A CENTER.

The Beautiful City of Grand Forks, Where the North Dakota Wool is Made Into Woolen Cloth, Tells Its Story of Manufacturing and Jobbing—How the Manufacturer Considers the Raising of Sheep and the Progress Being Made in the Sheep Industry.

No better demonstration of the advantages of Grand Forks as a leading wholesale and manufacturing jobbing needed than the thriving condition of its growing mercantile and manufacturing industries.

The busy hum of machinery turning raw materials of every kind into manufactured goods for home consumption is a most certain indication of a city's material growth and prosperity.

By reason of its favorable location and proximity to the country, Grand Forks holds a commanding position in the Northwest as a jobbing and manufacturing point. It was this consideration that induced the promoters of the Grand Forks Woolen mills to establish their plant here, and the same condition will always prove a drawing card to manufacturers and others establishing enterprises in response to the increasing needs of a rapidly developing state.

Grand Forks is in the very heart of what has been well described as the "Nile Valley of America," the banner wheat belt of the world; and that this entire section and state is but in the infancy of its development is patent to all who have given it thought.

The "old settler" who recalls the days of '79 may well think that much has been done; but it is the belief of the writer that the twenty-five years to come will witness a breadth of development and increase of wealth to this state compared to which past accomplishment will seem insignificant.

In the comments made below I do not wish to pose before the readers of this article as an expert on the breeding and care of sheep. No doubt hundreds of practical farmers who will see this article are far more learned upon this subject than the writer; but our business naturally brings us into contact with thousands of the sheep men all over the state. Side by side in our wool bins lie sacks of wool from every county in the state and, without presuming to know more than many others as to the way sheep ought to be kept, I can easily claim to know, perhaps, as well as any other man in the state, just how they are kept.

The condition of the wool when it arrives at the factory to be manufactured is of great importance to the manufacturer, and this depends almost entirely upon the care the sheep have had. A scrub sheep will yield a very fair wool if it has had good care, but without proper attention not even a good sheep will give satisfactory results.

The manner in which the majority of farmers in this section handle their sheep is a very good illustration of the way it ought not to be done.

Dakota wool is one of the very lowest-priced wools on the market, and the reason which, more than any other, accounts for this, is the negligent manner in which the sheep are raised and the wool prepared for market.

To stable the flocks in straw stacks all winter and pasture them in plowed ground and waste places overgrown with wild weeds and burrs is not the way to prepare a profitable fleece for sale.

It is, moreover, to be noticed that the man who sends his wool a typical example of the method of flock-keeping just mentioned, is the same man who writes to us that "this wool is probably the best that has been sent to us this season, and he expects the top price," etc.

I can see no reason whatever why Dakota wool should not be as standard as Dakota hard wheat. The climate is well adapted to the growing of fine sheep. We often receive shipments of wool at the factory, of well conditioned wool, showing that not all our farmers fail to realize the importance of well cared-for flocks, and we live in hope of the speedy approach of the time when this will be the rule and not the exception. If any reader of this does not appreciate the importance of a well kept flock, he would soon be convinced, by a visit to our factory, where he could be shown the large percentage of chaff and dirt which has to be removed from the wool by special machines before it is even possible to commence to manufacture it.

One very noticeable defect in North Dakota wool, aside from the question of foreign matter in the wool, is its brittleness or lack of strength of fiber, shown by a dry, harsh feeling, a deadness in appearance, the absence of that rich, yellow cast which denotes the vigorous, healthy fleece.

None of the wool received at this mill from sheep clipped in the fall shows this defect, and it must come from wintering the sheep under improper conditions and without proper nourishment. I do not mean that the sheep do not get enough to eat, but proper nourishment is not given. Just as when, at times, when necessary, we feed our hens special food to insure our eggs a proper covering, so the sheep requires food which will give it vitality enough to preserve the "life" of the fleece.

There are, of course, many flock masters in the state thoroughly posted on all the requirements of the market and the best methods of sheep-culture. My remarks are intended more specially for the much larger number of farmers who have sheep which are kept, from force of habit, without realizing that for the capital invested and with proper care there is no more profitable investment on the farm.

It is a trite saying that "the sheep's foot is golden," and there is much which you can get from the sheep that will be of value to you besides the clothing that the wool will make.

For reclaiming worn-out land sheep are invaluable, and the manure from the sheep is the most valuable of the farm manures. Good mutton is the finest of table meat. The increase from the flock is also a very important item to be considered in the profit account of a flock.

It is an undeniable fact that a small flock of good sheep, well cared for, is one of the most profitable means of diversifying.

To sum the matter up briefly:

The extra outlay for farm expenses involved in a small flock is practically nothing. The items of profit are mutton for the table, fertilizing and reclaiming of soil, the increase of the flock and wool for clothing.

It is somewhat curious to note since a year or so ago, when the sheep market was so depressed and the cry was raised that the sheep were being sold out of the country, that the official records show that, while in the western part of the state, where the flocks are larger and more dependence is placed upon the immediate cash return for the wool, there has been some diminution in the number of sheep; yet in all the eastern counties of the state, where the large number of small flocks are kept, the number of sheep has increased, accounted for in some degree by the fact that, being nearer to the mill, they were naturally the first to acquaint themselves with the advantages of having a small flock of sheep.

Those considering starting a small flock would do well to advise with some one of practical experience as to the methods, etc. Perhaps the best breed of sheep for general purposes is the well known "Shropshire."

The arrival of the time when a small flock of well cared for sheep will be considered an essential part of the equipment of every farm will mark a decided advancement in the general prosperity of the state, and that that time is sure to arrive, and is even now not far distant, is the belief of the writer. —Alvin P. Clifford.

THE COST.

A Paper Packed With Facts—Hon. H F. Miller, President of the Citizens' National Bank of Fargo, a Large Farmer, Shows in Plain Figures What It Costs to Raise Wheat on Our Rich Prairies—Facts and Figures, Not Theory—A Plain and Concise Statement.

The question has often been asked, "What does it cost per acre or per bushel to raise wheat in the Red river valley? As a partial answer to that question I submit the following facts:

I have raised about 1,500 acres of wheat this year at my farm ten miles northwest of here (Fargo), and have kept an account with each separate piece of land, charging up to the land every item of expense attendant upon making the crop and crediting the land with the number of bushels of wheat produced thereon at 44 cents a bushel, the price at the time the crop was ready to be delivered.

Northwest quarter of section 24—125 acres:

Men seeding	$14.83
Stock, seeding	36.00
Seed wheat	117.00
Pulling mustard	1.80
Men, teams and machines, harvesting	112.91
Men, threshing	168.31
Teams, threshing	87.00
Twine	18.57
Use of threshing machine 1½ cents per bushel	76.54
Plowing	125.00
Total	$757.96

Counter—Wheat produced on the northwest quarter of section 24—125 acres:

5,103 bushels at 44 cents	$2,245.32
Deduct the cost of making the crop	757.96
Leaves	$1,487.32

Or about $11.89 an acre net profit.

You will notice that this makes the cost of producing a bushel of wheat on this tract of land a fraction more than 15 cents per bushel, the cost of farming an acre $6.06. This field made the largest yield of wheat per acre of any that I raised. The following account is that of the northwest quarter of section 14—140 acres—which made the smallest yield of wheat of any I raised during the season:

Men, seeding	$13.58
Stock	32.25
Seed wheat	126.00
Pulling mustard	1.85
Men, stock and machines, harvesting	89.80
Twine	23.80
Men threshing	121.62
Stock	66.45
Use of threshing machine, 1½ cents per bushel	45.48
Plowing	140.00
Total	$660.83

Counter—

Wheat produced on this tract of land, 3,032 bushels, at 44 cents per bushel	$1,334.08
Deduct total expenses	660.83
Leaves a net gain of	$673.25

Divided by 140 acres shows the net profit of this crop to be a fraction over $4.80 per acre, the cost per bushel to produce this wheat a fraction less than 22 cents, the cost per acre of farming this piece of land $4.72.

In the items in these accounts for harvesting $2.50 was charged for each binder per day, and 75 cents was charged for each head of stock used. The charge for men included their board.

All these figures have been made upon the basis of what it would cost to hire this work done, but I think perhaps some of them could be shaded a little.

These, as stated above, represent the best and the poorest piece of wheat raised in the 1,500 acres this last season; the balance of the crop averages between the two, the average yield for the entire tract being a fraction over twenty-seven bushels per acre.

The threshing expense included loading on the cars four miles distant.

—H. F. Miller.

TRAILL COUNTY.

Traill county was created in 1875 from parts of Cass and Grand Forks, and was organized Jan. 12, 1875, with Ass H. Morgan, John Brown and James Ostland county commissioners. In 1880 its leading products were: Wheat, 323,409 bushels. In 1885 2,726,447; corn 1,916, in 1885 2,392; oats 114,575, in 1885 886,552; rye none, in 1885 1,176; buckwheat none; barley 12,230, in 1885 62,402; in 1884 the acreage harvested, 231,625; in 1895 the acreage sown, 213,011. The number of farms in 1880 were 504; in 1885, 1,120.

CURIOUS.

Formation of the Western Part of North Dakota Known as the "Bad Lands"—An Account of These Formations and Eccentricities of Nature, by One Who Dwells Among Them—A Description of "Pyramid Park"—They Must be Seen, However, to be Correctly Appreciated.

If not the most prosperous region of the state, the Bad Lands of North Dakota are certainly not, on the other hand, the least valuable. Although to the traveler passing through them, their merits are not at once apparent, so far as utility it concerned, yet certain it is that in no part of the state can be found better natural opportunities and facilities for the engaging in business of a profitable character—that of stock raising—to which the entire population of the Bad Lands is devoted exclusively.

A geographical description of the region would not be particularly interesting nor would it serve any of the purposes for which this article is intended. Indeed, as a matter of fact, an accurate account of how the region reached its present peculiar condition of outline and appearance would be impossible, as nothing but theory and speculation can be advanced in explanation of its wild, rough, broken, uneven and irregular formations of which the region is composed. Were historic fire had ravaged the region, came a deluge of water—a flood such as might have been the one survived alone by Noah and his family. But why these things occurred, or when, or how—these are questions which remain unanswered, and furnish food for speculation and theory.

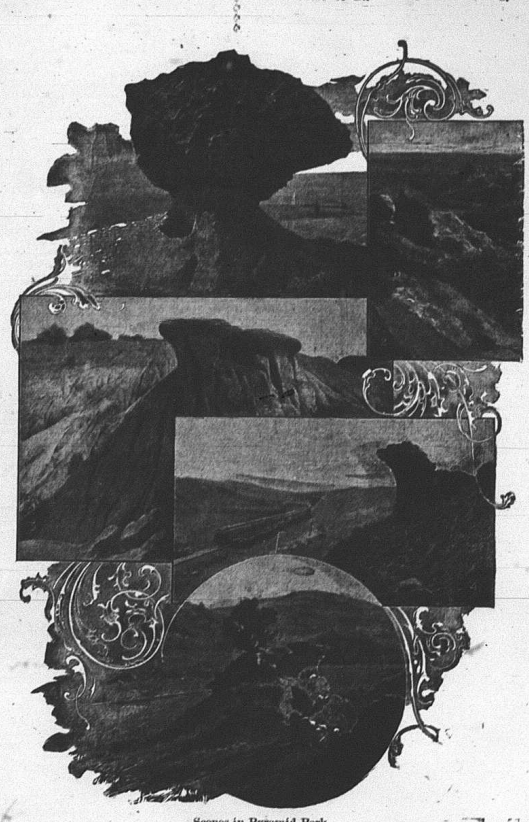
To convey a correct idea of the appearance of the region by written description, is impossible, and Ruskin himself might well have hesitated at the task. There are portions of it which would appeal to the artistic instincts of a Dante—and indeed, counterparts of some of the illustrations of the Inferno are not lacking. There are damp, dark, gloomy canons, whose sides are covered with naught but gnarled and knotted trees, such as took human shapes under Dante's vivid sketching, and into whose recesses the average individual would hesitate to penetrate. Then again are towering hills of fantastic shape and bizarre outlines, which rear haughty heads in majestic height and stand, game, imposing and awe-inspiring, as tributes to the forceful handiwork of Dame Nature. It is a region of abrupt chasms, and from the craggy summit of a cliff, one may look down upon the lazily flowing Little Missouri, whose banks and bottoms are covered with a luxuriant and hanged growth of vegetation. Again, one sees countless acres of luxuriant grasses, hedged in and encircled by a series of almost inaccessible cliffs. Truly, it is a weird land—a fantastic exhibition of the occasional eccentricities of nature.

In extent, the Bad Lands of North Dakota comprise from 5,000 to 6,000 square miles. Their boundaries are nearly coincident with those of Billings county, and perhaps their entire population does not exceed 200. The industry of the region is stock-raising, and the industry is an exclusive one. Perhaps a hundred thousand head of live stock find subsistence within the limits of the region, and each year from 15,000 to 25,000 beeves are shipped to market from the herds which roam the hills and valleys. The facilities for stock raising are unexcelled. And in the past decades, the grasses have been converted into millions of dollars worth of beef.

In the past the region has been a paradise for sportsmen. Until the ruthless extermination of the buffalo, they were as numerous among the hills as domestic cattle to-day, and even now the trails made by these animals, with occasional piles of bleaching bones, mark what was once one of their favorite ranges. Deer are yet plentiful among the fortresses of the locality, and the outlying prairies are the feeding grounds of thousands of antelope. The shrubs and underbrush along the streams are not lacking in grouse and prairie-chickens, and water fowl are numerous upon the pools which are well distributed through the country. Not the least remarkable feature of the Bad Lands is the inexhaustible supply of coal. At the base of the cliffs it crops out in veins from 15 to 20 feet in thickness, and the entire country is underlaid with a vein of lignite. It is impossible to estimate its quantity. There is sufficient, however, in the Bad Lands alone to supply the State of North Dakota with fuel for a century to come, and it is doubtful then if the supply would near exhaustion. But except for insignificant local consumption, these vast veins of lignite are undeveloped.

Altogether, there is no portion of the state which affords a more delightful field for the explorations of the geologist, the archaeologist, the sight-seer, and the love of the peculiar and picturesque than the Bad Lands. Within their limits is an inexhaustible storehouse of natural curiosities.

—James H. Foley.



Scenes in Pyramid Park.

1, 2, 3, 5, Scenes Along Little Missouri River. 4. Watch Dog Rock.

THE COAL FIELDS

North Dakota Has More Acres of Coal Land Than Any State in the Union—There Are Thousands Upon Thousands of Tons of This Splendid Coal Lying Concealed Under North Dakota Soil—A Writer Who Knows the Coal Lands Thoroughly Tells of Them.

In discussing the subject of lignite coal I desire to place before your readers a concise statement of facts that every citizen of North Dakota may know the great advantages to be gained by them in a proper development of immense coal deposits within her borders and the general use of such fuel by her citizens.

First of all, do we have a fuel that has a commercial value? This inquiry is perfectly natural, and yet, having been answered in so many ways in the affirmative, there seems to be a lingering suspicion in the minds of few North Dakotans that find from far off Pennsylvania costing two or three times as much as our native fuel must certainly be of better quality. Now let us inquire as to the true value of North Dakota lignite compared with the best anthracite coals of Pennsylvania and the best bituminous coals of Ohio, Illinois and Iowa. These values can be established beyond a question by reference to the analyses of the coals supplied by the mines, mining and Metallurgy department of the Columbian exposition, where the United States government made all of these experiments, testing the coals from every state and territory where coals are produced, and their worth was most thorough and has become standard authority. As we receive almost all of our coal supply from the four great states above named, I make comparison with their coals in the table below and invite a careful examination of these facts. It is well known that the value of all fuel is determined by the amount of fixed and volatile carbon which it contains. The ash, water and sulphur being considered on the debtor side of question. I submit figures below from some of the best samples analyzed from the states named.

State of Seam.	Thickness of Seam.	Volatile Carbon.	Fixed Carbon.	Water.	Sulphur.	Ash.
North Dakota	16 to 20 feet	38.29	34.90	11.35	0.70	4.80
Iowa	7½ feet	33.25	44.83	6.97	3.01	3.84
Illinois	6 feet	41.20	38.08	6.39	4.43	7.60
Ohio	14 feet	20.20	60.45	7.40	0.94	2.95
Pennsylvania	11 to 13 feet	7.31	85.61	4.70	0.88	2.00

It will be seen that while we have within 10 per cent of the amount of volatile and fixed carbon that is contained in the best anthracite coal, we have within 6 per cent as much carbon as the best bituminous coals of Ohio contains and we have within one hundredth of 1 per cent of the carbon value of the coals of Iowa and less than one-half as much ash and only one-seventh as much sulphur.

We have 2 per cent more carbon than some coals and only throw from it as much ash and only one-tenth as much sulphur. To any careful business man these figures cannot but bring conviction and when it is known that the best coal represented by one pound of lignite approach within 10 per cent of the best anthracite, there will be a revolution in the sentiment which has heretofore maintained that Eastern coal was so much superior to lignite without going into the facts which determine these matters.

The cost of any foreign coal is attributable that we import lignite—its place and the difference in price is much greater toward the middle and western portions of the state. The fuel problem is one that effects every industry and every citizen in this state and is to-day one of the leading questions of economy. Why it is that people do not wake up to the fact that they are actually becoming bankrupts by having to pay the enormous sums that are required to meet the fuel bills every year and every dollar that goes East for fuel is gone forever and no return can ever be expected. If there were some reciprocal relations that would return a portion of this vast sum, there might be some compensating relief. As it now is the fuel bills of North Dakota annually amount to the enormous sum of from $5,500,000 to $7,000,000, which could all be saved at home and this amount of money kept with in our own borders. The profits accruing from this great enterprise would belong to our own citizens. The vast amount of labor necessary to produce this fuel would give employment to the army of laborers and that our own railroads would haul our entire fuel supply within our own borders and we would not be required to pay tribute to foreign corporations who have no interest whatever in our welfare.

Believing that we have established the fact that we have a good quality of lignite coal which is almost equal in heat units to the best Eastern coals and better, in fact, then some, and that it can be produced and delivered to consumers at a much less price, thereby giving it many advantages over Eastern coal. We now come to the question, why is it not generally, in fact exclusively, used. This is a question that requires most careful and unbiased consideration. Being a producer of lignite coal, I have given this subject very great consideration and have arrived at some conclusions that may not be acceptable to the general or casual reader.

First of all too many people prefer to walk in the rut and do as they have done for years, burn "hard coal," simply because it is clean and easily managed, and having the proper stove for burning it they do not care to take the trouble to investigate a new thing or change their manner of doing business. They wait for some practical person to go ahead and blaze the way and discover the improvement and make it easy for them to make a change. The manufacturer who uses fuel for steam is prospering in the old way and waits also for some enterprising neighbor to change from the old order of things and make improvements that will enable him to grasp an additional profit without the trouble and annoyance of making the experiments that lead to new discoveries. A comparatively small amount of lignite coal was mined and burned in this state ten years ago and almost every one who used it began its use because of its cheapness, and not having the proper devices for burning it, there were numerous complaints of its being poor fuel, and it has grown in disfavor. To-day it is not so. Numerous devices for burning it for domestic use and as a steam coal have demonstrated beyond question that the analysis of North Dakota lignite as compared with other fuel is correct and that commercially it stands to-day on a par if not better than many of the Eastern coals for steam purposes, and as a domestic fuel it certainly has no equal in the market. Thirty of the most progressive stove manufacturers in the East are vieing with each other in producing the best lignite burner, and almost the entire stove trade is inquiring for devices to consume our native coal. The efforts to burn successfully this fuel that lies at our very feet should receive the attention of every class of citizens of our state and should be encourged by legislation to any reasonable extent. Our railroads should co-operate as much as possible to make to a rate that would encourage its general use at distant points from the mines.

The extent of our coal lands have not been sufficiently determined, but enough is known to fully justify the statement that we have the very best quality of lignite in inexhaustible quantities and more than sufficient for many thousand years to come.

—R. E. Fleming.

PEMBINA COUNTY.

Pembina county was settled in the first-instance in 1800, but had little agricultural development prior to 1874. It was created in 1867 and then comprised of the three tiers of counties in North Dakota and indeed most of the Northern half of North Dakota. Its crop statistics for 1880 showed the following products for that year: Wheat 65,676 bushels, in 1885 2,047,753; corn 582, in 1885 4,388; oats 29,609, in 1885 603,631; rye none, in 1885 105; buckwheat none, in 1885 184; barley 8,673, in 1885 106,612; in 1884 the acreage harvested, 193,805; in 1895 the acreage sown, 196,725.

She Read Too Much.

"So you don't call at Miss Blyken's house any more?" said one young man.

"No. She reads too much to suit me."

"Makes you feel ignorant, eh?"

"Not exactly that. She read in one of the family magazines that it is not proper for a young man to invite a girl to the theater without inviting her mother, too."—Washington Star.