BEFORE THE INDIAN CLAIMS COMMISSION

THE SIOUX TRIBE, et al.,	)	
	)	
Plaintiffs,	)	
	)	
v.	)	Docket No. 74
	)	
THE UNITED STATES OF AMERICA,	)	
	)	
Defendant.	)	

Decided: July 15, 1976

ADDITIONAL FINDINGS OF FACT

The following findings of fact are supplemental to the findings of fact 1 through 14 entered in consolidated Dockets 74, 221-A, and 350-B and C on August 26, 1970, 23 Ind. Cl. Comm. 419, and findings of fact 13 through 35 entered in consolidated Dockets 74 and 332-C on December 2, 1970, (24 Ind. Cl. Comm. 147).

36. Area Involved and Date of Valuation.

The territory to be valued, hereinafter referred to generally as the "Sioux tract", consists of two large areas which are for convenience described herein as the western unit and the eastern unit. 1/

The western unit (west of the Missouri River), to which plaintiffs possessed an undivided share of recognized title under the Treaty of September 17, 1851, 11 Stat. 749, contains 33,869,000 acres. These lands, located in parts of North Dakota, Montana, Wyoming and Nebraska,

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1/ See map, Appendix "A" herein.

formed the northern, western and southern borders of the Great Sioux Reservation in South Dakota.[2/]

The eastern unit, to which plaintiffs possessed original Indian title, contains 14,273,000 acres. These lands are located east of the Missouri River in North and South Dakota.[3/]

The Sioux tract, eastern and western units, contains a total of 48,142,000 acres. The valuation date for the Sioux tract is February 24, 1869, the date on which the Treaty of April 29, 1868, 15 Stat. 635, was proclaimed.

On the valuation date, the Sioux tract was located in Dakota, Montana and Wyoming territories, and in the State of Nebraska.

37. Area History and Development

(a) General Development. All of the lands of the Sioux tract came under the jurisdiction of the United States by virtue of the Louisiana Purchase of 1803. With the exceptions noted herein, the greater part of the area was largely unexplored and unfamiliar to non-Indians prior to the 1803 acquisition. Some historical evidence supports early Spanish explorations into southern Wyoming and Nebraska. However, French explorations and French influence and trade generally

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2/ The boundaries of the recognized title area are described at 21 Ind. Cl. Comm. 371, 382 (1969).

3/ The boundaries of the aboriginal area are described at 23 Ind. Cl. Comm. 419, 424 (1970).

dominated the region from 1738 to 1800, notwithstanding that Spain exercised sovereignty over the vast Louisiana province after 1763.

The French explorer Pierre de la Verendrye, along with his two sons, is credited with conducting the first noteworthy explorations in the Sioux tract, and being the first European to enter North Dakota. The Verendrye expeditions took place between 1738 and 1743 and covered the upper reaches of the Missouri River in North Dakota and the South Dakota area west to the Black Hills. French fur traders and some British from the Hudson Bay area operated up and down the Missouri River, and trading posts were established in the area as early as 1794. American explorations in the Sioux tract began with the famous Lewis and Clark expedition of 1804 to 1806.

(b) Dakota Territory. Lewis and Clark ascended the Missouri River, arriving in North Dakota in the fall of 1804, where they built Ft. Mandan. In 1819, a permanent white settlement was established at Pembina, a former trading post. Steamboat traffic on the Missouri River began in 1831 under the management of the American fur industry. Settlements, such as the ones at Pembina, Sioux Falls, Ft. Pierre, and Ft. Abercrombie, were established in the eastern portion of the Dakota Territory between 1819 and 1858.

The Dakota Territory, as organized in 1861, included the present Dakotas, and parts of Wyoming and Montana. Settlement in the Dakota Territory after 1861 centered mainly in the southeastern corner

of the territory near the Missouri and Big Sioux Rivers, outside the Sioux tract. The Dakota portion of the tract east of the Missouri River was sparsely settled on the valuation date, even though most of this area was included in some county organization of the territorial government. At the valuation date the Dakota portion of the Sioux tract west of the Missouri River was unsettled and unorganized.

(c) Nebraska. The early history of Nebraska, like that of the Dakota territory, was closely associated with travel on the Missouri River and the activities of fur traders. The largest early settlements between 1795 and 1823 were located east of the Sioux tract near the Missouri and Platte rivers. The Lewis and Clark expedition visited southeastern Nebraska in 1804, before ascending the Missouri River. The expeditions of Major Stephen Long (1820) and Lt. John C. Fremont (1842) explored the Platte Valley, a natural corridor extending from east to west across the width of central Nebraska. These expeditions, in effect, established the Platte Valley - South Pass route as the best trail west. This route became the first leg of the Oregon Trail through Nebraska and Wyoming. This trail, and others which followed along the south or north banks of the Platte River, provided the principal routes from the Missouri River to the Rocky Mountains. Thousands of immigrants followed these routes in the 1840 to 1850 period. The 1849 discovery of gold in California added greatly to the numbers of people using the Platte Valley route.

The territorial period in Nebraska began in 1854, and by 1867, Nebraska had achieved statehood. Its eastern lands on the Missouri River and along the eastern part of the Platte Valley were on the threshold of rapid development and settlement by the mid 1860's. In 1862, Congress authorized the construction by the Union Pacific Railroad Co. of a railroad and telegraph from Omaha to California. By the valuation date, the railroad had been constructed through Nebraska and Wyoming in close proximity to the western unit of the Sioux tract.

(d) Wyoming and Montana Territories. Wyoming was explored by Europeans as early as 1743. Fur traders were active in Wyoming in the 1790's, and several expeditions to Wyoming took place in the early 1800's. The trading post which became Ft. Laramie was erected in 1834 and became a major stopover for immigrants and miners using the Oregon Trail route to California after 1840. In 1867, the Union Pacific Railroad started construction in Wyoming, reaching Utah in 1869. As of the valuation date, the Wyoming portion of the Sioux tract contained parts of four of the five counties created in the territory.

A small part of the Montana Territory was included in the western unit of the Sioux tract. This parcel lay close to northeast Wyoming and what is presently southwest North Dakota. The general development of the Montana portion is comparable to the early development of the portion of the Sioux tract in Wyoming Territory. In 1864, the Bozeman Trail was opened to the West and passed through a part of the Montana portion of

the Sioux tract. During the gold rush to western Montana in the 1860's, this trail became popular for eastern prospectors. On the valuation date, the Montana portion of the Sioux tract was located in Big Horn County, one of several counties organized by the territorial government.

38. Population and Settlement.

At the valuation date there were no significant permanent white settlements within the Sioux tract. The portion of the tract east of the Missouri River was not legally opened until 1869, and the remainder of the tract was closed to legal entry until 1877. Potential settlers, however, were anxious to see the area open up for settlement. Areas east of the tract in Minnesota, Iowa, Southeast Dakota and in southeastern Nebraska had become well-populated by 1870. With most of the choice lands occupied in these areas, especially along the Missouri, new settlers set their sights west pushing along the Platte River up to the eastern boundaries of the tract.

The largest concentration of people was in Nebraska along the Missouri River. The 1870 population of the state was 122,933, having increased from the 28,800 reported in 1860. The first federal census for the Dakota Territory taken in 1860 showed a population of 4,837. By 1870 the population had increased to 14,181. A territorial census of Wyoming taken in 1869 showed a population of 8,014. No significant population was reported for the Montana portions of the Sioux tract until 1880. The 1870 federal census for Montana as a whole was 20,595.

All of these areas showed significant increases in population during the years following the 1870 census. A factor contributing to population growth at this time was the construction of railroads.

39. Transportation and Communications.

(a) Railroads. At the valuation date the Union Pacific Railroad, the nation's first transcontinental railroad, was located immediately to the south of the Sioux tract. By 1866 it was constructed as far as North Platte, Nebraska from Omaha, and by 1867 it reached Cheyenne, Wyoming.

In July 1864, the Northern Pacific Railroad was chartered by Congress to construct a railroad commencing at Lake Superior, through Dakota, Montana, and Idaho. The projected route through the eastern unit of the Sioux tract was fully planned and publicized by the valuation date. By 1869 the railroad had reached a point about 150 miles east of the Sioux tract. The road was completed in 1883. By 1870 Nebraska had 705 miles of track, Wyoming 459, and Dakota 65.

(b) Rivers. While a number of excellent rivers, such as the Missouri, Platte, Powder, and Heart, were located in and around the Sioux tract, the Missouri was the only one which was navigable. It extended through approximately 240 miles of the tract. During the territorial period, the commercial traffic of the river was very large but the coming of the railroads near the valuation date lessened its importance.

(c) Roads. The Oregon Trail, the major overland route west in the 1860's, was located along the southern boundary of the Sioux tract. The road was used extensively by immigrants, explorers, stagecoaches and the pony express. Other than the Bozeman Trail which opened in 1864 and passed through a portion of the Sioux tract in Montana, and which was legally closed by the 1868 treaty, there were very few roads into the Sioux tract near the valuation date.

(d) Telegraph. By 1861, the first telegraph line to the Pacific had been constructed through Wyoming. During the 1870's, several shorter distance telegraph lines were constructed through parts of the Sioux tract.

40. Climate, Rainfall, and Water.

(a) Eastern Unit. The annual mean temperature in North Dakota, east of the Missouri River, was 36° to 44°F., and in South Dakota it was 40° to 48°F. The growing season ranged from 100 to 120 days in the North Dakota section, and from 130 to 140 days in the South Dakota section. The average annual rainfall in the eastern unit of the Sioux tract was between 16 and 20 inches in North Dakota, and 16 and 24 inches in South Dakota. In both South and North Dakota, three-fourths of the precipitation fell during the crop growing season.

(b) Western Unit. The annual mean temperature in the western unit of the tract was 36° to 44° F. in North Dakota, 40° to 50° F. in Nebraska, and 40° to 50° F. in Wyoming and Montana. The average growing season was 110 to 120 days in North Dakota, 140 to 160 days in Nebraska, and 100 to 130 days in Wyoming and Montana. Rainfall in the

western unit of the tract averaged 14 to 16 inches annually in North Dakota, Wyoming and Montana, and from 16 to 22 inches in Nebraska. The seasonal distribution of rainfall was generally favorable for agriculture in the western unit. However, excessive thunderstorms occurring in the southern portion of Nebraska could result in some crop damage.

(c) Water Supply. The Sioux tract was adequately watered by several principal rivers and their tributaries. In the eastern unit, the Missouri River made up the western boundary and the James River constituted most of the eastern border. The western unit was also bordered by major streams, in the south by the North Platte River, and in the west and north by Powder River (Montana, Wyoming), Heart River (N. Dakota), and the Little Missouri. Other streams in the area included the Niobrara River across the north section of the Nebraska portion, the Cannonball River in North Dakota west of the Missouri, the Maple and Sheyenne rivers in the eastern unit, the Cheyenne and Bel Fourche rivers in eastern Wyoming, and the Little Missouri near the eastern border of Montana. Smaller streams, creeks, and numerous tributaries of the water courses named above were located throughout the Sioux tract.

Samplings of near-contemporary surveyor reports cited by the defendant present a generally balanced picture of the water supply in both the eastern and western units of the Sioux tract. In North Dakota for example, a number of small streams were reported as not running except in wet seasons. Other townships and valleys of the same area

were considered well-watered at all times. However parts of the midsection of the eastern unit (along the Couteau du Missouri) had few or no water courses of importance to agriculture. Similar samplings of the township surveys for the Nebraska portion indicated a number of waterless areas in the east. In balance, however, this area was considered well-watered by such streams as the Platte and Niobrara rivers, Smoke Creek, Loup and Snake rivers, a number of lakes, and the numerous branches of the main water courses in this section. The Wyoming portion, as reported, was abundantly supplied with water from numerous creeks and springs, as well as from the North Platte and Powder rivers and their branches. The Montana portion of the tract was reported to be, in balance, only fairly watered.

41. Topography, Soil, Ground Cover.

(a) General. While the Sioux tract was comparatively large and extended a great distance in a roughly shaped semi-circle across parts of five states, the topography of the tract as a whole was not marked by sharp variations. With the exception of the westernmost sections, which contained some mountain ranges, and sharp declines near some river banks, the tract land's most common characteristic was that of gently rolling plains and moderate hills, broken occasionally by deeper canyons. This description is applicable to most of the lands in the Dakotas, Nebraska, and eastern Wyoming. Soil classifications were also somewhat uniform in large areas of the prairies, and were dominated by Chestnut

(Williams and some Morton), Brown, Lithosols, and Chernozems, and Regasols (Valentin) in the Nebraska section.

(b) Nebraska. The Nebraska portion of the western unit was characterized by rolling plains. The Sand Hills region occupied a large part of this area and consisted largely of sloping hills in the form of stabilized dunes. The soils of the Sand Hills were Valentine, and generally well-adopted to grazing, especially in the western Sand Hills. West and northwest of the Sand Hills were higher planes and mostly level tableland. Moderately wooded and higher areas were located in the northwest corner of the state in parts of Sioux, Dawes, and Sheridan counties. Alluvial lowlands of higher fertility lay along the rivers in the area, with the broad Platte Valley region the most important in this regard. Most of the lands in the Nebraska section were primarily range lands.

(c) Dakotas. The Dakota portion of the western unit (west of the Missouri River) was situated in the general area of the Missouri Plateau of western North Dakota. The lands of this area were of mixed quality with about half arable and half grazing. Lands near the Heart River in Stark County were rougher, less adaptable to agriculture, and only fair for grazing.

The largest portion of the lands in the Dakotas were in the eastern unit of the Sioux tract. Most of the lands here were generally high, rolling prairie or tablelands. This was particularly true of the central areas between the Missouri and James Rivers. Good bottom-lands

of high fertility were located along both these rivers and their larger tributaries. In the early period of settlement, the bottom-lands were considered the finest for agricultural purposes. Steeper banks of the Missouri River (present-day Walworth, Potter, and Sully counties, South Dakota) were not suitable for agriculture but did provide good grazing areas, although Potter County was considered better than average for the Missouri River counties. Native grasses, a large part of which were drought resistant, were found throughout the eastern section.

(d) Wyoming-Montana. Rolling high plains and some plateau lands characterized much of the eastern section of Wyoming within the tract. The higher areas located in the southeast section were comparable to the northwest section of Nebraska. Most of the Wyoming section was well-adapted to stock raising with sufficient water supplies. Lesser amounts of agricultural lands were in bottom-lands principally. The Montana portion was part of the northern plains area and contained mainly grazing lands similar to the Missouri Plateau area of western North Dakota.

42. Plaintiffs' Appraisers.

Donald D. Myers and Frank R. Kleinman, Jr., were the expert appraisers for the plaintiffs. Mr. Myers and Mr. Kleinman are qualified land appraisers and members of the American Institute of Real Estate Appraisers. Mr. Myers, who has testified in numerous cases before this Commission and the courts, did not testify in the valuation hearings in this case. Mr. Kleinman, who was largely responsible for the basic research

and preparation of the appraisal report in cooperation with Mr. Myers, testified as plaintiffs' expert witness.

The appraisers divided the lands of the Sioux tract into two highest and best use areas, assigning 8,496,000 acres to agricultural use and 39,646,000 acres to grazing use. They concluded in their appraisal report that on February 24, 1869, the agricultural lands had a fair market value of $20,000,000 and the grazing lands had a fair market value of $42,000,000, for a total fair market value of $62,000,000.

43. Defendant's Appraiser.

The defendant's appraiser was Dr. William G. Murray. Dr. Murray, a member of the American Institute of Real Estate Appraisers, is a qualified land appraiser and has testified in a number of cases before this Commission. Dr. Murray prepared the appraisal report in this case and testified as expert witness at the valuation hearings. Mr. Vern A. Englehorn, a qualified land appraiser and member of the American Society of Farm Managers and Rural Appraisers, also testified at the valuation hearing.

Dr. Murray's estimate of the highest and best use of the Sioux lands in 1869 was that 14,000,000 acres were farm or tillable lands, 32,000,000 acres were grazing lands, and 2,142,000 acres were nonproductive lands. On the basis of this use classification, Mr. Murray concluded that the Sioux lands had a total fair market value of $12,035,500 on February 24, 1869, divided as follows:

Farm lands:	$6,300,000
Grazing lands:	5,600,000
Nonproductive lands:	135,500

44. Highest and Best Use.

On the valuation date, February 24, 1869, 8,496,000 acres of the Sioux tract had a highest and best use as agricultural land, and 39,646,000 acres had a highest and best use as grazing lands. These lands were located as follows:

East of the Missouri River

Agricultural:	5,709,000 acres
Grazing:	8,564,000
Total:	14,273,000 acres

West of the Missouri River

Agricultural:	2,787,000 acres
Grazing:	31,082,000
Total:	33,869,000 acres
Grand Total:	48,142,000

45. Agricultural Land.

The agricultural potential of the eastern portion of the subject tract was well known on or near the date of valuation. For example, in 1867 the Governor of Dakota Territory reported to the territorial legislature that agriculture would be the basis for Dakota's future. He stated that millions of acres of rich grass and prolific soil awaited the industrious immigrant. By 1868 more than 1,000 farms had been settled in Dakota Territory, mostly in the southeast corner of the territory and along the Red River Valley.

In his 1869 report, the Commissioner of the General Land Office stated that the climate and soil of Dakota were exceedingly favorable to the growth of wheat, corn and other cereals. He also reported that all fruits and vegetables which were grown in the northern states would grow to perfection in Dakota.

Another commentator, in 1870, reported that the Missouri River Valley, between the 42nd and 47th parallels of north latitude, was one of the finest agricultural regions in the Northwest. He stated that the bottom lands along the Missouri and its tributaries possessed soil of singular richness. He further stated that all kinds of grain, fruit and vegetables usually grown in the middle states did well in Dakota. Among these were corn, wheat, potatoes, barley, buckwheat and hops.

Also in 1870, it was predicted that Dakota would become the greatest wheat producing and stock raising state in the Union, and also would compete favorably with the other states in any other branch of agriculture.

These early predictions concerning the agricultural potential of the eastern portion of the subject tract were later fulfilled. The 1880 federal census indicates that within the eastern portion of the tract there were 837 farms covering a total of 213,932 acres. By the time of the 1890 census the number of farms had increased to 20,273, and the land covered by farms had increased to 5,326,839 acres. The 1900 census indicated 19,806 farms in the eastern portion of the tract, covering 8,956,374 acres.

Because the western portion of the subject tract was effectively closed for settlement until after 1877, there were few contemporary published comments on the agricultural potential of this area. In 1870, the Cheyenne Daily Leader reported that Wyoming's soil would be appreciated by any farmer of the middle states. Recent experiments had shown that garden vegetables and grains would do well in Wyoming. The 1879 report of the Surveyor General of Wyoming indicated that thousands of square miles in the valleys of Powder River and its tributaries could produce all kinds of cereals with irrigation. Some of these lands are located within the subject tract.

In March 1878, the Black Hills Journal reported that the Niobrara Valley and the Elkhorn country were rich in arable lands. Part of the Niobrara Valley was in the subject tract. An 1883 account stated that lands west of the Missouri, along the Heart and Knife rivers and their tributaries, were then being settled by farmers. An 1885 report indicated that the river valleys in southeastern Montana--some of which were in the subject tract—contained soils of excellent quality which produced wheat, rye, oats, potatoes and other vegetables.

The federal censuses indicated that a substantial number of acres within the western portion of the subject tract were later devoted to agriculture. The following table indicates the number of farms and the farm acreage within the subject tract as indicated by the 1890, 1900 and 1910 censuses.

	1890		1900		1910	
	Farms	Farm Acreage	Farms	Farm Acreage	Farms	Farm Acreage
Nebraska	11,843	2,600,936	8,193	5,016,530	14,824	10,874,927
North Dakota	920	169,956	1,886	929,091	9,052	2,759,794
Montana	393	78,421	804	642,563	1,622	931,581
Wyoming	1,180	351,966	1,792	1,389,989	3,279	2,136,908

The Commission concludes that on the valuation date 8,496,000 acres of the subject tract had a highest and best use for agriculture. Of this agricultural land, 5,709,000 acres were located east of the Missouri River, and 2,787,000 acres were located west of the Missouri.

46. Agricultural Land Market Data.

The nearest sales of farmland to the agricultural land in the subject tract around the valuation date occurred in the four southeastern Dakota counties Bon Homme, Clay, Union, and Yankton. The record contains evidence of 403 of these sales during the years 1863 through 1869. These 403 sales involved a total of 29,730 acres. The total consideration for the lands involved in these sales was approximately $175,000, and the average price was about $5.90 per acre. The parcels involved in these sales ranged from five acres to 520 acres; consideration ranged from $20 to $3,600 per sale; and the price per acre ranged from $0.30 to $103. The record does not indicate whether the parcels involved in these sales were improved or unimproved.

The record also contains evidence of sales of school lands by several midwestern states both prior to and subsequent to the valuation date. In Minnesota, which became a state on May 11, 1858, a total of

381,365 acres of school lands were sold between 1862 and 1869 at an average price of $6.15 per acre. In Nebraska, prior to January 1, 1877, 110,000 acres of school land were sold at an average price of $9.26 per acre. The price of these lands was affected by the Nebraska law which prohibited the sale of public lands at less than $7 per acre. In six of the seven most westerly of the Nebraska counties the average sale price during this period was $7.20 per acre. In Kansas, between 1865 and 1875, 113,670 acres of school land sold for an average price of $4.32 per acre.

Evidence of sales of railroad grant lands also appears in the record. Total sales of these lands as of the dates shown are indicated in the following table.

Railroad	Date	Acres	Location	Consideration	Ave. Price Per Acre
Northern Pacific	June 1872-Sept. 1873	46,119	?	$ 257,781.62	$5.58
Northern Pacific	Oct. 1873-Sept. 1874	483,141	?	$2,435,234.00	$5.04
Atchison, Topeka & Santa Fe	1871-1879	1,105,624	Kansas	---	Yearly ave. ranged from 4.52 to 5.91
Kansas Pacific	1868-1879	1,515,056	Kansas	---	Yearly ave. ranged from 2.91 to 4.32
St. Paul & Pacific	Through 1877	458,865	Minnesota	3,651,641.00	$7.94
Union Pacific	Through Aug. 1869	36,788	Nebraska	186,026.29	$5.05
Union Pacific	Through 1879	1,568,438	Nebraska and Wyoming	7,432,434.00	$4.73

47. Midwest Land Speculation.

Iowa was organized as a territory in June 1838, and became a state in December 1846. During the two decades prior to February 1869, Iowa became the scene of extensive speculation in agricultural land. During the years just prior to the evaluation date a substantial portion of Iowa land was owned by nonresidents, presumably speculators.

In the pre-Civil War period it was commonly believed that an investment in raw Iowa farmland would be more productive than investment of money at the highest legal interest rate. Stories were circulated of individuals who purchased government land for $1.25 per acre and within five years were able to resell the still undeveloped land at prices near ten dollars per acre.

The most prominent of the nonresident Iowa speculators was James S. Easley of Halifax Court House, Virginia. Easley began his business of western land speculation in 1852. By 1858 he had acquired more than 400,000 acres, of which about 328,000 acres were located in Iowa.

Easley's system of speculation in Iowa lands, which was based on his earlier experiences in western Illinois, worked as follows: He purchased public lands from the United States. He set a price for these lands and held them until a buyer was willing to meet his price. He refused to sell his lands for less than his asking price. 4/ It was

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4/ For example, Easley refused to sell his lands in Johnson and Linn counties, Iowa, acquired in 1852, for less than $10 per acre in 1854 and 1855, and by 1856 he was asking from $12.50 to $15.00 per acre for this land. In 1856, he priced his land further west in Iowa at $5 per acre or more.

Easley's view that the value of land would necessarily inflate rapidly and that therefore within a few years his price would be met. Easley had the capital resources to wait for land values to increase and was apparently not in any hurry to sell.

Easley's speculation activities were interrupted by the economic depression in 1857 and by the Civil War. After the war Easley sold some of his land at deflated prices in order to acquire capital for renewed operations. In 1865 and 1866 Easley sold land in northern and western Iowa at $3.00 to $3.50 per acre. By 1868 Easley was again able to sell land at prices from $5.00 to $7.50 per acre. He again instructed his agents that he was in no hurry to sell and that if they believed that lands were worth more than what was being offered for them they should refuse to sell. Easley openly expressed his confidence that land values would advance more rapidly than the maximum legal interest rate on money -- 10% per year.

In the postwar years, Easley generally offered his land for sale at a few dollars per acre above the prevailing market price. He did not expect to sell immediately, but waited for a buyer to meet his price. So long as land continued to sell, he contineud to raise his asking price. He pushed land prices to $6.25 to $7.50 per acre by 1870, and to more than $10 per acre by the end of the 1870's.

48. Plaintiffs' Appraisal of Agricultural Land.

Plaintiffs' appraisers, Messrs. Kleinman and Meyers, reached their estimate of the number of acres of agricultural land within the subject tract by examining the descriptions of the physical characteristics of

the land and the climate, the contemporary accounts of the suitability of the land for crop raising, and the census data. They initially estimated that 50% of the land east of the Missouri or 7,136,500 acres, and 12% of the land west of the Missouri, or 4,329,593 acres, was agricultural. Then, on the assumption that a potential purchaser in 1869 would have been conservative in his estimates, they discounted their figures and reached final estimates of 5,709,000 acres east of the Missouri and 2,787,000 acres west of the Missouri, or a total of 8,496,000 acres.

In their farmland evaluation Messrs. Kleinman and Meyers placed greatest weight on land sales data from Bon Homme, Clay, Union and Yankton counties in southeastern Dakota. The deed records for these counties for the period 1863 through 1869 were examined and 403 sales were chosen as proper for analysis. The lands involved in these sales totalled 29,730 acres, and sold at an average price of $5.88 per acre.

Messrs. Kleinman and Meyers eliminated from their consideration 38 sales for prices over $20 per acre as probably involving improved lands and four sales for prices less then $1.00 per acre as probably not being valid arms-length transactions. The average price of the lands in the remaining sales was $5.41 per acre.

The appraisers then broke down the sales into sales price groupings of three dollars each. They created a table in which they indicated the number of sales within each price group, the midpoint per acre price of each group, the total acreage within each group, and the percentage of the total acres sold within each group. From this table the appraisers calculated a weighted average price for the sales of $5.49

per acre.

In their evaluation, the appraisers also analyzed sales of state school lands, sales of railroad grant lands, and private land sales in the state of Iowa.

The appraisers hypothesized that the purchaser of the Sioux tract would anticipate being able to resell the agricultural lands at prices around five dollars per acre over a period of several years. They estimated that for lands in the eastern portion of the tract, a purchase price of from $2.50 to $3.00 per acre would have allowed the purchaser to resell the lands at $5.00 per acre and still realize an adequate return on his investment over the period of resale. For lands in the western portion of the tract, they estimated a purchase price of about $1.80 per acre would produce an adequate return on investment.

Messrs. Kleinman and Meyers concluded that the agricultural lands east of the Missouri River had a fair market value of $15,000,000 or $2.63 per acre, and the agricultural lands west of the Missouri River had a fair market value of $5,000,000, or $1.79 per acre. Their total appraisal for the agricultural lands in the subject tract was $20,000,000.

49. Defendant's Appraisal of Agricultural Land.

Defendant's appraiser, Dr. Murray, arrived at his estimate of the number of acres of farmland within the subject tract by analyzing the field notes of the government surveyors of these tracts. Based on the descriptions of the townships within the subject tract, Dr. Murray classified these townships in such categories as soil quality, topography, water, timber, arable land, and grazing land. Dr. Murray concluded that

the subject tract contained 14,000,000 acres of farm land.[5/]

In its proposed finding of fact 7, the defendant, asserting that Dr. Murray and the plaintiffs' appraisers "were relatively close in their estimates" of the number of acres of agricultural land, adopted the estimate of Mr. Kleinman and Mr. Meyers, and asserted that the subject tract contained 8,496,000 acres of farmland.

Dr. Murray's appraisal of the farmland in the subject tract was based, apparently, on his analysis of public land sales and entries in two areas in Nebraska. The data used by Dr. Murray were not sale prices, but rather the numbers of entries made in the comparison areas under the public land law. From this information Dr. Murray estimated the demand for farmland within the subject tract.

Dr. Murray eventually concluded that the farmland within the subject tract had a fair market value of 45 cents per acre. His reasoning in reaching this conclusion is as follows:

> The average of 45 cents an acre for crop land represents a range from 25 to 65 cents an acre. This spread is based on two factors--quality difference and length of time before selling. The better quality land close to settlement on the east and located in the river bottoms would sell first. This would be similar to the choice bottom land in T 22 - R 3 along Battle Creek, a tributary of Elkhorn River, in the northeast Nebraska comparison area. Choice land like this in the Sioux tract, valued at 65 cents an acre, would, in the judgment of this appraiser, sell at $1.25 an acre in a period of from 5 to 15 years after the cession in 1869, or from 1874 to 1884, which would be an average selling period of 10

5/ Dr. Murray also classified 32,000,000 acres of the subject tract as grazing land, and 2,142,000 acres as nonproductive lands.

> years. Actually the selling of this choice land could not have happened much earlier because the surveys were not completed in South Dakota at the earliest until 1875, 6 years after the cession, and in most townships not until 1882 and 1883, 13 and 14 years after the cession. An investment of 65 cents an acre in this choice land in 1869 amounts to $1.28 an acre in 10 years when interest is figured at 7 per cent. And this $1.28 an acre investment in 10 years does not include any charges which would have to be made for surveying, classification, taxes, and selling expense.
>
> At the other end of the crop land spread is the lower quality land to the west and north in Area A. This is the land which the settlers would consider as being equal to good grazing land. In the settler's mind it would be a question whether to leave the land in grass, use it for native hay, or plow it for crops. An investment of 25 cents an acre in this land in 1869 would amount to 49 cents an acre in ten years, 97 cents in 20 years, and $1.36 an acre in 25 years, without including charges which would be necessary for surveying, classification, taxes, and selling expense. [Def. Ex. G-55, pp. 318-19.]

Applying the 45 cents per acre figure to his estimate of 14 million acres of farmland, Dr. Murray arrived at an appraisal of $6,300,000 for the agricultural land in the subject tract.

Although it adopted plaintiffs' appraiser's estimate of 8,496,000 acres of farmland in the tract, the defendant nonetheless accepted Dr. Murray's appraisal conclusions of $6,300,000 and 45 cents per acre.

50. Value of Agricultural Land.

Based on all the evidence in the record, and the preceding findings, the Commission finds that on February 24, 1869, the 8,496,000 acres of agricultural land in the subject tract contributed $14,925,000 to the fair market value of the entire tract. Of this amount, $11,135,000 is attributable to the agricultural lands east of the Missouri River, and $3,790,000 to the agricultural lands west of the Missouri.

51. Grazing acreage in the Sioux Tract.

Grazing was a residual use of the subject lands---a use common to virtually all acreage within the Sioux tract, chosen only in the absence of a more economically rewarding activity. As of February 24, 1869, a total of 8,496,000 acres, or 17.6% of the entire area, had a highest and best use for agriculture. Some lands within the Sioux tract may have had a highest and best use for townsites, timber and rights-of-way, but no acreage figure is assigned to such uses because the extent thereof could not have been accurately ascertained on the valuation date. Excluding only the agricultural lands, therefore, from the total area of the Sioux tract (48,142,000 acres) leaves 39,646,000 acres having a highest and best use for grazing purposes. Of these grazing lands, 8,564,000 acres were located in the eastern unit of the Sioux tract, and 31,082,000 acres were located in the western unit.

52. The Cattle Industry in the Sioux Area.

(a) Grazing Potential. Most contemporary reports, written by travelers, railroad promoters, territorial officials, and the Secretary of the Interior, to name but a few, generally described the stockraising potential of the Sioux area in favorable terms, extolling it, in most instances, as a vast region of unlimited grazing on the most nutritious of native grasses. Prior to 1865, however, direct knowledge of the northern plains as an area of fine pasturage was shared by a small number of enterprising men, "road ranchers" for the most part, located along the overland trails. These men had taken up ranching as an alternative to mining and as a lucrative business for the supply of meats to emigrants

miners, military posts, and some Indians. In this period, only a few of the cattle pointed north out of Texas were driven as far north as Nebraska, the southernmost region of the Sioux tract. The Sioux tract on the whole was, nevertheless, considered highly suitable for grazing.

(b) After 1865. The rapid spread of the cattle industry in the central plains region began at the close of the Civil War and with the first large-scale cattle drives out of Texas in 1866. Prior to 1870, most of the young steers bred in the southwest (Texas, principally) and driven north were fattened for market on the plains of Kansas, eastern and north-central Colorado, and other areas generally south of the Sioux tract. Although pioneer cattlemen such as Edward Creighton and J. W. Iliff in the western Platte Valley of Nebraska and Conrad Kohrs in Montana had already established small ranches on the rim of the Sioux tract by the middle 1860's, large scale cattle operations did not reach the area until about the valuation date. Texas cattlemen, who were beginning to ship cattle east on the Union Pacific after 1868, recognized the advantages of establishing headquarters or ranches in the northern plains closer to shipping points and the eastern markets. A number of Texans remained in the North to start their own ranches. The northernmost ranges in the Dakotas remained largely unavailable to the developing cattle industry until after the building of the Northern Pacific Railroad. In the eastern section of the Dakota Territory and Nebraska, numerous small herds ranging in size from 150 to 250 head were

being maintained by farmers prior to 1869, as a profitable complement to agriculture. In sum, ranchers were pushing to the very borders of the Sioux tract, in the south especially, and the eventual arrival of large livestock herds in the tract itself appeared evident and inevitable by the valuation date.

53. Range and Stocking Data - 1860-1880.

(a) General. An examination of statistical data bearing on the demand for grazing lands in the central and northern plains begins with the cattle industry in Texas. At the end of the Civil War, Texas ranges were overflowing with a vast surplus of cattle, estimated at over 5.5 million head. (Census data had placed this figure at 3.5 million head in 1860). Because of this surplus, beef prices in Texas were depressed. In 1867, the price of three-year old steers was given at $9.46 in Texas, whereas in the north and east prices ranged from as high as $86.00 in Massachusetts to $46.32 in Nebraska. Other sources in the record report that cattle in Texas could be purchased in 1868 at any price, even as low as $2.00, off the ranges.

As a result of these prices and the great cattle supply, Texas ranchers began moving their herds north. Between 1866 and 1884, over 5 million cattle were driven north from Texas. An important result of these great drives was to make the stocking of new ranches opening on the plains simple and inexpensive. The Texas cattle included animals for slaughter, breeding or stocking animals for northern ranchers, and large herds of young steers which were grazed and fattened on the

central and northern plains before marketing. The Texas drives also were the direct cause for the rapid spread of the cattle industry, first over Kansas and southern Nebraska and then, by 1875, westward to Wyoming on both sides of the Union Pacific Railroad, and finally north into Montana and Dakota.

(b) Nebraska. In 1860, Nebraska had 37,197 cattle on farms. The number of cattle on farms reached 79,928 by 1870. The state auditor's report for 1876 listed 513,600 head of cattle and included, presumably, open range stock. Estimated range stock and cattle on farms were included in the 1880 census. This combined figure totalled 1,113,247 head of cattle. Of significance is the fact that the historical and background notes to the 1880 census suggest that "eastern or agricultural" Nebraska was given little pasturage consideration in that report. Based on railroad records, the 1880 census stated that over three-fourths of Nebraska cattle shipped east came from the area west of the 99th meridian. Corn fed beef cattle of eastern Nebraska remained in the state for local consumption.

(c) Wyoming. The census report for 1870 indicated that 11,130 head of cattle were on farms. By 1880, the number of cattle on farms increased to 278,073. A 1936 report of the Department of Agriculture put the 1870 total at 71,000 head and the 1880 figure at 523,000 head. This 1880 figure corresponds with the census report of the same year for cattle on farms and estimated on open ranges. Thus, the 1870 estimate of 71,000 reported by the Department of Agriculture also included cattle

on the open ranges and would therefore constitute a truer estimate of cattle in Wyoming in 1870. In either case, the increase from 1870 to 1880 was great.

(d) Montana. According to the 1870 census, Montana had 36,738 head of cattle on farms. As in the case of Wyoming this figure did not include unenumerated cattle on the range. The 1936 Department of Agriculture report cited 117,000 head of cattle for Montana in 1870. By 1880, the number of cattle in Montana had increased to 428,279, a figure which included farm as well as range stocks.

(e) Dakota. The Dakota Territory was the last area in the Sioux tract to develop its cattle industry. In 1860, for example only 800 cattle were reported on farms. By 1870, the number had increased to 12,407 head on farms, with an additional estimated 44,200 head on open ranges. By 1880, however, the census reported 206,783 head of cattle on farms and estimated on the ranges. Also in 1880, the census indicates that nearly 40,000 head were brought into the territory from Texas and Nebraska for stocking purposes.

(f) Census Analysis. The growth of the cattle industry into the pertinent area of the Sioux tract (generally west of the Missouri River) is indicated in the general historical references contained in the 1880 census with regard to breeding animals only:

> In 1867 breeding herds were held south of Fort Laramie and the North Platte river, in the southeast corner of Wyoming. In 1870 the number of cattle in the region did not exceed 18,000, and of sheep about 10,000. For the whole of Wyoming, Nebraska, and Dakota, the census of 1870 enumerated 485,917 cattle and 88,238 sheep on farms. It is safe to estimate that at that time within all of Wyoming, Nebraska west of the 99th meridian, and in Dakota south

> of the Big Cheyenne river and west of the Missouri, there were not over 150,000 to 175,000 cattle and 40,000 sheep, while in 1880, in the same part of the country, which may be called the "ranch" regions, and not including eastern Dakota and Nebraska, there were over 1,000,000 cattle and nearly 400,000 sheep. This is not, however, a representation of natural increase, because the herds of 1870 have constantly been enlarged by purchase from the south and west. [Pl. Ex. CB-69, p. 55].

54. Factors Respecting Demand for Grazing Lands.

By February 24, 1869, some three years after the beginning of large scale cattle drives north from Texas, western cattlemen had already learned and understood the major benefits flowing from the exclusive control over large tracts of range land. Unlike the practices of farmers immediately east of the Sioux tract, where cattle raising on a small scale was merely complementary to crop growing, the experience of cattlemen operating south and southwest of the tract was largely "Texan". The herds were large and the operators were not farmers engaged in a side-line business. To these large ranchers extensive ranges were fundamental. Mainly as a result of federal policy permitting free grazing on the public domain, use and occupancy of vast ranges was not impossible.

Under the system which prevailed on the valuation date, the cattlemen established a headquarters camp, generally along some stream, and acquired "range rights" (recognized by neighboring ranchers but not by law) to the water appropriated, and to the surrounding range which extended anywhere from 15 to 50 miles on both sides of the water source. The advantages of this system of first occupation included the ability

to maintain large herds averaging in excess of 3000 head, lower per head operating costs, and freedom from local taxation.

The system did not, however, permit western cattlemen the right to hold legal title to the vast tracts of grazing lands they occupied. Ownership of large blocks of land for a single operator was difficult to achieve under federal land laws. While range laws and practices gave the rancher something approximating undisputed control and possession of the lands he used, the uncertainty of tenure inherent in the system carried certain risks, among which were the progressively increasing threat of the loss of superior lands and water sources to homesteaders, the risk of not finding sufficient year-round feed for cattle, lack of control over breeding, larger losses on the range resulting from straying and disease, and the effects of local restrictions such as herd laws which favored the crop growers.

By the valuation date, cattlemen were also aware of the rapidity by which the ranges were being stocked. While the ranges in the northern plains did not reach a condition of full appropriation or over-stocking until after 1880, grazing lands in the lower plains below the Sioux tract were being appropriated at a rapid rate. Kansas, for example, reported 93,485 cattle on its ranges in 1860. This figure increased to 571,000 by 1870, and by 1880, it had reached 1,247,000 head. Cattle in Nebraska increased from 37,197 in 1860 to 159,000 in 1870, and by 1880 the number reached over 1 million. Similarly large increases in the number of cattle for the same period were also reported in Colorado, New Mexico, Oklahoma, Oregon, and other western cattle areas related to

the Sioux tract. The fact that the grazing lands in the territories north of the Platte Valley offered the greatest opportunity for the extension of the stock industry would not have been ignored by the larger operators of the period. A combination of the foregoing considerations, i.e., the diminishing available ranges and the benefits of exclusive control, gave rise to a developing demand for large blocks of grazing lands by the valuation date. With the cattle industry expanding and developing north and west out of the central plains area, the Sioux tract, forming a relatively large block of good grazing lands (and a temporary barrier to further expansion), would have appeared especially attractive to a prospective purchaser on the valuation date.

55. Carrying Capacity.

The record contains no contemporary statistics or authoritative estimates of the carrying capacity of the Sioux tract as of February 1869. However, the record is supplied with some data respecting the actual use of parts of the Sioux tract after the valuation date and the use of range areas near the tract. This information includes a special report on range use contained in the 1880 census (Pl. Ex. CB-69) and individual statements compiled by the Public Lands Commission in 1879 and 1880 (Def. Ex. V-54). As to cattle carrying capacity estimates, rather than actual stocking of the Sioux tract, the record contains more current figures as estimated by the Soil Conservation Service and the U. S. Forest Service.

The 1880 federal census did not give estimated carrying capacity of the Sioux tract but did provide some indication of the extent to which

the western territories were being grazed. Based on estimated acreage occupied for pasturage in the western territories and the number of cattle (including sheep at 5 sheep equal to 1 steer) actually grazed there, the number of cattle grazed per section was indicated. In Nebraska, where the cattle industry had developed at an earlier period, the average was about 16 head per section. The combined figures for Montana, Wyoming, and the Dakotas indicated an average of 9 head per section actually on the land. The Dakota area was the last to develop its cattle industry and consequently the number of cattle being grazed on its vast ranges by 1880 was considerably lower in comparison to Nebraska, Wyoming, and Montana. Estimates provided to the Public Lands Commission in 1879 by individual operators in Colorado and Montana indicated a grazing capacity as high as 40 head per section for the very best lands, and an average of 20 to 24 head estimated by most of the ranchers reporting.

The 1936 U. S. Forest Service report provided estimates of the grazing capacity of the western range in its virgin condition and by types of ground cover. The types of ground cover in the Sioux tract are tall grass and short grass, with short clearly dominating the area. Both grasses, according to the Forest Service report, have a high grazing capacity. The capacity of a predominantly short grass area was estimated to be about 25 head per section.

Soil Conservation Service (SCS) data provided a further basis for estimating carrying capacity figures. The method, briefly, involved the division by the SCS of each of the four states within the Sioux tract into vegetation or precipitation zones. These zones were further

divided into smaller units called Range Sites consisting of distinct kinds of range land classed by its potential to produce native plants. A maximum of three Range Sites representing an average of the zone was selected for each state. The corresponding recommended stocking rate under climax conditions for each site provided the final capacity ratings for the acreage estimated in each zone of a particular state.

Based on SCS recommended stocking rates, the area east of the Missouri River, containing 14,273,000 acres, had a carrying capacity of 843,379 head, or 37.8 head per section. On the same basis, the area west of the Missouri, containing 33,869,000 acres, would have had a capacity of 1,118,138 head, or 22.3 head per section. Deducting that area of the Sioux tract determined to be agricultural acreage, the 8,564,000 acres east of the Missouri with a highest and best use for grazing would have had a carrying capacity of 506,066 head. Similarly, deducting agricultural lands west of the Missouri, the remaining 31,082,000 acres of grazing lands would have had a carrying capacity of 1,089,432. The total carrying capacity for the 39,646,000 acres with the highest and best use for grazing would have been 1,595,498, or an average of 25.8 head per section.

On the valuation date, there existed an optimistic view among western cattlemen respecting the basic effectiveness of the western ranges generally to support large herds. Later experience may have altered this view but in 1869 the outlook was favorable. The Sioux tract specifically would have been rated desirable on the whole and comparable to the other western plains grazing lands.

At the same time, however, there were known factors of the cattle business, as then conducted, which would have effected the ultimate

use or carrying capacity of the Sioux tract. The main factor confronting the large scale operator was the unequal distribution of water. In addition, there were on the valuation date limited areas of the Sioux tract which were deemed, correctly or incorrectly, unfit for grazing in part or in whole. The over all effectiveness of the Sioux grazing lands would have been diminished by common operating hazards which resulted in cattle losses. A special report in the 1880 census enumerated the most prevalent of these hazards, which included disease, spring and winter storms, theft, snake bites, poisonous weeds, and wild animals. According to the 1880 census, the average annual loss during a term of years as a result of these hazards was estimated to be between 5 and 12 percent. With regard to determining the effective carrying capacity, these temporary loss factors would not have had the same impact as did the problem of water availability and range utilization of areas considered less attractive for grazing.

Based on the foregoing facts, the Commission finds that on February 24, 1869, the cattle carrying capacity of the 39,646,000 acres of grazing land in the Sioux tract was 957,300 head, calculated at 303,600 head in the eastern section and 653,700 head in the western section.

56. Grazing Land Market Data.

(a) Sales of Railroad Grant Lands. By the Act of July 27, 1866, 14 Stat. 292, the Atlantic and Pacific Railroad Company (A&P) acquired from the United States a right of way 100 feet wide on either side of its proposed line, and title to alternate sections of nonmineral public

lands for 40 miles on each side of the new line. The A&P began to sell these lands, all located in Arizona, in 1884. The record contains evidence of seven of the largest and earliest of these sales, as summarized below:

Date	Parties	Amount	Acreage
4-21-1884	A & P to Stephen G. Little	$ 75,748	75,748
12-27-1884	A & P to Aztec Land & Cattle Co.	529,280	1,058,560
6-6-1885	A & P to Arizona Cattle Co.	120,000	120,000
1-12-1886	A & P to E. B. Perrin	22,500	30,000
4-16-1886	A & P to E. B. Perrin	123,600	176,700
7-1-1887	A & P to E. B. Perrin	20,834	29,120 (net after trade)
1-10-1890	A & P to E. B. Perrin	17,280	23,040

[Pl. Ex. CB-91, p. 1-6]

Sale No. 2 above (to the Aztec Land & Cattle Co.) was made under distressed conditions and for a low price because the railroad was in urgent need of funds. All of the lands were sold in checkerboard patterns. Based on Soil Conservation Service (SCS) guidelines, the 1,513,618 acres included in these sales had an effective carrying capacity of 21,543 head. Given the total consideration of $909,242 for the seven sales, the price of these tracts works out to $42.20 per head of capacity ($909,242 ÷ 21,543).

The Union Pacific Railroad also obtained large land grants from the United States. In 1884, UP made seven sales of lands in Wyoming totalling 199,469 acres for a total consideration of $229,087. The total carrying capacity (SCS ratings) of these tracts was 4,968 head. The

price paid for the tracts per animal unit was equivalent to $46.11 ($229,087 ÷ 4968).

In addition to the foregoing, the record reflects that the Central Pacific Railway Company sold lands in Utah. A group of seven transactions, which appear to have been made in December 1885 to one George Crocker, involved 352,639 acres for a total consideration of $275,140 (about $.78 per acre). The estimated effective carrying capacity (SCS ratings) of these railroad lands was 7694 head. The price paid for the tracts per animal unit was equivalent to $35.76. ($275,140 ÷ 7694).

(b) Ranch and Grant Sales. The record also contains data covering the sale of several large western ranch properties. The transactions, all of which occurred after the valuation date and in areas distant from the Sioux tract, include the Matador, Espuela, Franklyn, and Maxwell properties.

Data relating to the Matador acquisitions in Texas are taken from an 1883 report of lands held in fee by the Matador Cattle Company. The reported holdings totalled 374,717 acres purchased at an average of $1.62 per acre, or a total cost of $607,000. The estimated effective carrying capacity of these lands (SCS ratings) was 15,356 head. The price paid for the lands per animal unit was equivalent to $39.50. Another report in the record (Pl. Ex. 95) indicates that the Matador Co. had, by the spring of 1883, made acquisitions totalling 303,264 acres at a cost of $509,483. Using the same SCS ratings, the cost of these lands per animal unit was equivalent to $40.60.

In September 1883, the Espuela Land Company purchased 241,920 acres

of land in west Texas. These lands, purchased from a railroad company in a checkerboard pattern, cost $515,440. The estimated carrying capacity (SCS ratings) of these lands was 9923 head. The price paid for these lands per animal unit was equivalent to $52.00.

In November 1882, the Francklyn Land and Cattle Company purchased 637,440 acres of Texas railroad lands located in a remote, unsurveyed, and unimproved area of the Panhandle. The purchase price was $887,654. The effective carrying capacity of these lands (SCS ratings) was 26,145 head. The price paid for these lands was equivalent to $33.95 per animal unit.

In 1870, the Maxwell Land Grant and Railroad Company, an English corporation, acquired 1,679,746 acres of the Maxwell Grant in northern New Mexico and southern Colorado, most of which was grazing land, for a consideration of $1,350,000. The total carrying capacity of these lands was 26,771 head. The price paid for the lands was equivalent to $50.43 per animal unit.

57. Plaintiffs' Appraisal of Grazing Lands.

Plaintiffs' appraisers, Mr. Myers and Mr. Kleinman, used a comparative sales method in their valuation of the grazing lands of the Sioux tract. They considered and analyzed railroad sales in Arizona, Wyoming and Utah; large acreage sales in the Panhandle of West Texas; and the sale of a Spanish land grant in New Mexico. With the exception of the Wyoming railroad sales, all sales occurred in areas lacking proximity to the Sioux tract, and with the exception of the grant in New Mexico they all occurred over 12 years after the valuation date.

The appraisers' analysis of sales data involved the qualitative comparison of the sales lands with the Sioux lands on the basis of their respective carrying capacities. Having first concluded that the carrying capacity of the Sioux tract was 1,116,849 head, after a 30% reduction for various hazards of the range on the valuation date, the appraisers then calculated the carrying capacity of the sales lands and the actual consideration paid for them. They then derived the sales price of said lands on an animal unit basis by dividing the consideration paid in each sale by the carrying capacity of each tract. The resulting figure (land cost per animal unit) was then multiplied by the carrying capacity of the Sioux tract. Adjustments were made for differences in time, market conditions, and terms of payment to arrive at an indicated fair market value. The following table summarizes the results of this method, before adjustments.

(a) Land Cost Per Animal Unit of Sales Lands

Sales	Acres	Consideration	Estimated Carrying Capacity	Land Cost Per Animal Unit
Ariz. - A&P.R.R.	1,513,168	$ 909,242	20,107	$45.22
Wyo. - U.P.R.R.	199,469	229,087	4,637	49.40
Utah - C.P.R.R.	352,639	275,140	7,180	38.32
Matador Ranch	344,717	607,000	14,332	42.35
Espuela	241,920	515,440	9,261	55.67
Franklyn	637,440	887,654	24,402	36.36
Maxwell	1,679,764	1,350,000	26,765	50.44

The indicated land cost per animal unit shown in the above table for each sales tract was applied to the total estimated carrying capacity of the Sioux tract, east and west portions, with the following results:

(b) Indicated Value Before Adjustments

Value Per Head of Capacity	Sioux Tract Capacity	Indicated Value	Sioux Tract Acreage	Indicated Per Acre Value
$45.22	1,116,849	$50,503,911	39,646,000	$1.27
49.40	1,116,849	55,172,340	39,646,000	1.39
38.32	1,116,849	42,797,651	39,646,000	1.08
42.35	1,116,849	47,298,554	39,646,000	1.19
55.67	1,116,849	62,174,976	39,646,000	1.56
36.36	1,116,849	40,608,628	39,646,000	1.02
50.44	1,116,849	56,333,861	39,646,000	1.42

A final adjustment was made by the appraisers for each sale to allow for differences in time of sale, checkerboard land patterns in the case of railroad sales, cattle prices, remoteness from the Sioux tract, terms of purchase, and related factors. These adjustments or discounts ranged between 10 percent and 25 percent. As a result of the adjustments, land cost per animal unit ranged from a low of $32.72 (Franklyn Ranch) to a high of $50.10 (Espuela Ranch). The indicated fair market value on a per acre basis ranged between $0.92 and $1.27. The total value of the tract ranged from $36,543,299 to $55,954,134.

A further analysis was made on the basis of the total considerations paid for the sale lands. This method produced a discounted land cost per

animal unit of about $38.00. This figure applied to the Sioux tract carrying capacity resulted in a total value of $42,440,262.

Based on all the data discussed above, the appraisers concluded that the fair market value of the grazing acres of the Sioux tract was $42,000,000, a figure equivalent to about $1.05 per acre. The estimated value of the different sections of the Sioux tract, based on these figures is shown below.

East of the Missouri	Total Estimated Capacity	Indicated Value Per Head of Capacity	Total Indicated Value	Total Estimated Acreage	Indicated Price Per Acre
North Dakota	195,024	$37.60	$ 7,332,902	5,138,800	$1.43
South Dakota	159,222	37.60	5,986,747	3,425,200	1.75
Totals	354,246		$13,319,649	8,564,000	1.55
West of the Missouri					
Nebraska	382,678	$37.60	$14,388,692	12,816,000	$1.12
Wyoming	285,492	37.60	10,734,499	13,594,768	.79
North Dakota	58,041	37.60	2,182,343	3,032,000	.72
Montana	36,392	37.60	1,368,339	1,639,232	.83
Totals	762,603		$28,673,872	31,082,000	$ .92
Grand Total	1,116,849		$41,993,521	39,646,000	$1.05

[Pl. Ex. CB-1, p. 309.]

58. Defendant's Appraisal of Grazing Lands.

Defendant's appraiser, Mr. Murray, determined that the major portion of the Sioux tract was best suited for grazing on the valuation date and concluded that the grazing area totalled 32,000,000 acres. The appraiser

also determined the carrying capacity of the Sioux tract. Using a 1936 U. S. Forest Service study he found that the virgin capacity figure for the tract was 25 acres per animal unit annually, or approximately 25.6 head per section. This figure was considered by Mr. Murray to be a minimum calculation after taking into account variations in the amount of grass and weather factors such as severe winters and draught. (Def. Ex. G.55, p. 263).

In his testimony before the Commission, Mr. Vern Englehorn, who assisted Dr. Murray in the preparation of his report, agreed with plaintiff's carrying capacity estimate of 25 head per section. However, Mr. Englehorn stated that the Sioux grazing area could not have been used to more than 40 percent of its total capacity. He concluded, therefore, that the effective carrying capacity of the tract was 10 head per section. The record does not disclose to what extent carrying capacity estimates were used by Dr. Murray in his appraisal of the subject tract.

Defendant's appraiser did not provide any sales data respecting grazing lands. Dr. Murray, in his appraisal report, listed and discussed some eight factors which he considered of concern to the potential purchaser of the Sioux tract grazing lands. These factors, in general, included the open range policy, buffalo herds, weather, water control, fencing, marketing of cattle, and carrying capacity. Dr. Murray also discussed generally business conditions, interest rates, transportation, and markets.

Dr. Murray concluded that the Sioux grazing lands were worth 17.5 cents per acre. In explaining his conclusion Dr. Murray stated as follows:

> The average of 17.5 cents an acre for grazing land represents a spread of from 10 to 25 cents an acre in 1869. However, in 1869 there was no market for grass land because of the existing policy of open or free range. My estimates are based on the establishment of economic-sized stock ranches which would provide for either the purchase or lease of range by a group of stockmen who bought or leased the surrounding ranches. The number of cattle allowed on the range would be controlled by the group in order to prevent overstocking and depletion of the range. Stockmen would be willing to pay for this kind of range, it is reasonable to assume, in contrast to the open or free range where there is no control of the number of cattle put on the range. By the time the buffaloes were off the range and the lands had been surveyed and classified ten years would have elapsed. An investment of 25 cents an acre would amount in ten years at 7 per cent amount [sic] to 49 cents an acre without any charges for surveying, classification, taxes or selling expense. This would represent the most likely resale opportunity for the choice grazing lands.
>
> The lower end of the grazing lands at 10 cents an acre represents the poorest grazing lands which had little value in 1869 but which might have some value later. In 20 or 25 years the investment of 10 cents an acre at 7 percent interest amounts to 39 to 54 cents an acre without charges for surveying, classification, taxes, and selling expense.
> [Def. Ex. G-55, pp. 319-320].

Applying the 17 1/2 cent figure to his estimate of 32,000,000 acres of grazing land, Dr. Murray arrived at a final appraisal of $5,600,000.

Although it adopted plaintiffs' appraisers' estimate of 39,646,000 acres of grazing land in the tract, defendant nonetheless accepted Dr. Murray's appraisal conclusions of $5,600,000 and 17 1/2 cents per acre.

59. Value of Grazing Land.

Based on all the evidence in the record, and the proceeding findings, the Commission finds that on February 24, 1869, the 39,646,000 acres of grazing land in the subject tract contributed $30,760,000 to the fair market value of the entire tract. Of this amount, $9,760,000 is attributable to grazing land east of the Missouri River, and $21,000,000 to grazing land west of the Missouri River.

60. Conclusion.

The Commission concludes that on February 24, 1869, the Sioux tract had a fair market value of $45,685,000.00. This value may be broken down as follows:

	East of Missouri	West of Missouri
Agricultural	$ 11,135,000	$ 3,790,000
Grazing	9,760,000	21,000,000
Total	$ 20,895,000	$24,790,000

Jerome K. Kuykendall, Chairman

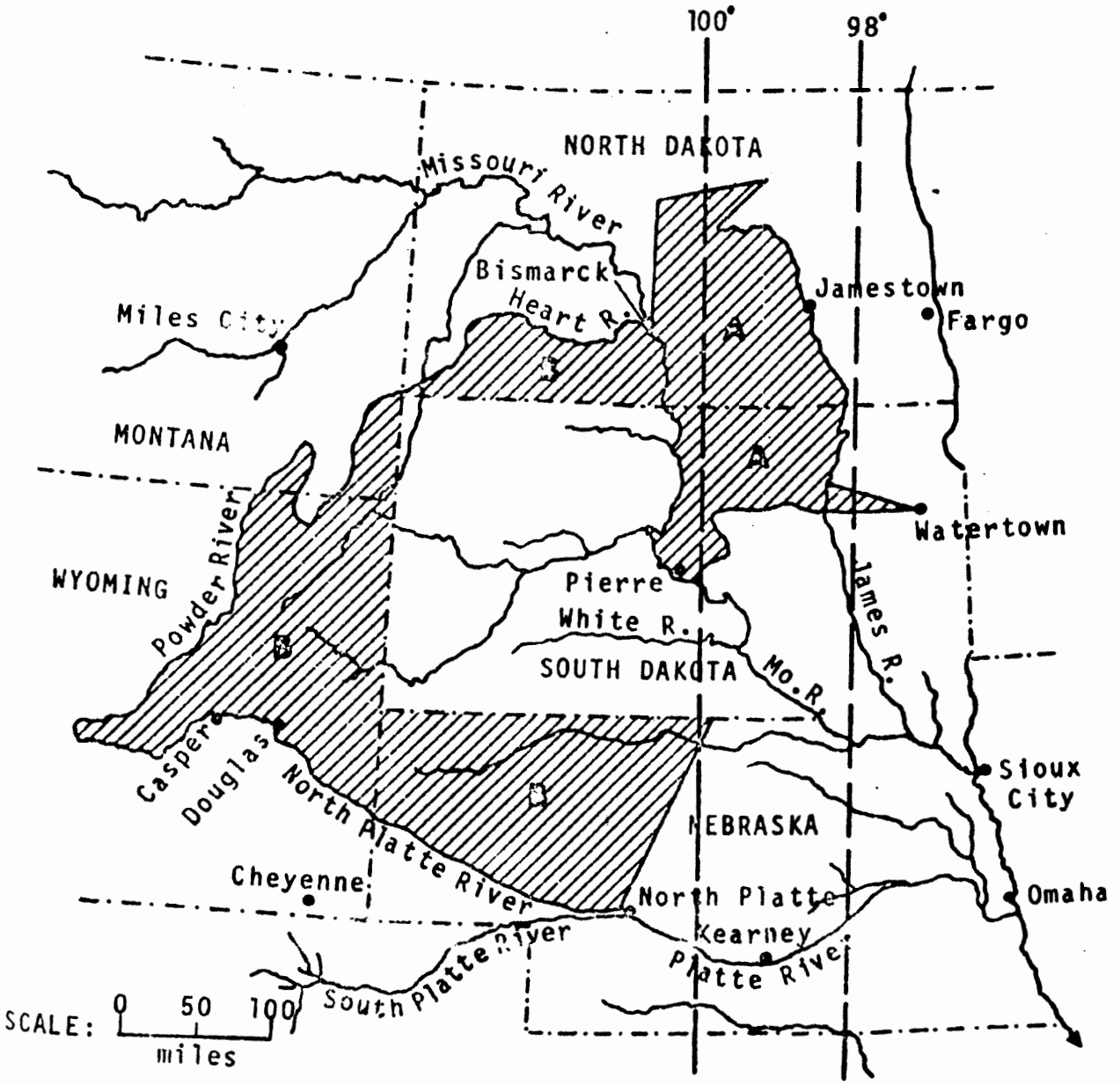
John T. Vance, Commissioner

Richard W. Yarborough, Commissioner

Margaret H. Pierce, Commissioner

Brantley Blue, Commissioner

APPENDIX "A"


100°
98°
NORTH DAKOTA
Missouri River
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Heart R.
Jamestown
Fargo
Miles City
MONTANA
Watertown
WYOMING
Powder River
Pierre
White R.
James R.
SOUTH DAKOTA
Mo. R.
Sioux City
Casper
Douglas
North Platte River
NEBRASKA
Cheyenne
North Platte
Omaha
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