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May 7, 2010

Changes in the Meskwaki Food System:
From Extensive Hunting
to Intensive Agriculture and Wage Labor

Introduction

Between 1895 and 1898, Horace Rebok was the Indian Agent of the Meskwakies in Tama County. Indian agents represented the US government for individual tribes with their primary goal being acculturation. Nonetheless, their reports to the Commissioner of Indian Affairs provides us with a wealth of information about Indians in the period after being subordinated to the US government. Rebok noted, "Changes in their economic life have wrought some important changes in the food supply of the Meskwaki larder, and it is certain that the substitution of pork for venison, fancy patent wheat flour for primitive corn meal, and our adulturated foods for native rice, beans, and turnip has not improved the physique, health or character of the tribe. They are not



Figure 1: A 1905 photo of Push-e-to-ne-kwa, illustrating obesity (Bennet, 2004)

now an active and athletic race as their ancestors were. Many of the men and women are disproportionately fat and clumsy, while others are frail and weak and easily fall the victims of consumption.”¹ In his 1895 report to the Commissioner of Indian Affairs, he noted that “Nearly everything they eat is cooked in lard, and they are perfectly content if they have hot fried cakes, pork, and coffee.”² This description contrasts heavily with an 1827 description of the Meskwaki – “in general they are very athletic with good constitutions.”³ In 1895, most tribes were living on reservations owned by the US government which were insufficient for their subsistence and were therefore dependent on US government rations. Therefore, it would make sense that they could be forced into eating an unhealthy diet. The Meskwaki, on the other hand, were independent people living on land they themselves owned, meaning that the shift to an unhealthy diet could happen in spite of self-sufficiency and the preservation of much of ones culture. As part of the trend in recent years of restoring agency to Indians in history, this shows that Indians were capable of making bad nutritional decisions just like anyone else and were not simply passive victims. In the difficult path of trying to preserve what one can of ones culture when surrounded by a hostile or indifferent world, some mistakes can be made.

These observations that Rebok made illustrate very grave health changes. The picture he paints contrasts greatly with the diet of 100 years before which was heavy in lean meats and corn that were primarily boiled rather than fried because of the relative scarcity of fat. He describes obesity, which could have been caused by a decrease in protein and an increase in simple sugars, processed grains, and/or saturated fats as well as by a decrease in exercise.⁴ (O’Keefe and Cordain, 2004). I will examine

¹ Consumption=Tuberculosis. Horace M. Rebok, *The Last of the Mus-Qua-Kies and the Indian Congress, 1898*. (Dayton, OH.: W. R. Funk, 1993), 40.

² *Annual Report of the Commissioner of Indian Affairs to the Secretary of the Interior*. (1895), 68.

³ Thomas Forsyth, “An Account of the Manners and Customs of the Sauk Nation of Indians,” *Sac, Fox, and Iowa Indians I*. edited by David Horr (New York: Garland Publishing, 1974), 227.

⁴ James H. O’Keefe and Loren Cordain, “Cardiovascular Disease Resulting From a Diet and Lifestyle at Odds With Our Paleolithic Genome: How to Become a 21st Century Hunter-Gatherer.” *Mayo Clinic Procedures*. 79(1) (2004):101-8.

the changes in the Meskwaki diet between the 1820s and 1903 in order to determine what could have been causing these negative health impacts.

Although studies have already examined changes in American Indian diets generally (see figure 2) and changes in the diet of the Omaha tribe, the Meskwaki are a special case in that they were not controlled by the US government to the extent of other tribes. Therefore they retained many aspects of their culture for longer than other tribes. On the other hand, unlike other tribes who had relatively large reservations (although the land was of poor quality), the Meskwaki lived on a tiny area surrounded by white farmers. The fact that the Meskwaki showed signs of obesity fairly early, seems to indicate that economic pressures towards wage labor and market agricultural production and away from hunting had a larger impact on diet than cultural beliefs. Also, the wholehearted adoption of white flour and sugar

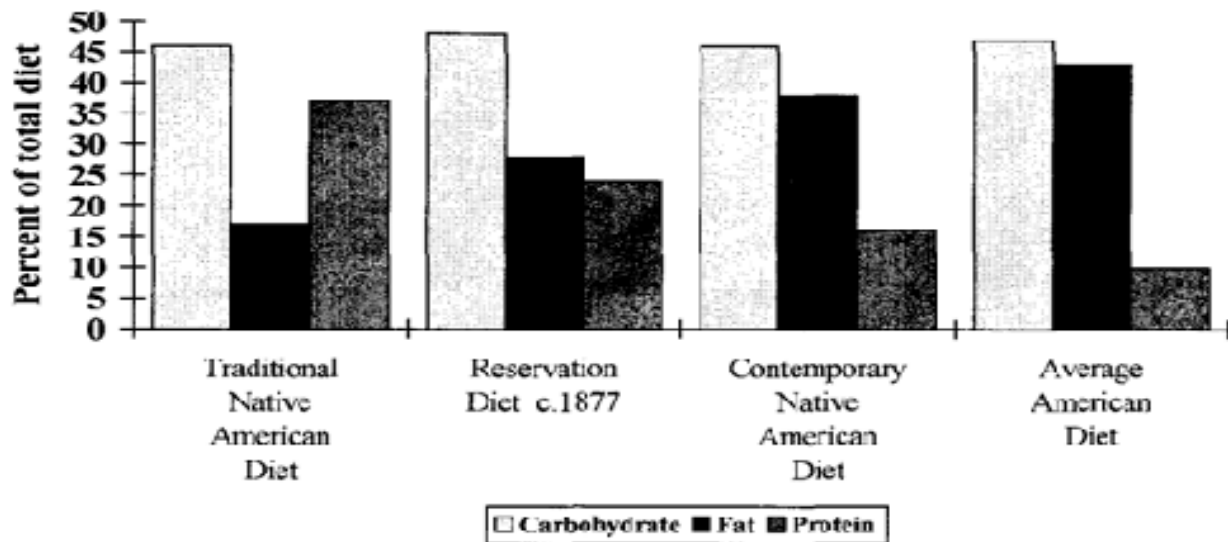


Figure 2: Generalized macronutrient composition of various diets (Miewald, 1994, 79)

shows that even when unhealthy foods were not being provided by the US government in the form of rations, Indians could be prone to purchase them of their own free will.

In this paper I will first describe the diet of the Meskwaki in the 1820s in terms of the seasonal round, consumption of various taxonomic groups, and nutritional breakdown by percentage of calories (carbohydrates, fat, including proportion saturated fat, and protein). I have chosen the 1820s since there are accurate fur trade records for that time and since the Sauk and Meskwaki at that time still had a large land base. Also, the 1820s mark the beginning of the major decline of Sauk and Meskwaki fortunes, as white farmers from the East started encroaching on Sauk and Meskwaki territory. I also estimated the calories the Meskwaki would have expended in 1820 based on studies of other groups with similar lifestyles. In the next section I will go through broad qualitative changes in Meskwaki territory, population, food sources, game populations, and economic and social patterns in different time periods between 1830 and 1903 as well as briefly mentioning the political situation of the Meskwaki. All of these changes affected Meskwaki everyday life, culture, and food, helping to illustrate how at least some Meskwaki had come to be unhealthy. I have chosen 1903 as my end point because it is the last year for which we have agricultural and cultural statistics from the Bureau of Indian Affairs. I will then compare the diet of 1903 with that of the 1820s, paying special attention to the factors which could lead to obesity: fat, sugar, and white flour. I will then examine in greater depth the literature which has been written on the topic of dietary changes and compare and contrast the situations of the tribes discussed in the literature with the Meskwaki in Iowa. Finally I will judge the nutritional and/or activity changes which could have led to increases in obesity and malnutrition among the Meskwaki.

The Meskwaki Food System in the 1820s

Starting in 1760, the Sauk (a related tribe) and Meskwaki started hunting and trapping west of

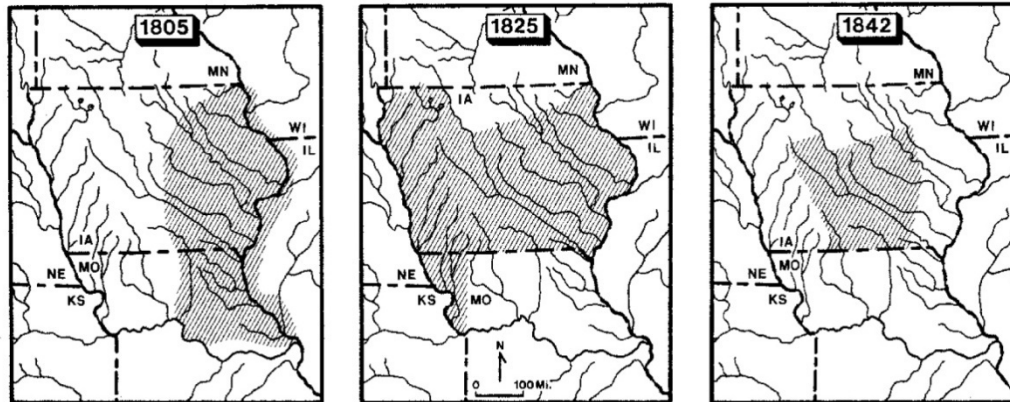


Figure 3: Changes in Sauk and Meskwaki territory (Kurtz, 1991, 59).

the Mississippi and eventually abandoned their villages on the Wisconsin River.⁵ As game became more and more scarce close to the Mississippi

due to their overhunting, Sauk and Meskwakie hunters had to hunt further and further west.⁶ These lands which the Sauk and Meskwaki were moving into had previously been occupied by the Ioway or Baxoje tribe, who shared the territory with the newcomers and shifted the focus of their hunting to the West. In the first quarter of the 19th century, the Sauk and Meskwaki sold their lands in Missouri, Illinois, and

Wisconsin to the United States and conquered new ones further West from the Ioway.⁷ One can see then, that throughout the period of intensive fur trading, the Sauk and Meskwaki had been adapting to changing situations and had moved to new places with new ecosystems. However, they had always had

	Sauk	Meskwaki	Ioway
1767	2000	1500	1000
1806	2850	1200	800

Table 1: Population snapshots of the tribes in East Central Iowa in the late 18th century (Hodge, Swanton, Tanner 66).

⁵ Zachary Gussow, "An Anthropological Report on Indian Use and Occupancy of Royce Areas 69 and 120." *Sac, Fox, and Iowa Indians I.* edited by David Horr. (New York: Garland Publishing Inc, 1974), 63-64.

U.S. Indian Claims Commission. "Commission Findings on the Sac, Fox, and Iowa Indians." *Sac, Fox, and Iowa Indians III.* edited by David Horr. (New York: Garland Publishing Inc, 1974), 53.

⁶ Gussow, "Anthropological Report," 101.

⁷ Royce Kurtz, "Timber and Treaties: The Sauk and Meskwaki Decision to Sell Iowa Territory." *Forest and Conservation History.* 35 (1991): 60.

enough land to hunt enough animals (particularly deer) to buy the goods they needed. When their land base started to shrink in the 19th century this changed drastically.

I will do an analysis of the Sauk and Meskwaki diet in the 1820s because this was the last decade when they were not in a downward spiral of increasing debt and decreasing land base. Although the Sauk and Meskwaki still controlled large areas of land in the 1820s, this was by no means an idyllic eden of noble savages. The Sauk and Meskwaki were heavily dependent on the fur trade for manufactured goods such as guns, powder, and flints.⁸ By the mid 1820s bison and elk were rare in Eastern Iowa, and deer and turkey populations in the immediate area of the Mississippi River were significantly lower than they had been 50 years earlier.⁹ Nonetheless, the Sauk and Meskwaki meat consumption and fur and hide production had stayed

stable from 1800 since they were able to hunt in areas further west and north that they had conquered from the loway.¹⁰ Deer skins provided to the American fur company fluctuated within the range of 11,000 and 18,000 for a group of

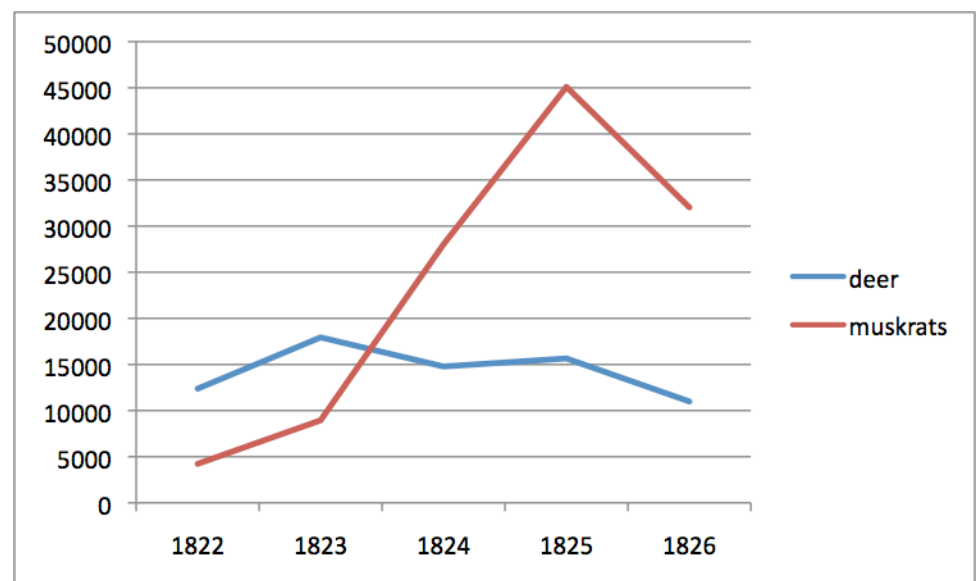


Figure 4: Deer and Muskrat skins sold to the American Fur Company

⁸ Royce Delbert Kurtz, "Economic and political history of the sauk and Meskwaki : 1780s-1845" (PhD diss., University of Iowa, 1986), 134-135, 175, 181.

⁹ Kurtz, "Timber," 61

¹⁰ Ibid.,60

Kurtz, "Economic," 134-135

3,500 people (there were 1000 other Sauk and Meskwaki who supplied a different trading post) between 1822 and 1826 but with only a modest downward trend.¹¹ Muskrat skins however experience a large jump starting in 1824 (see figure 4), reflecting a shift towards intensive muskrat hunting in the swampy upper reaches of the Des Moines River.¹² This again shows adaptation in the face of changing conditions.

Seasonal Round

I will now describe the seasonal round of the Sauk and Meskwaki in the 1820s. It is estimated that temperate hunter-gatherer societies averaged about 2,200 calories a day. But the Sauk and Meskwaki were also farmers, and farming societies range from 2,000 to 2,700 calories a day.¹³ Based on this and the fact that Iowa is somewhat colder than the average temperate region, I decided to use 2,350 calories, which happens to be the Food and Agricultural Organizations's estimate of average subsistence calorie needs. I decided to use 2,450 calories for the Fall/winter hunt because of the cold

¹¹ Ibid., 100

¹² Ibid., 66

¹³ Fekri A. Hassan, "Size, Density, and Growth Rate of Hunting-Gathering Populations," *Population, ecology, and social evolution*. Edited by Steven Polgar. (The Hague: Mouton, 1975): 36.

and extra exertion involved as well as because the numbers would not make sense other ways.

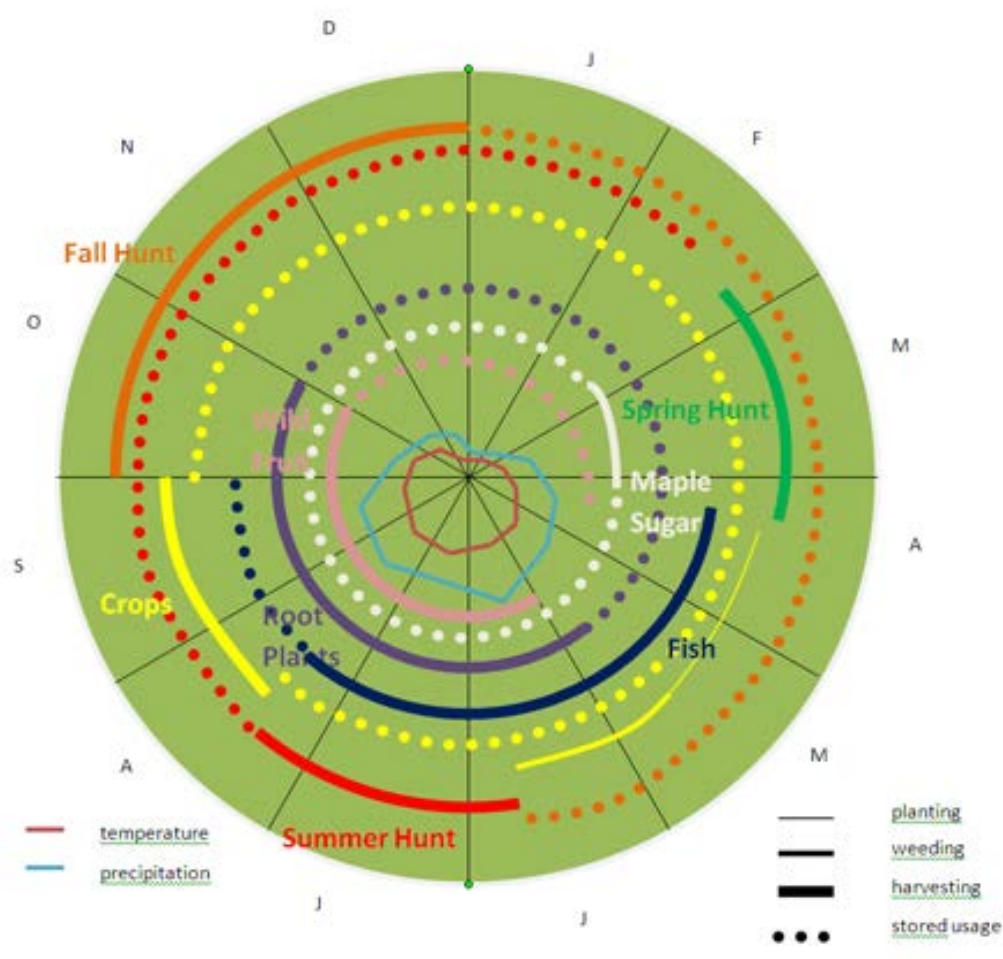


Figure 5: the seasonal round of the Sauk and Meskwaki in the 1820s, divided by month. The lines increase in importance to the diet the farther away they are from the center.

My calculations of taxonomic composition of the diet come from fur trade records, personal Sauk and Meskwaki leather needs (for moccasins and leggings), and descriptions of crop yields, and amount of crops brought on hunts. The calories not accounted for by these I attributed to wild plants, fish, and ducks. I leave out the calculations (from another unpublished paper) since they are not the focus of this paper.

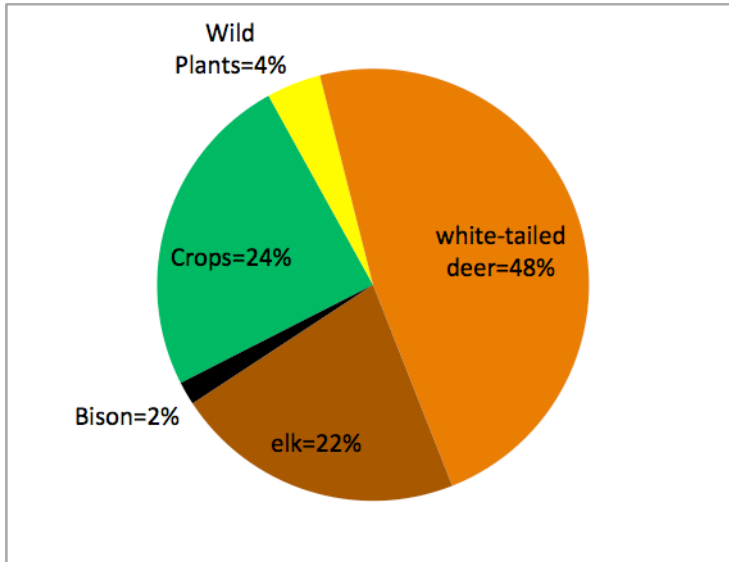


Figure 6: Caloric composition of diet during the Fall hunt and winter (2,450 calories rather than 2,350)

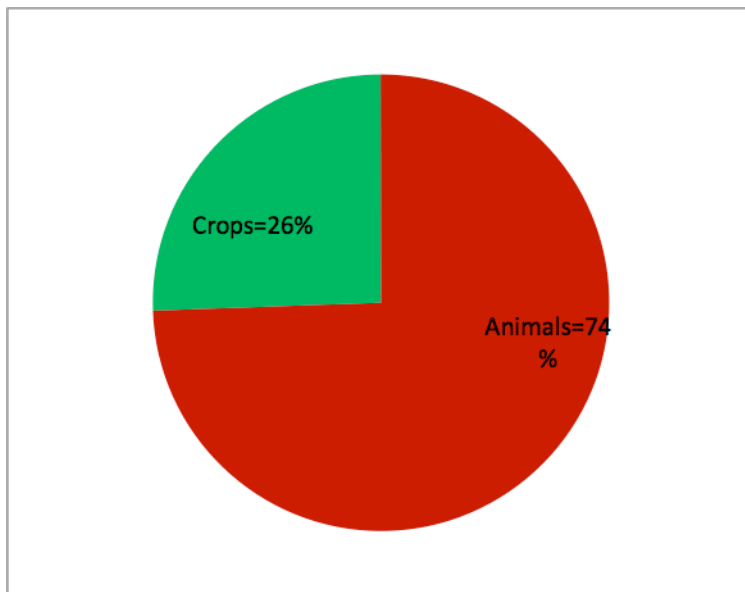


Figure 7: Caloric composition of diet during the early spring for families that went trapping and bear hunting.

Around the beginning of October, people would break down into small bands of around 400 people (100 hunters) and move several hundred miles west from their villages near the Mississippi to their fall/winter hunting grounds.¹⁴ Thomas Forsythe, a fur trader turned Indian agent described in 1827 how about five bushels of corn were brought into the interior for the fall and spring hunts (October-March).¹⁵

The rest of the left over harvest was stored in hidden pits five to six feet deep to prevent Ho-chunk (Winnebago Indians) or animals from stealing it and to prevent it from spoiling; unusually, no mention of gender roles was made for this process.¹⁶ The same areas were not hunted every year, but were cycled every two or three years, showing an attempt to let animal populations recover.¹⁷

Hunters would break into smaller groups of 3 to 30 and hunt smaller river valleys as the season

¹⁴ Kurtz, "Economic," 81-85.

¹⁵ Thomas Forsyth, "Memoirs Relating to the Sauk and Foxes." *The Indian Tribes of the Upper Mississippi Valley and the Region of the Great Lakes*. (New York: Kraus Reprint, 1969), 151.

¹⁶ John Spencer, "Reminiscences of Pioneer Life in the Mississippi Valley." *The Early Days of Rock Island and Davenport*. edited by Milo Quaife. (Chicago: Lakeside Press, 1942), 30-31.

¹⁷ Kurtz, "Economic," 85.

progressed - primarily for deer but also for furbearers.¹⁸ This hunt continued until the end of December, when the weather became too cold to hunt.¹⁹

In February or March a second hunt would begin.²⁰ The five bushels of stored agricultural commodities were used on this hunt as well.²¹ This was the best time to trap furbearers since their furs were thickest, meaning that this hunt focused on beavers,

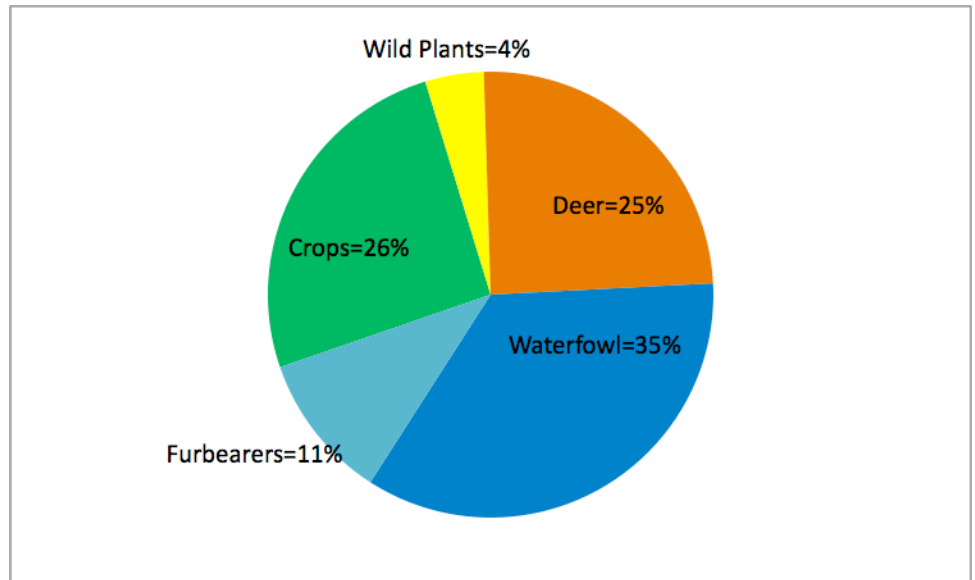


Figure 8: Caloric composition of diet during the early spring for families at the sugar maple camps. Maple sugar is included under wild plants.

raccoons, muskrats, otters, minks, and bears.²² Those who did not hunt furbearers (about half of the

population) tapped maple trees for their syrup and hunted waterfowl (primarily for meat although some feathers were sold for down).²³ Muskrat were the most important of the furbearers in terms of

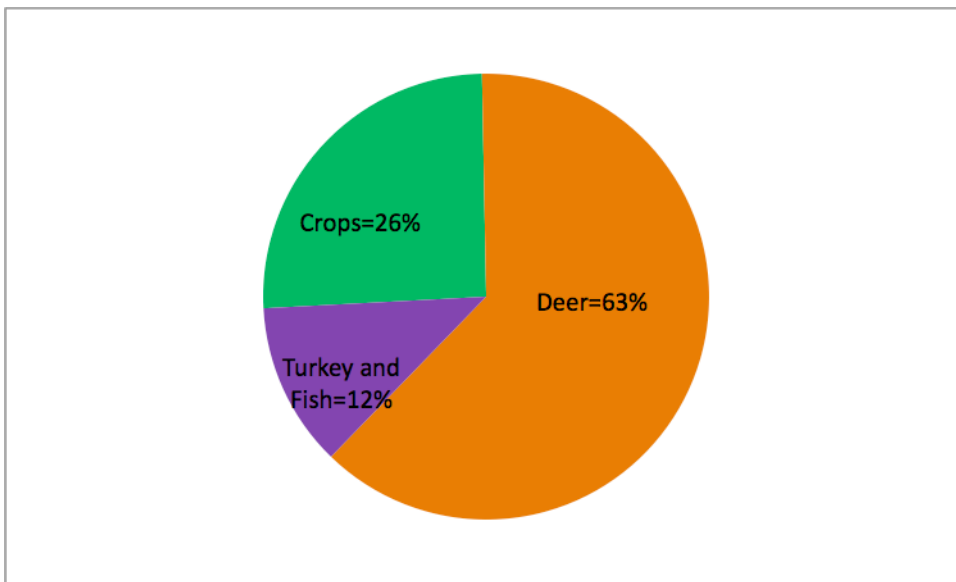


Figure 9: Caloric composition of diet during the late spring.

¹⁸ Ibid. 86,97
¹⁹ Ibid. 81.
²⁰ Ibid.
²¹ Ibid., 110.
²² Ibid., 87-88.
²³ Ibid.

numbers, but river otter and beaver pelts brought in the best prices.²⁴ There is no mention of meat from the spring hunt being dried for the late spring in Black Hawk's memoirs even though it does say that venison from the fall hunt was eaten in the late spring.²⁵

Around the middle of April, the Sauk and Meskwaki would return to their summer villages on the Mississippi.²⁶ Corn was planted from mid-April to May, depending on the weather.²⁷ Fields were rows of hills 2-4 feet apart, sometimes with corn

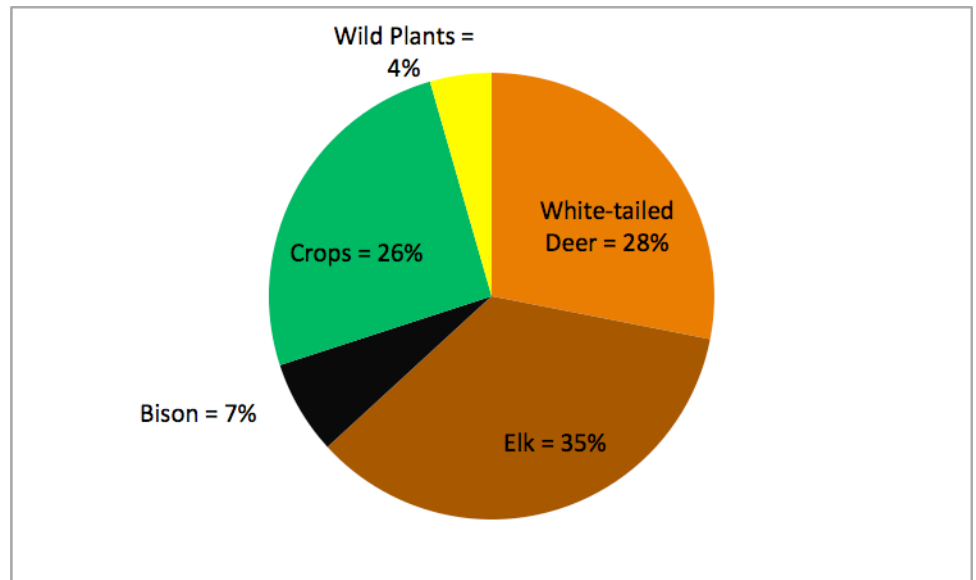


Figure 10: Caloric composition of diet during the summer hunt.

interspersed with beans or squash.²⁸ Melon fields were kept separate.²⁹ Agricultural work was mostly done by women, although some boys 12-15 and some old men also helped (Spencer 26). Adult men may have helped with the clearing of new fields, as was the case in some other Indian nations. However we have no evidence of this for the Sauk and Meskwaki. During this time people ate fish, turkey, stored crops, and dried venison. Black Hawk mentions eating fresh bear meat in the beginning of this period.³⁰

²⁴ Ibid.

²⁵ Ibid., 73

²⁶ Ibid., 89

²⁷ Ibid., 108

²⁸ Ibid., 107

²⁹ Ibid., 108

³⁰ Black Hawk. *Life of Black Hawk*. (Iowa City: State Historical Society of Iowa, 1932), 73.

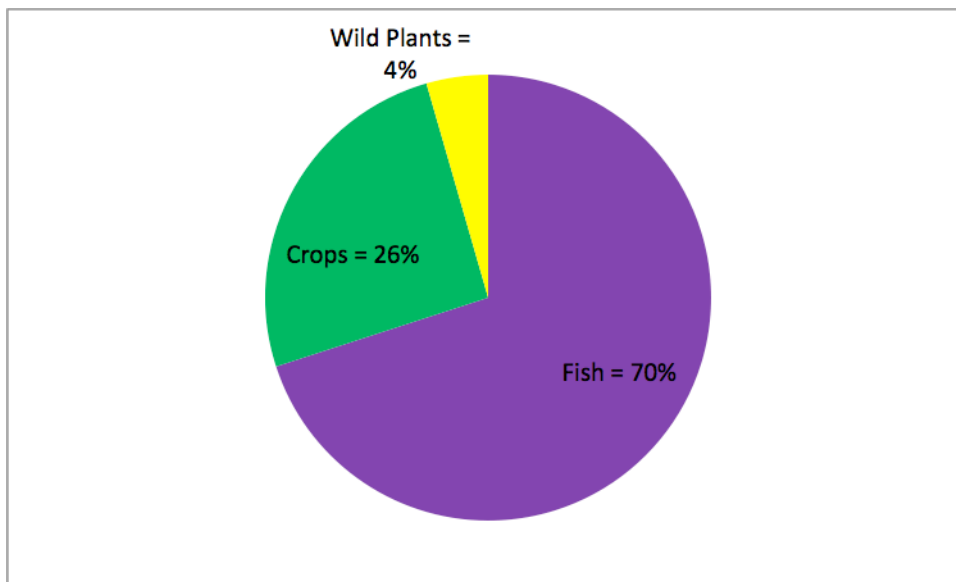


Figure 11: Caloric composition of diet of fishing families.

After two hoeings of the fields (around late June), the people left their fields to go to the prairies to hunt if they had horses, and would fish and gather materials for mats or work in the lead mines

near Prairie du Chien if they did not.³¹ Even though lead was a good source of cash, all the young men and some of their families went on the summer hunt and only a part of the old people went to the lead mines, which indicates the valuation of hunting over making cash money with wage labor – a pattern that would continue with the Meskwaki for decades. The Sauk and Meskwaki may have preferred to get their food themselves rather than buy it if they could. I will estimate people who went to hunt on the prairie to be 60% of the population, with 30% fishing, and 10% mining lead. The last of the previous year's horticultural harvest was used on these trips.³² The only village that was not totally abandoned for the summer hunt was Saukenauk, the main Sauk village; all other villages' fields were heavily predated by wild animals, again showing the importance of hunting to the Sauk and Meskwaki.³³ On the summer hunt, "deer" and buffalo were hunted.³⁴ These were probably elk as well as white tailed deer, since the hunt took place on the prairies.³⁵ The group of elderly people who mined lead probably survived mostly on fruits and stored crops but probably also the very last of any dried meat left.

³¹William Petersen, "Buffalo Hunting with Keokuk," *The Palimpsest*. 16 (1935): 34.

Kurtz, "Economic," 90.

³² *Ibid.*, 110.

³³ *Ibid.*, 108-109.

³⁴ Black Hawk, *Life*, 76.

³⁵ James Dinsmore, *A Country So Full of Game: The Story of Wildlife in Iowa*. (Iowa City: University of Iowa Press, 1994), 34-35.

In August, people would return to their villages in river valleys and harvest the green corn, green beans, and summer squashes.³⁶ Some of the squashes and green corn were dried and stored for later use.³⁷ Around a third of the corn may have been harvested at this time.³⁸ Nonetheless, most

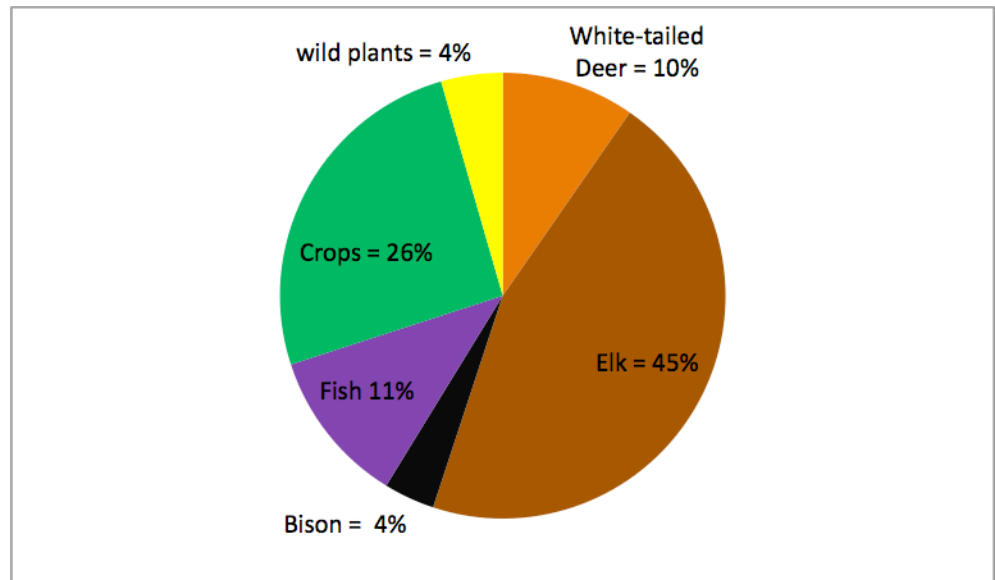


Figure 12: Caloric composition of diet during the harvest.

of the crops harvested during this early period would have been consumed at the time. The rest of the corn and beans were harvested around mid September along with pumpkins and watermelons.³⁹ Musk melons were probably harvested in both August and September.⁴⁰ Melons could not be preserved so they would have also been eaten during harvest time. After the harvest, people travelled back up river to hunt deer.

Aggregate taxonomic and nutritional analysis

	Fall hunt & Winter (4.75 months)		Spring Hunt (1.5 months)		Late Spring (2.5 months)		Summer Hunt and Fishing (1.5 months)		Harvest (1.75 months)		
	percent of calories	percent of year calories	percent of calories	percent of year calories	percent of calories	percent of year calories	percent of calories	percent of year calories	percent of calories	percent of year calories	
Mammals	72	28.5	55	6.875	63	13.125	49	6.125	59	8.604166667	63.22917
Crops	24	9.5	26	3.25	26	5.416666667	26	3.25	26	3.791666667	25.20833
Wild Plants	4	1.583333333	2	0.25		0	4	0.5	4	0.583333333	2.916667
Birds			17.5	2.1875	6	1.25		0		0	3.4375
Fish					6	1.25	21	2.625	11	1.604166667	5.479167
Total		39.58333333		12.5625		21.04166667		12.5		14.58333333	

³⁶ Kurtz, "Economic," 109.

³⁷ Ibid.

³⁸ Ibid.

³⁹ Ibid., 82.

Richard Jauron and Diane Nelson. "Planting and harvesting times for garden vegetables". (Iowa State University, University Extension: May 2007), <http://www.extension.iastate.edu/Publications/PM534.pdf>

⁴⁰ Ibid.

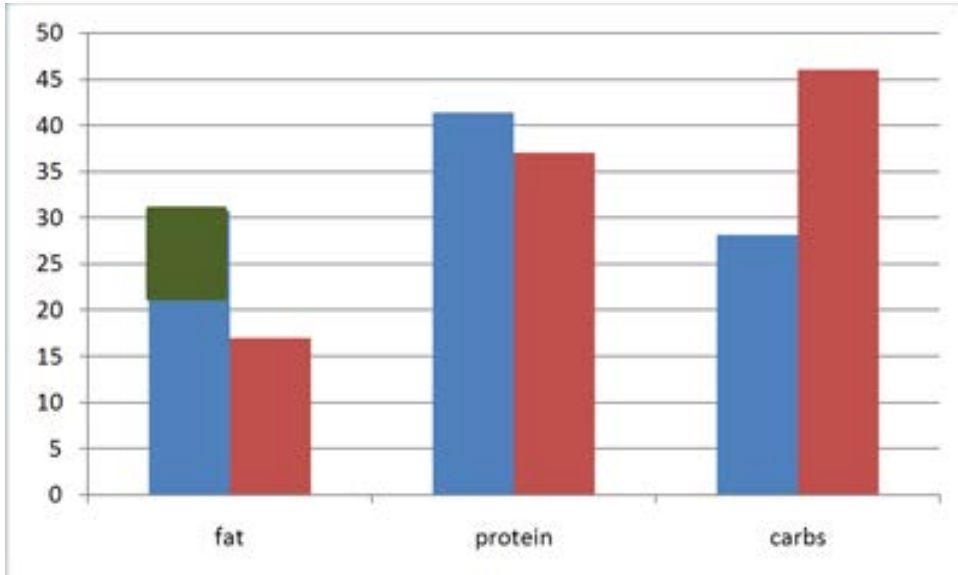


Figure 13: Differences in estimates of nutritional composition. The blue is my estimation of the Meskwaki diet and the red is Jackson's generalized diet. The green is unsaturated fat

The fat content of mammals probably averaged about 15%, corresponding with 428 calories from fat out of the 1000 calories in a pound of meat.⁴¹ $\frac{3}{4}$ or 321 of these fat calories would be from saturated fat.⁴² Out of 504 calories from a wild duck, 327 are from fat (108 from saturated fat)⁴³ A pound of

channel catfish has 431 calories, of which 115 are from fat (29 from saturated fat).⁴⁴ That means that the percentage of the diet that was fat in the 1820s was 30.8, which is substantially higher than the figure of 17% estimated by M. Yvonne Jackson in her attempted recreation of a hypothetical Native American diet which is portrayed in figure 2. Recall that one of the theories for modern American Indian obesity is increased fat consumption. However, my estimate of 1820s fat consumption among the Meskwaki is almost identical to that of the Lakota in 1877, who were living off of government rations.

My estimate also shows slightly higher protein consumption (41.4% versus 37%) and far lower Carbohydrate consumption (28.1% versus 46%). This stems from differences in Jackson's estimates on the composition of a Native American diet from my figures on the Meskwaki. She assumes a diet of 25% animal, 33% wild plants, 2% wild nuts, and 40% crops while I have calculated 72% from animals, 3% from

⁴¹ Kurtz, "Economic," 86, 99-105.

⁴² Pau Ik Fong, Stewart B. Campbell, Paul A. Baumgartner, and Robert C. Mulley. "A Manufacturer's Guide to Venison Forequarter." (Rural Industries Research & Development Corporation, 1996), 15.

⁴³ "Calories in Duck, wild, meat and skin, raw" <http://caloriecount.about.com/calories-duck-wild-meat-skin-raw-i5144>

⁴⁴ "Calories in 1 pound of Wild Channell Catfish and Nutrition Facts" <http://www.fatsecret.com/calories-nutrition/usda/wild-channel-catfish?portionid=47877&portionamount=1.000>

wild plants, and 25% from crops. Several reasons could exist for these discrepancies. First, Jackson tried to make a generalized “Native American” diet. I find this attempt inherently problematic, since Native Americans in the contiguous United States inhabited extremely varied environments from deserts to forests and had huge amounts of cultural diversity. It may well be that her estimate is appropriate for other regions where there was a greater abundance of high caloric wild plants and/or there was a greater emphasis on agriculture.

Second, the diet of the Meskwaki in the 1820s was almost certainly quite different from that of the lowly in the area 100 years before. The fur and skin trade introduced both a strong incentive to kill more furbearers and big game (trade goods) as well as the

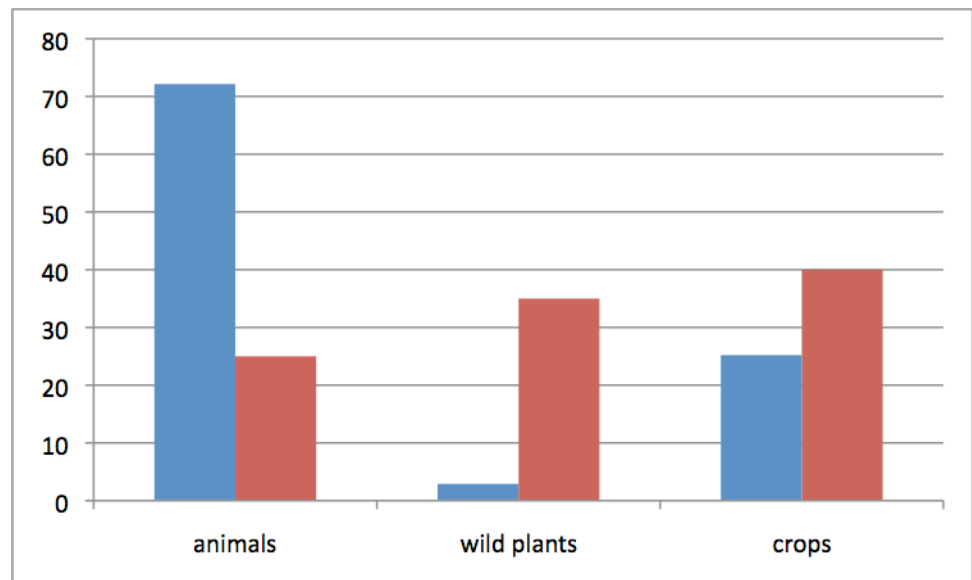


Figure 14: Differences in estimates of taxonomic composition. The blue is the Meskwaki diet and the red is Jackson's generalized diet.

means to enable it (traps and most importantly guns). 300 years ago wild plants, small game, fish, and possibly crops probably would have played a greater role in the diet. Since less large game would have been harder to kill, there would have been less surplus to dry for later seasons. This probably would have meant hunger in late spring and early summer as well as lots more fishing and hunting of turkey and rabbits. Horses also enabled a more effective summer hunt, since they provided the transportation to the interior, an improved way to hunt bison, and a way to haul the meat back to the villages along the Mississippi. Canoes could have provided transportation to the interior and a means to haul the meat back to the villages, though.



Figure 15. Sauk and Meskwaki land cessions (Bennet 2004)

Third, Jackson estimates a daily calorie intake of 3000 calories without rationale, which I think is far too high. This is more calories than those consumed by an average Greenland Inuit adult, and they live in a very cold environment which increases energy needs.⁴⁵ It

could however be that I underestimated calorie consumption which would have led to an underestimation of wild plant consumption, since I assigned wild plants to whatever calories were left over after meat and crops. However, I feel that in the 1820s, at least, wild plants were of relatively minor importance since they ate “but a few roots, as they raise an immensity of corn” according to Thomas Forsyth a fur trader turned Indian agent during this period.

1830-1845: The Last Years of Freedom

During this period, the Meskwaki started losing big chunks of their territory and not recouping them with new conquests, as seen in figures 3 and 15. This largely had to do with the disastrous Black Hawk War in 1832, which was largely a reaction to the encroachment of Whites onto Sauk and Meskwaki territory (Kurtz, 1991, 60). This was the beginning of the end of the old method of adapting to changes for the Sauk and Meskwaki, where they would simply conquer new territory to compensate for their lost territory. A smaller land base led to fewer deer killed, which led to mounting debt. This debt eventually led to the cession of the remaining land in Iowa to the US government in October 1842

⁴⁵ Kaare Rodahl, *Nutritional Requirements in Cold Climates*. Arctic Aeromedical Laboratory, Fairbanks, Alaska, and Institute of Physiology, Oslo University, Norway 1954. <http://jn.nutrition.org/cgi/reprint/53/4/575.pdf>.

with half ceded by May 1, 1843 and the other half to be evacuated for a reservation on the Missouri by 1845.⁴⁶

The Black Hawk War also led to a split among the two tribes, since the Meskwaki stayed neutral and resented that the Sauks' actions had led to such a loss of land.⁴⁷ During this time, annual payments by the US Government for ceded land started to become a significant source of income.⁴⁸ The Sauk and Meskwaki population also started to fall during this period due to war and the loss of land base, to the point that by 1842 their population had dropped to little more than half of what it was in 1825 (2,300 compared to 4,500).⁴⁹ The loss of control of the Mississippi River led to an increase in the ownership of horses and represented a major shift from the days when the Mississippi was the center of a transportation system based on canoes, showing that the Sauk and Meskwaki were still trying to adapt to new environments.⁵⁰ Also, the US government started moving tribes from the East to areas near Sauk and Meskwaki territory, which led to further hunting pressure, causing a plummet in bison populations in Sauk and Meskwaki territory by the 1830s.⁵¹ This increased hunting pressure led to the taking of more fawns rather than yearling deer out of desperation, as seen by the decline in the weights of deer skins by 10% (earlier they did not take fawns in order to have a sustainable harvest).⁵² Also, by 1840, the total number of deer skins sold by the Sauk and Meskwaki to the American Fur Company had plummeted from 10,990 in 1826 to a mere 1,611, muskrats from 32,033 to 4,190.⁵³ The decline in muskrats reflected a loss in the prime muskrat areas in the northern part of Sauk and Meskwaki territory (sold to the US government to serve as a neutral area between the Dakota and Sauk and Meskwaki), just

⁴⁶ Kurtz, "Timber," 61

William T. Hagan, *The Sac and Fox Indians*. (Norman: University of Oklahoma Press 1958).

⁴⁷ Zachary Gussow, "History of the Sauk" *Sac, Fox, and Iowa Indians I*. edited by David Horr. (New York: Garland Publishing Inc, 1974), 22.

⁴⁸ Kurtz, "Timber," 60

⁴⁹ *Ibid.*, 60-61.

⁵⁰ *Ibid.*

⁵¹ *Ibid.*

⁵² *Ibid.*, 62-63.

⁵³ Kurtz, "Economics," 100-101.

as the decline in deer reflected in addition to overhunting, a loss of prime deer areas in Eastern Iowa, which had been sold to the US government and was starting to fill with white settlers.

Along with this economic decline came changes in the the yearly cycle. The Fall hunt sometimes had to be started later because the Sauk and Meskwaki had to wait for their payments from the US government in order to get supplies, and these sometimes came late.⁵⁴ With the loss of prime wetland territory in the north in 1830, the Sauk and Meskwaki stopped having major hunts for muskrats and beavers, instead merely trapping them in the river valleys where they had been hunting deer as well as near the new maple sugar camps they established.⁵⁵ These new camps in Central Iowa were inferior to those of Eastern Iowa because there were fewer maple trees and were tapped out sooner.⁵⁶ Therefore, the Sauk and Meskwaki often returned to their summer villages in Mid February or March rather than Mid April, indicating either a curtailment or end of time spent at the sugar camps.⁵⁷ By the late 1830s, the Sauk and Meskwaki started shortening the summer hunt from 40 to 20 days and occasionally went without it all together.⁵⁸

This massive decrease in food provided by traditionally important animals might have been partially compensated by increased gathering of wild plants, higher crop production, or more fishing and small game hunting. One thing we are sure at least partially replaced it though was food purchased from traders. Before 1830, food was never more than 2% of Meskwaki expenditures and was exclusively salt and spices.⁵⁹ By 1838, food was 18% of Sauk and Meskwaki purchases with the most important food item being wheat flour, followed by pork, and sugar, accounting for more than 20% of Sauk and Meskwaki food needs.⁶⁰

⁵⁴ Ibid., 92.

⁵⁵ Ibid., 93.

⁵⁶ Ibid.

⁵⁷ Ibid.

⁵⁸ Ibid., 95

⁵⁹ Ibid., 176.

⁶⁰ Ibid.

In addition to purchases, the Sauk and Meskwaki obtained White foodstuffs through presents from the American government. The Sauk and Meskwaki had always been receiving gifts of food from Indian Agents when they came to visit. Old widows would also sometimes come request food when in great need (particularly in the summer when food could be scarce because dried crops and dried venison could have run out by then and the summer hunt could be unsuccessful because of the decrease bison and elk populations). However, starting in 1838 and especially starting in 1842 when they sold the

rest of their land in Iowa out of necessity, there was a change towards greater dependence on handouts as can be seen in figure 16.⁶¹ Overall, by the last years that they controlled land in Iowa, during which they

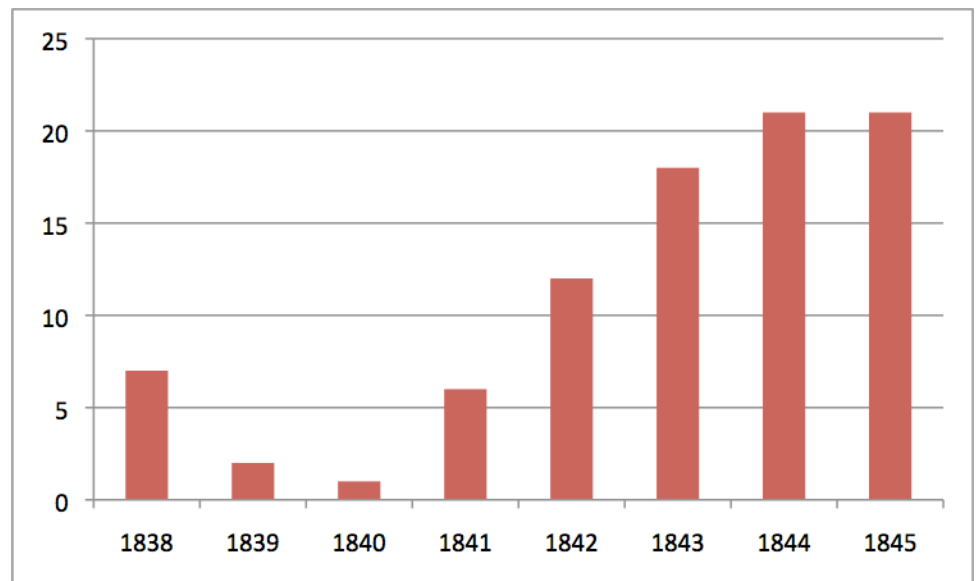


Figure 16: percentage of Sauk and Meskwaki diet provided by the US government.

were forced into the Western half of their remaining

territory, the Sauk and Meskwaki were being given 20% of their food and were purchasing more than 20% of their food. They had only ever hunted in this western territory – never lived on it. The Sauk left the Eastern half immediately, but many Meskwaki returned to old village sites from which they were promptly evicted by the American dragoons.⁶² Forests were far more sparse in this area, meaning that deer and places to farm were hard to find (they lacked the moldboard plows that enabled farming in the prairies), helping explain the heavy dependence on imported food.

1846-1856: The Reservation Years

⁶¹ Ibid., 194-195

⁶² William T. Hagan, *The Sac and Fox Indians*. (Norman: University of Oklahoma Press, 1958), 223

This was not the end of the Meskwaki in Iowa, however. Some Meskwakis stayed in Iowa and between 1845 and 1866 about 264 Meskwakis returned to the Iowa River Valley, settling in small villages in Tama, Iowa, and Johnson Counties because they resented the Sauk selling off the land in the first place.⁶³ However, most Meskwakis left for the reservation in Kansas in 1845.⁶⁴ The reservation was mostly prairie with sandy soils, which was useless for the traditional mode of agriculture.⁶⁵ The Sauk and Meskwaki mostly lived off of rations and bison hunting expeditions to the Great Plains, where they came into conflict with other tribes, against whom they were mostly militarily victorious.⁶⁶ This reflected an attempt to continue the old pattern of compensating for losing lands in the East by conquering new lands in the West. However, these expeditions were dangerous and malnourishment started stalking among the Sauk and Meskwaki, leading to epidemics sweeping through the reservation.⁶⁷ The appalling conditions plus the Meskwaki resentment of the Sauk for first starting a disastrous war and then selling the rest of the land in Iowa led 100 Meskwaki to return to Iowa and try their hand living off of trapping in the winter of 1851/52.

In 1854, 100 Meskwaki were out hunting bison when 1000 Comanches, Kiowas, Cheyennes, and Osages attacked them in their campaign to drive relocated eastern tribes off the Great Plains hunting grounds.⁶⁸ Taking shelter in a ravine, the Meskwaki decimated successive charges of the combined force, since they had rifles while the Plains Indians had only bows except for a few of the Osages.⁶⁹ By the end of the battle, the Meskwaki had lost only 6 but had killed 26.⁷⁰ Many of these men and their families snuck off to Iowa after this incident in fear that they would be punished by the US Government

⁶³ *Annual Report*, (1898): 162.

⁶⁴ *Ibid.*

⁶⁵ Hagan, *Sac and Fox*, 225

⁶⁶ *Ibid.*, 225-226.

⁶⁷ Nancy Bonvillain, *The Sac and Fox*. (New York: Chelsea House, 1995), 86.

⁶⁸ Hagan, *Sac and Fox*, 226

⁶⁹ *Ibid.*, 226-227.

⁷⁰ *Ibid.*

for starting war.⁷¹ This showed a classic pattern of the Meskwaki wreaking havoc on Indians to the West with their superior technology that they had gotten from their closer contact with Europeans, but shows a very different result than earlier. Whereas a century earlier, The Sauk and Meskwaki would have annexed the bison territory of the Plains tribes, this time they fled for fear of retribution by the US government for causing trouble. The Sauk and Meskwaki were no longer masters of their destinies – they had to work within the bounds of a system dictated by Whites.

In 1859, the Sauk and Meskwaki negotiated a new treaty with the US government, selling much of their reservation and dividing the rest into family plots in exchange for increased annual payments from the government (annuities).⁷² Annuities came from the interest earned on a principal which was invested by the US government. The source of this principle was US government payments to the tribe for land sales. These annuity payments were used at the Indian Agent's discretion: sometimes he used them for specific civilizing projects such as buying farming equipment for the Indians under his guardianship, sometimes he gave it to the tribal government to do what they wanted with it, and sometimes he gave the money out to individuals. Usually, there was some combination of these uses of annuities determined at least partially in council with the tribal government. In response to this treaty, many more Meskwakis returned to Iowa where their relatives had recently bought land.⁷³ When there was a new treaty signed in 1867 removing the Sauk and Meskwaki to Oklahoma, the remaining Meskwakis in Kansas packed up and went to Iowa rather than to Oklahoma.⁷⁴ During the 1860s there was an increasing dependence on purchased food, as the bison became depleted and as Sauk and Meskwaki numbers fell to levels where it was no longer safe to brave the prairies primarily because of disease. By the 1860s, the reservation Sauk and Meskwaki were almost totally dependant on their

⁷¹ Gussow, "History," 23.

⁷² Bonvillain, *Sac and Fox*, 88-89.

⁷³ Gussow, "History," 23.

⁷⁴ Bonvillain, *Sac and Fox*, 89.

government payments for food.⁷⁵ During this period, the last bison and elk were killed in the Sauk and Meskwaki's former home in East Central Iowa by Whites.⁷⁶

1857-1866: The Missing Years

In 1856, the State of Iowa legalized the Meskwaki staying in Iowa rather than moving to the reservation (until the early 1900s, it was a felony to be an Indian off of a reservation without special permission). The next summer the Meskwaki purchased 80 acres on which to build a village using money from selling furs, ponies, and saved annuities payments (A in figure 17).⁷⁷ From then on the

Meskwaki in Iowa have been buying up more land and navigating the complicated path of trying to preserve ones culture when surrounded by people hostile to or at least unsupportive of it.

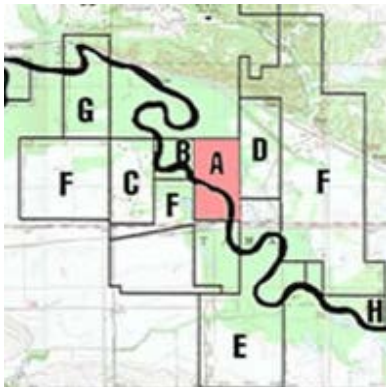


Figure 17: The beginnings of the Meskwaki settlement

For this period there was no Indian Agent explaining what the Meskwaki were doing in Iowa, since they were living there independent of federal approval. During this time, the Meskwaki survived off of hunting, farming, and proceeds from the fur trade, just as they had before they were forced from their land. They

simply hunted and trapped in areas that were either owned by the US government or by Whites. This time however, this was not enough to support them, so they supplemented their income with begging.⁷⁸ They also begged White people to let them farm small scraps of land wherever they could.⁷⁹ After they moved to Iowa they stopped receiving annuities, since the US government wanted them to stay in

⁷⁵ Hagan, *Sac and Fox*, 231.

⁷⁶ Dinsmore, *Country So Full*, 16 & 27.

⁷⁷ *Annual Report* (1871):515

⁷⁸ *Annual Report*, (1867): 347.

⁷⁹ *Ibid.*

Kansas.⁸⁰ Nonetheless, every year during this period other Meskwakis joined the settlement from Kansas.⁸¹ I imagine that during this period, food was scarce, but that the Meskwaki were largely self sufficient out of necessity, having proceeds from fur sales as their only source of cash income.

This period represented a major departure from the patterns of the past. The Meskwaki realized that the future was going to be drastically different from the past and that they were a conquered people. They gave up hopes of conquering new lands to the west and had no delusions about reconquering their lands from the Whites as Black Hawk did. Instead they started out on a unique path that they had never tried before: moving back east into the midst of their white oppressors to rebuy their land through hard work and begging if necessary. They would chart their own path but by following the White Man's rules and on the White Man's terms. It was a brave and risky decision, but when faced with extinction on a scrap of miserable prairie in Kansas or risking it in their old homes in Iowa, they chose the latter. From this point on the Meskwaki followed a new trajectory: a return to self sufficiency and saving every scrap of money to buy more land.

1867-1874: The Return of Annuities and Expansion

In 1867, the Meskwakis in Iowa were appointed their first Indian Agent (Leander Clark) and received the first annuities they had gotten in years (with the exception of a few blankets and other articles of clothing given out in 1866).⁸² I will pay particular attention to the relationship of each particular Indian Agent to the Meskwakis since that determined how the agent treated the Meskwakis and colored their observations of them. Agent Clark seemed particularly capricious and patronizing to the Meskwaki and insisted that they return to Kansas. He noted that there were 264 people, 316 ponies, about \$1,994 of furs sold, about 50 acres of corn cultivated, and 1,500 bushels of corn produced.

⁸⁰ *Annual Report*, (1898): 162.

⁸¹ Mary Bennett, *Meskwaki History*. (Iowa City, Iowa: State Historical Society of Iowa, 2004).

⁸² *Annual Report*, (1867): 347.

In the 1820s the combined Sauk and Meskwaki (4500 people) had produced \$40-\$60,000 in furs and skins.⁸³ Accounting for the far lower population, the Iowa Meskwaki were then producing 2/3 of the 1820s value of furs per capita, which is not bad considering that land was being rapidly converted to farms and that deer and beaver were incredibly rare.⁸⁴ They did not produce any vegetables as they were so desperate for enough calories that they only planted corn.⁸⁵ 1500 bushels of corn for 264 people comes out to 1400 calories per person per day. If the gains of the hunt are added to this, plus a little begging, the Meskwaki would have been receiving their usual number of calories albeit with less meat than they had eaten in the 1820s. They also might have lacked in the micronutrients provided by vegetables although they may have compensated for this by harvesting wild plants, which would have still been fairly common in this period in which white settlers had not yet tilled every scrap of land. Apparently they did alright for themselves, since in contrast to the malnourished Sauk in Kansas, the Meskwaki did not experience any major illness.⁸⁶ In January 1867 the Meskwaki purchased 40 more acres by cutting down and selling 130 trees⁸⁷ and in April they requested that agent Clark retain \$2,000 from their annuities to buy another 99 acres.

In 1868 and 1869, Agent Clark decided to withhold annuities in order to convince them to return to Kansas (the government didn't like Indians moving freely – they wanted to control them and segregate them from Whites, since they thought that converting Indians to upstanding citizens would be easier this way).⁸⁸ In 1868, the men did \$500 worth of wage labor for white farmers during the harvest period, which was the first time that men had ever done agricultural work among the Meskwaki.⁸⁹ This is incredibly significant since it represents a willingness to make a major departure from traditional

⁸³ Kurtz, "Economic," 136.

⁸⁴ Dinsmore, *Country So Full*, 35 & 86.

⁸⁵ *Annual Report*, (1867): 348.

⁸⁶ *Annual Report*, (1870): 321.

⁸⁷ Bennett, *Meskwaki History*.

⁸⁸ *Annual Report*, (1868): 306.

⁸⁹ *Ibid.*

gender norms in order to survive in this attempt at a new life. Notable however, is that the men did not help their female relatives on Meskwaki farms – that was still too much of a taboo. Agent Clark also mentions maple sugar production for the first time at 2700 pounds of sugar, which comes out to a little less than a half an ounce of sugar per person per day, or 1 tablespoon. I do not know if this is representative of earlier harvest rates, but it is certainly not an unhealthy amount. Also, in 1868 they bought another 120 acres of land.⁹⁰ With 60 acres of land under cultivation, the Meskwakis decided there was enough land to spare to plant potatoes (a new crop), beans, pumpkins, and squash.⁹¹ This reintroduction of vegetables could only have improved nutrition.

In the summer of 1869, the Meskwaki got a new agent, Frank D. Garretty, who seemed much more interested in getting to know them, going to visit with them often and paying them their annuity.⁹² He even succeeded in convincing more families to engage in wage labor, traveling 20 miles to farms that needed workers.⁹³ They also bought another 80 acres.⁹⁴ Other signs of the Meskwaki's trust in Agent Garrett is that in 1870 he convinced them to buy a wagon for hauling wood so women no longer had to carry it using tumplines slung across their foreheads (a major change in women's everyday lives undertaken over a few months). He also built them a well which brought them clean drinking water, which reduced childhood diseases, showing that he legitimately cared about their wellbeing.⁹⁵

Unfortunately, this trusting relationship was not to last, since in 1871, Agent Clark was back. Nonetheless the Meskwaki adopted white technology that suited them of their own volition. In 1871 they started raising turnips⁹⁶ and in 1872, for the first time all of the able bodied men went out for the

⁹⁰ *Annual Report*, (1868): 307.

⁹¹ *Ibid.*

⁹² *Annual Report*, (1869): 449.

⁹³ *Annual Report*, (1869): 450.

⁹⁴ *Annual Report*, (1869): 449.

⁹⁵ *Annual Report*, (1870): 321.

⁹⁶ *Annual Report*, (1871): 515.

harvest and had earned \$1,200 (around half of the value of the furs they brought in in a fraction of the time).⁹⁷

In September of 1872, AR Hombert took over from Agent Clark and seemed to be less antagonistic to the Meskwaki albeit still blind to their needs and desires. One day in late July he made a very interesting observation: that a holy man had received a vision that the men must no longer farm like women and should immediately go on a deer hunt in Northwest Iowa and Nebraska (Annual, 1873, 182-183). This seems to have been in response to some young men working on Meskwaki farms building fences, plowing, and cultivating under the direction of a White farmer as opposed to merely working as wage laborers on White farms. At any rate, most of the men left for this hunt, which was an emulation of the summer hunts of old but with the prey being white-tailed deer rather than bison and elk, since they had been extirpated from the state in 1870 and 1871 respectively.⁹⁸ This shows that although the Meskwaki were ready to make many large changes in their society in order to make this new order work, some things were still taboo. In 1874, Agent Hombert started trying to convince them to trade some of their ponies for cattle (with no success).⁹⁹ In addition to the usual corn statistics, this year included dry vegetables (the following are in bushels: corn = 2,300, potatoes = 400, turnips = 100, onions (a new crop) = 50, and beans = 100.¹⁰⁰

1875-1889: Further Expansion and Adoption of White Socioeconomic Patterns

⁹⁷ *Annual Report*, (1872): 211.

⁹⁸ Dinsmore, *Country So Full*, 16 & 27.

⁹⁹ *Annual Report*, (1874): 199.

¹⁰⁰ *Ibid.*, 113.

In 1875, the Meskwaki received a new agent, Thomas Free, who seemed to see the Meskwaki as needing protection from crimes and corruption from surrounding Whites more than they needed push for assimilation (although he of course believed in that too, as they all did). This ultimately made him a

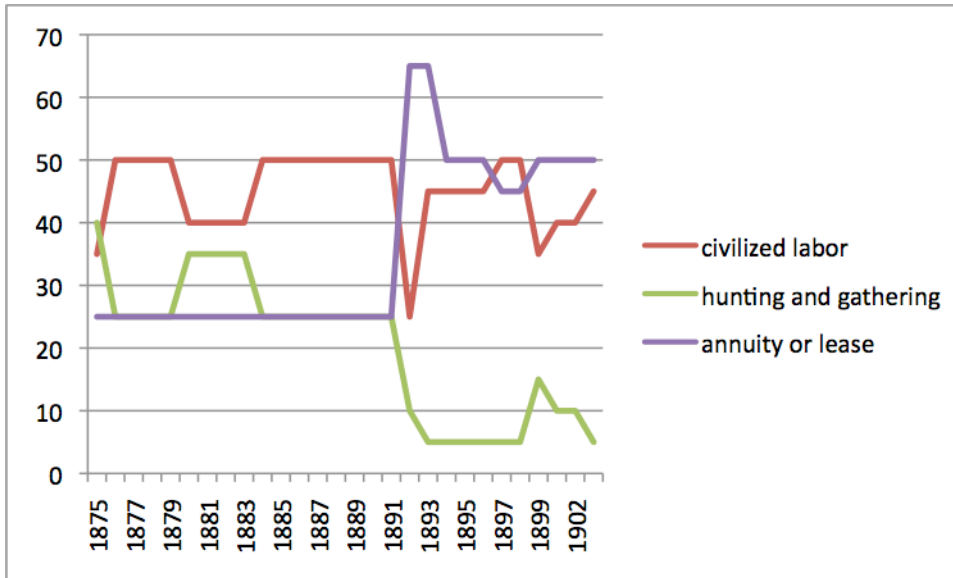


Figure 18: Changes in sources of subsistence between 1875 and 1903. A certain amount of the fluctuations in the proportions is probably due to faulty estimates rather than actual changes in subsistence patterns.

pretty good agent – not to pushy and on the side of the Meskwakis when dealing with Whites. For the first time in 1875 Free estimated percentage of subsistence from civilized pursuits – ie farming or wage labor (35%), hunting and gathering (65%), and government rations (Annual, 1875, 126). Unfortunately, this

metric left out annuities, which certainly played a role in subsistence. The figure from the following year, however, shows be 50% civilized, 25% hunting, and 25% annuities. Therefore I believe that a more accurate value for 1875 would be 35% civilized, 40% hunting, and 25% annuities. This would mean that the Meskwaki were still very self-sufficient and getting a large percentage of their food from wild animals. Civilized labor stayed relatively constant in the 30% to 50% range, with the biggest shift coming in 1892 with a large increase in dependence on annuities and a decrease in importance of hunting, which I will describe in greater detail below. In 1875, someone bought 2 hogs – the first non horse livestock owned by the Meskwaki. This investment in hogs was yet another experiment in White ways to see how well they meshed with Meskwaki society. Unlike turnips however, raising hogs did not fit for whatever reason and only gained limited acceptance during the period up till 1903.

In 1876, some individual families started buying land separate from the settlement.¹⁰¹ This seems to be a major departure from the traditional communal ownership of property but does not seem to have been seen as too much of a threat to Meskwaki society, since no negative backlash is mentioned. Perhaps the buying of land was not seen as threatening because there was still communal land which acted as an insurance policy for the poor. On the other hand, this could be the seeds of the inequality seen in 1895, where there were some obese people and some frail, malnourished people.

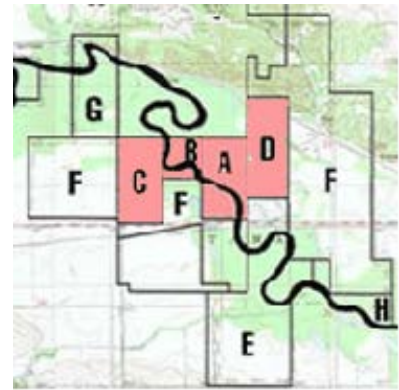


Figure 19: The Meskwaki Settlement in 1876

In some ways though, the Meskwaki still clung to their old economic systems. They rejected further calls to sell most of the ponies and most of the pasture on the settlement to cropland, because they needed the ponies to go hunting.¹⁰² There must have been a miscount on ponies in previous years, since the number suddenly went from 280 to 600 in 1876. However, since the number of ponies stays similarly high for following years, the herd size probably actually did increase, albeit over several years before 1876. It may have been that the Meskwaki were breeding higher numbers of ponies to sell as a source of income that did not offend their traditional sensibilities. The number of hogs expanded to 25 and someone bought two head of cattle.¹⁰³

In 1877, tobacco growing is mentioned for the first time, but it probably had been grown to a certain extent the whole time, since it is sacred.¹⁰⁴ Free also notes that many of the young men were starting to learn English and adopt white dress.¹⁰⁵ In 1877, the Meskwaki also bought another 273 acres after several years without new purchases and started growing and cutting timothy hay (a domestic

¹⁰¹ *Annual Report*, (1876): 59.

¹⁰² *Ibid.*, 60.

¹⁰³ *Ibid.*, 228.

¹⁰⁴ *Annual Report*, (1877): 113.

¹⁰⁵ *Ibid.*, 114.

grass) for their horses, something they had previously refused to do.¹⁰⁶ This shows yet again a willingness to experiment with European agricultural techniques and put more effort into livestock. However, they never planted any more tame grass, implying that they were not particularly impressed by its results compared to native grasses.

In 1879 there was a new agent named G. L. Davenport, who seemed to like and respect the Meskwaki and had a relatively good understanding of them (he eventually became relatively fluent in Meskwaki). He noted that they wanted Norman breeds of horses to improve their stock, further indicating their attention to the quality of their horses.¹⁰⁷ In 1882, Davenport described that by this point the Meskwaki were cultivating 175 acres, with 5,000 bushels of corn, 500 bushels each of potatoes and beans, and 50 wagonloads of other vegetables.¹⁰⁸ This is a far cry from what they were producing in their early years on the settlement. He says that a few people would have enough corn to sell and that people hunted, trapped, and bought their meat. Given such ample harvests, most of the expenditures on food would probably have been for pork since they were used to a diet high in meat. However, they were also buying white flour and sugar. He also notes that they have no desire to accumulate property like Whites do, meaning that the Meskwaki had maintained what is perhaps the biggest difference between capitalist and non-industrial societies. Nonetheless, by this time, almost all Meskwakis knew at least some English and many could write in Meskwaki and held correspondences with the Sauks in the Indian Territory.

For the 4 previous years, the Meskwaki had not received their annuities, since the new payroll forms required them to put down their names and ages, which conflicted with their religion. In 1882, they sent a delegation to the Secretary of Interior and the Commissioner of Indian Affairs to complain to which the Secretary replied that the payrolls could not be changed and they would have to expose their

¹⁰⁶ Ibid.

¹⁰⁷ *Annual Report*, (1879): 81.

¹⁰⁸ *Annual Report*, (1882): 91.

souls to danger if they wanted to get money. Therefore, the Meskwaki finally gave in. They were given \$40,000 in backpayments, which Davenport tried to convince them to spend on buying 4,000 acres of cheap wetland in Northern Iowa, which could be drained and turned into productive agricultural land, but they refused (he obviously did not understand them perfectly even though he understood them better than most Whites). The Meskwaki also pointed out that the Sauk had sold the reservation in Kansas (which partially belonged to them) and they received none of the profit from it. Agent Davenport noted that with that money they could buy 4 or 5,000 acres to add to the settlement. These incidents show that the Meskwaki were very aware of monetary issues, considered them important, and could handle them savily, but still valued some things more highly than money, such as religion and attachment to their traditional lands.

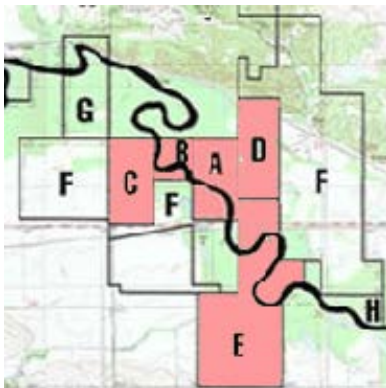


Figure 20: The Meskwaki Settlement in 1886.

By 1884, using part of the backpay annuity, the settlement had expanded to 1,340 acres with an additional 85 acres owned by individuals.¹⁰⁹ 235 acres were under cultivation with an even better harvest than in 1882, much of which was sold. It was no longer unusual to see Meskwaki men working in the fields, particularly in jobs which were new to the Meskwaki agricultural system such as plowing.¹¹⁰ This was a major departure from just 20 years before, where the sight of Meskwaki men working on a Meskwaki farm (i.e. doing women's work) caused a

conservative religious backlash.

After this report comes a chunk of missing years of reports until 1889. The swine herd increased to 40, but the cattle were jettisoned after one year for whatever reason. Also, the Meskwaki developed a decently sized flock of 400 chickens, while the population stood at 354 after increasing steadily over

¹⁰⁹ *Annual Report*, (1884): 100.

¹¹⁰ *Ibid.*, 101.

the years. Although these were years of relative prosperity for the Meskwaki, this switch from hunting to purchased food was probably the beginning of nutrition-based health problems.

1889-1898: Major Land Acquisition and The Push for Greater Assimilation

When the reports restarted in 1889, the Meskwaki had a new agent who was submitting his second report: Enos Gheen. He seems to have hated the Meskwaki and describes them with contempt: “Although haughty pride reigns supreme, it is not of a kind that aspires to emulate or excel in domestic life or the arts and sciences.”¹¹¹ Gheen considered withholding their annuity in order to force them to his will (primarily in forcing children to go to school to be acculturated) as well as suggesting deposing the conservative chief in order to give “progressive” young men control. Apparently by this point, most men were assisting their women with cultivating with the hoe, which is a major departure from the 1820s, when the crops were simply abandoned for the summer hunt. Four men had mechanized cultivators. At this time, although many people were wearing White clothing, men were “often seen nearly nude,” which presumably meant wearing only a breachcloth.¹¹²

Fortunately, Gheen’s tenure was short, since the next available report in 1892 has a new agent W. R. Lesser, who had a neutral to positive opinion of the Meskwakis and was interested in protecting them from the corrupting influences of the Whites. The biggest news in 1892 was that the Meskwaki were to receive \$30,000 from the sale of much of the Sauk Reservation in Oklahoma.¹¹³ With \$5,800 of this they were to buy 1,700 acres of land and the rest of the annuity was to be given to individuals.¹¹⁴ The young men

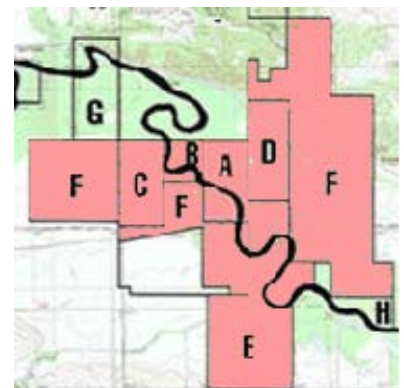


Figure 21: Meskwaki Settlement in 1893

¹¹¹ *Annual Report*, (1889): 214.

¹¹² *Ibid.*, 215.

¹¹³ *Annual Report*, (1892): 264.

wanted more of the money to be paid out to individuals but the tribal elders and Lesser both refused, believing that it was in the best interest of the tribe to buy more communal land. This huge annuity payment was a major turning point in Meskwaki history in that the large land purchase enabled the leasing of 700 acres of land to white farmers. This permanently increased the percentage of subsistence from annuities or lease money from 25% to around 50%. From this point on, farming and wage labor represented about 40% of subsistence and hunting and trapping 10%. You can see then, that the Meskwaki used their newfound money to reduce hunting effort rather than farming. Also in this year, the Meskwaki started raising oats to feed their horses. In 1894, Lesser said that some men who had never been inclined to farm were starting to show interest.¹¹⁵

1895 brought yet another new Indian agent: Horace Rebok, who we have already met. He was very aggressively in favor of the economic progress of the Meskwaki and was not afraid to use coercion to achieve it. He says that there were 12 hogs and 13 head of cattle at this point (Annual, 1895, 166). This is surprising because although the cattle had increased modestly, the number of hogs had plummeted from the previous year's 100. I have no explanation for this. Rebok says that the 12 that remained were owned by 4 families and that the elders were staunchly opposed to the Meskwaki owning any stock besides horses, saying that the only livestock for Indians was the horse.

In 1897, the Meskwaki raised wheat for the first time and sold it.¹¹⁶ This represented a major departure from previous agricultural activity in that it was undertaken solely as a cash crop. The wheat had to have been a cash crop since the Meskwaki did not have the equipment to mill wheat flour themselves. At this time corn crops were also at levels far beyond that of Meskwaki consumption at 12,500 bushels. Starting in 1897, the White farmer who trained the Meskwaki in agriculture was hired for the whole year rather than just the warm half of the year, implying a further intensification of

¹¹⁴ *Ibid.*, 267.

¹¹⁵ *Annual Report*, (1894): 147.

¹¹⁶ *Annual Report*, (1897): 147.

Meskwaki agriculture (and a victory for Rebok). Also during this time, the highway went through the Meskwaki Settlement, opening it up much more to the outside world.¹¹⁷

By 1898, the Meskwaki (primarily individuals) owned considerable farming equipment and had sold down the pony herd to 300, reflecting the decreased importance of trapping and of selling ponies in the Meskwaki economy. Farming was done by individual families rather than communally, reflecting the importance of machinery, and indicating a major social change, which is a further indicator of social stratification that could lead to some people being obese and others malnourished.¹¹⁸ In winter, Rebok told the Meskwaki that if they did not corral their horses to increase their winter survival rate he would do it himself and sell some of the horses to cover his costs.¹¹⁹ They complained that to do so was against their religion, but acquiesced in the face of monetary loss. As for food, he says, "They scarcely ever taste of beef and are very fond of pork, chicken, turkey, skunk, and dog... dogs are raised in large numbers for feasts and special occasions. They are excellent judges of good flour, and nothing but the first patent of Northern wheat satisfies them."¹²⁰ In this case, "good flour" was a subjective term, since first patent flour lacks fiber and micronutrients and is essentially empty carbohydrates.

1899-1903: Cultural Change and Disease

1899 saw a new Indian agent: G. W. Nellis, who was disgusted by the fact that the Meskwaki did not adopt everything about being White without question or resistance. He finally was able to start a boarding school for Meskwaki in Tama (something various agents had tried for years to do without success because of staunch Meskwaki resistance). He did this by forcing Meskwaki orphans to live at the boarding school and used state child protection law to back himself up.¹²¹ Nonetheless, some

¹¹⁷ *Ibid.*, 150.

¹¹⁸ *Annual Report*, (1898): 170.

¹¹⁹ *Ibid.*

¹²⁰ *Ibid.*, 171.

¹²¹ *Annual Report*, (1899): 199.

traditionalists (who opposed the acculturation of Meskwaki children) rescued them and hid them with a friendly white family 35 miles away. The conservatives were found out however, and the ringleader was put in jail. This was not the only evidence of staunch conservatism: about 125 people did not draw their annuities (perhaps because of opposition to putting their names and ages down) and were impoverished because of it.¹²² Perhaps these were the people Rebok described as malnourished.

In 1901, there was yet another agent: William G. Malin. He was like Nellis in that he was optimistic about the progress being made but was flustered by the traditionalists. Nothing of particular interest was mentioned in 1901 except that the population declined fairly seriously and that one of the chiefs endorsed the boarding school for the first time.¹²³ In spite of this and rumours of smallpox spreading from the Winnebago in Nebraska, Malin took no action until 1902.¹²⁴ He received consent to vaccinate 150, but the rest denied the presence of smallpox in their midst when it did hit out of mistrust of him. The tribe refused to let him build a hospital on their settlement for religious reasons. As the epidemic became worse, he convinced the rest of the people to get vaccinated but by then it was already too late for many and 47 died. When the epidemic was over, many houses and clothes were burned, with board houses, and white people clothes given as compensation (those who refused to live in a house were given canvas for tents).¹²⁵

The 1903 Diet

I do not know the exact quantities of what the Meskwaki were eating in 1903, because they were buying pork from nearby farmers and flour and sugar from nearby stores.¹²⁶ However, I can recreate what their diet would have been like had they simply replaced wild plants and animals with

¹²² *Ibid.*, 201.

¹²³ *Annual Report*, (1901): 241.

¹²⁴ *Annual Report*, (1903): 213.

¹²⁵ *Ibid.*, 214.

¹²⁶ Jonathan Buffalo, Personal communication. May 10, 2010.

domesticates rather than adopting flour and sugar. If this diet was nutritionally similar to that of the 1820s, then we would know that the increase in obesity had to do with the flour and sugar or a decrease in exercise. The exercise argument seems unlikely at this point, since most people were engaged in farming, which involves a similar calorie expenditure to a hunting-horticulture system, if not more.¹²⁷ I do know however, that they were still getting about 10% of their food from trapping as described above (probably muskrats).¹²⁸ A pound of raw muskrat provides 732 calories, of which 331 were from fat (none of which is saturated).¹²⁹ If 28% of the diet would be from crops, we'll say that 23% would be from corn, since the other crops provide relatively few calories in comparison. Subtracting this corn from the total corn produced and multiplying that number by the prices of corn in Iowa in 1899, 1901, and 1903,¹³⁰ we see corn income ranging from \$1,600 to \$4,100. Using the same sources for prices of wheat we find income from wheat sales between \$140 and \$670. Labor income ranged from \$1,200 to \$2,070. Income from leased land was \$1140 and average annuity payments (based on a 3.8% interest on \$360,000) were about \$14,000.¹³¹ Altogether, cash income ranged from \$18,600 to \$21,000.

The median price of a finished hog in the months of 1899-1903 was \$5.50.¹³² The slaughterweight of a hog in 1939 was 225 pounds, which was the earliest citation I could find.¹³³ Of a hog carcass, 17.6% is fat, 39.6% is lean, and 8.6% is miscellaneous cuts.¹³⁴ I treated the fat part as bacon which is 687 calories for 1 pound (478 calories from fat, 39% of which is saturated).¹³⁵ For the lean

¹²⁷ Hassan, "Size," 36.

¹²⁸ Buffalo, personal communication

¹²⁹ "Calories in Muskrat" <http://caloriecount.about.com/calories-muskrat-i17175>

¹³⁰ Iowa State Agricultural Society. Forty-Fifth Annual Report. (Des Moines: F.R. Conaway, 1898), 147.

Iowa State Agricultural Society. The Fifth Annual Iowa Year Book of Agriculture. (Des Moines: F.R. Conaway, 1904), 156.

¹³¹ *Annual Report*, (1898): 172.

¹³² Charles F. Sarle, 1925. "The Forecasting of the Price of Hogs," *The American Economic Review*, (Vol. 15, No. 3, Supplement No.2),126

¹³³ E.F. Ferrin, "A Factual Basis for Changing Swine Types" *Journal of Animal Science*. (1939), 126.

¹³⁴ S. E. Zobrisky, D. E. Brady, J. F. Lasley and L. A. Weaver. "Significant Relationships in Pork Carcass Evaluation: III. Dressing Percent as a Criterion for Live Hog Value" *Journal of Animal Science* (18, 1959),590

¹³⁵ "Calories in Pork, Cured, Bacon" <http://caloriecount.about.com/calories-pork-cured-bacon-i10124>.

pieces of hog, I used pork tenderloin as an example, of which 85 grams provides 122 calories (27 from fat).¹³⁶ The rest of the meat on the hog I used a pork chop (a moderately lean cut) as representative. 85 grams of pork chop provides 190 calories, of which 90 are from fat.¹³⁷ From these statistics I calculated that a hog has about 266,000 calories and that the Meskwaki would need to buy between 1750 and 2025 hogs a year (depending on population size) to reach the 72% of calories provided by meat that they used to eat (10% were already provided by muskrats). This would have cost between \$9600 and \$11000. Given taxes (\$300), tribal expenses, and personal expenses, this would have probably been too large an expenditure out of a \$20,000 budget, meaning that much of the purchased food would have been sugar and processed flour.

"Lard" <http://en.wikipedia.org/wiki/Lard> accessed May 21, 2010

¹³⁶ "Calories in Pork, Fresh, Loin, Tenderloin" <http://caloriecount.about.com/calories-pork-fresh-loin-tenderloin-i10061?size=2>

¹³⁷ "Calories in Pork, Fresh, Loin, Center Rib (Chops), Boneless" <http://caloriecount.about.com/calories-pork-fresh-loin-center-rib-i10202?size=1>

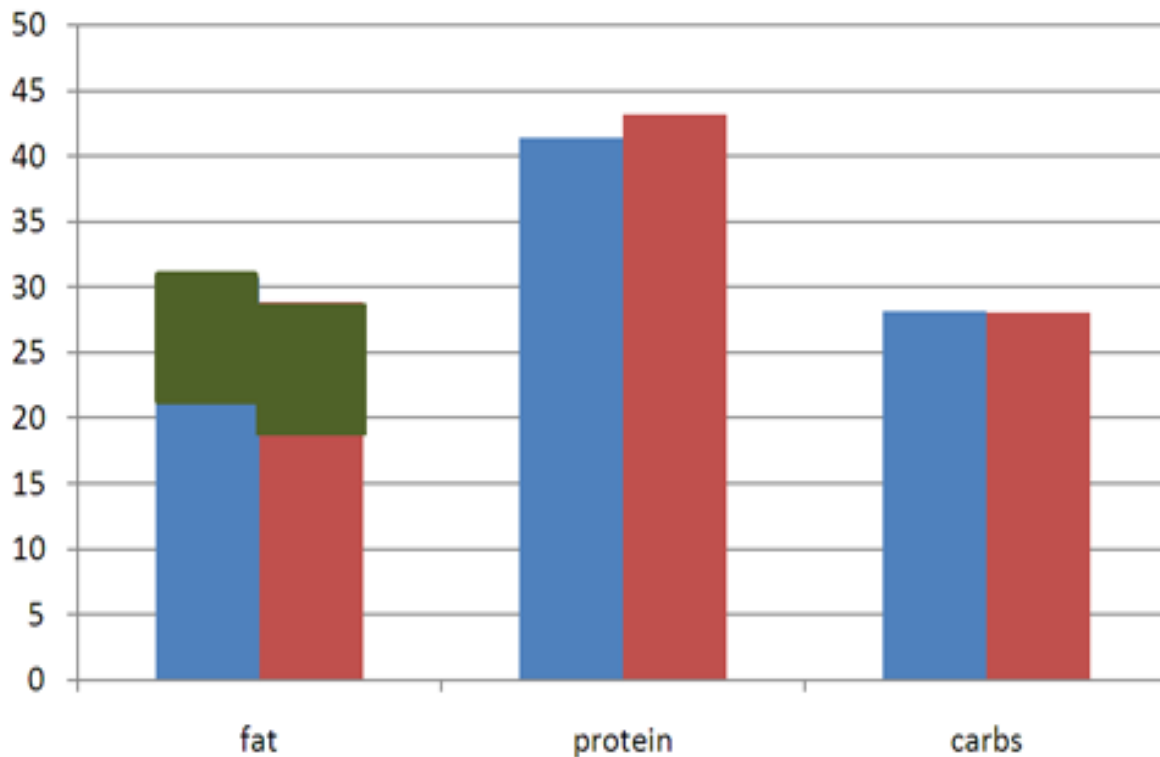


Figure 22: 1820s diet (blue) compared to hypothetical diet with pork replacing venison (red). Green is saturated fat

Figure 22 shows a diet virtually identical to that of the 1820s, assuming that I made some small errors in my calculations. A modest intake of muskrats with lots of pork and traditional carbohydrates could have been a good substitute for the traditional diet. This hypothetical diet did not actually happen; instead, they consumed mainly white flour and sugar (easily digested carbohydrates) since the Meskwaki could not afford to eat all of the pork they would have preferred. Overall then, when faced with an inability to eat the quantities of meat to which they were accustomed, the Meskwaki compensated with tasty new foodstuffs, whose dangers they did not understand. I do not know whether increasing the percentage of the diet provided by whole wheat carbohydrates would have also led to obesity or whether it was only the consumption of simple carbohydrates which was dangerous. Perhaps had the Meskwaki eaten whole wheat fry bread instead of white flour fry bread and had eaten no more than the traditional 1 tablespoon of sugar a day, there would not have been the prevalence of

obesity that there was. Therefore, Rebok may have been right that the replacement of corn meal with white flour was unhealthy, although wrong that the replacement of venison with pork was unhealthy. Frying bread may have been a new technique, but the consumption of large amounts of fat and saturated fat was not. White tail deer have thick layers of tallow on them in the Fall and Winter and this was always a relished source of nutrients.

How then does this diet compare to the diets of Indians who were being provided rations by the US government? The nutritional composition of the diet of the Lakota at the Standing Rock Reservation in 1877 was 24% protein, 28% fat, and 48% carbohydrates. The significant difference between this diet and the diet of the the Meskwakis in the 1820s is not a higher level of fat consumption (there wasn't one) but the increase in carbohydrates and decrease in protein. As I mentioned above, I do not know whether an increase of carbohydrates is inherently bad for populations traditionally heavily dependent on meat or whether the problem is that the rations included large amounts of white flour and sugar. One thing is certain though: simple carbohydrates cannot be good for Native American populations. In fact they aren't good for anybody, but they are especially detrimental to Native Americans who have no evolutionary experience with them.

Implications for Native American Health Today

These findings could have huge implications for Native American health campaigns. Christiana Miewald in her study of the Omaha diet recommends that the Omaha decrease fat, white flour, and sugar consumption.¹³⁸ Her analysis showed that the Omaha received 35% of their calories from fat. If we assume that the modern Omaha diet is fairly similar to that of the modern Meskwaki, this is slightly more fat than the Meskwaki traditionally ate (about 30%), but is not a huge difference. Again, the biggest difference between the modern Native American diet and that of the Meskwakis in 1820 is

¹³⁸ Christiana Miewald, "The Nutritional Impacts of European Contact on the Omaha: A Continuing Legacy," *Great Plains Research: A Journal of Natural and Social Sciences*. 5, 1 (1995): 101.

lower levels of protein and higher levels of carbohydrates (particularly processed carbohydrates). Since it is prohibitively expensive to get 70% of calories from meat, and since I do not even know if eating large amounts of whole grains has a negative impact on Native American health, I would recommend that rather than trying to replace flour and sugar with meat, that Native American communities try to replace them with whole grains. This could at first be attempted by a certain number of families to see if health actually improved before being tried by everyone. Eating whole grain frybread and abstaining from pop and candy would indeed be a major change in eating habits, but it is cheaper to implement than the reintroduction of large amounts of traditional meats into diets.

Overall, health campaigns should direct their resources away from campaigns discouraging the consumption of high-fat domesticated meats and should instead address the prevalence of simple carbohydrates. Although the domesticated animals are inferior to deer for spiritual and environmental reasons, nutritionally any kind of animal is better than white flour. Since people cannot afford to buy lots of venison and the settlement is not big enough for everyone to hunt enough venison, people must get their meat from other sources. The old ways are gone forever and the Meskwaki need to adapt to the new order in a way that is best for their health and spiritual wellbeing. This is what the Meskwaki have been doing for the past 300 years with great success. The adoption of simple carbohydrates was simply a hiccup in this process and they were adopted because their negative health effects were unknown.

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