

NORTH DAKOTA

A Human and Economic Geography

by

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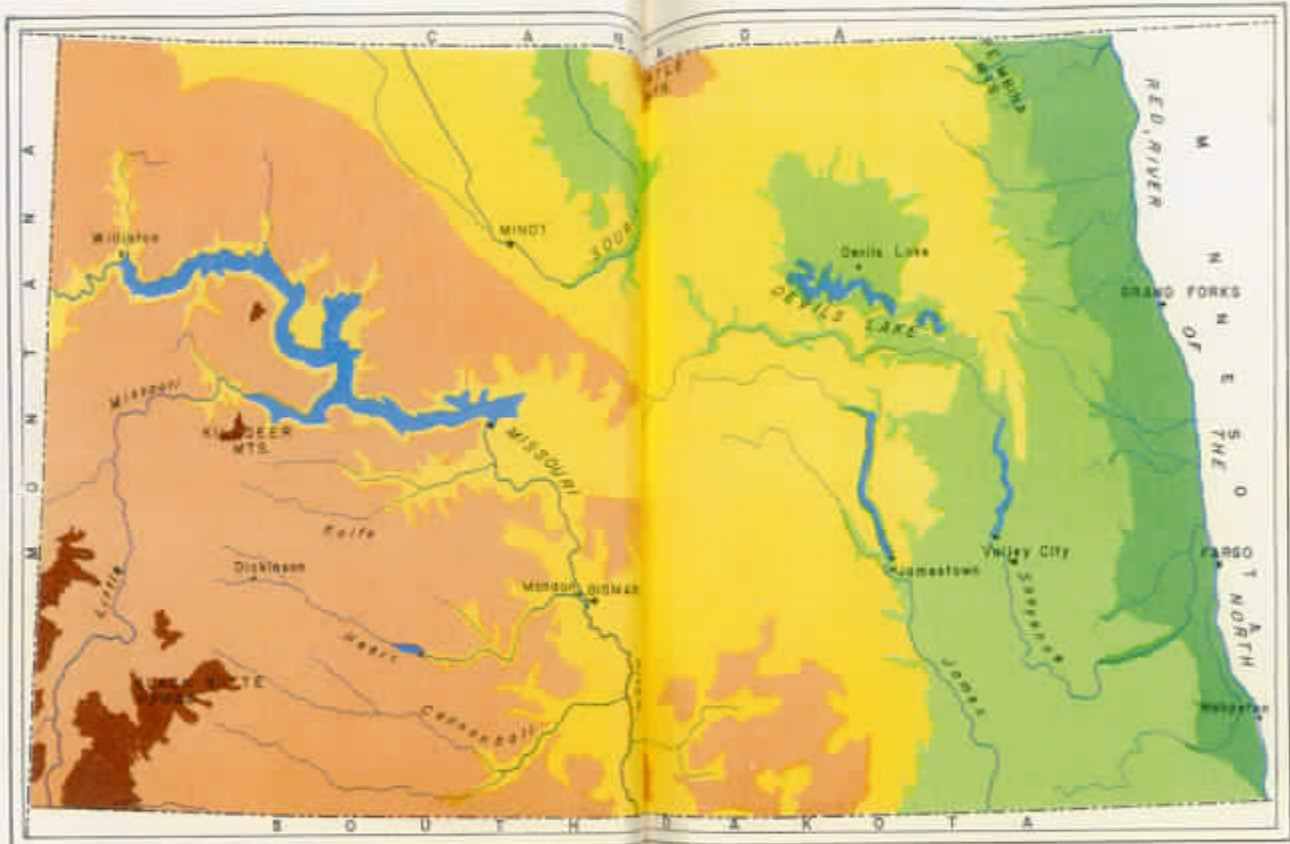
NORTH DAKOTA INSTITUTE FOR REGIONAL STUDIES

North Dakota Agricultural College

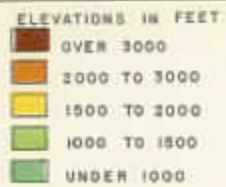
Fargo, North Dakota

1956

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NORTH DAKOTA



The Future of the State

NORTH Dakotans are extremely loyal to their state and firmly believe in its future. When discussing it, they stress the richness of the soil, the valuable grain crops produced, the great deposits of non-metallic minerals, the power and irrigation potential of the Missouri River, and the great value these resources will have in the future development of the state. Every booster admits that agriculture is the backbone of the state today, but he predicts that some day oil, lignite, and manufacturing will also play an important role in North Dakota's economy. Dreams of future greatness are the luxuries of a young state, but, by geographical interpretation, North Dakota can no longer be considered young. Such factors as a loss of population, a loss of industry to neighboring states, and a declining importance of small villages all suggest that the state has already reached a mature state of development. And therefore dreams of future greatness are of value only when accompanied by definite plans to make such dreams come true. The time has arrived when North Dakotans must make a thorough study of all the assets within the state and either follow through on such a study with a long-range planning program to take advantage of the natural resources of the state or forget the many dreams of future greatness and expect few changes in its present economy.

Irrigation

PRESENT PROJECTS Irrigation in North Dakota dates back to 1889, when 445 acres were irrigated. During the first years of statehood, there were many plans suggested on how water could be obtained, but actual development of any large-scale projects did not materialize then. The 1899 United States Census Report shows that

there were 4,872 acres under irrigation in North Dakota, with an average of ninety acres per farm on which irrigation was practiced. The total irrigated acreage has gradually increased through the years until, at the present time, there are an estimated 70,000 irrigated acres in the state. By far the greater part of this irrigated land is located in the western part of the state and mainly in the two counties of McKenzie and Williams. There are four organized irrigation districts in these counties, of which the Yellowstone development in McKenzie County is the largest. This project was constructed in 1910 by the federal government. The Lewis and Clark project in McKenzie County was constructed in 1939 by the State Water Conservation Commission; the Sioux project, in McKenzie County, was constructed in 1940 by the Commission; and the Buford-Trenton project, in Williams County, was constructed in 1940 by the federal government. Two other important developments are the Eaton Flood Irrigation project, near Towner in McHenry County, and the Fort Clark project in Mercer County. Smaller private developments are scattered throughout all parts of the state and are operated by the pumping of water from wells, rivers, lakes, and private dams.

Table 14. Irrigation Projects in North Dakota.*

Name	County	Acres	River Source
Lower Yellowstone	McKenzie	20,000	Yellowstone
Buford-Trenton	Williams	14,000	Missouri
Eaton	McHenry	7,000	Souris
Lewis and Clark	McKenzie	5,000	Missouri
Fort Clark	Mercer	2,100	Missouri
Sioux	McKenzie	700	Yellowstone
Private projects	Various	25,000	Wells, etc.

* Selected data from North Dakota, State Water Conservation Commission, *Eighth Biennial Report*, July 1, 1950, to June 30, 1952 (Bismarck, 1952), 18.

Of the present North Dakota irrigation districts now in operation, the Lower Yellowstone is the oldest and is, therefore, most often considered as an example of what irrigation can do for the drier regions of the state. Irrigation practices are especially attractive to farmers during periods of drought when many farmers realize that they are farming under marginal climatic conditions. When the western part of the state receives the normal or above-normal rainfall, there is less interest in irrigation because dry-farming crops compare favorably with irrigated fields and require less work and expense on the part of the farmer. Over the past seventy-five years, there have been more summers when precipitation was below normal than there have been

growing seasons with above-normal rains. What, therefore, is demanded is a supplemental irrigation plan in which the farmer can obtain water, if needed, and can disregard it during moist seasons. These part-time irrigation systems are the most difficult to organize and, after having been organized, are the most difficult to maintain. The variability of the rainfall is the hindering factor. In the problem of irrigation, the farmer's work and planning is the simplest in arid regions where there is very little or no rainfall during the growing season. By past experiences, the farmers of arid lands have learned to set up regular water application schedules and so take the best possible care of their irrigation facilities. It requires only a very short time of neglected maintenance before an irrigation system will become inoperative and will demand added labor and construction expense in order to be put back into operation.

Crop failures may also occur on irrigated land because of certain conditions such as floods, hail, frosts, insects, and diseases. All of these things also can, and do, occur on non-irrigated lands. Too often, the uninformed farmer expects exceedingly high yields from irrigated crops compared to the yields received from nearby dry-land farms. Farmers forget that, over a period of years, it is much more important to obtain good average yields that do not vary than to harvest highly fluctuating yields. Crops in irrigation usually produce satisfactory yields each season, resulting in a stable farm condition, under which the farmer can plan and prosper.

The principal crops produced under irrigation in this area are alfalfa, wheat, barley, oats, sugar beets, flax, potatoes, and beans. Irrigated wheat fields usually yield more than twenty bushels per acre, barley more than thirty bushels per acre, and oats above forty bushels per acre. Compared to the long-time average from nearby dry-land farms, the average yields from irrigated fields are approximately twice those from non-irrigated fields. Another advantage of irrigated fields is the small amount of fluctuation in yields from year to year. The advantage of growing a wider range of crops, as another asset of irrigation, can not be overlooked. Such crops as alfalfa, sugar beets, potatoes, and beans do not produce well unless irrigated, and they have proved to be the best money crops on these irrigation projects. The importance, or acreage, of any single crop depends on market conditions and the demand for the crop. Alfalfa is one of the more important irrigated crops in the western part of the state because many of the farmers also own range lands and need the crop for winter feed. When wheat prices are high, a large percentage of the irrigated land is devoted to this crop, because it produces a good cash return per

acre. The potato is another crop that receives more acreage when prices are good, for yields of better than 200 bushels per acre are common. The sugar beet is becoming more important in this region and produces yields as high as those of the sugar beet area in the Red River Valley.

Because of the limited acreage, the expense of the process, and the amount of labor required to grow crops under irrigation, crops must return a high cash income or yield a large amount of livestock feed if they are to be grown profitably. Most irrigated units in the state contain between 100 and 160 acres of land. Farmers can make a comfortable living from this acreage only if they plan their farming operations with care and make the best possible use of their land each year. With limited acreage to work, the irrigation farmer becomes diversified in his activities and never depends on the success of a single crop for his yearly income. Most well-planned programs include the production of grain for cash crops, forage for livestock feed, and row crops for their weed-control value. Cattle form an important part of the irrigation farmer's plans and are essential in the efficient operation of most crop-rotation plans. How competent the average irrigation farmer has become may be determined from the crop returns of the irrigated areas in the western part of the state. These returns show that the farm income per acre from irrigated land is more than twice the return from non-irrigated land in the same area.¹

FUTURE PROJECTS In opening any new area for agricultural purposes, farmers naturally select land with the best soil in level areas that can be developed with very little work. In North Dakota, this tendency certainly has been true in the choice and development of land for irrigation. Much of the land that could be irrigated easily and required little capital to level and prepare for flooding has already been developed. However, future irrigation plans in the state—and there are many of them due to the construction of new dams—outline more costly construction and maintenance. Many of the areas in the state under consideration for future irrigation will require expensive leveling; drainage will be a problem in some regions; and the topsoil may prove less suitable for irrigation. The Bureau of Reclamation and the State Water Commission have done a great deal of research on the soils in central North Dakota to determine the ability of these soils to withstand possible irrigation when water becomes available. Many areas under consideration hold promise of being able to withstand irrigation practices while other areas formerly considered as ideal land

¹ State Water Conservation Commission, *op. cit.*, 179.

for flooding because of their nearly level topography, have proved to be poorly suited for irrigation water. Table 15 contains a list of areas in the state considered as potential for future irrigation.

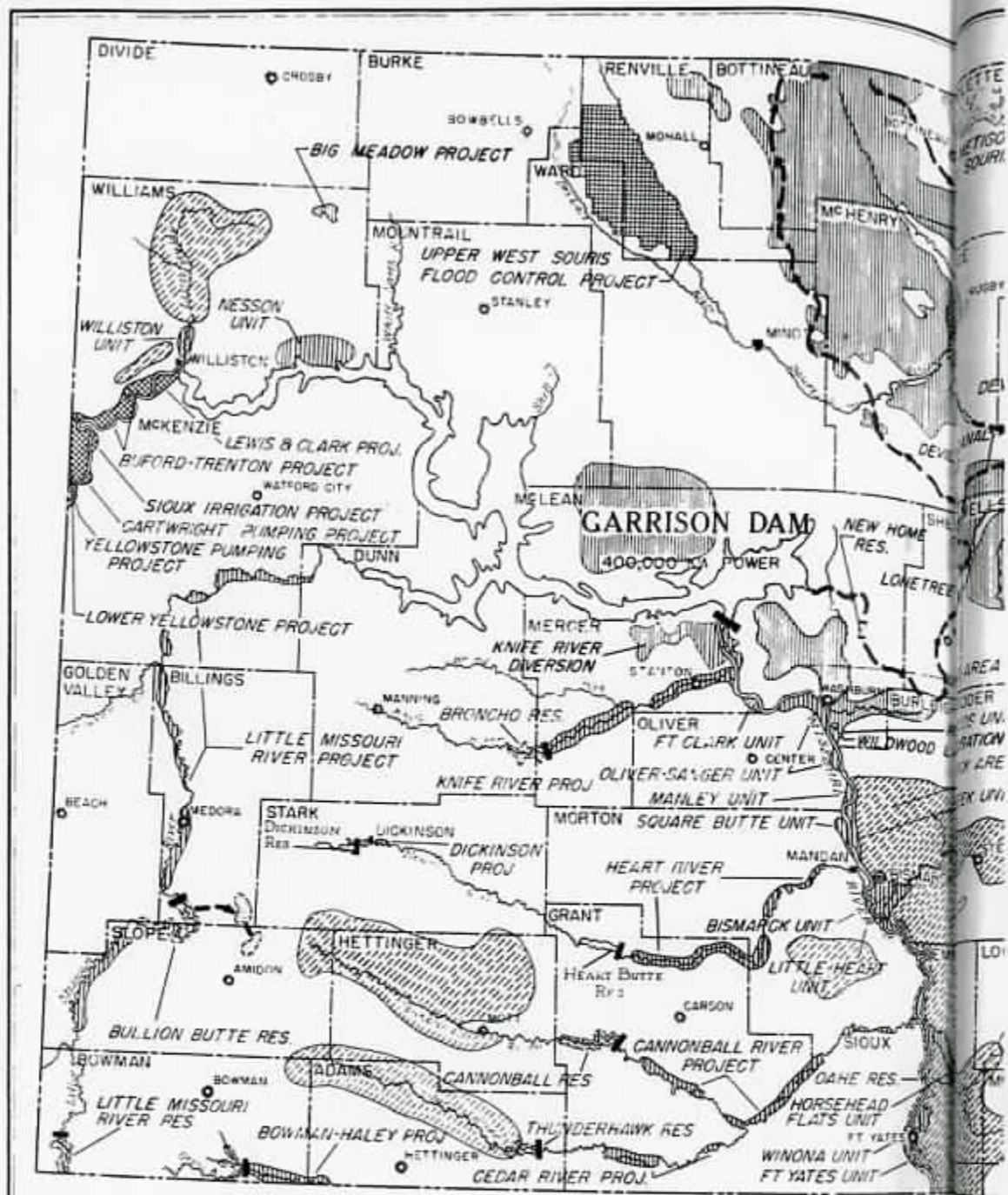
The many projects under construction by the Bureau of Reclamation for the development of the Missouri River Basin have resulted in

Table 15. Irrigation Potentials.*

Investigated Potential Irrigable Areas from Missouri Diversion		
Areas		Acres
Souris Loop (Velva, Mohall, Bottineau, Towner)	.. .. .	705,000
Oakes, Forman, and Britton, South Dakota	.. .. .	125,000
Esmond to Oberon (North of Sheyenne River)	.....	80,000
Harvey, Fessenden, and Carrington	.....	70,000
New Rockford	.. .. .	60,000
Tokio, Warwick, and McVille	.. .. .	40,000
Jamestown	... ..	10,000
Total	.. .. .	1,090,000
Investigated Potential Irrigable Areas from Pumping Projects		
Name	River	Acres
Coleharbor	Missouri	45,000
Little Missouri Division	Little Missouri	20,000
Knife Division	Knife	15,400
Heart-Butte	Heart	13,100
Cannonball	Cannonball	12,400
Williston	Missouri	9,000
Bismarck	Missouri	8,500
Oliver-Sanger	Missouri	8,300
Nesson	Missouri	7,400
Horsehead Flats	Missouri	6,500
Thunderhawk	Cedar	6,100
Hancock Flats	Missouri	5,400
Bowman-Haley	Grand	5,000
Fort Yates	Missouri	4,700
Winona	Missouri	4,500
Painted Woods	Missouri	2,700
Little Heart	Missouri	2,300
Square Butte	Missouri	1,900
Wogan's Port	Missouri	1,600
Burnt Creek	Missouri	1,300
Manley	Missouri	1,200
Dickinson	Heart	900
	Total	183,200
Total Potential Investigated		1,273,200

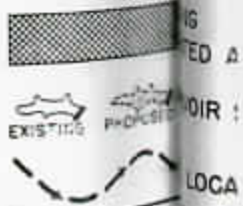
* Data from North Dakota, State Water Conservation Commission, *Eighth Biennial Report*, July 1, 1950, to June 30, 1952 (Bismarck, 1952), 19.

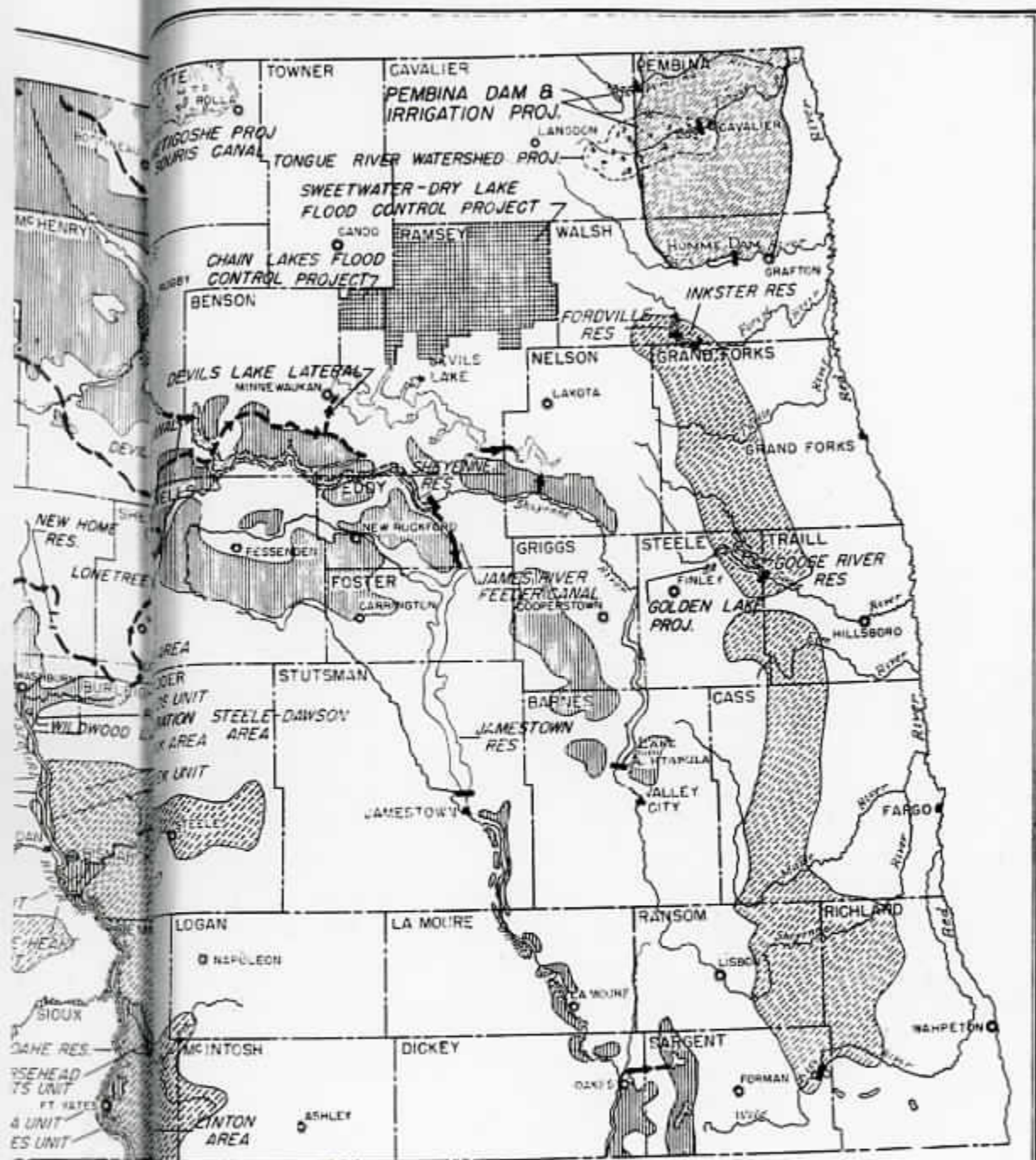




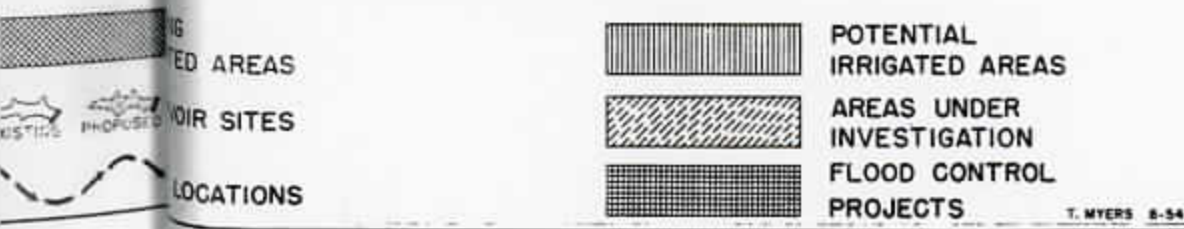
NORTH DAKOTA STATE WATER AND POWER RESOURCES

GOV. NORMAN BRUNSDALE,
 CHAIRMAN
 CURTIS OLSON,
 VICE CHAIRMAN
 MILO W. HOISVEEN
 SECRETARY AND STATE ENGINEER
 EINAR H. DAHL
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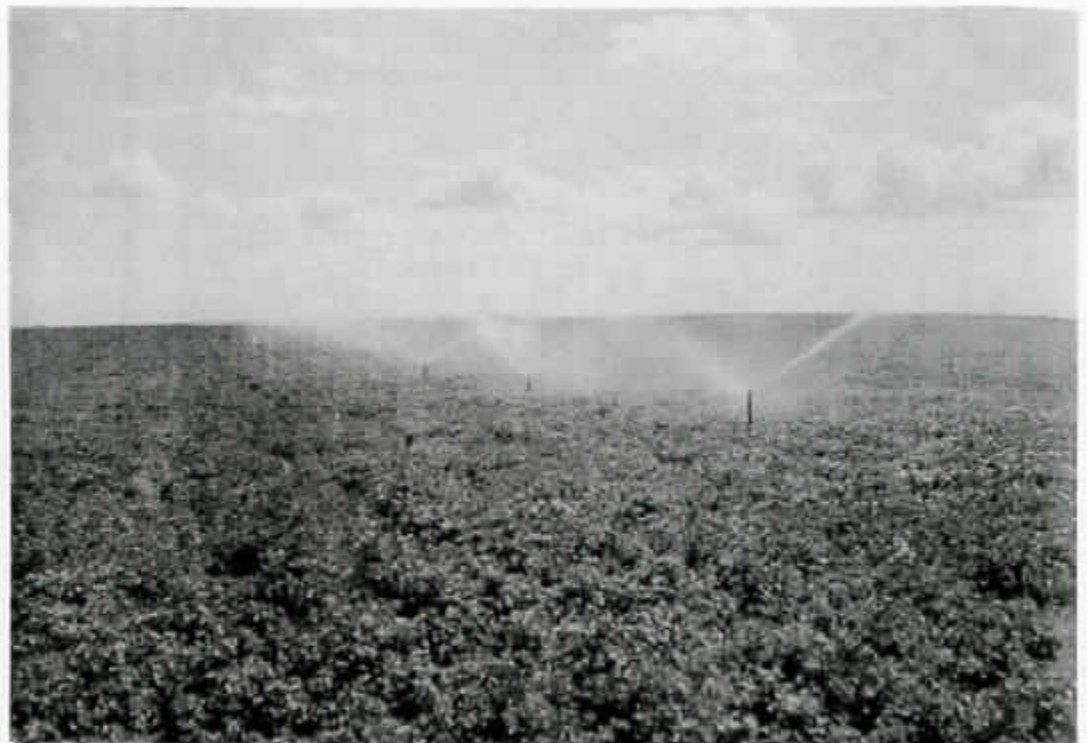




STATE WATER CONSERVATION COMMISSION
RESOURCES DEVELOPMENT PLAN



various state and national plans to expand irrigation acreage in North Dakota. These plans include dams and pumping stations now under construction and other projects still in the planning state which are designed to conserve the soil, supply water for irrigation, increase water supplies of certain cities, develop hydro-electric power, and increase recreation and wildlife facilities in the state. Originally, the key unit of the Bureau's proposed plan was the construction of a diversion dam a few miles below the Fort Peck Dam in Montana to direct water from the Missouri River into a proposed Missouri Canal. Water from



(Greater North Dakota Association)

Figure 99. Spray Irrigation.

this canal was to be used to irrigate adjacent lands in Montana and to replenish the water supply in the Medicine Lake Reservoir in eastern Montana. Backwater in the Medicine Lake Reservoir would have extended to within four miles of Grenora, North Dakota, where a pumping station was to be constructed to pump water from the reservoir into a proposed Souris Canal.

Another reservoir was planned in the Crosby area to utilize water from the Souris Canal to irrigate in the Crosby-Mohall region. The Souris Canal would empty into the des Lacs River which was to contain a dam to store water and also to lift the level of the upper des Lacs River so that a canal could be constructed eastward to the Souris River. The irrigation water obtained from these reservoirs and canals

was to be used for the irrigation of approximately 1,000,000 acres of land west of Minot, generally called the Crosby-Mohall district. Later investigations and soil surveys indicated that much of the land in this area, which was originally considered for irrigation, was unsuitable for continuous irrigation. Much of the area contains impervious subsoils which will not permit adequate drainage if the fields were to be irrigated. Further research and investigations have proved that there are many areas to the west and south of the Crosby-Mohall district that are suitable for irrigation if water could be made available to them.

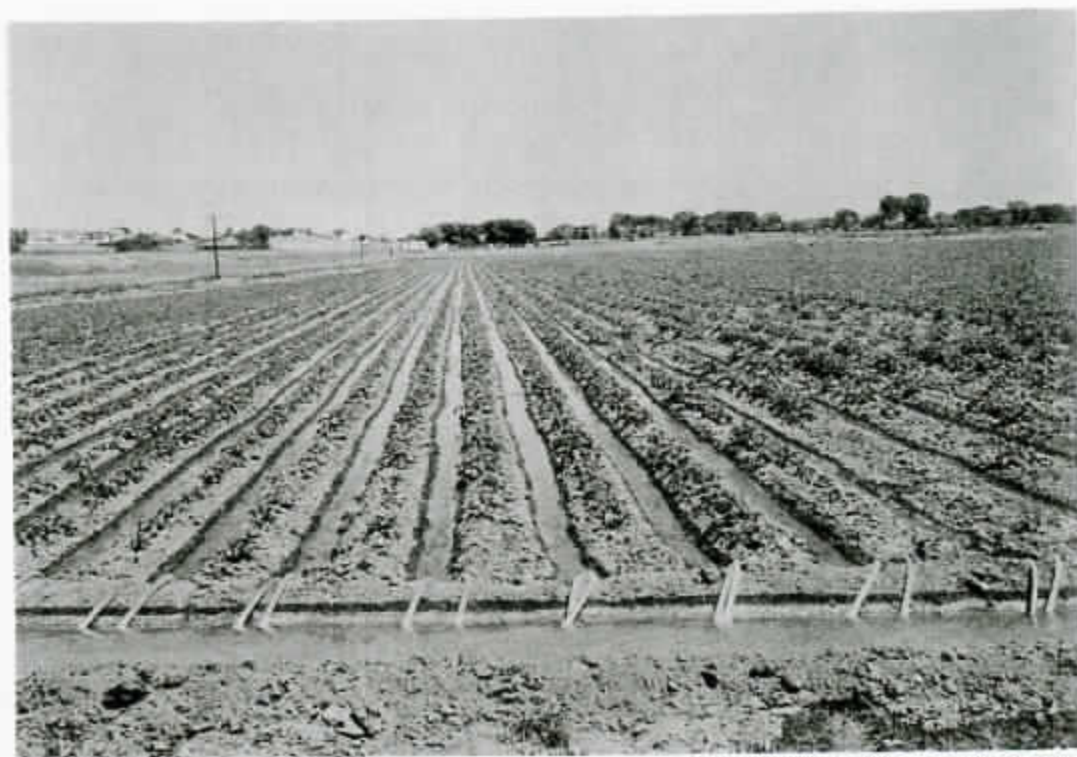
A more economical plan to utilize water from the Missouri River has recently been proposed which would divert water from Garrison Dam to the areas found capable of withstanding prolonged irrigation in central North Dakota. In this plan, water would be taken by a canal from the Snake Creek arm of the Garrison Reservoir near the village of Coleharbor in McLean County. This canal would cross the Altamont moraine through a low saddle south and west of the town of McClusky and then follow a northeasterly route to the Sheyenne River. The McClusky Canal would be 84 miles long and have a capacity of 7,400 cubic feet per second. Power plants could be constructed along the canal to provide 245,000,000 kilowatt-hours of electricity on a seasonal basis—power which could be carried to distant areas and which also might bring industry to this region. Already constructed as part of the Garrison Dam Project is the Snake Creek Embankment, an earthen dam 13,000 feet long and 85 feet high, that separates the Garrison and Snake Creek reservoirs. A gravity control structure will control the flow of water between the two reservoirs. The Snake Creek Embankment will be utilized to provide storage for water that will be diverted to it from the Garrison Reservoir. The initial feature of the supply works for the Garrison Diversion project will be the Snake Creek Pumping Plant which will pump water from the Garrison Reservoir into the Snake Creek Reservoir. This plant will pump an average of 1,920,000 acre-feet of water for irrigation purposes and would require about 89,650,000 kilowatt-hours of electricity each year.

The above proposed pumping plant and canal plans have replaced earlier plans for a pumping station at Prophets Mountain which was to obtain water from the Turtle Creek Reservoir. This proposed Prophets Mountain Pumping Plant was to lift the water to the top of the Coteau and empty it into the McClusky Canal. The canal was to have a capacity of 7,200 cubic feet per second and extend a distance of thirty-eight miles across the top of the Missouri Coteau. Water at the eastern end of the canal was to be lowered to the drift prairie through two power plants. The first lowering would occur at the Lin-



(Greater North Dakota Association)

Figure 100. Ditch Irrigation.



(Greater North Dakota Association)

Figure 101. Tube Irrigation.

coln Valley Plant and the second at the Lonetree Plant. These two proposed plants would produce approximately 400,000,000 kilowatt-hours of energy annually, or nearly 100,000,000 kilowatt-hours more than the power required to lift the water up to the western side of the Coteau.

In both of the above proposed plans, water would be diverted through a proposed Sykeston Canal to provide irrigation water for some 906,000 acres of land in the state. The Lonetree Reservoir would serve as a central distribution point for the delivery of water to the Devils Lake area, the Souris River area, the James River Basin, and the Sheyenne River Basin. From the Lonetree Reservoir, water would be carried to the Souris Loop area by the proposed Velva Canal, which would be 118 miles long and would terminate near the Canadian border. Water for the Devils Lake and Harvey-Maddock areas would be derived from the Garrison Reservoir by a proposed Devils Lake Canal. Water diverted to Devils Lake would partially restore the lake to its former level. Two lateral canals would connect Devils Lake to Stump Lake and Stump Lake with the upper Sheyenne River. The Devils Lake project would require quite some time to complete because the discharge of the salt water from the lake will be a difficult problem to solve without injuring city water supplies, irrigation projects, and fish life in the lower Sheyenne and Red Rivers. A proposed New Rockford Canal will serve to irrigate lands in the Warwick, McVille, and New Rockford areas. A diversion canal from the Lonetree Reservoir to the James River will guarantee a steady flow of water for cities along the James River and for irrigation in the Jamestown and the Oakes areas. The proposed canal to the upper Sheyenne River would increase the flow on this stream in late summer when water is badly needed by the cities along the lower Sheyenne.

When completed, the many irrigation projects discussed above promise a much brighter future for many North Dakota farmers, because the lack of water, one of the biggest hazards to agriculture in the state, will be eliminated for many. With the coming of irrigation, new and more profitable crops will be introduced into the semiarid regions of central North Dakota. Wheat acreage may well be reduced to make room for crops of sugar beets, corn, alfalfa, and various productive grasses. Livestock numbers will increase, as more winter feed is produced on less acreage. With an increase in corn production, more finished beef cattle will be shipped, thus providing added income for farmers. Irrigation will enable the average farmer to provide a better living for his family during the periods of drought and thus permit North Dakota farmers to enjoy greater prosperity during favorable

seasons. Thus, by taking advantage of the water resources, the North Dakota farmer will be able to conquer another part of his environment and so change some geographical aspects of the state.

Agriculture

North Dakota is one of the most exclusively agricultural states in the nation. In 1950, approximately 48 per cent of the people in the state lived on farms. Although this was the first census to report less than 50 per cent of the people in the state as farm residents, a gradual decrease in the percentage of farm population has been taking place in North Dakota for the last fifty years. The most obvious reason for this decline has been the gradual growth of cities and towns, as rural people demanded and needed more services that could be supplied best by larger communities. However, other factors have also been important. The gradual increase in the size of the farm unit must be considered as one of the essential factors in reducing the farm population. As can be seen in Table 16, the size of the average farm in North Dakota has more than doubled since 1890, when the average farm unit was 277 acres. By 1920, the size of the average farm in the state was

Table 16. North Dakota Farms, 1890-1950.*

Year	Number of Farms	Land in Farms	Average Farm Size
1890	27,611	7,660,333 Acres	277 Acres
1900	45,332	15,542,640	342
1910	74,360	28,426,650	382
1920	77,690	36,214,757	466
1930	77,975	38,657,894	496
1935	84,605	39,118,136	462
1940	73,962	37,936,136	513
1945	69,520	41,001,158	590
1950	65,401	41,203,143	630
1954	61,939	41,731,493	674

* Based on data from John Burnham, "North Dakota Farms Getting Bigger but Fewer," *Bimonthly Bulletin*, North Dakota Agricultural Experiment Station, Fargo, XIV (September-October, 1951), 35.

466 acres, and in 1954, farms averaged 674 acres each, or better than one square mile in area. This increase in the size of farms has resulted in a decrease in the total number of farms operated. From a high of 84,605 farms in 1935 there occurred a 25% decrease in the twenty-year period up to 1955, when the census listed 61,939 farms. A decrease of nearly 23,000 farm families in this twenty-year period indicates a serious decline in the rural population.

Another factor that has reduced the percentage of population re-

ported on farms is the increased number of farmers who live in towns but who still own and operate farms. Rainer Schickele, former agricultural economist at the State Agricultural College, estimated that approximately one in twenty farms is operated by town farmers. The number of town farmers will vary in the different regions of the state. Grain farmers make up the largest percentage of town farmers, and in some selected areas, as many as one out of every five farmers may live in nearby villages. In general, the farmers who care for livestock make up the smallest percentage of the town-farming group. A gradual reduction in the size of the farm family has also affected the farm population picture. During the early development of the state, large farm families were an advantage, but, with a change to mechanized farming, there has been a reduction in the size of the average farm family.

In many ways, the increased size of North Dakota farms has been a good thing for the farmer. By farming more land, he has been able to reap a greater financial return and thus purchase more modern labor-saving machines to ease the drudgery and the long hours of farm work. The average farmer has also been able to furnish his home and provide his family with more of the comforts and luxuries of life which were formerly restricted primarily to families living in cities and villages. Just how large the North Dakota farm should be at the present time would be difficult to determine. A dairy farm in any one of the three regions of the state need not be as large as a grain farm in the same area. A dairy farm in the Red River Valley usually has less acreage than the same type of farm in the Slope region because of the more humid climate and the greater production per acre in eastern North Dakota. The same is also true of the grain-farm acreage in each area. A beef cattle farm in any region would require the greatest number of acres. The beef farm also tends to increase in size in the more arid regions of the western part of the state. A combination farm of either dairy and grain or grain and beef cattle would also vary in size for each area. Still, the number of acres that would be considered satisfactory today may very well be considered too small ten or twenty years from now. It should be fairly safe to assume that more efficient labor-saving farm machines will be invented in the future, which will enable the farmer to take care of more land than he can handle at the present time.

Even though farms have increased to an average size of 437 acres in the general farming region, to 645 acres in the wheat region, and to 1,000 acres in the cattle-wheat region, there still are many farms in each of these regions that are too small to be operated efficiently by much of the cost-cutting machinery available to the farmer. Many

owners of the smaller farms have overpowered their farms with large machinery to save time and work and, therefore, are not reaping a proper return on their investment. A desirable solution would be to increase the size of farms at the lower end of the scale, thus creating units that would provide the farm family with a fair standard of living. This adjustment would also tend to stabilize the economy of the state during periods of adverse weather or low prices. Where farm units are of average size or larger, there is less pressure on the land, a condition which permits the farmer to take better care of his soil. The most common criticism of the growth of large farms has been that the large farm grows by absorbing the small farm during periods of economic stress and thus becomes still larger. Some people in the state feel that the large farm creates a problem very similar to the one created by the large industry. When farms become extremely large, various business people in the immediate communities may be harmed, and this condition affects the welfare of the state by benefiting a few persons at the expense of many. The large-farm problem has become a political issue in the state and has progressed to the point where legislatures have been forced to consider certain restrictive legislation on farm size. One of the proposals that has received some consideration is a form of progressive land tax, much like an income tax. The greater the acreage, the higher would be the tax rate until it would be unprofitable to own land above a set acreage. This would be an extremely difficult tax to administer and would require a state-wide land classification program if it were to be attempted. One of the main criticisms of this tax has been that the state would be penalizing the successful and progressive farmers and aiding the less successful. The present increased size of farms has not only improved the working conditions on the farm but has also lifted the social standing of the farming occupation to a level comparable to that of any other occupation in the state.

Farming in North Dakota, as in other areas, has always been a somewhat precarious occupation and promises to remain so for many years to come. Increased land holdings, a variety of crops, improved machinery, and scientific research have reduced some of the risk in farming, but the farmer must still combat weather, soil, weeds, insects, and plant diseases. First and foremost, the farmer is completely dependent on the unpredictable and uncontrollable weather for his crop. It is true that in a few small areas, farmers are able to irrigate their fields during dry periods, but little can be done to save crops from severe hail storms or killing frosts. Fortunately, these two crop destroyers are the exception rather than the rule during most years. Ex-

perience has taught the farmer that, by making adjustments in many of his farming practices and by selecting the best crops for local climatic conditions, he can, to a certain degree, make the weather work for him. By practicing strip farming, shelterbelt planting, and stubble mulching, many farmers have learned that valuable winter snows can be held on fields to guarantee spring plantings a sufficient supply of moisture for germination and early growth. Even the hot, dry weather of late summer, which had been an important factor in reducing grain yields in the past, can now be utilized by the farmer as ideal ripening and harvesting weather for the early-maturing grain varieties. The successful farmer has learned that it is better to make adjustments to climatic conditions whenever possible than to gamble on the weather by resisting changes and thus inviting self-destruction.

Farmers have also learned that a knowledge of the soil they work can be a valuable asset in farming. The few inches of topsoil on his fields must serve the farmer as a life-time bank account, from which, each year, he should withdraw as little wealth as possible to produce his crops. The more enlightened farmers in all sections of the state fully realize that if they take care of the soil, the soil will take care of them. Such practices as permitting the soil to rest for a year in summer fallow, returning as much as possible of the crop residue to the soil, complete use of all farm manure, and the application of commercial fertilizer, have all paid rich dividends to North Dakota farmers in the past at a minimum of expense and will continue to pay dividends in the future.

The farmer must wage a never-ending war against plant diseases, weeds, and insects. Fields that have been tilled over a long period of time gradually become infested with weeds which must be destroyed each summer if the land is to produce profitable crops. One of the great recent advances in weed control has been the development of chemical sprays that can be applied to grain fields by airplanes. Before these sprays were used, almost no attempt had been made to kill weeds in grain fields until the grain had been harvested. For the cultivation of row crops, many new farm machines have been devised that do a very efficient job of tilling the soil and destroying the weeds between the rows. The possibility of crop failure due to insects has been almost completely eliminated. If applied correctly and at the right time, the many new chemical solutions are able to control all but the most extreme insect invasions. The development of disease-resistant varieties of grain that mature in less time has helped to reduce crop losses for the grain farmer. Wheat rust is one of the few grain diseases that are still feared in all parts of the state. Since it is the late maturing grain

which is usually harmed most by the rust, the best defense against this disease is to plant the earlier maturing varieties of grain. Some species of grain have been developed which are more rust resistant than others, but none is completely immune, as was proved by the heavy rust losses in 1953, in 1954, and in 1955.

As farms have increased in size and more expensive equipment has become essential to the operation of the average North Dakota farm, farmers have been gradually forced to realize that the securing of capital is a new problem they must solve if they are to be successful. Before the Second World War, capital was considered to be a minor problem in the farming occupation. There was a common assumption that any person who was unafraid of hard work could always, as a last resort, take up farming and be assured of at least a meager living. Machinery could be borrowed or could be purchased with a small amount of capital. Land could usually be rented on shares or purchased with small down payments. Land holdings were small, and farmers usually planned to add more land. Originally, a majority of the land holdings in the state were small, many farms having been acquired as homesteads of 160 acres. These conditions no longer exist, for farming has developed into a big business with its own specialized machines. The average North Dakota grain farm must be equipped with at least one tractor, one or two gangplows, a variety of disks and drills, a swather, a combine, a truck, and a number of small power machines for a variety of uses around the farmyard. If the farm is located in the Red River Valley, other complete sets of specialized machinery may be required to plant, cultivate, and harvest sugar beets or potatoes, or both. Farmers that keep cattle need additional equipment for haying operations, grinding feed, and putting up silage. Many farm operators in the general farming area have invested more than \$20,000 in equipment alone. Between 1950 and 1955, land in the Red River Valley had a value of between \$10 and \$200 per acre and an average value of better than \$100 an acre, which gave the average farm of 400 acres a value of \$40,000 to \$50,000. When these figures are totaled, it becomes apparent that farming in North Dakota has developed into an expensive occupation. An investment of \$70,000 would establish a fair-sized retail business in most communities and would qualify the operator to expect certain privileges and special interest rates when additional capital is required for buildings, land, or new equipment. Oddly enough, the conservative banker still considers the average farmer a greater loan risk than the average businessman, although North Dakota is an agricultural state in which all sales, either directly or indirectly, depend upon the success of the farmer. Farmers are often

advised to keep out of debt if they wish to succeed, but how many potential farmers have the necessary capital to purchase and equip an average farm in the state without going into debt? The problem of acquiring enough money to become established in farming therefore tends to discourage many able young men from choosing agriculture as a vocation. It follows that capital requirements have indirectly aided the large-farm movement by creating a limited market for land that is offered for sale. Capital is just one of a long list of factors that have gradually built the large farms of North Dakota and have established farming as a big business that shows every indication of continuing as such for some time to come.

Population

A study of population figures is both interesting and of geographic value to the person who would understand the factors which have influenced the settlement of an area. Population figures are especially pertinent when comparative numbers are given for the various stages in the development of a given region. Such comparisons present a challenge to the reader which he tries to solve from a personal knowledge of the area and from certain experiences he has had in connection with the population problem. Population trends in North Dakota are of special interest because this state is one of the few in the nation which have recorded decreases in population during recent years.

North Dakota was one of the states that entered the Union in the late nineteenth century, and it had a Territorial population of only 2,405 people as late as 1870. During the next sixty years, this number was increased by a great influx of land-hungry settlers until a peak population of almost 700,000 was reached in 1930. Most of these settlers came here during the state's first forty years when the population was almost doubling itself each two or three years. By 1890, just one year after North Dakota became a state, the population had reached a total of 183,000 which was an increase of 7,000 per cent in twenty years. From 1890 to 1910, the number was again increased by almost 400,000 persons with an average increase of 20,000 each year. Between 1910 and 1930, the rapid trend of the past began to show definite signs of leveling off, and only 100,000 additional people were recorded in the 1930 census. This latter increase resulted primarily from a natural increase in the existing population rather than from a movement of new settlers into the state. Sometime between 1930 and 1940, this gradually reduced rate of increase leveled off completely, and, by 1940, a decreasing trend had developed, which resulted in a

loss of almost 40,000 people. This trend continued through the next ten years, when the 1950 census recorded a loss in population of approximately 20,000 persons. This figure reveals that more than this number left the state, for the birth rate would normally have resulted in a population increase.

When population trends are studied, it is usually a simple matter to explain a gain or loss that has taken place in the past. Present trends are slightly more difficult to interpret, while future predictions depend on the solution of a problem containing many variables of an economic and geographic nature, and so are extremely difficult to make. This situation is especially true in North Dakota where the early rapid growth of population before 1920 can be easily explained by a knowledge of the following factors:

1. The great attraction of an abundant supply of cheap, fertile land that could either be purchased at very low prices or could be obtained free under the Homestead Law drew many land-hungry people from the densely settled eastern half of the nation.

2. The newly-constructed railroads, with direct connections to the East, made transportation to the agricultural lands of North Dakota a simple matter, since all the settler's equipment could be hauled within a few miles of the place where the homesteader had filed his claim. Railroad companies gave the settler reduced rates to his destination and usually permitted him to live in the box car for a few days until he had constructed some sort of shelter for his family.

3. Great advertising campaigns carried on by the railroads and steamship companies attracted many farmers in older settled areas and brought additional hundreds from overseas. Newspaper reports and private letters gave accounts of the great agricultural possibilities in the state and served to convince many more people that a better future awaited them in North Dakota.

4. Overpopulation and exhaustion of the agricultural land in the East forced many farmers to leave their homes and seek new farms in the West. However, North Dakota did not receive as many settlers from this migration of farmers as did the states to the South and Far West.

5. Large numbers of European immigrants came to the United States at the end of the nineteenth century because of economic conditions in Europe at that time. Many of these people were accustomed to cool climates and so chose to settle in North Dakota.

6. Much of the rapid increase in population before 1920 was due to the high birth rate on the newly settled frontier. This population in-

crease resulted in the settlement of the less desirable lands of the state that had been passed over by the earlier settlers. Improved farm machinery also was a factor in the later tilling of soils thought by the first farmers to be unfit for agriculture.

A gradual slowing of the early population increase was to be expected, as less and less new land was left in the state for settlement. Most of the population increase after the complete settlement of the state, therefore, had to come from the reproduction of the existing population. Another factor that tended to retard the rapid population increase was a change in the amount of land each farmer could work and needed to work if he planned to continue in agriculture. This increase in the size of farms should have served to forecast a leveling of the population increase in the state, but the rapid growth of villages during the first fifty years of settlement tended to equalize this trend in farm size. Each census report listed a decrease in the farm population, but this decrease meant little to the citizens of the state as long as the total population of the state continued to grow. Table 17 shows the decrease in farm population from a high of 431,925 in 1920 to a total of 295,426 in 1950. This is a decrease of 136,500 people in a thirty-year period, with 98 per cent, or 134,000 of this number, occurring since 1930. However, since farm production has increased during the last thirty years, one must acknowledge the fact that the farming is done more efficiently than when a larger farm population was needed for the same amount of production.

At present, the most obvious reason for the decline in farm population is the gradual increase in the size of North Dakota farms. In 1930, the average farm was 496 acres, and by 1950 it had 630 acres, making farms one-fourth larger. The decrease in the number of farms during this same period was 12,574. This reduction in farm population has caused a loss of population in many small rural villages in all parts of the state. This decrease in farm families has resulted in business failures among grocery stores, garages, oil stations, hardware stores, cafés, clothing stores, banks, and places of recreation. The proprietors of these businesses have been forced to move to nearby larger cities, or in many cases, they have left the state to find employment elsewhere. One can drive through almost any small village in North Dakota and see business places and homes that are vacant and uncared for. The villages that have experienced the greatest loss of business have usually had a population of less than 200 or 300 people and were located on good highways near larger towns. Between 1940 and 1950, there was a decrease of 10,000 people in the villages of the state that had a population of less than 1,000 inhabitants. This figure is misleading, however,



Figure 102. One of the Many Vacant Business Places in the Small Towns of North Dakota

because many villages with a population between 500 and 1,000 enjoyed slight increases. Thus, the smaller towns suffered a comparative loss of population much greater than the figure of 10,000 would indicate.

The continued growth of larger cities can be easily visualized when comparisons are made between urban population figures for 1930 and those for 1950. All cities in the state with a population greater than 1,000 experienced an increase in population during this period. In 1930, the total number of persons in cities over 1,000 was 152,538. In 1950, this number had increased to 234,487, or an increase of nearly 82,000. This increase in city dwellers took place while the overall state population declined by 61,209 persons. While it is true that the larger towns and cities in the state have become larger in the past thirty years, they still have not been able to provide work for the large number of young people in the state. Many able young men and women, therefore, have been forced to leave the state and seek employment elsewhere. In the past, the largest percentage of the young people have gone to such states as Minnesota, California, Washington, and Illinois.

Any future predictions on population trends in North Dakota must be based on the following six main factors which have caused the decline in recent years:

1. Lack of industrial development.
2. Increasing size of farms.

3. Lower birth rate.
4. No new land to be obtained.
5. Decreased immigration.
6. Severity of the climate.

For more than a decade, industrial development in North Dakota has always seemed to be just around the corner. Expansion of industry in the near future to an extent that large numbers of persons will be employed is still very remote even though more power will be available from such new sources as oil, gas, and water. However, North Dakota has never lacked sufficient power resources. The gradual increase in farm size will continue for some time to come, although this increase in the next twenty years will not be as rapid as it has been during the past twenty years. A further lowering of the birth rate seems unlikely in the rural areas of the state unless economic conditions again reduce and delay marriages to the level of the depression years of the 1930's. The possibility of irrigating over 1,000,000 acres of land in the state will make available more land for agriculture. Irrigation practices tend to restrict the amount of land one farmer alone can work. This fact would tend to place a certain amount of land back on the market, thus leading to an increase in the farm population in the

Table 17. Distribution of Population in North Dakota.*
(Expressed in percentages of state population)

Size of Community	1950	1940	1930	1920	1910	1900
25,000-50,000	10.7	5.1	4.2		..	..
10,000-25,000	8.3	8.1	6.5	7.3	4.6	..
5,000-10,000	6.5	6.1	5.0	2.9	2.9	5.4
1,000-5,000	12.5	9.0	6.7	9.4	9.0	9.0
Under 1,000	14.5	15.3	14.5	13.7	11.5	7.7
Rural	47.7	56.4	63.1	66.8	72.0	77.8

(Expressed in numbers)

Size of Community	1950	1940	1930	1920	1910	1900
25,000-50,000	65,092	32,560	28,619	.....	..	.....
10,000-25,000	51,369	52,301	44,301	46,447	26,809	.....
5,000-10,000	40,548	39,225	34,074	18,889	16,788	17,241
1,000-5,000	77,478	57,678	45,544	60,954	51,784	29,067
Under 1,000	89,723	97,930	98,709	88,657	66,116	24,840
Rural	295,426	362,221	429,598	431,925	415,559	247,998
Total	619,636	641,935	680,845	646,872	577,056	319,146

* Based on data from United States, Bureau of the Census, *Census of Population: 1950, Vol. II, Characteristics of the Population, Part 34, North Dakota* (Washington, 1952), 6.

regions where a few of the more successful water projects are located. Still, this small increase in farm population may well be neutralized by an overall decrease in farm population in the unirrigated regions.

Table 18. Population by Various Age Groups.*

Age	1950		1940	
	Number	Per Cent	Number	Per Cent
0-9	137,897	22	124,215	19
10-19	105,492	17	132,424	21
20-29	92,318	15	108,107	17
30-39	84,287	14	85,051	13
40-49	70,828	12	70,826	11
50-59	56,764	9	60,236	10
60-69	43,669	7	38,196	6
70 and over	28,381	4	22,880	3
Total	619,636	100	641,935	100
Mean Age	27.1		25.7	
Population per square mile ...	8.8		9.1	

* Based on data from United States, Bureau of the Census, *Census of Population: 1950*, Vol. II, *Characteristics of the Population*, Part 34, *North Dakota* (Washington, 1952), 30.

The discovery of oil during the early 1950's has resulted in a new migration of certain skilled workers into the western part of the state. These people will remain as long as oil exploration and drilling is continued. The operation of oil refinery plants may also require the introduction of a few skilled workers in the near future, but no appreciable population increase can be expected from this new industry. Climate has always influenced the population in the state, and there is no reason to assume that it will not continue to do so in the future. Periods of drought discouraged many farmers in the 1930's, and future droughts will doubtless discourage many more. The cold winter weather of North Dakota has been an important factor in causing a migration of people to other states. This factor applies especially to the young and the old. Many young people migrate to milder climates in search of work rather than take positions in their own home communities. Older people who have retired often choose to leave the state for the mild winters of the West and South. Although many residents enjoy both the cool summers and the cold winters here, it is very unlikely that any great numbers of people will be attracted to North Dakota by the climate.

Everyone has a right to evaluate the above factors and to guess what the population of the state will be ten or more years from now.

Pessimists would have us believe that North Dakota is just one big farm which could best be operated by one half or one third as many farmers as, at present, work the soil and that, therefore, the intelligent thing for many people to do is to leave the state before the big population decrease occurs. Optimists, on the other hand, have stated that the Garrison Dam, with its power and irrigation projects, will increase the population by a million persons. Oil discovery and utilization of lignite will add another million the optimists say.

Therefore, the state should plan to expand its educational, recreation, and economic facilities now in order to be able to handle the many problems of a rapidly increasing population. An accurate estimate would certainly lie somewhere between these two extremes. Most students of geography, economics, and sociology believe that the 1960 census will report very little change in the population of North Dakota. With a greater utilization of the natural resources of the state and a rapid increase in the population of the nation as a whole, it should be possible to forecast a slight increase in the population of North Dakota by 1960 with a continuation of this slowly rising trend in the future.

Industrial Development

Extensive manufacturing depends on a variety of factors, such as power, markets, raw materials, transportation facilities, labor supply, location, and capital. A state may have all of the industrial ingredients mentioned before and still lack industrial development because of an adverse political environment. Laws restricting working hours, expansion of industry, and sites for factories may tend to discourage a few industries, but, by far, the most decidedly restricting political factor is taxation. If high taxes on personal income, property, and industrial profits can ruin an established industry, then these factors will certainly drive away any prospective capital interested in establishing plants in a new area. The North Dakota Post-War Planning Board published a report in 1944 in which certain questions were raised regarding laws and tax programs in the state. The Board called attention to the fact that new industries using products grown in North Dakota have been established not here, but just outside the border in the state of Minnesota. Sugar beet factories and potato product plants were mentioned as examples. The State Planning Board made the following statement: "Since we have been agricultural minded, legislation in the past has been unfavorable to the promotion of such industrial development; but we have obviously reached the point where we must encourage industry for the best interests of agriculture

and for the future welfare of the state.² No definite restricting laws were mentioned, but the Board did recommend a survey and suggested that the legislature should carefully investigate the reasons why industry had not been attracted to the state, and it should endeavor to make changes in the laws and tax program if such changes were needed to encourage industrial capital to start new industries.

Location has been a very important factor in discouraging certain industries from developing industrial plants in North Dakota. Located in the north central part of the nation, at great distances from the Eastern markets and centers of population, North Dakota industries are handicapped by high transportation costs, and goods manufactured in the state must travel hundreds of miles before they can be placed on the market. Transportation costs limit the distance over which goods can be shipped and still be sold at a profit. For geographical reasons, freight rate structures have never been favorable in the less densely populated agricultural regions. North Dakota interstate freight rates in the western part of the state are 161 per cent of the rates in the Eastern Rate Group, which is located between the Ohio River and the Great Lakes.³ In 1944, the freight rates on lignite briquets from Lehigh, North Dakota, to Fargo was \$2.14 per ton, whereas the rate to Moorhead, Minnesota, was \$3.07 per ton, a difference of \$.93 per ton. This interstate rate forces lignite and other products to climb a freight wall to get out of the borders of the state. However, freight rates are not the only factor associated with location to hamper industrial development; distance and time also serve to restrict certain industries to a given radius from markets. Every industry attempts to locate near its raw materials when such materials are difficult to transport. This principle of location would eliminate the manufacture of many products made from raw materials not obtained in the state. Only those industries which require large amounts of power are able to disregard locational factors and choose sites where power can be obtained at very low rates. Electrical power produced from local lignite may some day be able to attract such industries as aluminum, synthetic nitrates, and electroplating, all of which require large amounts of cheap power.

Climate and water supply must be considered as two more factors which are not too favorable for North Dakota. The cold winters, with their short periods of daylight, require large amounts of energy for heat and light. This added expense must be considered in the final

² North Dakota, Post-War Planning Board, *Report of the North Dakota Post-War Planning Board* (Bismarck, 1944), 30.

³ North Dakota, Post-War Planning Board, *op. cit.*, 34.



(Greater North Dakota Association)

Figure 103. Burning Coal Mine North of Amidon.

cost of any finished product. Except in cities on or near the Missouri River, water supplies are limited in nearly all parts of North Dakota. Therefore, any industry that needed large amounts of water would find that, in nearly every part of the state, it would be impossible to operate. The completion of Garrison Dam, with the many proposed diversions, should greatly reduce the water problem of many cities in the eastern part of the state and should thus enhance their chances for future industrial development.

If industrial expansion is to take place in North Dakota, it will occur primarily in connection with the development of the natural resources in the state and with the establishment of processing industries. The large resources of lignite, oil, gas, sodium sulfate, and clay hold many possibilities for future industrial expansion if capital for their development can be attracted to the state or if these resources become essential to the continued growth of the nation. One of the best opportunities for the promotion of industry in the near future lies in the establishment of plants to process oil from soy beans, flax, and sunflowers and the manufacture of stock feed which is now shipped into the state after being processed in other areas. Some processing of potatoes, grains, and sugar beets would also increase the income for the farmer and provide employment for additional workers.

An increase such as has taken place in the development of the oil resources of the state cannot be expected to occur overnight in the agricultural industries because few opportunities for large profits exist in the processing of agricultural products. Pilot plants and research must not only be continued but should be increased in order to expand present uses and discover new methods and uses for the natural resources and the agricultural products of the state. Under present conditions, pilot plants and research seem to offer the best hope for the discovery of new products and for a greater utilization of the natural resources.

North Dakotans have, for too long a time, concerned themselves primarily with the problems of agriculture. It has finally become apparent to many people that, if they wish the state to progress to the extent that greater opportunities can be offered to the younger local population, they must express a friendly attitude toward industrial development. This friendly attitude must include long-term concrete programs that would provide industries with opportunities and privileges far more attractive than other considerations they could obtain in neighboring states. Restrictions lying in wait for industries that might be created do not produce an income to the state, and neither do they employ laborers. The average North Dakotan is too content with his agricultural economy to think of the highly-acclaimed resources of the state and too little inclined to consider methods to utilize these resources. The old proverb that action speaks louder than words has produced results in many areas and could certainly be given a chance in North Dakota.

The opportunities for industry in our state are not as limited as some people would have us believe. True, it will be a long time before North Dakota will become important as an industrial state, but economic and political factors do change. The recent industrial expansion in the South is proof that all industrial companies do not just expand in place. Not only do old industries expand but new industries are born each year. As these developments take place, more and more power is needed. Herein lies North Dakota's greatest hope for attracting future industry. The power needs of our nation seem to double every ten years. Assuming they will double in the next 20 years, then by 1975 many new power sites will have to be developed. With increased demands for power, the lignite deposits of our state will become more important to certain large power users. These users must be informed of the resources within the state and be presented with offers that are more attractive than can be expected in other states.

A recent study of industrial opportunities in North Dakota was sponsored by the Resources Research Committee of St. Paul, Minnesota. This commission, after studying the power resources, the water resources, the labor force, and the transportation facilities, suggested that certain industrial opportunities are possible if based on low cost power. These opportunities are listed as follows: ⁴

1. Smelting of aluminum.
2. Electric smelting of Minnesota ores in North Dakota.
3. Generation of power for concentration of taconite ores in the western part of the Minnesota range.
4. Production of ammonia as an ingredient of fertilizer.
5. Production and refining of salt available from wells in the Williston Basin.

This report listed additional possibilities based on the use of some of the other resources of the state provided they are developed on a rather limited scale. Local markets could be found for certain manufactured products from such resources as the sodium sulfate of northwestern North Dakota, the numerous clay deposits throughout the state, and the bentonite of the southwestern Slope area. Other possibilities on a limited scale lie in the processing of such agricultural raw materials as milk, barley, sugar beets, potatoes, and livestock. If developed, these industries may never employ large numbers of workers, but could, in a small way, add new sources of income to the state.

State and Local Planning

City, state, or local planning merely means thinking ahead and deciding on ways and means of bringing about certain desired results by an intelligent use of all available resources. All state or city planning must be a continuous process if it is to keep pace with our changing civilization. The people of many states have not been educated to the extent that they have demanded and supported a state planning board on a permanent basis. North Dakota is one state to which this statement applies. Planning is carried on by various departments in the state, such as the State Water Commission, the State Game and Fish Department, the Department of Agriculture, the Department of Education, and many others, but no permanent single board has been established to coordinate the plans of the various agencies interested in the development and welfare of the state. To a certain extent, the

⁴ From Arthur D. Little, Inc., *Summary of Industrial Opportunities in North Dakota and Adjoining Areas* (Cambridge, Mass., 1955).

problems faced by each organization overlap and affect the interests and plans of one or more of the other separate departments, thus making an overall planning board the logical solution to better organization and cooperation.

The utilization of the natural resources in North Dakota has created a variety of problems in the past and will create many problems in the future. The discovery of oil in the state is a good example of the way in which one resource has created problems in housing, city water supply, city sewage, education, roads, taxation, and recreation. The construction of Garrison Dam has caused many similar problems. The proposed irrigation projects will create future problems for many areas of the state which could best be solved by the cooperation of the state and local groups that will be influenced by these projects. One of the most important functions of any state planning board is to see that resources are fully utilized and that plans are made for the care and development of resources still to be used at some future date.

Road construction and maintenance have long been a problem in North Dakota and have often received an unjust amount of criticism. True, more and better roads are needed, but future construction should perhaps be planned in conjunction with projects of other agencies in the state. Trunk highways are being altered to bypass many of the villages, but more of these alterations are needed. State and county road construction has been well planned, but better publicity on future plans would aid rural people in selecting future locations for their buildings to take better advantage of the road network in their areas. More parks and picnic grounds are needed along highways of the state to serve as pleasant stopping places for local, as well as for long distance travelers. Some states have planted flowers, shrubs, trees, fruit trees, and berry plants along the edges of ditches to beautify highways and to provide a small amount of food and some degree of recreation for local residents. Recently, a few states have banned the erection of signs and billboards along highways as another means of beautifying roadsides. Much of the beautification of the roadsides of the state could be done by local organizations if they were given advice and leadership by a state planning organization.

North Dakota, along with all the other agricultural states in the nation, has long been in need of a land classification program. Many such programs have been suggested in all parts of the United States, with each program organized primarily to reward or penalize the farmer for the way he uses his land. During periods of depression and over-

production, the national government has attempted to reduce production by limiting acreage and has advised farmers to convert their marginal fields permanently to pasture and forests. The incorrect use of land not only is bad for the nation, but it also becomes harmful to the state by eventually ruining the farmer. North Dakota has led the nation in many progressive agricultural movements in the past and with proper leadership could lead the nation in a rural land classification program. Farm land could be classified as cropland, grassland, and wasteland, with a tax program to fit each use of the soil. Wasteland would be tax free if utilized by the state for recreation or wild life. The state legislature took an important step in this direction when it originated a land classification program in 1953 and voted to continue this program in 1955. According to this plan, the State Tax Commissioner's office and the State Equalization Board will be provided with information on land which will be used to establish a greater equity in taxation between counties. The second part of this program is the use of the land classification as a means of providing a more accurate land evaluation on each farm within the county. By 1955, these plans were in operation in Billings and McKenzie Counties with each county auditor having been provided with a land classification for his county.

North Dakota and the nation are rapidly approaching the time when land misuse can no longer be tolerated if the population of the United States is to be adequately fed and clothed at the present standards. For a long time, cities have been successfully practicing zoning programs on the land within their borders. If millions of people in cities can carry out a zoning program, it should be much simpler for a few hundred farmers in a county to cooperate on the intelligent use of their land.

The cities and villages of North Dakota have a number of problems that need study and action on a statewide basis if such communities are to prosper and grow. One of the problems of every community in the state is the loss of many able youths to other states because too few opportunities for employment exist in local cities and villages. Many communities could reduce this migration by analyzing their resources and then encouraging private individuals and cooperative groups to establish small industries to utilize these resources which would benefit farmers and city dwellers alike by increasing local employment. Only cities that seek advice and act to eliminate their problems can expect to survive and prosper. Poorly planned political constructions and the expansion of various services by our cities have

resulted in tax rates that threaten to ruin many businessmen and home owners and drive them from the state. A thorough research on the physical plan of our cities and on the many services demanded by city people has long been overdue. The old custom which required each city block in residential areas to be a square 440 feet on a side has long been considered outdated, foolish, and expensive. A rectangular block three times the length of the present block would be more economical to plan and maintain, for it would eliminate the construction costs of two streets and permit the use of this space for valuable playgrounds or parks. This plan also reduces the traffic hazards for pedestrians by eliminating two cross walks. If large cities like New York, Chicago, and others are able to rope off little-used streets for playgrounds, then certainly small cities would experience few inconveniences with a rectangular-block plan. The era of no planning or part-time planning by the cities and villages of North Dakota should be past. The many problems that local communities face at the present time are not the result of a temporary situation which will be likely to disappear in a few years, but rather of the gradual aging of an agricultural state that has had all too little planning based on its actual geography.

Important, too, for North Dakota's future development are the



(Greater North Dakota Association)

Figure 104. Columnar Cedars in the North Dakota Badlands.



(Greater North Dakota Association)

Figure 105. Scenery in the Theodore Roosevelt National Memorial Park.

many attractions for tourists inside and outside of the state. Travelers through the state cannot help being impressed by the rich farms of the Red River Valley and the huge expanse of prairie to the west. The wide Missouri brings back memories of much important United States history played on its water and along its high banks. Now the great Garrison Dam across the Missouri has added the attractions of its engineering achievements as well as of its recreation area made by the huge newly created lake. On the northern border of the state is the Peace Garden whose upkeep is shared by the United States and Canada symbolizing the friendship between these great nations. In the northwest corner of the state the oil wells near Williston are also of interest to travelers and businessmen.

The beauty and the bizarre scenery of the Badlands in the western part can keep visitors and vacationers on their way to the Rockies busy for several days, since there are fine camping grounds in the Theodore Roosevelt National Memorial Park. In the Park fascinating forms of wildlife such as found in a prairie dog village can be observed as well as strange geological formations and phenomena. And near Amidon there is a burning underground coal mine that has been burning for years, its cause unknown. These and many other tourist attractions can be of help to the state and its future.

Geographical Data of North Dakota

<i>Area of State</i>	70,665 square miles
Land	70,054 square miles
Water	611 square miles
<i>Population—1950</i>	619,636
Rural farm	254,487
Rural nonfarm	200,332
Urban	164,817
Fargo	38,256
Grand Forks	26,836
Minot	22,032
Bismarck	18,640
Jamestown	10,697

Boundaries

North—49th parallel and 49° 0' 2" in northeast corner
 South—7th Standard Parallel or 45° 56' of latitude
 West—27th Standard Meridian or 104° 2' of longitude
 East—Bois de Sioux and Red Rivers

Drainage (estimated)

Hudson Bay—30,000 square miles
 Gulf of Mexico—25,000 square miles
 Interior Lakes—15,000 square miles

Major Rivers

The Red River and its tributaries—the Sheyenne, the Goose, the Park, the Pembina, the Bois de Sioux, and the Wild Rice
 The Missouri River and its tributaries—the James, the Cannonball, the Heart, the Knife, the Little Missouri, and the Yellowstone
 The Souris River and its tributary, the des Lacs

Mountains

Turtle Mountains
 Killdeer Mountains
 Pembina Mountains

Major Dams

Garrison, Baldhill, Homme, Heart-Butte, Dickinson, and Jamestown