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Uses of Plants by the Hidatsas of the Northern Plains

Gilbert Livingston Wilson

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Uses of Plants by the Hidatsas of the Northern Plains

Uses of Plants by the Hidatsas of the Northern Plains

GILBERT LIVINGSTON WILSON

Edited and annotated by Michael Scullin

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PW=Poor Wolf; GB=Goodbird;
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PREFACE

In old times our tribe knew many plants and ate them each
in its proper season, for they knew when each should be
gathered. And because they knew each plant's proper season,
no one got sick and no harm came of eating them.

Such was our custom.

In old days, also, we had no whitemen with us and no guns,
and we often faced scarcity of food. And so we ate such
foods as wild carrots. But in my day it was not necessary to
do this, and such wild foods fell into comparative disuse.

— BUFFALOBIRD-WOMAN

Gilbert Livingston Wilson (1869–1930) was, in many respects, an anthropologist well ahead of his time. Anthropology in the first few decades of the twentieth century was highly focused on collecting any cultural information that could be salvaged from American Indians who had lived in and survived the nineteenth century. Of most interest to anthropologists of the era was recording the variations between groups in matters of social organization, religious practice, and material culture—an impersonal or detached view or what some today would call an “etic” perspective (Pike 1967). Wilson, in contrast, was concerned with what he saw as the failure of anthropologists to value the perspectives of individual members of a culture—to allow these individuals to tell their own stories—and to understand how individuals understood themselves, their surroundings, and their cultures.

This, he believed, allowed for the transmission of the richness and depth of personal perception. This would be an “emic” perception (Pike 1967). In a letter to Clark Wissler (May 6, 1913: 2–3) Wilson wrote:

I do not know that I have said it before, but my reports, as they are sent in to the museum, are wrought out on a plan which I have purposely chosen. Most of the papers put out by the Museum and other scientific bodies seem by me to lack one thing that to an amateur student might be of value, tho I do not mean to say that as a criticism. But to a student of the Indians who relies wholly on books, there is a difficulty in getting the proper conception of Indian character. While only living acquaintance can do this satisfactorily, it has seemed to me that a report can do much to assist in this important part of the student’s investigations, if the report itself is given as the Indian gave it himself in taking dictation. In taking dictation I keep this in mind. I take down every word that is said; when rewritten in typewritten form, the matter is merely rearranged, and if the informant has covered the same ground twice, I merely combine the two paragraphs in one without really altering the language.

My aim is, if death or disability removed me from doing anything further with the reports myself, that any student who studies them will find the Indian’s way of looking at things to be retained as nearly as possible in another language.

Wissler, who was curator of anthropology at the American Museum of Natural History and who had hired Wilson in 1908 to collect both ethnographic data and specimens for the museum’s collections, took offense and accused Wilson of having “contempt” for the largely traditional ethnographic methods employed by himself and other anthropologists working for the museum, including Robert Lowie, who was at Fort Berthold for a little while when Wilson was working there and who inter-

viewed some of the people with whom Wilson had worked (e.g., Lowie 1917). Wilson hastened to assure Wissler that he held no contempt for traditional anthropological methodologies, but that first and foremost he wanted the Indians to speak for themselves (Wissler 1916; Wilson 1916).

Wilson's dissertation, "Agriculture of the Hidatsa Indians: An Indian Perspective," was completed in 1916 and published the following year. It is currently in print under several titles, usually "Buffalo Bird Woman's Garden." This dissertation on Hidatsa gardening as recalled by Buffalobird-woman is both highly autobiographical and individualistic. It has become an anthropological classic as perhaps the first reasonably autobiographical account by an American Indian woman and because of the great attention given to the details of Hidatsa gardening from the perspective of the gardener. That Wilson insisted on writing in a highly accessible style makes all of his publications both readable and memorable.

ACKNOWLEDGMENTS

Tom Thiessen read through the manuscript and, noting that he had a few comments, went on to fill numerous pages with good advice of both the obvious (which had escaped me) and the obscure (about which I had never thought).

Kristen Mable at the American Museum of Natural History graciously found and copied material from the museum's anthropological archives, and I appreciate the extra time and effort she put into this task.

Most of all, my wife, Wendy, was a constant. I would disappear into the keyboard and emerge with various consternations and she, one way or another, was there to get me back on track. She read through the entire manuscript and pointed out multitudinous errors of spelling, grammar, and organization. She has been a most patient editor as time warped by. I dedicate this book to her.

INTRODUCTION

Gilbert L. Wilson's ethnobotanical project had its origins in his collaboration with Professor Josephine Tilden of the Botany Department at the University of Minnesota. At her behest, in the summer of 1916 Wilson collected examples of plants used by the Hidatsas and the purposes for which they had been used. Tilden and her students planned to identify them and compile the information into a text. Although Tilden did send a student along with Wilson (a man identified only as "Haupt") to do some of the collection and field preparation of specimens, for unknown reasons the project was never completed and the plant specimens have been lost. Wilson, for his part, recorded what Buffalobird-woman and her brother, Wolf Chief, had to say about various plants and their uses. Their recollections and associations make this text unlike any ethnobotanical monograph.

Wilson had already spent parts of ten summers at Fort Berthold Reservation in west-central North Dakota, almost all of that time with Buffalobird-woman, Wolf Chief, and Buffalobird-woman's son, Goodbird, acting as interpreter. Wilson also became an adopted son of Buffalobird-woman, and thus they were all members of the Prairie Chicken clan.

The accounts of different plants tend to vary immensely according to the significance of the plants to the speaker and according to their recollections of them. Wilson apparently had no particular agenda other than to write down what they had to say about whatever plants they thought important enough to mention. I have added information on plants that Wilson had transcribed in other years and a section on wood. Wood was perhaps the

most important plant resource to the Hidatsas, one of a number of groups practicing horticulture and bison hunting. All these groups lived in more or less permanent villages of large earthlodges, as opposed to the mobile hunters who lived in tipis.

The Hidatsas (and Mandans and Arikaras) were separated (by government mandate) from their last earthlodge village at Like-a-Fishhook (also known as Fort Berthold) in 1885. Most of Buffalobird-woman's recollections of her gardening days (Wilson 1917a) seem to date to the period between 1845 and 1885 during which time all three tribes lived in Like-a-Fishhook, and much of what she and Wolf Chief have to say about plants also seems to date from that time as well.

In 1916 she was seventy-six or seventy-seven years old and Wolf Chief was sixty-six. This means that more than thirty years had passed between their life in the last earthlodge village and their subsequent life in dispersed individual log cabins on allotted land. By 1910 only one earthlodge, that of Hairy Coat, was still inhabited, although several others were still standing. Thus some recollections are a bit hazy, and in some cases the plants described are unidentified or unidentifiable.

Buffalobird-woman was the most conservative of the three people with whom Wilson worked almost exclusively, and she was the only one who had not converted to Christianity. Furthermore, she was a great stickler for details. She was sometimes reluctant to discuss a plant because it was not hers to talk about, the rights to some plants being owned by individuals or societies. For some plants, such as sunflowers and prairie turnips, Wilson seems to have felt that he already had all the information he needed.

Wolf Chief loved to tell stories and was good at it. More often than not he included anecdotes about how he or others were using or had used a particular plant. In the lengthy section on tobacco, one gets both Buffalobird-woman's perspective on a plant grown and used only by men as well as the perspective of Wolf Chief,

who actually maintained tobacco gardens over the years and continued to prepare tobacco and other plants frequently mixed with it for smoking.

Goodbird occasionally added the equivalent of a footnote as well as a few recollections from his childhood.

The results are highly uneven. There is considerable detail on some plants and virtually nothing for others. Wilson never got beyond transcribing his field notes (or having them transcribed, which was usually the case) for that part of his 1916 fieldwork, and he seems to have done no editing of it whatsoever.

World War I kept Wilson from going back to Fort Berthold in 1917 and may well have been the reason the project was never completed. For one thing, the American Museum of Natural History had no money to sponsor his fieldwork in 1917. For another, Wilson, in his capacity as a clergyman, worked very hard on the home front at patriotic rallies and at explaining the war to an eastern Minnesota population that included many recent immigrants from central Europe (see Wilson 1917b).

I could find no information on the fate of the plant specimens collected for the botany project. The plant collection, which apparently made it to the University of Minnesota, has disappeared. A duplicate collection made for the American Museum of Natural History has likewise disappeared. Thus the final identification of some plants is in question because I had nothing to work from other than Wilson's notes and Goodbird's drawings of some plants. And, of course, Wilson was not a botanist and knew little about plants.

In 1918 Wilson went to North Dakota one last time, with the intention of wrapping up eleven years of fieldwork at Fort Berthold Indian Reservation. But because his health was failing, he never returned to Fort Berthold, and although he did publish one more major monograph in 1924, *The Horse and the Dog in Hidatsa Culture*, his plans to publish much of the rest of his data were never realized.

Buffalobird-woman, Wolf Chief, and Goodbird

Wilson first visited Fort Berthold in the summer of 1906, at which time he was introduced to a Hidatsa named Edward Goodbird. Goodbird knew some English and was pastor of a small congregation. Wilson, at that time a Presbyterian minister in Mandan, North Dakota, was an avocational anthropologist and archaeologist. He and Goodbird soon became good friends and collaborators. Both were born in 1869. Goodbird's parents were Buffalobird-woman and Son Of A Star, who died not long after Wilson met him.

Wilson found Buffalobird-woman (Maxidiwiac, in Hidatsa) to be an ideal source of information about Hidatsa life. She was about sixty-seven (having been born in 1839 or 1840) when he met her, and she had lived for forty-five years in earthlodge villages—forty years at Like-a-Fishhook Village, the last of the earthlodge villages.

Her brother, Wolf Chief, was born in 1849. He enjoyed talking about his life and had lived through many of the often terrible transitions of the mid-nineteenth century. Wolf Chief became Wilson's principal source for male perspectives on Hidatsa life.

A man between cultures, Wolf Chief grew up in the presence of "the whitemen," and they were very much a part of his life—sometimes a help and sometimes a hindrance. At age thirty he decided that he needed to learn English. To this end he enlisted a non-Indian friend as tutor and then for a while attended school with the reservation children. He never learned to speak English, but he did learn to read and write it.

Edward Goodbird was the pastor of the Independence Congregational Church (Independence being the principal town on the reservation at that time). Wilson, at times, both lived in and used Goodbird's church as a field lab.

Goodbird became his most valuable ally, translator, diplomat, source of information about the reservation and its inhabitants,

and illustrator of many facets of Hidatsa life. Goodbird's English was not fluent, and Wilson once expressed some consternation over words Goodbird had picked up from the soldiers at Fort Berthold, which was immediately adjacent to Like-a-Fishhook. But Wilson also had this to say about Goodbird (vol. 27, 1918: 101-2):

During the ten or twelve years of the author's work among the Hidatsa, Edward Goodbird was his faithful and efficient interpreter. Goodbird's English education is meager, but he is a natural scholar, and speaks the Dakota, Mandan, and Crow languages besides Hidatsa and English.

The author soon found that Goodbird's rather broken English was a distinct advantage, since it translated so accurately the thought and form of the Hidatsa idiom. The author has recorded the following account exactly as it fell from the interpreter's lips.

Although Wilson did on occasion work with other Hidatsas and Mandans, he spent by far the largest amount of his time with Buffalobird-woman, Goodbird, and Wolf Chief. The concept of sampling or cross-checking information was seldom important to him, so virtually all the information gathered for this volume is from Buffalobird-woman and most of the remainder from Wolf Chief. But Wilson was a busy man, and he had many other things to accomplish in that summer of 1916. He spent about two weeks on the project and collected data, some extensive and some sketchy, on almost eighty species of plants.

Some Observations on Hidatsa Gardening

Although this book is about the Hidatsas' uses of plants, little is said about Hidatsa horticultural practices, although gardening was certainly their most important use of plants, as far as subsistence was concerned. The reason for this is that many of Wilson's interviews with Buffalobird-woman (particularly those of 1912) were to become his dissertation in anthropology. It was

first published in 1917 by the University of Minnesota as “*Agriculture of the Hidatsa Indians: An Indian Interpretation*.” In my opinion no better book has ever been published on the topic. Buffalobird-woman was an ideal person to be Wilson’s source, and Wilson was the right person to put it all together in a readable and accessible form. Anyone wanting information about Hidatsa gardens and gardeners can easily find Wilson’s dissertation, now entitled “Buffalo Bird Woman’s Garden” and published by at least three presses. There is also an online version available from the library at the University of Pennsylvania.

Buffalobird-woman was part of the second generation of Hidatsas to have fairly extensive contact with Euro-Americans and the first generation to be born after the horrors of the smallpox epidemic of 1837, which decimated the Hidatsa people. The changes in Hidatsa culture that occurred during her lifetime are truly mindboggling. Her family went from using the bison scapula hoe of her grandmother to the iron hoes that she grew up with and were considered the standard garden implement. In later years Wolf Chief used a horse-drawn plow for the garden. Despite the epidemics, despite the warfare with the Lakotas and the Assiniboines, despite losing her first husband to disease, and despite being evicted (along with everyone else) by the U.S. government from her home in Like-a-Fishhook Village in 1885, Buffalobird-woman still held on to her memories of a happier past (“the old days”). (See Smith 1972 for a concise history and the archaeology of Fort Berthold/Like-a-Fishhook and Meyer 1977 for a detailed history.)

Wilson was dedicated to allowing the people he was interviewing to interpret their own lives; he listened and transcribed. Not that he didn’t ask questions or try to keep the conversation firmly on the course he planned, but he was decidedly not an orthodox anthropologist of the second decade of the twentieth century. His training as a Presbyterian minister did nothing to prepare him to understand the functioning of a garden and the

1. In 1878 Buffalobird-woman and her husband, Son Of A Star, lived in the log cabin in the winter and in the earthlodge the rest of the year. Drawing by Goodbird. (Courtesy of the American Museum of Natural History)

tribulations of gardening. North and South Dakota are notorious for extreme weather: killer blizzards, blazing drought, and horrific thunderstorms with great blasts of wind and hail that pulverize everything to an unrecognizable green pulp. Summer high temperatures can easily exceed 100 degrees (38 C) at which temperature, as I have observed in our own garden, corn cannot function properly and tassels eventually “fire,” producing no pollen. Therefore, no kernels will develop on the ears—if the plants survive. And sometimes they don’t. But Wilson didn’t ask, and Buffalobird-woman didn’t volunteer anything about such matters. The great droughts of the mid-1860s (NOAA 2009 and Cleveland 1999), for example, were not to be recalled.

There were no crop failures to recount nor reasons to explain such failures. If there were garden pests like grasshoppers, raccoons, deer, beaver, gophers, or moles (and there were, you can be sure), she left them out of her recollections. What was the yield of a Hidatsa garden? How much Hidatsa subsistence was derived from garden produce, and how much from hunting and the gathering of uncultivated plants? At the time Wilson was there, some gardens were still being planted and harvested. But

while he mapped several, he did not think (or was not inclined) to ask about yield or how reliable the gardeners thought their gardens were.

Having grown Hidatsa corn, beans, and squash for more than thirty years, and having tried to follow as closely as possible the dictates of Buffalobird-woman, I have had questions, and many of them have been either answered or found out (Munson-Scullin and Scullin 2005). But the question still remains: how important were gathered plants to the Hidatsa diet? The answer is that there is no single figure or conclusion to be drawn. Some years the garden would have been a failure or largely a failure, and reliance on bison and perhaps intensified gathering might have been necessary. Other years would have been great successes, but a gardener couldn't count on it—only just hope or pray for it. An old German farmer fishing in the Knife River at the site of the former Hidatsa village of Awatixa said it all when, a few years ago, I commented on how good the crops looked in late July: “It ain't in the bin yet.”

Hidatsa Cultural Geography

Hidatsa lives were focused on several variables other than the universals of food, shelter, and security. Because they were village dwellers, they needed a place that had the resources to sustain a village—for years, decades, or even centuries in some cases. Because they practiced both bison hunting and horticulture, the Hidatsas needed a place with access to areas frequented by bison as well as good land that could be tilled with digging-sticks and bison scapula hoes and that could produce at least an adequate crop of corn most years. They also needed trees.

Their dwellings were large and constructed of wood, and their villages were protected by palisades of timber. Virtually all their food needed to be cooked. They therefore required a large and reliable source of wood all year long, and year after year, within an ecosystem where wooded areas were almost entirely limited to the floodplains of the Missouri River and its larger tributar-

ies. There the gallery forests could be cut for timber, and the annual floods brought large quantities of driftwood for both timber and firewood.

Climatic variability affected both the yield of bison and the yield of corn—a precarious set of circumstances. Central North Dakota is in the transition zone from the long grass prairies in the east to the short grass prairies to the west—an area of “midgrass” or “mixed-grass” prairies. This means not only a mixture of tallgrasses (e.g., big bluestem) and short (e.g., buffalograss), depending on the nature of a particular place but also an abundance of mid-sized grasses such as the needle grasses, grama grasses, and western wheatgrass, which all grow to a foot or two tall (30–60 cm).

Historic records from the past 150 years and prehistoric records from dendroclimatological sources and cores from the bottoms of North Dakota lakes extend the climatic record back at least two millennia (e.g., Laird et al. 1996) and show the alternation between drought and ample to even abundant precipitation varying considerably over time. (For a succinct review of the literature, see Ashworth 1999.) People in the area never knew just what to expect, with the result that climate-mediating religious ceremonies were well integrated into their lives.

Most precipitation in the vicinity of Fort Berthold Reservation falls during the growing season (High Plains Regional Climate Center 2012), but because much of it is derived from thunderstorms, it is literally “hit and miss.” Furthermore these storms may produce both high, even violent, winds and hail, which can quickly strip leaves from plants or even destroy them completely. Rivers and streams draining into the Missouri River (almost all from the higher elevations of the Rocky Mountains) may be raging torrents or trickles. It is a land of frustration and uncertainties, which requires diverse and flexible approaches to survival.

Bison, which once numbered in the tens of millions in the Great Plains (estimates vary from 30 to 60 million, e.g., Knapp

1. Great Plains prairie types and location of Fort Berthold. (Adapted from the original courtesy of James Mason and the Great Plains Nature Center, Wichita KS)

et al. 1990: 39), were the Hidatsas' main source of food and also a valuable source of hides and bones for tools such as the bison scapula hoe, the horticultural standard. Larger bones like the femur and humerus were pounded to fragments with stone hammers and then boiled for the much valued "bone-grease." The fat accumulated in the hump in the fall as well as kidney fat were also much appreciated, but the bone-grease was considered to be the most desired and well worth the extra work required to process it. Any habitation site found in the range of the bison will have shattered bison bone, usually in considerable quantities, in the site matrix and garbage middens.

The North Dakota Badlands, as they are now known, are the deeply dissected soft rocks (sandstones, shales, clays, and a very soft coal known as lignite) exposed on both sides of the Little Missouri River in far western North Dakota. These were deposited as the result of the formation and subsequent erosion of what are now the Rocky Mountains, a process begun about 65 million years ago (see KellerLynn 2007 for a thorough account). These were indeed "badlands" for nineteenth-century cross-country travelers with teams and wagons, but to the people who had lived in or near the area for more than 10,000 years, they were a highly favored hunting territory. Vegetation changes abruptly at the eastern edge—the land literally drops away, sometimes for hundreds of feet—and the various weathering sands and clays support a diverse plant cover. This is, for the most part, short-grass prairie with a distinctly different character than the lands around the villages on or near the Missouri River.

Thus the Hidatsa had a minimum of seven ecosystems from which to extract resources: the Missouri River provided virtually all needed water, driftwood for construction and firewood, and fish; the floodplain adjacent to the river provided habitat for game, trees for construction and firewood, and land for gardens; the high, grass-covered terraces along the Missouri and Knife Rivers were the sites of most villages and, from the early

nineteenth century on, pasture for their horses; the wooded coulees (ravines) that drained the higher lands into which the Missouri River was entrenched provided sites for the smaller winter villages because they offered shelter from the winds, wood for dwellings and fuel, and a spring for a reliable source of water; the wet or at least damp areas of scattered springs, sloughs, and creeks provided game and the grasses used in the construction of earthlodge roofs and the linings of storage pits; the vast mid-grass prairies supported what seemed to be an infinite supply of bison; and the frequently visited badlands were populated by bison, mule-deer, elk, antelope, and smaller game. The badlands also provided a considerable diversity of plant communities that were dependent on both soil types and aspect—the direction faced by the slope that determines whether the slope is hot and dry (south and southwest facing) and therefore supports a cover of grasses and drought-resistant forbs and shrubs, or cooler and moist enough (north and northeast facing) to support woody vegetation like junipers, ash, chokecherries, and junberries as well as a diverse understory.

The climatic extremes of the plains meant that failure of one or more of these systems was inevitable at any unpredictable time. People who lived in these high-risk areas had multiple alternative strategies for coping with the various adversities with which they were confronted. Knowing the land and its resources, as well as its great capacity for unreliability, was the highest priority for those who lived there.

The Hidatsas, the Mandans, and the Arikaras

The MHA (Mandan, Hidatsa, and Arikara) Nation, or the Three Affiliated Tribes, as they are known today, were all village dwellers with economies based on both horticulture and bison hunting. To call them “horticultural tribes” is to place undue emphasis on the role of horticulture in their subsistence. Theirs were very much mixed economies with the fraction of their subsistence

from gardening and from bison hunting varying considerably from year to year as well as from family to family.

The Mandans and the Hidatsas speak languages of the Siouan Language Family, and at various times in the preceding thousand years the past thousand years they have arrived at the Missouri River in what is now North Dakota from the east and south-east. They brought with them eastern horticultural traditions and village life. The Arikaras are a branch of the Pawnee (Caddoan Language Family) who occupied the central Great Plains. The Arikaras made their way up the Missouri River in late pre-historic times until all three tribes wound up living in a single, well-fortified village in the mid- to late nineteenth century. This village was Like-a-Fishhook. Their histories and prehistories, needless to say, are long and complex, but for the Hidatsas the best and most accessible source is *People of the Willows* (Ahler, Thiessen, and Trimble 1991). *The Way to Independence* by Carolyn Gilman and Mary Jane Schneider (1987) is no longer in print but is an extraordinary book that provides many details of the lives of Buffalobird-woman, Wolf Chief, and Goodbird, as well as the best biography of Gilbert Wilson ever produced (thanks to Alan R. Woolworth). The book, which contains hundreds of illustrations, is a veritable catalog of the material culture of the era. *The Village Indians of the Upper Missouri* by Roy Meyer (1977) is a good history of all three tribes. Volume 13 of the *Handbook of North American Indians* (DeMallie 2001) provides encyclopedic coverage of Plains Indian cultures from pre-historic through historic times.

Some Observations on Indigenous Horticulture

Once people have made the shift to growing at least some of their own food, they are compelled by their gardens to settle down. Gardens require frequent, if not almost constant, attention in order to function properly. As I have frequently noted, nature abhors a garden.

Gardening involves location of land appropriate for gardens; clearing land to prepare it; tilling the land with digging-sticks (until horses were put to that enormous labor in the latter part of the nineteenth century) so that planting is possible; weeding the crops so that plant competition is kept under control; protecting them from the depredations of wild animals like deer, raccoons, and beaver as well as other humans; harvesting; and storing most of the harvest for later consumption. All of this demands that the gardeners be there a great deal of time. Furthermore, after all of this, the produce must be processed to make it edible.

Harvesting may well mean that a ton or more of processed crops have to be stored securely so that it is available when needed as well as safe from those who would steal it—always a serious problem. To protect their harvests, people dug pits that were lined with grass and then thoroughly obscured at the surface so that only family members would know the location come winter when the cache was opened and food taken to the sites where people overwintered.

During the nineteenth century, new garden plants were often quickly adopted. A long grown variety of *Cucurbita pepo* was replaced by other varieties—like the pat-a-pan and new species such as various varieties of Hubbard squash (*C. maxima*), which has both a thicker flesh and a sweeter taste. Different varieties of beans grown by the Hidatsas, Mandans, and Arikaras could compete with the “red bean” still being grown today. The yellow bean in particular seems to thrive in hot, dry weather and probably originated in the Southwest among the Pueblo peoples. Shield beans are larger, take longer to mature, and are widely distributed, at least over the eastern half of the United States.

Watermelons (*Citrullus lanatus*) are an example of plants that were rapidly integrated into gardens. They were introduced after having rather quickly made their way from the southeast Atlantic coast, where they had been introduced from Africa by European colonists (Blake 1981). “Spanish settlers were producing water-

melons in Florida by 1576” (Maynard and Maynard 2000), and they had reached the middle reaches of the Missouri River by the early 1800s, as noted by William Clark on August 2, 1804. Why did watermelons travel so quickly? Because they are sweet and because they will grow under drought conditions with which other garden plants struggle. They also produce numerous seeds.

Gardeners are usually quite happy to try new plants if they are tasty or in some way useful, but if they are sweet, they are even more welcome. Wild plants, in the grander scheme of things, were relatively unimportant to regular diets. As food they were largely complementary unless a person or group was starving.

On the other hand, gathered plants offered very utilitarian raw materials to produce fiber for twine, pigments for facial and body decoration, medicine, and perfumes. A few plants, like the sages and junipers, had ritual uses. Many gathered plants, however, added an important but missing ingredient: something sweet.

Wood was a special category of “gathered plants” but was ubiquitous in the lives of the Hidatsas. They lived in wooden lodges, which might require two hundred or more trees of varying size. Their villages were protected by wooden palisades, which used many hundreds of trees. Hunting and gardening tools, bullboats, and bows and arrows were constructed of wood. Each village consumed tons of wood every year, and the quest for wood was a constant in life.

Knowledge of plants was widely shared. The late prehistoric and early historic time frame during which many peoples existed on the Great Plains was of relatively short duration—a few generations at most for some—and therefore each newly arrived group had to tap into the existing knowledge base of those who had lived there long enough to develop an extensive familiarity with the local flora.

People trade information as well as tangible items. In fact, the trade of tangible items is invariably the occasion for the transfer of information as well. If there were not sufficient reasons to

establish trading relationships, then people created them. Napoleon Chagnon's descriptions of Yanomamo trading and alliance formation were certainly mirrored on the plains (Chagnon 1997: 162–64). Raymond Wood (1980: 108) noted that on the Great Plains an important “consequence of systematic trade . . . was the diffusion of cultural elements over large areas. This contributed to cultural uniformity among alien groups and provided a means of leveling cultural differences over wide areas.”

People have long favored having trading partners, people they hope that they can trust. On the plains (as elsewhere) this relationship was often strengthened by extending kinship terms to trading partners (brother, father, sister, and so on). Information about plants must have been exchanged as part of the whole process of trading (which sometimes included plants and the rights to use certain plants). Hidatsa and Mandan villages were important trading centers, and hunting people from all over the Northern and Central Plains came there on a regular basis to exchange dried meat, hides, and exotic items for corn, beans, and tobacco. Historically guns obtained from the trappers and traders to the north and east were traded to southern peoples for horses brought up from the south (Lehmer 1971b).

For all the diversity of the origins of tribal groups who came to inhabit the Great Plains in the past thousand years, the area experienced a great deal of convergence of culture and material culture as people quickly learned how to live there and exploit the available resources. As noted, an important part of this convergence involved the transmission of information about the utility (or hazard) of various plants.