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February 1995

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THE NUTRITIONAL IMPACTS OF EUROPEAN CONTACT ON THE OMAHA: A CONTINUING LEGACY

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Abstract. *For the majority of Native American tribes on the Great Plains, contact with Euro-Americans resulted in a number of changes in their lifeways. For the Omaha tribe, the introduction of both the horse and fire-arms meant a diversification in nutritional strategies and a florescence in their culture. After being confined to their reservation in 1855, the Omaha continued to remain largely self-sufficient in food production. During the early years of the reservation until the turn of the century, the Omaha were highly successful farmers, producing surpluses of cash and garden variety crops. In this paper I argue that today the situation is quite different. Few Omaha are able to produce their own food as most of their land has either been sold or leased. The tribe's dependency on processed, store-bought foods and government commodities has increased dramatically in the last fifty years. From an analysis of changing foodways over the past 200 years I conclude that, associated with this dependency, is a marked increase in chronic dietary diseases such as diabetes and obesity.*

The road our fathers walked in is gone, the game is gone, the white people are all about us. There is no use in any Indian thinking of the old ways; he must now go to work as the white man does. *Du'bamo"thi"* (Fletcher and La Flesche 1911:636)

The Omaha people are not designed to eat European food. The Europeans brought the food over. Their design was to plow the land and they planted their food by plowing and turning the soil over and raising their own domesticated animals such as beef, pork and others. That was their design and they got along with it simply because it was their design. That lifestyle is opposed to Indian living all from the land, living all from the wild animal. So, there are two cultures, two foods, and they clashed. (Omaha Tribal Member 1994)

The process of colonization of the Americas is linked to disease states among the native populations. Until recently the emphasis has been on infectious disease and its recorded effects on Native American populations. This focus on introduced pathogens has tended to ignore the health impacts of political and economic controls placed on native systems. The deliberate destruction of native subsistence patterns through reduction of land base, elimination of bison, and ecological changes brought on by intensive means of production also had an important impact on the dietary adequacy and health of Native Americans.

One of the first impacts of a reduced resource base was to exacerbate the devastation brought on by "virgin soil" epidemics. The relationship between infectious disease states and lifeway patterns has been noted previously by Barsh (1990:222) who points out that "depriving a people of land and resources and forcing them to live in conditions of crowding and malnourishment is likely to increase the risk of infectious disease considerably." Ironically, it was a commonly held notion that before the introduction of Euro-American foods, housing, and health standards, Native Americans lived a life that was, to quote Hobbes (1947), "nasty, brutish and short." The policies developed to administer native populations seldom acknowledged the nutritional qualities of native foods believing that Euro-American cultigens and intensive land use were superior to the "low impact" use of land practiced by Native Americans.

In addition to historical episodes of infectious disease, current chronic disease states among Native Americans have also been found to be associated with the oppressive political and economic conditions which have existed since the formation of reservations. Joe (1991), among others, cites the federal government's control of economic and political resources on Indian reservations as helping to perpetuate the persistent poor health of Native Americans through inadequate nutrition and exposure to other health hazards. The nutritional impacts of this relationship were manifested in starvation and malnutrition in the past and still evident today in the form of certain chronic diseases such as obesity, cancer, diabetes, nutritional deficiencies, and poor dental health (Joe 1991).

A Model of Dietary Change Among Native Americans

Even though each tribal population is distinct in terms of culture and history, almost all have experienced similar patterns of health-related problems since contact with Euro-Americans. The process of assimilation

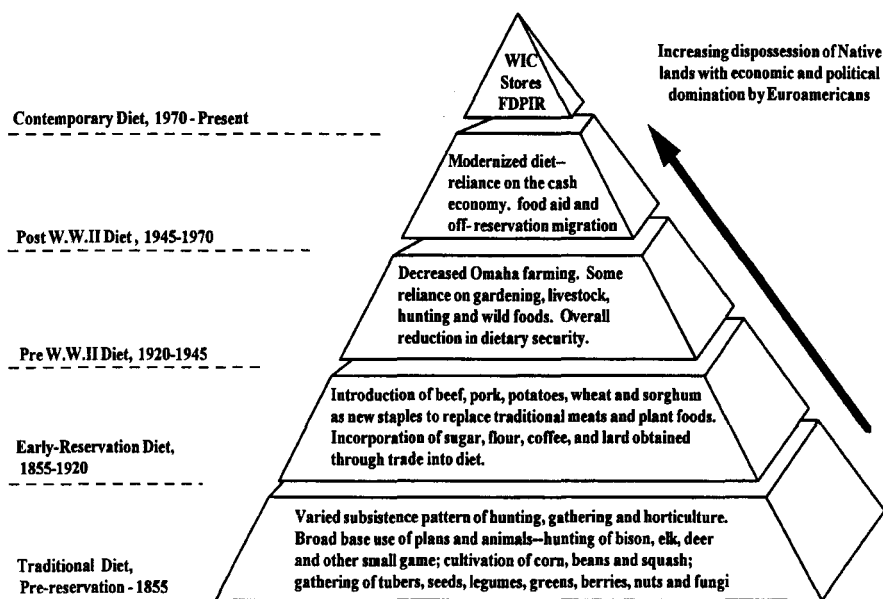


Figure 1. Model of Omaha dietary change, pre-reservation to present.

rested on the Eurocentric assumptions that western foods, medicines and knowledge systems were superior to those of Native Americans. That the policies enacted by colonizing forces on native peoples are rarely beneficial to local communities has been addressed by Hitchcock (1987:220) who states, “the quality of life for most indigenous peoples . . . has declined as a result of interaction with more complex systems, not only because of exploitation, but also because of environmental destruction and dispossession.” The relationship between assimilative pressures, dietary change, and disease, through time, can be displayed graphically (Fig. 1). In this model the dietary pattern of aboriginal populations represents a wide range of foods, which are eliminated or altered through the introduction of new patterns of land use, consumption, and dependence on outside or non-local sources of food through colonization.

The subsistence changes that resulted from incorporation into the dominant world system for Native American people has had dramatic effects on nutritional adequacy and health. As Doughty (1979:275) has pointed out,

“every stage of man’s agricultural and economic development has resulted in some decrease in the kinds of food used.” As the model shows, the diversity and security of Native American diet has been constrained by increased land loss and political and economic domination. This progressive limitation of choice brings dangers, not only through the possible loss of nutritive value, but also through the declining knowledge of indigenous plants, their uses, and as sources of genetic materials. Reduction in available land, prohibitions against hunting, involvement in the cash economy, and dependence on welfare have impacted the ability of Native Americans to remain self-sufficient. Furthermore, the dietary effect of involvement in a cash economy, through wage labor or cash cropping, is an overall decrease in food diversity.

While subsistence diets are typically based on ecologically and nutritionally sound principles, market production is embedded in the world economy which has little relationship to local needs. In cash cropping, not only are fewer species planted but wild foods are often ignored or destroyed as “weeds” (Dewey 1979). The total reliance upon cash crops makes local economies increasingly unstable and subject to periodic failures. It is during times of crop failure or cash shortages, that government or international relief agencies must often intervene to provide needed nutrition inputs, further replacing traditional foods. The use of such foods increases the risk of dietary disease and places traditional populations in a position of nutritional dependency.

The end result of this process is a diet largely dictated by a global or national rather than a local economy. Food diversity is often reduced, and the foods which are available are typically high in calories. Refined foods, processed and shipped from central locations, contain fewer nutrients and fiber yet provide increased amounts of energy. While it is typically only the affluent who can afford these items on a regular basis, as the poorer segments of the population are also incorporated into a cash economy, they too fall victim to a diet which is high in calories, fat and sugar.

The early Euro-Americans considered starvation and malnutrition to be the natural state of the Native American. Dependence on unreliable game, gathered plants and paltry horticultural production was viewed as innately inferior to that of intensive agriculture and animal husbandry. To both colonizer and Indian administrator, the arrival of the European on Native American soil was a nutritional salvation (White 1983). Yet given the starvation, malnutrition and nutritional disease which tread on the heels of contact, Euro-American influence in the Americas is now viewed as a “nutritional disaster” (Kopp 1986:1) for Native peoples.

In recent decades the supply of food available to Native Americans has increased, largely through food aid programs. However, other constraints remain against adequate nutrition. Chronic hunger, especially among children, continues to plague some reservations. Campbell (1989) cites examples of Native American children suffering from marasmus, kwashiorkor, and anemia. More common today are micronutrient deficiencies which appear in all stages of life including childhood and pregnancy (Calloway and Gibbs 1976; Wolfe and Sanjur 1988). Perhaps even more pressing are those health problems associated with overnutrition. During the past fifty years, food supply for Native Americans has become more consistently available and energy dense, but not necessarily providing better nutrition.

Dietary problems recorded among many different tribes across the United States and Canada suggests that a similar process is responsible for directing these dietary shifts. This factor of change may be broadly grouped under the heading of "acculturation", although it is expressed in a number of forms, both subtle and overt. In order to illustrate this process, a model of dietary change was created in which food choice is increasingly constrained by outside forces.

This process is best illustrated in both historical and cross-tribal comparisons of techno-economic development and diabetes rates (e.g., Justice 1989; Wiedman 1989). For the Hopi, declining land base is associated with decreasing self-sufficiency and increasing use of federal food aid (Kuhnlein and Calloway 1977). James Justice (1989) illustrated the modernization of diet and increase in chronic dietary disease associated with subsistence patterns from 1855 until 1986. Wiedman (1987) charted this trend for the Oklahoma Cherokee as their resource base changed from subsistence farming to bootlegging to off-reservation employment. Calloway et al. (1974) state that "the change in food habits had been almost exclusively under government control," through the implementation of the reservations system, allotment of land, removal of trust status, relocation programs and in the most drastic examples, termination of tribal status.

While this paper is intended to address the needs of the Omaha, they are not alone in their health problems. The process of forced change is one which every tribe is undergoing, resulting in many similar health problems. One Omaha described reservations as (Indian) islands that are connected through shared problems and positions within the non-Indian society. Therefore it is necessary to look beyond the Omaha tribe and examine the role that change—directed from the outside—has had upon the current health conditions of other Native Americans. However, it is important to understand that tribes

differed in their response to these transitions and that current nutritional behaviors must be ultimately examined at the individual tribal level.

The Omaha Tribe Today

In 1992 the Omaha tribe of Nebraska reported 4,028 enrolled members, over 2,000 of whom were residing permanently within the reservation borders (Omaha Tribe 1992). The Omaha reservation was established by treaty in 1854, which gave the Omaha 300,000 acres or 6% of their aboriginal territory. Today, the reservation covers approximately 130,000 acres within the counties of Thurston, Burt and Cumings in Northeastern Nebraska. Only 28,000 acres remain in Indian trust land; 10,502 acres are owned by the tribe and 17,195 by individuals. Most of the individual and tribal lands are leased to non-Indian farmers who use it for crops or cattle (Omaha Tribal Real Estate Office 1992) (Fig. 2).

Within the borders of their reservation, the Omaha are a minority, making up only 35% of the population (U.S Bureau of Census 1990). The reservation is divided along ethnic lines, with the majority of Omahas residing in the eastern portion and non-Indians further to the west. There are four towns within the reservation, two of which, Rosalie and Pender, do not have a significant Omaha population. Macy is the tribal headquarters containing the Omaha tribal building, public school, post office, social hall, powwow grounds, swimming pool, community college, Carl T. Curtis Health Center, senior citizen housing, several churches, and three small convenience-type stores. The majority of housing is comprised of Housing and Urban Development (HUD) units, arranged in suburban style neighborhoods known by such names as "Skunk Hollow" and "Sunrise Village."

The current economic situation on the reservation is depressed and jobs are scarce. According to the tribal business office, unemployment was at 64% from 1992 to 1993. Both unemployment and underemployment have greatly limited household income. The majority of employment on the reservation is derived from tribal operations such as the tribal farm and other tribal government programs. There are some federal positions within the Bureau of Indian Affairs (BIA) or Indian Health Service (IHS). Only 7% of the reservation dwellers were employed off the reservation, primarily in the food processing industries near Sioux City, Iowa (Omaha Tribe 1990a). The United States census (1990) estimated the yearly average per capita income at \$3,400.00 and that 63% of the Native American population fell below the poverty line. These conditions have made the need for financial assistance

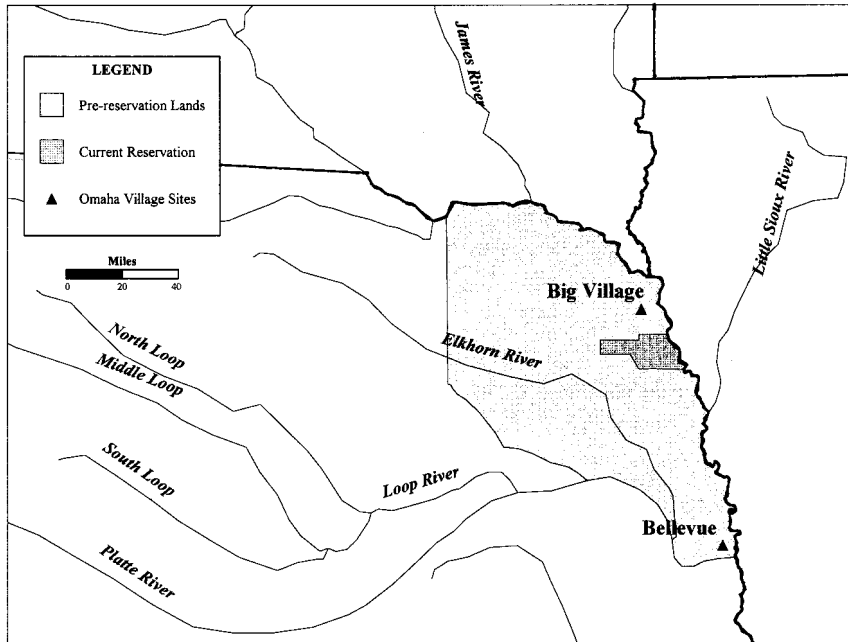


Figure 2. Omaha lands in Nebraska before and after the 1854 treaty. Adapted from Fletcher and La Flesche 1911: Plate 21.

on the reservation high. Welfare, Aid For Dependent Children (AFDC), social security and other forms of public assistance are now the primary avenue to income. There is hope, however. The tribe recently opened Casino Omaha which promises increased prosperity, revenues, and much needed jobs (Omaha Tribe 1992).

Many of the health problems plaguing the Omaha are related to their economic situation. Alcoholism, poor dietary habits, malnutrition and lack of medical attention have contributed to the growing medical crisis. Infant mortality from 1986 to 1987 was nearly thirty-one deaths out of every 1,000 live births, making it one of the highest infant mortality rates in the country.

Life expectancy for tribal members is also low, dropping from 58 years in 1984 to 48 years in 1987, compared with 74 years for the average in the state of Nebraska (Omaha Tribe 1990b).

Contributing to the decline in Omaha health status is an epidemic prevalence of Non-Insulin Dependent Diabetes Mellitus (NIDDM) which affects approximately 35% of the adult population. While NIDDM is influenced by genetic predisposition, there is a strong indication that Native American diabetes is related to a radical change in diet that occurred via the process of acculturation. This premise will be explored in the following section which outlines Omaha dietary change over time. It argues that a significant increase in the use of non-local foods is associated with the onset of the diabetes epidemic.

While NIDDM is extremely prevalent among Native Americans today, there is ample evidence to suggest that it is a relatively new disease to this population, not occurring in any substantial numbers until the late 1940s. Early ethnographic and health reports make no mention of diabetes or obesity among native peoples. The first comprehensive surveys of Native American health in the *Annual Report of the Commissioner of Indian Affairs* (ARCIA) describe only two cases of diabetes in 1884 (ARCIA 1884), four cases in 1886 (ARCIA 1886), and one case in 1890 (ARCIA 1890) from a total population of approximately 70,000 Native American patients from all tribes and Indian schools. By the 1920s, when health care was more standardized, Native Americans were reported as having fewer cases of diabetes than was found among non-Indians (ARCIA 1925). That Native Americans define diabetes as a new disease and they have few medicinal herbs with which to treat it further suggests that it was not a health concern in the past (Kindscher 1992; Lang 1989). Within the last fifty years, the prevalence of diabetes in Native American communities has become significantly greater than among non-Indians, with some tribes reporting diabetes rates of over 50%.

Native American diets that mimic that of the general United States population are often found in conjunction with elevated rates of NIDDM. Increased energy intake primarily from sucrose and fat, decreasing amounts of protein and micronutrient deficits have all been associated with a modernized diet. When compared to the typical American diet, Native American intake of fat, carbohydrate and protein is often identical that of the average U.S. diet. The traditional diet of Native American populations, however, is often substantially different from that consumed today. In order to quantify these differences, Jackson (1994) constructed a generalized "traditional

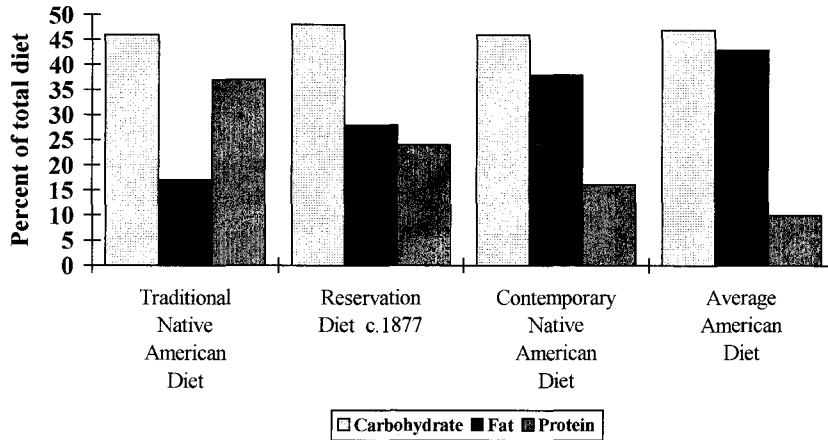


Figure 3. Generalized macronutrient composition of traditional, reservation, and contemporary Native American diets compared to that of the general U.S. population. Adapted from Jackson 1994.

diet” comprised of wild game (buffalo, moose, rabbit etc.), wild plants (tubers, greens and berries), wild nuts and native crops (corn, beans and squash). This generalized diet is fairly high in carbohydrate and protein but low in fat (Fig. 3). The “reservation diet,” based on a nutritional analysis of typical ration and/or store bought foods, reveals that for those tribes confined to reservations and dependent on outside food sources, the late 1800s brought a decrease in protein and an increase in fat. Furthermore, the fibrous tubers and cultigens were being replaced as sources of carbohydrate with sugar and flour. Finally, the contemporary diets of Native Americans, while not significantly different from the average U.S. diet (for example, see Bass and Wakefield 1974; Bennett et al. 1976; Mayberry and Lindeman 1963; and Wolfe and Sanjur 1988), is higher in fat and lower in protein than traditional patterns. While the relative amount of carbohydrate has remained the same throughout all three periods, there has likely been an increase in amount carbohydrate from derived from processed foods. Although no causal relationship has been established between this dietary change among Native

Americans and NIDDM, what is clear is that there have been notable dietary changes that greatly increase the risk for the development of this disease.

In order to depict the relationship between federal Indian policy, land tenure, and nutrition, this study will focus on Omaha dietary history from the establishment of their reservation until today. I will argue that the general pattern of Native American dietary change can be observed among the Omaha. These changes are related to the political and economic position of the tribe vis a vis the dominant U.S. society. Details on land use, economic and nutritional status were derived from a wide range of sources including historical and government documents, interviews with tribal members concerning past diets and participant observation of modern foodways. Documentation in the form of earlier ethnographies, reports of Indian agents, and other government documentation allowed for a quantitative analysis of changing Omaha land tenure. Interviews and personal histories provided for a greater detailing of changes in Omaha economies and diet during the past 70 years. Finally, by participating in social activities and observing modern eating habits, modern foodways were delineated.

For the purpose of identifying the major shifts in Omaha dietary patterns since the creation of their reservation, it was first necessary to define an aboriginal or "traditional" diet for the tribe. This definition was obtained through descriptions of Indian traders, missionaries, and other Euro-American chroniclers in conjunction with Omaha oral history concerning foodways. To map subsequent changes in diet as interaction with Euro-American society intensified, data from the archaeological record, ethnographic studies, nutritional studies on Native American foods, and extrapolation to past patterns based on study of present dietary habits were combined. From these sources are derived general patterns of food consumption which tell a story of changing dietary patterns in response to social, economic, and environmental variations.

Land Tenure, Dietary Changes, and the Traditional Omaha Diet

The change in Omaha diet exemplifies the cultural impacts and adaptations made to new ecological and economic conditions. It also indicates technological and organizational changes brought on by attempts to incorporate the tribe into a Euro-American system. Like many tribal populations, the Omaha began to abandon many of their traditional foodways after moving to the reservation in the 1850s and replaced these with foods of a lower nutritional value. As emphasis on agricultural production increased and returns from hunting declined, natural conditions such as droughts and

insects, contributed to increased dependence on external food sources. Later in the 20th century, intensive forms of agriculture, cattle raising, and increasing development of land along the Missouri River by non-Indians would result in further ecological changes, including the reduction of undisturbed natural resource areas.

The Omaha (*Umo^{ho}* or "Upstream People") are a member of the *Dhegiha* Siouan language family, along with the Ponca, Kansa/Kaw, Quapaw, and Osage. While the precise region of their homelands is unknown, both archaeologists and tribal historians describe the pre-contact residence of this linguistic group within the Ohio River Valley in the modern states of Indiana and Kentucky. This group may have migrated from east of the Appalachian mountains, perhaps as far as the Atlantic Ocean (Fletcher and La Flesche 1911; O'Shea and Ludwickson 1992). Between A.D 1400 and 1700 the Omaha moved out of their eastern homelands, traveling northwestward along the Mississippi and Missouri rivers and arrived in the general vicinity of their present reservation sometime shortly before 1700. While the motivation behind this migration is not fully understood, contributing factors may have been environmental changes, increasing warfare and disease from Euro-American contact, the introduction of new trade relationships, and the growing economic importance of the bison (Meyers 1992; G. Smith 1973).

The identification of a "traditional Omaha diet" is replete with contradictions. Both Omaha history and archeology point to a variety of "traditions" that were adapted to fit changing circumstances. However, the idea of traditional foods remains an important social construction for the Omaha, although some are not sure about which foods they used to consume. In order to reconstruct a traditional Omaha diet for this study, the focus was placed upon foods eaten since their arrival on the western side of the Missouri. The criteria for this approach are:

1. The western settlements coincide with the florescence of Omaha culture and therefore is a period which is held in deep regard.
2. Omaha still reside in the area and many of the plants and animals used in the past are still available.
3. Many foods used during this earlier time were recorded by later ethnographers (Dorsey, Fletcher and La Flesche, and Gilmore) providing a fairly accurate record of past food use.

Current research by Reinhard et al. (1993, 1994) provides evidence for the overall composition of the Omaha diet nearly one century prior to the reservation experience. Their research pertains to stable carbon and nitrogen

isotope analysis of Omaha skeletal remains dating from 1780 and 1810. The analysis provides direct evidence of the basic diet of the Omaha from this period. Spacing values between carbon isotopes in bone collagen and apatite indicates that meat was the dietary mainstay while comparison of nitrogen and carbon signals between Omaha bone collagen and the collagen of animal bone from Nebraska show that bison was the main source of meat. According to bone chemistry analysis, Omaha plant foods were predominantly a mix of wild plants, which have a C3 metabolic pathway, and cultivated maize with a C4 pathway. That the Omaha tend to have a more negative carbon values and more positive nitrogen values than earlier (pre-equestrian) populations, indicates that they had a diet predominantly comprised of meat and wild plants, perhaps encouraged by the introduction of horses and firearms (Reinhard et al. 1994).

Meat, obtained from bison, deer, and elk was one of the most important dietary resources to the Omaha. *Tanuka* (fresh meat) and *ta* (dried slices of meat) were prepared in a variety of ways including roasting or in combination with other foods to make stew. Secondary sources of meat included rabbit, raccoon and squirrel and fowl such as wild turkey or goose. Fish, including catfish, sturgeon, and buffalo fish were either speared or caught with traps (Dorsey 1884).

Melvin Gilmore (1977), in his study of Omaha ethnobotany, identified approximately 40 species of wild and cultivated plants which were used by the Omaha for food or beverage (see Appendix A). Omaha agriculture is typified by a diversity of corn, beans, and squash varieties which were adapted to the variable nature of Great Plains weather. Five different varieties of corn were grown including flint, flour, dent, sweet and popcorn (Gilmore 1977), of which there were white, yellow, blue, spotted and red variations (Dorsey 1884; Will and Hyde 1917). While most varieties of corn did not mature until August, *Wajut'an-kuthe* (Indian or Squaw Corn) ripened in July (Dorsey 1884). The Omaha also planted approximately fifteen varieties of garden bean, which ranged in size and colors including dark red, black, dark blue, white, and mixtures of these colors (Dorsey 1884). While Gilmore (1977) claims that the Omaha grew eight types of squash, Dorsey (1884) identifies only five—three native and two introduced. Watermelon was also claimed by the Omaha to have been grown before contact with Euro-Americans but may have been introduced very early on by traders (Dorsey 1884).

Wild tubers, fruits, berries, nuts, and fungi were used extensively. While these plants probably did not equal the food-energy received from

game and cultigens, they played an important role in the native diet by providing other nutrients. Among the more important root-producing plants were the prairie turnip, groundnut, hog peanut, yellow lotus, Jerusalem artichoke, wild onion, and arrowhead (Gilmore 1913a; 1977). The overall dietary importance of these wild roots has been debated, yet it is clear they played a substantial role in Omaha dietary adaptation. The prairie turnip, or wild turnip, for example, was a significant source of carbohydrate and vitamin C for non-agricultural tribes (Kaye and Moodie 1978; Kuhnlein and Turner 1991). For the Omaha, the prairie turnip served as an important resource during the annual summer hunt and was stored for winter use. The tuber was pounded, dried, and mixed with bone grease (Dorsey 1884). The hog peanut, which grew along broken stream banks and timber margins were harvested by women in the summer (Gilmore 1913b). Usually the bean was gathered from the stores of the field mouse. Groundnuts, which were found in wooded areas along streams, were gathered by women in the winter for use during the winter bison hunt and early spring (Gilmore 1913a; Kindscher 1987). According to Fletcher and La Flesche (1911:341), the Jerusalem artichoke was described as “the food of homeless boys,” perhaps signifying that the root was only used in times of hardship or emergency.

Greens collected by the Omaha included stems, leaves, shoots and buds of green plants. Milkweed was gathered in three stages of maturity, as young shoots, immature buds, and young fruits. Lamb’s quarter was also gathered when young, and cooked as pottage (Gilmore 1977). Most, such as milkweed and goosefoot, are only palatable in their young stages. Their availability during the early spring may have made them important resources during the planting season and before the summer bison hunt, when food stores would have been low.

Wild berries and fleshy fruits were either eaten raw in the summer or dried for future use. Gooseberry, black raspberry, wild strawberry, buffalo berry, wild grape and red mulberry were eaten fresh in season and dried for use in the winter months. Berries might also be added to stews or cooked meat (Dorsey 1884). Both chokecherry and wild plum were gathered extensively and used year-round in Omaha cooking. Chokecherries were pounded and dried into cakes while wild plums were pitted and dried. The fruit of the red haw was eaten primarily by children but also served as a famine food, as did the wild rose (Gilmore 1977; 1913a).

Grains and nuts made up an important part of the diet, contributing protein, fat and carbohydrates. Both the seeds of yellow lotus and wild rice were economically important to the Omaha, providing large quantities of

low fat carbohydrates. Both of these plants could be found in oxbow lakes along the Missouri river (Kindscher 1989). Hazelnut and black walnuts were gathered and reportedly prepared with honey. (That honey was probably not available in useful quantities prior to the introduction of Euro-American apiary bees reinforces the problem of identifying what is a "traditional" food as presented by Dorsey and Gilmore). Dorsey (1884) also describes the use of acorns from the red oak by the Omaha. The nuts were reportedly boiled with ashes three times to remove the tannic acids, and then mixed with honey.

Other foods incorporated into the diet were fungi such as morels and corn smut, which were boiled or roasted; sweeteners made from the sap of the soft maple and boxelder tree; beverages from the leaves of New Jersey tea, wild mint, wild raspberry, wild verbena and red haw (Gilmore 1913). Salt was obtained from Salt Creek, near present-day Lincoln, Nebraska. The Omaha place name for the creek, *Niçki'the* (salt), was later expanded to include Lincoln (Fletcher and La Flesche 1911). Slippery elm bark was used for flavoring and meat preservation (Gilmore 1913a, 1977; Fletcher and La Flesche 1911). Finally, many food plants such as wild onion, wild plum, raspberry, and wild rose hips were used to treat illnesses such as stomach ailments, abrasions, and eye inflammation (Kindscher 1992).

The use of many foods were closely associated with the annual bison hunt. Numerous plants could be found only by traveling over a wide region. It is recorded by Fletcher and La Flesche (1911) that the location of prairie turnips often directed the route taken during their search for bison. Such wild plants provided food supplies during the hunt, and often a surplus could be gathered and stored for use throughout the year. According to Denig (1961:11), the flour made from the prairie turnip could "support life for several months without the assistance of animal food." During famine or crop failure, these tubers were used to stave off starvation and famine (Wishart 1995; Wedel 1978) since the deeply rooted forb resisted short term drought (Reid 1977).

Acculturation and Dietary Change: The Pre-Reservation Period, 1830-1854

Omaha dietary patterns changed as contact with Euro-Americans increased. This process is illustrated in the pyramid model which divides various sections of this dietary history into stages, each of which represents an increasingly narrow range of foods options available to the tribe. The base

of the pyramid contains the "traditional" diet as it was typical of that consumed from approximately 1720 to 1830. Incorporation of new foods and the loss of aboriginal ones may be seen as directly related to the new economic systems put in place through early trade relationships, the establishment of the reservation, involvement in the cash economy and finally dependency on government supplied food aid in the modern era (see Fig. 1).

The aboriginal territory of the Omaha stretched over an estimated five million acres, extending both west and east of their permanent villages along the Middle Missouri. The first reduction in Omaha lands came in 1830, when the tribe, along with the Yankton and Santee Sioux, Iowa, Oto-Missouri, and Sauk and Fox, ceded over two million acres of land in western Iowa for which they received \$25,000.00 paid over ten years (Fletcher and La Flesche 1911; Royce 1900). Shortly after their first land cession, the Omaha were forced out of their northeastern Nebraska residence at *To"wo"to"gatho"* (Big Village) by the Sioux who were numerically stronger and better armed (Fletcher and La Flesche 1911). They spent some years attempting to hunt from a village on the banks of the Elkhorn before signing a second treaty ceding the tribe's claims to land in the western part of Missouri in 1836. At that time they agreed to relocate their village near the eastern Nebraska town of Bellevue (see Fig. 2).

Prior to their removal from Big Village the Omaha had been a prosperous nation, trading pelts with the French, English and Americans for guns, metal implements, silver jewelry, paints, cloth, and alcohol (Fletcher and La Flesche 1911). After 1836 the tribe was cut off from their homeland hunting grounds by the Sioux, resulting in economically and nutritionally precarious times. While in Bellevue the tribe subsisted primarily on the cultivation of corn, beans, and pumpkin in conjunction with food purchased through annuities (cash or in-kind goods) received from previous land sales (O'Shea and Ludwickson 1992). They were never able to regain the level of subsistence provided by the trade in bison pelts. The Omahas were slowly forced to turned to land sales and cultivation as their primary economic strategies.

After 1839 the Omaha made various attempts to return to Big Village, but continual Sioux raids forced them back to the Bellevue area where they could find both protection and food. With their annuities from the 1836 sale of land expired and most of the productive hunting ranges cut off by the Sioux, the Omaha became economically dependent on Euro-American annuities and markets. By the winter of 1843-44, the Omaha were without supplies and impoverished. They survived on foraged wild plants and food supplied to them by the nearby Pottawatomis (O'Shea and Ludwickson 1992).

The use of traditional foods was neither encouraged socially nor made economically feasible by the colonizing structures placed on Native American people. Bison, which was once the mainstay of the Omaha diet, had become scarce on the Western Plains of Nebraska by the mid 1800s and other game became increasingly difficult to find. Furthermore, missionaries, Indian agents, and educators depicted traditional foods as "unclean," lacking in nutrition, or unpalatable. Euro-American foods were given a higher prestige by agents and educators as these items reflected, in their eyes, the move from savagery to civilization (for example, see Nurge 1970). The elimination of Omaha traditional foodways, however, was often resisted and contested by the Omaha themselves. They viewed traditional subsistence as both more rewarding (culturally) and nutritionally sound.

Early Reservation Period, 1854-1920

In 1854 the Omaha were pressured to give up three million acres of their territory in eastern Nebraska in exchange for a 300,000 acre reservation bordering the Missouri River. The retained lands were adjacent to the Big Village site. Payments for the land included an annual annuity extending forty years as well as the provisioning of grist and saw mills (Fletcher and La Flesche 1911). This treaty agreement also allowed for the discretionary use of Omaha annuities by the federal government for the funding of the "civilization" effort as well as eventual allotment of Omaha lands (Kappler 1904). The Omaha were assigned an Indian agent to manage the tribe's finances, to oversee their education, and help them become "yeoman farmers."

Early in the reservation period, the Omaha produced primarily for their own sustenance and for trade to neighboring tribes, especially the kindred Ponca. Over all, the early years on the reservation favored Omaha agricultural pursuits. In 1862, for example, the tribe produced 20,000 bushels of corn, 1,450 gallons of sorghum syrup, and 2,000 bushels of both wheat and potatoes (ARCIA 1862). Additional federal pressure for the Omaha to become self-sufficient through agriculture meant the introduction of a variety of new marketable cash-crops. While some traditional foods such as corn, beans, and pumpkin remained, introduced foods such as domesticated potatoes and turnips gradually found their way into the Omaha diet. In 1861 sorghum was introduced in hopes of saving Omahas from having to purchase sugar and molasses (ARCIA 1861).

The formation of the reservation meant that the Omaha were largely cut off from traditional hunting and gathering grounds in western Nebraska. Continued threats from the Sioux and pressure from their agent occasionally deterred the Omaha from continuing their seasonal round. Instead, consecutive Indian agents, most never lasting past two or three years, maneuvered the Omaha toward full-time farming and away from a traditional subsistence economy. Such strategies were often met with apathy or resistance by Omaha who wished to continue bison hunting. In 1860 the Omaha reportedly produced “all the corn needed for their support the coming winter, besides potatoes, beans, pumpkins, and turnips” (ARCIA 1860:91). Despite their bountiful harvests and the advice of their agent, the Omaha engaged in seasonal hunting, leaving their fields for the summer to hunt with the Ponca or Pawnee (ARCIA 1863). They continued their pre-reservation strategy of trapping in the winter, planting crops in the spring, going on extended hunting trips in the summer, and harvesting in the fall. The agent reported this strategy resulted in adequate food supplies and good health (ARCIA 1863).

The resistance that some Omaha felt toward full-time agriculture was also evident in the organization of the reservation villages. The one closest to the agency was that of Joseph La Flesche, located to the south of the Presbyterian Mission. “The Village of the ‘Make-Believe’ White Men” as it was derisively called by some traditionalists (Fletcher and La Flesche 1911:633), was modeled largely after surrounding non-Indian towns, complete with frame houses. Farming was the main activity of the La Flesche settlement, which produced surplus crops of corn, wheat, and sorghum early on. The other two settlements were subjected to varying amounts of Euro-American influences. Inhabitants of the village of *To'wo'gaxe* (Village Maker), located near Decatur, were referred to as “wood eaters” because of their involvement with the local timber market. Members of the village of *Ish'kadabe* were labelled “those who dwell in earth lodges.” Located south of the Agency near Blackbird Creek, they continued to live a more traditional lifestyle, initially rejecting many of the Euro-American practices (La Flesche 1963).

Despite the benefits perceived by the agents, the Omaha saw little reason to produce beyond their own needs. In the early 1860s, the Omaha agent complained that while the tribe was, “willing to cultivate the ground, to raise sufficient amounts for their own food,” they had little desire to produce for the market (ARCIA 1861). To their agent’s dismay, much of the

surplus from the 20,000 bushels of corn harvested was given to their relatives, the Ponca. The persistent charity of the Omaha toward their less fortunate friends and neighbors was an irritant to successive agents. In 1865, the Omaha agent complained that due to their gifts of food to other tribes, the Omaha exhausted their winter stores before spring (ARCIA 1865).

Because of their initial success at agriculture, the Omaha were provided with little in the way of food rations (government hand outs similar to other Great Plains tribes), largely producing enough through farming and hunting. The preferential use of meat was viewed by agents as not only uncivilized, but also as resulting in poor nutrition. According to one agent, "While on the hunt they subsist entirely upon meat. When they return, their corn is just in good roasting ear, and they subsist entirely upon it. This cannot but produce sickness and many deaths" (ARCIA 1864:350). The failed attempts by their agents to eliminate the practice of bison hunting clearly shows that the Omaha did not willingly give up this important food source. But as their territory decreased and the game diminished, attention to agricultural production became a necessity.

The ability of the tribe to produce agricultural surpluses for sale, together with the occasional cash annuities they received, meant outside foods could be purchased. The earliest Euro-American foods were probably brought in by early French and Spanish traders. Among the initial introductions were sugar and coffee, two easily storable and transportable commodities. These foods quickly became important components of Omaha diet. By the 1820s wheat flour was available to the Omaha (Fletcher and La Flesche 1911) and by the 1880s flour, sugar, coffee, tea, bacon, and other kinds of provisions were incorporated into the diet (Dorsey 1884). Despite the accessibility of such Euro-American selections, the bulk of Omaha grain consumption was derived from corn (Dorsey 1884). Given the data on Omaha agricultural production and the depth on information of wild foods, it may be safe to assume that while the Omaha did purchase food from outside sources, it contributed only a modest portion to the total diet in the 1880s.

Regardless of the ability of the Omaha to supply themselves with adequate food through traditional means, Indian agents continually pressured each Omaha family to "select, improve, and cultivate a separate and independent tract of land as his own 'little farm' . . ." (ARCIA 1864:350), instead of continuing to farm communally. Under this system of private land tenure, it was thought that surplus production would eventually make the tribe self-sufficient. New farming equipment to improve yields were introduced and farming techniques gradually changed, as did traditional gender

roles. According to the farmer hired to assist in Omaha agriculture, "many of the men now go into the field with horse and plow, instead, as heretofore, compelling the squaws to do all the work, and that, too, with the hoe" (ARCIA 1864:355). As Omaha men became the primary producers of agricultural products, the economic role of women was moved indoors to pursue activities which were deemed more "proper" to the local non-Indians.

The eventual demise of the bison on the central Plains signaled a major loss of a traditional Omaha way of life. After 1876, with the bison gone and the countryside filling with farms and settlements, the Omaha ceased to go on their annual summer hunt. For the Omaha, elimination of the bison meant the disappearance of the primary meat source, as well as the loss of an important religious symbol. In an attempt to return the bison to the area through spiritual intervention, the tribe made an appeal to the Creator, *Wako'da*. However, lacking bison meat for the proper ceremony, they were forced to anoint the Sacred Pole with beef (Fletcher and La Flesche 1911). Realization that the bison were gone forced the Omaha to increase their agricultural production as well as to start raising cattle, pigs, and fowl. The shift to livestock raising created additional environmental and economic pressures on the small reservation. Although the Omaha experienced success at farming, the continued need for inputs in terms of equipment, seed, and infrastructure demanded that they sell off parts of their only real commodity, their land.

Throughout the 1870s and 1880s, the Omaha agreed to sell "untouched" portions of reservation land in exchange for cash help with the costs of farming (ARCIA 1867). Of the 302,800 acres originally given to the Omaha for their reservation in 1854, 97,496 acres were sold in 1865 to the Winnebago refugees of the Minnesota "Indian" Wars who settled on the northern half of the reservation. For this land the Omaha received \$50,000 dollars to be spent by the Commissioner of Indian Affairs on goods, provisions, farm animals and implements. Among the items purchased by their agent were wagons, plows, mowers, rifles, and foodstuffs, including 60,000 pounds of flour, 5,000 pounds of bacon, 2,000 pounds of coffee and 3,000 pounds of sugar (ARCIA 1867).

The Congressional Act of 1872 allowed for the sale of 50,000 acres in the western portion of the reservation for which the Omaha received moneys for the construction of farms, fences, and livestock as well as funds to help support schools. And again in 1874, another 12,000 acres were sold to the Winnebago for \$82,000, which was put toward the "civilization process," meaning the purchase of agricultural implements and further improvements

to infrastructure. When these final sales were completed, the Omaha were left with approximately 140,000 acres, the amount presently contained within the reservation boundaries. Additional land sales during the 19th century provided for the construction of the Sioux City and Western Railroad and the largely non-Indian towns of Rosalie and Walthill (Fletcher and La Flesche 1911).

The next major change to Omaha agriculture came in the form of allotment. Although allotment of tribal land was part of the 1854 land cession treaty, the process was not completed until 1884, two years after the passage of the Dawes Act of 1882 provided for the allotment of all Native Americans lands within the United States. Allotment of reservation lands provided Omaha families with 160 acres and individuals with 40 acres that were to be held in trust by the federal government for twenty-five years. During this time the land could not be taxed, encumbered or sold. In all, 76,000 acres were distributed to 1,194 individuals. The remaining 55,000 acres were patented to the tribe for allotment to future generations. Some small plots of land were sold to non-Indians (ARCIA 1885). In 1893 the final allotment of the reservation was made. Lands disbursed to Omaha individuals and families, to-date, totaled 119,000 acres; 12,000 acres remained unallotted (ARCIA 1909).

Allotment, however, did not produce all the positive benefits which had been predicted by Indian reformers. During the latter half of the 19th century the tribe continued to farm relatively small acreages, usually only enough to support themselves. On the positive side, they were largely self-sufficient and did not need to rely on the poor quality rations given to other Plains tribes. At the same time, there was constant pressure on the tribe to increase its output, which it did in some years, producing large surpluses of corn, wheat, and sorghum.

The year 1889 marked the first leasing of Omaha land to local whites, an activity that was prohibited under the Dawes Act and done without the approval of their agent (ARCIA 1889). Shortly thereafter, the leasing came increasingly under the control of the Indian Office. Leasing was first viewed only as a way for the those unable to farm due to age (elderly and children) or disability to earn an income (McDonnell 1991). The economic gains that could be made by leasing rather than farming encouraged more and more Omaha to lease their land. Their agent reported in 1889 that through leasing the Omaha would double their income; a wise business choice given the reduction of government assistance being provided the Omaha for their own production (ARCIA 1889). Leasing, sanctioned and monitored by the Indian

agents, continued after 1895 with Omaha receiving twenty-five cents an acre for grazing land and two dollars and fifty cents for prime farmland (ARCIA 1897).

The strategy of leasing land instead of farming gradually worked to change the nature of Omaha economics. While in the 1880s, 100% of Omaha were reported to be engaged in so-called "civilized" economic activities, by the 1890s the percent of individuals living off of annuities and leased land was increasing (ARCIA 1881, 1884, 1889, 1898, 1899). By the turn of the century, "a large majority" of Omaha lived off of rental money and annuities and their agent feared for the tribe's demoralization due to this trend (ARCIA 1904:235). Whereas previous generations of Omaha had hunted, farmed and gathered food for themselves, in 1911 the primary source of tribal revenue was rental income totaling \$143,368.00 (ARCIA 1911).

At its inception, the allotment of tribal lands was viewed as a means to make Native Americans hard-working members of mainstream society by providing private ownership of land. However, only a few years after allotment was completed many people in the federal government felt that the 25-year trust status on allotted land was preventing this goal. The solution was to allow Indians deemed competent to manage their own affairs to have full title to their lands. This "solution," passed as the Burke Act of 1906, brought further loss of land to the Omaha.

Prior to 1890 the Omaha lived in communal villages. Each family tended approximately ten acres of corn, pumpkins, beans, potatoes, and other crops. They were largely self-sufficient and were therefore considered a "successful" Native American tribe (McDonnell 1991). Ironically, it was the success of Omaha agriculture that led many policy makers to feel that they were one of the most "competent" tribes. In 1910 the Omaha became the test case for the issuance of fee patents to tribal members, granting absolute ownership with unrestricted rights of disposition of their allotted lands. Despite the opinion that many members of the tribe were competent to handle their own affairs (even though, according to McDonnell, many Omahas did not want such fee simple titles), over 80% had sold or were swindled out of their titles soon after they were issued. Through deception and outright theft, non-Indian land speculators acquired over 100,000 acres of Omaha lands (McDonnell 1982, 1991).

During the period from the establishment of their reservation through the conclusion of allotment, the Omaha lost half of their treaty land. In order to finance Indian agricultural pursuits, "unused" land was sold and improvements made on Omaha farms. The initial result was self-sufficiency for the

tribe. However, reductions in land availability necessitated increased dependence on agriculture, which could no longer be financed through land sales. After allotment, individual Omaha farmers often could not compete with larger, more mechanized non-Indian farms. In order to generate income, individuals increasingly engaged in off-farm employment and leased out their own land.

Tradition and Novelty, 1920-1945

Nutritionally, the period from the 1920s to the United States' involvement in World War II, may be characterized by seasonal hunger and chronic food scarcity. The Omaha continued to survive through self-production of food and some store purchases. It was also a transitional period as residence patterns shifted from rural to urban, and cash income became increasingly important to the family.

The agricultural market remained high from 1897 to 1920, enabling some Omaha farmers to remain self-sufficient. However, the post-World War I depression resulted in substantially lower return on agricultural production and tougher economic times. After 1920 agriculture in all states ceased to provide adequate incomes for many Native Americans and "bad harvests, droughts and low prices" pushed many to cultivate fewer acres (Carlson 1981:150). The collapse of the U.S. economic system in 1929 had profound effects on Native American subsistence since their dependency on national and world markets had increased. Unable to generate enough income through farming, Native Americans increasingly opted to take wage labor jobs while leasing their land for supplemental income. By the 1930s declining land base and economic struggles were commonplace among many tribes, further contributing to nutritional insecurity. Overall, the land in Native American possession declined from 138 to 52 million acres between 1887 and 1934 (McDonnell 1991).

Allotment and the Burke Act continued to impact Omaha land holdings. The policy of issuing fee patents resulted in continued land loss for the Omaha. By 1920 almost 90,000 acres had already been removed from trust, most of the land ending up in non-Indian ownership (Longwell 1961; McDonnell 1982). Between 1920 and 1934, approximately 16,000 more acres were alienated (Longwell 1961). Although the 1934 Indian Reorganization Act prevented any further land from being sold, already over 100,000 acres had passed from trust status and were in the hands of non-Omahas. By

1936 the Omaha tribe owned little more than 30,000 acres (McDonnell 1982).

Economic conditions on the reservation continued to deteriorate during the years between the wars with the majority of income coming from wages, welfare, or social security. In 1939 only a small portion of per capita income was derived from farming (Longwell 1961). Due to the widespread depression, local farmers could not hire Omaha workers and families had no means of income. Families had to rely upon sharing and large family "feeds" as a way to extend the few resources available on the reservation (Tyndall n.d.). As profit from agriculture decreased Omaha people left farming and attempted to survive off of lease income, sale of land, and wage labor. There was little in the way of regular economic relief and most were left to fend for themselves.

Although the Omaha were able to survive through a strategy of food production, purchase, collection, and reciprocity, there were nearly constant seasonal shortages. While few Omaha continued to farm through the 1930s, small gardens and farm animals continued to contribute important quantities of food to the Omaha diet. Gardens were usually large, providing enough produce to be consumed fresh or canned for use during non-productive months. Corn, both "Indian" and sweet varieties, was planted; tomatoes, potatoes, squash, beans, and turnips were other mainstays. Gardening was often a means of survival for Omaha families, providing a secure supply of food. Orchards containing apples, crabapples, plums and chokecherries were frequently mentioned by contemporary elder Omaha. Much of the meat eaten during this time came from hogs, chickens, ducks and a few cattle usually kept within the farmstead land. Purchases made at local stores were more infrequent and usually consisted of such necessities as coffee, lard, flour, baking powder, tea, and dried fruits. The bulk of the diet, however, consisted of what could be purchased at local stores such as potatoes, oatmeal, wheat flour for biscuits and gravy, corn mush, hominy and the like (see Fig. 1).

Those who had leased the greater portion of their land often continued to live within the confines of their homestead maintaining a small garden plot and a few small livestock. Although the old dispersed pattern had been changed by land sales, Omaha continued to live scattered over the eastern portion of the reservation. While the lands were not well suited for agriculture, they provided residents with adequate firewood, water, and wild game. Omahas usually travelled by horseback or foot as few owned motorized

vehicles. Despite the isolation and lack of opportunity, Omahas continued to earn a living by working for non-Indian farmers, by trapping for hides, or by exploiting other resources such as cutting timber.

In order to survive through nutritionally precarious periods, the Omaha continued to rely on wild foods as well. Some wild greens, meats, berries and fungi were used, especially during the Depression years, when cash was nearly impossible to acquire. Deer, rabbit, and wild fowl were commonly hunted; chokecherries, wild plums, gooseberries, raspberries, and blackberries were gathered for canning or drying. Chokecherries were either made into jam or pulverized and mixed with pounded meat and fat. Wild onions and garlic continued to be used for flavoring. Wild greens such as lamb's quarters and nettles were used like spinach, cooked with vinegar, boiled eggs, and bacon. Prairie turnip, wild rice, arrowhead, and yellow lotus, which were once some of the most important wild foods for the Omaha, were rarely collected. This was probably due to environmental changes that destroyed much of the habitat of these plants and to competition with introduced cultivated tubers.

Although no documentation exists for the transitional period when the Omaha moved from self-sufficiency to dependency, the memories of older Omahas reveal a time of hardship. One Omaha, who grew up during the 1930s and 1940s, related that the acquisition of food was a "daily event," especially in winter. Often there was little more than wild game and flour dumplings to be had. People often had to rely on whatever food they could find, including flour, sugar, pork, and lard. For those on the reservation, many foods such as dairy products, many types of fruit, grains, choice beef, noodles, juices or raisins were largely unavailable due to lack of cash (Tyndall n.d.).

Wage Labor and Welfare, 1945–Present

By 1945 the Omaha owned approximately 10% of their original 300,000 acre reservation. Farming continued to decrease in importance during this period as farm size and production on neighboring lands began to increase. As Omaha involvement in agriculture declined, involvement of tribal members in wage labor increased. During World War II large numbers of Omaha men entered military service or took jobs in war industries. Thus, the trend continued toward decreasing self-sufficiency and progressive dependence on cash income. Off-reservation jobs also meant adaptation to non-Indian foods.

The end of the war meant a decrease in off-reservation employment opportunities and few economic options for those who returned to the reservation. The land that had been intended to provide the tribe with a means of subsistence had passed almost entirely out of Omaha hands. By 1956 only seven Omaha farmers were cultivating a total of 930 acres (Longwell 1961). The remaining 27,000 acres of Omaha land were leased out to non-Indian farmers or remained idle. Longwell also noted that the nature of farming differed between non-Indian and Omaha. Those who continued to farm had neither the land nor the capital to compete with non-Indian production. The remaining Omaha farms tended to be smaller in total acres planted and overall harvests than non-Indian farms. Few if any livestock were raised, and equipment was often in a state of disrepair (Longwell 1961).

It must be stated here that the "failure" of Omaha farming in modern times cannot be attributed to a lack of motivation or farming skill on the part of the Omaha, nor to the poor quality of reservation lands. Rather, the Omaha never received adequate support for their agricultural endeavors. The conditions noted during Longwell's fieldwork were not surprising given the difficulty for Omaha farmers to compete with local large-scale farms. Among the constraints to Indian farming were the higher cost of capital and skills, discrimination by local governments and courts, and the lack of experience with intensive, profit driven agriculture (Carlson 1981).

For tribal members who wanted to engage in agriculture there was little economic aid or incentives to encourage farming. One of the most difficult problems was the lack of start-up capital. Omaha land that remained in trust could not be used as collateral for loans while privately owned lands required the payment of property taxes.

Throughout this era, leasing or selling of lands was the only real way of deriving profit from allotment or heirship property. In previous generations, some Omaha were able to survive off of income from leased land, but by the 1950s many Omaha were forced to share the income of their family's allotment with other heirs, thereby reducing the benefits accruing to each individual. In 1955 only 10 Omaha received over \$500.00 in rent money while more than half those renting allotment lands received \$100.00 or less (Longwell 1961).

Of the original 130,000 acre Omaha reservation, the Omaha people currently (1994) are in possession of 27,697 acres of land, or 21% of the total reservation land. As of 1990, all Omaha-owned land has been placed under trust status and can be sold only with the approval of the Secretary of the Interior. Economically, farming is no longer an important part of the Omaha

economy. Currently, only one Omaha is engaged in the farming, cultivating 580 acres of land, while most of the remaining trust land is rented out for \$30.00 to \$120.000 an acre (Omaha Tribal Real Estate, personal communication). The tribe also maintains a 3,400 acre farm in Nebraska and Iowa, which produces corn, beans, and hay (Omaha Tribe 1990a). The remaining acres are either leased or idle. Tribal land not under agricultural production is used for hunting, fishing, and recreation.

Most of the land owned by the Omaha today, located along the eastern edge of the reservation, is steeply graded and is largely comprised of poorly or moderately well-drained soils. The land in this area is heavily wooded, consisting of wetlands, mature timber, and pioneer willow. Allotments chosen on other areas of the reservation, where prime farmland exists, have largely passed out of the hands of the Omaha (Longwell 1961). The eastern portion of the reservation is important not only because it is close to the tribal headquarters of Macy but because it contains the region where old campsites, sacred areas, and earlier villages are located. Today, fewer Omaha are living on their family farmsteads, having moved into the HUD housing developments that were initiated in the 1960s. The majority (65%) of Omaha on the reservation reside within the towns of Macy and Walthill while the rest live in the surrounding Blackbird, Omaha, or Anderson townships, in private homes or HUD remote area housing units (U.S. Bureau of Census 1990).

Environmental changes, due in part to intensive agricultural practices, have also impacted the Omaha use of their reservation resources. Of the 250,000 acres that make up Thurston county, 75% of the land is now used for intensive agriculture, pasture or feed lots (U.S. Bureau of Census 1987). Land on the Omaha reservation today can be divided up into two major ecological zones, that of the eastern portion, which is predominantly woodlands and the western portion which was previously comprised of bluestem grass, but is now given over to agriculture. The eastern portion, where most Omaha land remains, is the most pristine on the reservation but has also undergone environmental changes.

Environmental changes, due to human factors such as intensive agriculture and hydrological works, have done much to alter the riverine environment of the reservation. As early as the turn of the century, Gilmore lamented the loss of wild plant species due to the pasturing of cattle along the Missouri River. He went on to note that "not only have some species of the natural prairie flora been thus decreased and others increased, but the woodlands' flora has been considerably augmented not only by artificial planting, but also by attendant protection of the natural increase [of the non-

native species]” (Gilmore 1913b:9). Within the last century, the once braided and meandering river has been channeled into a single, deep navigation canal. As the channel erodes deeper, the adjacent oxbow lakes and chutes are left without a water source and many wetland areas have been lost.

Contemporary Dietary Patterns

The Omaha diet underwent a variety of changes in terms of content, meal patterning and preparation between 1945 and present day. Wage-labor, off-reservation migration, the influence of schools, and the introduction of food aid all served to promote a diet that is radically different from that consumed “traditionally.” Like many tribal populations, the Omaha gradually abandoned many of their traditional food habits and replaced these with foods of a lower nutritional but greater energy value. The food choices made in the past were based on attempts to provide the family with adequate energy in the face of a declining economy. Given grocery budgets already constrained by food stamp allotments or limited cash options, many Omaha are still forced to obtain food energy at the lowest cost. In many ways, the modern Omaha diet is one that has been shaped by a variety of outside forces. However, the value and cultural significance placed on food has given these new ingredients a place in current foodways.

Sources of food used by the Omaha today are varied and represent a diverse strategy of food acquisition. Among these are grocery stores, United States Department of Agriculture (USDA) surplus commodities, government feeding programs, meals provided by family members, and meals provided at social events. Of less nutritional but perhaps more social significance are foods obtained through traditional means such as hunting and fishing, gardening or wild plant collecting.

The economic situation on the reservation today has shaped Omaha dietary habits in a variety of ways. Like other Native American populations, the last fifty years have seen a decline in locally produced and gathered foods and increases in store-bought or commodity distributions (Bass and Wakefield 1974; Berkes and Farkas 1978; Lang 1985; Joos 1984; Nurge 1970). The change in economics from a subsistence-based regional trade reduced much of the availability of traditional foods. The entire process of acculturation—from social sanctions against some traditional foods, to changing work patterns of women, and forced attendance of children at boarding and day schools—impacted the intake of traditional Omaha foods.

Although there is no one typical Omaha diet, many of the meals are comprised of a few basic items such as beef, eggs, pork, potatoes, bread, and snack foods. Meat, potatoes, bread, and coffee typify the mainstays of the Omaha diet. No meal is considered complete without the inclusion of beef, pork, or chicken. Interviews with Omaha individuals reveal that a common breakfast includes eggs, bacon, and toast with juice or coffee. Lunch is usually described as a smaller meal, consisting of a sandwich (bologna) or soup (vegetable with a meat base). The evening meal is often more varied but typically includes meat (pork chops, hamburger), potatoes, and some other type of vegetable such as green beans, carrots, or salad. Meals are usually served with coffee, carbonated soft drinks, or juice-drinks.

Due to economic constraints, many Omaha choose low cost, high energy foods such as hamburger, white bread, macaroni, cake and sweet rolls, chips, and carbonated soft drinks. The dietary habits recorded for the Omaha are by no means unique among Native American populations within the United States. In fact, dietary surveys and observations have revealed a startlingly similar pattern (with regional variations) among many tribes throughout the United States (see Joos 1984 for the Seminole; Nurge 1970 and Lang 1985 for the Sioux; and Kuhnlein and Calloway 1977 for the Hopi).

Overall, the choice of food for the Omaha is often limited. Many foods specifically recommended for weight loss or diabetes are either difficult to obtain or more expensive. Being on a tight budget or relying on commodity foods is a major constraint on food choice. Recommended foods such as artificial sweeteners, round steak, seafood, "healthy" high fiber cereals, and brown rice are expensive and therefore not typically included in the Omaha diet. Reservation grocery stores are perceived by some residents to be poor in quality and more expensive than those in Sioux City, Iowa, the nearest major shopping area. The majority of space in one Macy store is given to cookies, chips, and frozen desserts, as well as a small kitchen window which serves pizza, onion rings, fried chicken, and fry (fried) bread. According to some Omaha people and local health care workers, these stores promote the consumption of convenience-type foods by keeping a large supply on hand, especially when monthly financial aid checks are distributed and impulse buying is more likely. Fresh fruits and vegetables are scarce, with only apples, bananas, lemons, tomatoes, and oranges being available on a regular basis.

Grocery stores surrounding Macy are located in Walthill (9 miles), Winnebago (11 miles), and South Sioux City (19 miles). These stores

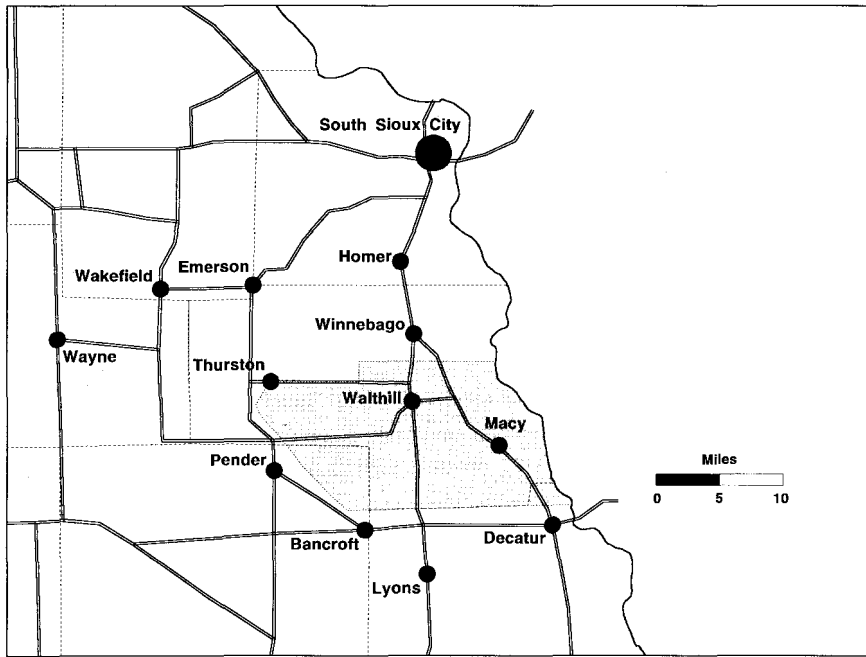


Figure 4. Omaha Reservation and Macy, Nebraska, in relation to regional urban areas with food shopping opportunities. Map by J. Clark Archer. (Adapted from Hug 1994.)

provide larger selections but are inconveniently located, requiring both transportation and time to patronize (Fig. 4). Shopping in South Sioux City, Nebraska, or Sioux City, Iowa, is usually done on a monthly basis when families “stock up.” However perishables such as fresh fruits and vegetables do not last the full month. During the ensuing weeks, items are usually picked up at reservation stores, which have poorly stocked, overpriced, and fluctuating supplies of produce.

Another important source of food is provided by government food programs. These include commodity distributions, the special supplemental food program for Women, Infants and Children (WIC), the school lunch and summer feeding programs, and senior citizen lunches. Foods in the commodity program are largely made up from surpluses that the government prevents from entering the market. Government programs in the 1960s and

1970s increased the amount of food available, but contributed less to overall Omaha nutritional status and failed to build on the nutritional strength of the traditional Omaha diet. The regional commodities distribution center operates a food pantry program providing regular commodities and other occasional surplus items to any Omaha family in need. All of the foods supplied by the government are produced for a long shelf life and are therefore canned, dried, or contain preservatives to prohibit spoilage. Basic items include canned meats, peanuts and peanut butter, canned vegetables, dried potatoes, cheese, dried or evaporated milk, rice or macaroni, dried fruits, cereals, and oil.

Omaha attitudes about commodity foods are mixed. Some Omaha who are disturbed about the increasing rate of NIDDM have voiced concern over the dependence on outside food sources, claiming it prevents them from eating traditional foods. They expressed doubts about the nutritional quality of commodity foods, especially the canned meats, which have been described as full of fat. Indeed, many of the canned meats are in fact defined by Indian Health Service booklets as being "high fat" (IHS 1990). Others felt that the provisioning of commodities was an important part of the government's obligation to the tribe, although rations were not supplied to the tribe during the 19th century.

Aside from federally donated commodities, there are a variety of feeding programs available to various age groups. The WIC program provides Omaha families with vouchers to be used in local stores. Foods provided by this program are directed toward addressing the dietary needs of pregnant and postpartum women and their children up to five years of age. Elementary and secondary school children, as well as those attending Head Start are provided with both breakfast and lunch. Foods served are usually a combination of commodities and purchases from local vendors. Meal planners are careful to serve foods that the children like such as hot dogs, pizza, "tater tots," spaghetti, grilled cheese sandwiches, hamburgers, ice cream, and chocolate milk. The food served in these programs often differs from the "one dish" type of meals prepared at home. But, like the commodity foods, school lunches often serve as models for dietary patterns within the home. School lunch food may be perceived as being more healthy and elements are therefore adopted as appropriate dietary models, even though they are high in fat, sugar and calories.

One final area the Omaha people identified as a problem area in terms of nutrition is related to the foods served at social events. Although the

composition of meals served at these events reflects certain social ideals, one Omaha woman expressed a feeling that the “heavy” foods served at such events have contributed to the increasing rates of diabetes. Omaha people often comment on the thick layer of grease floating on top of soups, the extensive use of pork, and the overabundance of food served at these events. At one typical memorial feast the menu included fried chicken, boiled pork, fruit salad, broccoli and cauliflower salad, macaroni salad, mashed potatoes, chicken and rice soup, fresh fruit, radishes, pie, cinnamon rolls, cake, coffee, iced tea and self-sweetened commercial fruit-drinks.

The limited foods available on the reservation continues to influence eating patterns. The Omaha’s common reliance on fat, white flour, and sugar may be a reminder of those times when foods were scarce and the acquisition of energy demands overrode those of other nutritional needs. This dietary pattern is also encouraged by the economic problems facing the Omaha today. For many Omaha, feeding oneself and one’s family continues to be a struggle given current economic constraints. The choice of high caloric foods continues to be a social adaptation to uncertain food availability.

This is not to say that the Omaha do not utilize traditional foods or that such foods have lost their social importance in Omaha culture. Rather, many traditional Omaha foods used today are a mixture of aboriginal and introduced ingredients. Among the traditional Omaha foods of today are fry bread, Indian tacos, beef, pork, and cake. Wild foods such as milkweed and morels are combined with Euro-American introductions like eggs and beef. Even the traditional dish of dried corn soup is often flavored with pork fatback, bacon, or beef. Instead of being pounded and dried, chokecherries are today made into jams. Some traditional foods such as prairie turnip, corn mush, and a type of wild fruit gravy are often associated with the nearby Sioux nation, with whom the Omaha have close ties, and from whom they have adopted such Siouan food terms as *wasna* and *wojapi*. For example, when asked about prairie turnips, one Omaha women seemed unsure if she had eaten them in her childhood but went on the say, “We dug up some wild turnips up at ‘Turtle Creek’ [on the Oglala Sioux Reservation at Pine Ridge, South Dakota] last summer, during the Sun Dance. My boys were afraid to eat them, but we did and they were pretty good.”

The reservation continues to supply a good quantity of wild game. Hunting was cited by most individuals as being pursued by themselves or some member of their family. Animals reportedly hunted include deer, rabbit, and pheasant. Deer meat was typically roasted; rabbit and pheasant

either roasted or used in stews. Frequently, the large animals were shared among close family members. The abundance of woodlands, forage, and water contributes to the abundance and diversity of game still found on the reservation.

The Omaha continue to gather some wild plants, although the number and diversity is much less than their ancestors were reported to have used. Prairie turnip, groundnut, hog peanut, wild rice or yellow lotus—plants either difficult to find or occurring in highly specialized environments—are no longer collected. The reasons for the declined use in wild foods might be said to stem primarily from the increased availability of non-local foods. However, the fact that some wild foods continue to be actively sought after suggests that they remain important ingredients in an Omaha diet. The types of wild foods still gathered also reflects the environmental changes that have taken place in terms of traditional and modern ranges. Morels and milkweed are the two most commonly mentioned foods still collected by the Omaha. Morels occur in damp woodlands and milkweed occurs in any number of waste grounds or old fields. A number of berries, including chokecherries, wild plums, wild raspberries, gooseberries, wild grape, mulberries and buffalo berries are still available in undisturbed areas near the Missouri River known as “the timber,” or along roadsides.

Gardening continues to be practiced by some Omaha, but is also constrained by economic and environmental factors. Among the produce grown are tomatoes, onions, peppers, beans, and sweet corn; however, very little “Indian corn” is produced. Those with gardens tend to live outside of the HUD housing projects in Macy. Government housing tends to hamper gardening due to the small yard size, close proximity to neighbors and the steeply sloped house sites. Garden harvests are, however, typically shared among family members who are unable to garden.

Today, the Omaha find cohesion in both the extended family and a strong emphasis on generosity and reciprocity. This is evident in the various social functions held almost every weekend. It is during these events that “traditional Omaha foods” make their most common appearance. Few of these foods are composed of pre-contact components and therefore differ from those eaten by the Lakota during their religious occasions. Many of the foods considered by Omaha today to be traditional consist of foods available to them shortly after contact with Euro-Americans.

For the Omaha, all food is sacred and comprises an important aspect of life. This is reflected in a range of social activities. Social events, both on and

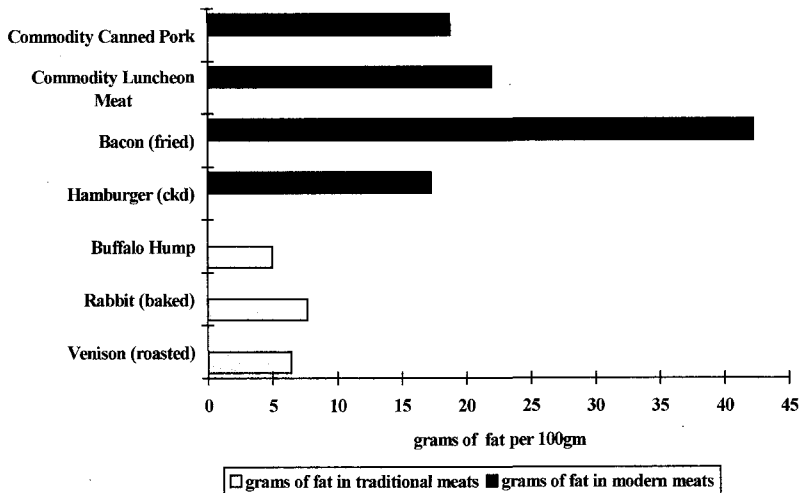


Figure 5. Grams of fat in selected traditional and modern Omaha meats. Values derived from Paul and Southgate (1978) and IHS (1990).

off the reservation can be a weekly or biweekly activity for some families. At every dance, giveaway, funeral, memorial, church function, or powwow, food is prepared and served to all attendees. The types of dishes prepared are usually similar regardless of the event. Many of these foods contain important cultural meaning and symbolism, which reinforces both tribal identity, and, in some instances, clan identity.

The dietary changes that Omaha people have experienced during their contact with Euro-Americans have resulted in a radically altered pattern of nutrition. These alterations include the loss of important sources of fiber, an increase in fatty meats and simple sugars, and the high availability of calories in general. One method of revealing the impact of Omaha dietary change is through a comparison of specific traditional and modern foods (Fig. 5). Traditional Omaha meats, such as bison, deer, and wild fowl can provide an excellent source of low-fat protein. In contrast, the types of meat most often consumed today are significantly higher in calories derived from fat. These

include hamburger, bacon, or pork fatback, which are commonly used in soups and stews as well as canned meats obtained through the Food Distribution Program on Indian Reservations (FDPIR). Such meat products, while usually inexpensive, contain a considerable amount of fat, an important contributor to obesity, decreased insulin receptiveness and potentially, NIDDM.

Prior to the 1950s, diabetes was unknown to the Omaha people. According to IHS records, the first incidence of non-insulin dependent diabetes occurred in 1953 (M. Smith 1993). It was not until 1979 that the severity of this disease promoted the IHS to open up a Diabetes Control Program, administered and run from the IHS hospital in nearby Winnebago, Nebraska. Since that time both incidence and prevalence of NIDDM have increased steadily within the Omaha tribe. The number of persons diagnosed yearly with the disease has varied from twenty to almost sixty, with a typical year producing forty to fifty new patients.

According to Waring (1970), "diabetes is not a benign disease in the Omaha Indians." The high prevalence and early onset of NIDDM have given rise to a number of secondary complications requiring additional medical attention while creating great personal suffering and loss. Omahas experienced eight cases of lower limb amputations due to diabetic complications between 1987 and 1989. This is one of the highest rates in their IHS Area, administered in Aberdeen, South Dakota. (Stahn et al. 1993). Diabetes has been found to have increased steadily since the 1950s among a number of Native American tribes who experienced much the same reliance on non-local foods, which strongly suggests a vital link between dietary acculturation and chronic disease. To alleviate this and other dietary related problems, increased screening and treatment should be combined with preventative measures including a closer examination and utilization of traditional Omaha diet and lifestyle. Or in the words of one Omaha man,

I think we need to develop a lifestyle of eating to prevent diabetes. Prevention to me is much better than treating the disease. It would be greater if we didn't have the disease. That's what I'm looking at. Let's go back to where we left off. We missed something on our trail here. On our journey of life we overlooked a few things and so we, as Indian people, need to go back and backtrack our mistakes and find where we went wrong. (Omaha Tribal Member 1992)

Conclusions

The process of dietary change described for the Omaha is neither unique among tribal populations nor can it be considered a benign result of acculturation. The loss of land and resources, combined with the political and economic power associated with these losses, means the Omaha are placed in a situation of dependence. They are presented with few options to feed themselves and are therefore forced to rely on government supplied foods instead of being self-sufficient. Local stores provide high calorie foods that satisfy their basic energy requirements but do little to alleviate the fundamental problem of malnutrition. The Omaha's reliance on fat, white flour, and sugar may be a reminder of those times when foods were scarce and the acquisition of energy demands overrode those of other nutritional needs. This dietary pattern is encouraged by the economic problems facing the Omaha today. Still, for many Omaha, feeding oneself and one's family continues to be a struggle under current economic constraints.

Without social and economic improvements leading to a greater range of dietary options the Omaha and other Native American nations will continue to suffer from chronic nutritional disease with little hope of alleviation. The goal of Omaha people and health care professionals on the reservation today is to reverse the general trend in food use and incorporate a greater degree of traditional foods into the diet. Traditional Omaha foods and preparation methods are increasingly incorporated into diabetes education and there is a growing interest among many Omaha in reviving the use of wild meats and cultigens. For many, this is the only way to reverse the unrelenting process transforming the Omaha from a healthy, self-sufficient tribe into one suffering from nutritional dependency.

Acknowledgments

I would like to extend my warmest appreciation to all the members of the Omaha Tribe who made this research possible and for the support given to this project by Dennis Hastings, Omaha Tribal Historian, and the Omaha Tribal Council. I would also like to acknowledge members of the Winnebago/Omaha Diabetes Project for their continued assistance in the field, especially to Michele Smith, Duane Mackey, Sudah Shaheb, and Ruggles Stahn. Finally, I owe a debt of gratitude to Karl J. Reinhard, Robert K. Hitchcock, and Alan J. Osborn for their comments, support and encouragement. Funding for this research was provided by the University of Nebraska-Lincoln, Department of Anthropology, Champe/Weakly Fellowship.

Appendix A

Scientific name	Common English — Omaha name	Preparation	Notes
ROOTS			
<i>Allium canadense</i> L.	Wild Onion — <i>maⁿzhoⁿka moⁿtanoⁿha</i>	bulbs eaten raw or cooked	1 & 2
<i>Amphicarpaea bracteata</i> (L.) Fern	Hog Peanut — <i>hiⁿbthiⁿabe</i>	underground fruit eaten raw or boiled	
<i>Apios americana</i> Medic.	Groundnut — <i>nu</i>	tubers eaten raw or cooked; dried and ground for flour	
<i>Helianthus tuberosus</i> L.	Jerusalem Artichoke — <i>poⁿxe</i>	roots eaten raw	1
<i>Nelumbo lutea</i> (Willd.) Pers.	Yellow Lotus — <i>tethawe</i>	roots cooked or dried	
<i>Psoralea esculenta</i> Pursh.	Prairie Turnip — <i>nugthe</i>	roots eaten fresh, cooked, or dried	
<i>Sagittaria latifolia</i> Willd.	Arrowhead — <i>ciⁿ</i>	tuber boiled or roasted	
GREENS			
<i>Asclepias syriaca</i> L.	Common Milkweed — <i>waxtha</i>	young shoots, flowers, buds, and immature fruits cooked	1 & 2
<i>Chenopodium berlandieri</i> Moq.	Lamb's Quarters — <i>none given</i>	young leaves cooked	1
<i>Urtica dioica</i> L.	Nettle — <i>xanuga hi</i>	young leaves cooked	1
NUTS & SEEDS			
<i>Corylus americana</i> Walt.	Hazelnut — <i>oⁿzhiⁿga</i>	nuts eaten fresh or cooked	1
<i>Juglans nigra</i> L.	Black Walnut — <i>tage</i>	nuts eaten plain or made into soup	1 & 2
<i>Zizania aquatica</i> L.	Wild Rice — <i>ci wanide</i>	seeds eaten cooked	
<i>Nelumbo lutea</i> (Willd.) Pers.	Yellow Lotus — <i>tethawe</i>	seeds used with meat in soups	

Appendix A (continued)

Scientific name	Common English — Omaha name	Preparation	Notes
FRUITS & BERRIES			
<i>Crataegus rotundifolia</i> Moench	Red Haw — <i>taçpo</i> ⁿ	fruit used as famine food	
<i>Fragaria vesca</i> L. var. <i>Fragaria americana</i> Porter	Wild Strawberry — <i>bashte</i>	fruit eaten raw, cooked, or dried	1 & 2
<i>Ribes missouriense</i> Nutt.	Wild Gooseberry — <i>peçi</i>	fruit eaten fresh or dried	1 & 2
<i>Ribes odoratum</i> Wendl.	Buffalo Currant — <i>pexi nuga</i>	fruit eaten fresh or dried	
<i>Celtis occidentalis</i> L.	Hackberry — <i>gube</i>	fruit eaten raw	1
<i>Physalis heterophylla</i> Nees.	Ground Cherry — <i>peigatush</i>	fruit eaten raw or cooked	
<i>Prunus americana</i> Marsh.	Wild Plum — <i>koⁿde</i>	fruit eaten raw, cooked, or dried	1 & 2
<i>Prunus virginiana</i> L.	Chokecherry — <i>noⁿpa zhiⁿga</i>	fruit cooked or dried	1 & 2
<i>Rosa arkansana</i> Porter	Wild Rose — <i>wazhide</i>	fruit eaten raw or stewed	1
<i>Rubus idaeus</i> L. var. <i>Rubus strigosus</i> (Michx.) Maxim	Wild Raspberry — <i>agthoⁿ gamoⁿge</i>	fruit eaten fresh or dried	1 & 2
<i>Sambucus canadensis</i> L.	Elderberry — <i>wagathahashka</i>	fruit eaten fresh	1 & 2
<i>Shepherdia argentea</i> Nutt.	Buffalo Berry — <i>zhoⁿhoje wazhide</i>	fruit eaten raw, cooked, or dried	
<i>Morus rubra</i> L.	Red Mulberry — <i>zhoⁿçi</i>	fruit eaten raw or dried	1 & 2
<i>Vitis cinerea</i> Engelm. and <i>Vitis vulpina</i> L.	Wild Grape — <i>haçi</i>	fruit eaten fresh or dried	1 & 2
<i>Pyrus ioensis</i> (Wood) Bailey	Crab Apple — <i>she bthoⁿçe</i>	fruit cooked or canned	1

Appendix A (continued)

Scientific name	Common English — Omaha name	Preparation	Notes
FUNGI			
<i>Ustilage maydis</i> (DC.) Cda.	Corn Smut — <i>wahaba xthi</i>	spore fruit boiled	
<i>Lycoperdon perlatum</i>	Puffball — <i>none given</i>	spore fruit roasted	1
<i>Morchella esculenta</i> (L.) Pers.	Morel — <i>mikae xthi</i>	spore fruit boiled	1 & 2
SUGARS & PRESERVATIVES			
<i>Acer saccharinum</i> L.	Soft Maple — <i>wena shabethe</i>	sap used for sweetener	1
<i>Acer negundo</i> L.	Boxelder — <i>zhabeta zhoⁿ</i>	sap used for sweetener	1
<i>Ulmus rubra</i> Muhl.	Slippery Elm — <i>ezhoⁿ zhide</i>	bark used to flavor and preserve meat	1
CULTIGENS			
<i>Zea mays</i> L.	Corn; Indian or Squaw Corn — <i>wahaba, wahaba ukethiⁿ</i> , also: <i>watoⁿçi-</i> (8 types), <i>wathastage-</i> (3 types), <i>wazhutoⁿkuthe</i> (<i>wajutⁿah-kuthe</i>)	pounded corn meal with bison marrow, gruel, corn boiled with beans, hominy, hominy with meat	
	Sweet Corn — <i>watoⁿçikithe</i>	sweet corn roasted when in milk stage and dried	1 & 2
<i>Phaseolus vulgaris</i> L.	Garden Bean — <i>hiⁿbthiⁿge</i>	seeds cooked whole or mashed; added to soups	1 & 2
<i>Curcubita maxima</i> Duch.	Squash — <i>watoⁿ</i>	flesh eaten raw, boiled, or dried	1 & 2
<i>Curcubita pepo</i> L.	Pumpkin — <i>watoⁿ</i>	flesh eaten raw, boiled, or dried	1 & 2
<i>Citrullus lanatus</i> (Thunb.) Mansf. [<i>C. vulgaris</i>]	Watermelon — <i>saka thide</i>	flesh eaten raw	1 & 2

Notes:

1: currently found in Omaha reservation.

2: use mentioned by Omaha today.

Sources: Dorsey 1884; Gilmore 1913, 1977; Fletcher and LaFlesche 1911.

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