BEFORE THE INDIAN CLAIMS COMMISSION

THE MINNESOTA CHIPPEWA TRIBE et al.,	)	
Plaintiffs,	)	
v.	)	Docket No. 18-S
THE UNITED STATES OF AMERICA,	)	
Defendant.	)	

Decided: January 14, 1976

ADDITIONAL FINDINGS OF FACT

The Commission makes the following findings of fact which are supplemental to the findings numbered 1 through 12 previously entered herein on August 13, 1968, 19 Ind. Cl. Comm. 319 (1968).

13. Description of the Land.

The land to be valued is identified as Royce Area 261, a tract of land in the northern portion of Wisconsin and the Upper Peninsula of Michigan. The date of valuation is March 28, 1843. The lands were ceded by the Chippewa Indians of the Mississippi and Lake Superior to the United States by the Treaty of October 4, 1842, which was proclaimed on March 28, 1843 (7 Stat. 591).

The land consists of 10,538,000 acres and is described by metes and bounds in Article I of the treaty of October 4, 1842, 7 Stat. 591, incorporated herein by reference. Included in this area are parts of 13 counties in Wisconsin, all of six and parts of four

counties in Michigan and a portion of Lake Superior and certain of its islands.

14. Topography.

Royce Area 261 has hills ranging from 600 to 900 feet above lake level very near the coast of Lake Superior, running in a general easterly and westerly direction with intervening valleys of flat or gently rolling land, and increasing to a height of 1,200 to 1,300 feet some 15 to 20 miles inland from the lake.

The Porcupine Mountains are almost on the coast of Lake Superior about 37 miles northeast of the mouth of the Montreal River. They are an exception to the east-west direction of the hill range and extend inland south and west in Gogebic and Ontonagon Counties. They rise to about 900 feet near Lake Superior and to 1,100 and 1,300 feet above lake level at several inland knobs. The valleys separating the ranges in the hilly district are heavily timbered and the soil in the valleys is a dark rich and deep loam. Densely wooded streams wind through the bottom lands. The country levels out south of the hills and becomes flat.

Part of the area drains to the south into the Mississippi River via the Wisconsin, St. Croix and Chippewa Rivers. The eastern area drains into Lake Michigan via the Menominee River and its tributaries, while the northwest area drains into Lake Superior.

The Lake Superior drainage area is less than the Lake Michigan area, and the largest rivers have their sources in the Lake Superior-Lake Michigan divide and flow into Lake Michigan. The Menominee River,

a part of the Wisconsin-Michigan boundary, is the largest. Its sources are within 15 miles of Lake Superior and it runs 200 miles, with numerous tributaries feeding from within the ceded area.

Other important rivers are the Chocolate, Death, Yellow Dog, Huron, Portage, Fire Steel, Ontonagon, Iron, Presque Isle, Black and Montreal. The Ontonagon is the largest of all the rivers that flow into Lake Superior, it has three principal branches and drains about 1,300 square miles. The Sturgeon River is the next largest and runs for about 65 miles on the northern slope, the Black and Presque Isle Rivers are large and flow northwesterly into Lake Superior.

15. Climate.

The area has four season weather and a temperate, continental climate, quite similar to that of New York and New England. Data collected at 45 weather stations in the area reflect an average winter (January) temperature range from 8°F. to 17°F. The average is generally higher at stations on Lake Superior than those inland. The summer (July) average temperature ranges from 62°F. to 69°F., with an average daily maximum of over 80°F. The presence of Lake Superior serves to moderate the temperatures.

The last killing frost in the area generally occurs during the second or third week of May, and the first killing frost of the fall during the second or third week of September. Land adjacent to Lake Superior experiences frost-free periods three to four weeks longer than

inland. The longest growing season in the area is 158 days a year in Marquette County, the shortest, 82 days in Ontonagon County. The average growing season is 115 days in the Michigan portion of the subject area where 9 of 18 weather stations record a growing season of more than 115 days. The average growing season is 123 days in the Wisconsin portion of the area where 14 of 27 weather stations record more than 120 days. The growing season is adequate for wheat, rye, potatoes, barley, and hay.

The average annual precipitation ranges from a low of 22 inches to about 34 inches. The average in the Michigan portion is about 29 inches and the average in the Wisconsin portion is about 30 inches. Most of the precipitation falls during the warmer half of the year, with up to 75% of the total falling between May and October. There are 50 to 100 inches of snowfall during the winter. Total precipitation tends to be higher along the shores of Lake Superior than inland.

16. History Prior to 1843.

The first European settlers in the area probably were the French fur traders and Jesuit missionaries who entered via the Great Lakes, built settlements on the south shore of Lake Superior in the 1660's, traveled west over easy portages to the Mississippi, and established operations which continued for about 100 years. The French engaged in the fur trade with the Indians and cultivated grains and vegetables for their own use. The French operations in the area were superseded by the British who came following the end of the French and Indian Wars in 1763.

The subject area was included in the Northwest Territory, created and given a constitution and government by the Ordinance of July 13, 1787. The limits of the Northwest Territory were diminished as territories were carved out. In 1805 the Territory of Michigan was established. Its boundaries were enlarged in 1809, 1818 and 1834 to include what are now the States of Michigan, Wisconsin, Iowa, Minnesota and North and South Dakota east of the Missouri. Michigan was admitted as a state on January 26, 1837.

Wisconsin successively became part of Indiana Territory (1802-1809), Illinois Territory (1809-1818), Michigan Territory (1818-1836) and Wisconsin Territory (1836-1848). In 1848, Wisconsin was admitted as a state.

17. Population.

There was no substantial non-Indian population in this area prior to the valuation date. The decade between 1830 and 1840 was a period of westward migration of population and in this period of time the population of Michigan increased from 32,000 to 398,000. Wisconsin's population grew from 42,000 persons in 1842 to 155,000 in 1846 and 305,000 in 1850. In this period the population of Illinois grew from 157,000 to 851,000 and that of Indiana grew from 343,000 to 998,000. Chicago, which did not exist as a city in 1830, had a population of 43,000 by 1850, and by that year Milwaukee had expanded to 31,000 people.

18. Transportation.

Transportation in the area was accomplished by means of canoes on

the many streams and lakes, with portages from one stream to the next, or around the rapids on most of the streams. During the winter months dog sleds were used on the frozen surfaces.

Access to the area was by water over the Great Lakes. The 21 foot falls at Sault Ste. Marie constituted an impediment to navigation between Lake Superior and Lake Huron. In 1839 the State of Michigan contracted to pay $112,000 for the construction of a canal around the falls of Sault Ste. Marie. However, that effort was abandoned when the contractor was forcibly removed from the area by armed United States troops in May of 1839. The need for, and the advantages of, a canal at that point were repeatedly presented to the Congress. Finally, in 1852, Congress granted 750,000 acres of land to the State of Michigan to aid in financing a canal. Michigan accepted the grant and construction was begun in June 1853. The canal was opened for public use in June 1855.

19. Land Classification.

One of plaintiffs' expert witnesses was John William Trygg, a professional forester and appraiser. Based on public land survey data, Mr. Trygg determined acreages of land in various classifications, and, using the surveyors' field notes, he calculated the area to be classified as white and Norway pineland.

A total of 8,726,403 acres, or slightly over 80% of Royce Area 261, was forested, while about 14% of the area was covered by marsh and swamps. The remaining acreage was water and small areas of unforested

agricultural land and prairie. Of the forested area a total of 4,264,131 acres were primarily white and Norway pine, with white pine the main stand.

20. Disposition of Public Land.

At the time of the cession, nonmineral public land could be acquired by private owners from the United States by purchase at public or private sale under the Act of April 24, 1820, 3 Stat. 566. Under this act, public land would initially be offered to the highest bidder at public auction sale. If not sold at the public offering, the land could be purchased at private sale at a minimum price of $1.25 per acre.

The Preemption Act of September 4, 1841 (5 Stat. 455) gave a settler, after six months' settlement, occupation, and improvement a preference, or first right, to purchase 160 acres at the minimum price at the time the land was offered for public sale.

Mineral bearing public lands were under the jurisdiction of the War Department from 1785 until transferred to the General Land Office in 1849. In the spring of 1843, following ratification of the 1842 Treaty, Royce Area 261 was opened for mineral exploration by the Secretary of War. By June 1, 1843, the War Department in Washington had issued permits covering 135 square miles, and by July of 1845, a total of 800 permits had been issued. A field office was established for the issuance

of permits. About 1,000 permits were issued by the War Department and 377 leases were issued covering 497 square miles before this procedure was terminated May 6, 1846, by President James K. Polk. In March of 1847 Congress directed that mineral districts be organized in the Upper Peninsula of Michigan and in Wisconsin. A geological survey was to be made of the land in each district followed by sales of the mineral land. Holders of a War Department lease or permit were to pay $2.50 per acre, and all other mineral lands were to be offered for sale at not less than $5.00 per acre. Pursuant to the 1847 Act, 163,360 acres were classified as copper-bearing land. In 1848 there were 2,016.07 acres of that land sold at the minimum of $5.00 an acre, and 6,464.81 acres under lease were sold at the stipulated $2.50 an acre price.

21. Timber Resources and Lumbering.

Royce Area 261 lay within the forest region known as the northern pine belt. The forested areas were a mixture of pine and hardwoods. The white pine was the predominant and most valuable tree. It was light, strong, easily worked, slow to decay, and seasoned well. It was suitable for almost any building purpose and was capable of being floated down the logging streams. Since it was the most desirable, it was cut commercially almost to the exclusion of the Norway pine. Norway pine had some use for structural purposes. The hardwoods and jack pine had no commercial value in 1843.

In his 1898 report on the forestry conditions in northern Wisconsin Mr. Filibert Roth, Special Agent United States Department of Agriculture,

estimated the original stand of pine in 27 counties, including the Wisconsin portion of Royce Area 261. He reported that:

> . . . . The white pine occurred in nearly all parts of this area; in most counties it was found in every township, on almost every section, and though checked at the "openings," apparently by a lack of moisture, it followed all the streams (the Wisconsin, Black, Chippewa, St. Croix, etc.), for a considerable distance beyond the limits of the forest. Generally it seems quite independent of the quality of the soil; it grew as fast, as steadily and to as large proportions on the sandy and gravelly lands along the Flambeau, Chippewa, and Wisconsin as on the heavier soils of the divides and the famous Wolf river basin. [Pl. Ex. T-13 pp. 14, 15.]

Mr. Roth also noted that Norway pine originally ". . . . formed but a very small part of the entire stand of pine, but today [1898] about 13 per cent of the remaining supply is red [Norway] pine." Pl. Ex. T-13, pp. 20, 21.

Lumbering operations had begun in the 1830's on the Menominee River and around Green Bay as soon as Indian title to that area had been extinguished. By the early 1840's, there were several mills on the rivers flowing into Lake Michigan in northeastern Wisconsin, including three on the Menominee River. The entire cut from the Menominee River basin was shipped to Chicago via the lake until 1887, when the railroad began to carry lumber from the area. The upper part of the Menominee River and the headwaters of the Oconto River and Wolf River, which flow into Lake Michigan near Green Bay, lie within the subject tract. When the General Land Office surveyors traversed this portion of Royce Area 261 in the 1850's, they found evidence that timber had been cut from the area before it was surveyed. A sawmill was in operation on the Escanaba River, which forms part of the boundary of the

subject area, as early as 1838. A mill was built on the Fort River (a few miles from Royce Area 261) in 1845; mills were also built on the Sturgeon River and White Fish River (east of Royce Area 261) during the 1840's, indicating that lumbermen were well aware of the potential of this portion of Michigan's timber resources at this time.

22. Lake Michigan Watershed.

There were 2,085,895 acres of white and Norway pine in the Lake Michigan watershed portion of Royce Area 261, and Mr. Trygg, plaintiffs' expert, estimated that the stand contained 10.863 billion board feet of lumber, which was an average of 5,208 board feet per acre. The timber and lumber from that area could be delivered to the routes of vessels trading between Chicago, Milwaukee, and other markets. The development of Chicago was accelerating, with lumberyards in that city processing over 19,000,000 board feet in 1844. Milwaukee was also developing as an important lumber market. In the 1830's and 1840's lumbering operations had begun and sawmills were located on rivers which reached into Royce Area 261.

23. Wisconsin River Watershed.

The Wisconsin River, feeding into the Mississippi River, provided an outlet to developing lumber markets in the Mississippi River valley and from there to the prairie areas of Illinois, Iowa, Missouri and other states. There were 646,968 acres of white and Norway pine in this

Wisconsin River drainage area. The average stand of white and Norway pine, as computed by Mr. Trygg, was 6076 board feet per acre. The Wisconsin River and its principal tributaries were large enough to float logs and lumber. To the south of Royce Area 261 commercial lumbering had commenced immediately after the land had been ceded by the Menominee Indians in 1836, and by the early 1840's there were 24 mills in operation on that part of the Wisconsin River.

24. Lake Superior Watershed.

The remaining pineland acreage, 1,531,268 acres, was within the Lake Superior drainage system. That pineland was remote, and there were great difficulties in transporting the lumber. There was no real market for timber in that area until the St. Mary's canal was completed in 1855, and it became possible to reach the same markets as those served by the Lake Michigan drainage lands. While there was some local demand for the timber, large-scale lumbering did not begin until the 1860's.

25. Plaintiffs' Expert - Robert Nathan.

Plaintiffs' expert appraiser, Mr. Robert Nathan, valued the timber and agricultural uses of the subject tract. He considered each of the three drainage divisions in his appraisal of the timberland. For the Lake Michigan and Wisconsin-Mississippi River drainage areas he used the "derived demand" approach. Since he found no sales of comparable tracts, Mr. Nathan's approach was:

> . . . . to determine how much stumpage (standing timber) would have been worth to a prospective buyer on the basis of the probable schedule of lumber sales, the known and probable

> selling price of the final product (lumber), the cost of logging, transporting, sawing, rafting, and delivery to market, plus an allowance for profit that would appear reasonable to a lumber entrepreneur of that time. This procedure is the standard method of determining stumpage valuation, and is nothing other than a specific application of the general principle that a factor of production derives its value from its ability to contribute to the production of a valued product. The standard formula to determine the value of stumpage is:
>
> Stumpage value = selling price of lumber - (cost of production + profit)
>
> The allowance for profit must be large enough to cover both a return on the capital invested and a suitable allowance for risk. [Nathan Appraisal Report, Pl. Ex. N-1, p. 31.]

Mr. Nathan's projection for the marketing of the Lake Michigan-Wisconsin River timber was 40 years. He used a lumber price of $20 per thousand board feet (Mbf) delivered to the Chicago, Milwaukee, and Mississippi River markets. His costs were $9.50 per Mbf for the Lake Michigan timber and $10 per Mbf for the timber in the Wisconsin River drainage. He arrived at these figures from the following itemized estimates:

Logging, Putting Logs into Water, Booming and Delivery to Mills	$3.10
Sawing, Scaling, and Inspection	1.60
Allowance for Shrinkage, Losses and Incidentals	.50
Total Shipping Costs to Chicago Market	3.38
Total Costs	$8.58
Add Safety Margin (10 percent)	.86
Maximum Estimated Cost	$9.44

Applying the resulting profit factor to the projected yearly production through 1883, Mr. Nathan calculated a "net cash inflow." He discounted each of the yearly income totals to an 1843 value using both

8% and 10% discount factors. The 8% discount factor produced an indicated value of $7,451,077.00 and the 10% discount factor resulted in a valuation of $4,741,338.00. Since there were 2,085,895 acres of pineland in the Lake Michigan watershed area, Mr. Nathan computed that ". . . . the stumpage value per acre of pineland would be $2.27 if an annual discount rate of 10 percent is used, and $3.57 if a discount rate of 8 percent is used." Nathan Appraisal Report, Pl. Ex. N-1, p. 43. The comparable figures for the Wisconsin River area were $2.50 and $3.50 per acre.

Mr. Nathan recognized that the pine timber in the Lake Superior drainage was less accessible to market in 1843. He considered that even when that timber was logged there would be higher transportation costs. He valued the Lake Superior pinelands at $1.00 an acre.

Mr. Nathan used some 25 "sales" of pineland in the north central states to corroborate his stumpage value per acre calculations. Those 25 "sales" occurred between 1855 and 1875 but were discounted to an 1843 value by means of the wholesale price index. They indicated a value of $2.94 per acre. Seven of the listed transactions were offers with no indication that any sales ever occurred at the advertised prices.

In valuing the remainder of Royce Area 261 for its agricultural and other uses (excluding minerals) Mr. Nathan considered the following factors.

a. There was a growing demand for agricultural land in Michigan and Wisconsin, as indicated by the population growth and the sales of land in the two states in the 1830's and 1840's. The presence of minerals would hasten settlement and development of the area inviting miners, mechanics, and farmers.

b. From 1835 to 1842, 2.4 million acres of land were sold at land offices in Michigan and Wisconsin at an average price of $1.28 per acre, and 2.2 million acres from 1843 to 1848 at an average price of $1.27 per acre.

c. The climate and soils and portions of the area were suitable for agriculture. Crops had been grown in Royce Area 261 before 1843 and early surveyors and travellers in the region had commented favorably on the prospects for agriculture.

d. A market for agricultural products would develop in the treaty area as the minerals and pinelands began to be exploited.

e. Since minerals were known to be present in the treaty area, the hardwoodswould be in demand for charcoal for smelting. Hardwoods were also used in farm implements and utensils and as structural timbers.

f. The swampland had value as an adjunct to the timber business in that it facilitated logging operations. Swampland often grew hay and had islands of valuable pine and other timber. Some of it was suitable for subsistence farming after drainage.

Combining his stumpage value computations and considering all the factors outlined above, Mr. Nathan concluded that the fair market value of the area, without any mineral enhancement, was $14,500,000.00.

26. Defendant's Expert - Richard B. Hall.

Defendant's expert Mr. Richard B. Hall, a qualified real estate appraiser valued the subject lands, without any mineral enhancement, at 25 cents an acre for a total of $2,634,500.00. Since there were no comparable sales upon which to base a valuation, Mr. Hall took into consideration the

size, physical characteristics, soils, climate, accessibility, historical developments, markets, economic uses, natural resources potential, costs of handling and prospects of resale, and competition from privately owned and state and federally owned land. He considered that the highest and best use for the tract would have been for speculation -- to be held for future resale in individual tracts. He felt that a 10-year waiting period would be required for the resales and that any prospective purchaser could not have gotten more than $1.25 an acre overall. His estimate took into consideration that public land was selling at the time for $1.25 per acre and in comparison with millions of acres of other public land, some of which may have been more desirable because of location or accessibility, a prospective purchaser would have concluded that he could not get more overall than $1.25 per acre. From this estimated resale price Mr. Hall assumed costs per acre of 50 cents for financing, costs and management; 25 cents for development and sales; and a profit of 25 cents per acre -- leaving a figure of 25 cents per acre as the resulting purchase price or value.

27. Land Value.

The Commission concludes that the March 28, 1843, fair market value of Royce Area 261, without its mineral enhancement, was:

	Acreage	Value/acre	Total
Lake Michigan pineland	2,085,895	$1.00	$2,085,895.00
Wisconsin River pineland	646,968	1.00	646,968.00
Lake Superior pineland	1,531,268	.50	765,634.00
Other timberland, agricultural land, swamp, and water	6,273,869	.60	3,764,321.00
		Total	$7,262,818.00

28. Mineral Resources.

The first discovery of iron ore in Royce Area 261 was made in September 1844. This was some 18 months after the valuation date in this case, and we find that the iron deposits in the area did not contribute to the tract's 1843 fair market value.

On the valuation date it was known that there were substantial copper deposits in Royce Area 261.

Radiocarbon datings of charcoal taken from early excavations in the Lake Superior copper region indicate that these deposits and mine pits were worked approximately 3500 years ago. The French explorer Champlain recorded that Indians trading with French at Montreal brought large chunks of copper obtained by them from an area on the south shore of Lake Superior. The records from the second voyage of Cartier in the years 1535 and 1536 referred to deposits of copper in this area, and the accounts of other and later explorers also reported on the copper deposits.

Probably the first detailed account of the copper deposits in this area is contained in the report of Father Claude Allouez, a Jesuit missionary who in 1666 wrote about extensive copper deposits on the Ontonagon River, Chequamegon Bay and the mines on Isle Royale. Subsequent annual reports of the Jesuits reflect similar information and the presence of copper in valuable amounts in this area was well known to the French authorities.

Louis Denys, Sieur de la Ronde, was the Commandant of the French post at Chequamegon, who, with the support of French officials in Canada, and with the active encouragement of the King and his Minister in Paris, agreed to build a twenty-five ton boat on Lake Superior to transport copper from the mines to Sault Ste. Marie and a boat of fifty tons to operate on Lake Erie and Lake Huron.

The commandant sent copper ingots to France and requested assistance in setting up mining operations. In 1738 two miners were sent to him to make a determination as to the feasibility of extensive mining operations but these were never implemented. Following the fall of Quebec to the British and the Treaty of Paris in 1763 the area was ceded to the British. The first reported mining venture undertaken by a European occurred in 1763 when Alexander Henry established two unsuccessful operations on Keweenaw Point.

Benjamin Franklin, who was in Paris to draw up the treaty with the British following the Revolutionary War, had access to the journals and charts of the French engineers who were familiar with this area and its

minerals. In order to make certain this area would belong to the United States, the boundary line was drawn at his instance through Lake Superior.

In 1840 the Michigan State Geologist, Dr. Douglass Houghton, commenced an investigation of the copper belt on the northern slope of the Upper Peninsula. His annual report of February 1, 1841, to the Michigan Legislature, indicated a great mineral potential in the area. Dr. Houghton defined the extent of copper deposits, the geological formations of the area, and the national benefits that could result from economic development of the region. He pointed out that the true source of the masses of virgin copper so frequently reported from the earliest times, were the trap-rocks, and the masses themselves were not necessarily indications of primary copper-bearing rocks. His report disclosed that veins were found to vary from a few inches to 15 feet in width, and surface exposures indicated continuity of the vein for one-fourth to one-third mile with some extending more than a mile. These veins occurred in a belt of trap rock that occupied Isle Royale, and extended in a width of one to six miles for 135 miles in a great arch from the tip of Keweenaw Point to the Montreal River. While Dr. Houghton reported that he was fully satisfied that the mineral district would eventually become a source of steadily increasing wealth to the people of Michigan, he did caution that it might prove the ruin of hundred of adventurers who would have expectations which could never be realized. Exploitation of the copper resources would require the most judicious and economical expenditure of capital.

29. Copper Production.

In 1840 copper production in the United States was limited to a few small mines in Connecticut, Vermont, and Maryland, with the United States importing copper products valued at 1.5 million dollars. From 1850 to 1877 Michigan copper mines produced from 75% to 80% of the nation's copper.

The first production of copper from the subject tract was in 1845. Production from Michigan copper mines was 13 tons in 1845; 29 tons in 1846; 236 tons in 1847; and 516 tons in 1848. Copper production from the Lake Superior district consistently increased in the ensuing years. The Cliff Mine, on Keweenaw Point, was the first big copper producer in the area, accounting for 732 tons of the copper production for the four years from 1845 through 1848. Another important producer in the early years was the Minnesota mine, located in Ontonagon County. It commenced operations in 1848. Copper prices were subject to wide fluctuations, with the basic price determined by the market in England. The price per pound (converted from England's price in pounds per long ton) was about 18 cents in 1780 and hit a high of 43 1/3 cents in 1807. In the 1840's the price ranged between 17 1/3 cents and 21 2/3 cents. Over the next 100 years prices ranged up to 32 cents per pound in times of inflation (war) and down to 6 cents per pound in the depression of the 1930's.

30. Plaintiffs' Mineral Appraiser - Roy P. Full.

Plaintiffs' expert mineral appraiser, Roy P. Full, valued the minerals in Royce Area 261 at $12,784,000.00. He prepared a detailed report which contained voluminous excerpts from geological surveys and government

reports pertaining to the geology of the copper and iron ranges and the earliest mines within those regions. He classified the copper and iron bearing lands and fixed the acreages for each. Relying on the information which he considered was available by March 28, 1843, or that which could have been reasonably obtained at that time, Mr. Full assigned per acre values to the acreages in each mineralized area. His valuations for the copper bearing lands were:

Area	Acreage	Value/Acre	Fair Market Value
Keweenaw Point	122,880	$50.00	$6,144,000
Portage Lake to Porcupine Mountains	101,760	25.00	2,544,000
Isle Royal	102,400	10.00	1,024,000
	327,040		$9,712,000

Mr. Full's valuation for the land containing iron ore was:

Area	Acreage	Value/Acre	Fair Market Value
Marquette District	42,240	$50.00	$2,112,000
Menominee District	32,000	20.00	640,000
Penokee-Gogebic District	16,000	20.00	320,000
	90,240		$3,072,000

31. Defendant's Mineral Appraiser - Ernest Oberbillig.

Mr. Ernest Oberbillig made an appraisal of the copper potential of the area for the defendant, basing his conclusion of its value on a calculation of the royalty on projected copper production from 1843 to 1890. He then discounted this royalty to the 1843 valuation date. He

confirmed his conclusion by what he referred to as hindsight check methods, one being a capitalized computation of one half of the dividends paid by copper mining companies and the other was a capitalized royalty on actual production of copper.

Mr. Oberbillig considered the amount of copper imported into the United States up to 1843, and from that he projected what a prospective purchaser would have considered to be the annual requirement for copper through 1890. Anticipating that production could reach 5200 tons per annum by 1850, he projected production figures to 1890 and, valuing the copper at $500.00 per ton, applied a royalty figure of 10% on each year's production. Because of the unforseeable factors and hazards involved in mining operations he discounted the annual royalties by 25% to compute the 1843 value of the yearly royalty payments at $476,000.00, as follows:

COPPER VALUE

Year	10% Value	25% Factor	"Value"
1844	$ 10,000	.80000	$ 8,000
1845	15,000	.64000	9,600
1846	20,000	.51200	10,200
1847	37,500	.40960	15,400
1848	75,000	.32768	24,500
1849	150,000	.26214	39,100
1850	250,000	.20972	52,500
1851-1860	3,750,000	.06872	258,000
1861-1870	7,500,000	.00590	44,200
1871-1880	15,000,000	.00086	13,000
1881-1890	30,000,000	.00007	2,100
		Total:	$ 476,600

Mr. Oberbillig also made an analysis of the royalty value of the actual copper production from 1845 through 1890. Using the same 10% royalty figure but discounting the yearly payments by only a 15% factor, Mr. Oberbillig arrived at an 1843 value of $587,992.74.

As another hindsight method, Mr. Oberbillig computed an 1843 value for all dividends paid by the copper mining companies from 1849 through 1890. Using a 15% discount factor he arrived at an 1843 value of $956,472.00. Considering that distributed profits would be split between owner and operator, he concluded that the 1843 value of the owner's share of profits would have been $478,236.00.

Mr. Oberbillig also considered that silver in the copper veins would have added another $50,000.00 value to the mineral value. He concluded that the value of the mineral enhancement of Royce Area 261 on March 28, 1843, was $550,000.00.

32. Computation of 1843 Value of Projected Royalty Payments.

Using Mr. Oberbillig's projected copper production, gross values, and 10% royalty figure, the Commission has recomputed the 1843 value of such royalty payments through 1890 using 15% discount factors. The resulting 1843 value for such yearly royalty payments is $1,591,382.00, as follows:

Year	10% Royalty Value	15% Discount Factor	1843 Value
1844	$ 10,000	.86957	$ 8,695
1845	15,000	.75614	11,342
1846	20,000	.65752	13,150
1847	37,500	.57175	21,440
1848	75,000	.49718	37,288
1849	150,000	.43233	64,845
1850	250,000	.37594	93,985
1851-1860	3,750,000	.18691	700,912
1861-1870	7,500,000	.04017	301,275
1871-1880	15,000,000	.01510	226,500
1881-1890	30,000,000	.00373	111,900
			$1,591,332

33. Mineral Value.

The Commission concludes that the March 28, 1843, fair market value of the mineral deposits in Royce Area 261 was $1,600,000.00.

34. Total Value.

The fair market value of Royce Area 261, as of March 28, 1843, was:

Surface value	$7,262,818.00
Minerals	1,600,000.00
Total	$8,862,818.00

35. Consideration.

In Article IV of the Treaty of October 4, 1842 (7 Stat. 591, 592), the United States agreed to make certain payments to the "Chippewa Indians of the Mississippi, and Lake Superior," as consideration for the cession of Royce Area 261. The promised payments totalled $875,000.00.

36. Conclusion.

The promised consideration of $875,000.00 for lands having a fair market value of $8,862,818.00 was so grossly inadequate as to render that consideration unconscionable within the meaning of Clause 3, Section 2 of the Indian Claims Commission Act (60 Stat. 1049, 1050).

Jerome K. Kuykendall, Chairman

John T. Vance, Commissioner

Richard W. Yarborough, Commissioner

Margaret H. Pierce, Commissioner

Brantley Blue, Commissioner