clay which is easily seen from Lake Winnipegosis. The Indian name for this point is the "Smoking Tent," and it is here that the horse trail from Livingstone leaves the mountain and descends to Poplar Point on the lake, and terminates.

After leaving the lake we passed through a strip of poplar forest about two hundred yards wide. Beyond this was a marshy meadow, which extends for a considerable distance to the right and left. Crossing this we entered a black spruce and tamarack swamp full of springs, and in less than half a mile came out on another marshy meadow, with numerous clumps of willow and shallow pools of brackish water scattered through it. About a quarter of a mile through willow brush brought us to a creek flowing to the east, which was about twelve feet wide. Its depth was from four to eight feet. This creek enters the Red Deer River about a mile below the lake.

Half a mile through willows and small poplars brought us to the borders of a real bog or muskeg, which extended for about four miles, and which shook as we passed across it like a quagmire. Small groves of tamarack were occasionally seen and passed through, but the greater part of it was either covered with grass or small birch. It was only with the greatest care we could cross some of the worst places, as the stratum of grass roots was so thin that we frequently fell to our armpits. The water on the more southern part of the bog was much deeper than where we entered it, and the bottom harder. It was seldom below the knee, quite cold and very pure. No matter where we looked, on either hand, nothing but bog was to be seen.

At the southern edge of the bog we entered a thicket of alders and tall reeds, so thick that we could not see a rod in advance, and it was only by sheer force we could make headway through the tangled moss and deep water. After passing through this for a mile the water got shallower, and in another mile we left it and entered a beautiful forest of spruce, which extended for another

mile, when we reached a small creek flowing east. The spruce forest was very fine, and contained a great quantity of fine timber.

The ground now began to rise perceptibly, and as we pushed our way through willow and alder thickets interspersed with ash (*Fraxinus veridis*), elm, maple (*Negundo aceroides*) and balsam poplar, we knew that we approached the base of the hills, although we could not see a rod on either hand. Crossing this we entered on another spruce and balsam forest, which continued for some distance. This was followed by a mixed forest, where many of the aspens were nearly two feet in diameter, and other trees in the same proportion. Less than a mile brought us to a small brook flowing to the west.

On the other side of the brook the ground rose abruptly about forty feet, and then a forest of scrub pine (*Pinus banksiana*) and spruce extended over half a mile, while the ground rose rapidly. After this the forest was very heavy, consisting of poplar, aspen, birch, spruce and balsam. This extended to and beyond the summit, but owing to the thick undergrowth no distance could be seen on either side.

By climbing a tree, an extensive view of the country lying at the base of the mountain was obtained. It differed nothing in appearance from that we had crossed, so that it may be inferred that extensive bog and marshes extend far out from the base of the mountain in this quarter. No arable land was seen, except the strip along the lake, and the forest between the lake and the base of the hills. Extensive groves of spruce extend on every side along the base and up the slopes, and from information gathered from half-breeds and others, I am convinced that large quantities of spruce grow all around the base and up the slopes in the direction of Swan River. None of the spruce seen was over thirty inches in diameter, but it was tall and quite sound. Salt River (also known as Bell River), which drains the eastern side of the hills, will float down much of this spruce into the head of Dawson Bay, and much of the timber seen by me would be landed on the banks of the Red Deer River below the lake.

My own observations, and all the knowledge I could pick up from other sources, leads me to believe that valuable spruce and poplar forests are found around every point of the Porcupine Mountains. I know that the eastern and northern sides are a continuous spruce forest along the base and up the sides. At the southern end I penetrated the hills and found fine spruce in groves, and of very considerable size, occupying the slopes of the hilly or undulating country where I was, and poplar groves crowning the summits.

As the surface of the hills is undulating, we may consider that it is generally dry. The usual character of the forest is poplar on the summits, spruce on the slopes and tamarack in the springy and boggy parts. White spruce never grows on wet or marshy ground in the west, and wherever this spruce is found there is no swamp. This statement will apply to every locality in the North-west.—*Prof. Macoun, Exploratory Survey*, 1881.

Porcupine Mountain forms a continuation of the high ground which marks the eastern limit of the second of the three great prairie steppes of the North-west Territories. It rises to the height of about eight hundred feet above Swan Lake. Between the base of this mountain and the lake is a belt of about twelve miles of low ground, consisting of open marshes or muskegs, tamarack swamps, etc., while the remainder of the interval is densely wooded with aspen, balsam, poplar, spruce and willow. On the slope of the mountain I saw balsam poplar six feet in diameter, while in some cases the spruces reached a thickness of nearly four feet. This forest is more ancient looking, and bears fewer evidences of fire, than any other that came under my observation in the North-west Territories. The region is little frequented, even by the Indians, being difficult of access. Although fire has not visited the slopes of the mountain or the level of the ground below, yet the whole of the forest on the summit was swept away a few years since, and in its place a young growth of poplars has sprung up.

The Bell River rises in a lake on the summit of the mountain, and, running eastward, cuts its way down the escarpment, forming a series of rapids six or eight miles in length. The bed of the river is filled with Laurentian boulders, over which the water descends at the rate of about 150 feet per mile. From the foot of the slope my guide and I followed the river to the summit. Along it there are great exposures of shales. Fragments of lignite were picked up along the river, but the beds from which they had been derived were not found.

Looking back from the point which we reached at the summit of the mountain, the escarpment appears to descend rapidly. It is richly clothed with foliage, and through it the Bell River has cut its valley; the wooded plain stretches from its base, and farther on is Swan Lake, with its lovely islands.

Along Bell River there are large exposure of cretaceous shale, but the clayey matter predominating so largely, landslides are frequent, and cover with clay many beds which, if exposed, might be of great interest. At one of the exposures of shales, which is now weathering into clay, an immense slide has occurred. The shales here contain iron pyrites, and on weathering, a whole section will become blackened by the formation of ferrous sulphide, whilst the remainder of the sulphur is partly deposited in the crevices, where it is sometimes found in considerable quantities. Much heat is at the same time evolved, and there is a strong sulphurous smell while the process is going on. The Indians know this place as the Burning Mountain; and my guide informed me that for several winters it had smoked, but not in summer. This was probaly the vapour generated by the heat of decomposition condensing in the cold atmosphere of the winter, but which becomes invisible at the summer temperature.—*J. W. Spencer, Geological Survey*, 1874.

The trail from Fort Pelly to Swan Lake crosses the Swan River about twelve miles north-east of the fort, and continues thence on the north-west side of the river to a point which is

counted as seventy miles from Fort Pelly and fourteen above Swan Lake, where it crosses to the south-east side of the river. On the east valley of Snake Creek, where the trail touches a few miles north of Fort Pelly, numerous blocks of yellowish gray limestone are mixed with the prevailing gneiss boulders. Immediately after crossing Swan River we entered the Five Mile Woods. The trees are mostly aspen and balsam-poplar, with some spruce and white birch. In the woods the soil is an excellent clayey loam, overlain with black mould. Emerging from the Five Mile Woods, we entered upon the Square Plain, which has a length, on the trail, of about sixteen miles. In the first or southern six miles of this distance prairie openings alternate with groves of aspens, and the soil is of a coarse sandy character, with some gneiss boulders. The remaining ten miles consist of prairie, with bushes in some places; and the trail passes over a fine loamy soil—the best we had seen since leaving the fertile prairie land of the lower Assiniboine valley. Thunder Hill lies on the western side of the Square Plain, and the brook named after the hill joins the Swan River near its eastern corner. Leaving the Square Plain, we passed through "The Poplars," which have a length of about five miles on the trail; and after crossing a short interval of dry sandy land, entered upon the Great Meadows, which are said to extend all the way to "the store," at the second crossing of the Swan River. In going through "The Poplars," the trail in the second or eastern half of the distance runs along the top of a ridge of shingle, varying in height from four to twelve feet, but averaging from five to eight, and having a width of from one to three chains. It is flanked by a swamp on each side. The Great Meadows have a level, dreary appearance, and are overgrown with rank sedges, grasses and vetches, interspersed with clumps of willow bushes. They would yield an almost inexhaustible supply of excellent fodder for cattle and horses. The soil is a rich black loam, but apparently too wet for cultivation without drainage, which, however, could be easily effected, as the surface is thirty or forty feet above the level of Swan River.

When at a point on the trail upwards of fifty miles from Fort Pelly, we turned off to the east, and after going three miles through willow brush, with small prairie openings, in which the grass and vetches were as high as our horses' backs, we came upon the north-west bank of Sander's River, which enters from the opposite side.

On the banks of Swan River, in this neighbourhood, I observed, in addition to the prevailing aspen, the balsam-poplar, oak trees fifteen inches in diameter, and thirty feet high, elm, black ash, white birch, and ash-leafed maple. Occasional small trees of all these species were also noticed as far up as Swan River Crossing, where spruce of fair size is likewise found.—*Dr. Bell, Geological Survey*, 1874.

Careful exploration of the country north of the reserve (Tp. 36, Rge. 28, west of the P. M.), for twelve miles revealed a magnificent district; land excellent, and much large poplar, twenty-

four to thirty inches in diameter. This was the character of all the region from the junction of the Thunder River with Woody River and far northward, while southward there was a stretch of rich but wet land extending to Swan River. Westward of the reserve the soil was excellent, and the country heavily wooded with very fine timber, poplar, spruce and tamarack. A very large portion of the land was wet, and much cut up with small streams, which had their sources in the Porcupine Mountains.—*Dr. John Smith, Canadian Pacific Railway Exploration*, 1879.

SWAN RIVER VALLEY.

About thirty miles above Swan Lake the prairie fairly commences. There the river winds about in a fine valley, the banks of which rise to a height of eighty to one hundred feet. Beyond these an apparently unbroken level on one side for a distance of fifteen to twenty miles to the Porcupine Hills, and for an equal distance on the other to the high table land called the Duck Mountain. From this south-westward to Thunder Hill the country is the finest I have ever seen in a state of nature. The prospect is bounded by the blue outline of the hills just named, while in the plain alternate wood and prairie present an appearance more pleasing than if either entirely prevailed. On the 10th June, when we passed, the trees were in full foliage, and the prairie openings presented a vast expanse of green sward.—*S. J. Dawson, C.E.*, 1858.

From the level of Fort Pelly there is no difficulty in descending (for a railway line) by the valley of Swan River to the low ground east of Duck Mountain; from Swan River the country lying north of Duck and Riding Mountains was found, on examination, to be nearly level, thickly wooded with spruce, poplar and some maple; a few small lakes and marshes were also found. Soil sandy, and admirably fitted for farming.

Generally speaking, the country extending from about Fort Pelly by Swan River and between the Riding Mountains and Lake Manitoba is for the most part well wooded, and the the soil of excellent quality.—*Frank Moberly, C. E., C. P. Ry. Survey*, 1871.

It is in the Swan River valley, however, that the richest and most extensive area of agricultural country is found. The valuable part of this valley—or rather basin—begins at the eastern slope of Thunder Hill and extends in a north-easterly direction to Swan Lake. It is bounded on the north and north-west by Swan Lake and Duck Mountain, and on the east by an elevated ridge which lies between it and Lake Winnipegosis. Its extent is about sixty miles in length by twenty miles in width. The soil is remarkably rich and productive, alternating with clumps and strips of timber, well grown, and admirably adapted for building purposes. At the lower end, that is, near Swan Lake, the timber is more varied than in any part of the country yet described. Here one may see spruce, tamarack, oak, elm, poplar, maple and birch, each species being represented by trees of very considerable growth. In the gardens

attached to a few houses forming a little hamlet at the mouth of Swan River I had occular demonstration of the productive power of the soil. This valley is looked upon by the natives as the garden of the district.

The first autumn frost was noticed on the 15th September, when the thermometer registered two degrees of frost. In regard to early summer frosts, from which the district is supposed to suffer, the testimony of some half-breed settlers in Swan River valley and on the shores of Lake Winnipegosis was to the effect that these early frosts are unknown, and that in every way the climate is well adapted for agricultural operations.—*G. C. Cunningham, C.E., C. P. Ry. Survey*, 1874.

Beyond the northerly end of Duck Mountain the country is hilly, the soil fair, and is heavily wooded with large spruce and poplar, and there are some marshes producing hay. The valley of Swan River contains good fertile soil, partially wooded, with marshes producing good hay.—*H. A. F. Macleod, C.E., C. P. Ry. Survey*, 1874.

Although the upper part of the valley and that part in the vicinity of Livingstone is more or less covered with boulders, there is an abundance of rich land here (Swan Lake), well suited for both grain and hay, and at a very trifling cost hay to support thousands of cattle could be cut. Below Thunder Hill the valley is much wider and the soil much less encumbered by boulders. All explorers join in calling it a magnificent region.—*Professor Macoun*, 1881.

The northerly end of the Duck Mountains, the country is hilly, the soil fair, and is heavily wooded with large spruce and poplar, and some marshes producing hay. Fresh water is plentiful.

The valley of Swan River contains good fertile soil, partially wooded, with marshes producing good hay.—*H. A. F. Macleod, C.E., C.P.R. Survey.*

The valuable part of this survey, or rather basin, begins at the eastern slope of Thunder Hill, and extends in a north-easterly direction to Swan Lake. It is bounded on the north and north-west by Swan Lake and Porcupine Mountain, on the west by Thunder Hill, on the south by Duck Mountain, and on the east by an elevated ridge lying between it and Lake Winnipegosis. Its extent is about sixty miles in length by twenty miles in width ; the soil is remarkably rich and productive. Throughout it consists of large plains clothed with tall succulent grass, alternating with strips and clumps of timber well grown and admirably adapted for building purposes. Near Swan Lake may be seen spruce, tamarack, elm, maple, birch and poplar, each species being represented by trees of very considerable growth.—*G. C. Cunningham, C.E., C.P.R. Survey*, 1876.

Although the upper part of the valley and that part in the vicinity of Livingstone is more or less covered with boulders, there is abundance of rich land here (Swan Lake), well suited for both grain and hay, and at a very trifling cost hay to support thousands of cattle could be cut. Below Thunder Hill the valley is much

wider and the soil apparently less encumbered by boulders. All explorers join in calling it a magnificent region.—*Prof. Macoun*, 1881.

RANGE XXIII.

19. *Outlines.*—South is a rolling prairie, with scattered willows and small ponds. In section 5 there is some poplar and birch, with hazel and cherry brush. The soil is of a first and second-class quality.—*G. M. Kingston*, D.L.S., 1875.

East, has an uneven surface, with many small lakes, ponds, meadows and muskegs. The timber, which consists principally of poplar and white birch, has nearly all been killed by fire. There is a fine creek, nine links wide, two and a-half feet deep, with good water running westerly through section 13. The soil is a good gravelly clay of second and third-class quality.—*W. Ogilvie*, D.L.S., 1875.

Sub-division.—Level prairie, with numerous lakes, ponds and marshes. Very little timber. Soil is a deep rich clay loam, free from boulders. An abundance of good water and hay.—*J. A. Snow*, D.L.S., 1880.

20. *Outlines.*—The north boundary passes alternately through dense poplar and birch woods, with thick hazel and cherry brush; tamarack and spruce swamps, with patches of open marsh, and across numbers of small lakes and marshes. The timber, with the exception of a few scattered trees, is not fit for anything but rails and firewood. The surface of the country is rolling; the soil is of second-class quality. The water in the swamps and lakes is generally stagnant and sometimes brackish.—*G. M. Kingston*, D.L.S., 1875.

East, has a very uneven and knolly surface, with numerous small lakes, ponds and marshes. Many of the lakes are very shallow, with bad water. The timber has been nearly all killed by fire. The soil is of a second-class quality.—*W. Ogilvie*, D.L.S., 1875.

Sub-division.—Forms the summit of the Riding Mountains. There are several small lakes and marshes, although the township is generally well drained. The timber is large enough for building purposes. The soil is very rich and deep.—*J. A. Snow*, D.L.S., 1881.

21. *Outlines.*—The southern boundary passes alternately through dense poplar and birch woods, with thick cherry and hazel brush, tamarack and spruce swamps, with patches of open marsh, and across numerous small lakes. The timber, except a few scattered trees, is not fit for anything but rails and firewood. The surface of the country is rolling, and the soil is of a second-class quality.—*G. M. Kingston*, D.L.S., 1875.

East, the surface is very uneven, and heavily timbered with large spruce and poplar. There are many small lakes, ponds and marshes; on the latter there is generally a growth

of small tamarack. The soil is of a third-class quality.—*W. Ogilvie*, D.L.S., 1875.

22. *Outlines.*—North, has a rolling surface, is timbered with spruce and poplar, and with willow brush. The land generally is of a third-class quality.—*G. M. Kingston*, D.L.S., 1875.

East, is nearly all open, with bluffs of green poplar, interspersed with open marshes and hay meadows. Some of the marshes are covered with moss and a growth of spruce and tamarack. Sections 25 and 36 have a first-class black clay loam soil. The other four sections have a second-class soil.—*W. Ogilvie*, D.L.S., 1875.

23. *Outlines.*—North, is heavily timbered with poplar, a great deal of which is dead. There are occasional patches of scrubby prairie. There are several dry watercourses, running in a northerly direction across this boundary. The soil is of a second-class quality.—*Edgar Bray*, D.L.S., 1890.

The line along the eastern boundary of this township, for the first mile from the north, passes through thick poplar timber, with dense underbrush. Farther south the timber is burnt in places, and open spaces covered with scrub are met with.

At the north-east corner of section 12 the line crosses a fine stream of spring water, flowing south-east and forming a branch of Wilson River. The soil is of a first-class quality throughout the township.—*Thos. Fawcett*, D.L.S., 1890.

Sub-division.—Most of this township is gently rolling land, situated on the north-western slope of Riding Mountain, and is well watered by numerous streams and springs.

The soil throughout is a rich clay loam, of a first-class quality. Sections 5 and 6, being rough, hilly, and much broken by small marshes, have been rated as second-class.

Most of the timber has been destroyed by fire.

The vegetation is very luxuriant, as indicated by the excellent grass in the lower tracts, and the profuse growth of pea vines in the wood.—*Joseph Doupe*, D.L.S., 1890.

24. *Outlines.*—Scrubby prairie, with a first-class soil of loam, and in most cases a clay sub-soil. The surface is slightly rolling, generally with long gentle slopes, giving good drainage. Dead fallen timber is frequently found, but live woods were not visible from the 7th base line.—*Edgar Bray*, D.L.S., 1889.

Sub-division.—The land is slightly undulating, with a gradual rising to the south-west, affording ample facilities for drainage if required. About two-thirds of the township is covered with a thick growth of small poplar and willows, with a few small scattered bluffs of poplar running up to a foot in diameter, but mostly all the timber has been killed by fire; the remaining third is scrubby prairie.

It is fairly well watered by four or five branches of Wilson River.

This township is well adapted for settlement, and the vegetation appears to be considerably earlier than the country

around the County of Shoal Lake.—*Joseph Doupe*, D. L. S., 1890.

25. *Outlines.*—Appears to be excellent land, and lies mostly in Gilbert Plains. Scrub is very plentiful, and some timber was found. Valley River runs in an easterly direction through the township, along which some light sandy land was noticed.—*Edgar Bray*, D.L.S., 1889.

Sub-division.—The surface is slightly undulating and the soil mostly clay loam with a clay sub-soil. It is generally a scrubby prairie, with scattered clumps of timber, particularly along Valley River. With the exception of a few strips along Valley River, there is no true prairie land in the township. For grain-growing or cattle-raising this township is admirably adapted. In no section is the soil anything but first-class, and the numerous hay marshes would furnish an abundance of feed for cattle.

Valley River flows in an easterly direction through the township. It is about 1 chain wide, with an average depth of 2½ feet of water.—*John Vicars*, D.L.S., 1890.

26. *Outlines.*—North, is thickly timbered with poplar and patches of willow and dense scrub. The poplar is nearly all dead, excepting that in sections 35 and 36. Sections 31, 32 and 33 are rough and hilly.

West and south, is mostly a scrubby prairie, with bluffs of poplar, many of which are dead. There are a number of small marshes in section 7. The soil throughout the township is of a first and second-class quality.—*Edgar Bray*, D.L.S., 1890.

Sub-division.—This township is well adapted for settlement, there being an abundance of wood and water. The soil is first-class, and the numerous hay marshes will give an abundance of feed for cattle. Like all the locality, it was at one time covered with a heavy growth of timber, which has been mostly burnt. There are a number of small brooks, and water may be had anywhere by digging a short distance.

In the northern portion of the township there is some good timber, consisting of poplar, spruce, and a few tamarack. —*John Vicars*, D.L.S., 1890.

RANGE XXIV.

19. *Outlines.*—South, is a rolling prairie, with small scattered hay swamps, and clumps of poplar and willows. The soil is of a first-class quality.

West, is a rolling prairie, with occasional bluffs of poplar. The soil is very rich.—*G. M. Kingston*, 1875.

Sub-division.—Immediately south of Riding Mountain. It is drained by Arrow River. The soil is excellent; a good deal of the land was settled upon prior to the survey.—*J. A. Snow*, D.L.S., 1880.

20. *Outlines.*—The northern boundary passes alternately through dense poplar and birch woods, with thick cherry and hazel underbrush. There is some prairie land in section 31. There are a few tamarack and spruce swamps, and patches of swamp with open water. The timber is not fit, with the exception of a few scattered trees, for anything except rails and firewood. The soil is of a second-class quality.

West, the country is generally level or slightly undulating prairie, with scattered bluffs of poplar.—*G. M. Kingston*, D.L.S., 1880.

Sub-division.—Lies on the south-eastern slope of Riding Mountain, and is almost entirely wooded. The soil is excellent.—*J. A. Snow*, D.L.S., 1880.

21. *Outlines.*—Bird's Tail Creek runs south-westerly across the township. There is some very good prairie land in the valley; some good spruce, fit for building or for saw logs, in the north-eastern portion of the township. The creek is wide, and deep enough to float saw logs.

West, sections 6, 7 and 18 are undulating prairie lands, with soil of a second-class quality. Sections 19, 30 and 31 are timbered with poplar, spruce and willows. The soil is of a third-class quality.—*G. M. Kingston*, D.L.S., 1875.

Sub-division.—The township is situated on Riding Mountain, and watered by Bird Tail Creek. On either side of the creek a dense willow swamp extends. The general character of the township is hilly and wooded. The timber is large enough for building purposes. The soil throughout is very rich and deep.—*J. A. Snow*, D.L.S., 1881.

22. *Outlines.*—North and west, is timbered with spruce, poplar, birch and tamarack. There are numerous small lakes and ponds. Bird Tail Creek flows southerly through section 31. The land is of a third and fourth-class quality.—*G. M. Kingston*, D.L.S., 1875.

23. *Outlines.*—The line along the east boundary of this township for two miles from the north passes through dense poplar woods, the timber being of large size, scattered spruce occurring in places. From the north-east corner of section 24 to the east half of section 12 the timber is mostly dry spruce of large size, fire-killed, and in places blown down. This is an excellent timber limit, but the timber should be removed at once, as every year it will depreciate in value, and, being dry, fire will destroy much more of it than if green.

Near the south-east corner of section 36 the line crosses the bed of a stream containing water in pools, which was found to be cold and good. Near the south end of the township there are some muskegs, lakelets and marsh meadows. The timber here is poplar and willow. Soil throughout is first-class.—*Thos. Fawcett*, D.T.S., 1890.

24. *Outlines.*—Is mostly scrubby prairie, with occasional bluffs of poplar. There are a number of dry watercourses running through the township. The soil is of first and second-class quality.—*Edgar Bray*, D.L.S., 1890.

25. *Outlines.*—Is nearly all scrubby prairie, with occasional patches of poplar and spruce woods, with willows. Most of the timber is dead. The soil is of a first and second-class quality. Valley River, one hundred links wide, flows in an easterly direction across the township.—*Edgar Bray*, D.L.S., 1890.

Sub-division.—The surface is slightly undulating, and the soil mostly clay loam, with a clay sub-soil. It is covered with scrub and a few scattered clumps of large poplar timber. There are a few small strips of prairie, in places, along Valley River.

For cattle-raising or grain crops it is admirably adapted. In no section is there anything but first-class soil. There are a number of fine hay marshes throughout the township, furnishing an abundance of hay.

Valley River flows in an easterly direction through the centre of the township; it averages about seventy-five links wide, and a depth of about two feet.—*John Vicars*, D.L.S., 1890.

26. *Outlines.*—East, is mostly a scrubby prairie, with bluffs of poplar, much of which, however, is dead, and patches of scrub and willow. There are a number of small marshes in section 12. The country along the southern boundary is of a similar character; the soil throughout the township is of a first-class quality.—*Edgar Bray*, D.L.S., 1890.

RANGE XXV.

19. *Outlines.*—South, is a rolling prairie, with occasional hay marshes, bluffs of poplar and patches of willow. The soil is very rich, and of a first-class quality. Bird Tail Creek flows in a southerly direction through section 5, the water of which is good.—*G. M. Kingston*, D.L.S., 1875.

Sub-division.—The soil is rich, and there is an abundant supply of wood, hay and water. The township is drained by Bird Tail Creek and its tributaries.—*J. A. Snow*, D.L.S., 1880.

20. *Outlines.*—Going south from the north-east corner, the first half is in the valley of Bird Tail Creek. The next mile and a half is through poplar and birch woods. The line is here crossed by a number of coulées, some of them having streams running into Bird Tail Creek. The third and fourth miles pass through woods of small poplar. The country is generally level or slightly undulating. The soil is of a first-class quality.

Going west, along the northern boundary, the first two miles are prairie, and in the valley of Bird Tail Creek. The

valley is about two miles wide, the hills on each side being from eighty to one hundred feet high. Those on the east are abrupt, but on the west there is a gradual ascent. The soil in the valley is of fair quality.—*G. M. Kingston*, D.L.S., 1875.

Sub-division.—Rich soil, well suited for agricultural purposes. The township is drained by Bird Tail Creek. There is plenty of wood, hay and water.—*J. A. Snow*, D.L.S., 1880.

21. *Outlines.*—East, sections 1, 12 and 13 are undulating prairie lands, with soil of a second-class quality. Sections 24, 25 and 36 are timbered with poplar, spruce and willows. The soil is of a third and fourth-class quality.

South, section 2 is prairie; 3, 4, 5 and 6 are timbered with poplar, dense willow and hazel scrub. The land in the south-eastern part is very good, but in the remainder of the township it appears to be poor.—*G. M. Kingston*, D.L.S., 1875.

Sub-division.—On Riding Mountain. Drained by Bird Tail Creek and its tributaries. The soil is very rich, and there is plenty of building timber.—*J. A. Snow*, D.L.S., 1881.

22. *Outlines.*—North, is a very hilly country, with many small lakes and ponds. The land is timbered with spruce, balsam, and a few poplar and birch. The soil is of a third-class quality.

The country along the eastern boundary is of the same description, except that it is not quite so hilly.—*G. M. Kingston*, D.L.S., 1876.

23. *Outlines.*—East, going south, the country is open for four miles, and is quite hilly. In section 13 a small stream of clear spring water is crossed, and near the south end of the same we crossed a stream of considerable size, supposed to be one of the principal branches of Bird Tail Creek, flowing through a tamarack muskeg. On each side of the muskeg the banks rise from two hundred to three hundred feet.

The country south of the Bird Tail is exceedingly hilly, the hills reaching an elevation of from two hundred to three hundred feet. Water is plentiful in the hills in small spring creeks, and the timber large and of good quality, being poplar and spruce.

The soil on the hills is somewhat sandy, and would average about second-class, while that north of the valley is a dark loam, underlaid with clay, and might be classified as of a first-class quality.—*Thos. Fawcett*, D.L.S., 1890.

24. *Outlines.*—North, the line across the northern boundary, running west, passes through heavy poplar woods the greater part of the distance. The surface is level, and near the west-

erly limit we pass some boggy lakes of alkaline water, surrounded by marshy meadows. A branch of Valley River is crossed in section 35, the water in this stream being clear and good. The soil is first-class, a clayey loam, underlaid with clay. The timber would be suitable for manufacture, the poplar being large and thrifty. Scattered spruce of good quality occurs in some places.

East, the country along this boundary is of a similar description, though the timber has been much damaged by fire. In sections 1 and 12 there are some spots of open prairie and meadow lands.—*Thos. Fawcett*, D.L.S., 1890.

25. *Outlines.*—East, is a scrubby prairie, with scattered poplar and bluffs of poplar, a good deal of which is dead. The soil is of a first and second-class quality. Valley River flows in an easterly direction through the township.—*Edgar Bray*, D.L.S., 1890.

26. *Outlines.*—The line along the easterly limit of this township passes through timber, mostly poplar, with dense underbrush. At the south-east corner of section 12 a beautiful stream of clear spring water flowing south-easterly is crossed, and in section 25 the same stream is again crossed, flowing south-westerly. When crossed the second time the banks rise to an elevation of some two hundred feet in half a mile on each side. The soil being sandy, is about second-class quality. The timber would be suitable for all purposes.—*Thos. Fawcett*, D.L.S., 1890.

RANGE XXVI.

19. *Outlines.*—Is a rolling prairie, with a few scattered bluffs of poplar and a number of hay meadows. Water is very scarce. The soil is of a second-class quality.—*G. M. Kingston*, D.L.S., 1875.

Sub-division.—Rolling prairie, with some small ponds and marshes; also scattered clumps of poplar and willow and some scrub. It contains two lakes that have areas exceeding twenty acres. Soil first and second-class.—*J. A. Snow*, D.L.S., 1880.

20. *Outlines.*—Is rolling prairie, with scattered bluffs of poplar, with willows and many small lakes and hay marshes. The soil is of a second-class quality.—*G. M. Kingston*, D.L.S., 1875.

Sub-division.—Prairie, with some heavy poplar, willow and hazel scrub. There is a chain of lakes of considerable size in the western portion of the township, and numerous small ponds occur elsewhere. Soil principally first and second, with some third-class.—*J. A. Snow*, D.L.S., 1880.

21. *Outlines.*—There is some excellent prairie land in the south-western portion of the township. The remainder is thickly

wooded with poplar, suitable for firewood and fencing. The soil is of a fair quality.—*G. M. Kingston*, D.L.S., 1875.

Sub-division.—Rolling prairie, nearly all bush, chiefly poplar and balm of Gilead; the soil throughout is excellent, and drained by Silver Creek. There are three or four tolerably large lakes in the easterly portion.—*J. H. Reiffenstein*, D.L.S., 1881.

22. *Outlines.*—West, the surface is undulating, and covered with poplar woods, with a number of hay marshes. There is some prairie in section 6. The soil is of a third-class quality.

North, is hilly in places, and covered with poplar, birch and spruce. Some very large sound timber is to be found in section 34. The soil is of a second-class quality. There are many small lakes and ponds.—*G. M. Kingston*, D.L.S., 1876.

Sub-division.—Somewhat hilly, and covered with bush, chiefly poplar, balm of Gilead and white birch. The soil is excellent throughout.—*J. H. Reiffenstein*, D.L.S., 1881.

23. *Outlines.*—West, open, rolling prairie, with numerous bluffs of poplar timber, with clumps of willow and poplar scrub. There are many small lakes and ponds containing good water. The soil is a sandy loam of first-class quality.—*John McLatchie*, D.L.S., 1880.

East, is thickly timbered, except in small patches, where marshes and muskegs abound. The timber, consisting of poplar, spruce and birch, is generally of good quality. A stream of considerable size was crossed in section 24. I took this stream to be one of the principal branches of Bird Tail Creek. Near the southern portion of this township the surface is very hilly, the hills rising several hundred feet in some instances. The soil is good, also the water, which is plentiful. In section 13 we saw a quantity of maple which had been utilized by the Indians in the spring in making maple sugar. The woods are full of hazel and wild cherry trees; we also saw several fine trees, with wild plums beginning to ripen on the 10th September.—*Thos. Fawcett*, D.T.S, 1890.

24. *Outlines.*—The land along the western boundary is rolling, and timbered with poplar and white birch, with a thick undergrowth of hazel and willow. There are a great many small lakes scattered throughout, together with many small hay marshes. The soil is a sandy loam of a second-class quality.—*John McLatchie*, D.T.S., 1880.

North, is heavy timbered land, with dense hazel, cherry and other scrub. Near the western boundary the country is much broken by lakes, which form no inconsiderable portion of the area, one crossed in section 35 being nearly three-quarters of a mile long. The water in these lakes is slightly brackish, but fit for use. The soil is first-class and the timber merchantable; the poplar and scattered spruce are of large size.

The eastern boundary, for the first four miles from the north, passes through heavy woods, principally poplar, with

occasional spruce and birch. The country south of this then becomes broken by lakes and hills; the south boundary of the township terminates in a large muskeg, over two miles in length and a mile in width, covered with a dense growth of reeds and rushes.

The soil throughout, with the exception of the muskeg mentioned, is first-class; water good.—*Thos. Fawcett*, D.T.S., 1890.

25. *Outlines.*—West, is timbered with poplar, white birch, maple and a thick undergrowth of hazel, cherry, willow, young maple, and poplar. There are a great many small lakes and hay marshes. The soil is a sandy loam of second-class quality.—*John McLatchie*, D.T.S., 1880.

The east boundary passes through dense poplar woods, broken by a few marshy meadows, which contained excellent hay. Near the north end of the township a few good spruce were found scattered among the poplar. There are several small streams, containing good water, traversing the township. The soil is mostly first-class.—*Thos. Fawcett*, D.T.S., 1890.

26. *Outlines.*—West, is covered with small timber, consisting of poplar, spruce and white birch, together with a great deal of willow and hazel scrub; much of the timber has been destroyed by fire. There are a great many small lakes and ponds. The soil is a rich black sandy loam of a first-class quality.—*John McLatchie*, D L.S., 1880.

After leaving the post at the south-east corner and going north twenty chains we come to a prairie extending two miles, broken only by belts of timber along Valley River, which is crossed in section 12. There is some splendid timber along Valley River, not a great quantity, but large and of good quality, and the stream is large enough to float logs down in the spring.—*Thos. Fawcett*, D.L.S., 1890.

RANGE XXVII.

19. *Outlines.*—South, is an undulating prairie, with a few poplar bluffs, with willow scrub, and occasional small hay swamps. The soil is a first-class sandy loam.—*A. C. Webb*, D.L.S., 1875.

East, is a rolling prairie, with scattered clumps of poplar, and a number of small hay swamps. The soil is of a second-class quality.—*G. M. Kingston*, D.L.S., 1875.

Sub-division.—The south-eastern portion of this township is much broken by lakes; the remainder is well adapted for agricultural purposes. The soil is a rich black loam, and there is sufficient poplar for settlers' requirements.—*C. A. Lett*, D.L.S., 1880.

20. *Outlines.*—North, is a rolling prairie, with occasional bluffs of poplar. The soil is a rich loam of a first-class quality.—*A. C. Webb*, D.L.S., 1875.

East, rolling prairie, with scattered clumps of poplar and willow. The soil is of a second-class quality.—*G. M. Kingston*, D.L.S., 1875.

Sub-division.—Undulating prairie; rich soil. Well watered by a creek which traverses the township.—*C. A. Lett*, D.L.S., 1880.

21. *Outlines.*—South, is a rolling prairie, with occasional bluffs of poplar. The soil is a rich loam of a first-class quality.—*A. C. Webb*, D.L.S., 1875.

East, is a rolling prairie, with bluffs of poplar and willow. There are a number of small hay meadows. The soil is of a first and second-class quality.—*G. M. Kingston*, D.L.S., 1875.

Sub-division.—Rolling prairie, dotted with bluffs of poplar and balm of Gilead. Silver and Conjuring creeks cross the township. The soil is excellent.—*J. H. Reiffenstein*, D.L.S., 1880.

22. *Outlines.*—North, is rolling prairie, with heavy poplar woods, and hay swamps in sections 34, 35 and 36. The soil is a rich loam of a first-class quality.—*A. C. Webb*, D.L.S., 1875.

East, the surface is undulating, and covered with poplar woods and numerous hay marshes. There is some prairie land in section 1. The soil is of third-class quality.—*G. M. Kingston*, D.L.S., 1875.

Sub-division.—Rolling prairie, dotted with clumps of poplar, balm of Gilead and birch. The soil throughout is first-class. The township is well watered by three small lakes and numerous hay marshes.—*J. H. Reiffenstein*, D.L.S., 1880.

23. *Outlines.*—South and east, is generally timbered with poplar, and there is some willow and poplar scrub. There are many stretches of open, rolling prairie land, and a number of small lakes and ponds with good water. The soil is a sandy loam of a first-class quality.—*John McLatchie*, D.L.S., 1880.

Sub-division.—Wood and prairie. Soil throughout very good. A road runs through the township.—*W. and D. Beatty*, D.L.S., 1880.

24. *Outlines.*—Along the eastern and northern boundaries the land is rolling, and timbered with poplar and white birch, with a thick undergrowth of hazel and willow. There are a number of small lakes, ponds and hay marshes. The soil is a sandy loam with a clay sub-soil; it is of a second-class quality.—*John McLatchie*, D.L.S., 1880.

Sub-division.—Covered with timber. The soil is excellent. There are a few small lakes and muskegs in the woods. McKay's trail crosses the township.—*W. and D. Beatty*, D.L.S., 1880.

25. *Outlines.*—South and east, there are a great number of small lakes and marshes scattered throughout; the land is timbered with poplar, white birch, maple and an undergrowth of hazel,

willow and cherry. The soil is a sandy clay loam of a second-class quality.—*John McLatchie*, D.L.S., 1880.

Sub-division.—With the exception of portions of sections 32 and 33 is nearly all third-class land, and of little value for agricultural purposes About two thirds of the township is covered with heavy poplar, scattered birch and willows, with heavy windfalls in places. Shell River, in a valley 250 feet deep, flows through the north-western part of the township. The average width of the valley is about one mile. Average width of river is about ninety links, and its depth from three to eight feet, with a current of four miles per hour; it would form a very convenient means of floating down timber. All the water in the township is fresh and good.—*Staunton and Jones*, D.L.S., 1881.

26. *Outlines.*—North and east, the land is rolling, and generally timbered with poplar, birch and spruce, with a great deal of scrub, consisting of willow, hazel and maple. A considerable part of the timber is fire-killed, and young maple is now growing up. There are numerous small lakes and ponds throughout the township. Shell River flows in a southerly direction through section 31. The soil is a rich black sandy loam of a first-class quality.—*John McLatchie*, D.L.S., 1880.

Sub-division.—The greater portion of this township is unfit for agricultural purposes, although fairly suited for grazing. A few sections in the valley of Shell River may be available for settlement, and rank second-class. Shell River, in a deep valley of a mile in width, flows through the western portion of the township. There is a great deal of poplar, with some oak, birch, spruce, tamarack, willow scrub and burnt and fallen timber. The township, as a rule, is very rough and broken.—*Staunton and Jones*, D.L.S., 1881.

RANGE XXVIII.

19. *Outlines.*—South and west, is a high rolling prairie, with some bluffs of poplar with scrub. There is some small oak here and there. Section 4 is heavily timbered with poplar. This section is broken with ridges and ravines. Thunder Creek flows through section 4; the water in the creek is clear and cold, with a swift current, two feet deep. The soil is of a first-class quality.—*A. C. Webb*, D.L.S., 1875.

Sub-division.—Rolling prairie. The soil is a black loam. There is sufficient poplar bush for the requirements of settlers.—*C. A. Lett*, D.L.S., 1880.

20. *Outlines.*—North and west, a rolling prairie, with scattered willow bushes and bluffs of poplar. There are many small hay marshes. The soil is a rich loam of a first-class quality.—*A. C. Webb*, D.L.S., 1875.

Sub-division.—Well adapted for settlement. The soil is a deep black loam of a first-class quality. There is sufficient

poplar for the requirements of settlers.—*C. A. Lelt*, D.L.S., 1880.

21. *Outlines.*—South and west, is a rolling prairie, with scattered bluffs of poplar with scrub, and a number of small hay swamps. The soil is a rich loam of a first-class quality.—*A. C. Webb*, D.L.S., 1875.

Sub-division.—Rolling prairie, dotted with bluffs of poplar, and broken on the west by a deep gully, through which Conjuring Creek flows. There are a number of small lakes; the water in three of them is salty, in the others it is fresh. The timber is useful only for fence rails. The soil throughout is very good.—*J. H. Reiffenstein*, D.L.S., 1880.

22. *Outlines.*—North and west, is a rolling prairie, with occasional bluffs of poplar. Shell River flows through a deep valley two to three hundred feet below the prairie level in section 32. In the valley there is heavy poplar with dense scrub. The soil is a rich loam of a first-class quality.—*A. C. Webb*, D.L.S., 1875.

Sub-division.—Rolling prairie, dotted with bluffs of poplar. Some of the timber is large enough for building purposes. A creek traverses the southern half. The soil throughout is first-class.—*J. H. Reiffenstein*, D.L.S., 1880.

23. *Outlines.*—South, is a rolling prairie, with clumps of willow scrub and occasional bluffs of poplar. There are a number of small lakes and ponds. In sections 1 and 2 the soil is a sandy loam of a first-class quality. The remaining four sections are of a poor quality. Shell River crosses this boundary; it flows through a deep valley, 250 feet below the level of the surrounding country; the valley is nearly a mile wide; the slopes are timbered with poplar. The river is one and one-half chains wide, five feet deep, swift current, gravel bottom and good water.

The western boundary is much broken by the valley of the Assiniboine River; the valley generally is very marshy, with numerous ponds, sloughs, &c., between the river and the "rise" of the valley. The slopes are timbered with small poplar, willow and hazel. There is very little land fit for cultivation within the valley.—*John McLatchie*, D.L.S., 1880.

Sub-division.—The Shell River flows through the township. Its banks are covered with poplar. The rest of the land is alternate prairie and scrub. The soil is very good.—*W. and D. Beatty*, D L.S., 1880.

24. *Outlines.*—North, is rolling prairie, with numerous bluffs of small poplar, burnt spruce, &c. The soil is a sandy loam of good quality.

Shell River flows in a southerly direction through the township; the bed of the stream is about 150 feet below the level of the surrounding country. It has a swift current; water six feet deep, and muddy.

West, the Assiniboine River intersects this boundary; it flows through a deep valley 300 feet below the level of the

surrounding country. The surface is therefore much broken by hills, knolls, ponds, marshes. The land on the plateau is prairie, with small bluffs of poplar, and a sandy loam soil.—*John McLatchie*, D.L.S., 1880.

Sub-division.—Shell River flows through the township, the current being very strong. The land is alternate prairie and scrub. The soil is generally first-class.—*W. and D. Beatty*, D.L.S., 1880.

25. *Outlines.*—South and west, it is an undulating prairie, with numerous bluffs of young poplar, burnt spruce and poplar timber. There are a number of small ponds and hay marshes. The soil is a sandy loam of good quality.—*John McLatchie*, D.L.S., 1880.

Sub-division.—A fair proportion of the land in this township is first and second-class, and well adapted for settlement, being partly open prairie with a plentiful supply of poplar, suitable for fuel and fencing. Shell River flows through the township in a southerly direction. The valley of this stream has a depth of 250 feet, with an average width of one mile. The depth of the river varies from 3 to 8 feet, with a current of four miles an hour. A considerable area of the surface is very much broken by lakes, sloughs, ravines and the valley of Shell River.—*Staunton and Jones*, D.L.S., 1881.

26. *Outlines.*—North and west, is covered with a growth of small poplar, birch and underbrush of hazel and willow. There are many small lakes, ponds and hay marshes. The soil is a sandy loam of a second-class quality.—*John McLatchie*, D.L.S., 1880.

Sub-division.—Consists generally of rolling land, the soil being a sandy loam with clay bottom. The eastern two-thirds is chiefly timber land, with a very considerable area of water, caused by the numerous lakes and sloughs. The western third of the township is much better adapted for settlement, the land being open in places, with no timber and only a small proportion of scrub. On the whole, it may be stated that it is fairly adapted for settlement, the soil being good, water and timber easily accessible.—*Staunton and Jones*, D.L.S., 1881.

RANGE XXIX.

19. *Outlines.*—South, the land is slightly rolling, with bluffs of poplar and willow scrub. Low bottom lands in the valley of the Assiniboine River, which flows in a southerly direction through section 3. There is an extensive willow muskeg in sections 5 and 6. The land is of a second and third-class quality.

East, the country is rolling, with bluffs of poplar and scrub. The soil is of a first-class quality.—*A. C. Webb*, D.L.S., 1875.

Sub-division.—The land is undulating and gravelly. East of the river the soil is fair, but broken by ravines. There are few bluffs of poplar.—*J. J. McArthur*, D.L.S., 1880.

20. *Outlines.*—North, the Assiniboine River flows southwards through section 34. The country is a rolling prairie, with scattered bluffs of poplar, with scrub. The soil is a rich loam of a first-class quality.

East, a rolling prairie, with bluffs of poplar. Soil, a rich loam of a first-class quality.—*A. C. Webb*, D.L.S., 1875.

Sub-division.—West of Assiniboine River the land is not well suited for settlement, but is well wooded with poplar, birch and oak. On the east side the soil is good, but broken by ravines.—*J. J. McArthur*, D.L.S., 1880.

21. *Outlines.*—South, the Assiniboine River flows southwards through section 4. The country is a rolling prairie, with scattered bluffs of poplar and scrub. The soil is a rich loam of a first-class quality.

East, of a similar character to that along the southern boundary.—*A. C. Webb*, D.L.S., 1875.

Sub-division.—Traversed by the Assiniboine River and Smith's and Skunk Creeks; on these streams are several sites for water-powers. The land is somewhat broken by ravines, but generally is good. There is a good scattering of poplar of small size.—*R. W. Hermon*, D.L.S., 1880.

22. *Outlines.*—Along the eastern boundary the country is a high rolling prairie, with bluffs of poplar. The soil is a sandy loam of first-class quality.

North, sections 35, 36 and part of 34 are very high rolling prairie, with bluffs of poplar. There are a number of gravel ridges. The soil is a clay loam, and is of a second-class quality. Sections 32, 33 and part of 34 are in the valley of the Assiniboine River, where there is some heavy timber and rich bottom land.—*A. C. Webb*, D.L.S., 1875.

Sub-division.—The Assiniboine River flows through the township, and is joined by Thunder Creek. The land is marshy in places, and there are a few small lakes, but where the soil is dry it is suited to agriculture. There is a belt of good timber.—*R. W. Hermon*, D.L.S., 1880.

23. *Outlines.*—The southern and eastern boundaries are much broken by the valley of the Assiniboine River. The low lands in the valley of the river are annually flooded in the spring of the year There are also many marshes and small muskegs. The slopes of the valley are timbered with poplar from two to fourteen inches in diameter. The table land is a rolling prairie, with poplar bluffs and willow scrub. The soil is of a poor quality, being stony and gravelly.—*John McLatchie*, D.L.S., 1880.

Sub-division.—The central and southern portions are comparatively dry, and well watered by two creeks. These creeks both have excellent mill sites, with sufficient water power. The fall is estimated at about 150 feet in the mile on both creeks, and the current is nearly three miles an hour. The

land is somewhat wet, but hay grows luxuriantly. The soil is a black loam.—*F. W. Armstrong*, D.L.S., 1881.

24. *Outlines.*—East and north, the Assiniboine River flows in a southerly direction through the eastern portion of the township. The valley is about a mile wide and 300 feet below the level of the surrounding country. In the valley there are numerous small hay marshes, willow swamps and ponds. On the plateau it is an open prairie, with small bluffs of poplar. The soil is a sandy loam of good quality.—*John McLatchie*, D.L.S., 1880.

Sub-division.—Slightly rolling, and broken on the east by the Assiniboine River and its tributaries. The soil is rich, and there is plenty of good hay and water. Several small clumps of willow and poplar are scattered about.—*F. W. Armstrong*, D.L.S., 1881.

25. *Outlines.*—East and south, is an undulating and scrubby prairie, with a number of bluffs of poplar, small lakes, ponds and hay marshes. The soil is a sandy loam with a clay subsoil of good quality. The Assiniboine River flows in a southerly direction through this township at the bottom of a deep and wide valley. There is some maple and elm timber along the slopes of the valley.—*John McLatchie*, D.L.S., 1880.

Sub-division.—The Assiniboine River runs through this township. There is a luxuriant growth of timber, very little, however, being sufficiently large for manufacturing purposes. The soil is sandy.—*M. Deane*, D.L.S., 1881.

26. *Outlines.*—North and east, is timbered with small poplar, alternately with a scrubby prairie. There are a number of small ponds and hay marshes throughout. Big Boggy Creek flows in a southerly direction through section 35. The soil is a clay loam of a first-class quality.—*John McLatchie*, D.L.S., 1880.

Sub-division.—Generally well fitted for settlement, but much broken, in the northern and western parts, by the valleys of Big Boggy Creek and the Assiniboine River. Over one-third of the surface gently rolling. The water in the creek is slightly alkaline, containing some mineral substance also. The township is heavily wooded, principally with poplar and balm of Gilead in the valleys of the river and creek, with some birch, maple, oak and scattered spruce pine; considerable dry wood and windfall. Some large-sized ponds or lakes. Soil, first, second and (less) third-class, being in the valleys a deep loam, and on the side hills stony and gravelly, with a good deal of muskeg in sections 23, 25 and 26.—*D. C. O'Keefe*, D.L.S., 1881.

27. *Outlines.*—South and east, is timbered with small poplar, with prairie openings, which are nearly all covered with scrub. The soil is a rich black loam of a first and second-class quality. Big Boggy Creek flows in a south-easterly direction across the

north-eastern corner of section 1. The valley of this creek is about three-quarters of a mile wide and 150 feet deep.—*John McLatchie*, D.L.S., 1880.

Sub-division.—Big Boggy Creek passes through this township, affording many good sites for water power. The country is well suited for stock-raising. There is an abundance of small timber, with a great deal of scrub.—*R. W. Hermon*, D.L.S., 1880.

28. *Oulines.*—North and east is nearly all timbered with small poplar, spruce and tamarack, much of which, however, has been killed by fire. There are a number of prairie openings, on which there is a great deal of scrub. There are also many small lakes, ponds and hay meadows. The soil is a sandy loam of second-class quality.—*John McLatchie*, D.L.S., 1880.

Sub-division.—Is traversed by Big Boggy Creek and its tributaries, affording many good sites for water power. It is admirably adapted for stock-raising. There is an abundance of small timber. The prairie is generally covered with small scrub.—*R. W. Hermon*, D.L.S., 1880.

29. *Outlines.*—South, the land along this boundary is generally timbered with spruce, tamarack and poplar, most of which has been killed by fire. There is some prairie land, but it is very scrubby. There are a great many small lakes, ponds and hay meadows. The soil is a sandy loam of a second and third-class quality.—*John McLatchie*, D.L.S., 1880.

West, the surface is slightly undulating, and covered generally with a second-growth of poplars, together with willows and an occasional clumps of tamarack, white birch and spruce, the diameter of some of the latter exceeding 2 feet. There are a number of small marshy meadows and ponds. The soil generally is of a first-class quality.—*J. L. P. O'Hanly*, D.L.S., 1881.

30. *Outlines.*—West, the surface is rolling, and generally timbered with spruce, poplar, white birch and balsam. There are numerous small ponds, lakelets, marshes and patches of bog. The soil is of an inferior quality.—*J. L. P. O'Hanly*, D.L.S., 1881.

31. *Outlines.*—West, the surface is rolling, and timbered with poplar, white birch and spruce. There are a number of small marshes. The soil is of good quality, and improves much towards the north.—*J. L. P. O'Hanly*, D.L.S., 1881.