# INTRODUCTION

In 1870, an American Indian Agent visiting Red River remarked on the widespread consumption of "pemmican"– a native foodstuff composed mostly of large quantities of bison fat and dried, pounded meat. It seemed above the 49th parallel in the North American Great Plains, pemmican was forming "the national dish so to speak, of a population composed of many nationalities; and like everything else in this peculiar country, it is a wonderful mixture." Henry M. Rice went on to write that "it is a difficult matter to tell at all times exactly where the half-breed ends and the white man or Indian begins; correspondingly difficult is it to tell where the buffalo terminates and the pemmican begins."[1]

However, what Rice discovered was nothing new: pemmican in the northern latitudes of the Great Plains had been the food stuff supporting, and this for quite a while, British settlers, missionaries, military officers, and merchants. Even prisoners at the Red River jail ate a pound of pemmican a day, plus water. Not many people liked to eat it. Americans dubbed it "Red River Granite," given its high proportion of harder, unsaturated fats. Visitors said it tasted a lot like candle wax and bed feathers, and given its hurried production for commerce, trade pemmican usually offended the palette with admixtures of "hair, stick, bark," as one of its eaters complained.[2] But taste aside, pemmican found a formidable

[1] Henry M. Rice (reprinted, 1981), "Pemmican," in *The Minnesota Archaeologist*, 40(2):96.

[2] See July 4, 1839 resolution 20, whereby prisoners unable to "maintain themselves shall be maintained . . . at a rate of a pound of pemmican a day or of an equivalent in other provisions." This was later rescinded and prisoners "shall not be allowed to supply himself with any other kind of food or with any luxury whatsoever," than pemmican. Resolution 20, July 4, 1839, and June 23, 26, 1841, Loose Minutes of the Council of Assiniboia, 1837–1862, E.16/3. American terminology is found in Edward N. Wentworth (1956), "Dried Meat: Early Man's Travel Ration," *Agricultural History*, 30(1):4. Robert Kennicott wrote at La Pierre's House in January 1862 that "Pemmican is supposed by the benighted world outside to consist only of pounded meat and grease; an egregious error; for, from some experience on the subject, I am authorized to state that hair, sticks, bark, spruce leaves,

dietary place in the changing circumstances of the British West. As a food source, it fueled the wide-ranging circuits of fur company "York boats" that established a British commercial, missionary, and colonial presence from Hudson Bay to the Arctic Ocean. In the late 1850s, Henry Youle Hind, a Canadian naturalist visiting Rupert's Land, the lands carved out by royal charter for the Hudson's Bay Company (HBC), was struck by the pemmican-fueled transport there – a "vast internal system" operated by the company ran upwards of 200 boats, of 4 tonnes each, and employed no fewer than 1,200 voyageurs in its transportation annually.[3] By 1870 pemmican was so ubiquitous and cheaply procured for commercial, military, and colonial transport that if it was "peculiar to Rupert's Land," as another observer said,[4] the British West was also disconcertingly dependent on this energy source. Troubling to many observers was that bison herds supporting this food supply were quickly disappearing, and, within a decade, this energy "regime" was in effect all but exhausted.

This environmental history examines the nature of the pemmican trade forming by the early nineteenth century. It examines how, in the northern latitudes of the Great Plains, a bioregion shaped by market forces, ideal climatic conditions, and increasingly intensive bison hunting developed and underwent significant change in its historical circumstances. Although it is generally accepted that the pemmican food trade supporting the northern fur companies was responsible for most of the annihilation of the "Canadian" bison herds north of the Missouri, there have been surprisingly few studies of the nature of the social and political dynamics around food exchange and the human responses to the environmental change it fostered.[5] This book attempts to provide

stones, sand, etc., enter into its composition, often quite largely, especially if the meat has been pounded by the Indians." Anonymous (1867), "Robert Kennicott" *Transactions of the Chicago Academy of Sciences*, **1**:177. Many thanks to Ted Binnema for sending me Kennicott's remarks.

[3] Henry Youle Hind, *Narrative of the Canadian Red River Exploring Expedition of 1857, and of the Assiniboine and Saskatchewan Exploring Expedition of 1858*, Vol. II (London: Longman, Green, 1860), 103.

[4] Joseph James Hargrave, *Red River* (Alton: Friesen, 1977 [1871]), 168.

[5] Arthur Ray and William Dobak have offered significant studies of the pemmican trade. Arthur J. Ray (1984), "The Northern Great Plains: Pantry of the Northwestern Fur Trade, 1774–1885," *Prairie Forum* **9**:263–280. Ray also provided an overview of the pemmican trade in *Indians in the Fur Trade: Their Role as Trappers, Hunters, and Middlemen in the Lands Southwest of Hudson Bay, 1660–1870* (Toronto: University of Toronto Press, 1998), 125–136; William A. Dobak (Spring 1996), "Killing the Canadian Buffalo, 1821–1881," *Western Historical Quarterly* **27**:39–48. The first significant historical study of pemmican as a critical food energy was pioneered in the work of arctic explorer, Vilhjalmur Stefansson, who championed its use as a U.S. army war ration, *The Fat of the Land* (New

an understanding of how and why pemmican became a driving energy source in the British western territories, and the nature of a society that developed around the trading, use, and distribution of bison fats and meats.

Understanding the fur trade from the perspective of its food supply is timely given the recent historical interest in food as a matter of imperial and colonial history. Jeffry Pilcher has highlighted the centrality of food in world history, and moments when agrarian food surpluses benefited European powers in their global expansion over the course of the eras of exploration and discovery.[6] The development of European food systems, exchanges of new food energy sources from colonial points around the globe, and dietary shifts that drove new orders of muscle power in agricultural improvements, make food history critical to understandings of colonial, economic, and even urban-industrial change.[7]

In North America, Europeans in the 1770s discovered the benefits derived from mass producing bison pemmican which, because of its high fat content, offered fantastic amounts of caloric energy to fur brigades. Because of the way that it was cheapened in mass production and delivered in new food systems, pemmican consumption expanded to underwrite not only greater commercial reach, but also to support sinews of colonial power.

However, pemmican constituted more than the emergence of a new market commodity. Unlike other animal fur and skin trades, food trading between Native people and newcomers created arguably unique relationships based on obligations and rules of reciprocity. New energy also changed relationships between humans and the natural world in America. Certainly, the pemmican trade made for a different history of contact. As Henry Rice suggested, the pemmican-making in the north created an inseparable society of people where food was produced, traded, and consumed between them. No less important was his observation that, in such

York: Macmillan, 1957), which was a follow-up and rebuttal to critics of his earlier work, *Not by Bread Alone* (New York: Macmillan, 1946).

[6] Jeffrey M. Pilcher, *Food in World History* (New York and London: Routledge, 2006), 17–18.

[7] Chris Otter (2012), "The British Nutrition Transition and Its Histories," *History Compass*, 10/11:818 [812–825]. David Grigg (1995), "The Nutritional Transition in Western Europe," *Journal of Historical Geography*, 21(3):247–261; also, E. J. T. Collins (1975), "Dietary Change and Cereal Consumption in Britain in the Nineteenth Century," *Agricultural History Review*, 23(2):97–115. Craig Muldrew, *Food, Energy and the Creation of Industriousness: Work and Material Culture in Agrarian England, 1550–1780* (Cambridge: Cambridge University Press, 2011), 260–263, 319.

circumstances, the bison became indistinguishable from the pemmican upon which all depended. Explaining the economic and social characteristics of this emerging food-exchange "pemmican empire," then, becomes the objective of this book.

In environmental and native history, there is a great interest in better understanding why humans are prompted to exhaust natural resource "commons."[8] This is particularly the case with colonial outposts where Europeans or Native people drawn into a market quickly overhunted, extirpated, exterminated, or simply ruined New World fish stocks, game populations, furbearers, and other forms of terrestrial wealth. Although considerable economic analysis has weighed features of Garrett Hardin's model of the "tragedy of the commons," historians have often found the hypothetical commons, as an idea, unmanageable in its simplest terms.[9] It is often hard to locate Hardin's uninformed individualism in historical circumstances. As well, unhampered access to a "commons" rarely existed in historical settings. Resources and the territories they existed within have often been hedged in by proprietary groups, tribal nations or many other claimants to make their access neither free nor remotely "open." The way humans exploit resources, too, cannot be easily reduced to a single human characteristic or predictable behavior. Not all cultures use to their ruin historical commons. Indeed, historians

[8] George Colpitts (Summer 2012), "Provisioning the HBC: Market Economies in the British Buffalo Commons in the Early Nineteenth Century," *The Western Historical Quarterly*, 179–181. See Richard H. Grove, *Green Imperialism: Colonial Expansion, Tropical Island Edens and the Origins of Environmentalism, 1600–1860* (Cambridge: Cambridge University Press, 1995). For an overview of the questions posed, see I. G. Simmons, *Changing the Face of the Earth: Culture, Environment, History*, 2nd ed. (Oxford: Blackwell, 1996); on the impact of capitalization on the "world hunt" of the seventeen through eighteenth centuries, including fur, deerskins, whale, and codfish, see John F. Richards, *The Unending Frontier: An Environmental History of the Early Modern World* (Berkeley: University of California Press, 2003).

[9] See, e.g., Theresa A. Ferguson, "Wood Bison and the Early Fur Trade," in Patricia A. McCormack, and R. Geoffrey Ironside, eds., *The Uncovered Past: Roots of Northern Alberta Societies*, Circumpolar Research Series No. 3 (Edmonton: Canadian Circumpolar Institute Press, 1993), 63; Tine de Moor (2009), "Avoiding Tragedies: A Flemish Common and Its Commoners under the Pressure of Social and Economic Change during the Eighteenth Century," *Economic History Review*, 62:1–22; John McKenna, Anne Marie O'Hagan, James Power, Michael Macleod, and Andrew Cooper (June 2007), "Coastal Dune Conservation on an Irish Commonage: Community-based Management or Tragedy of the Commons?" *The Geographical Journal*, 173:157–169; Emily Young (2001), "State Intervention and Abuse of the Commons: Fisheries Development in Baja California Sur, Mexico," *Annals of the Association of American Geographers*, 91:283–306; C. Allen and Ian Keay (2006), "Bowhead Whales in the Eastern Arctic, 1611–1911: Population Reconstruction with Historical Whaling Records," *Environment and History*, 12:89–113

often identify changing modes of production, cultural differences, and evolving economic systems to better explain resource exhaustion, especially in places that, properly speaking, offered "open access resources." Very often, they have pointed to the rise of the market economy, moments of capitalist accumulation and industrialized transformations of the earth – and related energy regimes animating human work –in the history of resource exhaustion.[10]

The open-access killing of the bison raises its own example of a tragic overkill in a North American commons. The near extermination of the animal is usually explained in reference to the skin and robe trade in the United States, where unrestrained competition set Indian and American hunters against herds, especially after the 1850s.[11] The American example offers many perspectives on competitive forces, open access, and the ways groups and individuals weighed short- versus long-term interests in one of the most significant resource annihilations in North American history.[12] But while the American West offers a number of insights into the human choices and strategies of Native people and frontiersmen hunting bison herds for subsistence and the market, a very different commons history played out in the British portions of the Northern Great Plains. There, the fate of the "Canadian" bison herds that ranged north of the Missouri between the Rocky Mountains to the west and the

[10] Arthur McEvoy, "The Problem of Environment," in *The Fisherman's Problem: Ecology and Law in the California Fisheries, 1850–1980* (Cambridge: Cambridge University Press, 1986), 9–14; Andrew Isenberg, *The Destruction of the Bison: An Environmental History, 1750–1920* (Cambridge: Cambridge University Press, 2000), 156–159; Henning Bohn and Robert T. Deacon (June 2000), "Ownership Risk, Investment, and the Use of Natural Resources," *American Economic Review*, 90:526–549; Robert Mendelsohn (October 1994), "Property Rights and Tropical Deforestation," *Oxford Economic Papers*, New Ser., 46:750–756; Philippe Jacquin, *Les Indiens blancs: Français et Indiens en Amérique du Nord (XVIe-XVIIIe siècles)* (Montreal: Libre Expression, 1996), 112–114.

[11] On Indian response to the market elsewhere, see Ann M. Carlos and Frank D. Lewis, *Commerce by a Frozen Sea: Native Americans and the European Fur Trade* (Philadelphia: University of Pennsylvania Press, 2010), 114–116, 131–145; Pekka Hämäläinen, *The Commanche Empire* (New Haven: Yale University Press, 2008), 148, 152, 240–243; John Milloy, *The Plains Cree: Trade, Diplomacy and War, 1790–1870* (Winnipeg: University of Manitoba Press, 1990), 21–39; Theodore Binnema, *Common and Contested Ground: A Human and Environmental History of the Northwestern Plains* (Norman: University of Oklahoma Press, 2001), 117–119; Dan Flores (September 1991), "Bison Ecology and Bison Diplomacy," *History*, 78:465–485. Timothy C. Losey and Gabriella Prager (1975), "A Consideration of the Effects of the Demise of Bison on the Subsistence Economy of Fort Victoria: A Late 19th Century Hudson's Bay Post," *Canadian Archaeological Association Bulletin*, 7:162–182.

[12] Isaac Lippincott (April 1916), "A Century and a Half of Fur Trade at St. Louis," *Washington University Studies*, III, Part II (2):221.

Red River Valley to the east formed around different demands for bison commodities, and different social and economic relations between newcomers and Indian hunters.[13]

Across these grasslands, fescue belts and arcs of parkland ecotone – the latter a distinct deciduous-grass transitional ecology spanning between northern boreal forest on the north and plains grasslands on the south – perhaps as many as five to six million animals were sheltered from much of the market hunt for skins and robes, given the slow development of rail transport facilities and other technological lags.[14] Instead, from the 1780s onwards, it was the growing commercial demands for pemmican that became consequential to the bison's long-term and soon unsustainable human use. The food needs of fur traders expanding their commerce in the subarctic incited factory production and standardized food making in the adjacent plains and prairie. In just less than a century, environmental factors such drought, rising plains and Métis hunting populations, and, possibly, introduced bovine diseases, joined with a growing maul of food market hunting to end the buffalo era. More importantly, the "commons" in which these forces converged changed and threw up new opportunities and challenges for humans, especially Native people, who drew from it. Although William Dobak and Arthur J. Ray have both explained how the provisions trade helped kill "the Canadian bison," their work overlooks the particular type of market this food trade supported, and the choices it presented to Native people, Métis, and traders as they concerted their killing of bison, almost to the last animal.[15]

As a comprehensive history of the commercial rivalry and then monopolization of the pemmican trade in the dynamics of climate and shrinking bison populations, this work complements other perspectives on western environmental history provided by Donald Worster, Elliot West,

[13] Ray and Dobak suggested the possibility of bovine diseases impacting the herds, increased plains Indian populations, herd losses to predators, and the impact of climatic change; but ultimately, they single out the wasteful outdoor butchery for provisions trading as the most important factor in the "killing of the Canadian buffalo" northward. Dobak, "Killing the Canadian Buffalo, 1821–1881," 39–48; Ray, "The Northern Great Plains: Pantry of the Northwestern Fur Trade," 263–280. James Daschuk provides an overview of indemic bovine tuberculosis affecting North American bison herds in the pre-contact era, *Clearing the Plains: Disease, Politics of Starvation and the Loss of Aboriginal Life* (Regina: University of Regina Press, 2013), 8–10.

[14] Dobak produced the population estimates for the Canadian herds based on range carrying capacity. Dobak, "Killing the Canadian Buffalo," 36; Ray's analysis is provided in "The Northern Great Plains," 263–280.

[15] Dobak, "Killing the Canadian Buffalo, 39–48; Ray, "Pantry of the Northwestern Fur Trade," 263–280.

and Richard White. They have situated capitalism, changing modes of production, expanding market economies, and the peculiarities of western ecological regions themselves into the sweep of western history.[16] *Pemmican Empire* tells the history of provisions trading by integrating the fields of Native and Métis history with Northern Plains environmental history. It will become evident that the provisions trade, like other manifestations of the market in the West, unbalanced power between major groups such as the Cree, Blackfoot, and other Plains Native people. The developing provisions trade certainly deflected the history of Métis ethnogenesis and this group's market orientation, as Gerhard Ens' work has already suggested. This study adds the insight that the strategies made by Metis around pemmican, dried meat, and fat trading, especially when prices fell on these commodities after 1821, were significant historical developments. Additionally, this study's emphasis on the interrelations of tribal nations in the specific environment of the Northern Great Plains, and especially the opportunities opening to them in the climate window of the northern latitudes builds on the work of Ted Binnema. In his environmental history of the Northern Great Plains, climate figured centrally in the changing trade relations of the comparatively horse-poor and gun-rich entities in the "northern coalition" and the ecological reality of the northwestern bison frontier. Many of these works draw from, or are informed by the concept of a bioregion, perhaps most effectively applied by environmental historian Dan Flores, who has argued that ecological regions are a good starting point to understanding the economic and social history of even transborder places, especially on the Great Plains. Bioregional approaches have been valuably applied by many Canadian historians;[17] in this work, the specific ecological region

[16] See Donald Worster, *Under Western Skies: Nature and History in the American West* (Oxford: Oxford University Press, 1992), 13–14, 58–59; Donald Worster, "Doing Environmental History," *The Ends of the Earth: Perspectives on Modern Environmental History* (Cambridge: Cambridge University Press, 1988), 289–307; Elliott West, *The Contested Plains: Indians, Goldseekers, and the Rush to Colorado* (University Press of Kansas, 2000); Richard White, *The Roots of Dependency: Subsistence, Environment, and Social Change among the Choctaws, Pawnees, and Navajos* (Norman: University of Nebraska Press, 1988).

[17] Gerhard Ens, *Homeland to Hinterland: The Changing Worlds of the Red River Metis in the Nineteenth Century* (Toronto: University of Toronto Press, 1996); Theodore Binnema, *Common and Contested Ground: A Human and Environmental History of the Northwestern Plains* (Norman: University of Oklahoma Press, 2001); Dan Flores, *The Natural West: Environmental History in the Great Plains and Rocky Mountains* (Noran: University of Oklahoma Press, 2003), in particular, the chapter, "Place: Thinking about Bioregional History," 89–107; See Neil Forkey, *Shaping the Upper Canadian Frontier: Environment, Society and Culture in the Trent Valley* (Calgary: University of Calgary Press, 2003) and Shannon Stunden Bower, *Wet Prairie: People, Land and Water in Agricultural Manitoba* (Vancouver:

spanning most of the British Plains to perhaps the Missouri profoundly impacted, and was impacted upon, by a market economy, the Northern Plains climate and the vicissitudes of the stochastically abundant bison populations found there.[18]

It was not just a quibbling point when visitors distinguished between dried meat, or "jerky" territories south of the 49th parallel, and a pemmican empire in the north. The very nature of the two food forms, north and south, led to very different historical outcomes and market relations. Jerky, or dried meat, was the most elemental product of the chase. When an animal's carcass was flensed, its flesh, if carefully butchered, could be lain on racks and, in twenty-four or forty-eight hours yield to the sun's force and the desiccating effects of prairie breezes. Plains women dried meat with smoke, heat from a fire, or sunlight. They preferred the latter. Solar heat more slowly released enzymes that added distinctive and more pleasant tastes to the meat while it cured. At the end, jerky could have a myriad of flavors. It was, though, a staple food. It could be tied in bales. It held less ceremonial and diplomatic value as a gift given to strangers. Jerky was ultimately a banal cuisine: in long lengths it could veritably serve as a trouser belt.

Pemmican, on the other hand, was comparatively labor intensive and notoriously finicky in its preparation. The critical component in pemmican making was fat, hence the Cree derivative of the word *pemmican* (pronounced *pemigan*) meaning "he makes grease." [19] The very word emphasized the work entailed in pemmican making, as well as suggesting the life-giving caloric energy derived in the process.[20] Pemmican

UBC Press, 2011). Other examples of bioregional approaches can be found in William J. Turkel, *The Archive of Place: Unearthing the Pasts of the Chilcotin Plateau* (Vancouver: UBC Press, 2007); and James Murton, *Creating a Modern Countryside: Liberalism and Land Resettlement in British Columbia* (Vancouver: UBC Press, 2007).

[18] The importance of bison scarcity is only recently becoming appreciated as a force in Northern Plains history. See Adam R. Hodge (April 2012), "'In Want of Nourishment for to Keep them Alive,': Climatic Fluctuations, Bison Scarcity, and the Smallpox Epidemic of 1780–82 on the Northern Great Plains," *Environmental History*, 17:365–403.

[19] Edward N. Wentworth, "Dried Meat – Early Man's Travel Ration," Smithsonian Publication No. 4290 (Washington, DC: Smithsonian Institution, 1957), 564; Hodge suggests that the "Cree *ptmtkdn* [derives] manufactured grease, from *piniikeu*, he (or she) makes (or manufactures) grease, that is, by boiling crude fat, *plinu*, in water and skimming off the supernatant oil." He said that the verb was used by the Cree "in the sense of *he makes pemmican*," Smithsonian Institution Bureau of American Ethnology, Bulletin No. 30, *Handbook of American Indians North of Mexico*, Vol. II, Frederick Webb Hodge, ed. (Washington, DC: Smithsonian Institution, 1912), 223–224.

[20] I am grateful for my discussions of the word's etymology and this transformative meaning (and proper pronunciation as "Pimigan") with Cumberland House Cree specialist

fats were traditionally extracted as marrow from the bisons' – or other animals' – long, hollow bones, and "grease" from their large, bulbous cancellous bones. The latter was accomplished by crushing the bones and boiling them. Of all fat on the North American plains bison (*Bison bison),* and, farther north, the wood subspecies (*Bison bison athabascae*), those of its marrows and bone greases held the highest concentrations of white or oleic fatty acids, offering unsaturated, more clean-burning, fat energy.[21] These fats were sought after because they did not leave a waxy, unpleasant aftertaste.[22] But they were also fattier than water-impregnated and lower energy subcutaneous fats (such as the bison's albeit delectable hump fat), intramuscular fat (the marble fats, or "flaky" fats in meat) and interior, or organ leaf fats (sometimes likened to butter for their consistency).

Once joined in a ratio of hard and soft fats – some taken from the marrows, others from the interior – and melted, pemmican makers poured the liquid into sacks filled with dried meat that had been pounded into near powder. The high-fat and protein solid that cooled into a block could offer an astounding 3,200 to 3,500 calories per pound. Commonly fried further in bison fat to make a stew, called *Rughaghan,* pemmican could pack as much as 3,800 calories per pound, easily. Some pemmican

and Cree descendant, Keith Goulet, at the 2010 Rupert's Land Colloquium, Winnipeg, Manitoba.

[21] John D. Speth and Katherine A. Spielmann (1983), "Energy Source, Protein Metabolism, and Hunter-Gatherer Subsistence Strategies," *Journal of Anthropological Archaeology,* 2:1–31. On the issue of selectivity of bone for marrow qualities or quantities, see Kehoe, *The Gull Lake Site,* 145–149, 152. For an in-depth analysis of marrow selection, especially that with high oleic acid concentrations often in the lower extremities of mountain sheep and caribou, see Lewis R. Binford, *Nunamiut Ethnoarchaeology* (New York: Academic Press, 1978), 24–31; on the variety of behavioural, environmental and situational factors that help determine the presence or absence of bone at kill and butchering sites, see Lewis R. Binford and Jack B. Bertram, "Bone Frequencies – And Attritional Processes," in Lewis R. Binford, ed., *For Theory Building in Archaeology: Essays on Faunal Remains, Aquatic Resources, Spatial Analysis, and Systematic Modeling,* (New York: Academic Press, 1977), 77–153. There has been doubt about selectivity of quality over quantity: see J. W. Brink (1997), "Fat Content in Leg Bones of *Bison bison,* and Applications to Archaeology," *Journals of Archaeological Science,* 24:259–274. Speth, however, makes the persuasive claim that selectivity was likely made around changing marrow conditions between sexes, age, and season of the year. See Speth, above, and also discussion by Alice Marie Emerson, "Archaeological Implications of Variability in the Economic Anatomy of *Bison Bison,*" PhD thesis, Washington State University, 1990.

[22] Specifically, they "diffuse easily to the circumvallate papilla and foliate papilla" in the oral cavity. See E. Morin (2007), "Fat Composition and Nunamiut Decision-making: A New Look at the Marrow and Bone Grease Indices," *Journal of Archaeological Science,* 34:80.

makers added dried service or other varieties of berries to boost the flavor and nutritional value of the end product. Edward Wentworth's wartime analysis, while investigating the merits of fat-protein pemmican as a K-ration food for American troops, concluded that it came quite close to the ultimate solid fat source – lard – which yields 4,000 to 4,200 calories.[23] Given that pemmican, if sealed from air and kept from moisture, could store indefinitely, this concentrated food energy had terrific military application. It always has. Plains archaeologists trace the first pemmican making to the northern latitudes of the Great Plains some 5–6,000 years ago, a key moment in the cultural history of the region, as pemmican's massive energy stores and durability provided for greater mobility and safeguarding against starvation. Most likely, pemmican boosted the very nature of plains cultures, because it encouraged longer-distance travel, warfare, the elaboration of plains trade patterns and greater food security.[24]

With such a central place in plains cultural development, it is not surprising that pemmican figures in regional origin stories that link people with the bison as a perpetually gifting food source. Pemmican was more than a mere product of the hunt. Its production joined makers with the totality of the animal itself. The manufacture of traditional or "sweet" pemmican required intensive processing of a bison carcass, if not its almost complete disassembly. The manufacture of sweet pemmican, in particular, necessitated a thorough butchery of an animal to yield its most tasty interior organ fats like kidney and intestinal fats – the former often praised for their butter-like quality (John Palliser, as only an aristocratic traveler could, rated Missouri bison butter higher than turtle fat!).[25] Such fats could be accessed only by thoroughly splitting the belly,

[23] Edward N. Wentworth, "Dried Meat – Early Man's Travel Ration," Smithsonian Publication No. 4290 (Washington, DC: Smithsonian Institution, 1957), 567.

[24] J. Michael Quigg (1997), "Bison Processing at the Rush Site, 41TG346, and evidence for Pemmican Production in the Southern Plains," *Plains Archaeologist*, 42:159; and Brian O. K. Reeves, "Communal Bison Hunting on the Northern Plains" in L. B. Davis and B. O. K. Reeves, eds., *Hunters of the Recent Past* (London: Unwin, Hyman, 1990), 169–170. Laura L. Scheiber (2007), "Bison Economies on the Late Prehistoric North American High Plains," *Journal of Field Archaeology*, 32(3):297–313. As Kehoe suggests, despite the increasing efficiency of "edge" area hunting on the Northern Great Plains, Thomas F. Kehoe, *The Gull Lake Site: A Prehistoric Bison Drive Site in Soutwestern Saskatchewan* Publications in Anthropology and History No. 1 (Milwaukee Public Museum, 1973), 2, 87.

[25] "Fat is used instead of butter" among the Osage, according to *Tixier's Travels on the Osage Prairies*, ed. John Francis McDermott, translated from the French by Albert J. Salvan [1844] (Norman: University of Oklahoma Press, 1940), 194–195. John Palliser tasted cow fat at Fort Union of this sort: "peculiarly delicious, and more like that of turtle than