Foodways and Resilience under Apocalyptic Conditions

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Abstract

Food is an active component of social and political process in times of daily plenty and in times of extreme scarcity. Routinized modes of foodways are hard to dislodge, even when resources and broad lifeways are violently disrupted. Ethnographic, ethnohistoric, and archaeological examples attest to the improvisational ability of individuals and communities when faced with food shortage. Using illustrations from around the world, I explore how approaches to linguistic practice contribute to discussions of starvation management. I posit that cultural redefinitions of food and foodways help to negotiate extreme circumstances and may extend even into postcrisis periods. [foodways, famine, practice, resilience, apocalyptic]

Opportunistic and desperate people, hapless individuals shorn of values, parsimonious copers, intelligent organisms gamely struggling for survival: these are the images of famine’s victims. [Dirks 1980:31]

Food and water, the most basic of necessities for human survival, are the first to be secured and the last to be relinquished. Both are also active components of social and political process whether in times of daily plenty or in times of extreme scarcity. Although food underwrites our basic notions of what it means to survive, it is also regularly incorporated into ritual practice, whether as material offering or meaning-laden symbol. In order to satisfy fundamental human needs, food must be uncontaminated, nutritious, and sufficient. However, these conditions are qualified and even modified during the course of actual cultural practice in every aspect from procurement to disposal.

Redefining sustenance, among other creative solutions, can help to amplify available resources, materially and conceptually. Such moments of negotiation are sometimes the difference between life and death.

When crisis strikes, food and water are resupply priorities. Whether caused by the slow accrual of minor transformations or the rapid strike of widespread disaster, the devastating implications of population-wide starvation are apocalyptic in their impact. Such impacts are visible archaeologically through various methods and are interpretable through analogy. For comparative purposes, analogous situations can be drawn from studies of post-apocalyptic landscapes in modern and historic eras. When resources and lifeways are violently disrupted, routinized modes of foodways may be hard to dislodge, even in the face of starvation. However, ethnographic, ethnohistoric, and archaeological examples also attest to the resilience of individuals and communities when faced with extreme food shortage.

We see sketches of such accommodations even in times of plenty. With increases in the diversity and mobility of food ingredients and practices, the past 60 years alone have witnessed dramatic shifts: from aspics and “scientific”/“modern” foodways, to an explosion of “exotic”/“ethnic” foodways, to the more recent manifestation of local/“organic”/“traditional” foodways. Dietary fads have battled various iterations of “home cooking” and “comfort” foods, as both physical and mental well-being are defined and redefined through sustenance. Such shifts in practice are similar to the way that various neologisms, accents, and manners of speaking gain and lose prominence and intelligibility. Even without the specter of nutritional shortage, foodways are highly mutable. They can also be persistently and disastrously static.

Using illustrations from around the world, I explore how notions of materiality and approaches to linguistic practice can contribute to discussions of starvation management. I posit that cultural redefinitions of food and foodways help to negotiate extreme circumstances and may extend even into postcrisis...
periods. By following such trajectories, we can hypothesize alternate pathways to those envisioned by Jared Diamond in his book *Collapse* (2006).

**Famine Research in Modern, Historic, and Biological Narratives**

Starvation, when experienced by a community or a society, becomes famine. Bennett (1976:322) characterizes famine as “so extreme and protracted as to result in widespread and persisting hunger, notable emaciation . . . and a considerable elevation of community death rate.” Dirks (1980) categorizes famine as both biological and social in nature, resulting in physical and social consequences. Studies of the biology of starvation do not generally coincide with studies of social aspects of starvation for various humanitarian and ethical reasons. However, in one project at the University of Minnesota, Keys et al. (1950) analyzed the biological effects of semistarvation. The results of their work have provided a strong basis for subsequent studies, even those more social in nature.

Many scholars of modern and historic communities have provided us with expectations about which effects of famine would be visible archaeologically. In his incredibly comprehensive study, Dirks (1980) looked to understand “social behavior among famished people.” He documented cross-cultural regularities of behavior during extreme food duress asking the following: At what point are such famine responses triggered? What is the difference between an extreme food crisis and chronic undernutrition? He follows the three stages of crisis for the individual and society, as defined by Selye (1956). In this triphasic model, reactions to famine begin with “alarm,” progress to a stage of “resistance,” and finish with the stage of “exhaustion.”

In the first stage of crisis, that of “alarm,” Dirks describes initial social reactions to food-related anxiety. He notes that communities have a tendency to draw together, with intensified sharing or selling of fresh or stored food supplies. In this first phase, ritual practice tends to increase, perhaps as “a sort of antidote to the increasing divisiveness which grew from scarcity” (Laughlin 1978:84–86, in Dirks 1980:28). As supplies run short and famine continues, emigration is common. Emigration, however, can be barred by military, geography, mobility (i.e., healthy vs. impaired), and the spatial extent of disaster conditions. Moreover, in situations where emigration is possible, those who stay behind sometimes fare better than those who leave, as in the case of Russian peasants in 1921 (Asquith 1943:20).

Toward the end of this first “alarm” stage, an increase in hostility begins to emerge as resources become more scant. In general, Dirks asserts that people affected by hunger are more irritable and atomistic. In Ireland, with the onset of the Great Hunger, “organized antigovernment activity surfaced within two months, and crowds gathered to receive relief became threatening when supplies proved inadequate” (Woodham-Smith 1962:69, in Dirks 1980). Some scholars have even gone so far as to correlate the degree of political strife with group size and average weight loss of the population. Contrary to popular belief, however, “the overthrow of government is more likely to be attempted by mildly affected segments of the population than by those seriously affected” (Dirks 1980:27).

With the advent of the second stage of famine, that of “resistance,” Dirks notes an increased economy of activity. People sleep more and conserve energy. He finds collapse of divisions in labor and an increased attention to the simple quest for food where “time related to anything but food-related activities soon approaches zero” (Dirks 1980:28). In this stage, family and social bonds remain in place, and mutual interests persevere—up to a point. Richards noted in 1939 of the Bemba that “[they] were very generous with food except during the hungry months, when it was hidden from distant and classificatory relatives” (1939:202).

During this stage of “resistance” to famine, there may be a turn toward alternate foodways, such as foraging and gleaning, even among urban populations (Bennett 1976:322). However, the American Friends Service Committee (1923:20) described foraging in Russia in 1922 as “a desperate business” because it required “greater expenditure of energy for meager returns.” In some instances, the search for edibles is restricted largely to the victims’ area of residence. Nearly every account of famine contains a description of local “famine foods” utilized (e.g., McHugh [1956:399–400] for Ireland, 1845–52; American Friends Service Committee [1923:18–19], Asquith [1943], and Russian Commission of Near East Relief [n.d.:8] for Russia, 1918–22; Corkhill [1949] for Sudan, 1939; Laycock [1944:667] for China, 1942–43; Burger et al. [1945:20] for the western Netherlands, 1944–45; and Bhandari [1974] for Rajasthan). In other cases,
starving communities may go further afield to a more “distant and protracted wandering,” differentiated from actual emigration by the eventual return home (e.g., Famine Inquiry Commission 1945:68; Stadling and Reason 1897).

Deeper into this second stage of famine, broader social structures are transformed. Boundedness of property increases, especially where food is stored, prepared, or procured. Gardens and fields may be guarded against theft, even with householders “taking turns day and night to watch crops” (McCance and Widdowson 1951). Gardens may be equipped with boundary markers, fences, watchtowers, and watch-houses (Firth 1959:72, McHugh 1956:402; Turnbull 1972:140). In a historic example from China, even after severe famine had passed, the watch over crops became permanently institutionalized (Hinton 1966: 38). There may also be a transformation in ritual activity, in some cases through marked decrease and in other cases through marked increase. Generally, however, when authority is viewed as impotent, social capital diminishes and social institutions are undermined. The powerful may find their gardens “raided like everyone else’s, and the respectful gifts usually presented to them no longer offered” (Firth 1959:92). Ritual observances may be dropped, abbreviated, postponed, or diminished as these typically require contribution of foodstuffs (Firth 1959:84–90; Singh 1975:253).

In the third and final stage, that of “exhaustion,” Dirks claims that basic social structures “collapse” due to the amplification of nutritional inequities (1980:30). Foraging groups may form, independent of family units. Elders may appropriate the rations of children or abandon dependents as “burdens.” Family members may become competitors. (Conversely, displays of altruism toward the weak may also occur but are more rarely documented.) In more advanced stages, survivors huddle together, inactive. Without surcease of famine, this inactivity, combined with the weakening of biological defenses, leads to death. Such tragic scenes were documented by Pendergast (quoted by O’Brien 1919:108) for the outbreak of famine and plague in 1652:

Ireland . . . now lay void as a wilderness. Five-sixths of her people had perished. Women and children were found daily perishing in ditches, starved. The bodies of many wandering orphans whose fathers had embarked for Spain and whose mothers had died were preyed upon by wolves.

In the years 1652 and 1653 the plague and famine had swept away whole counties, that a man might travel twenty or thirty miles and not see a living creature.

In documenting instances of famine from various regions and time periods, Dirks points out one key gap in studies of starvation: the temporal limits of research. As he notes, “Typically in the field for a year or two, ethnographers rarely have opportunity to witness changes that occur as a population moves from a condition of plenty to one of want” (1980:22). Such is the gap where archaeologists can make significant contributions to studies of postapocalyptic conditions—through a view of the long durée.

In terms of physiological aspects, whether or not malnutrition is ultimately the cause of death, famine leaves its signature in the body (Larsen 2005). Physiological responses to starvation, in terms of metabolic activity and other factors, are broadly reviewed by Dirks (1980:23) and other scholars (Agarwal et al. 2004; Larsen 2005; McHenry 1960). Early dehydration, hypoglycemia, and ketosis are marked by slower movement, apathy, fatigue, and decreased tolerance for exhausting work. Conditions of semistarvation begin to significantly affect the human body at about ten percent weight loss. Material traces of these effects are marked by skeletal transformations, including hypoplasias, stunted growth, and reductions in birth rates. Average stature of a population may even decrease over time (Stini 1973:1027). Eventually, the body’s defenses are lowered to the point where it becomes difficult to differentiate between starvation and infection in determining the ultimate cause of death (Bennett 1976:324). The general pattern gleaned from historic narratives is that the poorest of a population or community are the first affected, the very young and the very old are next affected, and eventually, effects are marked population wide (Dirks 1980:25).

Broadly, such biological indicators provide a snapshot of the physiological response of individual bodies to postapocalyptic conditions. However, other sources help us to identify social responses to famine, including various adjustments and transformations of foodways. Accounts of starving people depict them, by turns, as animalistic, sociopathic, or altruistic when faced with “social degeneration.” However, people cope in varying ways under a wide spectrum of conditions, shifting footing and switching code in a manner very similar to that documented for
locutionary practice (Goffman 1981). Such resilience has archaeological visibility, albeit to varying degrees.

**Food, Fight, and Flight**

“Collapse” has emerged as the most popular avenue for discourse on postapocalyptic conditions (e.g., Diamond 2006), with attendant narratives of warfare, flight, and demise of entire populations (compare with McAnany and Yoffee 2009). However, as with any apocalyptic-level crisis, individuals, communities, and societies have a more broad set of options when faced with famine. Indeed, coping can take many forms (Adolph 2009; Richards 1932:100, 1939:37) and historical and social contexts condition the reactions of a society to extreme stress. Dirks (1980:31) identifies two primary major responses: cooperation (distribution of the stressor) and outmigration. Thomas (1980:38) catalogs a wider set of responses: cooperation (distribution of the stressor), outmigration, avoidance (migration), elimination of the condition, buffering in anticipation (food storage), distribution (sharing), and conformity (pretending the condition does not exist). Given that transformations in foodways can strongly parallel shifts in linguistic practice, to these lists I would append yet another type of response: the very transformation of food paradigms themselves.

Folklore and cautionary tales, as well as formal codes and emergency plans (Dirks 1980:26; Minnis 1991), may be recoverable as “fossils” that index past food crises. However, in areas where written records and oral histories do not exist, material remains are the only method by which we may get at foodways. The material, as both product and producer of social action, can both represent and implicate responses to calamity—the nature of the calamity as well as its impacts and the social responses to them. Taking such an approach to materiality can help to define the discursive relationship between the social and material aspects of famine. However, it may be challenging to recover many types of archaeological evidence of extreme food shortage.

Emigration, as a response to famine, can be difficult to index through material correlates. Ancient people oftentimes acted with their feet, relocating to live with their kin or trade partners (e.g., Arakawa et al. 2011). In the absence of written records and skeletal evidence, it is hard to distinguish between the extrasomatic movement of trade goods and ideas, and the actual bodily movement of populations. Deceased individuals, in cases of warfare or famine, were likely never buried, and thus their remains were lost to time. In cases where abandonment was extremely rapid, as at Joya de Cerén in the face of a volcanic eruption (Sheets 2002), it may be unclear where they went and how they coped. Evidence of precautionary hoarding and storage (Richards 1932) can also be problematic. Hoarding practices would appear as caches of food, in areas bounded, enclosed, and kept out of the public view. However, storage may represent normal behavior in times of plenty or a short-term response to various kinds of crises not necessarily linked to famine. For example, in the case of Aguateca (Lentz 2001; Terry et al. 2004), evidence of hoarding was linked to warfare and siege.

Moreover, seasonal reduction in physical activity (Richards 1932) would result in more careful management tasks and the energy to complete them, as well as a more careful selection and redistribution of resources. A more limited range of activities would be represented archaeologically, although activities involving food procurement would actually increase in frequency under famine conditions. However, without extremely precise stratigraphic control, extensive spatial sampling, and contextualized algorithms for energetic expenditures, such reduction in activity would be difficult to gauge as the majority of our evidence comes from the detritus of multiple and protracted activities. Population-wide fasting, as practiced by some religious groups (Richards 1932), is similarly problematic. There may be evidence of undernourishment, but not necessarily of deliberate fasting by an individual or community.

Tracking the redefinitions of foodways, in terms of paradigmatic substitutions and their material correlates, may prove a complementary and fruitful route for analysis. Similarly to what transformations can be made to intensify agricultural production under normal conditions (Hartshorn et al. 2006; Kirch 1994), there is the possibility for intensification and/or innovation of foodways under extreme conditions. This can entail maximizing foods available or substituting certain foods and practices for others. In tracking famine at early stages, we find evidence of transformations in practices—extirpations and extinctions (Hunt 2007; Steadman 1995). We also find transformations in foods hunted or gathered, and shifts to more readily available foods (Minnis 1991; Walker and Erlandson 1986).
Dirks (1980) finds that the resilience of a particular culture will necessarily have to do with many factors, including historical trajectory, broader cultural context, and paradigms of foodways within a particular society. I argue, however, that resilience also has to do with the possible substitutions of foodways afforded in a broader set of practices and ingredients, and potential transformations of food paradigms in the social lexicon. That is, in earlier stages of famine, people will tend toward orthodoxy of food paradigms (e.g., cannibalism as taboo practice). To maintain this orthodoxy, certain foods and practices will be substituted for others, in a way that most closely resembles accustomed foods and practices (e.g., wild tubers used in place of cultivated root crops). At latter stages of famine, however, heterodoxic foodways will emerge, sometimes through radical paradigm shifts (e.g., insect consumption becomes an accepted practice). Heterodoxic practices, in these cases, may be the only recourse for survival, once all possible substitutions afforded by the paradigm have been exhausted.

The Persistence of Foodways and the Subversion of Paradigms

A linguistic model of substitution would predict that habits of taste are not a “finished set of rules” but rather a “repertoire of possibilities” (Stahl 2002:832). Such was demonstrated in wartime Great Britain, where culinary “coping” was employed by undernourished cooks (Adolph 1993:163):

Turning Jerusalem artichokes into “fish” with a bit of anchovy paste . . . is the sort of counterfeiture that stems from a culture that limits the scope of cookery while at the same time demanding variant excellence from those in the kitchen.

In this example, food, under wartime duress, was made to be iconically similar to fish, an index of kitchen craftsmanship, and symbolic of times where sumptuous meals were more the order. The flow of food doxa, interrupted by transformations in availability of supplies, led the wartime cook to attempt an orthodoxy involving anchovy paste in order to preserve the paradigm of fish. The practices may have been heterodoxic, but the intent was entirely orthodoxy. Such substitutions indicate a desire to adhere to foodway paradigms even in extreme circumstances. Although it may be difficult to identify the difference between a shift in tastes and a shift in foods available, paleoethnobotanical evidence could indicate, for example, the substitution of root crops for maize as a staple food, in cases where such dietary cornerstones fail in the face of calamities such as blight or insect scourge.

“Stretching” of foods, such as adding sawdust to bread flour, is another means by which cooks have coped with food shortage (Jacob 2007). This entails a shift in paradigm, where sawdust becomes “edible,” and subsequently its substitution for flour becomes possible. Similarly, the consumption of leather indexes a shift in paradigm, where it becomes edible as a substitute for meat (Rosenstein 1973, paraphrased in Brun 1980:35). Such consumption of hard-to-digest materials could be documented in coprolite evidence.

There is also a great deal of ethnographic documentation relating to “famine foods.” For example, in early 20th-century in Russia, in regions already devastated by war and famine, there were accounts that noted (Rosenstein 1973, paraphrased in Brun 1980:35):

After using up all their grains and tubers and eating their domestic animals, the peasants ate dogs, field mice, mice, grass, carrion, harnesses, and boiled animal skins. . . . During the winter cannibalism made its appearance: people dug up the dead to eat them.

However, a different picture of famine is painted in the Sudan-Sahelian zone (Brun and Kovess 1974, paraphrased in Brun 1980:35):

When all the livestock had died, they did not eat the cadavers of the animals, nor did they consume leather objects or any other objects capable of assuaging hunger. Bitter grain, fibrous tubers, and leaves enabled some of them to continue the trek. The weakest died en route [and were buried].

Archaeologically, we have evidence of cannibalism in various locations. Such data, when combined with skeletal evidence, may indicate a link to famine (McGuire and Van Dyke 2008). However, such uncommon substitutions require a shift not just in foodstuffs but in the very definition of “foodstuff.” With so many means of coping, through transformations of foodways and the use of famine foods, it is
curious that the popular imagination most readily turns to cannibalism (e.g., McCarthy 2006), in spite of the fact that the vast majority of individuals and societies facing starvation never pursued this option. Indeed, the most striking examples of human consumption of humans appear to have much more to do with the symbolic aspects of this practice (e.g., Conklin 2001; Young 1971) than the nutritional.

We also have archaeological evidence of the use of various plants as “famine foods.” Minnis (1991) characterizes such foods as being low preference under normal circumstances due to factors ranging from overall palatability to difficulty of acquisition and processing. He has documented, through the use of ethnohistoric documents and paleoethnobotanical remains, the importance and frequency of various famine foods over time in the American Southwest. Of interest is his assertion that societies and communities have the unfortunate opportunity to “practice” during periods of seasonal hunger, incorporating various undervalued foods and agricultural by-products to cope with scarcity. Such periodic adjustments may result in incremental shifts toward the regular incorporation of substitutable foodstuffs, eventually constituting practical knowledge leveraged in times of famine. Importantly, Minnis notes that the early effects of famine may not be readily visible in the archaeological record, as communities may consume stored seed intended for planting, which would have no significant morphological distinctions from seed stored for consumption (1991).

Curiously, there are also foods ethnographically documented as famine foods that are found to be highly nutritious but never recovered archaeologically (e.g., the ramón nut of the Maya area [Miksicek et al. 1981]). In cases where such foods were available but not substituted in times of hunger, we can hypothesize the orthodoxy of foodways prevailed, and substitutions remained more limited by previous paradigms of “food.” This may be related to what Minnis (1991:246) has documented as a sort of “downgrade” of regularly consumed foods to the category of famine food. In such cases, adoption of new foodstuffs, innovation in processing techniques, or shifts in social contexts may account for transformations in foodways during times of plenty. When conditions take a turn for the worse, such foods may be the first to be consumed if they are still considered “foods” at all.

Relict Foodways and the Persistence of Adjustment

Even after food crisis is over, modes of practice may linger. Popular narratives easily yield anecdotes of hoarding behaviors demonstrated by refugees and shipwreck survivors. As Minnis (1991:245) puts it, “food preference patterns may actually encapsulate the history of a changing diet.” The set of relations imposed on the food paradigm through the pressures of syntagma in practice, along with contextual factors including history, society, ecology, and biology, can have paradigmatic consequences similar to the overlap of fields (see Bourdieu and Wacquant 1992). Linguistically, this represents not just the substitution of a noun for an adverb or a different sort of noun but rather an alteration of the available set of terms, which may eventually result in the formation of a new paradigm. Such reformulations may entail the addition (as opposed to an alteration) of an available food category.

The Gurange of Ethiopia was defined as “always hungry, never greedy” by Kahn (1986). Similarly, the Massim, of Papua New Guinea, strived for “full gardens and small bellies” (Young 1971:146). Among the Massim, tactics involved the refusal to admit hunger, suppression of hunger through magic, and the deliberate putting aside of food, even to the point of food spoilage. Whether such practices have purely symbolic or material roots is unclear, but they may be artifacts of famine times—new paradigms that were never dislodged postcrisis. In the same way that food orthodoxy is often attempted when lifeways are disrupted by calamity, transformed foodways may continue as doxa even after a crisis has passed. Such situations might be visible through paleoethnobotanical evidence of mass food waste combined with skeletal evidence of malnourishment.

In Baja California, some Cochimí peoples employed unique methods to ward off extreme hunger: second harvest and maroma (Aschmann 1986). In the practice of second harvest, undigested seeds from pitahaya cactus fruits were collected from nightsoil, cleaned, and roasted for food, effectively doubling the volume if not the nutritional value of these foods. The practice of maroma entailed tying a bit of meat to a piece of string, passing the bit from person to person to swallow, and then immediately extracting the swallowed bit with the string. This activity would continue until the meat had been
digested in a distributed way (similar to the coping mechanisms identified by Thomas 1980). As with the Gurange and Massim, paradigms of food practice among the Cochimí may have changed to accommodate famine conditions, then persisted into historic periods. Evidence of maroma-type practices would be difficult to recover, but evidence of second harvest might be indicated by remains of ground cactus seeds from implements or coprolites.

Some agricultural societies may have deliberately settled in areas with an abundance of wild foods—as is historically documented for the Maler in India—and then maintained these settlement locations to maximize perceived food resources. Vidyarthi (1975:324) noted the opposition of Maler people to resettlement by the government because “they have seen the ravages of famine on the plain which they could escape on the hills owing to the varieties of jungle products.” Archaeological evidence of such practices might include a transition from a higher to a lower ratio of cultivated to noncultivated foods and an increase in overall taxa diversity.

In other cases, where famine-food practices do not persist, knowledge of them may linger through legend, ritual practice, stories, myths, and anecdotes, as noted in Southwestern U.S. examples (following Minnis 1991:150). However, should profound cultural disruption occur, as in the case of contact-period encounters, knowledge of these famine foods and practices may be completely lost. With foodways, as with language and other social dimensions, basic components and practices tend to endure if malleable in novel situations (similarly to Firth 1959:105). However, as the subversion of language, authority, religious institutions, and social bonds can persist postfamine (Gangrade and Dhadda 1973:18), so too can permanent losses of cultural knowledge occur. Such situations lead to a lack of ethnohistoric ties to a richer cultural past, as well as a much smaller repertoire of possibilities for an uncertain future.

**Current Practice and Future Calamity**

Through reviewing studies of food crises, we gain some sense of future potential dystopias and the profound physiological, psychological, and social effects of famine. Until now, human beings have never experienced a worldwide food shortage. Widespread, yes, but there has always been somewhere for groups to retreat. When this “somewhere” is already populated, warfare, societal absorption, and hybridity have tended to occur. In other cases, mobility may be hampered, as borders are enforced and refugee camps are rampant. Sometimes, in lieu of extensification and border friction, there is innovation and intensification, reducing both morbidity and mobility alike.

The historic and archaeological examples provided in this paper outline past human responses to extreme food shortages. Viewed alongside more contemporary examples, we are allowed a glimpse of potential worldwide crisis responses. However, what happens when there are no more reserves, when there is nowhere else to go, and food can no longer be innovated or intensified? According to Sorokin’s “Law of Diversification and Polarization,” disaster brings out the best and worst of people, as an increase in generosity or an increase in self-preservation (Sorokin 1942).

To mitigate disaster, it is necessary to understand the language of foodways in societies under duress, as much as it is necessary to attempt to prevent food shortages from occurring at all. It is not simply enough to provide food, where it is not recognized as edible; it is not simply enough to list nutritionally viable local plants, where no one knows how to process them.

Linguistic approaches help us to understand how available resources must be made intelligible to existing paradigms of edibility in order to become “food.” Ingredients, processing techniques, context, and meaning are all important in the creation of culturally viable sustenance. Attempts to increase such intelligibility have emerged from disparate quarters, including cookbooks oriented toward local noncultivated plants (e.g., Caballero Roque 2010) and survival manuals containing techniques for testing unknown organisms (e.g., Department of the Army 1992). Narrative content is also important for resilience in the face of famine. Following Minnis 1991, folklore, legends, and descriptions of food practices are critical repositories of vital information, even when peripheral to central themes and even if culturally uncomfortable or unintelligible in modern times. However, a larger repository needs to be collected and disseminated to expand the array of nutritional possibilities afforded to us. Moreover, following Vidyarthi (1975:324), we need to maintain wild plant stands or at least become fluent in the potential uses of invasive or newly ubiquitous species to diminish the nutritional impact of crop failures.

Food intelligibility is critical, given that rigidity of food paradigms can lead to death. As historically
documented in Ethiopia (Mason et al. 1974 in Minnis 1991) and Ireland (Woodham-Smith 1962), people in times of famine may struggle to incorporate relief supplies into their diets because the foods are unfamiliar and heterodoxic to established principles of subsistence or habits of processing. For such reasons, the use of famine foods during food shortages was government-assisted during World War II when the Dutch government provided descriptions of local emergency food plants to the populace (Den Hartog 1981 in Minnis 1991). Such strategic reframing of food paradigms has the potential to save lives, where tactical flexibility is circumscribed.

In everyday practice, word choice and syntax default to the path most commonly trod. During times of high stress, when social modes are thrown into high relief, we often default to underlying modes of “appropriate” practice modes that are sometimes at odds with our ability to actually subsist (similar to Adolph 2009). By increasing the spectrum of available foods and foodstuffs, practices, and paradigms, we effectively diversify our food portfolio, making our survival more likely. Repositories such as the Svalbard Global Seed Vault and the Millennium Seed Bank Project are critical contributions toward this end but rendered less useful if the millions of carefully archived seeds have no future intelligibility. It comes down to a need for storage: not only of supplies and seeds but also of forms of knowledge and modes of practice that expand the paradigms of foodways available to us.

Countless scholars and committees from nongovernmental organizations to medical associations have addressed the serious implications of food shortage in the short term. Famine foods and practices are less frequently addressed, especially over the long term. There is strong potential in investigating past apocalyptic conditions and potential material correlates of famine using the work of scholars who have carefully documented the social effects of starvation, both past and present. Such investigations include work at different temporal and spatial scales and are manifested through the approaches of multiple disciplines. The field of archaeology, especially, has a great deal to contribute to famine studies in terms of long-term processes and responses. Such contributions complement ethnographic and ethnohistoric studies that give a more fine-grained view of extreme famine in the short durée. In combination, these studies can reveal transformations or persistence in what is considered food, how it is eaten, how it is produced, how it is hoarded, and how it is doled out under apocalyptic-level famine conditions.

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