Steppe, Seed, & Supper: An Ethnoarchaeological Approach to Plant Foodways in Kazakhstan

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STEPPE, SEED, & SUPPER:
AN ETHNOARCHAEOLOGICAL APPROACH TO PLANT FOODWAYS IN KAZAKHSTAN

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In
Archaeology

Submitted to the
Department of Anthropology
University of Pennsylvania

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2012
Abstract
Lying between the two great nodes of Old World civilization, Central Asia is a yet little understood zone of cultural dynamism and development. This study delves into the domestic lives of Eurasian mobile pastoralists, examining small-scale agriculture and culinary advancement in accordance with mobile lifestyles, temperamental climates, and shifting political systems. A synthesis of archaeological, ethnographic, and agricultural data propose models for the cultivation and preparation of plant-based foods, and their necessity and feasibility in a mobile pastoral lifestyle. The study assesses the cuisine of Kazakhstan as evolving in the context of dairy and grain, augmented by meat, vegetables, and fruit; and draws comparisons between Kazakh foods and similar preparations across the Eurasian steppe belt, reaching into the Near East and East Asia.
1. Introduction

The desire to taste is instinctual. A developing child first begins to explore the environment with the mouth, initially looking and touching, but then inevitably tasting his or her surroundings (Groot et al., 1998). In doing so, taste, before oral communication or physical participation, is a human’s first introduction into the community and environment to which he or she belongs. In time, this curiosity is focused on foods, foremost how to find sustenance, but in addition how to creatively manipulate edible resources into an expression of group identity and ecology. Claude Lévi-Strauss (1969) famously defined the human relationship as a triangle moving between the raw, the cooked, and the rotten. Food is the linking metaphor, for just as culture processes the environment to create an experiential reality, cooking converts the raw into cuisine. Cuisine functions as a system of signs, prescribing meaning to the natural world, and converting grass into bread, muscle into meat. Food selection and preparation converts the raw to the cooked, nature to culture, and in doing so forges the identity of the creator (Chaudhuri, 2011; Lévi-Strauss, 1969).

The specifics of food choice are dictated by culture, climate, custom, and religion; what a person chooses to cook, eat, share, or touch place him or her in a place, time, and social category. Region, belief, and ethnicity often articulate themselves through food. Food becomes a language to express social attitudes, bonding a group, imparting cohesiveness to a collective identity and distinguishing self from other. Nostalgia is also a bonding force, as evident in holiday foods, cookbooks, and the canonization of some meals over others.

In evaluating local culinary traditions, one must account for a complex system of factors, most immediately the availability of plants and animals; followed by nutritional fulfillment and physical feasibility. This baseline cuisine is then enriched by creativity on the part of the cook, exploring flavor and texture, as well as political structures and their accompanying customs and fashions. Culinary traditions serve to differentiate gender roles, subsistence methods, and social strata, forging relationships and drawing distinctions between those who eat and those who do not.

In this thesis, I will use textual data, archaeological data, and ethnographic data to address the cultural and historic influences on foodways in southeastern Kazakhstan. Though the economy and diet of Inner Asian nomads is largely known for pastoral products, I will focus on cereals and grains in order to highlight the possible role of small-scale farming in nomadic strategies.
2. Kazakhstan and Central Asia: Nomadic and Pastoral Lifeways

Kazakhstan’s location, both geographically and geopolitically, has placed it at the crossroads of the world’s ancient civilizations, linking East Asia to the Near East and Europe via trade. Meanwhile the steppes, while vast, were far from empty, home to a rich, diverse network of steppe tribes. These nomadic populations have historically been romanticized and exaggerated: we imagine hordes of tribesmen, travelling via horseback across seemingly endless stretches of grass. Certainly such rapid movements have occurred in Eurasian history, notably the invasion of the Roman Empire by the hordes of Attila the Hun in the fifth century, and the conquests of Chinggis Khan and successors in the thirteenth. These well-known powers were part of a legacy of successive tribal empires. Along the European frontier were the Scythians, Sarmatians, Huns, Khazars, Kipchaks, Golden Horde, and Kalmuks; north of the Iranian Plateau the Massagetae, Sakas, Yuezhi, Tocharians, Hephalites, Turks, Chaghatai Mongols, Timurids, Uzbeks, and Kazakhs; and along the Chinese border the Xiongnu, Wusun, Xianbei, Rouran, Turks, Uyghurs, Mongols, Oirats, and Dzungars (Barfield, 1993:132).

However, in reality the dominant trend was not one of far-reaching, untethered populations roaming back and forth across steppe highways, but instead one of local lineages operating within small herding zones. Nomadism was organized around sub-clans (auł) of up to 100 families who traveled together, while inter-clan relations were organized at a higher tribal level. Herding zones usually stretched between just 50 and 100 kilometers, although they could sometimes extend as far as 500 kilometers round-trip (Barfield, 1993; Frachetti, 2008). These pastoral radii dappled the landscape, overlapping across the steppe and through mountain corridors. While maintaining their autonomy, communities also absorbed ideas from one another and from foreigners passing through; these networks gave rise to communication pathways as early as the third and second millennia BCE (Frachetti, 2006, 2008).

Foreign travelers, traders, and missionaries also brought their own intentions to Central Asia, and upon their departure, carried a bit of Central Asian culture, both material and intangible, onward. Ancient networks eventually became established trade routes, imagined now as the great Silk Road. Even today, highways operate along these same trails, linking major cities, and carrying peoples and goods from Urumqi to Almaty to Bishkek and beyond. Roadside stands operate along the way, functioning as minor trading
centers en route, where travelers may barter taxes to local destinations, or purchase food and drink. Link by link, East and West connect.

What we now conceive as “traditional Kazakh” culture, including food, house type, art, music, clothing, and rituals, condensed in the Semirech’ye (Seven-Rivers) Region of the Ili Valley between the fifteenth and seventeenth centuries (Kurylev, 2011). In 1456, independent steppe tribes unified as a Kazakh Khanate, and emerged as a distinct Kazakh ethnic group. The Kazakh Khanate consisted of three major entities, or zhuz (Russian orda): The Old Zhuz of southern Kazakhstan and Semirech’ye, the Middle Zhuz of central and northern Kazakhstan, and the Young Zhuz of western Kazakhstan, which would in the 19th century be subdivided into the Bukey Zhuz of the Volga and Ural Rivers. These Zhuz, while all components of the greater Kazakh Khanate, continued to operate semi-autonomously along tribal lines, ruled by a few powerful tribes, subdivided into smaller tribes and then clans; all unified by a common ancestry (Kurylev, 2011).

The Russian colonization of Kazakh territory began in northwestern Kazakhstan in the 17th century, and escalated through the 19th century as Russia increasingly exerted control on this border zone. In the 1890s, many Russian settlers relocated to the fertile lands of northern and eastern Kazakhstan to farm. The 1906 completion of the Trans-Aral Railway, which connected Orenburg, Russia, to Tashkent, present day Uzbekistan, expedited this colonization process, and many Russians relocated to the fertile river valleys of southeastern Semirech’ye. Vast territories previously largely relegated to herding were now constricted by farming and population influx. Between 1920 and 1925, the Kazakhs were incorporated into the Soviet Union as Autonomous Soviet Socialist Republics, first Kirghiz then Kazakh. In 1936, the territory was elevated to the Kazakh Soviet Socialist Republic. Alma-Ata, an ancient city whose occupation stretched into the Bronze Age, was designated capital in 1929 (Kurylev, 2011).

The Soviet period marked a dramatic and destructive change in Kazakh subsistence economies, notably a decreased emphasis on pastoralism, and instead a politically charged drive for high-yield agriculture. Most overtly, the Virgin Lands Campaign, which began in 1954, emphasized collectivized wheat cultivation on otherwise uncultivated northern steppe. Between 1929 and 1933 the number of livestock in Kazakhstan fell by a factor of ten, and an estimated 1.75 out of 4.12 Kazakhs died from famine and typhoid (Barfield, 1993). By the 1940s, state-run farms were once again herding large numbers of livestock into pasture; however, the system was highly regimented, and unsuitable to the temperamental steppe climate (Kerven et al. 2006).

Furthermore, the nomadic way of life was repressed simply by function of cultural dilution, as an immigration of an estimated six million Soviet displacements rendered Kazakhs a minority in their own territory. This mixture of deportees was largely Slavic, but also included Chechens, Ingush, Kalmyks, Crimean Tatars, Volga Germans, and Koreans. Upon the fall of the Soviet Union and Kazakh independence in 1991, a large number of deportees attempted to return to their ethnic homeland, but were largely deemed alien. Many have subsequently maintained residence in Kazakhstan. A large portion of the Russian population, however, has since emigrated (Peyrouse, 2007; Barfield, 1993).
Kazakhstan declared sovereignty on Oct. 25, 1990, and full independence on Dec. 16, 1991. In the following decade, Kazakhstan faced post-Soviet economic crisis as state farms dissolved and 70% of national flocks were lost due to transfers out of collective control. Formerly state-employed pastoralists were disassociated from pre-Soviet clan support, and were left to fend for themselves, existing as nuclear family units with very few livestock or capital assets (Kerven et al., 2006).

In 1994, in an effort to revitalize and expand the economy, and fueled by petroleum revenues, the government decided to gradually transfer the national capital from southeastern Almaty to northern-central Aqmola. The capital was officially moved in 1997, and in May 1998 Aqmola was renamed Astana. Almaty, however, remains the cultural hub. In 1998, Kazakhstan also received a large grant from the World Bank in an effort to revitalize the agricultural sector (World Bank Group, 2011). Recently there has been a reemergence of large-scale, extended family units who are once again undertaking large-scale pastoralism and seasonal mobility. Mineral and petroleum revenues are largely being directed to rural reconstruction, livestock and rangeland management, and agricultural research (Kerven et al., 2006). Despite periodic tensions, Kazakhstan maintains close economic ties with Russia and China. Russian continues to function as the official language, although Kazakh is recognized as the language of the state (BSCA, 2009).

Today, the Republic of Kazakhstan, roughly the size of Western Europe yet with a population less than that of the state of Florida, shares borders with Russia, China, Uzbekistan, Kyrgyzstan, Turkmenistan, and the Caspian Sea, and includes a range of ethnicities and landscapes. Kazakhstan is home to upwards of 120 ethnic groups, some of whom are historically rooted in the region, but the majority of whom are a product of the Soviet period. According to 2009 census data, ethnic Kazakhs make up 63.1% of the population, followed by Russians (23.7%), Uzbeks (2.9%), Ukrainians (2.1%), Uyghurs (1.4%), Tatars (1.3%), and Germans (1.1%); as well as Koreans, Turks, Azeris, Belarusians, Dungans, Kurds, Tajiks, Poles, Chechens, Kyrgyz, Greeks, Mordvins, and more (BSCA, 2009; Kurylëv, 2011). Modern Kazakhstan is equally religiously diverse, and while roughly 70% of the population practices Islam, largely Sunni, 26% are Christian, primarily Russian Orthodox but also Protestant and Nestorian; 0.09% are Buddhist, 0.03% are Jewish, and 3% claim “other” or no affiliation (BSCA, 2009).

This dramatic history of power, politics, and trade in products and ideas, both intra- and internationally, is traceable in Central Asian foods. Because Russian penetration began in the medieval
period, Russian markers have largely been naturalized into Central Asian cuisine. Where distinctly Soviet influence is evident, I will take note. Nonetheless, the Central Asian diet is a product of lifestyle, environmental feasibility, nutritional requirements, and lest we forget: sheer creativity, savoring ingredients and celebrating the tastes, smells, and textures of the Eurasian steppe. While we certainly should not make generalizations about a land so vast and multifarious, a practice that is increasingly coming under criticism in Eurasian studies, here I hope to define the basic constituents of Kazakh cuisine, and characterize them ecologically.

Figure 4 Kazakhstan climate map (Adapted from the Stanford Program on International and Cross-Cultural Education)

3. Geography and Subsistence Strategies in the Republic of Kazakhstan

Kazakhstan may be divided into four basic geographic zones: semi-forested grasslands in the north, semi-steppe and semi-desert in the center, deserts in the southwest, and alpine meadows rimming plains in the southeast. Each is varied in climate, topography, and biomass, and conducive to a particular subsistence strategy (Kerven et al., 2006). Today, southeastern Kazakhstan (oblasts South Kazakhstan, Taras, Almaty) is largely pastoral. Northern steppe lands (oblasts Akmola, East Kazakhstan, Kostanai, North Kazakhstan, Pavlodar, West Kazakhstan, and parts of Karaganda and Aktyubinsk) are primarily devoted to cereal grains, livestock, and vegetables. Large parts of Kazakhstan remain arid and non-arable (oblasts Kyzyly-Ord
Mangystau, and parts of Aktyubinsk and Karaganda) (Lindeman, 2010). This study will largely focus on the ecology of the alpine, riverine Semirech’ye region, southeast of Lake Balkash, Almaty Oblast.

Kazakhstan’s continental climate is divided between bitterly cold winters and hot summers. Crop cultivation takes place during the cool-wet springs and hot-dry summers, and is largely nonexistent in the winter months. Only 8.7% of Kazakh territory is deemed suitable for industrial agricultural production. Instead, the majority of Kazakh lands are devoted to pasture and home gardening, providing the animal products, cereals, and fruits and vegetables that historically have made up the bulk of the Kazakh diet. Soil management has proven an immense hurdle to any large-scale industrial cereal and vegetable farming beyond individually managed home plots (Kenenbayev, 2003).

Food is still predominantly predicted by the seasons. Spring and summer are the time of plenty, and warm-weather cuisine features fresh milk products, and a variety of fresh vegetables and fruits. Come winter, salted dried cheeses, grains, preserved pickled vegetables, and starchy storable vegetables, such as carrots and potatoes, will replace these summer treats. Animals slaughtered at the end of summer may be made into sausage, while the meat of those slaughtered in the winter can be frozen fresh or salted until spring (Levine, 1998).

However, more recently the Kazakh agricultural ministry has recognized regional climatic variation as a possible boon, allowing Kazakhstan to piece together a supply network intra- and internationally, thereby ensuring availability of diverse food products year-round. For example, winters in northern Kazakhstan are long and extreme, whereas winters in southern Kazakhstan can be relatively mild. During the spring and fall, southern Kazakhstan might supply temperate vegetables to northern neighbors. Likewise, during the summer, when northern Kazakhstan is wet and temperate, it could supply vegetables to the hot, dry southern regions. However, infrastructure and trade management are necessary for this system to take hold, and as such it has not yet materialized (Kenenbayev, 2003).

4. Materials and Methods

In my research, I utilized library resources from English, Russian, Kazakh, Chinese, and Uyghur sources, placed within theoretical frameworks of the region written by Thomas J. Barfield (1993), Michael Frachetti (2008), and Nicola DiCosmo (1994). I drew contemporary agricultural data from the Food and Agriculture Organization of the United Nations, as well as the United States Department of Agriculture. Nutritional data is amassed from the food science industry as well as relevant studies conducted in Africa, India, and when available Central Asia. Archaeological and ethnographic references are drawn predominantly from my field experience with Michael Frachetti in the 2011 field season, working at two sites in the Dzungar Mountains Archaeological Project, in conjunction with Alexei Mar’yashev at the National Institute of Archaeology, Kazakhstan. I was also granted access to unpublished material, generously offered by Robert Spengler of Washington University in St. Louis, with whom I also worked in the field.

My ethnographic experiences in Kazakhstan are largely a product of targeted observation during June and July of 2011. These insights are drawn from markets, some restaurants, and rural settings, both at
our field camp and at a neighboring farmstead. Conversations were conducted in English. While in the field, I also practiced foraging, and accompanied Robert Spengler in plant collecting. In Philadelphia, I conducted experimental work with Naomi Miller and Katherine Moore. This ethno-archaeological work was undertaken partly to clarify controversy in the literature, and also to contextualize observations and conversations from my time in Kazakhstan and with Kazakh students living here in Philadelphia.

My work is limited by the short time I spent in Kazakhstan, my independence, language skills, and the seasonality of my visit. Nonetheless, my observations are founded on my focused attentiveness, my personal knowledge of cooking, particularly Asian cooking; and my role as a woman.

5. Cooking Methods and Material Culture

While urban city dwellers now depend on electricity to fuel their stoves and teapots, fire remains the primary source of heat in rural areas, and traditional Central Asian cuisine developed to make use of an open flame, either through direct exposure in roasting, or in a heated pot through boiling. Both are rapid modes of food transformation, and thus an efficient expenditure of fuel resources. The region's staples of shashlik, flatbread, and samsa are quickly fired, roasting rapidly and producing a caramelized, brown crust. Slower-cooking porridges, soups, and pilafs rely on boiling, and can be cooked in a ceramic, or now more commonly cast iron, pot over crackling coals.

Traditionally, Kazakh food is not spiced, and ingredients are simply flavored with salt, which is readily abundant in the environment; it is not uncommon to see salt crusts rising from the steppe (Warming 1977; Peisker 1924). Salting, fermentation, smoking, and curing provide variations in taste. Cooking method also contributes flavor, whether through steaming or boiling in shorba meat broth or milk, or by roasting over coals.

Boiling is a particularly efficient cooking process, allowing submerged food to be cooked evenly and rapidly at a relatively low temperature, 100°C at sea level, and still lower at higher altitudes. This temperature stands in contrast to the same process conducted in dry heat, which requires either a much higher temperature or a long, slow bake to produce a cooked product. Boiling is thus an economical expenditure of fuel, demanding only a low fire for a short period of time. When a food is boiled, its entire surface is in contact with the liquid cooking medium, a dense composition of molecules that are constantly colliding into the surface of the food. The addition of salt to the cooking liquid also raises the boiling point and speeds cooking, significant when evaluating fuel expenditure and time commitment in meal preparation (McGee, 2004). Food cooked in salted water cooks faster, and requires less fire and fuel to accomplish the task. Perhaps this is why salt is truly the only seasoning stipulated in Central Asian recipes, borne of a nomadic lifestyle and bare environment in which salt, utilized to great effect in the curing and preservation of foods, also sped the cooking of these foods.

Deep-frying operates according to the same mechanics as boiling, although oil reaches its boiling point at a temperature far greater than water, and thus requires more fuel to accomplish. However, once
submerged in boiling oil, food cooks very rapidly, and its surface is caramelized in the boiling medium, producing a different flavor profile (McGee, 2004).

Baking is accomplished by enclosing food in a hot chamber, such as an oven, and relying on radiation and hot air convection to heat and cook the food from all directions. Baking is less efficient than boiling, requiring a much higher temperature, usually between 150-250°C to cook the food, and thus more fuel expenditure to transform a raw ingredient into an edible, palatable form (McGee, 2004).

Outside of grave settings, mobile pastoralist material culture appears to be sparsely preserved in the archaeological record, thus limiting our ability to trace cuisine in prehistory. Many utensils were likely composed of leather and wood, less fragile than ceramics and thus more conducive to mobility. Furthermore, because nomads did not intensively occupy single campsites, their trail is scattered (DiCosmo 1994; Koryakova, 2000). However, the archaeological record does reveal extensive use of earthenware pottery, the majority of which is hand-made of fired coarse clay. Hand-made ceramics were fragiley built, and particularly susceptible to breakage; they were likely produced locally from homestead to homestead. Some assemblages include more refined, wheel-thrown pottery analogous to that of southern Turkmenistan, indicating trade with sedentary societies (Koryakova, 2000; Yablonsky, 1995).

Potsherd analysis is providing increasing insight into the nomadic diet, placing horse dairying at 3500 BCE (Outram et al., 2009) and an established diet of meat and dairy products in the Bronze Age (Outram et al., 2012). Direct evidence of plants in cooking vessels is less resolved, although projected research in this field will hopefully provide greater insight in the near future. Nonetheless, we may look not only to cooking vessels, but also to mortars, pestles, and grinding stones, documented extensively throughout the archaeological record in this region. Grinding stones could have been used to process domesticated cereals, wild plant geophytes, and any number of wild nuts or seeds; alternatively, they could have functioned to crush pigments and dyes used in ritual settings (Spengler, 2012).

Our most complete references to Eurasian nomadic material assemblages are drawn from burial settings, which while not intended for everyday use, nonetheless represent a complete array of what the deceased would require to process, cook, and dine in the afterlife. Yablonsky (1995) provides a cogent summary of Saka material culture in Iron Age Eurasia, largely dating between the eighth and third centuries BCE. The majority of surveyed assemblages are drawn from central Kazakhstan, the Altai, and the lower Syr Darya River region in the southwest; however, Yablonsky emphasizes that close parallels exist between this material and that of the Semirech’ye and Tian Shan region.

The deceased were supplied with bronze knives and whetstones, bows and arrows. Women were buried with grinding stones. The hand-made ceramic assemblage includes broad, shallow bowls, likely for cooking or serving; as well as round, upright cups, some handled and some plain. Spouted cups and pear-shaped, narrow-necked vessels, both with handles, were likely used for serving liquids. Broad-based, pear-shaped vessels likely stored dried dairy products and grains, while similarly shaped vessels with handles could have held pourable products. Blackened bottoms indicate cooking over a fire. A slightly concave wooden bowl, what Yablonsky defines as a “dastarkhan table,” was also recovered in the Pamirs (1995). This
dish is strikingly similar in form to wooden biscuit bowls of the American South, functioning as both a bowl and kneading surface in the manipulation of dough. Wiped clean, the utensil could also be repurposed as a serving platter. Such multifunctionality would have been appealing in a mobile lifestyle.

*Figure 5 Wooden dastarkhan (Yablonsky 1995:237) and “biscuit bowl” (Source: TheRecipeClubBook.com)*

Materials recovered from Iron Age Qunbake sites along the Northern Taklamakan Rim, in the foothills of the Tian Shan Mountains of Xinjiang may also provide a relevant analogue to assemblages in southeastern Kazakhstan (Chen & Hiebert, 1995). Among these collections, spouted, single-handled cups are common, indicating the importance of liquid or semi-liquid foods. Similarly shaped larger, single-handed, wide-necked jugs indicate liquid storage and possible pouring. A shallow, handled dipper is notably similar to contemporary ladles used to serve koumiss (Mu & Wang, 1985, in Chen & Hiebert, 1995).

*Figure 6 Small find from Tiemulike or Heishantou (Mu & Wang, 1985); Koumiss ladle (Source: Academy of Miracles); Koumiss, Inner Mongolia (Source: ChinaDaily Forums)*

Excavations in the deserts of Xinjiang and in the icy Altai reveal astonishingly well-preserved artifacts and provide insight into which materials did not preserve in more temperate locales, and are thus missing in the majority of archaeological assemblages. In Xinjiang sites, these include a large number of wooden bowls and basins, as well as basketry, in some cases in the absence of pottery (Chen & Hiebert 1995). Likewise we may draw reference from the frozen tombs of the nomadic Pazyryk culture, which contain an extensive number of wooden utensils, including dishes, mugs, cups, and bowls, as well as birch bark boxes and leather jars and bags, none of which would have preserved had they not been frozen (Rudenko 1960; Koryakova 2000).
Similar leather and wooden jars remained in use, and are attested to in both historic and contemporary ethnographic accounts. Leather jugs in particular were utilized in the fermentation of wet foods. These bags over time acquired microflora, which served to sour contents. Koumiss, was always prepared in a leather bag of this sort, which had been ‘seasoned’ and ‘cured’ by multiple fermentations. To manufacture leather storage bags, the skins of sheep, goat, or horses slaughtered for meat were smoked and dried alongside sausages in the fall and winter. In spring, hardened skins were washed and softened to allow folding, then scrubbed and cured to produce soft, supple leather. Once dried, the elastic skin was cut and sewn into a wide-bottomed vessel with a narrow neck, tied with a leather string. The bags were then rubbed with fat and smoked once more to seal. Settled communities employed a similar smoking and greasing method to cure wooden jugs. The majority of these vessels feature a narrow neck to protect fermenting ingredients, which could also be firmly sealed by a plug. Leather bags in particular served as insulators, keeping cold foods cold, and when laid in the sun to heat, hot foods warm. The contents of the jug could be periodically whisked or if carried by horse, would naturally shake with the movement of the animal (Olsen, n.d.; Segizbauly, 2011).

Today, the qazan, similar to a cast-iron dutch oven or cauldron, is the central utensil of Kazakh cooking. The qazan may function as a pot, filled with broth to boil noodles, dumplings, or meats; or oil to fry dough or fish. Alternatively, ingredients may be layered to roast a pilaf. An empty qazan may also function as an oven: thin flatbread batters can be griddled on the bottom, while heftier bread doughs or baked dumplings can be pressed to the qazan walls. If direct contact between food and flame is desired, the qazan may be inverted and dough plastered to the outside of the pot. The qazan may be either placed directly atop a fire, or the fire may be built up around the pot to heat from all angles (Mack & Surina, 2005). Food is given another dimension of complexity when cooked in a qazan, which like the iconic cast iron skillets of American cookery, is flavored and seasoned with use and by the smoky flames in which it rests. Over the course of the qazan’s use, cooking oil provides an artificial protective layer to seal the pores and fissures of the metal; these bonds seal upon heating. This ‘seasoning’ not only protects the pot from oxidation and eventual disintegration, but also imparts flavor to foods cooked in the qazan, which
develop a flavorful, caramelized crust wherever in contact with the iron pot (McGee, 2004).

The tandir ovens of Central Asia vary in size and details of design, but all adhere to a generally shape: cylindrical, with a smooth clay inner surface and thick walls to trap and retain heat. Ovens are large enough to bake multiple loaves simultaneously plastered inside the walls. The oven may be open at the top, allowing the baker to reach in for bread. More often, the oven has a hatch built into the side of the wall. The tandir ovens I encountered in Almaty and in the Semirech’ye countryside were oblong and open at the front. In Almaty, commercial street-side ovens were on average approximately seven feet in depth, three feet in height and width, and churned out a large number of loaves all day. The oven in the countryside was much smaller, and likely held three to four loaves at a time. Modern tandirs are heated by a gas flame, but traditionally they were fired by wood or dung fires. The fire is kindled at the base of the oven, slowly heating the walls, which will continue to radiate heat after the fire has faded. Tandir ovens not only provide a spacious chamber to cook a variety of foods, but also heat the surrounding area and thus naturally become the focus of the home or community.

6. Meat and Dairy in Kazakh Culture

The mobile pastoralist diet is notoriously meat- and dairy-heavy, and animal products serve as the primary source of calories year-round. Furthermore, the high cultural value of pastoral foods has placed them at the focus of nomadic foodways. However, nonpastoral foods, whether hunted, gathered, cultivated, or purchased in trade are nutritionally and economically significant, and play a vital role in the nomadic diet and lifestyle (DiCosmo 1994; Khazanov, 1984; Spooner 1973). In this light, this paper will not include an analysis of animal products, but will instead briefly explain them here in the interest of context. An economic and nutritional overview of meat and dairy will provide insight into the desire and need for cereal grains, vegetables, and fruits as dietary additions.

Livestock provide sustenance not only from their flesh and milk, but also as the basis of the pastoral economy, providing labor, transport, wool and hair, dung fuel, leather, and bone to be used by the herder or exchanged in trade (Barfield, 1993; Spooner, 1973). After slaughter, meat is eaten fresh or preserved as cured sausage, dried or smoked. As noted previously, residue analysis reveals domesticated horse milk and carcass products in Northern Kazakhstan at 3500 BCE (Outram et al, 2009). Sheep, goat, and cattle herding became the dominant strategy circa 2500 BCE, accompanied by the use of camels (Frachetti & Benecke, 2009). While pigs are evident in prehistory, they fell out of fashion with the arrival of Islam in the eighth to tenth centuries, only returning in the twentieth century Soviet period (Barfield, 1993). Meat was also obtained by hunting wild game, such as red deer, gazelle, argali, ibex, wild pig, fox, weasel, partridges and small birds; as well as by fishing (Frachetti & Benecke 2009). Today, the hills of Semirech’ye are rich with game birds, particularly rock partridges, or keklik, which inhabit stony outcrops and are hunted locally. Rivers also supply small, carp-like fish, which may be fried, roasted, or in the Russian tradition pickled and served with cabbage and gherkins (personal observation, 2011).
However, meat cannot be considered a daily staple, for by slaughtering his livestock the shepherd can no longer reap the rewards of the living animal. Instead, the sustainability and sheer availability of milk naturally places it at the center of the pastoral diet. While a variety of factors affect milk production, a single cow in Kazakhstan may be expected to yield 2000 liters of milk each year (van Engelen, 2011). This milk, as well as that of sheep and goats, provides ample food for the household, where it is savored fresh when available, but more often fermented or dried for long-term usage. Surplus milk and animal products are traded or sold for other household necessities (Barfield, 1993; van Engelen, 2011).

The sharply divided climate of hot, dry summer and cold, humid winter limits lambing season to early spring, at which time forage is plentiful enough to support milking mares, nannies, ewes, cows, and camel (Barfield, 1993). This spring milk, produced in excess, will be preserved for later use via drying, salting, smoking, fermentation, or cooking and condensation into a huge repertoire of dairy derivatives. Dry dairy (e.g. qurt, dried buttermilk) is intended for winter use and moist, acidified dairy (e.g. yogurt, smitana) for summer use, when no refrigeration is available. Other preserved products include alcoholic beverages such as mare’s milk koumiss, camel milk shubat, and sheep/goat kefir; as well as butter and its clarified form, ghee (van Engelen, 2011).

Today, however, individuals of greater wealth or those living in urban settings do have access to meat and consume it regularly. The majority of the indoor bazaar in Almaty is devoted to meat, and one may purchase sheep, goat, cow, horsemeat, and chicken in fresh and cured forms. Pork is also available, in spite of the mosque located upstairs. Fish are available smoked, dried, pickled, or fermented, and display cases feature large jars of caviar imported from the Caspian. Among city folk, to eschew meat was a laughable matter; vegetariansky were always the subject of laughter and snark at our dinner table. When a Kazakh girl came from Almaty to stay with us for a few days, she was homesick for meat, particularly kazy horse sausage, within hours.

From a nutritional standpoint, milk is a relatively complete source of nutrients, and an ample source of high quality proteins, fats, carbohydrates, vitamins and minerals. Fresh cow’s milk is only truly deficient in iron and vitamin C, both of which it does contain, albeit in small amounts (McGee, 2004:113). Sheep’s milk, however, has proven to be an excellent source of vitamin C, relied upon by Icelandic populations surviving only on dried dairy and minor amounts of fish (Adalsteinsson, 1991). Horse milk, drunk as lightly fermented koumiss, supplies five times more vitamin C than does cow’s milk, and is also high in vitamins A, B1, B2, B12, D, and E and minerals calcium, zinc, phosphorus, and magnesium (Olsen, 2006:264).

Nonetheless, anemia remains a significant concern in rural populations, likely due to deficiencies in iron, vitamin A, and folate (Akilzhanova, 2006; Hashizume, 2005) These deficiencies point toward low meat and vegetable consumption in a dairy-heavy diet, particularly in winter months. Furthermore, tea, taken at nearly every meal, inhibits iron absorption in the absence of meat or vitamin C (Zijp, 2000). In this light, cereals, vegetables, and fruits prove vital sources of otherwise deficient nutrients in the pastoral diet.

7. Cereal Nutrition in Kazakh Culture
Plant products provide a complementary set of vitamins and minerals to a dairy-heavy diet, and are an essential component of Kazakh cuisine. While populations have long supplemented their meals with foraged greens, a practice which will be explained in detail later, the growing season of the Central Asian steppe is short, and even during summer months the landscape is not replete with edibles. Foraged greens are significant micronutrient sources, but cereal grains, especially when fermented or combined with fermented dairy products, provide the majority of plant-based nutrients and are a relatively complete nutritional source.

Cereal grains provide a rich source of calories, predominantly carbohydrate, but also (and often overlooked) protein and fat, all of which provide important sources of energy and insulation in a demanding lifestyle and environment. Compositionally, cereals are usually roughly 65-75% carbohydrate, 7-12% protein, 2-6% lipids, and 12-14% water. Of the major cereal grains, percent digestible energy is highest in brown rice, at 96.3%, followed by 87.2% in maize and millet, 86.4% in wheat, and 81% in barley. Net protein utilization is highest in brown rice at 73.8%, followed by barley (62%), oats and rye (59%), millet (56%), maize (58%), and lastly wheat (53%) (Chaven & Kadam, 1989).

Cereals are also rich sources of B-group vitamins, phosphorus, potassium, magnesium, calcium, and iron, although processing and refinement significantly reduces these nutrient counts (“Sorghum and millets”, 1995). Of the major Old World grains, millet provides the highest iron content, at 6.8 mg per 100 g, followed by barley (6.0 mg), oats (4.6 mg) and wheat (3.1 mg) (Haard, 1999).

Millets in particular are significant sources of B-complex vitamins. While nutritional information regarding foxtail and broomcorn millets, now minor varieties, is sparse, both appear to be high in thiamin and riboflavin, but comparatively low- to mid-range in niacin. Yellow-endosperm varieties are a valuable source of beta-carotene, the precursor to Vitamin A (“Sorghum and millets”, 1995).

As a note, the term “millet” has largely become a catchall phrase for a variety of small-seeded cereals, including the sorghums, which while not taxonomically related, are functionally and agronomically linked. Millets are grasses, family Poaceae, subfamily Panicoideae, with the exceptions of finger millet and teff, subfamily Chloridoideae. The millets are similar small-seeded grasses that grow well in harsh, often droughty conditions, producing high yields in a short growing season, and displaying little variation in their nutritional profiles. The majority of nutritional studies have been conducted on “finger millet” (Eleusine coracana), “pearl millet” (Pennisetum glaucum), and “little millet” (Panicum sumatrense), although broomcorn millet (Panicum miliaceum) remains in wide cultivation worldwide (FAO, 1996). In this study, when referring to millet, unless otherwise specified I am indicating foxtail (Setaria italica) or broomcorn (Panicum miliaceum), which are the dominant Eurasian varieties. For the purposes of nutritional evaluation, however, I am comfortable grouping “the millets” as one.

Cereal grains serve worldwide as one of the most important sources of dietary calories and nutrients. However, despite their many attributes, cereals are generally regarded as inferior to milk products both nutritionally and sensorially. Compared to milk, raw cereals exhibit lower overall protein content, deficiency in particular amino acids, limited bioavailability of starch, high fiber, and inclusion of antinutrients such as
phytic acid, tannins, and polyphenols. However, these setbacks are easily mitigated through processing through grinding, cooking, or in particular fermentation (Blandino et al., 2003).

Extensive studies conducted among the Maasai of eastern Kenya, who practice similar agro-pastoralist lifestyles, provide a relevant analogue. The Maasai rely on a diet composed predominantly of fermented dairy and maize porridges, with very little in the way of green vegetables. While this diet is expected to lead to anemia and vitamin C deficiencies, such is not evident, and the Maasai diet is sustainable and complete (Nestel & Geissler, 1985). Indeed this combination has been studied as an economical solution to malnutrition in many parts of the world (e.g. Aliya & Geervani, 1981; Chaven & Kadam, 1989; Haard, 1999; Simango, 1997) In this light, we may analyze nomadic Eurasian foodways, to see that in a dairy-based diet, in which meat and greens are limited, the addition of cereal grains is key.

Figure 9 Millet and dairy products for sale at the Zelyony Bazaar, Almaty, Kazakhstan (Julia McLean, 2011)

8. Fermentation as Food Transformation

Fermentation is the earliest form of food biotechnology; indeed, at its outset, it required nothing more than the disinterest of the cook, who need only ignore her milk or grain overnight, then arrive next morning to an entirely new, spontaneously fermented product. Production of fermented foods does not require knowledge or understanding of the biology at work, for the bacterial and yeast ‘supplies’ are present ambient in the environment, ready to spontaneously colonize and ferment. Fermentation has of course since become a controlled process, and has proven an important strategy in food storage. Fermentation's
importance in the nomadic diet is threefold: fermentation reduces the volume and perishability of food, allowing it to be stored and carried in a mobile lifestyle; it reduces energy required for cooking, thus saving time and fuel; and it increases the nutritional spectrum of the original food, providing otherwise unavailable essential nutrients, while also inhibiting pathogens (Blandino 2002; Buttriss, 1997; Haard, 1999; Scott, 2008).

Fermented foods, due to the presence of wild-floating lactic acid bacteria (LAB) and yeasts, transform into antimicrobial environments, in which nutrients are protected and in many cases made bioavailable in partly pre-digested form. Present throughout nature and on the human body, LAB readily colonize milk and grains, and when exposed to the outdoors, spontaneously begin to ferment. Controlled lactic acid fermentation generally involves reducing the amount of water in the raw food, increasing the amount of salt, and controlling temperature. The tangy smell of yogurt, cheese, and sourdough is a product of this acid. LAB specialize in digesting the lactose present in milk, as well as breaking down cereal starch into glucose, and in the process producing lactic acid, which exerts a preservative effect. Lactic acid released back into the milk or grain accumulates and retards microbial growth, thus reducing potential spoilage, and in the case of cereals delaying starch retrogradation and staling. Even sourdough bread, not usually thought of as a ‘fermented food,’ is significantly slower to stale than its non-soured counterpart. Depending on their level of salting, desiccation, or souring, fermented products can be essentially nonperishable (Fernandes et. al, 1987; Haard, 1999; Hitchins & McDonough, 1989; Scott, 2008; Simango, 1995; Steinkraus, 1983).

Among milk products, while fermentation arguably slightly reduces general nutrient composition, with the possible exception of folic acid (Gurr, 1987), the majority of nutritional studies in fact point toward cultured milks, when evaluated for both vitamin content and bioavailability, as superior to their fresh counterparts (Buttriss, 1997; Fernandes, 1987; Gurr, 1987; Hitchins & McDonough, 1989). Fermentation renders otherwise reactive B-complex vitamins, vitamin C, iron, and zinc stable in the acidic environment. In turn, stabilized vitamin C promotes iron uptake (Buttriss, 1997). Lactobacilli enhance digestion of lactose sugars, and thus add to the caloric availability of milk carbohydrate, which otherwise might overwhelm the digestive system with indigestible lactose sugar (horse milk, in particular, is very high in lactose and cannot be consumed fresh) (Buttriss, 1997; Olsen, n.d.). Fermented dairy also suppresses cholesterol, a useful function in a pastoral diet high in saturated animal fats (Fernandes, 1987).

Fermented cereals exhibit significantly improved protein quality, increased amino acid content, increased availability of B-complex vitamins, and increased solubility of iron, zinc, and calcium (Blandino et al., 2003). Fermented millet, in particular, provides a striking case study. When exposed to lactic acid bacteria, millet revealed a jump in digestibility from 47% to 73% post-fermentation. Furthermore, whereas cooking reduces the vitamin content of unfermented millet, cooking actually increased the vitamin content of fermented versions (Aliya & Geervani, 1981; “Sorghum and millets”, 1995)

Finally, changes in aroma, flavor, and texture improve palatability and increase variety of available foods, and thus enrich the diet from a creative and sensory aspect. Fermented foods are microecosystems within a food product, bearing the signature of wild local microflora, which have colonized the food and imparted a location-specific flavor to the final product. Much as wines and sourdough breads are known for
their specific terroire, any naturally fermented food will bear the signature taste of its location (Scott, 2008). Fermented foods in Kazakhstan, produced by combinations of microflora present in this particular ecosystem, will taste different from fermented foods produced elsewhere. Particularly among dairy products, which will bear the taste of the grass upon which the animal fed, flavor is specific to location. The flavor of the smitana (lightly soured buttercream) we savored with every meal, a product of cows grazing on the flowering mountain meadows of summertime Semirech‘ye, then spontaneously soured by wild microflora, exists nowhere else. A version created in the United States would taste entirely different. The unique flavors and aromas of locally produced foods, which are impossible to replicate in another location, thus perpetuate the evolution of a cuisine, and an identity surrounding a specific set of foodways.

9. Cereal Cooking: Grain Foodways in Inner Asia

“Our diet consisted of millet with butter, or dough cooked in water with butter, or sour milk and unleavened bread, cooked in a fire of cattle- or horse-dung.” – William of Rubruck, of his journey into the Mongolian steppe, 1235-1255

“As to the means of life, they have no shortage, because they mostly use rice, panic, or millet [...] and these three cereals in their countries yield an increase of a hundredfold on each sowing. These peoples do not use bread, but simply boil these three sorts of grain with milk or flesh and then eat them. Wheat in their country does not yield such an increase; but such of it as they harvest they eat only in the form of noodles or other pasty foods.” – Marco Polo, 1271-1275

9.1. Scent as Icon in Cereal and Dairy Foods

Food is the stench of life. From the sweet vegetal grass, to the pungency of sheep’s wool; from the sweat of the worker, to the soft mustiness of the barn, we carry raw scents into the kitchen and transform them into flavors. Scent permeates the kitchen and the home, shedding light onto who occupies this household, how they spend their days, how they interpret their surroundings on the communal table. I invite the reader to recall the emotional pang of returning from travel, opening the door, and inhaling the sweet, comforting scent of one’s own domicile. This place is scented and flavored by you; these smells identify it as your own.

Scent is directly tied to memory and emotion: the physiological link between the olfactory cortex and the amygdala and hippocampus, where memories, and in particular emotional memories, are created and stored is only two synapses long. In contrast, the chemosensory link between memory and our other senses is more complex, and thus while we may forget the details of words that are spoken, sights seen, or textures touched, olfactory codes imprint quickly, clearly, and deeply (Herz & Engen, 1996). Such became particularly evident to me upon a visit to a neighboring farm located across the valley from our Semirech‘ye campsite.
This family, who owned a large number of sheep, goats, and cows, supplied us with fresh bread and milk twice a week. Each trip, four of us piled into our Jeep and drove across the valley to visit and explore the farm.

During one such visit, while our cook negotiated bread prices with the mistress of the household, her daughters, in their late teens, showed us around the house. The girls were raising several swallows in the rafters, and wanted to introduce us to them. The birds were nesting in a little room at the back of the house, where the family processed milk into cheese and yogurt. As we walked toward the back of the tiny farmhouse and closer to the milk room, the smell of the barnyard was overpowered by the rich scent of cream. The scent of milk permeated the entire household, almost overwhelming in rich, buttery, sweet, slightly tangy scent. Even the walls were whitewashed, echoing the creamy color of fresh milk. As we entered the room, a small window at the back leaked evening light inside, glinting off the white paint and the various barrels and boxes used to store dairy products. In this room, summer milk was transformed into yearlong nourishment. Strings of salted, dried qurt cheese hung from the walls, and barrels and boxes held various fermenting milks and stored products. During the summer, when milk was fresh, the family could consume soft cheeses, yogurt, sour cream, and smitana. Come winter, the family would tap into stores of hard, salted, and smoked cheeses with near indefinite lasting power.

This was my first exposure to the undeniable degree to which milk products permeate the Central Asian world. The goats and cows were this family’s livelihood, their source of income and sustenance, their social cue of wealth and belonging in a pastoral economy and cultural history. The house, and in particular this milk room, echoed this phenomenon. The smell of this house stuck firmly in my memory, and when I recall our visits to the farm, I remember the verdant, slightly fecal scent of the farmyard; the yeasted scent of freshly baked bread; and most of all, the milk room.

Several months later, back in Philadelphia, I began experimenting with different grains, preparing traditional recipes and simulating archaeological finds to delve further into the origins and evolution of grain use in Central Asia. I focused on millet, grinding the seeds, preparing simple slurries of water and flour, and leaving the batter exposed to ferment with wild yeasts naturally occurring in the air. I was struck by how quickly the dough accumulated these yeasts and began to rise. Within hours, the batter was frothing and swelling into a smooth, thick flour bubble, warm to the touch. The process was fascinating, as I watched mundane powdery flour transform into a voluminous mass, very much alive, with little input on my part.

Furthermore, the fermenting millet smelled exactly like yogurt, instantly bringing me back to the farm in Kazakhstan. This in particular struck me as relevant to a dairying society, and the prehistoric adoption of cereal grains into an established milk- and meat-based economy. The yogurt and yeasted grain “package” is strengthened by analogous scents and flavors, the product of lactic acid metabolites at work. Bacteria break down sugars and amino acids to produce over 300 scent and flavor compounds, ranging from malt, fruit, and sweat; to floral, chemical, and fecal; to butter, cabbage, meat, and garlic (Ardö, 2006). The relationship among these scent metabolites contributes to the scent and flavor of the dish, and results in totally unrelated food products, such as bread and milk, producing the same scents, flavors, and emotional links. Cured sausage, another Central Asian staple, undergoes a similar process, and strengthens this
relationship (Ardö, 2006; Ravyts & de Vuyst, 2011). Recalling the Gestalt ‘Law of Similarity’, applied by psychologist Paul Rozin to studies of food choice: if a substance looks like food, smells like food, then humans are hardwired to intuit this substance as food (Rozin & Nemeroff, 1990). Ground cereals, if dampened and ignored in the open air, transform into an entirely new product that may not look like fermenting dairy, but certainly smell like it, and thus comprehend as a nourishing food source.

Today, fermented dairy and cereals form the basis of the Central Asian diet, augmented by flavorful, additions such as fresh meat and onions, fruit and vegetables, sugar and butter. When examining the arrival of a food product into a new region, one must ask how or why this new plant is incorporated into the diet. Is the new food nutritionally advantageous, does it provide a taste never experienced before? Why put in the effort of mastering a new plant if one’s own diet is enough?

### 9.2. Cereals and Grains: Distribution History

Kazakhstan falls at the center point of the Old World’s two nodes of plant domestication, Southwest Asia and China, between which moved a variety of land plants, including fruits, nuts, herbs and spices, but perhaps most influentially starchy staple grains. Highly dynamic yet understudied, the Eurasian steppe was an intermediate zone, where newly arriving plants were not being woven into established farming economies, but were instead introducing agriculture to pastoral systems. Mobile societies, otherwise predominantly reliant on meat and dairy products, began to grow crops. Grains took hold along trade pathways en route East to West, West to East. Circa the 9th millennium BCE, from Southwest Asia arose wheat, barley, oats, and legumes; and from East Asia came broomcorn millet and rice. Dispersed among these major crops were ‘gateway grains,’ what are today considered ‘filler’ varieties, including a wide range of millets and sorghums, as well as buckwheat, rye, and oats (Jones et al., 2011).

Staple grains, long established in their domestic homeland, traveled not merely as seeds, but as cultural commodities, food sources, and givers of life. These crops entered with cultural resonance, developed over the millennia in their Eastern and Western homelands, and thus carried cultural and culinary prescriptions. Such is evidenced by the placement of our earliest Central Asian specimens in burial contexts, accompanying the dead to the afterlife (Frachetti et. al, 2010). Terminology also reflects foreignness. For example, the characters used to describe wheat and barley in Shang and Zhou era oracle bones of ancient China shed light on populations’ awareness of this these plants’ outside origins. Of the five cereals mentioned, the character lāi, meaning “to come” refers to “wheat,” while characters mài, and mòu refer to barley. None of these characters includes the ho radical associated with native crops, suggesting that ancient peoples recognized these as plants as foreign, and named them accordingly (Chang, 1983). While the presence of cereals is now familiar and assumed, these plants were once foreign exotics, ingredients in unknown dishes, and shape-shifters from unquestioned grass to edible sculpture. Plants travelled not only as an economic product but also as cultural package.

Crop movement was also fueled in part by ecological opportunism. Small-scale agriculture served to intensify subsistence strategies and extend the range of landscapes available for simultaneous human use.
notable feature of early Eurasian crops is their short growing season and quick ripening, which rewarded tentative agriculturalists with a quick harvest. Jones et al. proposes an inverse relationship between range of expansion and growing cycle: broomcorn millet spreads across Eurasia first, followed by buckwheat, foxtail millet, and finally bread wheat in the 3rd millennium BCE (2011).

Historically, two models have been set forth to explain the use of agricultural products in the partly nomadic, partly fixed lifestyle and economy of mobile pastoralists (see Barfield, 1993; Khazanov, 1978; Lattimore 1940; Spooner 1973). The first, acknowledging that nomadism does not usually exist in total separation from settled communities, proposes that steppe economies were founded upon cooperation between urban agricultural oases and pastoral nomads. Mobile pastoralists engaged in trade relationships with fixed oasis settlements, who supplied agricultural products and metallurgy in exchange for livestock, meat, milk, and leather. An alternative, or as DiCosmo (1994) postulates, complementary, theory proposes self-sufficiency, arguing that Eurasian pastoralists operated independently, supplying a steady source of grains and plant materials in the diet by sowing small-scale, low-maintenance crops in conjunction with regular herding activity. In his discussion of these relationships, DiCosmo is sure to note that the manner and intensity of these agricultural operations was highly variable through history (1994). For example, during the Mongol conquests of the medieval period, many Central Asian pastoralists were forced into more sedentary, agriculturalist lifestyles (Vainshtein, 1980).

Understanding of prehistoric agriculture in Kazakhstan is abbreviated due to a limited number of excavations, which hampers our ability to establish firm dates and patterns of occupancy and subsistence strategies as cereals begin to enter the region. However, resolution is improving rapidly as the region opens to study. Nonetheless, agriculture appears to have arisen in Eurasia during the Bronze Age (2500-1000 BCE), and was firmly established, possibly intensified by irrigation, by the Iron Age (1000 BCE-500 CE) (Spengler, 2012). To date, the earliest evidence of broomcorn millet and wheat in the central Eurasian steppe lies at approximately 2400 BCE, in Semirech’ye (Frachetti et al., 2010). Starch grain analysis of the large number of grinding stones found at this and neighboring sites is projected in the near future (Spengler, personal communication, March 2012).

Historically, mobile pastoralist plots were quite small, rarely larger than 1.5-2.0 hectares and usually located within 5 kilometers of camp, in river valleys or near a water source, thus removing any need for irrigation. Fields were planted in April en route from winter to summer camp, and were then harvested in October, prior to herders’ return to winter pasture. Little attention was required in between (Vainshtien, 1980) Should the grower seek to intensify the system, millets could be planted in the spring, yielding their first harvest in early summer, then planted once more for an end-of-season harvest. Wheat and barley could be planted in the early summer, ripening along with the second millet harvest in late summer or early autumn (Jones et al., 2011). Grains were then threshed, winnowed, roasted, and stored for trade or consumption in the lean winter.

Small-scale agriculture functioned as a risk management strategy in an extreme steppe environment, extending the productive season and staving off food shortages. Food resources were amplified and stabilized
by the insertion of an additional staple. Should unseasonably cold temperatures arrive, a phenomenon which usually occurred in 10 year cycles, over 50% of herds could be lost to cold and starvation within days (Barfield, 1993; Frachetti, 2006) Storable grains served as a buffer to these economically devastating famines.

The mobile pastoral lifestyle is not conducive to irrigated agriculture, a system necessary for the cultivation of most crops in a steppe environment. However, broomcorn millet, foxtail millet, and barley are complementary to the pastoral routine. Pashkevich, in his studies of similar operations in Eastern Europe, accords the suitability of millet and barley to three traits: a short growing season, drought tolerance, and low seeding investment (2003). Millet and barley require little maintenance yet produce high yields under small-scale cultivation in relatively poor, alkaline soils (Chang, 1983; Vainshtein, 1980); traits which make them particularly suitable for the initiation of agriculture into a pastoral steppe economy.

![Figure 10 Foxtail millet (*Setaria italica*) (Source: ©Anu Wintshalek), Broomcorn millet (*Panicum miliaceum*) (©Ottmar Diez); Barley (*Hordeum vulgare*) (©The Cancer Prevention Diet)](image)

Today, millet and to a lesser extent barley have been largely displaced by wheat in the Kazakh agricultural sector. These patterns are due in large part to the agricultural regimens of the Soviet Union, and the perpetuation of these crop systems in independent Kazakhstan. Today, wheat is Kazakhstan’s top agricultural output, encompassing 90% of Kazakhstan’s grain farmland (Lindeman, 2005), and in 2011 outnumbering barley 7:1, millet an astonishing 584:1 in metric tons produced (FAO, 2012).

These numbers are the legacy of the Virgin and Idle Lands Campaign, implemented by Nikita Khrushchev in 1954 in an attempt to meet increasing demands for grain production amidst perennial shortages in the growing Soviet Union. Implemented in western Siberia, Kazakhstan, the northern Caucasus, and the right bank of the Volga, the Virgin and Idle Lands Program sought to dramatically increase wheat output; a corresponding corn (maize) program, implemented in southern Kazakhstan, would facilitate growth in the livestock sector (Mills, 1970; Siegelbaum, 2011). In Kazakhstan, land devoted to wheat cultivation peaked in 1969 at 19.6 million hectares, largely on the arid northern steppe. While wheat yields were initially impressive, a combination of poor soils, extreme weather, and sheer lack of infrastructure or responsible oversight led to program failure within a decade. Nonetheless, the program continued to operate into the 1980s (Siegelbaum, 2011).

Following the fracture of the Soviet Union in the late 1980s, and the declaration of Kazakhstan’s independence in 1991, government funding was slashed and agricultural programs suffered huge reductions. Livestock failures compounded the issue as demand for fodder and grain feed fell drastically, and farmlands contracted further still (Lindeman, 2005). Interestingly, millet cultivation peaked during these unstable years,
exhibiting a 104.79% spike in production from 1989-1990, when food anxiety ran high ("Kazakhstan millet", 2012).

Today, wheat cultivation continues predominantly in the three north-central oblasts of Akmola, North Kazakhstan, and Kostanai, but also takes place to a lesser degree in the southern regions. In light of seasonal fluctuations, annual yields typically fall between 10 and 17 million metric tons. Of this yield, 2-8 million tons are exported, predominantly to Europe (including Russia and Ukraine), Central Asia, and northern Africa. Yields are increasing steadily and have firmly placed Kazakhstan as the world’s seventh largest exporter of wheat flour, and lead provider to Central Asian, Iranian, and Afghan markets (Lindeman, 2010). In 2011, Kazakh wheat production reached a record harvest of 22.7 million tons (Zharmagambetova, 2012).

9.3. Porridge: Talkan, Tary, Kozhe

Porridge, the most basic method of rendering grains fit for consumption, is unsurprisingly found across the Eurasian steppe. Prepared according to similar methods, these porridges provide a rich repertoire of fatty, liquid calories to keep the consumer satiated in high pasture or throughout the cold continental winter. Porridges such as these are a practical solution in an environment and lifestyle requiring dense calories and hydration to stay warm and energized in demanding conditions. They are particularly convenient to individuals on the go; requiring few ingredients and nearly no equipment to cook, they may be prepared at a moment’s notice, requiring but a pouch of flour and river water, although dairy is preferred. Even when resources are scant, one can survive on lightly fermented porridges alone. In Kazakhstan, to euphemistically refer to someone’s death is to say “His talkan is finished” (Segizbauly, 2011).

In Kazakhstan, millet porridge is called tary, while porridges made with wheat and barley are known as talkan (Segizbauly, 2011). Eurasian porridges exhibit similarities in both preparation and, interestingly, terminology, suggesting that these foods were not conceived independently, but may have evolved as cuisine within the network of cereal exchange existing across the steppe belt. Old Turkic talqan refers to “crushed, parched grain” and has translated to Tuvan dalgan, meaning flour; Khalkha talx, Buryat talxa and talka, Oka and Kalmuck talxan. Mongolic talkan translates to ‘flour,’ ‘powder,’ ‘bread, or ‘meal’ (Khabtagaeva, 2009:100, 208). Perhaps a more recognizable analogue to readers is the barley and butter-based Tibetan isampa. These variants reached Eastern Europe via the Balkans by at least the 14th century, and are likely related to a family of grain products found from Turkey (tarhana) and Iran (tarkhāneh) to Hungary (tarhonya), all of which call
for crushed wheat to be mixed with yogurt, allowed to sour, and then dried into pellets for later dehydration and use (Perry, 1997).

Whichever cereal one chooses to make porridge, the grains are first fried in tallow or butter. The roasted grain is next crushed in a mortar, and then added to liquid to form a porridge. These porridges may of course be made with plain water, but this practice is discouraged in favor of more flavorful, calorie-rich options. Porridges may be prepared plain with fresh milk, buttermilk, cooked sour milk, whey, yogurt, crushed rehydrated cheese, or shorba. While the most common preparation is simply grain plus liquid, savory versions incorporate meat and onions, or sweet versions cream, sugar, and fruit. A vast repertoire of tary and talkan exists, catering specifically to young children, the elderly, the infirm, working youth, and so forth. As a whole, these porridges are generally considered easily digestible, highly nutritious, and filling; a wholesome health food and staple (Segizbauly, 2011).

Kozhe porridge is very similar to tary and talkan, but is thicker and more paste-like, as grains are ground into flour rather than simply crushed. Kozhe is generally made with wheat, but may also incorporate other grains, in which case it is called byrt kozhe. Grain is roasted, dampened, and ground into a thick paste, which is then simmered in milk, water, or broth. The mixture is removed from the heat and allowed to steep and thicken. It may then be eaten cold or reheated and served hot. When allowed to ferment, either with starter leftover from a previous batch, a dose of airan, or with wild yeast, the grain is left to sour for ten to twelve hours, until frothy. This mixture may be eaten hot, or cooled and mixed with airan and qurt to produce a tart, hearty liquid meal (Segizbauly, 2011).

A festive version of kozhe is also prepared for special occasions. This variant must be made with either seven or nine ingredients to ensure good fortune. The ingredients often consist of a mixed combination of grain, usually wheat, millet, barley, and buckwheat; plus legumes such as peas or lentils; and meat and dairy. Maize, while a newer arrival to Kazakhstan, is now often added to the mix (Segizbauly, 2011).

Shepherds venturing into high pastures have traditionally carried a sour drink called ashigan kozhe, or susindik kozhe. Sour kozhe is always unsalted, and is meant to quench one’s thirst while also providing nourishment. The drink is fermented and stored in a smoked leather bag, often the same as is used for koumiss preparation (Segizbauly, 2011). Full of friendly bacteria, the drink will continue to ferment and increase in nutritional value as it travels. The resulting drink both hydrates and incorporates the aforementioned benefits of combined fermented grains and dairy.

Prepared porridges may also be dried for storage or light transport, providing a balanced food source for future use. For example, to prepare dried millet suzbe tary, one first pours airan into a porous cloth bag to drain and dry overnight. This thickened yogurt is mixed in equal proportions with millet tary, then salted and dried in a sheep’s stomach. Later, when moistened, the suzbe tary crumbles and dissolves readily (Segizbauly, 2011). The resulting fermented milk-millet mixture is similar to those of the aforementioned tarhana family as well as to Middle Eastern kishk, a dried milk-wheat mixture with supreme storability, known to be stored in open jars for 2-3 years without deterioration (Steinkraus, 1983).
Finally, a sweet confectionary version of these dishes is zhent, a dense, crumbly sweet confection consisting of roasted and crushed millet, mixed with butter or fat, sour condensed whey (kyzyl irimshik), and sugar. The mixture may be augmented with leftover breadcrumbs, preferably fried dough that has also been mixed with milk and butter. This addition supposedly increases the storability of zhent, and lightens its texture. To prepare zhent, millet is first roasted, then combined and crushed with breadcrumbs. Sugar is heated and dissolved in the melted fat, then mixed with the other ingredients to form a moist cake, which solidifies when cool. Today, zhent is also often made with honey and sunflower seeds, and can be topped with raisins (Segizbauly, 2011). Zhent in the past was reserved for special occasions, but today it is readily available in urban settings, sold in large blocks at the bazaar, nestled amid bags of millets and cheeses; or in small, plastic-wrapped ‘cookie’ patties for sale along the highway.

A Note on Zhent-cum-Halva

Zhent is analogous to Middle Eastern halva, a dessert traditionally either based in flour, most often semolina, or nut butters, such as sesame or sunflower seeds, combined with butter and sugar or honey. Depending on its preparation, the texture and appearance of halva ranges from gelatinous, semi-translucent semolina halva, to dry, crumbly sesame halva reminiscent of zhent. Raisins, dates, or other dried fruits, or nuts such as almonds, walnuts, or pistachios, are usually incorporated. Both halva and zhent follow the same basic mixture and proportion of grain or seed to milk to butter to sugar. Halva is found throughout South and Central Asia, as well as in the Middle East and Eastern Europe. Wherever halva has traveled, it has adapted to local resources and tastes, transforming into sunflower seed halwa in Russia and Eastern Europe, or carrot, mung bean, and bottle gourd versions in Pakistan and India. Zhent may be one of these adaptations, a Near Eastern product moving eastward, simplified and incorporated into Central Asian food traditions.

9.4. Noodles

The progression from porridge to noodles is a natural one, requiring little change in equipment or resources to manufacture. To prepare basic noodles, one simply grinds grains to fine textured flour, which is next moistened with liquid to form a dough. Dough may then either be plucked and shaped by hand into the desired shape, pressed through a basket or modern extruder, or in the case of glutinous flours, stretched, rolled, and either pulled or cut into long noodles. The resulting noodles may be boiled, steamed, or fried, all possible over a single pot (Fu, 2008).

The earliest evidence of noodle manufacture dates to roughly 4000 BCE at the Lajia site, located in Haidong Prefecture, Qinghai Province, north-central China, just west of the Gansu corridor. The Lajia noodles, long and delicate, are composed of a mixture of foxtail and broomcorn millets, and represent early, sophisticated noodle manufacture to render a non-glutinous dough so long, thin, and shapely (Lu et al., 2005). While there has been some controversy in the literature as to whether these noodles could have been produced from non-glutinous flour (Wei et al., 2011), in my own experiments I was able to produce millet noodles quite easily without sophisticated technology. While millet dough, unlike wheat dough, cannot be
stretched and pulled into noodles, I simply used a strainer to press gelatinized millet dough into a pot of boiling water. I was quickly rewarded with noodles, the form of which certainly could have improved with practice. A woven basket would have had the same effect.

Figure 12 Lajia millet noodles (Lu et al. 2005); Subeixi millet noodles, cakes, and porridge (Gong et al. 2011)

We find evidence of millet noodles closely resembling my own at Subeixi, located in the Turpan Basin of Xinjiang, China, and dating to 500-300 BCE. Several millet preparations were recovered at Subeixi alongside the noodles, including a ceramic bowl of desiccated millet porridge, and one of baked millet cakes (Gong et al., 2011; XIA, 1993). The Subeixi millet noodles are more rustic and non-uniform that their Lajia forbears, but nonetheless they represent an East Asian ingredient and technology en route west. Here we see a direct progression in food technologies manipulating a single ingredient, millet, to produce three entirely different foods, the preparation of which was confirmed in experiments performed by Gong and colleagues. The inclusion of both noodles and baking is particularly intriguing here, as noodles exemplify an East Asian technology moving to the West, and baking exemplifies a Western technology moving to the East. Baking technology was not a cooking method widely employed in Chinese cuisine at this time, and may serve as a Western marker (Gong et al., 2011). Millet pancakes dating to 2000 BP have also been excavated at Sampula Cemetery (XUARM, 2001), and wheat cakes dating to 618-907 CE at the Astana Cemetery (XIA, 1983).

Both archaeological and ethnographic study suggests that the Subeixi site is a relevant analogue to early Kazakh economies and food traditions. Subeixi inhabitants appear to have been semi-pastoral semi-agriculturalists, farming cereals while also exhibiting seasonal nomadism. Inhabitants likely practiced transhumance, pasturing in the Tian Shan Mountains from spring to autumn, and returning to settlements in the winter. Their diet included a heavy meat and milk component (Gong, et al. 2011). In light of these similarities, foods excavated at Subeixi may provide direct insights into early cereal preparation on the Eurasian steppe.

In the Near East and Europe, where wheat reigned supreme, the millet in these Eastern noodles would largely be replaced by glutinous durum wheat, which could be stretched and pulled into sculpted forms. Wheat noodles may represent a predominantly West Asian ingredient merging with an East Asian tradition of noodles. Wheat had arrived in the Gansu Corridor by 2600 BCE, and the easternmost shore of China circa 2000 BCE, by which time the Lajia millet noodles demonstrate a long developed culinary tradition (Frachetti et. al, 2010; Lu et al., 2005). Once established, wheat was incorporated into the Chinese noodle tradition, where they became lamian (拉 麵), meaning “pulled noodle,” and a favorite in the courts of Mongol-era China (Hu-ssu-hui et al., 2000). In Central Asia, pulled wheat noodles are known as lagman. Linguistically,
this movement is intriguing, as the first pasta-like products in the Mediterranean are documented in the first century BCE as Greek laganon and Roman lagunum, defined as simply a thin sheet of dough; these would eventually become Italian lasagne. True noodle technology has been posited to have arrived in the Mediterranean via Arab traders in the 1st century CE, perhaps giving rise to the European pasta tradition; however a direct relationship remains unestablished (Serventi & Sabban, 2002). Nevertheless, directionality of these exchanges, Western wheat to Eastern noodle, lamian versus lagman versus laganon/lagunum, traveling via Central Asia, is intriguing.

Today, noodle variations are seemingly endless, intertwined by names and ingredients, and representing a rich exchange across the Eurasian continent (Serventi & Sabban, 2002). While noodle technologies continue to thrive in both the East and West, the two traditions may be distinguished by their chosen grains: East Asian noodles tend to be composed of non-gluten flours or starches, while Near Eastern and European noodles are almost exclusively durum wheat (McGee, 2004).

In Central Asia, two types of noodles dominate: the flat, delicate kespe of the Kazakhs and Kyrgyz, and the stretched wheat lagman of the Uyghurs and Uzbeks. Kespe noodles are similar to dumpling wrappers, sans filling. The name kespe is a nominalization of their preparation, and means 'to slice.' Kespe are composed of a mixture of flour, water or milk, and egg; the noodle does not rely on gluten to bind. While today made with wheat, it is possible to make them using alternative grains. The dough is rolled very thin into a large sheet, then sliced into rectangles and dropped into boiling broth to produce a soft, gelatinous noodle sheet. Alternatively, the dough can be floured and folded like an accordion, then sliced to produce long, thin noodles (Segizbauly, 2011; White, 2011). Kespe form the foundation of Kazakhstan's national dish, beshbarmak, which consists of square sheet noodles, thinly sliced onion, and lamb or horsemeat and sausage. The name beshbarmak means 'five fingers,' referring to how this dish is eaten: the kespe noodle, infused with flavorful broth, serves as a wrapper to scoop a mouthful of meat and onion (Segizbauly, 2011). When we ate beshbarmak, we used spoons, a Russian addition (Mack & Surina, 2005). Today, packaged macaroni product may also substitute for traditional labor-intensive homemade noodles; I tasted both.

Lagman is a hardier noodle, bound not by egg but by well-developed gluten. Lagman is composed of wheat flour and water, kneaded to develop the wheat gluten, then pulled and swung, floured, folded, and pulled and swung once more to produce long, toothsome gluten noodles. The noodles are pulled by their own weight, aligning gluten strands and producing a sturdy bite. Central Asian lagman are generally prepared as a

![Figure 13 Beshbarmak (Source: ©Peretz Partensky)](image)
spicy lamb dish, cooked in a flavorful peppered broth of sautéed mutton, tomatoes, onions, garlic, carrots, radish, and bell pepper (Mack & Suria, 2005; Segizbauly, 2011).

A noodle-based dessert extending across the step region is shek-shek, identified as a Tatar confection, but also evident on Kazakh, Tajik (chaq-chaq), Bashkir (cuk-cuk), and now Russian (chak-chak) tables. Shek-shek is made from unleavened dough, cut and rolled either into noodles or hazelnut-sized rounds, which are then fried in oil. The fried balls are stacked in a mound, optionally augmented with dried fruits and nuts, then drenched with hot sugar or honey. The dessert is allowed to cool, and the crystallized sugars bind the crunchy dough into a crispy, chewy confection. Dried fruits and nuts may also adorn the top (Mendes, 2012; Segizbauly, 2011; Sharipova, 2009-2012).

9.5. Dumplings

The next step in culinary development would be to stuff these noodles with flavorful ingredients, thus creating a tasty, nutritious, and complete meal in a single bite. I refer to the dumpling, variations of which exist through Asia and Europe, ranging from the rustic pierogi to masterful crystal dim sum. Dumplings are the perfect nutritional package, delivering protein, whether in the form of meat or cheese; vegetables, such as onion, potato, pumpkin, or cabbage; and complex flavors, carried by fat, onion, garlic, herbs, or spices. All of these individual components are held together in a filling, starchy wrapper, delivering a efficient mouthful of satiety in the cup of one’s hand. Dumplings are possible to construct using non-gluten flours, but are significantly easier to assemble with the added strength of wheat gluten. The dumplings outlined here are generally made with wheat flour.

While the dumpling-making process can be labor intensive, once ready, the prepared food requires little handling. Small dumplings cook quickly, requiring only a few minutes in boiling water. When cooked, dumplings can be quite sturdy, and do not disintegrate if not eaten immediately. They also freeze well. The Komi, Udmurt, and Mansi, semi-nomadic forest-dwelling peoples of Siberia, traditionally capitalized on these attributes, and are known to have manufactured pel’nyan’ (bread ear) dumplings en masse when sending men on hunting expeditions mid-winter. Hunters carried large bags of naturally frozen dumplings with them; these dumplings could be thawed over a small fire to provide a fresh, hearty meal mid-journey. The Russians later adopted these pel’nyan’, the now ubiquitous pelmeni, which have since come full circle, and are available in frozen packages marketed to bachelors (Wilson, 2010). Pelmeni and cousins exist throughout Russia, Siberia, and the Central Asian republics; the Kazakh version is tushpara.

Tushpara are small, easily assembled dumplings, usually measuring one inch in diameter and including a mixture of meat, onion, and sour cream or butter. Unleavened dough is rolled thin, cut into small squares, topped with a spoonful of filling, and folded twice to seal. The resulting dumplings are then boiled, and either served in broth or dressed with a variety of condiments, including butter, sour cream, sour milk, mayonnaise, black pepper, vinegar, dill, soy sauce, plum sauce, ketchup, or any mixture thereof. Tushpara can
be distinguished from other Central Asian dumplings by their small size, tortellini-like shape, and approximate 1:1 dough to filling ratio. They are always boiled, never steamed (Atakishizade, 2011; Segizbauly, 2011; Wilson, 2010).

Perhaps the best-known Central Asian dumpling is *manty*, a large, juicy package of meat, mutton fat, onion, and salt. Kazakh manty are roughly the size of a fist. Dough is cut into large squares, topped with filling, and then gathered up to form a crinkled seam at the top of the dumpling. The finished product resembles a coin purse, and is significantly larger and weightier than tushpara dumplings. Manty are always steamed. Mahmud of Kashgar, in his 11th century dictionary, *Dīwânī l-Luḡât al-Turk*, describes a similar food called *mamata*, composed of “dough smeared on fat chicken or meat so that the fat will not run out when the meat is roasted” (Maḥmūd Kāshgarī, 1915-17 qtd. Hu-ssu-hui et al., 2000)

While manty have a long history in Kazakhstan, they were introduced to me as Uyghur food. Manty are common across Central Asia, and their spread across the region is generally credited to the movement of nomadic groups across the steppe, leaving their mark in the culinary record. The nomadic manty legacy holds strong today, traceable as a veritable ‘manty belt’ across the Eurasian landmass. These dumplings may be found in Turkey as dime-sized *manti*, or in the East as Mongolian *mantuu*, Tibetan *momo*, Korean *mandu*, and Japanese *manju*. In China, a soft, steamed wheat bun, *mantou*, is a common convenience item and particularly popular in the northeast. Interestingly, Chinese *mǎntóu* (馒头) are a well-known cognate to “barbarian’s head” (蠻頭) perhaps nodding to this dumpling’s origin among the nomadic “barbarians” north and west of China, bane to the Chinese empire’s existence, yet an enduring player in Chinese political history (Perry, 1998).

Finally, a baked dumpling, *samsa*, bridges the gap between manty and bread. Samsa contain the customary dumpling filling of mutton, fat, and onion, but the dough wrapper is leavened and lightly fermented, and the dumplings are roasted. Samsa are baked much like bread on the walls or floor of a tandir oven, or stuck to the walls of a qazan. Stuffed dumplings are clustered together and cooked until golden brown, then removed from the oven and slathered in butter, prior to cooling and eating (Segizbauly, 2011).

### 9.6. Bread

Flatbread, or *nan*, is suitable to a mobile lifestyle, cooking quickly and expending little fuel to create. Dough may be seared over a hot griddle, pressed against the walls of a qazan, or baked inside a built tandir oven. Exposure to high heat puffs tiny air pockets in the dough, quickly producing steam and resulting in lightly leavened, tender dough. Wheat is preferred for bread, as gluten development allows elasticity,
expansion, and a greater volume yield per unit grain milled. However, flatbread is unleavened, and can be prepared from any single or mixed grain flour. I prepared flatbread from my own stone-ground millet flour, and it yielded a soft-centered, crispy and fragrant nan, similar to cracker-like Uzbek lochira bread (Sharipova, 2009-2012). Unsurprisingly, different grain yields distinctly different flavor profiles: millet is lightly sweet, buckwheat nutty. Stale bread does not go to waste, and may be repurposed as croutons or crushed and mixed with milk and egg to make pillowy dumplings in soup. Old bread may also be mixed into zhent in addition to fresh roasted grains (Mack & Surina, 2005; Segizbauly, 2011).

### 9.6.1 Griddle Bread

Likely the first bread to arise, by virtue of its similarity to porridge preparation (simply lower the ratio of water to flour) is griddled flatbread, or qazanzhappa, which may be prepared from both wheat and non-glutinous flours. To make qazanzhappa, batter is poured into the hot base of a qazan, lightly browned, and flipped like a pancake. Depending on the thickness of the batter used, the resulting bread may be a thick loaf of nan or a thin pancake. Should the baker be using shallow pan, then instead of flipping the bread she may place a lid atop the pan and flip the entire utensil (Segizbauly, 2011; Sharipova, 2009-2012). Lidded pans may also be buried in ashes to bake. Alternatively, the qazan itself may be overturned over a fire to produce a more griddle-like surface. This type of flatbread is evident throughout the Middle East as well, where it is known as markouk, or “mountain bread,” prepared over a saj griddle. Should the baker lack any utensils, nuggets of dough can also be buried in hot ashes to bake, producing kulshe bread, named for the qurt cheese it resembles in shape. Kulshe is also sometimes called kombe, meaning ‘buried treasure’ (Segizbauly, 2011).

In an effort to invigorate these unleavened flatbreads, griddled over a fire, Central Asian nomads experimented with layering, varying qazanzhappa in thickness and filling to produce a huge repertoire of stuffed and layered breads, various examples of which exist throughout the culinary traditions of the Kazakhs, Uzbeks, Tatars, Bashkirs, Azerbaijanis, Turkmens, and Uygurs. Here I will skim the surface and touch upon poshkal, yupqa, yuka, and qatlama. These breads can be sweet and savory, and certainly fit seamlessly with the Russian blini tradition. They may also have given rise to the phyllo pastry widely utilized in Turkish and Mediterranean cuisine today, a technique perhaps carried West by Turkish nomads in the 11th century, and perfected in Ottoman courts (Perry, 1994). Today, these traditional breads, as well as blini, borek, baklava, and derivatives are sold alongside one another in urban markets.
Poshkal is greasy, multilayered fry-bread composed of ten to twelve thinly rolled sheets of dough smeared with sour cream. To assemble poshkal, the first layer of bread is fried atop a hot griddle, then flipped to fry the opposite side. Meanwhile, a thin layer of sour cream or yogurt is spread on the upturned surface, perhaps augmented by a sprinkle of onion or scallion, and then topped with a second sheet of raw dough. The stack is flipped and the back-and-forth process repeated until one is rewarded with a thick, greasy, multilayered bread (Perry, 1994).

Yupqa is similarly prepared by frying thinly rolled dough on both sides, then quickly topping the pancake with a precooked stuffing, and folding the dough into a package (Sharipova, 2009-2012). Yuka, a sweet bread beloved by the Tatars of the Middle Volga, is fried in individual round sheets, then stacked with jam and sugar filling, to be served with tea (Medvedev, 2004; Perry, 1994).

Qatlama is assembled by first rolling a lightly leavened sheet of dough to delicate thinness, then cutting the sheet into strips and greasing each strip with butter, mutton fat, or yogurt. Each strip is rolled into a log, then placed on another strip of unrolled dough, and rolled once more to thicken the wheel of dough. The thick wheel is then placed on its side, flattened, and baked to form a stiff multilayered flatbread. Alternatively, the qatlama may be stuffed. To assemble stuffed qatlama, the dough is rolled thin, topped with fillings, then rolled up once more into a sausage shape, which is again coiled around itself like a snail. Common fillings include the ubiquitous mutton and onion, as well as cheese, pumpkin, or for special occasions plov. Sweet versions may incorporate cheese, spices, nuts, and fruit (Sharipova, 2009-2012).

Among these layered and stuffed flatbreads, we begin to recognize similarities to Turkish borek as well as the baklavas of the Near East and Mediterranean. Food historian Charles Perry has postulated that the flatbreads of the Eurasian Turkic nomads were indeed the origin of Turkish and Mediterranean phyllo, a delicate and labor-intensive product, requiring significant expenditure of time and resources to create, which may in fact be conceptually rooted in the humble flatbreads of the Central Asian nomads.

Looking backward, to the arrival of these breads into Anatolia, we refer to the Kitab Diwan Lughat al-Turk, an 11th-century dictionary of Turkic dialects compiled by Mahmud of Kashghar. In ancient Turkish, the word yubqa translates as “thin” or “frail” and was used particularly in reference to thin, flat breads, then called yuygha. The word qat is translated as ‘to layer,’ and is the root of terms qatlama. Mahmud defined the phrase qatma yuygha as ‘folded,’ ‘wrinkled,’ or ‘pleated’ bread. Perry postulates that qatlama and yupqa,
breads native to Central Asia, arrived in the West via mobile Turks to be compiled in this index (Mahmud Kasghari, 1915-17; Perry, 1994). Today still, a single sheet of phyllo is in Turkish referred to as yufka. Interestingly, yufka-made borek would return to Asia in the fourteenth century, to be served to the Mongol khan in Yuan dynasty Chinese courts as parak (Hu-su-hui, 2000).

Central Asian griddle breads may also be the ancestors of baklava. Layered Eurasian flatbread would have fused with the long-standing Persian tradition of nut-filled sweets, producing the sugary, nutty bread we know today as baklava. To trace this relationship, Perry looks to the regions between Central Asia and Anatolia, the land Turkic nomads passed through en route from the Eurasian steppe into the Near East and Mediterranean. Two desserts in particular stand out: Azerbaijani baki pakhlavasi and Tatar pakhławā, both reminiscent of baklava, but roughly hewn. These sweets represent intermediaries between layered bread and delicate pastry, for unlike baklava, which may be composed of 50-100 layers of dough, baki pakhlavasi and ḫlavā are made of roughly eight sheets of unremarkable noodle dough layered with nuts and honey. Baklava as we know it today likely arose in the Topkapi Palace of Istanbul, where time, resources, and demand led to the development of paper-thin stretched phyllo dough (Hu-su-hui et al., 2000; Perry, 1994).

9.6.2. Oven Bread

The earliest oven-baked breads, or tandir nan, appear in the Near East to the mid-Pre-Pottery Neolithic, 7300-6500 BCE; evidence of hearth-baked breads may precede this innovation by several thousand years. Tandir-type ovens exist across the Near East and into Central Asia (Haaland, 2007). Evidence of oven baking in southeastern Kazakhstan extends into the Bronze Age (2500-1000 BCE), in the presence of wheat, millet, and barley grains (Doumani, forthcoming). I assisted in the excavation of this particular oven. Located in a seasonally occupied pit house, the mud-brick oven, complete with a floo system, had been redug and revived multiple times over the course of several hundred years. Each family that passed through the valley recognized the value of this structure and sought to revive it. However, tandir ovens, because they are built and non-portable, are better suited to village life than nomadism, and are thus indicative of settlement.

Tandir nan is baked from all sides by the ambient heat of an oven chamber. Dough is kneaded in bulk, then cut and shaped into equally portioned rounds. Balls of dough are allowed to rise, then punched down to flat, round loaves. Bakers may press the bread with a stamp, marking it as their signature creation, or simply dimple the surface with their fingertips. Moist dough adheres readily to the hot oven walls, and when baked detaches easily, producing a thick, crisp bottom crust and tender top, browned and lightly smoked. The finished loaf is lightly curved, echoing the shape of the oven wall.
In contemporary Kazakhstan, tandir bread is available throughout the streets of Almaty, where it is baked in bulk each day and sold fresh until the baker depletes his or her ingredients. Contemporary rural farmsteads may also include an oven. Twice a week, we made a foray to the neighboring farm, where we purchased fresh milk and tandir bread from the matriarch of the house. She required a day’s notice to bake, and usually sold us five to six rounds at a time, wrapped in newspaper and smelling lightly of yeast and fire.

While bread has long been a component of traditional Central Asian cuisine, it gained particular prominence during the Soviet era, and today loaf bread serves as a marker of Russian penetration into Central Asia. All Russian meals, regardless of whether they include another starchy staple, will also feature a bowl of sliced bread at the center of the table, usually a mix of white, dark, and perhaps rye (Mack & Surina, 2005). Russian bread is distinguishable from Central Asian bread by its loaf form. Bolke, unlike nan, is leavened and oblong, and often baked in rectangular tins to produce a European-style sandwich loaf (Segizbauly, 2011). This peasant staple, elevated to near-breathtakingly iconic status in the Russian culinary tradition, is now a regular occurrence on the Kazakh table as well. In Almaty and Taldy-Korgan, we ate moist Russian black bread, as well as whole-wheat brown bread. In the rural village of Kopal we could only find white-flour (and truly flavorless) bolke. Venturing still further into rural life, we once again came across tandir bread at our neighboring Kazakh farmstead.

9.7. Rice

While the kitchen has traditionally been the woman’s realm, with the majority of non-meat food preparation relegated to the women of the household, one dish in particular stands out as the man’s undertaking. This is plov, an Uzbek rice pilaf composed of mutton, onion, carrots, and rice slow cooked in the qazan, fried with enough oil that historically, properly made plov was said to release a stream of grease down one’s arms with each mouthful. Each ingredient is added in a distinct layer and stewed in a tightly sealed pot over an open fire. While the constituents are simple, plov is greater than the sum of its parts, and yields a complex, deeply flavored dish. Basic plov is spiced only with salt and perhaps black pepper, and gains most of its flavor from mutton fat, but variations may utilize coriander, turmeric, thyme, cumin, or curry powders.
Additional ingredients include chickpeas, garlic, and dried fruit, such as barberries; the cook may also choose to insert nuts, horsemeat kazy sausage, chicken, or fish (Nesterov, 2010; Segizbauly, 2011; Sharipova, 2009-2012).

Vegetarian versions omit meat in favor of dried fruits, nuts, and legumes, and are cooked in plant oils, the most widely available of which are sunflower and cottonseed. The omission of tallow produces a markedly different dish in flavor, texture, and color; frankly reduced in complexity and lacking the crisp, greasy crust which forms where rice comes into direct contact with the cooking pot, or the rich, distinctive brown and orange tones of roasted rice, mutton, and carrot.

Pilaf-style rice is distinctive from East Asian rice preparations, and is generally credited to Persian and Turkish traditions, although Central Asian rice reflects this method as well. In East Asian rice traditions, where rice has historically been served as a daily staple, rice is rarely highlighted as a markedly flavorful component of the dish, but instead serves as filler or as a vehicle for vegetables or, if available, protein (Hussu-hui et al., 2000). East Asian rice is boiled in just enough water to moisten it, producing a clingy mass of grain, which is judged by its whiteness, gloss, tenderness, and clear flavor (McGee, 2004:474). In contrast, in the Near East, where rice was historically a luxury, rice preparations favor complex, aromatic preparations, fortified with broth, oil, butter, and spices, in which the rice stands as a dish in itself (Hu-ssu-hui et al., 2000; McGee, 2004; Zubaida, 2000).

Rice was habitually used in northeast China beginning circa 7000 BCE (Liu et al., 2007), and is first evident in the Near East at the 1st century CE (Miller, 1981). Rice is present in Kazakhstan in the Iron Age, found among Saka (700-100 BCE) and Wusun (200 BCE-500 AD) sites in Semirech’ye. A later addition among the staple grains, it indicates an intensification of agriculture in the region (Chang et al. 2003; Chang et al. 2002, Rosen et al., 2000).

In Kazakhstan, our plovs were prepared with a variety of rices; mid-sized grains in the field, long-grain basmati in the streets and restaurants. I later received a bag of Uzbek “presidential rice,” apparently the preferred grain for high quality plov, but this short-grain variety, nearly resembling sushi rice, was not something I personally encountered in Kazakhstan. There does not appear to be a singular type of rice associated with this dish in Central Asia or in Turkey and Iran, although cooks seem to prefer long-grained, aromatic varieties (Segizbauly, 2011; Sharipova, 2009-2012; Zubaida, 2000).

Because plov only requires stacking ingredients, then waiting for the stew to cook, it requires minimal oversight, and thus serves as an excuse to gather around the fire and talk politics, gossip, and share news. Men are particular about their plovs, and I witnessed several power struggles over the quality of ingredients and mode of preparation, particularly when female cooks were excluded from the process, but also when our visiting ‘plov-maker,’ a guest researcher’s driver, passionately contested the quality of our meat as worthy of his plov. I cannot blame him for doubting canned beef!

Plov is an ‘equal opportunity’ dish, and is served in the home, along city streets, in restaurants, and on special occasions. The Uzbeks have a saying that “If you are poor, you eat plov. And if you are rich, you eat nothing but plov” (Nesterov, 2010). Plov is easily assembled and thus well suited to feeding a crowd; the dish
is often prepared in bulk to feed hundreds, whether city strollers or guests at weddings, anniversaries, and other celebrations. Because of this, plov has largely replaced *beshbarmak* as the default celebratory dish at large gatherings in Kazakhstan (Segizbauly, 2011).

### 10. Fruits and Vegetables in Kazakhstan

Fresh produce is by no means forgotten on the Kazakh table, but vegetables are not the focus of the meal. Vegetables are consumed in greater quantity in Uzbekistan, whereas in Kazakhstan preference has historically been granted to the traditional staples of dairy, meat, and grains (Babu & Djalalov, 2006). Tomatoes, potatoes, beans, sunflowers, maize, and chili peppers, now integral to Central Asian and Russian cuisine, are New World crops that arrived via Spain in the 16th and 17th centuries, and made their way east via the Ottoman Empire, which at the time encompassed North Africa, southeastern Europe, Anatolia, the Middle East to Iran, and Azerbaijan. These crops rapidly spread to Russia and Central Asia, where they were readily incorporated into cuisine (Fragner, 2000).

Fruit and vegetable consumption is highly seasonal, limited to the spring and summer, to be replaced by fermented or dried varieties come winter. In light of this, green leafy vegetables have never been especially popular in Central Asia or Russia, partly due to environmental suitability, and also simply because these leafy greens, while flavorful, are not a calorie-dense staple capable of warming and fueling a workingman or woman (Mack & Surina, 2005). Ethnographic data indicates that among eastern steppe villages in Kazakhstan, Kazakh households have no tradition of cultivating or consuming leafy vegetables, and Russian households are only slightly more inclined to collect herbs in the summer months (Drozdovitch et al., 2010). Roots and bulbs are simply more amenable to the Kazakh climate, whereas cultivated herbaceous greens are often difficult and expensive to maintain. In urban settings, fresh produce remains expensive, particularly out of season, and thus consumption is usually confined to the bountiful summer months. However, vegetables are increasingly being grown in greenhouses, which allow close monitoring to prevent spoilage, and more importantly facilitate local vegetable availability year-round (Kusainova, 2003).

### 10. 1 Foraging: Then and Now

Kazakhstan is home to a rich variety of wild fruits, nuts, and herbs, which grow in mountain forests and meadows. The pastures of Semirech’ye alone are rich with flavorful plants that could be employed as seasonings: within less than an hour’s hiking distance of our campsite were multiple species of mint, onion, horseradish, and huge stands of *Artemisia*, a relative of tarragon often used in tea. Unfortunately our examination of wild fruit and vegetable consumption is largely confined to more recent ethnography. These foods may be nigh impossible to trace in the archaeological record due to the widespread use of dung fuel, which does not allow differentiation between wild plants burned in human consumption, or simply in the dung of hungry livestock. Nevertheless, the importance of wild foods in the Central Asian diet has been widely documented in ethnographic accounts dating from the 18th-20th centuries, a synthesis of which is provided

While agropastoralism is often understood as a replacement to hunting and gathering, in reality foraging is complementary to a herding lifestyle. As a herder moves across a landscape in pursuit of pasture, or simply minds his flocks during the day, he may also collect wild plants for his own consumption. Furthermore, as flocks move within the landscape, vertical transhumance brings pastoralists into contact with new ecosystems, and their associated edible plantlife. Foraging therefore represents an economical and efficient utilization of available time and natural resources. In addition, wild forage is a significant source of micronutrients in the herding diet. In particular, forage has been emphasized as an answer to vitamin C deficiency and the threat of scurvy (DiCosmo, 1994), although as I argue fermented sheep and horse milk fulfill this need.

Historically geophytes in particular, i.e. underground storage organs such as bulbs, tubers, roots, and rhizomes, appear to have played a significant role in the mobile pastoral diet. These wild bulbs remain an important food source for contemporary Tuvans (Vainshtein, 1980). Many of these wild geophytes exist only briefly in springtime, when the plant has restored its nutrients after a bitter winter. These include *Erythronium* lily bulbs, which can be roasted in ashes or cooked fresh along with other foods, or dried and stored in large sacks (Spengler, 2012). Noodles made from lily bulbs are also attested to in Mongol-controlled, thirteenth century Yuan China, where a recipe compendium, the "Shanjia Qinggong" or "Simple Foods of the Mountain Folk," includes a recipe for *baihemian*, or lily-bulb noodles (Serventi & Sabban, 2002).

In addition, *Allium* bulbs, including onions, garlic, and leeks, grow abundantly across Semirech’ye today (Spengler, 2012) and are the primary flavoring agents utilized in Kazakh cooking. Onions are sliced thin and served raw atop beshbarmak, fried in plovs, or stuffed into dumplings; garlic may also be added to fillings, buried in plovs, pickled whole, or added to salads and relishes. Bulbs are harvested in the late summer and autumn, then dried or sometimes fermented (Prikgonskii, 1953 [1881]). Bulbs not only grant complexity in flavor, but also are also especially high in vitamin C.
Mushrooms also represent a plentiful wild food source, growing thickly in mountain forests as well as speckling mountain meadows. We tasted wild foraged mushrooms ourselves when a visiting researcher’s driver, ethnically Russian but born in Almaty, ventured across the valley and into the woods to gather a plethora of wild mushrooms. He then stewed these mushrooms in a qazan with potatoes and spices. He recounted to me a forest floor cloaked in mushrooms, growing so thickly that he could have sat down and simply plucked a circle around him. When members of our team expressed worry about potentially toxic varieties within his harvest, he assured me that few mushrooms in Kazakhstan are inedible, but that these types are commonly known and easily identified. He had learned to identify wild mushrooms as a young boy, and has since been foraging and eating them all his life. In Russia, mushroom hunting is a recognized, much beloved activity, enthusiastically undertaken each autumn as a family outing, and serving as a reminder of their peasant roots (Wasson, 1957). Whether or not common prior to Russian penetration, mushromming is certainly feasible and practical in the mountains of Semirech’ye.

A large number of fruiting plants grow wild in Kazakhstan, a summary of which is provided by Dzhangaliev et al. (2003). Highlights include apple, apricot, barberry, bilberry, blackberry, sweet and tart cherry, cranberry, currant, elderberry, gooseberry, grape, hawthorn, lingonberry, mulberry, pear, plum, raspberry and strawberry. Wild nuts include almond, hazelnut, pistachio, walnut, and Siberian pine. These plants are valued not only for their fruit, which may be eaten fresh or dry, but also for their oils and role in honey production (Dzhangaliev et al., 2002).

Combined archaeological and molecular data indicates that the ancestor to modern cultivated apples (*Malus domestica*) originated in the Tian Shan Mountains of southeast Kazakhstan, and entered China and the Near East during the late Neolithic or early Bronze Age. The seeds of ancestral *Malus sieversii* likely travelled via trade routes, carried either by riders or in the bellies of their horses. Alexander the Great is later credited with bringing the apple to Macedonia in 328 BCE, whereupon a variety of cultivars developed and spread across Europe. However, the greatest genetic diversity in wild *Malus* remains in the Almaty region (Harris et
Members of our camp located one such wild apple stand in the mountains across the valley; unfortunately the fruit was still small, unripe, and not yet fit to eat in late July. While imported Chinese apples were available throughout Almaty mid-summer, the first of the local Kazakh crop was met with great excitement in early August.

In regards to wild berry foraging, regional ethnographic accounts document cranberries in boreal forests (Seebohm, 1882), crowberries and cloudberries in the Altai and Tuva, bird cherries and currants in Kazakhstan (Levin & Popatov, 1964; Seebohm, 1882), as well as bilberries in the far north, to be eaten raw, boiled, or mixed with cream or milk. On the open steppe, Kazakh herdsmen often gather hawthorn hips, which may be eaten raw or cooked into jams (Spengler, 2012). Culinary use of hawthorn is well known in China, where these “berries” are commonly eaten dried, as sugary snacks or candies, in jams and juices, and as vinegar. Beer flavored with hawthorn hips is present in Neolithic Northern China, dating to 7000-5800 BCE (McGovern et al., 2004). Hawthorn hips are also eaten in Iran as a dried snack and in jelly, both known as zalzalak.

Wild strawberries grow particularly thick in the mountain meadows of Semirech’ye, colonizing any area with ample access to water, whether along a river hillside, or in a dip in the valley. These strawberry oases can be spotted from a distance, as the round, bright strawberry leaves stand out against pale green and yellow silky grasses. In marshy valleys, we could simply run our fingers through a strawberry patch and come up with a handful of berries, each about the size of a large pea. We went on several such strawberry forays, always with good intentions to bring them back for jam, but usually eating the majority of our forage before we could make it back to camp.

One day, however, we did succeed in gathering a large bowl of berries, and proceeded to make jam with our Russian cook. This was a labor-intensive process, involving washing the sandy berries, then delicately removing their leafy caps. The berries were cooked with a large amount of sugar and rendered into thick, sweet syrup to be slathered on buttered bread or stirred into porridge. As a preservative tactic, such high sugar loads kept the jam from molding. We also spotted gooseberries growing alongside one of our sites,
the most recent occupation of which dated to the 1950s. The gooseberry bush had retreated up into the rock face, pushed out by nettles, but produced a bumper crop of berries in late July. Because gooseberries were not evident growing wild nearby, we surmised that homeowners had likely planted this bush themselves.

We witnessed the same berry processing procedure at our neighbor’s farmstead. Sitting at the kitchen table, the men and we guests dined on beshbarmak, pastry, and tea, while the women and a hired farm hand sat at the other end of the table, in the shadows, processing strawberries. A huge lacquered aluminum bowl, probably holding over a gallon of berries, perched in front of the woman, who methodically removed each strawberry top with a paring knife and dropped the greens into another teacup. She sat, head tipped to the side in relaxation, occasionally rising to refill our teacups, listening to the men discuss politics, economics, herding, and the quality of Chinese manufacturing. The farmhand also tipped a few berries, though he seemed more interested in the men’s conversation. The men made short work of the jam present on the table, spreading it atop cookies, and as the night went on, consuming whole spoonfuls plain. I imagine the wife and her daughters processed many jars full of strawberry jam each summer, storing them for the winter months. Brilliant pink and incredibly sweet, the jewel-like jam would serve as a refreshing reminder of sunshine during the long cold, winter.

10.2 Fruits and Vegetables in Urban Kazakhstan

Changing economic and cultural incentives have led to steadily increasing demand for vegetables in modern Kazakhstan, more so than any other Central Asian republic. While meat consumption is commonly used to trace rising GDP, in Kazakhstan one may look to the consumption of high-value fruits and vegetables crops to trace economic trends (Babu & Djalalov, 2006; Kenenbayev, 2003). Although wheat and cotton, endorsed by the Soviets, remain the major crops grown in the region, interest in intensification of vegetable cultivation is rapidly growing (Kenenbayev, 2003). This drive is partly due to the growing restaurant industry, which has historically imported nontraditional plants from abroad, but is now fueling demand for cheap, local production (Oleichenko 2003). Furthermore, nutritionists recognize that the traditional Kazakh diet, high in fat and meat, and now sugary and canned foods, may meet caloric demands, but is ill-suited to an urban, sedentary life. Thus in pursuit of better health, consumers are beginning to incorporate more vegetables into their diets year-round, although this remains a difficult venture in rural areas, particularly during lean winter months (Kenenbayev, 2003; Kusainova, 2003).

The majority of vegetable production in Kazakhstan takes place in home gardens, which account for 70-80% of vegetables in the region. Primary vegetables cultivated in Kazakhstan include cabbage (31% of vegetable production), tomato (23%), onion (22%), cucumber (7.5%), and carrot (7%); as well as eggplant, cauliflower, radish, pumpkin, turnip, garlic, marrow squash, and a variety of beans (Manakov, 2003).

I was fortunate to be in Kazakhstan mid-summer, at peak vegetable production, so witnessed the huge variety of produce available to the residents of Almaty: local and imported, fresh and prepared, some swimming in pickling liquid, others leathery and dried. Fruits and vegetables were available for purchase from small street vendors, as well as in supermarkets, but the true bounty lay at the Zelyony Bazaar. The
outdoor portion of the market was devoted predominantly fresh produce, raw cereals, and bulk nuts and dried fruit; while the indoor area featured prepared salads, various pickled products, meats, fresh, dried and smoked cheeses, and koumiss.

Outdoor vegetables were displayed on raised bowls, piled high and often arranged in artful patterns, orbs of color lining the walkways. In a single aisle, I encountered orange, yellow, and red carrots, bell peppers, Hungarian wax peppers, garlic bulbs and garlic scapes, Thai chilies, scallions, radishes, fennel, white and purple eggplant, cucumbers, pole beans, green and red curly-leaf lettuces; piled atop potatoes, corn, tomatoes, sweet yellow onions, red and sugar beets, white cabbage, broccoli, and cauliflower. Herbs lay in lush piles: parsley, dill, tarragon, mint, sorrel, and chives.

Entering the enclosed portion of the bazaar, I first encountered the pickle table, where briny vegetables ranged from emerald green to olive-yellow to dusky moss, interrupted by the brilliant magenta stain of beet pickling juice. Pickled cucumbers varied from the puckery and acidic, to garlicky, to mild dill. Also available were pickled green tomatoes, sweet small peppers, and cabbage, available either as a green slaw, or a whole brined quarter head. The very bold could try a beet-juice-marinated whole garlic head. The women also offer a wide variety of pickled wild mushrooms, large and small, strong and mild, all earthy and pungent as the forest floor.

These vegetables will be skewered and grilled alongside meat shashlik, cooked into stews, or mixed into plovs. Samsa are often filled with pumpkin, and pelmeni and Ukrainian pierogies with potato. Piles of thinly sliced bell pepper, cucumber, onion, and parsley may be served alongside fresh soft cheese, to be
wrapped in a delicate pancake. Alternatively, vegetables may served as chopped salads, the most ubiquitous
of which is a mixture of diced cucumber and tomato, lightly dressed with oil, salt and pepper. In the
countryside, our neighbors also sent over several relishes, including an incredibly flavorful sweet and tangy
carrot relish that instantly enlivened any dish. I admittedly ate more than my fair share. Whether served raw,
cooked, pickled, or fried, vegetables are usually seasoned with salt, pepper, a douse of oil, and oftentimes sour
cream or mayonnaise, beloved by Russians. Other seasonings included the ubiquitous dill, as well as red chili
powder, soy sauce, and vinegar. Our cooks were displeased when we forbid “Chinese salt” at the table;
monosodium glutamate is not conducive to a productive afternoon of digging. These flavorful vegetable
medleys provide a refreshing, oftentimes slightly acidic bite to counteract rich meats or bland starchy staples.

The salads of Kazakhstan draw inspiration from Russia, the Middle East, and Korea. In particular,
Korean cuisine, with its emphasis on cold, briny salads, blends readily with Russian tastes for zakuski, the
array of pickled vegetables, mixed salads, cured meats and fish, and caviar often served as small bites prior to
the main course. The food of the Soviet Koreans, or Koryo Saram, is now commonly sold throughout Russian
and Central Asian markets (Mack & Surina, 2005). However, unlike their Russian analogues, whose flavors
are often dominated by dill, vinegar, cream, and mayonnaise, the cold salads of the Koryo Saram stand out
with their generous use of garlic and thrillingly spicy gochujang chili pepper paste.

Common Koryo Saram salads include pickled or fermented eggplant, mushrooms, string beans,
kidney beans, beets, squash, seaweed, and fish (Mack & Surina, 2005). At the Almaty bazaar, I also
encountered spicy pickled cock’s combs, chicken hearts, tripe, tofu skins, cauliflower, dark button
mushrooms, and mixed vegetables, including bell pepper, cabbage, carrot, and large pale mushrooms. The
fermented fish was particularly potent, dissolving in my mouth in a rush of pungent tang. Rice noodles were
also available, alongside piles of plain white rice, and vegetable-stuffed whole sushi rolls. Carrot salads were
piled the highest, towering in great orange peaks that stood out as vivid beacons in the already colorful
bazaar. These salads, known as koreyaka morkov, are the best known Korean dish in Central Asia, and in fact
exist only in this region among the Koryo Saram. Carrots are julienned in long, spaghetti-like strips, mixed
with sautéed onions, garlic, and crushed coriander; generously doused in vinegar, and seasoned with a bit of
salt or soy sauce, and a pinch of sugar. Depending on how ’authentic’ the diner prefers his or her salad, the
vendor will add a large pinch of cayenne.

The markets were also replete with fresh fruits, many of which are imported from China and South
America, but some of which are grown locally. Local fruits were instantly identifiable by their slightly
shriveled state, but their concentrated taste was unrivaled. Fresh fruits included grapefruit, pink apples,
purple and red plums, yellow and blush apricots, peaches, cherries, and lemons. Small yellow canary melons
leaned against football-sized Hami melons, which leaned against massive watermelons. Local raspberries and
strawberries, both conventional klubnika and wild zemliyanika, were available by the bucketful. Sitting in the
sun all day, each hot little berry collapsed with concentrated flavor upon each bite. Several weeks later, at the
end of August, we returned to the bazaar to a fresh crop of fruits. Bowl after bowl of blackberries, tart and
juicy, replaced early summer raspberries. Gooseberries had also arrived in the market, both green and red.
Dried and nuts are also widely popular, to be eaten out of hand, mixed into plov, chopped into salads, or added to sweets. Large stands displayed checkerboards of dried fruits and nuts, glowing in warm shades of russet and gold, and vendors encouraged tasting, seeking to prove their product superior to that of a neighbor. The largest retail territory was devoted to apricots, both sulfured and unsulfured, and raisins, both black and golden. Other dried fruits included cherries, prunes, and dates. Less attractive dried fruits, shriveled or with worm holes, were sold in bulk bags for rehydration as kompot, a refreshing Russian drink of rehydrated fruit and sugar, strained and served cool. Many of the fruits had also been candied and dyed, including brilliant red cherries, pink dates, and crystallized pineapple and kiwi, a taste of the tropics in Central Asia. Some ‘fruits’ were manufactured altogether: little blue and red paste berries, barberry-flavored candies, as well as, strikingly, candy imitation corncobs.

Among Central Asian fruits, the melon is particularly resonant to regional culinary heritage. Kazakhs take great pride in their melons, many cultivars of which originated here and in Xinjiang, and which are known regionally for their flavor. Almaty is the center of melon production in Kazakhstan (Aymuchambetov & Tyan, 2003). While agriculturalists seek to increase the hardiness and transportability of melons for trade, and thus bring Central Asian melons to international markets, they are also deeply concerned by genetic adulteration, and loss of this quintessentially Central Asian fruit (Oleichenko & Kusainova, 2003). Melon is traditionally used as a folk medicine to treat kidney and stomach pains, as well as bronchitis and rheumatism. As food, the melon may be eaten fresh or as jam, puree, candied fruit, and “honey” (Aymuchambetov & Tyan, 2003). Dried melon kaunkak is also a popular snack, braided and dried in the summer, then savored in winter months when fresh fruits are not available (Segizbauly, 2011). When we arrived in summer, a wide variety of melons were available at the bazaar, ranging in size from that of a small football to a human torso. When a group of friends and researchers visited us in the field, they brought two massive watermelons as gifts. These were the cause of much excitement, and we happily chilled the fruits in the river before enjoying them in the boiling midday sun.

11. Conclusions

While we may not have a window into prehistoric Eurasian farmsteads, nor be able to see what filled their plates, we may look to traditional Kazakh cuisine to elucidate the development of Kazakh foodways, and better understand why certain preparations evolved, took hold, and were eventually canonized in the Kazakh
culinary tradition. In this analysis, I look to the distribution of plant foods grown in what is now Kazakhstan, aligning millet and barley agriculture, as well as wild plant foraging, with the nomadic lifestyle of the pastoralists who grew and consumed these products. I then step beyond agricultural and economic dynamics, and provide new insights into how these plants were transformed into food and nourishment.

At the heart of the Eurasian nomadic foodways is the concept of flexible strategies, and the ability to grow and prepare food in light of mobile lifestyles, temperamental climates, and shifting political systems. Utilizing a combination of archaeological and ethnographic data, I present models for the preparation of plant-based foods by nomadic peoples, analyzing feasibility and utility in a mobile lifestyle. I examine the simple technology of grain processing and cooking, in particular emphasizing how millet use matches both the food traditions of Central Asia and the agricultural features of the plant itself. I also explain how the loss of millet in the context of cuisine can be explained by the dominance of wheat and rice, a function of cultural prioritization and changing political regimes. Given the early arrival of cereals into an established pastoral economy, we may understand the culture and cuisine of Kazakhstan as evolving in the context of dairy and grain, augmented by meat products and flavored with fruits and vegetables, to produce the Kazakh food ecology we see today. Further enriching our understanding is a comparison of Kazakh foods with similar preparations across the Eurasian steppe and surrounding regions, revealing continuity in nomadic foodways among the Turkic tribes, and the movement of cuisine in and out of Central Asia. I look forward to further research in this field, both archaeological and ethnographic, to aid in the stitching together of a coherent picture of domestic life in nomadic Inner Asia, thus far little understood, yet rich with life and history.

Acknowledgements
I would like to extend thanks to Dr. Katherine M. Moore, for her advice, insights, enthusiasm, and critiques, seeing me through this project from start to finish, and for giving me the tools and support to trust in my instincts and to develop as a scholar. Dr. Michael D. Frachetti, for allowing me to join him in the field, and for his continued guidance in Central Asian archaeology. Robert Spengler for his generosity of knowledge in Eurasian botany. Naomi Miller for teaching me how to think about archaeobotany. Buck Johnson and Patricia Lukacs for providing me the tools to write long before I knew I needed them. Lastly, I am forever indebted to my parents, Robert and Jeannie McLean, for their love and support, and for enabling me to pursue my fascination with obscure topics in obscure places, despite better judgment. Thank you.
Glossary of Terms

- **Airan** – beverage of yogurt mixed with water and salt, served cold
- **Beshbarmak** – Kazakhstan’s ‘national dish’ of broad sheet noodles, meat, and onion in broth
- **Kaunkak** – dried melon
- **Kazy** – horsemeat sausage
- **Kefir** – carbonated, slightly alcoholic beverage of sour cow, sheep, or goat milk
- **Kespe** – thin sheet noodle, rolled and sliced
- **Kompot** – sweet beverage of boiled dried fruit and sugar, strained and served cold
- **Koresyaka morkov** – carrot salad of the Koryo Saram
- **Koumiss** – beverage of slightly carbonated, alcoholic fermented horse milk
- **Kozhe** – porridge of finely ground grain, usually wheat or barley
  - **Kozhe, ashigan (susindik)** – fermented kozhe
  - **Kozhe, byrt** – mixed grain kozhe
- **Kulshe** – dough baked in ashes, without utensils; also called *kombe*
- **Kyzyl irmishik** – sour condensed whey
- **Laghman** – pulled wheat noodle
- **Lochira** – Uzbek crispy flatbread
- **Manty** – large steamed dumpling, shaped like a coin purse
- **Nan** – bread
- **Plov** – stewed rice pilaf, usually incorporating onions, carrots, and mutton
- **Poshkal** – layered griddle bread, fried with yogurt
- **Qatlama** – multilayered flatbread, sometimes stuffed
- **Qazan** – cast iron cauldron cookware
- **Qazanzhappa** – bread made in a qazan
- **Qurt** – dried, salted cheese curds
- **Samsa** – baked dumpling
- **Shekhlik** – roasted skewered meat
- **Shek-shek** – dessert of fried noodles drenched in honey, topped with raisins, served room temperature
- **Shorpa** – meat broth
- **Shubat** – fermented camel milk
- **Smitana** – dairy product, between sour cream and butter
- **Tary** – millet porridge
  - **Tary, suzbe** – tary mixed with airan, salted and dried for storage
- **Talkan** – wheat or barley porridge
- **Tandir** – cylindrical bread oven
- **Tushpara** – small dumpling, boiled or steamed; similar to Russian pelmeni
- **Yuka** – Tatar fried pancakes, stacked with sugar and jam
- **Yupka** – thin griddle bread, sometimes folded around stuffing
- **Zhent** – dessert of crushed millet mixed with butter, sugar, and sour condensed milk, formed into patties
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