

THE NINTH DISTRICT IN PROFILE

An Address by

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T H E    N I N T H    D I S T R I C T    I N    P R O F I L E

"High, Wide and Handsome" was the title of a book about Montana written some years ago by Joseph Kinsey Howard. But in a larger sense, these three words describe the physical features of the Ninth Federal Reserve District. The Ninth Federal Reserve District comprises the full states of Montana, North and South Dakota, and Minnesota, plus the northern portions of Wisconsin and Michigan -- an area encompassing a rectangular block of mid-United States 1,800 miles from east to west, and 400 to 500 miles from north to south. It is an area with many contrasts along with many similarities ( SLIDE -- SOO LOCKS ) -- from the heart of the Great Lakes at the Soo, which was settled first, with its mines and forests and abundant water supply; across the Great Plains of the Dakotas and eastern Montana, capable of great swings of weather and crop conditions within a few miles or a few days; ( SLIDE -- GLACIER ) to the heights of the Rocky Mountains, with forests rather typical of the Pacific Northwest. Like the variations in altitude - from 600 feet to 13,000 feet - the range of almost every other measure of the district, whether it be physical, social or economic, requires a heroically sized chart. ( SLIDE -- TOPOGRAPHICAL )

In much of the area it can be said the land has shaped the people. They have been prisoners, as well as exploiters, of the environment. Many of the common denominators of this region are born of this simple fact. Geographically, all the region is remote from the mass consumption and industrial markets of the East and the West. Transportation costs from the region to these markets are high -- and have limited the types of goods that can be

exported. However, the region is blessed by abundant supplies of natural resources -- iron ore, copper, oil, natural gas, forests and farm lands. It is the exploitation of these which dominates the economic activity in the region.

Partly because of the pattern of resource exploitation -- whether it was agricultural, lumbering, or mining -- and partly because of the time frame in which this pattern developed, the people within the district share the common cultural background of Northern Europe. Ethnic origins and the preservation of ethnic frames of reference have influenced patterns of development. The cohesiveness of these ethnic groups has been a source of vitality, and also a source of conservatism on occasion that has influenced patterns of economic growth. In this profile of the district, I hope to give you a sense of the economic development of this region, and some idea as to the pattern of population development and shifts -- for where the people are, who they are, and what they're doing now influences modern economic growth as surely as the presence of white pine forests, native copper deposits, iron ore and gold did a century ago. But first a few general comments.

A case can be made, I think, that nationally viewed our most precious natural resources may be space, air, and water. The map itself is proof of the space, especially when the population distribution is considered, as will be developed later. Except in isolated areas, air and water pollution are not of the same dimension as they are in other areas of the United States.

( SLIDE -- RAINFALL DISTRIBUTION ) This slide shows in broad outline the distribution of rainfall. Within these averages, particularly in the

Dakotas and Montana, are concealed the significant seasonal variations that can make or break a rainfall dependent crop. The difference between a successful season or a bust can be measured in hundredths of an inch at the crucial time.

( SLIDE -- WATER RESOURCE DISTRIBUTION ) In the eastern part of the district and on the western slope of the Rockies are those areas where natural surface and sub-surface storage have changed the face of the land and man's use. This slide combines the water and forest resources distribution, which, for obvious reasons, have a common pattern. Here water comes in abundant quantities and usable qualities. The many lakes and rivers - surface water - alone provide an ample supply of water for many activities - from recreation to mining.

The water of the western sections tells a different story. There, the maldistribution of water has been one of the major limiting factors in economic growth. Only a careful husbanding of water can provide adequate supplies for industry and agriculture. But it is being brought under control. Modern engineering technology, and lots and lots of money have taken us a long way. No longer does the lack of water greatly constrict the alternatives open to man.

( SLIDE -- MISSOURI RIVER DAMS ) The Missouri Basin development is the most prominent example. Its multi-purposes are to provide municipal and industrial water, control floods, permit irrigation, recreation, wildlife development, and navigation, abate pollution and, lastly, generate electric power. Basic construction work on six mainstem dams is now fully completed. The chart illustrates relative storage and stream flows. Between one and two years' flow will be stored in the two largest reservoirs: Oahe and Garrison.

Modern agriculture, like modern industry, requires enormous quantities of water on a predictable basis -- most places in western sections this means a controlled basis. ( SLIDE -- OAHE DIVERSION ) This slide depicts one of the great projects currently under way -- the Oahe diversion, which will make Missouri River water available several hundred miles from the Oahe Dam, an area larger than the State of Delaware.

On a similarly heroic scale is the Garrison Dam diversion, designed to assure an irrigation source almost across the State of North Dakota.

The most difficult problem in preparing this talk has been to place in some sort of order of importance the salient identifying features of the district's economy. Of necessity, it has had to be done with a very broad brush, which is dangerous, for it is so easy in this once-over-lightly presentation to give the impression of monolithic industries with common objectives and limitations. Nowhere is this more evident than in a general discussion of the role of agriculture in this district, with its connotation of unity and homogeneity. Those same physical environmental factors briefly touched upon earlier have had an obvious impact on the development of this industry. Except for the common desire they share with all American business -- to make money -- I doubt there is much common identity among the dairy farms of Minnesota and Wisconsin, the cattle ranches of the western Dakotas and eastern Montana, the great wheat ranches of the high-line (as the northern layer of counties across the western part of the district is referred to), the corn and row crops of southern Minnesota and western South Dakota, not to mention the Christmas tree culture, poultry, and the many other forms of agricultural endeavor. Nor is

there any similarity in size. Agriculture is practiced in one form or another on units of 100 acres or less to large holdings of 100,000 acres or more. But there are points of similarity. These are the more obvious ones. ( SLIDE -- AGGREGATE NUMBERS ) First of all, agriculture has been one of our major industries, and I doubt its contribution to our aggregate economic numbers, as we pass from surplus to near deficit food production, is likely to diminish. In fact, a case might be argued for the proposition that, given an opportunity, agriculture could make a larger contribution to redressing our deficit balance of payments position than general manufacturing.

( SLIDE -- NUMBER OF UNITS ) The second point is the declining number of individuals involved. It is an obvious fact that the number of people engaged in agriculture has been declining; but employment is hardly an adequate measure of the economic impact of this industry.

( SLIDE -- INDUSTRY NUMBERS ) Farms are getting larger, unit income is increasing, even though agricultural price/cost relationships have shown a deterioration over the years.

In 1965 the Ninth District numbered less than 275,000 farm units, which was 95,000 fewer than 1946. As the number has decreased, due to pressures of technology and capital costs, the value of the production has increased. Gross farm income in this district was nearly \$4 billion in 1965, or 50% greater than 1946. The increase in income has obviously not been uniform, but on an average the net farm income has improved by 50% from 1946 levels to 1965.

( SLIDE -- INPUTS ) This chart shows dramatically what has been happening to agriculture in the sense of inputs and outputs. While the input

curve has not shown an upward trend, the output curve started rising sharply in 1945, and has continued into the 60's. Output per man and per farm has increased so remarkably that the characterization of agriculture as a growth industry has elements of truth.

( SLIDE -- FINANCE ) Farm investment has increased proportionately. Farmers are dependent on capital inputs to a degree only dimly perceived in most quarters. The implications of this for machinery manufacturing, petroleum production, and the fertilizer industry are far reaching. While the increase of nearly \$14 billion in the value of investment is due in part to the increase in land values, this should not be permitted to obscure the role played by modern technology and the attendant dependence on mechanical and chemical aids.

( SLIDE -- TYPES OF FARMING ) In this region, there are nine types of farming areas. These are:

1. Dairying and wood products;
2. Dairying and general farming;
3. Corn and livestock feeding;
4. Small grain specialty crop areas;
5. Small grain, corn transitional areas;
6. Small grain, livestock farming;
7. Livestock ranching areas;
8. Areas where small grain, livestock and ranching are combined;
9. A combination of livestock, irrigation farming, and wood products.

Recall as you look at this slide the topographical map, and remember as we move from east to west across the district, the upward tilt of the land is accompanied by decreasing rainfall and shorter growing seasons until you reach the western slopes of the Rockies.

Just as a point of reference, you might be interested in seeing where the major divisions of agriculture are in this district.

( SLIDE -- LIVESTOCK PRODUCTION ) This series of slides shows the distribution of the livestock industry.

( SLIDE -- CROPS HARVESTED ) Soy beans, grains, and corn are the major crops.

( SLIDE -- WHEAT ) Of these, wheat is, of course, the most widely known agricultural product of our district. This industry is concentrated substantially in the northeastern quarter of Montana, North Dakota, and a small part of northwestern Minnesota.

Let's turn to non-agricultural industrial development. Key to modern industry is electrical power. Electric energy is to modern industry what Wheaties (to advertise a product of this district) is to people. I think we can gain a few useful insights into the Upper Midwest economy by portraying the type and scope of this element in its industrial diet. ( SLIDE -- POWER GENERATION ) This has been done by putting all electrical generating plants with capacity of 40 megawatts or more on this map.

The color indicates the type of plant.

The shape indicates the ownership.

The size indicates the capacity.

One thing is immediately apparent. In the west, the color blue stands out. Blue indicates hydroelectric power plants. Remember those same dams indicated a few slides ago bear the label of multi-purpose dams, and among these purposes, the generation of hydroelectric power is important. The western portion of the region depends almost entirely on hydroelectric power, while the eastern portion uses it sparingly. The topography of the west dictates hydro as the cheapest and most feasible source of power. The Continental Divide cuts down through the mountains of western Montana, and the rapid drop of water permits the easy storage for power generation in both the Columbia Basin to the west, and the Missouri Basin to the east of the Divide. Installed hydro capacity in Montana developed 1.3 million kilowatts (by January 1, 1965) with a potential for an additional 7.4 million kilowatts. Both private utilities such as Montana Power Company and Washington Water Power Company, and federal installations such as at Hungry Horse Dam, take advantage of the Continental Divide to generate hydro power. This cheap and large source of power has attracted aluminum and copper smelters. Mines and sawmills are large consumers of the power, also.

Flowing eastward from the Rockies, the great Missouri River system collects the snows and rains of the high mountains, and carries them eastward across the "dry plains" of Montana and the Dakotas. Hydroelectricity supplies the power needs of this area, too. The half-dozen mainstem dams along the Missouri both store water and generate power. Five of the largest 24 hydro plants in the United States are found in our region, and three of these are Missouri River dams in the Dakotas. The total capacity of these five largest hydro plants is 2,000 megawatts -- which compares in generated power to the

Grand Coulee Dam in Washington and the Robert Moses plant at Niagara Falls. Little unused hydro capacity remains in the plains area, but the areas's enormous lignite deposits are being increasingly used for power generation by such private utilities as Montana-Dakota Utilities and OtterTail Power, and by the electrical cooperatives.

The eastern part of the region presents a contrasting picture. There steam electric generating plants dominate the supply. Most of this area's plants burn coal, and some use natural gas instead. The largest plants, including two currently in construction, are owned by the Northern States Power Company, and are in the region's principal metropolitan center - the Twin Cities. Much of the large generating capacity in the northeastern section - northeastern Minnesota and Upper Peninsula - is used for mineral processing. Just as the water requirements help to control the location of beneficiating of iron ores, so does electrical power -- for beneficiating requires nearly ten times the electricity per ton of refined ore as was needed to refine higher grade ores. Erie and Reserve -- two major taconite companies in Minnesota -- and White Pine Copper in the Upper Peninsula, operate their own generating plants. Other taconite operations depend on the utilities in the area, such as Minnesota Power and Light Company, and Upper Peninsula Generating Company, to supply their power needs.

Nuclear power has been introduced to the region in plants of two electrical cooperatives and one private utility. Construction of a major nuclear powered generating plant north of the Twin Cities has just been begun by Northern States Power Company. The Upper Midwest is an ideal environment for leading the nation in development and use of this power source. Three things suggest this. First, the industries in the region have had considerable

experience in developing highly technical products. For example, three of the nation's eight major electronic computer companies are based in the Twin Cities. Secondly, the area is surpassed only by Boston and California in the availability of the academic research facilities necessary for such an undertaking. Thirdly, the large supply of water -- preferably nonsaline -- which is necessary for a coolant in nuclear power plants, is available in large quantities of usable quality in the Upper Midwest, as I mentioned earlier. Future developments in nuclear power may very well change locational advantages of power cost.

( SLIDE -- FUEL COSTS ) Getting back to conventional fuels, you might be interested in the competitive cost position relative to other areas. The chart illustrates this. Fuel costs are plotted according to the steam electric plants located near the representative large cities. Notice that the Twin Cities (and Mississippi River sites to the south) have lower fuel costs than many of the largest industrial cities. In fact, the lignite burned near mine-site in Montana and the Dakotas does not cost much more per B.T.U. than natural gas burned at Dallas generating plants, or coal at Pittsburgh plants, the two lowest cost locations.

So, the Upper Midwest has an abundant supply of water in the eastern part, and an adequate supply in the western part, it has space, air, and it has low cost power generation. What does it do with these "prerequisites to economic activity"? The Upper Midwest's most important economic activities center on its natural resources -- its iron ore, its copper, its lignite, its petroleum, its forests, and its farm lands.

The economy of northern Minnesota, northern Wisconsin, and Upper Michigan

has not changed greatly since the last century. Mining and forest-based industries are still the major employers. Dramatically changed, though, has been the type of resource, the technology, and market demands. No longer are we dealing with high quality iron ores, great deposits of easily mined native copper, and stands of white pine and hardwoods. "Taconite" is the magic word in the iron industry -- "open pit" in mining and copper -- and "pulp and plywood" for the forest products industry. A few words about each of these.

( SLIDE -- TACONITE INVESTMENT ) First, the taconite industry. This is a modern success story. The Lake Superior area has dominated the iron industry of the United States, and will continue to do so for many years to come, thanks to taconite. Plants presently on stream can produce 44 million tons of pellets, and are employing 10,000 to 11,000 workers. It is estimated that the range can support 100 million tons of pellet production per year for many decades to come. The commitments already made and contemplated for years ahead indicate the confidence the steel industry has in this area.

( SLIDE -- MINERAL DEVELOPMENT ) This map shows the iron ranges which have had a long history of natural ore production, and the taconite plants, including those currently under construction and expected to be producing in 1967.

How about copper? In the west there is the Anaconda property at Butte, now substantially shifted to open pit mining. In the east are the deposits of the Upper Peninsula of Michigan. On this map are shown the latter areas. In the old range area, Calumet & Hecla has recently made a much publicized finding of huge additional reserves of copper ore, which will involve deep mining operation similar to that of South Africa. The White Pine Mine of the Copper

Range Corporation is currently employing 2,000 employees, and is in the process of doubling its copper production.

But there are other mining endeavors that should be mentioned in passing. The largest domestic gold producer is in western South Dakota, Homestake Mine, in the Black Hills. Then north of Lake Superior, International Nickel is leading the way in the exploration and development of the copper-nickel deposits of northeastern Minnesota shown on the map.

The district is reasonably well supplied with fuels. ( SLIDE -- CRUDE OIL PRODUCTION ) Williston Basin, extending through western North Dakota and eastern Montana, is the newest major petroleum development in the district. In central Montana, the Shelby and Cutbank fields have been producers for many years. About 58.4 million barrels of petroleum were produced in the district in 1965. If output is maintained at the rate set in the first half of 1966, the total 1966 production should be about 63 million barrels. The production from the Williston Basin declined after the first push, but it has rebounded with the discovery of two additional fields in 1964. Similarly, northern Montana, through technology and new discoveries, has had a rebirth in the Cutbank-Shelby fields. The petroleum industry has shared in the high cost of transportation common to this district. ( SLIDE -- PIPELINES ) This map illustrates the extension of pipelines has been of strategic importance to the development of the industry. There is one advantage our petroleum areas have -- they supply only the Upper Midwest, and not all of that -- so the distance to market is not great. Secondly, pipeline transportation is available from all major producing areas in the Upper Midwest. About 85% of the crude flows into the Upper Midwest refineries by pipelines. These refineries now

number 17, with the major refineries at Billings, Great Falls, the Twin Cities, and the head of the Lakes.

Enormous deposits of lignite are present in the Dakotas. A pellet plant for gassification of lignite has been authorized by Congress, and will be built in northwestern South Dakota. The implications of this for major owners, such as the Northern Pacific Railroad, will cause them certainly to watch it with interest.

All told, the value of the annual output of minerals is in excess of \$1 billion. About 32,500 people are employed in the industry, which is perhaps more relevant than the value of production -- for much of the value of production comes from the mineral itself, and does not go into the region's economy.

( SLIDE -- FORESTS ) One of the Upper Midwest's most valuable resources is its forests. Forest products of the district occur in two distinct areas, as shown on the map: the largely virgin forests of western Montana, and the second growth forests of northern Minnesota, northwestern Wisconsin, and Upper Michigan. These two areas -- the east and the west of our region -- have different but competitive timber resources.

Montana's forests are populated by coniferous softwoods - high quality lumber from which Montana derives \$150 million annually. The major problems of Montana's forests are these -- 1) limited supply, 2) a production rate 40% greater than new growth, and 3) the ownership, which is concentrated in the federal government, Northern Pacific Railway, and the Anaconda Copper Mining Company.

At the other side -- the eastern side -- of our region, the opposite problem makes trouble -- the problem of insufficient demand. In the eastern part, 450 million more board feet are grown than cut. For example, Minnesota has approximately the same growth as Montana, but cuts only one-fourth the lumber Montana cuts. One explanation of the surplus lies in the supply. Simply stated, much of the wood in the trees is not recoverable. Whereas the eastern part has about 50% of the region's wood in its trees, it has only 30% of the recoverable lumber. Much of the growth in this part of the region is in the smaller trees, which, of course, is not cut regardless of demand. Then too, the eastern forests are 60% second growth hardwoods, inferior to the softwoods that were cut there long ago, and are being cut in Montana today.

How can the hardwoods be utilized? There has been much research into new products and production processes which could use hardwoods. The changes in pulpwood production have been encouraging, for the pulp and paper industry is the major forest-based industry of the area. Production of pulpwood in the area has increased 60% from 1952 to 1963, with nearly twice the volume of hardwoods as softwoods now being used by the pulp and paper industries of the area.

( SLIDE -- BANKS ) What about the banking structure of this area? The commercial banking system has a total of 1,347 members, most of which are quite small. The average is \$7.6 million per bank, but this is not a particularly useful statistic. For example, the 495 members of the Fed have average deposits of \$14 million each, as against \$3.7 million for each of the 852 non-members. Even more importantly, perhaps, approximately 21% of these deposits are concentrated in the reserve city banks, and 50% of the total deposits in

the two major banking groups, Northwest Bancorporation and First Bank Stock.

Limited branch banking is permitted in Michigan, prohibited in Minnesota, may be possible on a limited basis in Montana (depending on the outcome of Banco's attempted merger of banks in Anaconda and Butte); in North Dakota, paying and receiving stations only are permitted; branch banking is permitted in South Dakota, while in Wisconsin, it is the Fed's view, at least, that branch banking is not permitted because of the state law -- a position in which, I believe, the Controller's office does not concur -- and that is neither novel nor unexpected, I might add. If I were to guess, I would say that an extension of some form of branch banking will probably take place throughout the district, as capital pressures become more acute, and depending somewhat on continued pressure from the Controller. Certainly it is true that the industrial developments within the district, as well as the demands of agriculture, will require increasing loan capacity.

One final industry should be mentioned, and that is the recreation industry. ( SLIDES 1 - 2 - 3 - 4 ) Lord knows, the caveats applied to agriculture, cautioning you away from any impression that agriculture is an organized industry with substantial common denominators, should be applied doubled to outdoor recreation. Although the aggregate numbers are enormous, contributing as it does in excess of \$1.5 billion to this region, it is still composed of many, many small units in varying degrees of financial distress, except for those few especially favored geographically or with exceptional management. There are signs that this industry is about to enter the same phase of consolidation and growth in which we find agriculture. The entry of General Baking Company into Yellowstone Park, with the acquisition of Yellowstone

Park Company -- the purchase of Sun Valley, although not in our district, by the Jans brothers -- is another indication of the interest being shown in outdoor recreation by major investors. There are also a number of individual operators who are successfully making the transition from single-season and single-use developments to multi-season and multi-use. That this industry is going to grow is obvious. But the direction of growth and the financing of it are still unknowns. Certainly technology and public demand are going hand in hand to reshape its future.

No discussion of this tremendous district would be complete without a reference to the people. I have mentioned the decline in agricultural and resource employment. These people are migrating when and as they can, and they are moving to the cities. ( SLIDE -- IN-MIGRATION ) There is movement into the Midwest from other urban areas, as is shown by this chart -- for there has been substantial in-migration, which you will notice has come from a number of places. ( SLIDE -- OUT-MIGRATION ) However, there has been net migration out of the district, largely to both coasts, so that the area has suffered from a net out-migration. The total population of the region has been increasing at a lesser rate than the nation, roughly about half the growth rate. ( SLIDE -- INTRA-DISTRICT MIGRATION ) They have also been moving about within the district. ( SLIDE -- NATIONAL URBAN CENTERS ) This has meant, as it has in the rest of the nation, the cities with momentum have gotten bigger at the expense of the rest of the district, and that more and more of the people of the district are to be found in urban centers. Conspicuous examples of the lag, though, are the two Dakotas, which together with Mississippi, West Virginia and North Carolina, are showing not only net out-migration, but a comparatively low rate of urbanization.

( SLIDE -- POPULATION DISTRIBUTION IN DISTRICT ) This chart gives you an idea of where the urban centers are. You will notice the Twin Cities are enormous by comparison with the rest of the district, with 24% of the total population of the district concentrated in this metropolitan area. And there is every statistical reason to believe this gap will widen. (SLIDE -- GROWTH OF URBAN AREAS ) But this is not the whole story. The Twin Cities, as do the other metropolitan centers in the district, affect a much wider area in terms of jobs, recreation, and the like, than would be indicated just by the barebones of city boundaries.

( SLIDE -- GROWTH OF SPHERES OF INFLUENCE ) This map gives you some idea of how far out the Twin Cities now affect population, and how this may be expected to grow. But this same fact is significant in other areas, and indicates one of the strengths of the region. Because of the desire to hang on to marginal farming lands, or seasonal unemployment on even the productive small farms, there is a willingness to commute substantial distances for an industrial job. This availability of unemployed agricultural labor, coupled with the stability of these people, I suspect, has been part of the reason for the success of some of the communities of the area in attracting and developing small industries.

It is the Twin Cities, though, that have dominated the district in most areas. The University of Minnesota is supposedly the second largest campus, and is a school of known excellence in a number of areas. The cultural successes of the Twin Cities are equally well known. The major potential of the Twin Cities is that of a midwestern defense research and development complex. Stanford Research Institute has just completed a study of the Twin

Cities at the direction of the Office of the Secretary of Defense. This study analyzes in remarkable detail, and with considerable clarity, the economic structure of the Twin Cities. All of the desirable characteristics are present. There is a relatively large and diverse defense research and development capability in the existence of a significant number of engineers and scientists. So far, there is a relatively broad base of industrial capacity, without the degree of single-industry or single-contractor dominance present, for example, in Denver, Tucson and Orlando, which were singled out for comparative purposes in the study. Yet there are the economies of scale providing competitive advantages. Finally, there are a number of companies with basic productive capacity and market orientation in the civilian area that give a resilience and regenerative capacity not present in areas where there is sole dependence on continuation of R and D expenditures. Out of the scientific community of the Twin Cities have come a number of good small or medium sized companies that merit closer attention. I commend this report to the attention of anyone interested in pursuing the potential of this district in greater detail.

And so we come to the conclusion of this profile. The omissions are probably at least as significant as the items included. It has required considerable self-restraint to keep this from degenerating into a panegyric for this magnificent area, which, after roughly 100 years of settlement, is still in its infancy. The energies of the people, the tremendous natural resources still available, the excellence of its academic establishments, and the amenities of life in this district, give assurance to our confidence in its growth. Truly, its economic prospects, like its topography, can be described as high, wide and handsome.