



---

The Rotten Renaissance in the Bering Strait: Loving, Loathing, and Washing the Smell of Foods with a (Re)acquired Taste

Author(s): Sveta Yamin-Pasternak, Andrew Kliskey, Lilian Alessa, Igor Pasternak and Peter Schweitzer

Source: *Current Anthropology*, Vol. 55, No. 5 (October 2014), pp. 619-646

Published by: The University of Chicago Press on behalf of Wenner-Gren Foundation for Anthropological Research

Stable URL: <https://www.jstor.org/stable/10.1086/678305>

---

JSTOR is a not-for-profit service that helps scholars, researchers, and students discover, use, and build upon a wide range of content in a trusted digital archive. We use information technology and tools to increase productivity and facilitate new forms of scholarship. For more information about JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).

Your use of the JSTOR archive indicates your acceptance of the Terms & Conditions of Use, available at <https://about.jstor.org/terms>



The University of Chicago Press and Wenner-Gren Foundation for Anthropological Research are collaborating with JSTOR to digitize, preserve and extend access to *Current Anthropology*

JSTOR

# The Rotten Renaissance in the Bering Strait

## Loving, Loathing, and Washing the Smell of Foods with a (Re)acquired Taste

by Sveta Yamin-Pasternak, Andrew Kliskey, Lilian Alessa,  
Igor Pasternak, and Peter Schweitzer

Situated in the Bering Strait region of Russia and Alaska, the ethnographic documentation presented here elucidates the role of the olfactory aesthetic in shaping human attitudes toward food. The focus is on the practices connected with the use of marine mammal products and recipes prepared by means of aging and fermentation. Since recent times, the olfactory responses to these historically important foods have been changing to where their smell is becoming undesirable on the whole and particularly unacceptable in certain social contexts. The present attitudes range from genuine fondness to an array of aversions. For many contemporary consumers, the social implications of the smells associated with consumption of aged foods and marine mammal products pose a daily concern, which they address in part through extensive washing and laundering. The featured ethnohistorical reconstruction captures the story of Soviet-era near annihilation of certain products and recipes in Chukotka, followed by a partial revitalization in the post-Soviet period. Examples of the gustatory, olfactory, and social experiences connected with food on both sides of the Bering Strait are offered. Cumulatively, these experiences speak of the extent to which foodways and food security are shaped by the realm of senses.

Had Claude Levi-Strauss (1978) devised his culinary triangles in an ethnographic setting circa the Bering Strait, a tricky qualifier called “tastily rotten” would need to find its place amid the “raw,” “rotten,” and “cooked.” The “tastily rotten,” lovingly called so by the connoisseurs, is a fragrant array of locally harvested animals, fish, and plants that have been provided with an environment in which they “rot” into a desired condition. The biography of this food is connected with the

prehistoric Arctic settlements stretching through the Russian Far East, Alaska, Canada, and Greenland. It is a long-standing cornerstone of sustenance among the peoples of the Bering Strait. Writing about the nearby northwest Alaska region, Tiger Burch categorizes as a critical factor “the Inupiaq tolerance of, *indeed preference for*, partially decomposed food” (2006: 147, emphasis ours). Since recent times, the preparation and consumption of the indigenous fermented foods has been complicated by a range of social and physiological aversions, converging in the realm of olfaction. The stigma of the offensive smell follows not only food but also clothing, various craft and construction materials, and even boats made from marine mammal products. On both sides of the Bering Strait, the belief that certain items smell offensively is one that pervades daily interactions between people, their environments, and their food.

The current work discusses the change in attitudes toward the indigenous cuisines of the Chukchi and Yupik people of the Bering Strait. Through the testimonials of local experiences, we show how the people of the Bering Strait have come to see themselves through products nominally referred to as those that are “with a fragrance” (Russian *s dushkom*) or, plainly, those that “smell.” Our research shows that the Bering Strait residents are increasingly finding themselves struggling with the olfactory experiences induced by these products. We attempt to contextualize the emerging perceptions within broader histories and sociopolitical processes unfolding on

**Sveta Yamin-Pasternak** is Term Assistant Research Professor jointly appointed in the Institute of Northern Engineering and Department of Anthropology, University of Alaska Fairbanks (PO Box 757720, Fairbanks, Alaska 99775-7720, U.S.A. [syamin@alaska.edu]). **Andrew Kliskey** is Professor jointly appointed in the Department of Landscape Architecture and Department of Forest, Rangeland, and Fire Sciences of the University of Idaho (875 Perimeter Drive, MS 1133, Moscow, Idaho 83844-1133, U.S.A.). **Lilian Alessa** is Professor in the Department of Landscape Architecture of the University of Idaho (875 Perimeter Drive, MS 2491, Moscow, Idaho, 83844-2481, U.S.A.). **Igor Pasternak** is Adjunct Lecturer in the Department of Art and Adjunct Research Faculty in the Institute of Northern Engineering, University of Alaska Fairbanks (P.O. Box 755640, Fairbanks, Alaska, 99775-5640, U.S.A.). **Peter Schweitzer** is Professor in the Department of Social and Cultural Anthropology of the University of Vienna (Universitätsstraße 7 [NIG], 4, Stock, Raum B0410, 1010 Wien, Austria). This paper was submitted 31 VII 12, accepted 31 X 13, and electronically published 8 IX 14.

the Russian and Alaskan sides of the Bering Strait. Where appropriate, we discuss their role in the contemporary negotiations between cultural identities and the interplay of social and environmental forces, operating at varying scales. Departing from Foucault's adoption of the "panoptic schema" (1995 [1975]:207), as a metaphor for the relationship between visibility and control, we shift the focus toward the olfactory means of substantiation. We offer the construct of *panolfacton* to signify to the immutability and pervasiveness attributed to things that "smell."

By reconstructing the contexts of the "smell's" changing status, we show how the transforming attitudes toward fragrant foods became the means and the outcome of biocultural adaptation in changing social environments. Some Bering Strait residents have tried to reconcile the emerging olfactory aesthetics by eliminating or minimizing the use of products that smell. Others focus on eliminating or minimizing the evidence that remains in the wake of their use: through the thorough washing of hands, cookware, and all the surfaces used in the preparation of fragrant foods. The latter approach represents a fundamental makeover in the culinary infrastructure of the indigenous cuisines of the Bering Strait (and similar changes are likely to be found in other regions of the Arctic). One of the key transitions is in the role of fresh water in the logistics of Arctic cuisine. Whereas the actual recipes to prepare these foods prescribe minimal use or total avoidance of fresh water, the elaborate cleansing commanded by new olfactory regimes raises the overall water consumption. Thus the cuisine that during most of its history required very little or no water is now tied to municipal utilities operations or other agents that deliver water to homes. Poor ventilation further complicates this new relationship. In contrast to the living structures of the past (made with driftwood, whale bones, and animal hides), the contemporary dwellings are said to be less breathable. This feature brings forth two kinds of problems. One is a compromised food safety: tightly sealed indoor spaces constructed from nonbreathable materials pose a greater threat of food-borne botulism (Castrodale 2005). The other problem with many contemporary living structures is that they are perceived to be entrapping household air—including the smell of fragrant foods. In many cases the indoor surfaces of such homes, particularly those in the areas where food is prepared, are washed excessively. That, in turn, helps cultivate "sterile kitchen" environments, which impede the proper processes of fermentation (Wiest and Schindler 2011).

Although some define the process of fermentation strictly as conversion of sugar to alcohol by yeasts, a more inclusive meaning refers to transforming a substance into its subsequent product through an intervention of microbial enzymes. Some fermentation techniques involve introducing an external biological agent while others make use of microorganisms released without the help of external agents. In the latter method the food is just left alone to "rot" in an environment conducive for a culturally acceptable process of fermentation. Here, the enzymes liberated in the course of the destruction

of cells begin to digest with the cellular components in situ. Some of the recipes in the contemporary Bering Strait cuisines utilize salt, sugar, vinegar, and other commodities that are relatively new to Arctic cuisines. Some methods prescribe enhancing the acidity of the entire environment used for fermentation, such as by lining the ground storage pits with leaves of willow, rhubarb, and sourdock (Spray 2002). Many fermentation processes used in Bering Strait cuisines work without the introduction of external agents. Although our present focus is on food, the attitudes we discuss are reflective of those toward clothing and other items made from marine mammals. An overview of the fermentation techniques practiced in the adjacent to the current study area Inupiaq region demonstrates their wide application throughout the Inupiaq culinary and material practices (Starks 2011).

A feature common to most principles of fermentation is avoidance of fresh water. Fresh water use on the whole is minimal in Arctic cookery. Prior to the widespread consumption of tea and coffee, people of the Bering Strait drank water in very small quantities. The integration of Slavic and Euro-American cuisines has changed the role of water in cooking. Most recipes for soup, stew, kasha, and pasta dishes require greater use of water compared to drying, freezing, fermentation, and other "waterless" methods of preparing and preserving food (Schweitzer et al. 2010). Perplexingly, the "traditional Native diet" was the reason a utilities manager in one of the Alaskan villages listed to explain the high rate of contemporary water usage in his village. He connected it with the washing of cookware, garments, and surfaces of indoor spaces used to cook the foods the smell of which is persistent but undesirable by many. The practices he describes indicate a generational change, as in a survey conducted on the Alaskan side of the Bering Strait, washing and cleaning were not selected by people in the age group over 60 among the values associated with fresh water (Alessa, Kliskey, and Williams 2010).

Recipes for the foods prepared by the methods of fermentation in the Arctic are numerous and varied by region. To illustrate, we provide descriptions of a few. *Kuviikaq*, in Yupik, describes the process of aging an assortment of plants inside a stomach bag (often called "poke"). The aged fish recipe called in English "stinkhead" is prepared throughout the Arctic. The version that Chukchi call *moni* involves burying whole fish in the ground in early fall and letting it transform through several cycles of freezing and thawing. Chukchi herders prepare reindeer stomachs stuffed with blood, liver, fire-roasted lips and hoofs, and sweet roots—all firmly sealed and buried in the bedding of willow leaves. Fermented reindeer blood, walrus fat, and seal oil are used as condiments and "dips." In the communities this study considers, the most prevalent fermentation recipe is the one known as *tuugtaq* in Yupik and *kopal'gyn* in Chukchi ("roulade" or "meatball" is how it is usually referred to in Russian and English, respectively). These are tight rolls of meat and fat stuffed inside walrus skin. The walrus "roulade" is then aged for several months in a cavity embedded in the

permafrost layer, known as a “meat pit” or “ice cellar” (figs. 1–3). In recent years, the long-used cellars have been suffering from subsurface water seepage—a problem attributed to the warming soil temperatures triggering the thawing of the permafrost ice (Brubaker, Bell, and Rolin 2009).

The knowledge of preparing the reserves of aged foods is entangled in the relationships between animals and people, the social networks of harvest distribution, the skill of properly processing all the ingredients and regulating the environment conducive to fermentation, and the understanding and utilization of the climatic conditions specific to the time, season, and place (Jones 2006). The trajectory of the gradual abandonment of certain components of indigenous cuisine in Chukotka during the Soviet period, followed by their urgent revitalization in the years of post-Soviet hardships, shows it to be a vital resource base. Our contribution to the proliferating literature on resilience, understood as the ability to perceive and adapt to change before a long-term catastrophic disruption occurs (Gunderson and Holling 2002), is in highlighting the decisive role of sensual experience in human food security. The sensuous ability to ingest the food is an essential component of a resilient food system. Lacking the capacity to enjoy—or at least tolerate—food products makes other components, such as the physical availability of resources, the skill of harvesting, and the technology of preserving, obsolete. The absence of this link amid the vast synthesizing anthropological treatments of the senses (Procello et al. 2010; Sutton 2010) indicates that it is yet to find its due recognition in anthropology.

## Materials and Methods

Since 2008 our team has been working on the project “Municipal Water Systems and Resilience of Arctic Communities,” supported through the National Science Foundation Arctic Social Sciences Program. Here we draw on the insight acquired in the course of this project and on the work each of us has done prior to coming together as a team (e.g., Alessa, Kliskey, and Williams 2010; Marino et al. 2009; Schweitzer and Golovko 1997; Yamin-Pasternak 2008a, 2008b). Over the years, decades in some cases, we have developed lasting relationships with individuals and families in the communities of Russia’s Chukchi Peninsula (part of the Chukotsky Autonomous Region, also called Chukotka) and Alaska’s Saint Lawrence Island, Little Diomed, and Seward Peninsula. The ideas presented here stem largely from the examination of attitudes toward aged and fermented foods documented during fieldwork in communities along the Pacific and Arctic coasts of the Chukchi Peninsula and communities of Gambell and Savoonga on Alaska’s Saint Lawrence Island. While a number of culinary practices and dietary changes we describe are comparable with those in other areas of the Circumpolar North, the observations shared here are predominantly of the Yupik and Chukchi experience. During 2004 and 2007, two of the authors (Yamin-Pasternak and Pasternak) traveled in several regions of Ukraine to meet with

the retirees, who spent their working careers in Chukotka and have since returned to their Native homelands.

More than 200 Bering Strait residents have contributed their insights in the course of the semi-structured interviews and participant observation. Points of discussion included the food they prefer and had available to eat at different stages of their lives. While sharing their stories, our consultants were reflecting on how their tastes and culinary practices compare to those of their elder and younger generations. We asked about the structures of meals they prepared or were offered in various contexts—in the village, in the tundra, at boarding schools, and in the workplace—and about what sort of strategies they employ in trying to cope with shortages in the locally harvested and imported supply of food. Each return visit to a community included a public presentation about the research carried out during prior visits. The audience feedback and discussions held afterward helped clarify some uncertainties and illuminate questions for further inquiry. A number of individuals who, at the time of fieldwork, were residing in one of our host communities had previously lived elsewhere in the Bering Strait region. Their testimony helped broaden our understanding of regional variability in subsistence practices and cuisine. The Bering Strait residents themselves often draw comparisons between communities of either Chukotka or Alaska and across the border of Russia and the United States. Such reflections make an invaluable primary source for the ethnohistorical reconstruction of social change, driven by the integration of indigenous cultures within larger Soviet and American societies.

## Cultural and Historical Settings

The primary source material presented here focuses on two major cultural groups of the Bering Strait: Chukchi and Yupik. The latter, also called Siberian Yupik, includes speakers of Naukan Yupik, Saint Lawrence Island Yupik, and Sireniki Yupik living in different regions of the Bering Strait. We draw on secondary sources to provide examples from the Inupiaq and Central Yup’ik contexts. The cultural continuities and long-standing social ties connecting these groups are documented in the rich local oral tradition and anthropological literature (see Nelson 1983 [1899]; Ray 1992; Schweitzer and Golovko 1997). The maritime Chukchi and Siberian Yupik inhabiting the Chukotka coast, the reindeer-herding Chukchi living further inland, and the Siberian Yupik and Inupiaq living on the Alaskan side of the Bering Strait were involved in a continuous trade of reindeer and marine mammal products. These exchanges helped expand the overall spectrum of dietary provisions for each group. The flour and tea obtained from Russian and American traders were gaining popularity in the second half of the nineteenth century. At the height of the Cold War politics and Sovietization in Chukotka, the Yupik and Chukchi ways of eating were, at varying degrees, caving in to the aesthetics of the Russian and Russified newcomers coming to live in the North. In the years of the far-



Figure 1. Tightening the brading on the walrus roulade. Sireniki, Chukotka. Photo courtesy of Oxana Yashchenko. A color version of this figure is available online.



Figure 2. "Meat pit" permafrost cellar. Enmelen, Chukotka. Photo by Sveta Yamin-Pasternak. A color version of this figure is available online.



Figure 3. Slicing walrus roulade, aged over 6 month, for the evening meal. Savoonga, Alaska. Photo by Sveta Yamin-Pasternak. A color version of this figure is available online.

reaching crises following the collapse of the Soviet Union, the younger generations of Chukotka Natives had to relearn, or learn anew, to consume different types of locally harvested foods. This included the aged and distinctively fragrant products derived from sea animals, reindeer, and plants that are affectionately called the “tastily rotten.” Currently, some of the key adaptive successes for rural Chukotka in the era of the post-Soviet modernity are the return and the cultural renaissance of the “tastily rotten.”

On the Alaskan side of the Bering Strait the present consumption of Native food is not a result of rupture and subsequent revitalization, but rather a phase in a more continuous trajectory of cultural change. Like other Alaska Native people, the Yupik have experienced the incorporation of Euro-American cuisine, changing material culture, and new ideas of etiquette as part of wider streams of Western civilization building. The impacts of these changes on the Alaska Native transformation of taste and attitudes toward the indigenous food share many aspects with those of the Sovietization efforts in Chukotka. While acknowledging that ways in which people link food with ideas of health, security, and cultural identity span both sides of the Bering Strait, a greater deal of attention in our ethnographic and ethnohistorical coverage is devoted to the impacts of the Soviet period and post-Soviet collapse. That is because the course of near annihilation of certain aspects of indigenous cuisine, followed by their revitalization in a changed social setting, makes the Chukotkan case particularly illuminative of the extent to which foodways and food security are shaped by the realm of senses.

### The Planned and Unplanned Losses of the Soviet Period

The underlying premise on which rested the Soviet vision of social advancement is the essentiality of state mediation in every aspect of citizens’ lives. Due to its more challenging accessibility, Chukotka was one of the last former Soviet domains to experience the truly transformative implementation of state policies. Eventually, escalating from the late 1950s and onward, the centralized vision of the Soviet civilization-building reached even the farthest remote settlements and herder camps. Whether one’s place in life called for construction of a new dwelling, seeking a source of livelihood, socializing children, setting up daily schedules, or carrying on bodily hygiene, no longer could any of those decisions be grounded exclusively in the reasoning dictated by personal preferences, derived from the cultural logics of one’s indigenous society. Rectangular-shaped wooden houses, and later concrete apartment blocks, replaced the semi-subterranean walrus skin dwellings supported by frames of driftwood and animal bones. Small settlements dotting the coast were consolidated into larger culturally mixed communities, centrally administered by standardized hierarchies of the state. Reindeer herders, whose way of life was by definition nomadic, were assigned residences in villages that they were to regard as their permanent homes. Even before the large-scale construction of government housing, rules prescribing the appropriate upkeep of dwelling interior, personal appearance, and bodily

hygiene were enforced by local officials like state farm directors, village administrators, and teachers. Weekly trips to the village bathhouse had become mandatory. Several veterans of that period of transformation recalled being either among those awarded for their exemplary housekeeping or among those who have been reprimanded and even fined for failing to comply with the newly established norms.

Having undergone collectivization, sea mammal hunters and reindeer herders were no longer in charge of the working schedules, supplies, and logistics associated with their occupation. Under the new system of distribution, sea mammal meat was sold to the villagers, including the hunters who were made salaried employees of the state farm (Kerttula 2000). The bulk of the meat was transferred to feed the captive-bred foxes—another enterprise introduced in Chukotka during the 1960s. The cost of raising and exporting furs from Chukotka made the industry economically unviable. This was known from the point of the industry's inception, but ensuring that the indigenous residents were engaged in the nationally collectivized production was so important from the ideological standpoint that it warranted the creation of what is known as "the planned loss economy" (see Ainana et al. 1999, 2000).

To ensure that the young generation received fitting socialization while the adults were maximally engaged in the workforce, the state instituted 24-hour boarding facilities for infants, preschoolers, and secondary school students. At the start of the school year, the children of reindeer herders were delivered by helicopter from their tundra homes to the village, where for the coming months they shared the dormitory with children from the coastal settlements, including those whose parents resided in the same village as the school. To emphasize the colossal extent to which the Soviet system would splurge resources, one of our consultants recalled how on several occasions the helicopter would return to her family's tundra camp just to seek out her mischievous brother (who tried to hide) and deliver him to the boarding school. The state-engineered rearing has had a lasting influence on the worldview that its pupils carry throughout their adult lives (compare Bloch 2004; Vitebsky 2005).

While the official aim of the boarding schools was to deliver standardized education and Marxist-Leninist upbringing, implicitly this system worked to socialize the indigenous children in the ways of pan-Russian culture. In the context of day-to-day upbringing, this translated into the cultivation of food tastes, embodied forms, and visual aesthetics, rendered civilized from the newcomers' perspective. Noting that for 7 or 8 months every year indigenous children were consuming carbohydrate-rich foods with high sugar content, nutrition scholars who worked in Chukotka find that "boarding schools were instrumental in reshaping people's taste" (Kozlov, Nuvano, and Vershubsky 2007:105). Like in other examples of novelty dishes (Goody 1982; Mintz 1986, 1996), the transforming of palatal preferences was accomplished not only by serving the officially approved menu but also by the explicit teaching that "only the Soviet ways of processing resources

and meals was a genuine expression of one's culture [i.e., social sophistication, civility]" (Kozlov, Nuvano, and Vershubsky 2007:2005.). When regional differences in boarding school menus allowed for some use of local products, the inclusion did not mean they would be processed according to the recipes from the Yupik or Chukchi cuisines. Almost always such allowable exception was reindeer meat (Kozlov, Nuvano, and Vershubsky 2007), reasons for which we discuss shortly. The newly established production of poultry, pork, beef, dairy, eggs, and greenhouse produce, proliferating in settlements throughout the Chukotka coast, was intended to replace the meat of whale, seal, and walrus. Rather than a rich source of human nourishment, the latter group was considered more fitting for animal feed and was used as such in supplementing the diet of the farmed foxes.

It is no accident that of the animal products, reindeer meat was nearly the only allowable one on the boarding school menu (this exceptional status applies only to the product, not to the fermentation recipes and other ways in which it was prepared by herder families in the tundra). Despite its slightly more "gamy" qualities, reindeer meat shares much more resemblance with beef or lamb than the meat of the marine mammals. More importantly, although reindeer meat is just as synonymous with food of tundra Chukchi as walrus meat is with food of the maritime Chukchi and Yupik, the first ranks far superior in being "good to think" (e.g., Levi-Strauss 1969) in the European schema of what type of flesh can become human food. Sea mammals manage to live under water while not being fish. Their bodies have an inimitable smell. Their flesh visually resembles red meat, yet it provokes radically distinctive olfactory and gustatory sensations. For a person whose every impulse rejects the plausibility of consuming such creatures, sea mammals are just as clear of an abomination as swine and shellfish are for the Jews adhering to the Kashrus laws. Unlike the reindeer products, walrus and whale are never offered at village stores, even decades after marine mammal hunting in Chukotka had become a form of salaried employment that yields a commodity that is offered for monetary exchange (the proceeds are applied toward helping to cover the costs of the hunting operation). All marine mammal parts (i.e., meat, fat, intestines) that people purchase for food are weighted and vended either right on the beach, where the hunters first unload their catch, or out of the specially designated storage facility. The ideology that designates the village store as the space for making food purchases does not accept marine mammals as a source of food. Their distribution therefore does not belong in the same space where food is sold. Reindeer meat, on the other hand, is even featured on a few restaurant menus in Anadyr at a price accessible mostly to members of Chukotka's economic elite, who, overwhelmingly, are not members of an indigenous population. Although we cannot say that this broad appeal has changed the importance of reindeer to Chukchi identity, it is worth noting that the growing fondness for caribou meat among the settler population in the Canadian Arctic is the

reason why many Inuit no longer regard it as “real Inuit food” (Searles 2002:67).

Enthusiasts of farming in the Far North often wonder how Soviet planners could achieve such copious local output in high latitude climates that local populations could satisfy their caloric necessities. The explanation is grounded with the principle of “planned loss,” which provided the means for the heftily subsidized local production of beef and poultry, as well as for the much more lavish displays of Soviet generosity. While browsing through their wedding album, one Chukotka couple pointed to the abundant fresh fruit and luxury sweets on the banquet table. They explained that those were delivered by helicopter, courtesy of the state, by the way of a stimulus for the so-called Komsomol wedding, vowed to be celebrated alcohol-free. When the units of currency are ideological achievements, the investment of staggering sums into the “planned losses” may be well justified. The return, in this case, is seen in the gain of the Chukotka Native beef eaters, pleasingly demonstrating growing intolerance toward the smell of the marine mammal meat. It is a particularly expressive case in point from a historical standpoint, as amid the ample evidence of the Chukchi general enthusiasm for food innovation at the end of the 1800s, Bogoras (1904–1909: 40) reports a widespread aversion to beef. His informants regarded cow as a “filthy animal” whose flesh and dung have the same unpleasant odor (also see Vdovin 1965:371).

Comparably, many Christian missionaries in Alaska labored tirelessly not only to save souls but also to transform the indigenous settlements into “rows with square buildings like the Main Streets back home” (Jolles 2002:84). Being Christian for them was synonymous with a specific living aesthetic that they placed at the core of being American. For the agents of Sovietization, civilization building was first and foremost connected with cultural Russification of the indigenous cultures (Gray 2005; Kerttula 2000). Despite the differences in theological adherences, the embodiments of being an upstanding Soviet or Euro-American citizen are more alike in their commonly shared European aesthetic than either of the two shares with being Yupik or Chukchi. Consequently, both Sovietization and Christianization viewed a change in the local tastes as a crucial secular by-product.

### Having Eaten and Feeling Full as Markers of Food Experiences

It would be mistaken to think that the boarding school menu had instantaneously caused indigenous children to develop a dislike for the Native food. To the contrary, many remember living in a perpetual state of craving the intense bolstering sensation produced while ingesting tidbits of aged meat or fish, dipped in seal oil, and the sense of fulfillment gained from such meals. This is especially true for the people belonging to the older cohorts of boarding school residents, whose home diets were dominated by Native foods, and those who spent their summers in herding camps away from the

village. A number of our consultants stated that although they did not “starve” on the Russian-style soups, pasta, porridge, sausage, bread, biscuits, and tea, they did not feel “full” after such meals either. This is comparable to the kind of selective hunger documented cross-culturally, when “despite the blood level of glucose being normal, an intense and restless search for particular substances can occur” (Strungaru 2009:36). A comparable example is Audrey Richards’s (1939) observation of the Bemba people remaining insatiably hungry without the mandatory serving of the *ubwali* porridge with relish, no matter how much of other foods they had eaten that day. Another example is a very similar role of lentils and potato stews that Gonzales Turmo (2009) finds in southern Andalusia. Closer to our region is the 1840 account of Veniaminov, reporting that characteristic of all Bering Strait Eskimos is the belief that “without seal oil, no matter how many fresh or fried fish they had, they thought they might starve or become ill” (cited in Lantis 1984:175). Writing about Gambell circa 1950, Hughes quotes people saying “we got no food—only store food” and “whiteman food help us, makes us no starve . . . but when we eat whiteman food we are still hungry for our own meat” (1960:167).

In sharing their boarding school experiences, a number of our Yupik and Chukchi consultants told stories of sneaking in food packages from their parents or other relatives in the village. While this was against the official dormitory rules, some teachers treated the illicit transfers with silent tolerance. A few Russian teachers who married locally had themselves become fond of the Chukotkan cuisine, and they were therefore more accepting of its consumption by the boarding school students (a Yupik elder in Novoe Chaplino affectionately called this cohort “extremist spouses, who eat worse than the Natives”). A Chukchi consultant who attended boarding school during the 1980s remembered the night-time feasts she had with her dormitory roommates on the occasion of a successfully snuck-in parcel. With the first opportunity to pursue a discreet agenda, most of the food, she explained, was shared and ingested at once. Inevitably, the thrill of the situation caused the level of noise to escalate beyond the allowable volume for the dormitory afterhours, prompting an attendant to come and check on the mischievous crew. Even with the food swiftly taken out of sight moments before the attendant’s entering, little could be done about the distinctive odor of the clandestine delicacies. The fragrance of aged animal products continues to saturate the air long after the food is gone. Hence, its presence is even more evident when the food is left sitting under a bed, having been haphazardly shoved there by the indulging conspirators.

With the varied logistics and reasons for how and why a particular group of boarding school outlaws had managed to get away with divulging the contraband morsels, the compelling lesson received in each case is that this food does not belong in the shared Soviet space. Furthermore, the urge and ability to ingest this food mark an individual as an indigenous Chukotkan, whose enjoyment of his or her ancestral cuisine

should not be shown in public. Common to the impact of the institutionalized control of eating (see Bell and Valentine 1997), the boarding schools worked to subdue individuality while also fostering grounds for devious behavior. The mischief of the covert indulgence during the dormitory quiet hours helped to thread a line of continuity in the cultivation of taste for the Native food. What it also helped cultivate is the understanding of secrecy and seclusion connected with the eating of Native food, of which the conspirators were becoming aware at a very young age.

### The Panolfactor

Sitting in open space amid the tundra and sea, the compactly built Chukotkan settlements provide authorities with the convenience of panoptical visibility of the inhabitants and activities they pursue. The seemingly infinite resources of the Soviet time made the reach of the watchful gaze appear limitless as well. With the disintegration of the Soviet Union the physical resources that the government could expend on policing had to be vastly curbed. Yet, remaining as it did a subject of a federation, with the ultimate power base anchored at the Moscow Kremlin, Chukotka has not been able to slide from underneath the Russian grasp. Even with the number of the Russian in-migrants now living in Chukotka amounting to a fraction of the incursion of the Soviet time, their presence—characteristically for agents of colonial legacy (see Comaroff and Comaroff 1991; Mintz 2010)—continues to signify authority. In an ethnography of the post-Soviet political transition in Chukotka, Patty Gray (2005) argues that the practice of designating an inhabited space as either an “ethnic” village or a Russian settlement is grounded in the differences perceived as inherent in the people who live in either kind of these places. Although the Chukotkan capital of Anadyr, where part of Gray’s fieldwork takes place, is a multi-ethnic city, the expectation of conducting oneself in ways that project pan-urban civility applies to all of its residents. The markedly indigenous conduct, in turn, belongs to the specially designated Native “ethnic” villages. As the forthcoming material demonstrates, regardless of the predominance of either Yupik or Chukchi population, any instance of newcomer presence was sufficient to turn the nominally categorized “Native settlement” into a Russian domain, where even the air could not take the offense of smelling “Native.”

The Panopticon’s major effect, says Foucault, is “to induce in the inmate a state of conscious and permanent visibility that assures the automatic consciousness of power” (1995 [1975]:201). To help divulge the fabric of social encounters through which the aroma of the fragrant foods has traveled over recent Bering Strait history, we draw on the predicament of Foucault’s always-visible societal inmate in offering the framework of “panolfactor.” We construct the “panolfactor” with the understanding that power can and does exert cultural hegemony over aesthetic forms (Yurchak 2006). Given that the aesthetic experience discussed here engages mostly the

olfactory rather than the optical faculties, the in-quoted “nose” takes on the Bourdieu’s meaning of “the ‘eye,’ that is a product of history reproduced by education” (1984:3). Employed to discern between good food, bad food, spoiled food, and nonfood, the “nose” of those vested with the power of “distinction” sniffs out the aura of humanness and civility of those who consume, or not, any of the above. The “panolfactor” therefore stands for the interflow of explicit and implicit awareness of the stigma ascribed to the odor and the sentiments and actions to which this awareness gives rise. As Sutton points out in his recent field statement on food and senses, smells “do not stay put in kitchens, but mark houses and apartments, clothing and bodies, and thus potentially cross lines of private and public” (2010:214). Although the intensity of the olfactory sensation often triggered by the Bering Strait foods discussed here, and the totality with which their fragrance penetrates its host environment, may be stronger than in comparable contexts, the overall immutability of smells make “panolfactor” widely transferrable among cultural and political contexts.

The ways in which different generations of the contemporary Bering Strait residents contemplate their meals show to be sharing a common anxiety, awareness, and ambivalence as to the settings in which Native foods are to be offered and consumed. Presently, the notion that indigenous food smells offensively has a commonplace, taken-for-granted acceptance among members of both settler and indigenous populations in the Bering Strait. Among the latter, some do experience an internalized aversive response (see Rozin et al. 1997). For others this emotion is constructed socially on the premise of shared understanding that the nonindigenous settlers find certain Native foods to have a repugnant odor. In turn, the desire not to offend translates into a perpetual concern as to where, when, how, and with whom certain foods are to be eaten.

Putting on latex gloves while eating, to make sure that once the meal is gone the fingers do not bare the evidence, is one of the daily routines through which this concern is expressed and resolved (fig. 4). The Yupik in Alaska who use “eating gloves” (and the Chukotkans who wish gloves were available) find it to be a good solution in a situation, for example, where one needs to return to work after a lunch meal of dry fish dipped in seal oil. From the viewpoint of modern day odor etiquette that is highly discerning between private and public spaces, the act of shedding the eating gloves turns the clandestine consumer into an upstanding citizen.

The rather extreme example one of us had witnessed in Chukotka is of a Russian woman who staffed the reception desk at a payroll accounting office. She had taken on as part of her duties to admonish the Native hunters coming in to collect their pay for “reeking of their aborigine fodder in an official establishment.” In the majority of cases the connection between the smell and civility does not seem to be intentionally mean-spirited. It just plainly rests on discriminating assumptions. A genuinely good-hearted Russian teacher once confessed how mystified she was in her early



Figure 4. Mealtime. Savoonga, Alaska. Photo by Sveta Yamin-Pasternak. A color version of this figure is available online.

days in Chukotka as she tried to understand why some of her students, the ones that she knew to be from poorer families, would always exude a very strong inimitable scent. At some point her older colleagues explained that families with little cash income lived predominantly on marine mammal products and, in “not knowing any better” (i.e., being unaware or unconcerned), they hang their laundry to dry on the clothing line not far from where they eat or cook. In thinking that they are being sympathetic, the teachers did not give even a momentary consideration to the cultural biases that shape their own olfactory perceptions or to how those, inadvertently, become part of the students’ attitude toward their home cuisines.

The very sincere reasoning of this young teacher is congruent with other stories. One involves another teenager in Gambell, who shuts the door of her room when other family members are cooking or eating fragrant substances. Another testimony is part of an interview conducted in Enmelen with a Chukchi teacher who prides herself in earning steady income from her job, which permits her to “not need to eat sea [mammal] food more than once a week.” A Yupik seamstress in Novoe Chaplino gave the same praise to the funds she raises through craft sales. When beef becomes available at a village store, the selling price ranges from being 12–16 times higher than the price of walrus. That says a lot about these women’s purchasing capacity, while showing how Sahlin’s (1976) “practical reason” and Bourdieu’s (1984) “distinction”

become integrated at the crossroads of commodification, cookery, and time.

Several Ukrainian retirees, who had spent their working careers in Chukotka, very promptly listed the scent of the marine mammal products among their most lasting impressions. One of them emphasized that he made it a point “never to degrade the human worth of a Native person” based on this characteristic. He is, in fact, remembered fondly in the village where he once was the head of the state farm. In the story related below, taking place sometime in the mid-1980s, he is painted as a noble gentleman, all for the tolerance he had shown toward the Yupik dietary traditions. Describing her experience as a fox farm employee, one Yupik woman remembered an incident connected to the International Women’s Day of March 8. When celebrated in a workplace, this highly regarded holiday is typically spent over a festive spread, put together to honor women employees. Following the established meal protocol, the woman who shared this story sat down with her Yupik coworkers—all wearing their holiday best—“to savor some aged goodies” before the main part of the banquet. The women expected to finish their appetizer course in seclusion, with enough time to clean up and air out the meeting room for the official festivities, when they expected to be joined by other staff. The plan had failed them. Right as the gobblers’ fingertips were beginning to take on the fatty gloss from transporting the bite-size pieces of *tuugtaq*, in came the famed state farm director, carrying the

best of intentions: to wish the ladies a happy holiday. “Naturally we started apologizing,” said our confessing conspirator. Her tone was changing between the notes of guilt and affection, as she went on: “You know, our aged food has the fragrance that most newcomers don’t like, but [the farm director] was a actually a sweet man. . . . He said ‘no worries, ladies, happy holiday!’ and we each took turns running out to wash our hands [to get rid of the gloss and the fragrance].”

How puzzling this narrative becomes when, if only for a moment, we are to decontextualize its accompanying power relations. Given that the celebration of International Women’s Day is standard for having a feast in the workplace, why did the women feel like they had been caught off guard by the untimely arrival of the state farm director? Why does the storyteller insinuate they were “naturally” predisposed to offering apology in this case? Why, in trying to illustrate that her former boss was a nice person, did she choose to share this story, still memorable almost 30 years after the event it describes?

Understandably, the indigenous residents on both sides of the Bering Strait, including those who themselves enjoy or at least do not mind the notable fragrance, are sufficiently perceptive in objectifying their cultural selves to distinguish those facets of their way of life that are unpleasant for outsiders. They have gained this awareness in the decades of not only interacting with newcomers and settlers but also of sharing the social milieu, which to varying degrees they embrace as theirs. The dynamics unfolding during the Women’s Day celebration in Chukotka are strikingly similar to the embarrassment that Manalansan (2006:46) describes being experienced by a Filipina immigrant in New York, whose “skillful accumulation of cultural capital, such as having fashionable taste in clothes, speaking seemingly unaccented English, and the like,” she felt undermined the instant her boss showed up with a surprise home visit not long after she had prepared a fragrant Philippine recipe.

One may rightfully note that the recipes we discuss, albeit possessing a range of distinguishing characteristics, are not unique in the vast universe of foods that exude a strong fragrance. Is it not equally impolite, in most nondomestic contexts, to exhale garlic breath, wear garments that smell like a greasy fryer, or generally smell like food outside of a cooking or eating context? While comparable in some respects, those examples do not, at least in the social world discussed here, function as an ethnic identity marker of a group stigmatized for this specific characteristic of their ethnic diet. This distinction is a major parameter that transcends the etiquette of self-grooming and public politeness. Here, the food odor induces the feeling of ethnic inferiority among the consumers—a shared effect of an ethnic marker of a colonized group in a colonially dictated modernization setting (see Comaroff and Comaroff 1991; Kelm 1998; Mintz 1996; Vitebsky 1995). Such sentiments appear to arise at the threshold of insider-outsider contexts, even in a situation where both the food and the odor are embraced (if not worn) proudly as a

cultural self-identity badge. Writing about the Yukon Kuskokwim region of Alaska, Hensel (1998) identifies several types of food-related encounters. One type is when the Yup’ik talk about their favorite fragrant recipes such as *tepa*—aged salmon heads, the name for which translates as “smell”—asking outsiders whether they have ever consumed such items. Hensel interprets these kinds of inquiries to work in part as “diagnostic” proxies to stand for such questions as, “How do you *really* feel about [us]?” or “Do you know what we are about?” (Hensel 1998:149–150). In another type of encounter the same people who make the inquiry are likely to be embarrassed if an outsider drops by unexpectedly during eating time, as in the case of the Women’s Day celebration in Chukotka. “The difference,” says Hensel, “is between talking about a marker and coming face-to-face with it in a situation where it may be imbued with exclusionary power” (Hensel 1998: 150). Hensel also notes, quite accurately, that the Native food potlucks at the University of Alaska Fairbanks do not feature fermented recipes and tend to offer dishes within the range amiable to Euro-American aesthetics (Hensel 1998).

### Unearthing the “Tastily Rotten”

Kostya, a 43-year-old Chukchi man interviewed in 2009, said that one of the most transforming experiences in his lifetime was when, as an adult in his mid-20s, shortly after he had returned to his village from a vocational school in Magadan, he came to the shore to greet the hunters in hopes to get a cut of their fresh catch. Standing there, knife in hand, Kostya had suddenly realized that he did not know the first thing about butchering a walrus. His struggle did not escape the eyes of an elder woman, who felt sorry for him and offered to help.

The harsh lessons of the post-Soviet economic collapse, when the village store would not get restocked for months, have taught Kostya and others like him the importance of retaining the harvesting skills necessary to procure local products. This, however, proved to be far easier than cultivating appreciation for local foods and especially the aged recipes. “I grew up in a boarding school: my preferred fare is borscht and *pelemeni* [Russian dumplings],” confesses Kostya, “[and] as for my own Chukchi food, it does not appeal if it is much too rotten.” Kostya’s reflection on the evident Russification of his taste is an explicit acknowledgment of how “one can *become* different by *consuming* differently” (Mintz 1986:185, his emphasis).

Kostya’s experience is shared by most in his age group. This cohort’s boarding school years, stretching over the 1970s into the mid-1980s, correspond with the peak of Sovietization in Chukotka. Many members of this group were raised by parents from an earlier cohort of boarding school attendants, whose tastes were also shaped by the Slavic cuisine, positively associated with civility and desirable socioeconomic status. In a few cases regular contact with a grandparent or another elder member of the household helped foster cultural con-

tinuity, including the taste for the indigenous diet. However, typical for his generation, Kostya's first language was Russian, his grandparents only spoke Chukchi, his visits from boarding school were sporadic, and the communication between them was fragmentary at best.

It is by translating into Russian, or expressing in Russian, the Yupik and Chukchi contemporary understanding of the aged and fermented Native foods that people of Kostya's age cohort construct the idea of the "tastily rotten." Embedded within it is the Russian-centered perspective that, unlike the fermented cabbage and sour cream relished in the Slavic cuisine, the aged local products that the Yupik and Chukchi prepare are actually spoiled or rotten. Both Yupik and Chukchi languages have ample terminology that relates the idea of food that has been allowed to rot into a specific desirable, edible state. This rich vocabulary offers ways to differentiate between various states of aged/aging food as a whole, such as the Chukchi category of food called *veglyt'ul*—"old edible," differentiated from *pegyt'ul*—"old, should not to be eaten." A particular product that can be consumed at various stages of fermentation may also have terms associated with each of its conditions. For example, the walrus roulade known under a general Yupik name *tuugtaq* is termed *ushaq* in Naukan when it reaches its earliest consumable fermentation stage. Usually in mid-winter the fat layers of the roulade turn green, indicating that *tuugtaq* has aged into its next delectable stage, called *soniq*. Should *tuugtaq* be left to age beyond its "expiration date," the substance becomes *sighleqaq*—"spoiled." The Russian-speaking Yupik and Chukchi, even those for whom Russian is the only language of communication, may use the indigenous food terms to stand for names of specific recipes, without necessarily understanding the descriptive nuances signified by these terms. The Russian equivalent of the "tastily rotten" (*vkusno-isporchennoe*), on the other hand, is a salient cluster. It captures the recognition that the delectable food of the Yupik and Chukchi cuisines is perceived as spoiled and not consumable in the Russian or Russified view.

The *tastily rotten* also captures the Yupik and Chukchi relationships with Native cuisine in the course of the post-Soviet transition. Let us recall the encounter of March 8 in the mid-1980s. In their early childhood, the women who on that day had tried to indulge, discreetly, in a course of aged foods, were raised predominantly on Native cuisine. They appear to have retained a strong affinity for it in their adult lives. As the boarding schools and broader intercultural dynamics continued cultivating the belief that neither the food itself nor any indicators of its consumption should be exposed in the public realm, this generation of Chukotka Natives has turned the enjoyment of certain delicacies into an activity practiced within the bounds of a relatively closed social circuit. The Yupik and Chukchi adults of the 1960s were finding that, in the social environment intolerant even of the olfactory signals of the Native foods, consumption of Native cuisine puts one at a social disadvantage. Parents were choosing to spare their children the unnecessary burden of craving Native foods,

known to stand in the way of one's upward mobility. The sweeping cultural change and, importantly, the steady and economically accessible store inventory at the peak of Sovietization in Chukotka, helped further trigger a major dietary transformation. The craving of Native foods was being perceived increasingly as a burden that stands in the way of one's upward mobility and social acceptance. Hence, many parents were choosing not to cultivate the affinity for aged foods and marine mammal products among their young.

It is difficult to contemplate what the contemporary Chukotka cuisine would be if not for the crisis that followed the collapse of the Soviet Union. Remote and dependent on the centralized planning, deprived of the gargantuan subsidies, Chukotka could no longer maintain most of its shipping infrastructure and had plunged into a region-wide famine. The village stores, recently filled with imported goods, were now being stocked with packages of salt and bay leaf, in a failing attempt of the staff to decorate the austere emptiness of the shelves. The canned goods supply, stored in excess from the prior decades, had lasted into the mid-1990s. Once it had run out, however, the shipments to replenish it were not coming in. The reindeer herding enterprise was depleted to a point of near extinction. Shortages of fuel and ammunition, still controlled by the state but now being made available in meager amounts, had severely curtailed the possibilities of marine mammal hunting. Although the quantities harvested fell far short of the rising demand, the locally procured food became the cornerstone of survival. In 2000, 89% of the meat that the Chukotka Yupik and Chukchi were eating came from marine mammals. In 1985 this resource provided 55% of the consumed meat, enjoyed mostly by people from older cohorts (Kozlov 2004).

The experiences of the post-Soviet crisis speak powerfully to just how resolute a "conditioned flavour aversion" (Strungaru 2009:35) can be. Some survivors of this period recall itching and fainting from hunger or witnessing others suffer from chronic malnutrition and fatigue. This was the period when marine mammal products and the fermentation techniques that enabled their long-term storage over the winter months became a key source of sustenance, even for those who regarded borscht and dumplings as their preferred fare. Constructing their survival narratives from the perspective of current times, many Yupik and Chukchi people emphasize that the worst struggle fell on the nonindigenous residents. Oftentimes the only food available was the strongly odorous aged walrus meat, which many settlers were simply unable to swallow no matter how hungry they were. Yet a number of Yupik and Chukchi in the younger age cohorts also admit that when the dire conditions had forced them to rely more on indigenous cooking, they found themselves being far from having an easy time with the preparation and, even more so, with eating the majority of recipes.

One of the directions into which some survivors had turned is experimenting with the grinding, smoking, soaking, pickling, and otherwise metaphorically and physically sugarcoat-

ing of sea mammal meat. A longtime Russian settler in Enmelen said that the delectable smoked whale meat that she now regularly prepares is an outcome of the experimentation she first began in the late 1990s. Sadly, the domino effect of the Soviet collapse had bled Chukotka nearly dry of fuel, municipal water services, and even minimal store provisions of vinegar and sugar. That played a major infrastructural obstacle in the flourishing of new approaches to preparing and preserving local foods. The majority, therefore, had to turn to the old ways of fermenting. Advantageously, these methods do not require the introduction of external agents, but rely on the microorganisms engaged in the process of digesting the cells that are undergoing decomposition. With the leitmotiv of anxiety, the survivors of this period recall their desperate attempts to find the few remaining experts who could teach them to prepare the walrus roulade. Still, the gustatory engagement with this contested product proved to be the most challenging task for many of those who have mastered the fermentation techniques.

### Eating the Smell

With the escalation of Cold War politics, the modernization efforts on each side of the Soviet-American border continued to set forth the parameters by which the material and embodied practices of the Native people were to acquire a genuine human form. In the realm of food, the range of acceptable odors pervaded not only the rules of social etiquette but also the criteria of what constitutes the edible. Despite the dramatic turn toward Christianization in the early twentieth century, the flow of change in dietary habits in Alaska appears to be more gradual, compared to the leaps between the consumption patterns seen in Chukotka, first in the Russification surge erupting from the 1960s onward and later in the renaissance of the indigenous cuisine through the emergence of the “tastily rotten.” Nevertheless, throughout their lifetimes, the contemporary generations of indigenous Alaskans and Chukotkans have been encapsulated by the axiom characteristic for a colonial sway, where the foods connected with the heritage of the dominating groups (as well as space, dishware, and people involved in the preparation and eating) are regarded as smelling “pleasant or neutral” (Classen 1992: 159).

The overall range of emotions triggered by the marine mammal products and fragrant menu items is varied. There are individuals who are able to ingest but prefer not to, those who do not crave but eat when they need to (usually when no other foods are available), and those who appreciate but choose not to indulge too often out of concern for the residual odor. For some these attitudes have shifted from varied levels of dislike to relative enjoyment. Finally, there are those who, while continuing to discern between the less and more proper consuming contexts, adore devoutly the smell and taste of the fragrant foods. They claim to miss and crave it intensely in times of shortages and project verbal and nonverbal ex-

pressions of euphoria during and after the savoring episodes. The narrator of the Chukotka Women’s Day event was known to call fermented foods *Dimedrolchik*, where the affection-relating Russian suffix “chik” is attached to a brand name of a powerful pharmaceutical antihistamine. The metaphor referred to the power of the food to satisfy, and thereby relieve, the hankering or the “itch.”

Opportunities to observe the nonenthusiasts “in situ” are rare, as at the time of meeting ethnographers who are eager to study their taste preferences, most people familiar with the fragrant foods already know whether they want to ingest or even be in attendance during the serving times. Hence, to picture this kind of a response, we need to rely mostly on verbal descriptions of past experiences, which in most instances resemble an unsuccessful attempt by Carol Jolles (2002) to “go Native” during her fieldwork in Gambell. Keen on trying new food while visiting local residents, this is how she describes the affect of ingesting a small piece of aged walrus fat:

What a shock! The smell of the thoroughly aged meat permeated my senses. My only thought was that as a guest I should not be rude. I must finish this piece of meat. I chewed and chewed and chewed. . . . Finally [one of the hosts] said quietly, still smiling, “You know, Carol, you are turning green!” (2002:284)

The degustation of Native foods is the context where “good to think” and “good to eat,” the two contestants in one of anthropology’s longest standoffs on the issue of the criteria for human food choice (Harris 1985), are embodied by the need to be “good to smell” to “the eye[-nose]” engaged in the task of Bourdieu’s “distinction” (1984). Scholars of olfaction point out that smell facilitates a more direct interaction with the environment than do other senses (Hoover 2010). The capacity of nasal receptor cells to function as olfactory sensory neurons is common to all mammals. This feature makes the processing of smells unique compared to other information we absorb: the odor signals spurt directly from the environment into the cerebrum as they travel through the nasal passage with inhaled air. The limbic system that stores memory and emotion also processes the olfactory codes, meaning that “mammals react to odor before thinking about it” (Hoover 2010:64). Right as the odor evades all mediation, gushing to provoke an emotional response, the memories deposited through social and cultural learning are working on the “abstract contemplation of scent” (Hoover 2010: 64), producing what we commonly refer to as sensation.

Physiologically, the olfactory experiences that accompany eating are of two kinds: those originating extra-corporally through inhaling and those that arise from the mouth after ingestion. Concisely labeling them as “out there” or “in-mouth,” Paul Rozin (1982:400) finds that each of the two modes may trigger a different, even the opposite from that of the other, reaction in consumers. In a perspicuous narrative, capable of eradicating in an impressionable reader any



Figure 5. Having eaten the smell, and still having it. Savoonga, Alaska. Photo by Sveta Yamin-Pasternak. A color version of this figure is available online.

possibility of taking a bite without becoming fully conscious of the “in-mouth” mode of olfaction, Rozin unpacks “the absurdity” (1982:397) of a disposition in which one likes the taste of a substance while being repelled by its smell. The seeming incongruity is explained by the fact that the “out there” and “in-mouth” sources of smell each trigger a different sensory experience. A late-1800s missionary account from the Central Yup’ik area speaks to Rozin’s point about the confusion of taste and smell:

The salmon are buried, and cured by the secret process of the underground force. The people of the coast are particularly addicted/given to this practice. It seems to agree with them too. When asked how they can eat such stinky stuff, with a bland smile, they reply “We don’t eat the smell!” (Fienup-Riordan 1988:11).

Commenting on the incident, Hensel (1998:145) points out that *tepa*, the Yup’ik name for the salmon aged by such means, translates as “smell”—a pun congruent with Rozin’s claim that with the ingestion of food its smell is indeed being eaten. Curiously, the earlier passage from Jolles (2002) indicates that it is actually the smell—the “in-mouth” smell, to be precise—that she could not eat. Unlike many outside visitors, the anthropologist was not bound by a conviction that aged marine mammal flesh is not food. This is the asset that provided what Rozin would likely consider a positive learning context that enabled a mind-over-matter victory for Jolles, who was able

to get past the “out there” smell but could not swallow the piece of aged walrus fat while smelling it from in-mouth.

The actions and discourse surrounding the Arctic fragrant foods offer regionally and historically focused ethnographic contexts capable of informing Rozin’s findings. It is our understanding that the cultural-psychological sensorium of individuals who are fond of the fragrant foods adores the sensations felt during all stages of the consuming encounter. It is also our understanding that the experiences within this sensorium occur independently of the accompanying social concerns. The same individuals who eject the cardboard serving trays promptly after the meal, abundantly wash their kitchen surfaces, and wear disposable gloves while eating fragrant foods also give enchanted praises to the “out there” smell and purposefully prolong the “in-mouth” sensation by swooshing the ingested pieces between the tongue and the palate. When talking about fragrant foods, some wave their bare fingertips in front of their nostrils while accentuating a deep inhalation—a gesture of affection for the olfactory and skin-saturating qualities of the tastily rotten (fig. 5).

Food scholars Sidney Mintz (2008), Erino Ozeki (2008), and Elizabeth Rozin (1983 [1973]) each give us a variation of a framework Ozeki calls “standard taste” (2008:144–160), which is helpful in trying to understand the food preferences of different generations of the Chukotka Natives. Standard taste “provides [members of a culinary culture] a sense of

taste appropriateness, serving as a baseline for their judgment of flavors over the entire course of life, depending on “what foods educated their senses” (Ozeki 2008:145). Societies incorporating more layers in their culinary history can display multiple patterns, and individuals’ standard tastes can expand over a lifetime (145). The settlers who during the severe shortages of the late 1990s were fainting from hunger, all for the utter inability to recognize that a potential (and one of the solely available) food sources can indeed be food, may very well have grown up on a relatively diversified diet. Yet their encounter specifically with the Yupik and Chukchi cuisines fits Ozeki’s characterization of being “bewildered by a totally bizarre flavor” (144). The “refusal [of such folks] to give up the tastes of their childhoods, even in difficult situations, unveils the obstinate nature of flavor preferences. Such preferences,” says Ozeki, “often give people permanent reference points in the judgment of all flavors” (145). Those like the few cagey indulgers inconvenienced by the dynamics of the long-remembered March 8 holiday are probably the most versatile of the Chukotka connoisseurs. Unlike the generation before them, and the later exclusive standardization of the taste for *pelemeni* and borscht, they grew up with the liking for both cuisines (as well as with the awareness of the social consequences of each).

The experience of Kostya’s generation is the most drastic shift we encountered in Chukotka (possibly with the exception of the few “extremist spouses”). Although fragrant foods did not educate Kostya’s senses during childhood, he had to turn to them for sustenance during the post-Soviet crisis—a scenario where the claim “famine often brings its own cuisine” (Goody 1982:59) can be modified to say that famine is capable of bringing back a cuisine of the past. Like Jolles’s ethnographic knowledge, Kostya’s hereditary knowledge was conducive to his cognitive acceptance of walrus as food in the time of need. Kostya’s cohort includes some true artists of Chukotka’s fragrant foods renaissance. For them, the Soviet collapse not only amounted to a “major social rupture that creates an opening for a new food or nutrition pattern and a reason for abandoning the old” (Messer 1997:102); it also served as a catalyst for mastering the preparation, and savoring, of the “tastily rotten.” Kostya’s own fondness continues to be won by *pelemeni* and borscht, although he continues to will himself to embrace the “out there” and the “in-mouth” smells of his ancestor’s diet. He looks upon fragrant foods with gratitude and affection, and he tries to educate his children’s senses to include those recipes within their standard tastes.

### “Making Beef”

All that is not to say that the resurgence and rediscovery of the sea-carried animal protein in Chukotka was merely a recovery of the diet practiced by the preceding Yupik and Chukchi generations. To the contrary, in the last decade or more we see an emergence of new approaches to processing and cooking ma-

rine mammal flesh. One of the strategies is subjecting the meat to several cycles of soaking and changing water in order to lose, as much as possible, the meat’s distinctively marine characteristics. Some of our Chukotkan informants call this process “making beef,” thereby adding another twist to the cookery and enabling further transformations, with recipes varying depending on the culinary background and resourcefulness of the cook, the social setting of the consumption situation, and the availability of supplies. Among these clauses, the last is particularly conditional as its control is often beyond the agency of the individual cook. In Chukotka, even in the current times, the meager delivery infrastructure often prevents the stores from maintaining a regular inventory or expanding it beyond the basic staples, especially in the villages that are more remote from the regional centers.

During the years of the post-Soviet crisis, it was not only the emptiness of the village stores and the resident wallets but also the chronic problem with utility services, causing shortages in water and fuel, that stood in the way of the culinary experimentation proliferating into new directions. An extra bucket or two of soaking water becomes a luxury when the water source is the chiseled ice that one has to haul walking through blowing snow, pulling a loaded toboggan. Hence, even the relatively simple preparatory work that goes into “making beef” was posing not only the cultural and psychological but also the logistical barriers for those struggling with eating marine mammals. Frequent outages of electricity and gas, combined with the absence of trees and the scarcity of driftwood in some village locations, put a stop to any extensive boiling or slow roasting. This is where the genius of the waterless fermentation techniques comes to the fore.

A trend emerging in the post-Soviet Chukotkan cuisine is toward transformation of marine mammal meat in such a way that it sheds the qualities redolent of its origin, as well as of its place in the Native foodways prior to the advance of Russification. When the needy and more agreeable settlers and the Chukotka Natives with largely Russified tastes were first surrendering to the use of this resource, the severe scarcity of other supplies was at once working to catalyze and to impede the number of ways it could be prepared. What is critical for that period, and for that cohort, is the changing of the status from nonfood to that of food—a transition that became a launching pad for further experimentation with the marine mammal products once the outages in utility services and other problems have subsided.

We thus see two directions in the reemergence of local food use in the post-Soviet period. One is the use of the content but not the form by those averse to the odor and other qualities. The other is a recovery of both the content and the form that shows greater continuity to the indigenous cuisines of the past while being reconfigured in the present as the “tastily rotten.”

## Conclusion

What do the attitudes toward food, filtered through the olfactory dynamics, tell us about the identity of indigenous youth in each generation? By shutting the door of her room when the rest of the family is indulging in a walrus feast, a Gambell teenager elects to live in a very different system of distribution and supply if she chooses to remain in her home village. Commenting on the unifying impacts of the contemporary food industry, Mintz charges it with “first establishing and then maintaining what can become, in effect, a global baseline of mediocrity” (2006:7). In electing to shun local food in favor of “convenience, time saving, reduction in manual labor, and ‘becoming modern,’ with none of these factors being ‘intrinsically bad,’” notes Mintz, people do not always realize what is at stake, “and then, too, not everybody laments the losses as losses but welcomes them as gains” (9). The plane-load deliveries of the economy-grade microwavable items, stocked by village stores in rural Alaska, are likely to be the most expensive food retail in the world. They are indeed being “pushed on the consumer” (9) in a remote rural setting not only by the tools of national advertising but also by the lack of greater inventorial variety locally. The rigorous colonizing institutions, such as the Soviet boarding schools, show that ideology-driven change forces a more immediate transformation on local tastes than a profit-motivated system of distribution. What we can add to Mintz’s observation is that in both kinds of settings people may not begin evaluating the changes as either losses or gains until critical factors arise, calling for a reflection. For the Chukotka Natives with a liking for *pelemeni* and borscht, the value of being able to eat Native food—knowing how to procure it and to appreciate, or at least tolerate, its olfactory and gustatory qualities—did not become apparent until the post-Soviet “starvation years.”

The younger cohorts of the Bering Strait Natives show us that it is not only along ethnic lines but also between generations within a culture that demarcation of self and other can be drawn. Many of today’s young people say that they are proud, in accordance with traditional values, to honor and care for the elders so long as the time they spend with grandparents does not come too close within the dinner hour of the latter. It is not merely the substance but the smell of what the older (if not the cultural) Other prefers to eat. As Classen reminds us, “it is not only the strong emotional appeal of smell that makes odors useful for classifying others, but also the fact that it can be perceived at a distance and does not require intimate contact to be experienced” (1992:160). In the case of food, the “intimate contact” means not being close enough to touch or eat, but only close enough to smell it. In shedding the eating gloves after a fragrant lunch, Native employees carry on their ancestral attachments to certain knowledge and taste while denoting the aspects of the social and physical environments they no longer share with their elders. The extensive washing and laundering intended to “neutralize” or deodorize markedly ethnic odors are ways of coping not only with the acceptability of

certain smells but also with the absorbent qualities of the clothing fabrics and construction materials that absorb these odors. Cumulatively, by analyzing the selective acceptance, rejection, modification, and cleansing that residents on both sides of the Bering Strait apply to various foods and smells, we get to observe how people negotiate their belonging in a shifting social and temporal context.

A notable incongruity of the contemporary olfactory aesthetics is the allied role of water in what used to be a nearly waterless cuisine. Consequently, the infrastructural access to fresh water became a factor. For example, Anya, a young Chukchi mother in Enmelen, says that a great amount of her household water use goes toward laundering the clothes of her daughter Vera. Anya feels strongly about cultivating Vera’s taste for Chukchi food. It is partially grounded in Anya’s own experience of struggling, like many in her generation, with having to learn to “eat local” during the years following the collapse of the Soviet Union. Anya feels that the ability to enjoy eating aged and marine mammal products makes her daughter less susceptible to the kind of vulnerabilities that plagued Chukotka in the late 1990s. Hence, Anya explicitly places the sensory experience of Chukchi food among the ways of being resilient in today’s Chukotka. However, she is also concerned that in school and among her peers Vera will be subjected to the judgments brought forth by the stigma of “food with fragrance.” Anya pays to have all four of her refurbished fuel drums filled on a weekly basis to be able to launder Vera’s clothes. Absence of public laundry facilities in the village, lack of plumbing and adequate ventilation in their home, the periodic breakages of the water delivery truck, and the frequently severe road conditions make the meeting of this need more difficult.

Washing and laundering function as safeguards against the food smells being allowed to transcend their permissible context. These practices enable the use of marine mammal products and fermentation recipes, while helping to curb the ensuing social consequences of the smell. Does this mean that Anya and Vera would be more resilient in a place like Savoonga, Alaska, where most residences have indoor plumbing, connected to a capacious and well-maintained water reservoir, allowing people to launder and wash with greater ease than in Enmelen? With respect to everyday adaptability, yes: given the current perception of fragrant foods as, at once, emotionally and physically nourishing, culturally appropriate, gustatory desirable, and socially stigmatizing, the Bering Strait residents less susceptible to water delivery interruptions are spared a greater degree of anxieties experienced in connection with the pervasive nature of the illustrious odor. From a perspective that defines resilience as a capacity to adapt in the face of major disruptions (Gunderson and Holling 2002), any system with an aspect of an infrastructural dependence will be vulnerable to the buoyancy of the infrastructure. Members of our team helped develop a tool called the Arctic Water Resilience Vulnerability Index (AWRVI), focusing on the Bering Strait, that helps evaluate how ecological conditions interact with social and economic ones in facilitating availability of fresh water (Alessa

et al. 2008). Whereas the existing framework concentrates on access and supply, the material presented here brings some of the dynamics of demand into view.

In *Worlds of Sense*, Classen (1993) draws on examples of sensory experiences turning into metaphors taken to represent cultural ideals. These ideals set the parameters of what she calls “sensory models.” Classen asserts that “sensory models are cultural models and sensory values are cultural values” (1993:135). In his assessment of Classen’s contribution, Ingold emphasizes that “meanings and understandings of the world gained through perceptual activity are *expressed symbolically* by way of metaphors drawn from one or another domain of sensory experience” (2000: 283, his emphasis). The trajectory of foodways in the Bering Strait shows how changing cultural models cause the senses to conform and transform, in turn giving rise to the aesthetic disposition and material practices necessitated by new sensory and cultural values. The cravings and aversions we describe are subject to social influences and ecological circumstances, interacting within a time frame of a historical period or a generational shift. Manifesting through the symbolic expressions they produce as metaphors of cultural values, these sensations are real experiences. Their implications for one’s health, well-being, and perception of security are real as well. The rapid social change that in the Bering Strait spans the second half of the twentieth century shares a temporal border with the major transformation of the twenty-first: the changing physical climate, felt particularly acutely in the Arctic (ACIA 2005). Here we offer but a hint at the kinds of consequences (thawing permafrost, ground water flooding, and temperature changes of the subterranean storage pits) by which Arctic climate change affects the preparation of fermented foods. Given that fermentation processes are climate-sensitive (Jones 2006), it is possible that some recipes will need to be modified. Exactly how the sensation of the fragrant cuisine will transform as the food itself adapts to the changing environment remains to be seen.

### Acknowledgments

We are grateful to our many cultural consultants and friends in the Bering Strait region who, in the course of many years, have been generously sharing their homes and their knowledge with us. Thank you. Your experiences teach vital lessons to humanity. We thank the National Science Foundation Arctic Social Sciences Program for the Award 0755966, which supported the work that enabled the preparation of this manuscript. The lead author lovingly acknowledges her two long-time mentors, Nadejda Nikolayevna Soudakova and Professor Sidney W. Mintz. Nadejda Nikolayevna’s expertise in Yupik languages and cuisine has been indispensable in interpreting our research findings. The guidance of Sidney Mintz has helped us contextualize Arctic aged foods within broader insights on food anthropology and the processes of fermentation. We were fortunate to have had two outstanding reviewers, Paul Rozin and another colleague, who chose to comment

anonymously. The generous and constructive feedback they provided on an earlier version of the manuscript helped illuminate a number of connections we had initially overlooked. The multidisciplinary working environment cultivated by the University of Alaska Fairbanks Institute of Northern Engineering Water and Environmental Research Center was instrumental in fostering the synergy that enabled our collaboration.

---

## Comments

### Gary K. Beauchamp

Monell Chemical Senses Center, 3500 Market Street, Philadelphia, Pennsylvania 19104, U.S.A. (beauchamp@monell.org). 5 V 15

### Foul Odors of Rotted Food: Lessons from Olfactory Physiology

Yamin-Pasternak et al. address the social implications of the smells that emanate from traditionally prepared foods among people in Arctic settlements of the Bering Strait. These foods consist of portions of marine mammals and fish that are aged and fermented (“rotted”) and as a consequence emit potent bouquets of odor molecules that many people find offensive. My comments on this fascinating article concern why these odors smell so bad to the uninitiated and how they can become to be so desirable to those familiar with them since infancy.

Although some believe that the hedonic valence of all odors is learned (e.g., Herz 2007), growing evidence suggests that there are certain classes of odors that are innately perceived as bad because they signal danger associated with toxins produced during bacterial degradation. For example, recent studies (see Dewan et al. 2013; Hussain et al. 2013) have identified a small set of olfactory receptors that respond to some foul-smelling odor molecules such as cadaverine and putrescine that are often breakdown products of flesh. These odors are innately aversive to mice, and perhaps humans, and thus they constitute an olfactory parallel to toxic bitter taste molecules that innately elicit distaste and avoidance across many species. There is, however, an important difference here between rejection of bitter taste and rejection of these foul odorants. In the case of bitterness, the signaling molecule and the danger are one; for the foul odors, the odor itself is not the danger; instead, it is a potential signal of danger (see Shivik 2006). This difference may be reflected in the different ease of learning to like the “bad” odors (see below) relative to liking of bitter tastes. Although people can come to accept bitter foods and beverages, it is generally true that very few bitter compounds are liked and that those that are generally are associated with strong pharmacological reinforcers (e.g., coffee and alcoholic beverages).

The innate dislike for foul odors associated with rotted flesh

is not immutable, however. This is dramatically illustrated in the case of the foul-smelling foods that make up the traditional diets around the Bering Straits. We have been experimentally investigating what I believe is a similar phenomenon: human infants' hedonic responses to milk formulas made with hydrolyzed casein as the protein source (see review in Beauchamp and Mennella 2009). These formulas, usually recommended for infants who have difficulty digesting milk protein, are often extremely unpalatable to adults. A primary cause of the distastefulness is a very foul flavor when swallowed that derives primarily from the volatile (smell) components. These presumably arise from amino acid breakdown products, although their chemical identities remain to be determined. Adults and infants over about 5 months of age strongly reject these formulas, and it is thus very difficult to get older infants to accept them even when they are indicated by a pediatrician. However, we discovered that infants 4 months and younger easily accept these formulas and appear to experience no negative attributes, even though we know that as early as the third trimester of gestation, and certainly by birth, the human olfactory system is functional. If infants are fed these formulas throughout early development, they continue to avidly accept them perhaps into adulthood.

We suggest that there is an early window of plasticity when the infant is open to learning that food that is accompanied by these odors, while potentially dangerous, is in fact safe. We have shown that flavors consumed by the pregnant and nursing mother are transmitted to the fetus and nursing infant and that it is during this time that they can best learn that they are "safe" since the mother is eating them. Her ability to produce a child is the best evidence that the flavors of her food are adequate for growth and are not poison. It is likely that the practices used in the Bering Strait region to decompose food into more digestible forms developed over generations to minimize real dangers to human health—for example, to minimize the presence of organisms causing botulism by maintaining lower temperatures and allowing some aerobic conditions during the rotting process. Thus, as traditionally prepared, this is a safe food in spite of the danger signaled by the foul odors.

Finally, since there is a sensitive period for learning to like the foul odors of decay, the great difficulty had by individuals who attempt to "will" themselves to consume these foods is not surprising. This imprinting-like learning is not only resistant to extinction—preferences established in infancy are very long-lasting—but in the absence of early exposure it is very difficult, though perhaps not impossible, to truly come to like them.

The olfactory pathways are unique among the senses in going quite directly to the old ("olfactory") parts of the brain (Shepherd 2012). As a consequence, odors are particularly associated with emotion, hedonic tone, and memory, and this is dramatically illustrated in this ethnography. The craving for those "highly offensive" flavor volatiles is thus a consequence of the basic neuroscience of the olfactory system as molded by evolution.

### Melissa L. Caldwell

Department of Anthropology, University of California, Santa Cruz, 353 Social Sciences 1, Santa Cruz, California 95064, U.S.A. (lissa@ucsc.edu). 20 V 14

This fascinating piece on the sensory politics of the "tastily rotten" comes at a critical moment in scholarly and popular conversations about food and health. At the same time that food justice activists and postcorporate workers are promoting the virtues of a "return" to traditional and more individualized forms of food cultivation and production (Alkon and Mares 2012), health reformers are seeking ways to teach eaters that healthy and nutritious food can also be tasty and enjoyable (Petrini 2001; Pollan 2008). Increasingly these two orientations are mobilized as citizen-initiated efforts to reclaim the food system by "pushing back" against the neoliberal forces that are presumed to control consumers' daily lives (Guthman and DuPuis 2006). Yet a vexing problem for scholars, activists, and foodie enthusiasts invested in these goals is what to do about pleasure. Through efforts to teach people how to produce and consume food "properly," food activists have encouraged the pleasures of the palate and the body by promoting a particular set of moral values about appropriate choices and behaviors. Taste preferences thus become conduits for communicating the moral worth of eaters (Biltekoff 2013).

This article provocatively challenges these ideals in multiple ways. By taking up the theme of the "olfactory aesthetic," the authors move beyond analyzing taste, smell, and other sensory features as normative goals that stand in as markers of distinction (Bourdieu 1984), and instead they challenge us to pay attention to the experiential, and hence inherently social, qualities of the senses. In the case of consuming, or not consuming, "tastily rotten" foods, Chukchi and Yupik people do not merely identify themselves by the tastes and smells that they consume and exude, but it is through these sensory experiences that they engage in, or in the words of Hennion (2007), "feel the feeling of" the worlds they inhabit. This ability to "feel the feeling of" is not exclusive to those who consume these foods but also belongs to the experiential modes of other individuals who encounter the smells emanating from those who consume these foods. Thus the panolfaction is a truly social experience through which multiple actors engage and understand one another and the world in which they live.

This focus on the social dimensions of sensory experiences, or these "somatic modes of attention" (Csordas 1993), resonates with recent discussions that have shifted from recognizing that surveillance regimes are embedded in bodily practices to instead considering how the most intimate spaces of individual bodies are sites of regulation, control, and governance. Moving from biopolitics to microbiopolitics (Dunn 2008; Paxson 2008), bodily organs and processes are themselves sites where productive social, cultural, and political work originates, exists, and is contested (Caldwell 2014; Guthman 2011; Guthman and DuPuis 2006; Landecker 2011). In the case of Bering Strait cuisines, ingestion, digestion, and

excretion are biological processes through which larger political goals—environmental concerns, state-making integration efforts, and modernization projects more generally—have been realized. Especially in the Soviet case, attempts to retrain the palates and guts of Chukchi eaters reflect the extent to which the state mediated in every aspect of citizens' lives.

This insight provokes one of the most important questions raised by this article: How and where is identity felt? For both Chukchi and Yupik peoples, a change in local taste preferences was interpreted as a marker of a changed identity. Yet for the social reformers who were pursuing these changes, the marker was an externally recognized one; it was the outward performance or emanation of a taste preference that mattered. But for those who were accustomed to eating these foods, the marker was an internally felt one. As the authors document, individuals who were sent away to boarding schools, where they were forced to eat European-style meals of porridge, bread, biscuits, tea, and Russian-style soups, reported that they did not feel "full" after these meals. This was not hunger but a sensory feeling of incompleteness. Such instances show clearly the extent to which identities are performed and experienced in multiple bodily registers. Cultural heritage and a sense of belonging are not simply outward expressions but also internally and viscerally felt sensations.

In the end, how might the findings in this article help us respond to the normalizing and moralizing agendas prevalent in current popular and scholarly ideas about food, taste, and health? Most immediately, the idea that things that taste and smell "bad" can and should be privileged and enjoyed challenges what counts as "good" and "tasty" for many foodies. More significantly, this careful attention to olfactory aesthetics and how they are incorporated into power structures—the panofactor—persuasively illuminates how sensory regimes are not natural per se but are strategically constituted, implemented, and enforced. Consequently, any effort to change local taste preferences and bodily sensations, whether it comes from the state, an industrial food system, or a group of earnest "food justice" proponents, is still a form of moral coercion intended to force others into adopting a more proper set of food practices.

---

### Liam Frink and Celeste Giordano

Department of Anthropology, University of Nevada, Las Vegas,  
4505 S. Maryland Parkway, Box 5003, Las Vegas, Nevada 89154-  
1099, U.S.A. (liam.frink@unlv.edu). 22 V 14

In their discussion of the "tastily rotten" Yamin-Pasternak and colleagues present a novel lens through which we can examine indigenous-colonial relations. While smell is a relatively new area of inquiry in anthropology, and one which could offer insight in any number of societies, we agree with the authors that it is particularly applicable to indigenous communities in the Arctic. Many Chukchi, Yup'ik, and Inupiaq communities not only continue to depend on locally

harvested plants and animals, but continue to use a multitude of complex traditional food processing and storage techniques that were critical in the past, unique to the area, and taken for granted (and often disparaged) by early outside observers. Ignorance of the unfamiliar by a dominant group is always vulnerable to stigmatization and, as the authors aptly point out, this vulnerability is probably increased when the unfamiliar happens to be so conspicuously scented. After nearly 20 years, Frink remembers the first time he was graciously invited into a Yup'ik home—and what he still recalls most is the unique and strong aroma.

The Russian and Alaskan sides have many comparative aspects, as the authors point out, but they also have some very important differences that are underdeveloped in this article. Although it is sometimes taken for granted that indigenous groups in the Arctic are fairly homogenous culturally and nutritionally, a closer look usually reveals that this is not the case. There are important parallels, but indigenous-colonial historical interactions are distinct between Russia and Alaska, and the kinds of foods eaten and their preparations and meanings likewise may vary significantly. Nevertheless, we appreciate the authors' attempt to bridge a critical cross-cultural dialogue using this original and insightful olfactory "lens." We think that important information can be learned by viewing the Arctic from a cross-cultural perspective and that there is too little interdisciplinary research in this region; we are pleased that this article stimulates interesting discussion in this regard.

However, at least in Alaska, why the early ignorance of the unfamiliar morphed into a strong negative stigmatization (which perhaps can happen whether foods are strongly scented or not) was highly dependent on two other interdependent factors, which we believe deserves the lead in this region. The first is the timing of the arrival of missionaries and later state-level public health figures (i.e., the people first writing about local food practices), both of which were in the wake of numerous catastrophic disease epidemics. And the second is the nature of actual traditional subsistence activities in indigenous arctic communities, which depend on seasonal mobility and the knowledge and expertise of elders, both of which had been severely crippled once state public health figures arrived and learned about local foods. We think most of the stigma against traditional foods and food processing is related to the timing of outside public health intervention—not to the food itself. The authors hint toward this, but we believe it should be made more explicit.

Prevalent in early colonial encounters with Native people were their references to smells, especially within households and in the context of women's activities. Food, and perhaps its smell in particular, was a key marker to who was Native and who was not; although early colonists also relied heavily on these Native foods, over time they were increasingly replaced by commercial imports. However, as this article points out, despite extraordinary political and economic pressure to rework their cuisine, the people of the Bering Strait and other regions of the Arctic have remained connected to their foods and their indigenous com-

munities. Keeping smells and foods on the quiet may very well be a form of resistance to colonial impacts. The furtiveness of the women at the staff party in the face of being caught by a non-Native man may not have been about food/identity shame; keeping these foods secret may be a source of power for the women—not letting colonizers penetrate their ancestral knowledge and past. The authors offered this alternative meaning, and we thought it was highly accurate based on our own experience. The change in foods most certainly has been a contested space between indigenous and colonists throughout history, and at times this article comes across as though changes in subsistence today simply reflect a decision by families to shift their cuisine. The fact that people are returning to former food practices may show resilience as much as acquiescing to the economic realities of their situation that is inextricably linked to a complex history of colonialism.

Overall there is so much in this article to inspire new scholarship and to connect with research already taking place. What this work does is tap right into the work on indigenous foods from a biocultural perspective, which until recently has been underdeveloped. There are so many fresh ways food is being looked at in the sciences, and this work adds to our current research examining how changes in traditional storage techniques in Yup'ik communities are affecting different social, cultural, and nutritional processes. We look forward to future dialogue with and scholarship from these authors.

---

### Evgeny V. Golovko

Department of Anthropology, European University at St. Petersburg, 3 Gagrinskaya ulitsa, St. Petersburg 191187, Russia (evggolovko@yandex.ru). 27 V 14

The team of researchers has provided an impressive investigation of one of the most interesting questions—the connection between olfactory dynamics and the changing identity of younger generations. While the problem of changing attitudes toward traditional food in general, as well as of the link between traditional food and identity issues in the Arctic in particular, has received scholarly attention from a number of researchers (see the works cited in the article: Searles 2002; Starks 2011; Wiest and Schindler 2011), the multi-ethnic Bering Strait area, controlled by two dominating powers, Russia and the United States, still remains understudied.

Responding to this insightful, brilliantly written article, I will focus on an idea that seems to remain underdeveloped. The authors rightly link the changing attitude to Native food in the Bering Strait area with building a new identity. However, in my view, the paper is lacking a wider context of identity issues among Native people in Russia in the post-Soviet era. It is likely that the “renaissance” of traditional food tastes in Chukotka (in its “light version,” with much water to be used to kill the smell) would have happened even if it had not been for the shortage of supplies in the 1990s. The

role the shortage played in the re-adaptation of a previously rejected “uncivilized” Native food and in the use of it as a “renovated” identity marker seems to be exaggerated by the authors. After the dissolution of the Soviet Union, search for (a new) identity has become a fundamental political issue in the newly-born state of the Russian Federation—the topic of search for national identity (Russian *natsional'naya ideya* [national idea]) was launched as early as 1991, and it still remains one of the central questions in the Russian political discourse. In a multi-ethnic state like Russia, where even the administrative structure (still kept intact in post-Soviet times) was made up on the ethnicity principle as early as the 1920s as part of the Stalinist modernization policies (Hirsch 2005), the issue of ethnic identity has always been a mandatory agenda for each administrative unit. Even the name of each administrative unit had a “title nation” as part of a full official name. In the case of Chukotka, the official name (*Chukotskiy avtonomnyi okrug* [Chukotkan autonomous area], prior to 1977 *Chukotskiy natsional'nyj okrug*) related not only to Chukchi Peninsula, but, most important, to the Chukchi people as well. Each “national” territorial unit, as well as the ethnic groups that were considered numerically too small to have an administrative unit of their own (like the Yupik in Chukotka), were supposed to have some “national features” distinguishing them from others. These features often referred to subsistence practices: the Chukchi people were associated with reindeer herding, Yupik people with whale hunting, and so forth. Besides, there were a number of other “markers.” The most common ones were “national” ensembles (with a repertoire of songs and dances adapted to public performances), native languages (often not in their actual use but in a symbolic function—shaped as textbooks and dictionaries). In some cases, Native food did work as a semi-official identity marker, too, although it was not a genuine Native food, but rather adapted food, not too “exotic” from the Russian perspective (a good example of this is the legalization of reindeer meat as it is described in the article; by the way, the sausage made from reindeer meat was sold on a regular basis in Chukotkan stores, and it was part of the diet of all of the population, including newcomers).

While in the Soviet era these distinguishing Native features were censored and constructed in accordance with the vision of the dominating (“civilized”) Russian culture, after 1991 “national” administrative units and Native communities had more freedom in choosing instruments for self-identification, including ones that would have never been approved by Soviet authorities. The most common among previously unacceptable identity markers are all kinds of (re)invented or newly introduced religious beliefs (see, e.g., Luehrmann 2011). Another ground for self-identification that was banned prior to the *perestroika* time is building a common identity with a related community cut off with a political border—examples can be taken from the Bering Strait area (Schweitzer and Golovko 2004), from the Commander Islands in Russia (which is home for a handful of Aleut people), from the border between Russia

and Finland, and elsewhere. Turning back to the issue of re-introduction of Native “tastily rotten” food among the Native people of Chukotka, I think that poor supplies and the shortage of European “civilized” food could certainly be a catalyst, but not the sole reason, for the reintroduction of Native food. An example of a purely symbolic reintroduction comes from my field materials collected among the Aleut people of the Commander Islands—having had no problem with food supplies for at least 15 years, Native people are making an attempt to reintroduce “tastily rotten” fur-seal meat, characterizing it in interviews as “real Aleut food.”

---

### Sandor Ellix Katz

Wildfermentation.com, P.O. Box 201, Liberty, Tennessee 37095, U.S.A. (sandorkraut@wildfermentation.com). 6 V 14

Although this fascinating paper is quite specific in the geography and time period of its focus, it raises issues that arise repeatedly in the context of food traditions shifting over time and with them other related aesthetics, or “new olfactory regimes.” The food odor stigma of “panolfactor,” as articulated in this paper, can be seen in cross-cultural responses to a number of different fermented foods.

I think first of Korean *kimchi*, spicy and often stinky fermented vegetables, a food which (at least in the global imagination) embodies that nation’s cultural identity. When my friend’s Korean War veteran father smelled *kimchi* I made, it brought him right back to the war half a century earlier. The smell of *kimchi* appears frequently in stories of cultural interactions between Korean immigrants to the United States and their new neighbors, friends, schoolmates, and coworkers. Lauryn Chun, who migrated to the United States with her family as a child, recounts in *The Kimchi Cookbook*:

While I was adapting to American culture, I was often embarrassed about how pungent Korean food is compared to American food, and I found myself ashamed and reluctant to share Korean traditions. Food was very important to us, and yet Korean food was so different, especially *kimchi*, so foreign, spicy, and stinky that it seemed as if it had no place in the American kitchen. I couldn’t see a bridge between the two cultures. My mother often cautioned me that *kimchi* was the one Korean tradition that would offend people because it is so pungent, and she warned me never to share *kimchi* with anyone who wasn’t Korean. She told me *kimchi* was particularly not something I should eat in front of others, let alone take it for lunch to eat in public, and that I should always be mindful about *kimchi*’s malodorous characteristics. (Chun 2012:2)

Like garlic-eating Italians, pickle-eating Jews, and many other immigrant groups before (and after) her, the smell of the traditional foods her family brought with them on their migration journey marked them as outsiders and stood as an obstacle to

acceptance and assimilation. Here, migration is the social shift, and the aesthetic standards of a new nation the “new olfactory regime.” Of course, the new olfactory regime itself, the aesthetic standards of the new land, is also subject to historical change, and a growing appreciation of *kimchi* and other smelly fermented foods—olfactory multiculturalism?—has opened many American kitchens and palates to *kimchi*.

Another example that comes to mind is *kawal*, fermented from the leaves of a wild leguminous plant also known as *kawal* (*Cassia obtusifolia*), used as a flavoring and meat substitute in Darfur, Sudan. “*Kawal* is a food of some of the very poorest Africans,” writes Sudanese anthropologist Hamid Dirar, who adds that it is “shunned by the elite who consider it unfit for modern social life because of its repugnant, fetid odour that lingers on the fingers for hours” (Dirar 1993:413). In this case the social shift is urbanization, in which the traditional smelly fermented food is abandoned as a relic of village life in favor of the toned-down olfactory regime of the “civilized” city. Beyond *kawal*, Dirar observes that “Denigration and despite are all the indigenous fermented foods of the Sudan meet with from the elite and the educated” (44). Attaining or aspiring to status in urban society requires abandoning the sometimes smelly survival practices of land-based people.

Interestingly, like “tastily rotten” marine mammals in Siberia, Dirar suggests that (in the early 1990s when he was writing his book) *kawal* was making a comeback and spreading across Sudan from its original more limited geographic range. “The displaced carried with them the know-how of *kawal* preparation and use to areas where the raw material, the wild legume, is found in abundance but the inhabitants were not aware of the fermentation process” (Dirar 1993:413).

In other examples of notoriously smelly fermented foods I can think of—stinky cheeses, fermented “stinky” tofu, *surströmming* (Swedish low-salt fermented herring), and *natto* (a Japanese style of fermenting soybeans)—the people who have grown up within these traditions find nothing particularly extreme about these foods, but having seen how strongly outsiders react to it can actually reinforce appreciation of both the food itself and the shared cultural identity it marks. Probably some lovers of these foods have faced stigma from these foods via *panolfactor*, but perhaps the smells of these foods do not linger on the body as long, or perhaps the foods themselves are not as prominent in the diet as fermented marine mammals in Siberia, *kimchi* in Korea, or *kawal* in Darfur.

---

### Nobuhiro Kishigami

Center for Research Development, National Museum of Ethnology (Minpaku), 10-1 Senri Expo Park, Suita, Osaka 565-8511, Japan (inuit@idc.minpaku.ac.jp). 30 IV 14

This paper examines historical changes in and the smells associated with aged and fermented foods made from sea mammals, indigenous foodstuffs of the Chukchi and the Yupik

people living along the Bering Strait. The paper is interesting for two main reasons. First, the authors describe changes in aboriginal foods under the influences of Christianization and Russification and those arising from the serious starvation that occurred on the Siberian side of the Bering Strait following the collapse of the Soviet Union. Second, it examines the smells of the aged and fermented foods, as well as historical change of the smells in the region. Further, by focusing on historical changes of their food olfaction the authors discuss social change among and the colonial experiences of the Chukchi and Yupik from a new perspective.

I began my field research on Inuit culture in Nunavik, Canada, in 1984. The Inuit house in which I stayed during my first period of research was permeated by a unique mixture of distinctive smells from a honey bucket, raw meat, and fish on the floor, gas, and furs, among others things. Because all the houses I visited smelled the same, I was convinced that there must be an ethnic smell related to contemporary Inuit life.

However, 20 years later, because my host family cleaned their house and washed their clothes and dishes every day, the distinctive Inuit house smell had disappeared. From that experience I judged that the smell of a house interior could be a useful indicator of social change. The change of the smell in my research community since the 1980s arose from changes in a system of distribution motivated by profit rather than from any ideological factors. Although community members still eat fermented walrus meat, now they wash their knives, hands, and clothing, in addition to almost daily cleaning their dining rooms with water and a fragrant cleanser. Thus, their houses no longer have a distinctive odor. It is also true that the Inuit consume a huge quantity of water for cleaning and washing. Further, it is true that the temporal change in the olfaction and factors such as water and the related community infrastructure can be found in contemporary Inuit society in the eastern Arctic of Canada, as well as the Bering Strait region.

The original contribution to anthropology of this paper is that it deals with olfaction as a central research topic. On the other hand, because smells are unstable and disappear or change with time, it illustrates the difficulty of investigating and recording a given smell anthropologically. So how can anthropologists study and describe the smells of other cultures and convey the results adequately in written form? This paper is full of nouns such as “olfaction,” “smell,” “fragrance,” “odor,” “aroma,” “scent,” “flavor,” and so on, with an adjective like “good,” “offensive” or “unpleasant” used to describe particular smells. However, these expressions do not convey any sense of the smell to those who did not experience them first-hand. In collaboration with scientists of olfaction, we have to develop a new method of researching, recording, describing, and analyzing smells in any given situation. If olfaction research succeeds, we must consider next how to display the results, together with those on tastes, in ethnological museums. In fact, we need to consider and deal with many anthropological questions on smells.

Referring to the results of scientific research on odor, the authors state that “smell facilitates a more direct interaction with the environment than do other senses” and the olfactory sensory capacity is common to all mammals). That being the case, then we should inquire into whether the existence of pleasant or unpleasant smells is universal, what differences exist among cultures, which particular smells are related to particular cultures, and how they are related. Such research requires interdisciplinary collaboration. This paper is indeed a pioneering anthropological study of olfaction. Yet it poses so many questions and sets many tasks as we explore this new area of research.

---

### Sidney W. Mintz<sup>1</sup>

Department of Anthropology, Johns Hopkins University, 404 Ma-caulay Hall, 3400 North Charles Street, Baltimore, Maryland 21218, U.S.A. (mintzsw@jhu.edu). 6 V 14

In an important paper, Steinkraus (1997:311), an indefatigable and astute student of fermentation, explains that products of fermentation fall into three categories. First, the ferment may be poisonous and sicken or kill its consumers. Second, poisonous or not, its odor or “flavor” may make it desirable and attractive. Third (again without reference to its possible toxicity), its odor or flavor may make it “spoiled.”

In Chukotka and Alaska, as in other places, one learned to eat fermented seafood products in infancy or childhood. The food would often remain attractive, and indeed important, during the balance of one’s life. Many reading this passage will know precisely how this applies in other places, with other fermented foods—pickled herring here, smelly beancurd there, mare’s milk somewhere else. Moreover, with ongoing globalization, intermarriage, and resulting mixed eating groups, some of these foods may be foods from which one’s spouse, one’s children, and one’s friends may draw back in disgust. This is in fact a fourth outcome, one of this writer’s making, after reading Yamin-Pasternak et al.

Based on what they have learned about the changing food situation on both sides of the Bering Straits, Yamin-Pasternak and her coauthors have themselves added what might be a fifth outcome: a fermented food that is attractive to some people but only some of the time. On the Russian side of the Straits, Soviet Russification policies (called, in other societies, modernization, Westernization, development, or improvement of standards of living or public health) meant significant changes. The earlier campaign against the preparation and consumption of fermented roulades of walrus and similar products led to a skipped generation—that is, a generation who grew up when such foods were officially tabooed, and therefore mostly unavailable, and who failed as a result to acquire both a taste for them and the skills needed to prepare them properly. This

1. The author wishes to thank for assistance his wife, Jackie, fervently.

meant that the austerity imposed by the political implosion of the Soviet Union would leave the Siberians even more vulnerable to food scarcity than they would have been otherwise.

It is within this historical context that Yamin-Pasternak et al. introduce us to the “tastily rotten.” Their paper adds a rich account of the consequences of the changes, among them about persons who like to eat food that is defined as nonfood not only by others but, under some circumstances, even by themselves. This curious ambivalence is clearly social and not organoleptic in origin. This writer knows, for example, of an Antillean food that was never consumed publicly because it connoted poverty. We see similarities among those with whom Yamin-Pasternak worked, whose feelings about fermented seafood depended substantially upon the presence or absence of Russians.

In the new edition of his textbook, *Everyone Eats*, Anderson (2014:97) writes that “Cultural learning leads to highly culture-limited appeal, such as local tastes for particular regional plant foods or highly localized cultural fondnesses for cheese, fish sauce, pickled cabbage, and hung game. According to my research (ongoing), these fermented foods are popular only in areas that had to process foods in these ways in order to store them. Thus cultural learning due to habituation is probable.”

I think that the “tastily rotten” foods discussed in the paper are of that sort. Anderson’s assertion—that scarcity underlay the practice of fermentation and that taste for the “tastily rotten” was acquired *after* the practice had become stabilized—is close to what happened. To join him in this guess work, I would think the first such fermenters had to learn how to succeed and that it was a gradual process. But their children, tasting such food for the first time, were able to rely upon their parents. And the next time that *they* tasted those fermented foods, they had already had an agreeable experience, eating them. Theirs was the first genuine habituation.

We students of food need to know a good deal more about fermentation and the place of fermented foods in modern cuisines, particularly as global population continues to grow. Fermentation has untapped potentialities for enriching our food supply. The essay by Yamin-Pasternak and her colleagues is a valuable addition to our knowledge of the subject.

---

### Heather Paxson

Department of Anthropology, Massachusetts Institute of Technology, Room E53-335R, 77 Massachusetts Avenue, Cambridge, Massachusetts 02142, U.S.A. (paxson@mit.edu). 20 V 14

What is the contemporary place of “tastily rotten” morsels of fermented fish and sea mammal meat in an Arctic culinary system influenced by the scientific and aesthetic values of modern sanitation? Analyzing culinary change and continuity among indigenous peoples on both Alaskan and Siberian sides of the Bering Strait, Yamin-Pasternak et al. offer a fascinating look at how fermented marine resources, cherished heritage

foods with apparently prehistoric roots, have been subject to sanitization. Most dramatically in Siberia, fermented foods were marginalized as hunger food during the Soviet era as Sovietization worked not only to erode not knowledge of domestic food preservation techniques (cf. Dunn 2008) but also to inculcate new aesthetic sensibilities. A generation of Chukchi raised under the cultural hegemony of Soviet boarding schools were confronted, amid economic crisis following the collapse of the Soviet Union, with the task of relearning and updating Chukchi culinary practices and, with more difficulty, of acquiring a taste for fermented foods whose pungent odor had come to signify spoilage, inedibility.

Influenced but not stalled, then, by the virtues of sanitation, the recent revival of “tastily rotten” foods among the Chukchi and Yupik relies on new practices of deodorization, which in turn rest on new infrastructural demands. While Bruno Latour (1993), Nancy Tomes (1998), and others have charted the rise of modern hygiene bent on achieving rationalized market relations through sanitizing social relations, this case concerns the cultivation of a different form of food hygiene: the *deodorized*. With a nod to Foucault’s elaboration of the Panopticon, Yamin-Pasternak et al. introduce the “panolfaction” to characterize the internalization of hegemonic aesthetic norms that press for the adoption of new disciplinary practices of culinary deodorization. Here, modern hygiene is aimed less at enhanced food safety than at greater olfactory acceptance—to noneaters but also to new eaters, for whom the acquisition of a taste for the past is eased by blunting its ever-present smell. Yupik office workers in Alaska may don disposable latex “eating gloves” to indulge in “tastily rotten” foods at lunch without worry of carrying offending odors with them back to work. By rendering one’s consumption of fermented foods acceptable to others (if not also one’s self), the consumption of a culturally marked food leaves less of a mark on the eater.

Might this be viewed as an olfactory installation of “microbiopolitics,” a term I have introduced to draw attention to modern regimes of social regulation predicated on “the elaboration of appropriate human behaviors vis-à-vis microorganisms engaged in infection, inoculation, and digestion” in addition to odor- and flavor-inducing fermentation (Paxson 2008:17)? To pose this question is to ask whether the Arctic revival of fermented foods draws on scientific understandings and discourses that distinguish “good” microbes, which “tastily rot” and preserve perishable foods, from “bad” microbes, which may cause spoilage or pathogenic infection. Yamin-Pasternak et al. do not address the agents of fermentation so much as their odiferous effects. The bacteria, yeasts, and molds are worth further thought since the microbial environment is just as dynamic as are olfactory sensibilities. As Yamin-Pasternak et al. note, new and “improved” infrastructures of housing, similar to the glass jars used for home canning in post-Socialist Georgia (cf. Dunn 2008), create tightly sealed domestic spaces in which botulism newly thrives. Poorly ventilated kitchens join new fabrics used in clothing (far more odor-retaining than the animal skins of

the past) in exacerbating the smell effect of fermentation—thus further increasing the need for deodorizing discipline.

Such discipline is not only self-imposed; it is becoming part of feeding and caring practices that cement ties to kin and cultural tradition through the preparation and sharing of heritage foods. Anya, for example, commits significant time, labor, and economic resources to be able to launder her daughter Vera's clothes four times a week to rid them of their tell-tale smell. All this wash-water, in turn, creates new infrastructural demands.

It is ironic—and potentially concerning—that reliable access to fresh water has proven requisite to reviving a waterless means of food preparation; fermentation's waterlessness long made it ideally suited to Arctic coastal environments. Penny Van Esterik (2006) has argued that culinary knowledge and skills have been crucial tools in human survival, especially under conditions of geographic, economic, and political dislocation. But as foodways around the globe are increasingly marketized, foraging and processing skills are being lost, exacerbating the threat of future food insecurity. The present case demonstrates how aesthetic sensibilities may be part of that skill set. Yamin-Pasternak et al. note, "The sensuous ability to ingest the food is an essential component of a resilient food system." But it is insufficient. Today, when fermentation is no longer waterless, the value of fermented marine resources as survival food may be compromised by reliance on public infrastructure and utilities for their deodorized acceptability.

---

### Nancy J. Turner

School of Environmental Studies, University of Victoria, David Turpin Building (Room B260), 3800 Finnerty Road, P.O. Box 3060 STN CSC, Victoria, British Columbia V8W 3R4, Canada (nturner@uvic.ca). 16 IV 14

This paper, focusing on traditional northern Indigenous food with strong olfactory associations, conveys profound broader lessons. Specific to place and culture, and to particular food resources, the research resonates with traditional and local food systems worldwide (Kuhnlein, Erasmus, and Spigelski 2009; Kuhnlein et al. 2013). It encompasses issues around power and politics, environmental change, food security and food sovereignty, food as culture, sensory associations with food, intergenerational knowledge transmission, and the nutrition transition and globalization of food systems. There are striking parallels, for example, among British Columbia First Peoples regarding decreasing use of nutritious indigenous foods and their replacement by generally less healthy marketed and processed foods. As with the Chukchi and Yupik peoples, it is usually older people who have a particular fondness for the ancestral foods; elders often talk nostalgically about the foods they ate in their youth. Interviews with grandmother, mother, and daughter generations of Nuxalk families of Bella Coola, British Columbia, showed that taste appreciation is linked to

declining traditional food use: when a particular food declines in consumption, younger people do not have as high an appreciation of its taste as the elders (Kuhnlein 1992).

In the early 1970s, I was in Bella Coola, visiting Nuxalk cultural and food expert Margaret Siwallace.<sup>2</sup> She told me to look on her back porch and bring in the large wide-mouth jar there. It was full of small pearl-like objects in a matrix: *maatsi*, or "stink eggs" (fermented salmon roe). She encouraged me to try it, as she considered it a great delicacy. Opening the jar, I was immediately overwhelmed by a very strong smell—one that some might describe as rotten, but which I grew to appreciate with time. Margaret laughed at my initial dubious impressions, but she was pleased when I took a spoon and tried this new food.

Fermented salmon roe, or "salmon egg caviar," has been a major component of people's food systems along the British Columbia coast. There are many different recipes, but everyone concurs that the eggs must be prepared with extreme care because of the threat of botulism (Associated Press 2001). The dish takes 1–2 weeks to prepare. The eggs should come from salmon that have already started to go up the river to spawn, or they will have too much fat and could be dangerous. The eggs were originally layered in a pit, or a bentwood cedar box, lined with skunk-cabbage (*Lysichiton americanus*) or other leaves. Wooden barrels or porcelain crocks are recommended today; aluminum or enamelware containers or plastic bags should never be used. Some people like to use coho salmon eggs for this dish, whereas others prefer eggs from chum salmon or pink salmon. The eggs are covered with fresh water, which is changed every day during the process (Turner et al. 2012).

As with the "tastily rotten" foods described by Yamin-Pasternak et al., "The [fermented] eggs are mostly eaten by elders because younger people often can't stand the odor, . . . 'an odor that gets people running'" (Associated Press 2001). They can be cooked in layers with edible seaweed (*Pyropia abbot-tiae*), in a casserole style, preferably topped with oulachen grease, a nutritious fat rendered from another highly valued specialty food of northwestern North America, a small smelt (*Thaleichthys pacificus*), with its own particular odor.

A number of other foods, notable for their strong taste and smell but with unique flavors, fall into the category of tastes appreciated more in the past than today. These include highbush cranberries (*Viburnum edule*), which can have a rank unpleasant odor while ripening or cooking; soapberries (*Shepherdia canadensis*), which are bitter and astringent but whipped into an attractive frothy confection; and bulbs of riceroot (*Fritillaria cam-schatcensis*), also notably bitter, even when cooked (Turner and Burton 2010; Turner and Kuhnlein 1983). Younger people—who have developed a taste for "ichiban" noodles, macaroni, bologna, and other marketed, highly refined global foods—do not appreciate these dishes, and, at the least, require them to be sweetened considerably with sugar (Turner and Turner 2008). Yet the

2. Margaret was awarded an honorary Doctor of Laws degree at the University of British Columbia in 1985.

elders maintain that the berries do not taste as good if too much sweetening is used, and they consider these foods to be healthy and enjoyable.

Today, in some communities, there is a resurgence in traditional foods, and children and youth are challenged to taste some of these “old” foods in contests called the “fear factor,” described as “one of the most popular (and yucky!) events at every [traditional foods] conference” (Vancouver Island and Coastal Communities Indigenous Food Network 2011:8). Slowly the decades leading to the “nutrition transition” for indigenous peoples are being reversed, and a focus on healthy eating may bring back a diversity of foods once lost. As Margaret Siwallace once said, “The old foods are the new foods” (Turner et al. 2009:25).

---

## Reply

Generously written and affably composed, the commentator feedback is prodigiously enriching the geographical, temporal, and thematic dimensions of our narrative. Thank you colleagues and fellow students of ethnography, senses, and food: Gary Beauchamp, Melissa Caldwell, Liam Frink and Celeste Giordano, Evgeny Golovko, Sandor Katz, Nobuhiro Kishigami, Sidney Mintz, Heather Paxson, Nancy Turner. We feel fortunate to have a journal that enables exchanges of such inordinate breadth. Alongside the area studies of the Arctic region and the Soviet experience, we found that the commentator discussions address these major subjects: ethnographic representation of the sensory realm, interactions of cuisine and built environment, cultivation of taste (gustatory and olfactory), and cultural identity as felt in “the feeling of” (Hennion cited in Caldwell commentary) craving, consuming, rejecting, and otherwise interacting with certain foods. Many of the points raised will remain a subject of pondering and investigation for us long after the thoughts we share here find their way to the pages of *Current Anthropology*. The two bridging questions that seem to have fueled this exchange are these: Why, as humans, do we differ and change (or not) in ways that we think about and experience food? How can food experiences be captured and meaningfully conveyed through ethnographic representation?

In a work that remains foundational for the flourishing scholarship on food and culture, Mintz observes that, as a species, we humans “appear to be capable of eating (and liking) anything that is not immediately toxic” (1986:8). Beauchamp’s commentary interjects a proviso: when it comes to foods that emit odors of the breakdown products of flesh, our window for learning to accept them is within the first 4 months of infancy. By those who miss out on the early life introduction, such odors are “innately perceived as bad because they signal danger associated with toxins produced during bacterial degradation” (see Beauchamp commentary). The

smells accompanying the emotion of being nourished in the first 4 months of infancy will have a lasting comforting effect and remain a subject of life-long craving. In the absence of early infancy learning, willing oneself to eat and like the foods that smell of hazardous chemistry is very difficult but may not be impossible, says Beauchamp.

Remarkably, the ethnographic insight featured in the current exchange seems to substantiate all aspects of Beauchamp’s observation—the “very difficult,” the “not impossible,” and the lifelong craving of the aromas ingested with mother’s milk. The commentaries by Turner, Caldwell, Mintz, Frink and Giordano, Kishigami, and Katz speak to each of those possibilities through examples from a number of contexts. In the Bering Strait, among the telling occurrences are the clandestine night-time feast in the Chukotka boarding shools; the handful of the “extremist spouses”—the Chukotka settlers who appear to be happily eating the fermented recipes of the Yupik and Chukchi cuisines; and the daunting efforts toward the “rotten renaissance” among the indigenous Chukotkans, who since the prenatal stages were being nourished by flavors of Slavic cooking. Following Beauchamp’s conclusions, we should consider the presence of early exposure among the drivers of the sustained cravings felt by the youth of the 1950s. Yet, as we postulate in the article, other kinds of trust also play a role. It is the trust in the knowledge of their ancestors that inspired the younger Yupik and Chukchi to attempt an aged food revival in the years following the Soviet collapse. It is a similar kind of trust that Mintz (see commentary) hypothesizes from a historical framework, but with the circumstances of a temporal gap between the theoretical knowledge and its practical use. And—if not love alone—it may be the trust in the ancestors of one’s spouse that set the contrast between the “extremist spouses” and other Chukotka settlers in their attitudes toward the “tastily rotten.” We should continue examining the trust arising from these and other types of learning—such as through formal education, advocacy, societal trends—and how the transforming attitudes in these cases influence certain people in accepting certain foods, even “some of the time” (see Mintz commentary). In our ongoing work in the Bering Strait we should be attentive to the preferences of the adopted children born of nonindigenous parents, raised in families with strong practices of the Yupik, Chukchi, and Inupiaq cuisines.

Several of the commentator remarks point to potentially revealing comparisons. Do the recipes of leguminous origin, like the Sudanese *kawal*, stimulate a different set of the olfactory receptors than those responding to the cadaverine and putrecine molecules, likely responsible for the fragrance of the “tastily rotten”? Simoons cites numerous examples that he thinks reveal “the strength of feeling that can be associated with unacceptable foods of animal origins,” which he thinks are of “different order of magnitude” (1994:299) than the feelings toward unacceptable foods made from plants. In light of Beauchamp’s note on the cadaverine and putrecine molecules, Mintz’s allusion to fermented milk, and Turner’s in-

sight on the olfactory aversions to certain plant-based products (see commentaries), we should continue examining across generations and cultures the olfactory experiences triggered by aged foods made of plants, mushrooms, dairy, and flesh, and a combination of those.

The role of food-centered public events in Chukotka, which Golovko (see commentary) sees as a more likely catalyst for the “rotten renaissance” than the severe food shortages of the late 1990s, offers a provocative lens. Does the formula “nationalist in form, socialist in content,” instituted to govern language, dress, performance, and other cultural domains of Soviet life, carry salience to the practices of Yupik and Chukchi Soviet-era cuisine? The photographs and recollections of the time, shared by our Chukotkan hosts, amply evidence the disappearance of the fragrant aged foods from public eating. Only certain acceptable ingredients, like reindeer meat, were permitted to represent the regional flavor. Over the past decade we have witnessed public celebrations, such as the state-organized annual regional festival Ergav, at which representatives of the participating Chukotkan communities prepare exorbitant hospitality tables, featuring certain types of aged foods. One of its functions within the “national idea” (see Golovko commentary) package appears to be similar to the one that Ries (2009) attributes to the potato. Like the potato discourse in other regions of Russia, the centrality of the fermented walrus roulade in the Yupik and Chukchi narratives of post-Soviet survival “legitimizes and celebrates the population’s ability to feed itself autonomously, ‘no matter what’” (Ries 2009:183).

Frink and Giordano’s attention to the state-implemented public health efforts is just as pertinent with respect to the need of studying historical literature (see commentary) on the subject as to the contemporary programs and policies. International Congress for Circumpolar Health commonly features the representation of government agencies and other organizations working on issues of housing sanitation throughout the Arctic. Kishigami’s assertion that the transition in the aesthetics of everyday life in Nunavik, Canada “arose from changes in a system of distribution motivated by profit rather than from any ideological factors” (see commentary) is only partially true. Certain aspects of what Paxson calls “deodorization” (see commentary) may be unique to the aesthetic histories of the Canadian Arctic, Chukotka, or Alaska, but the overall constellation of factors is always complexly influenced.

Concepts from the research on fermentation, namely, *microbiopolitics* (see Paxson commentary), *terroir* (the role of local climate and geography in shaping sensual qualities of food [Wiest and Schindler 2011]), and *the absent third* (a way to contemplate food that is not quite “cooked” nor “fresh” [Mintz 2011]), are instructive in examining the interactions between built environment, climatic conditions, and social-ecological dynamics. Making foods that are of the *absent third* extends into multiple dimensions of the maker’s surroundings. Fermentation relies on the performance of lactic acid

bacteria, which can depend on the size and shape of the product, the temperature of the environment in which it is placed to ferment, the amount of time, air circulation, and humidity, and the actual presence of the appropriate inocula in the utilized environment and equipment. From the maker and consumer perspectives, fermentation is employed to transform flavor, aroma, texture, tenderness, color, and other qualities that contribute toward creating a desired sensual experience. In our study region, fermentation is dependent on the sequence and scope of weather conditions, when products are being air-dried outdoors; on the ground ice and temperature conditions, when products are stored in subterranean cellars or buried in pits; and on the ventilation, air temperature, and competing molds and yeasts, when products are aging indoors. Frink and Giordano (see commentary) rightly stress the diversity of recipes, including the variability in the fermentation techniques used in neighboring regions of the Arctic. Certain practices are unique to the geography and culture of each locale and are not transplantable to another community’s setting. In part, this variability results from the preferences of individual preparers and their desire to facilitate continuity in the local traditions and tastes. The differences may also be due to the local climate, which tightly regulates the safety and effectiveness of fermentation. Writing about fish uses in Northwest Alaska, Jones stresses “the same salmon must be handled differently in July in Kotzebue where cool coastal breezes allow it to be dried, than in Ambler in August where the inland calm, hot temperatures may instead allow it to rot” (2006:3).

In the view of Wiest and Schindler, fermentation “represents a human/environment interaction that is characterized by a simple, subtle, and sustainable manipulation of ecological processes for human benefit” (2011:376). Whether or not we think of these processes as “simple,” in our study region they are being complicated by an expanding bouquet of social and environmental factors. As thawing permafrost creates problems with groundwater seepage, various repairs are attempted. People experiment, successfully and not, with hanging meat or setting the fermentation vessels in different quarters and corners of their dwellings. From 2002 and to the present, residents of Chukotka have been living amid a large-scale government-driven renovation effort. In the villages inhabited predominantly by Yupik and Chukchi, standard modular homes, built from kits designed by a Canadian company, are replacing the wooden houses that the early Soviet development put in place in the 1950s. The poorly ventilated interiors, created in part by layout flaws and in part by vinyl finishing, fail to provide the environment that people call “breathing,” needed for proper and safe fermentation. The villagers nicknamed these houses “tin cans.” When given a choice, people weigh the advantages of the newer and larger living spaces over the loss of their culinary environment, valued for its suitability for making fermented foods. An Enmelen elder living in a small old house, which she shared with her adult grandson, said she was tormented by the fact that their living

conditions deprive the young man of having a separate sleeping room and force him to do strenuous chores, like hauling coal for heating. Perpetually full of doubt, she would place their names on the waiting list. When her turn came up to move to a new modular home, she repeatedly elected to remain where she was. As the main reason for staying, she cited the observation that her former neighbors, who have moved into the new type of house, are no longer able to prepare aged meat at home. Instead of rotting “tastily,” the meat in the “tin can” promptly spoils. The “sensory politics” (see Caldwell commentary) and “microbiopolitics” (see Paxson commentary) intersect.

The “big picture” understanding we see developing is that around the time an infant joins the family, the liaising forces of culture, society, economy, and neuroscience outline the contours of the child’s food comfort zone. This constellation sets the precedent for the aromas and flavors that the sensory faculties will deem acceptable and desired. Within the bounds of one’s family and extended social circuit, a child may learn to discern between the smells and tastes associated with everyday eating, special occasions, particular seasons, and time of day. For a number of determinant factors, the smells and other qualities of the newly encountered food can stimulate varying combinations of emotions, dispositions, and perception ranges. An odor that comes off as appalling can still be appealing in the curiosity it provokes, provided that no personal, religious, or health restrictions stand in the way of trying the food that emits it. What one knows about the cultural origins, the making process, the monetary or environmental costs, the nutritional possibilities, and the social significance of the food may inspire or impede the initial curiosity and any further interactions, as would the individual’s economic base, caloric needs, allergies, and sensory sensitivities developed at a young age. As one’s grasp of identity grows to include ideas of belonging to a specific community or place, the appeal of familiar childhood foods become part of “the feeling of” (see Caldwell commentary) being a *kimchi*-eating Korean, pickle-eating Jew, *kawal*-eating African (see Katz commentary), or *tuugtaa*-eating Yupik. Being marked and ascribed a cultural belonging via recognized heritage foods may very well be a source of cultural pride, similar to being recognized for one’s community’s exceptional number of skilled hunters, superb craftsmanship, or a one-of-a-kind performance tradition. Yet, as we know from numerous examples, the feeling of being a something-eating social-cultural someone is not always desirable, and even within major shifts in cultural attitudes, the olfactory stigma of certain foods is allowed less social mobility than that of others. We are certain, for example, that the US Marine Mammal Protection Act of 1972 is not the sole factor preventing the fermented walrus roulade from finding its place near the artisan cheeses or any section of the American supermarket.

In a reflection on communicating sensory research, Schneider and Wright note that “the majority of the sensual experiences involved in fieldwork disappear from anthropological

writing” (2006:13). There may be compelling reasons for that, or at least some reasonable excuses. Describing effectively the range of sensations produced in the process of ingesting food is a craft so adroit and fastidious that the convincing professionals of the tasting trade become the select class of entrusted celebrity connoisseurs. We turn to their newspaper columns to find out whether a pricey restaurant is worth the hype, we check their blog posts for the recipes of things they ate during their travels, we watch them chew and swallow on the television screen, salivating in suspense in the seconds before they verbalize their expertly judgment. Perhaps that is why in the everyday eating tales we find people evoking metaphors rather than adjectives (Classen, Howes, and Synnot 1994). Those of us familiar with the Soviet-era lore about the North may remember a satirical story of one Arctic resident, who has never eaten an orange, asking another to describe what it is like:

“It is good.”  
 “How good?”  
 “Very good.”  
 “Good like having seal?”  
 “Better.”  
 “Good like having reindeer?”  
 “Better.”  
 “Good like what?”  
 “Good like having sex!”

The challenge highlighted by Kishigami, to relate verbally how the “tastily rotten” foods taste and smell, begs a question: to whom? While the vocabularies of texture, taste, and smell may describe certain properties of the aged foods—juicy, sharp, pungent—they hardly capture the experiences of ingesting—or the emotion it triggers. Those vary. “What a shock!” seems to summarize the reaction of anthropologist Carol Jolles, “feeling full” is the state of content for which certain Yupik and Chukchi youth longed in the boarding schools, while our host in Savoonga resorts to the grimace of euphoria accompanied with the gesture of “smelly fingers” (see fig. 5). In a transgressing tackling of the subject, artist Sissel Tolaas exhibits hundred-some terms from the concocted olfactory vocabulary, which she devised to catalog the smells she collects (Tolaas 2011). Whether we look to the gadgets emitting synthetic odors or to the relational art, like Tolaas’s *Alphabet for the Nose* or Rirkrit Tiravanija’s *Pad Thai Series*, the enterprise of conveying food experiences probably has its best chances in the ethnographic practices situated “between art and anthropology” (Schneider and Wright 2010).

—Sveta Yamin-Pasternak, Andrew Kliskey, Lilian Alessa,  
 Igor Pasternak, and Peter Schweitzer

## References Cited

- ACIA. 2005. *Arctic climate impact assessment*. Cambridge: Cambridge University Press.  
 Ainana, Ludmila, Nikolai Mymrin, Mikhail Zelensky, Vladimir Bychkov, and Igor Zagrebina. 1999. *Preservation and development of the subsistence lifestyle*

- and traditional use of natural resources by Native people (Eskimo and Chukchi) in selected coastal communities (Inchoun, Lorino, New Chaplino, Sireniki, Enmelen) of Chukotka in the Russian Far East during 1997. Anchorage, AK: Shared Beringian Heritage Program, US National Park Service and Department of Wildlife Management, North Slope Borough.
- . 2000. *Preservation and development of the subsistence lifestyle and traditional use of natural resources by Native people (Eskimo and Chukchi) in selected coastal communities (Inchoun, Uelen, Lorino, Lavrentiya, Novoye Chaplino, Sireniki, Nunligran, Enmelen) of Chukotka in the Russian Far East during 1998*. Anchorage, AK: Shared Beringian Heritage Program, US National Park Service and Department of Wildlife Management, North Slope Borough.
- Alessa, Lilian, Andrew Kliskey, Richard Lammers, Chris Arp, Dan White, Larry Hinzman, and Robert Busey. 2008. The Arctic water resource vulnerability index: an integrated assessment tool for community resilience and vulnerability with respect to freshwater. *Environmental Management* 42(3):523–541.
- Alessa, Lilian, Andrew Kliskey, and Paula Williams. 2010. Forgetting freshwater: technology, values, and distancing in remote Arctic communities. *Society and Natural Resources* 23(3):254–268.
- Alkon, Alison Hope, and Teresa Mares. 2012. Food sovereignty in US food movements: radical visions and neoliberal constraints. *Agriculture and Human Values* 29(3):347–359. [MLC]
- Anderson, Eugene A. 2014. *Everybody eats*. New York: New York University Press. [SWM]
- Associated Press. 2001. Stink-eggs botulism puts three in hospital. *Seattle Times*, April 15, 2014. <http://community.seattletimes.nwsourc.com/archive/?date=20010817&slug=stinkyeggs17m>. [NJT]
- Beauchamp, Gary K., and Julie A. Mennella. 2009. Early flavor learning and its impact on later feeding behavior. *Journal of Pediatric Gastroenterology and Nutrition* 48:S25–S30. [GKB]
- Bell, David, and Gill Valentine. 1997. *Consuming geographies: we are where we eat*. London: Routledge.
- Biltehoff, Charlotte. 2013. *Eating right in America: the cultural politics of food and health*. Durham, NC: Duke University Press. [MLC]
- Bloch, Alexia. 2004. *Red ties and residential schools: indigenous Siberians in a post-Soviet state*. Philadelphia: University of Pennsylvania Press.
- Bogoras, Waldemar. 1904–1909. *The Chukchee*. New York: G. E. Stechert.
- Bourdieu, Pierre. 1984. *Distinction: a social critique of the judgement of taste*. Cambridge, MA: Harvard University Press.
- Brubaker, Michael, Jacob Bell, and Alicia Rolin. 2009. Climate change effects on traditional Inupiaq food cellars. *Center for climate and health bulletin* 1:1–7.
- Burch, Ernest. 2006. *Social life in northwest Alaska: the structure of Inupiaq Eskimo nations*. Fairbanks: University of Alaska Press.
- Caldwell, Melissa L. 2014. Digestive politics in Russia: feeling the sensorium beyond the palate. *Food and Foodways* 22:112–135. [MLC]
- Castrodale, Louisa. 2005. *Botulism in Alaska: a guide for physicians and health-care providers, 2005 update*. Anchorage: State of Alaska, Division of Public Health.
- Chun, Lauryn. 2012. *The kimchi cookbook*. Berkeley, CA: Ten Speed. [SEK]
- Classen, Constance. 1992. The odor of the other: olfactory symbolism and cultural categories. *Ethos* 20(2):133–166.
- . 1993. *Worlds of sense: exploring the senses in history and across cultures*. London: Routledge.
- Classen, Constance, David Howes, and Anthony Synnot. 1994. *Aroma: the cultural history of smell*. London: Routledge.
- Comaroff, Jean, and John Comaroff. 1991. *Of revelation and revolution: Christianity, colonialism, and consciousness in South Africa*, vol. 1. Chicago: University of Chicago Press.
- Csordas, Thomas J. 1993. Somatic modes of attention. *Cultural Anthropology* 8(2):135–156. [MLC]
- Dewan, Adam, Rodrigo Pacifico, Ross Zhan, Dmitry Rinberg, and Thomas Bozza. 2013. Non-redundant coding of aversive odours in the olfactory pathway. *Nature* 497(7450):486–489. [GKB]
- Dirar, Hamid. 1993. *The indigenous fermented foods of the Sudan*. Boston: CAB International. [SEK]
- Dunn, Elizabeth Cullen. 2008. Postsocialist spores: disease, bodies, and the state in the Republic of Georgia. *American Ethnologist* 35(2):243–258. [MLC, HP]
- Fienup-Riordan, Ann, ed. 1988. *The Yup'ik Eskimo as described in the travel journals and ethnographic accounts of John and Edith Kilbuck, 1885–1900*. Kingston, Ontario: Limestone.
- Foucault, Michel. 1995 (1975). *Discipline and punish: the birth of the prison*. New York: Vintage.
- Gonzales Turmo, Isabel. 2009. Concepts of food and non-food: perspectives from Spain. In *Consuming the inedible: neglected dimensions of food choice*. Jeremy MacClancy, Jeya Henry, and Helen Macbeth, eds. Pp. 43–52. New York: Berghahn.
- Goody, Jack. 1982. *Cooking, cuisine, and class: a study in comparative sociology*. Cambridge: Cambridge University Press.
- Gray, Patty. 2005. *The predicament of Chukotka's indigenous movement: post-Soviet activism in the Russian far north*. Cambridge: Cambridge University Press.
- Gunderson, Lance, and C. S. Holling. 2002. *Panarchy: understanding transformations in human and natural systems*. Washington, DC: Island.
- Guthman, Julie. 2011. *Weighing in: obesity, food justice, and the limits of capitalism*. Berkeley: University of California Press. [MLC]
- Guthman, Julie, and Melanie DuPuis. 2006. Embodying neoliberalism: economy, culture, and the politics of fat. *Environment and Planning D: Society and Space* 24:427–448. [MLC]
- Harris, Marvin. 1985. *Good to eat: riddles of food and culture*. New York: Simon & Schuster.
- Hennion, Antoine. 2007. Those things that hold us together: taste and sociology. *Cultural Sociology* 1(1):97–114. [MLC]
- Hensel, Chase. 1998. *Telling our selves: ethnicity and discourse in Southwestern Alaska*. Cambridge: Cambridge University Press.
- Herz, Rachel. 2007. *The scent of desire: discovering our enigmatic sense of smell*. New York: HarperCollins. [GKB]
- Hirsch, Francine. 2005. *Empire of nations: ethnographic knowledge and the making of the Soviet Union*. Ithaca, NY: Cornell University Press. [EVG]
- Hoover, Kara. 2010. Smell with inspiration: the evolutionary significance of olfaction. *Yearbook of Physical Anthropology* 53:63–74.
- Hughes, Charles. 1960. An Eskimo village in the modern world. Ithaca, NY: Cornell University Press.
- Hussain, Ashiq, Luis R. Saraiva, David M. Ferrero, Gaurav Ahuja, Venkatesh S. Krishna, Stephen D. Liberias, and Sigrun I. Korsching. 2013. High-affinity olfactory receptor for the death-associated odor cadaverine. *Proceedings of the National Academy of Sciences U.S.A* 110(48):19579–19584. [GKB]
- Ingold, Tim. 2000. *The perception of the environment: essays on livelihood, dwelling and skill*. London: Routledge.
- Jolles, Carol Zane. 2002. *Faith, food, and family in a Yupik whaling community*. Seattle: University of Washington Press.
- Jones, Anore. 2006. *Iqaluit Niginaqtuat, the fish that we eat*. US Fish and Wildlife Service, Office of Subsistence Management, Fisheries Resources Monitoring Program Final Report no. FIS02–023, Anchorage, AL.
- Kelm, Mary-Ellen. 1998. *Colonizing bodies: aboriginal health and healing in British Columbia, 1900–50*. Vancouver: University of British Columbia Press.
- Kerttula, Anna. 2000. *Antler on the sea: the Yup'ik and Chukchi of the Russian Far East*. Ithaca, NY: Cornell University Press.
- Kozlov, Andrew. 2004. Impact of economic changes on the diet of chukotka natives. *International Journal of Circumpolar Health* 63(3):235–242.
- Kozlov, Andrew, Vladislav Nuvano, and Galina Vershubsky. 2007. Changes in Soviet and post-Soviet indigenous diets in Chukotka. *Etudes Inuit Studies* 31(1–2):103–119.
- Kuhnlein, H. V. 1992. Change in the use of traditional food by the Nuxalk Native people of British Columbia. In *Perspectives on dietary change: studies in nutrition and society*. G. H. Pelto and L. A. Vargas, eds. Special issue, *Ecology of Food and Nutrition* 27(3–4):259–282. [NJT]
- Kuhnlein, Harriet V., Bill Erasmus, and Dina Spigeliski, eds. 2009. *Indigenous peoples' food systems: the many dimensions of culture, diversity, and environment for nutrition and health*. Montreal, Quebec: Centre for Indigenous Peoples' Nutrition and Environment, McGill University; Rome: Food and Agriculture Organization of the United Nations. [NJT]
- Kuhnlein, Harriet V., Bill Erasmus, Dina Spigeliski, and Barbara Burlingame, eds. 2013. *Indigenous peoples' food systems for health: interventions for health promotion and policy*. Montreal, Quebec: Centre for Indigenous Peoples' Nutrition and Environment, McGill University; Rome: Food and Agriculture Organization of the United Nations. [NJT]
- Landecker, Hannah. 2011. Food as exposure: nutritional epigenetics and the new metabolism. *BioSocieties* 6(2):167–194. [MLC]
- Lantis, Margaret. 1984. Aleut. In *Arctic*, vol. 5 of *Handbook of North American Indians*. William C. Sturtevant and David Damas, eds. Pp. 161–184. Washington, DC: Smithsonian Institution.
- Latour, Bruno. 1993. *The pasteurization of France*. Alan Sheridan and John Law, trans. Cambridge, MA: Harvard University Press. [HP]
- Levi-Strauss, Claude. 1969. *The raw and the cooked*. New York: Harper & Row.
- . 1978. A short treatise on culinary anthropology. In *The origin of table manners*. Pp. 471–495. Chicago: University of Chicago Press.
- Luehrmann, Sonja. 2011. *Secularism, Soviet style: teaching atheism and religion in a Volga republic*. Bloomington: Indiana University Press. [EVG]

- Manalansan, Martin. 2006. Immigrant lives and politics of olfaction in the global city. In *The smell culture reader*. Jim Drobnik, ed. Pp. 41–52. Oxford: Berg.
- Marino, Elizabeth, Dan White, Peter Schweitzer, Molly Chambers, and Josh Wisniewski. 2009. Drinking water in Northwestern Alaska: using or not using centralized water systems in two rural communities. *Arctic* 62(1):75–82.
- Messer, Ellen. 1997. Three centuries of changing European taste for the potato. In *Food preferences and taste: continuity and change*. Helen MacBeth, ed. Pp. 101–114. Providence: Berhahn.
- Mintz, Sidney. 1986. *Sweetness and power: the place of sugar in modern history*. New York: Viking.
- . 1996. *Tasting food, tasting freedom: excursions into eating, culture, and the past*. Boston: Beacon.
- . 2006. Food at moderate speeds. In *Fast food/slow food: the cultural economy of the global food system*. Richard Wilk, ed. Pp. 3–11. Lanham, MD: Alta Mira.
- . 2008. Fermented beans and Western taste. In *The world of soy*. Christine Du Bois, Chee-Beng Tan, and Sindy Mintz, eds. Pp. 56–73. Urbana: University of Illinois Press.
- . 2010. *Three ancient colonies: Caribbean themes and variations*. Cambridge, MA: Harvard University Press.
- . 2011. The absent third: the place of fermentation in a thinkable world food system. In *Cured, fermented and smoked foods: Proceedings of the Oxford Symposium on Food and Cookery*. Totnes, England: Prospect.
- Nelson, Eduard. 1983 (1899). *The Eskimo about Bering Strait*. Washington, DC: Smithsonian Institution Press.
- Ozeki, Erino. 2008. Fermented soybean products and Japanese standard taste. In *The world of soy*. Christine Du Bois, Chee-Beng Tan, and Sindy Mintz, eds. Pp. 144–160. Urbana: University of Illinois Press.
- Paxson, Heather. 2008. Post-Pasteurian cultures: the microbiopolitics of raw-milk cheese in the United States. *Cultural Anthropology* 23(1):15–47. [MLC, HP]
- Petrini, Carlo. 2001. *Slow food: the case for taste*. William McCuaig, trans. New York: Columbia University Press. [MLC]
- Pollan, Michael. 2008. *In defense of food: an eater's manifesto*. New York: Penguin. [MLC]
- Procello, Thomas, Louise Meintjes, Ana Maria Ochoa, and David Samuel. 2010. The reorganization of the sensory world. *Annual Review of Anthropology* 39:51–66.
- Ray, Dorothy Jean. 1992. *The Eskimos of Bering Strait, 1650–1898*. Seattle: University of Washington Press.
- Richards, Audrey. 1939. *Land, labor, and diet in Northern Rhodesia: an economic study of the Bemba tribe*. London: Oxford University Press.
- Ries, Nancy. 2009. The potato ontology: surviving postsocialism. *Cultural Anthropology* 24(2):181–212.
- Rozin, Elizabeth. 1983 (1973). *Ethnic cuisine: the flavor-principle cookbook*. Brattleboro, VT: Stephen Green.
- Rozin, Paul. 1982. “Taste–smell confusions” and the duality of the olfactory sense. *Perceptions and Psychophysics* 31:397–401.
- Rozin, Paul, Jonathan Haidt, Clark McCauley, and Sumio Imada. 1997. Disgust: preadaptation and the cultural evolution of a food-based emotion. In *Food preferences and taste: continuity and change*. Helen MacBeth, ed. Pp. 65–82. New York: Berhahn.
- Sahlins, Marshall. 1976. *Culture and practical reason*. Chicago: University of Chicago Press.
- Schneider, Arnd, and Christopher Wright. 2006. The challenges of practice. In *Contemporary art and anthropology*. Arnd Schneider and Christopher Wright, eds. Pp.1–27. Oxford: Berg.
- . 2010. *Between art and anthropology: contemporary ethnographic practice*. Oxford: Berg.
- Schweitzer, Peter, Lilian Alessa, Andrew Kliskey, and Sveta Yamin-Pasternak. 2010. Livelihoods on thawing ground: relationships with water resources near the Bering Strait. *Anthropology News* 51(2):22–24.
- Schweitzer, Peter, and Evgeniy Golovko. 1997. Local identities and traveling names: interethnic aspects of personal naming in the Bering Strait area. *Arctic Anthropology* 34(1):14.
- . 2004. Traveling between continents: Native contacts across the Bering Strait. In *Russian American links: 300 years of cooperation*. Yuri P. Tret'yakov and Natal'ya P. Aleksandrova, eds. Pp. 99–119. St. Petersburg: Akademicheskij projekt. [EVG]
- Searles, Edmund. 2002. Food and the making of modern Inuit identities. *Food and Foodways* 10(1):55–78.
- Shepherd, Gordon M. 2012. *Neurogastronomy: how the brain creates flavor and why it matters*. New York: Columbia University Press. [GKB]
- Shivik, John A. 2006. Are vultures birds and do snakes have venom, because of macro- and microscavenger conflict? *BioScience* 56(10):819–823. [GKB]
- Simoons, Frederick J. 1994. *Eat not this flesh: food avoidances from prehistory to the present*. Madison: University of Wisconsin Press.
- Spray, Zona. 2002. Alaska's vanishing Arctic cuisine. *Gastronomica* 2(1):30–40.
- Starks, Zona Spray. 2011. Drying and fermenting in the Arctic: dictating women's roles in Alaska's Inupiat culture. In *Cured, fermented and smoked foods: proceedings of the Oxford Symposium on Food and Cookery 2010*. Helen Saberi, ed. Pp. 302–11. Totnes: Prospect.
- Steinkraus, Keith H. 1997. Classification of fermented foods: worldwide review of household fermentation techniques. *Food Control* 8(6):311–317. [SWM]
- Strungaru, Carmen. 2009. Consuming the inedible: pica behavior. In *Consuming the inedible: neglected dimensions of food choice*. Jeremy MacClancy, Jeya Henry, and Helen Macbeth, eds. Pp. 31–42. New York: Berghahn.
- Sutton, David. 2010. Food and senses. *Annual Review of Anthropology* 39:209–223.
- Tolaas, Sissel. 2011. An alphabet for the nose. *Journal for Artistic Research*. <http://www.researchcatalogue.net/view/?weave=1036&cx=840&y=0>.
- Tomes, Nancy. 1998. *The gospel of germs: men, women and the microbe in American life*. Cambridge, MA: Harvard University Press. [HP]
- Turner, Nancy J., and Carla M. Burton. 2010. Soapberry: unique northwestern foaming fruit. In *Festschrift for Thomas M. Hess from his friends and colleagues in honour of his seventieth birthday*. David Beck, ed. Pp. 278–305. Bellingham, WA: Whatcom Museum Publications. [NJT]
- Turner, Nancy J., Thelma Harvey, Sandy Burgess, and Harriet V. Kuhnlein. 2009. The Nuxalk Food and Nutrition Program, coastal British Columbia, Canada, 1981–2006. In *Indigenous peoples' food systems: the many dimensions of culture, diversity and environment for nutrition and health*. H. V. Kuhnlein, Bill Erasmus, and Dina Spigeliski, eds. Pp. 23–44. Rome: FAO. Food and Agriculture Organization of the United Nations and Montreal, QC: Centre for Indigenous Peoples' Nutrition and Environment, McGill University. [NJT]
- Turner, Nancy J., and Harriet V. Kuhnlein. 1983. Camas (*Camassia* spp.) and riceroot (*Fritillaria* spp.): two liliaceous “root” foods of the Northwest Coast Indians. *Ecology of Food and Nutrition* 13:199–219. [NJT]
- Turner, Nancy J., Colleen Robinson, Gideon Robinson and Belle Eaton. 2012. “To feed all the people”: Lucille Clifton's fall feasts for the Gitga'at community of Hartley Bay, British Columbia. In *Explorations in ethnobiology: the legacy of Amadeo Rea.* Marsha Quinlan and Dana Lepofsky, eds. Special issue, *Journal of Ethnobiology*. Pp. 324–363. <http://ethnobiology.org/publications/contributions/explorations-ethnobiology-legacy-amadeo-rea>. [NJT]
- Turner, Nancy J., and Katherine L. Turner. 2008. “Where our women used to get the food”: cumulative effects and loss of ethnobotanical knowledge and practice; case studies from coastal British Columbia. *Botany* 86(1):103–115. [NJT]
- Vancouver Island and Coastal Communities Indigenous Food Network. 2011. Our food: final report on the 4th annual 2011 Vancouver Island Traditional Foods Conference. <http://www.indigenousfoodsvi.ca/wp./final-report-2009-tf-conference.pdf>. [NJT]
- Van Esterik, Penny. 2006. From hunger foods to heritage foods: challenges to food localization in Lao PDR. In *Fast food/slow food: the cultural economy of the global food system*. Richard Wilk, ed. Pp. 83–96. Lanham, MD: Alta Mira. [HP]
- Vdovin, Inokentii. 1965. *Ocherki istorii i etnografii Chukchei* [Essays on Chukchi history and ethnography]. Leningrad: Nauka.
- Vitebsky, Piers. 1995. From cosmology to environmentalism: shamanism as local knowledge in a global setting. In *Counterworks: managing the diversity of knowledge*. Richard Fardon, ed. Pp. 182–203. London: Routledge.
- . 2005. *The reindeer people: living with animals and spirits in Siberia*. Boston: Houghton Mifflin.
- Wiest, Mark, and Bill Schindler. 2011. Remembering lessons from the past: fermentation and the restructuring of our food system. In *Cured, fermented and smoked foods: Proceedings of the Oxford Symposium on Food and Cookery*. Helen Saberi, ed. Pp. 376–385. Totnes: Prospect.
- Yamin-Pasternak, Sveta. 2008a. From disgust to desire: changing attitudes toward Beringian mushrooms. *Economic Botany* 62(3):214–222.
- . 2008b. A means of survival, a marker of feasts: mushrooms in the Russian Far East. *Ethnology* 47(2):14.
- Yurchak, Alexei. 2006. *Everything was forever until it was no more: the last Soviet generation*. Princeton, NJ: Princeton University Press.