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A Foray into Food Writing: A Philosophical Approach to Contemporary Food Movements

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Faculty Sponsor: Dr. Cheryl Foster, Philosophy

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Introduction

For my Honors Project I chose to explore one of my passions, food writing. To accomplish this I did extensive research into several food movements with which I was previously unfamiliar. On the basis of this research I generated short papers that became appendices to my final product. The research grounded subsequent journalistic pieces, which explore intriguing aspects of these food movements but in a prose style and at a scale more appropriate to a general readership.

Although my exploration of food writing does not explicitly draw on my philosophical training, my major informs the way I looked at the issues. For example, the first subject I tackled was aquaculture, where my study of logic allowed me to detect a paradox between one of aquaculture's main motivations and its actual manifestations in practice. Aquaculture was originally proposed as an alternative to increasing market dependence on decreasing wild fish populations. Yet, many forms of aquaculture have developed in a manner directly opposed to this aim: aquaculture as an industry depends on these very wild populations to generate the young to stock farms as well as for the food used on these farms. As a result aquaculture isn't really lessening our dependence on wild fish stocks, which is its stated aim, but is instead putting an added strain on them. In this way there is a logical disconnect between the original reason for the spread of aquaculture (to preserve wild fish stocks and provide an independent alternative) and the eventual result which directly undermines these goals.

Similarly I saw my philosophical sensibilities come into play in analyzing the debate over raw milk. Raw (unpasteurized) milk, despite the fact that it is only legal in some states, has recently enjoyed increased popularity based on its alleged aesthetic, cultural and nutritional benefits. My training in epistemology, the study of knowledge

and the way knowledge is established, came into play here. For example, proponents of raw milk consumption fail to establish reliable premises for their arguments. They make the argument that raw milk is aesthetically superior to pasteurized milk, but many would relegate aesthetic preference to the realm of subjective consensus rather than scientific study. Even when proponents argue about issues that are in principle scientifically testable and verifiable, such as claims concerning the nutritional benefits of enzymes, the lack of currently available evidence - most studies cited date back to the 1920's - makes their case for nutritional benefit less plausible. My epistemological training helped me highlight why the debate about raw milk is riddled with problems related to argumentation and proof, and it allowed me to suggest what would be needed to clarify what is at stake.

I also found philosophical overtones in my third area of study, the jonnycake. Unlike other regional food specialties, the jonnycake appears to have survived in modern day consciousness due to its historical importance rather than its aesthetic appeal. Axiology, as the study of value, helped me to extract an interesting dimension johnnycake, which is that its preservation entails a clash between various human values. For example, the aesthetic value of the jonnycake's flavor is minimal – it is rare to see jonnycakes served in restaurants and they appear most frequently at historically themed events – yet the effort to sustain the infrastructure needed to grind the cornmeal in the traditional manner is substantial. So, aesthetic value does not appear to warrant the effort needed to maintain the jonnycake tradition. From a different set of values, however, the historical and cultural importance of the johnnycake form part of Rhode Island's identity. The axiological conflict emerges between the minimal contribution to culinary quality through aesthetics and impracticality, and the distinct importance of the johnnycake as a culinary tradition of value to Rhode Island cultural heritage. Even this cultural value is complicated by the fact that, although the historical value of the jonnycake seems to underlie its preservation, the actual level of historical accuracy surrounding the johnnycake itself remains in dispute, from its name to the origin of the recipe itself.

This project was challenging because I was doing research in areas that were completely new to me. Despite this my philosophical background helped me because I had the tools to not only grasp but then elucidate the unfamiliar concepts. I was also able to use these tools to identify unique aspects of these movements that I do not believe have been addressed before and can hopefully provide examples of new and more complex ways to approach issues related to food.

Aquaculture: Is it really a solution?

While many food movements base themselves on admirable motivations, they might not live up to the standards they set for themselves. The practice of aquaculture is no exception to this pattern. Aquaculture - the farming of aquatic species - began with honorable intentions; it was a response to the fact that wild stocks of fish were in decline while worldwide demand for fish continued to increase. Given this imbalance the world's population would require an alternative source of high quality protein, and aquaculture seemed like a good solution.

Advocates of aquaculture originally considered the practice of fish farming to be a more sustainable alternative to depleting wild fish populations. They also pointed to a host of other benefits, including the potential to improve food security, raise nutritional standards, alleviate poverty, preserve aquatic diversity, reduce pressure on wild populations, stimulate research and technological development, raise environmental awareness, and employ displaced fishermen.

With all these benefits, aquaculture might seem at first glance to be a good alternative to depleting wild fish populations. Unfortunately, in some of its manifestations, aquaculture has raised ecological concerns. For example, aquaculture causes physical changes to habitats. Some of these changes are associated with the construction necessary for aquaculture, such as the building of ponds, roads and staff housing. Aquaculture also requires special structures to aid in the stocking, maintenance and harvesting of farmed species, which in turn affect habitat by changing light penetration, current speeds and wave action. Aquaculture structures can also add surfaces for seaweed and animals to grow – again, altering the habitat. Other changes are more indirect but nonetheless come about as a result of aquaculture, including salinisation of fresh water and an increase in sediment in nearby ecosystems. Such changes affect the natural balance of local habitats.

Experts have also raised concerns about aquaculture's dependence on wild fish populations. Most acutely, aquaculture relies on wild fish populations for "seed." This means that, instead of using hatcheries, the practice of aquaculture collects the young of species from the wild and raises them in farms. This presents a problem from two perspectives. One, seeding with wild young results in a large amount of by-catch from the collection of young. By-catch refers to other organisms captured and subsequently discarded during the collection process. Two, the process of collection can often be destructive to habitat because the nets used to capture young can alter or even destroy the bottom-based nurseries for wild young – which in turn can affect the availability of food for wild predator species. Although hatcheries exist as an alternative to wild caught seed, they are not in more widespread use for several reasons. In some cases they have not developed to the point where they can be used on a large commercial scale and in other cases it is still cheaper to use wild caught seed.

Aquaculture also depends on wild populations for "aquafeed," the food used to feed farmed species. This poses a problem because the amount of wild fish harvested to make aquafeed can amount to more by weight than the final output of fish produced. On the one hand this raises concerns because, by harvesting large amounts of wild fish to feed farmed fish, aquaculture goes contrary to its original intention of protecting wild fisheries. On the other hand, some supporters of aquaculture contend that aquafeed does not represent an inefficient use of wild species because, in the wild, the ratio of prey fish eaten to predator fish produced can be much more inefficient than that found in fish farming. Thus, aquafeed may actually represent a more efficient use of wild caught prey species than the natural trophic relationship found in the wild.

Either way, because of its dependence on wild populations while simultaneously aiming to *preserve* those populations, aquaculture has a paradoxical nature: originally proposed as an alternative to declining wild fish populations, many forms of aquaculture today *depend on* these very wild fish stocks for seed and food.

Many well-intentioned food movements go astray, but there is hope that aquaculture can redeem itself. One option for redemption is polyculture, the practice of integrating numerous species into farming. An ancient practice, polyculture reduces ecological effects by mimicking the relationships and processes found in ecosystems. Another option - potentially more ecological - can be seen in the farming of shellfish: shellfish not only improve water quality by filtering it but also require no food input to the environment as they get all their food from particulates already in the water.

If aquaculture can become the sustainable alternative some once hoped it would be it may yet provide a viable substitute for wild fish populations – populations that cannot continue to support increasing demand from around the world.

Appendix A: Aquaculture

Introduction

According to the FAO (Food and Agriculture Organization of the United Nations), about one billion people worldwide rely on fish for their primary source of animal protein. In addition, as many as 200 million people rely either directly or indirectly on fish for their income (Tidwell 2001). Despite such dependence, the world's capture fisheries (wild caught) have, at best, reached a plateau in production, while some say they are even in decline. Further, 75% of the world's fisheries are over-fished (Davenport 2003). With an ever increasing human population this means that world demand for fish will quickly outstrip the supply. Fisheries, fishermen and governments have attempted to address this problem by investing in technology that allows them to fish longer, harder and further away. These efforts, however, have put more pressure on fisheries and reduced the total number of un-fished areas, which remain important sites for fish reproduction out of the reach of fisherman (Tidwell 2001).

Aquaculture, a broad category of practice that includes the farming of numerous aquatic species including fish, shellfish and seaweed used in food and medicine, provides an increasing alternative to traditional fisheries (Shumway 2003). Although aquaculture has been practiced in some form or another for centuries it is only in the last 50 years that it has become a major industry (Davenport 2003).

The majority of aquaculture is freshwater (57%) and takes place in "low-income food-deficit countries," a classification developed by the FAO in the 1970s to aid in discussion of food security issues. To fall under the food deficit group label a country's net income per person must be below the level set by the World Bank (for eligibility for IDA assistance) and they must import more basic foodstuffs than they export (FAO

2008). The most commonly farmed species in food deficit countries are kelp, carp, oysters and tiger prawns (Davenport 2003).

In the early days, those who practiced aquaculture justified the physical changes and disturbances to habitat by appealing to the idea that aquaculture took unproductive rural land and used it for a new industry. This was especially true of coastal wetlands, which many once considered as "wasteland" when the ecological importance of wetlands was not yet well understood (Davenport 2003). The FAO touted aquaculture as an "inexpensive source of a highly nutritious animal protein" as well as a way to improve food security, raise nutritional standards, and alleviate poverty (Tidwell 2001, p. 959). Other benefits cited included preservation of aquatic diversity through re-stocking, reduced pressure on wild populations, stimulation of research and technological development and increased education and environmental awareness (Frankic 2003). Aquaculture was also a way to employ displaced fisherman, preserve the character of coastal fishing communities, and use the knowledge and skills of coastal populations (Shumway 2003).

Although originally thought to be a sustainable alternative to capture fishing, aquaculture has recently come under scrutiny for its ecological effects. In this paper I attempt to identify and explain some of the factors that prevent aquaculture as currently practiced from becoming the sustainable alternative to capture fisheries it was once proposed to be. Among the major concerns are physical changes to habitats and the reliance of the industry on feedstock and seed produced from capture fisheries (Davenport 2003). The reliance of aquaculture on the harvesting of young from wild populations in order to stock its farms seems an appropriate place to start a discussion of ecological effects because it is the beginning of the life cycle of a farmed fish.

Seed production

One surprising aspect of current aquaculture practice is its reliance on capture fisheries. Despite the fact that aquaculture is proposed as an alternative to fishing wild populations, aquaculture relies heavily on wild populations for "seed." This means that instead of using hatcheries to produce the young to stock farms, they are instead collected from the wild. Disadvantages of this technique include the dependence of farms on natural breeding times and the availability of seed. Although the technology to use hatcheries instead of wild seeding has been developed, many boundaries prevent more farms from establishing them. In some cases hatchery development cannot adapt to the commercial scale necessary for production levels to meet market demand. In addition, where the technology is available but not used, it is due to economic unfeasibility: hatched juveniles are more expensive than those caught wild (Davenport 2003).

One specific problem associated with the wild collection of young for seed is bycatch. By-catch refers to other organisms captured and discarded during the collection process. For example, the capture of one tiger prawn post larva in Bangladesh will lead to the capture and destruction of 1,400 other macro-zooplanktonic individuals, including other prawn and fish young (Davenport 2003). Proponents of aquaculture counter that harvest from wild fisheries also leads to a large amount of by-catch. Some estimates based on ocean fishing report 28.7 million tonnes (31.6 million U.S. tons) of by-catch a year, most of which is discarded (Tidwell 2001). Not only does by-catch represent a waste of precious ocean resources, but it also has unharnessed potential to alleviate other problems that are not currently being addressed (see discussion of aquafeed).

A second specific problem associated with the wild collection of seed is the destruction of habitat. Push-nets as well as some types of cast-nets used to capture young

in estuarine and mangrove bottoms can alter or even destroy the bottom habitats functioning as nurseries (Davenport 2003). Besides putting pressure on the wild populations that already exist, this practice also prevents future generations from reproducing successfully by destroying their nursery habitats.

An additional problematic issue related to the wild collection of seed, especially associated with the collection of spat (the larval stage of a mussel) from wild mussels, is the effect it has on the availability of food for wild predator species. Although in some areas the proportion of spat collected is so small as to render the effect negligible, in other cases where bird species feed predominantly on mussels there have been documented die-offs of birds as a result of mussel seed collection (Davenport 2003).

One of the driving factors behind the dominance of wild collection of young over farming of young is economics. For instance the only economical way to farm some species is to collect females already carrying eggs and hold them until they release their larvae. This is the case with European lobsters because it is difficult to achieve predictable results from controlled mating in captivity. Although lobster farming occurs on a small scale at the moment, if the demand for wild caught impregnated females increases it could have negative effects on wild populations (Davenport 2003).

In the case of Panaeid prawns, their farming has led to a "thriving international trade in adult prawn brood stock," which refers to the wild caught adults then used to mate in captivity for stock farms (Davenport 2003, p. 10). This industry also includes prawn eggs and postlarvae. Because this trade spans many continents, and has been mostly unregulated, it has resulted in the spread of pathogens, which in turn have led to commercial losses and the likely escape of non-native species (Davenport 2003).

Feed production

Another set of ecological effects resulting from aquaculture practice emerges through collection of small, wild fish for production of "aquafeed," which is "artificiallycompounded feed for aquaculture" (Davenport 2003, p. 10). The sustainability of this practice is questionable since the weight of the fish produced can be less than the weight of the fish captured. For instance, to produce 3 million tonnes (3.3 million U.S. tons) of farmed fish and crustaceans in 1995, approximately 1.5 million tonnes (1.6 million U.S. tons) of fish meal and oil were required. In order to produce this meal and oil, however, 5 million tonnes (5.5 million U.S. tons) of wild caught fish were used. Further, the use of aquafeed has been increasing, which, in turn, increases demand on the populations of wild fish used for feed (Davenport 2003).

Although the harvest of fish to produce fishmeal for use in aquaculture may represent a net loss of volume (it takes more fish to produce the fishmeal than the amount of fish the aquaculture produces), some supporters of aquaculture point out that predators in the wild also represent a loss in terms of how much they eat. In the wild 10 parts of fish can be required to produce 1 part of carnivore fish. So, while a wild caught salmon may eat 10 times its weight in other fish, farmed salmon may only use 3 times their weight (Tidwell 2001). If these statistics hold true across the industry, then aquaculture may indeed represent a more efficient use of wild fish to feed predator species than those trophic relationships found in the wild.

Despite the fact that the fish used to produce aquafeed, like anchovies, remain abundant, some ecologists are concerned that their harvest may lead to competition with important populations. These populations include predatory fish that are vital to human consumption as well as marine mammals and seabirds (Davenport 2003). James Tidwell, in his article "Fish as food: Aquaculture's contribution" contends that aquaculture has not actually increased the amount of fish harvested for fishmeal but instead, "market forces have simply reallocated the use of a fixed amount of fishmeal" from feed for terrestrial livestock and fertilizer to aquafeed (Tidwell 2001, p. 960). Analysis of FAO data indicates no statistical relationship between aquaculture production and wild fish harvest and fishmeal production. Further, Tidwell points out that some believe that shifting the use of fishmeal to aquaculture from its more common current use, terrestrial farming, may be a more environmentally friendly option because fish are more efficient converters of food than terrestrial livestock (Tidwell 2001).

Tidwell also suggests that the by-catch from wild capture fisheries (which is usually discarded) could be used to supply the demand for fishmeal. It is estimated that between 18 and 40 million tonnes (19.4 and 44 million U.S. tons) of by-catch are discarded annually. This could supply most if not all of the fish currently being captured for fishmeal (30 million tonnes [33 million U.S. tons]) (Tidwell 2001). So although the production of food for aquaculture is currently not a sustainable practice, alternatives have already been suggested to address these concerns.

Changes to the habitat

Yet another way in which aquaculture can effect the ecology of wild fisheries is through physical changes to the environment. These physical changes include the construction of holding facilities like ponds, infrastructure like roads, and staff housing. Other changes are more indirect but nonetheless result from aquaculture practices, including salinisation of fresh water and an increase in sediment in nearby ecosystems (Davenport 2003). Salinisation can occur through pumping in seawater to brackish ponds in order to achieve the desired level of salinity for aquaculture. The saltwater can seep into the surrounding area, resulting in a cascade effect in places like Sri Lanka, where, for example, the seepage into paddy growing areas can affect production of crops like rice, and in turn affect the economic well-being of the community. When the seepage of saltwater is into freshwater areas, it can also affect the local species (Davenport 2003).

During the dry season, fresh water must be used to dilute the ponds to replace the water that has evaporated. The pumping of groundwater for this purpose can cause salt water intrusion into drinking and agricultural water supplies. Prawn ponds can also come into conflict with local agriculture: even when the ponds have been abandoned, the salination of ground water and salinisation of soil can prevent the land from being used for other agricultural purposes for years (Davenport 2003).

An additional problem related to aquaculture ponds and hatcheries concerns water outflow into adjacent but confined bodies of water like estuaries. This can lead to increased eutrophication (excess plant growth and decay as a result of increased chemical nutrients, which can lead to decreases in water quality [Ærtebjerb 2003]), toxic algal blooms, transfer of diseases and accumulation of antibiotic-resistant bacteria (Davenport 2003).

In addition to requiring artificial structures like holding facilities for breeding, aquaculture activities also require artificial structures to stock, contain, maintain, and harvest the farmed species. These physical structures can lead to changes in light penetration, current speeds and wave action and may change the habitat by adding surface for seaweeds and animals to grow. Further, artificial light can affect species that live near the farm. Also, large scale mussel and oyster farms can have an indirect effect on local populations because they filter out phytoplankton and zooplankton which can affect local food webs (Davenport 2003). An inadvertent effect of all these structural changes is that they can disrupt the natural states of nearby ecosystems, thereby upsetting the lifecycles of local species creating yet another instance of aquaculture's failure to protect wild populations.

Mangrove wetlands in particular are threatened by the structural changes to habitat necessary for aquaculture. Mangrove brackish wetlands exist in the Indo-Pacific region, Africa and the Americas and are important for the preservation of biodiversity and as nurseries for fish and prawns. Although mangroves are mostly threatened by overuse of wood for fuel or timber and clearing for agriculture and tourism, in the last few decades the modification of mangroves for prawn farming has also become a threat. Because mangroves are generally considered low quality land, they are often sold to wealthy national or international companies that first clear them for prawn farming and then abandon them because of disease or new competition. After they are abandoned mangrove prawn ponds are of little value for other uses because of salination, sulphuration and acidification, while their clearing has made them unsuitable as nurseries (Davenport 2003).¹

Conclusion

¹ Despite these concerns, proponents of aquaculture have pointed out that most new construction for prawn farming does not affect mangroves because their acidic soils and high construction costs have made them less appealing (Tidwell 2001).

Further ecological effects resulting from aquaculture include problems associated with waste, disease, genetic pollution of wild populations, and the introduction of alien species to ecosystems (Davenport 2003).

Experts have suggested solutions to these problems. One option, which would address many of these concerns, is polyculture, the practice of integrating numerous species into farming. An ancient practice, polyculture reduces ecological effects by mimicking the relationships and processes found in ecosystems (Frankic 2003). Some farmers are also promoting the aquaculture of shellfish as an alternative to more resource demanding practices such as the aquaculture of predatory species like salmon. This is because shellfish improve water quality by filtering it and require no food to be added to the environment, as they get all their food from particulates in the water (Shumway 2003). So although the forms of aquaculture that are currently being practiced may not be ecologically sustainable, there are viable options.

The current rate of consumption of fish and shellfish necessitates the development of a sustainable alternative to declining capture fisheries. As long as aquaculture continues to be dependent on wild populations for its seed and food, however, it will not become that sustainable alternative. Experts contend that, for aquaculture to be sustainable, the interactions between environmental, social and economic factors all have to be taken into consideration (Frankic 2003). In this paper I have presented just some of the mitigating factors that prevent the forms of aquaculture currently practiced from becoming a workable alternative to declining capture fisheries.

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Raw milk: does it heal or harm?

Most of us would assume that if there were a natural and easily available substance that could significantly improve our health, it would be widely available. Or, if for some reason it were not safe, then research would at least be conducted into isolating the components that could be beneficial to human health. Advocates for the sale of raw (unpasteurized) milk argue that we are missing out on one such opportunity. Not only is raw milk superior to pasteurized milk because of its flavor and the lifestyle it supports; it is also nutritionally advantageous to human health.

There are those, however, who believe that raw milk is inherently unsafe and that we would be foolish to take the risk of consuming it when pasteurized milk is available. Consumers who wish to learn whether or not raw milk is indeed better, or even safer, than pasteurized milk will soon find themselves frustrated by a lack of supporting arguments on either side that do not clearly prove or disprove either position.

The alleged value of raw milk can be divided into two categories: benefits that are scientifically verifiable and those that are not. One of these latter values is that raw milk possesses superior flavor. Another is that, because raw milk evokes a more traditional lifestyle such as the kind that existed before industrialization, it is associated with greater happiness. Whether these claims contribute to the benefits of raw milk proves problematic because such claims reflect subjective preference, thus making it difficult to convince someone that they are wrong if they do not prefer the taste of raw milk or living a more traditional life.

The major claim about the value of raw milk's superiority, which concerns its nutritional benefits, is scientifically verifiable. One reason pasteurized milk is inferior to

raw milk is that, unlike raw milk, pasteurized milk enables the sale of poor quality milk. The logic behind this is that raising a cow under poor conditions affects its health, which in turn affects the quality of the milk. In order to create healthy milk, which is necessary if one is to consume it raw, one would have to raise healthy cows. Pasteurization bypasses the significant and expensive step of raising healthy cows by sanitizing even the dirtiest milk, thereby perpetuating a system which produces cheap, low quality milk. Raw milk is of a higher quality because the conditions necessary to avoid disease and rear a healthy cow also guarantee a higher quality milk.

Further, proponents of raw milk believe that pasteurized milk lacks an important but under-researched component of good health: enzymes. When enzymes are present in foods in significant quantities they can start the process of digestion for the body. Proponents of raw milk also point to research which suggests that enzymes help increase life span. While raw dairy products, including milk, remain high in enzymes, the process of pasteurization, which includes the heating of milk to kill harmful bacteria, kills those same beneficial enzymes.

Despite the initial attraction of these claims for the value of raw milk, which are in theory verifiable, they become problematic because of the absence of current research needed to verify them. The discussion of the curative powers of raw milk fell out of fashion in the late 1920's and has not seen many mentions since. The absence of current research also undermines opponents of raw milk, since such research would be needed to disprove as well as prove the claims about raw milk's benefits.

In addition the scientific data used to oppose the safety of raw is also problematic. Opponents point to statistics that highlight cases of illness as a result of raw milk consumption but unfortunately, similar statistics also suggest the dangers of pasteurized milk. This proves that pasteurized milk as well as raw milk causes many cases of illness although for different reasons: while cases of illness that result from pasteurization are the result of contamination after the heating process, contamination of raw milk can occur at any stage of production. Such evenly distributed risks on either side of the debate make the claim that raw milk is far more dangerous than pasteurized milk appear tenuous.

Aside from disagreements concerning the value of raw milk either subjectively or nutritionally, there is an additional dimension to the debate: the legal right of an individual to consume a substance, regardless of risks. Those who favor the sale of raw milk argue that it is their constitutional right to purchase it, no matter how dangerous opponents claim raw milk is. As with similar issues involving personal choice and risk, such as the debate over medical marijuana, the matter is being decided by individual states. At this writing some states continue to prohibit the sale of raw milk or raw milk products, while others allow it.

But whether or not one *should* purchase raw milk or raw milk products - whether or not the benefits outweigh the risks - will remain subject to debate until more research into the nutritional superiority of raw milk and the long term effect of enzymes is undertaken. Raw milk's relative safety, value and benefits will remain speculative until good enough data to make a decision is available.

Appendix B: Raw Milk

Introduction

One might ask "Why, with all we know about the dangers of raw milk, would anyone risk drinking it?" Raw (unpasteurized) milk proponents respond that those of us who consume pasteurized milk take the bigger risk because many beneficial qualities are lost when milk is pasteurized.

While advocates point to the superiority of raw milk's nutrition, flavor and connection to a traditional lifestyle, opponents counter that none of these claims have been accompanied by sufficient scientific proof of raw milk's safety to warrant the risk. In the end the question appears to be not who is right, but whether either side has even posed its argument in a way that could successfully discount the claims of the other side. In this paper I will review the arguments on both sides of the debate and look particularly at the difference between those which are scientifically testable and those which are based on taste, culture, or contemporary circumstance.

History of Raw Milk in America

The history of the debate about raw and pasteurized milk can be traced back to the industrialization of the American milk industry during the 19th century. Outbreaks of disease occurred as a result of the pooling of milk for mass distribution, a process that allowed the milk from one cow infected with a pathogen to contaminate the entire batch (Leedom 2006).

In response to these outbreaks, opposing strategies for combating the problem emerged. In the first strategy the Certified Milk Commission set standards to improve the sanitation in all phases of milk processing. Dairies who met these standards would have their milk certified as Grade A. The second strategy was the pasteurization of all milk, which was partly a response to the recent availability of high-volume pasteurization technology. Many public officials, doctors and veterinarians stressed that pasteurization offered the only way to ensure the safety of the milk supply. Members of the Certified Milk Commission cautioned that pasteurization not only led to sterilized filth, meaning that the milk was decontaminated but still dirty, but that it also destroyed essential nutrients (Leedom 2006). Despite these legitimate objections to pasteurization, the Commission's standards were not economically practical for the protection of the entire milk supply. Certified milk was expensive to produce and the enforcement of hygiene laws would have been nearly impossible (Schmid 2003). Eventually both the Commission's standards and pasteurization were adopted to ensure the safety of milk (Leedom 2006).

Today the legal regulations for the sale of raw milk vary from state to state. In states where such sales are legal, raw milk accounts for less than 1% of all milk sales (Headrick 1998). In addition, the interstate transportation of raw milk not destined for pasteurization has been prohibited since 1987 (Leedom 2006).

Proponents' Arguments

Proponents of raw milk base their argument on several premises, some of which are claims of fact based on scientific evidence and some of which are value claims. Value claims include assertions about raw milk's aesthetic superiority as well as its connection to traditional lifestyles. More factual claims center on raw milk's alleged nutritional superiority.

Raw milk's aesthetic superiority rests primarily on the claim that it tastes better than pasteurized milk, with proponents citing the richness and complexity of flavors in cheese and other raw milk products to support this (Drape 2007). Similarly, another value claim related to raw milk stems from its cultural connection to a more traditional lifestyle, which in turn is often linked to a general distrust of industrialized food supplies (Drape 2007). According to Ron Schmid, author of *The Untold Story of Milk*; "using foods in traditional, time-honored ways is in tune with something that resides very deep in the souls of many people" (7). Schmid also refers to using food in a more traditional way as a "soul-nourishing activity" (7). Although he may believe that the soul is benefited by more traditional food related practices, because of the subjective nature of this claim it would be impossible to either prove or dispute.

Besides value based claims about the superiority of raw milk, proponents also cite raw milk's nutritional superiority to pasteurized milk. Proponents claim that the quality of milk is determined by the genetics of the cow it comes from, as well as what the cow is fed, its environment and everything else that affects the animal's health. They further contend that pasteurization simply masks poor quality milk produced by unhealthy cows: bad conditions lead to unhealthy cows, which in turn leads to diseased milk. Because pasteurization allows for the public sale of milk produced under poor conditions, it perpetuates a system that favors low quality milk produced as cheaply as possible (Schmid 2003).

Proponents also claim that raw milk contains enzymes that are essential to life, as enzymes start the process of digestion in the mouth and stomach when present in the diet in sufficient quantities. These enzymes are especially prevalent in raw foods. Schmid points to research demonstrating the importance of enzymes, including the potential to increase life span. Raw milk is a good source of such enzymes but the heating process required by pasteurization kills the enzymes naturally present in milk (Schmid 2003). Pasteurization leads to other changes in the nutritional value of milk as well, killing ten to fifty percent of vitamin C as well as smaller amounts of other important vitamins, including B_6 and B_{12} . It can also change the physical and chemical states of beneficial minerals such as calcium (Schmid 2003).

Given these nutritional benefits of raw milk, proponents argue that the perception of raw milk as dangerous grows out of a misunderstanding about the nature of disease. According to Schmid, opponents of raw milk mistakenly believe that "illnesses commonly associated with certain germs are caused simply by exposure to those germs" and will therefore "view raw milk as a threat and a danger" (43). He on the other hand believes that "illnesses are caused by a failure of the immune system to adequately cope with infectious agents" and because of this "the concern becomes the building of powerful immunity, mainly through nutritious food" (43). For Schmid, raw milk is one of the nutritious foods needed to repair the immune system. Pasteurized milk lacks the enzymes necessary to do so.

While such arguments about health and nutrition explain why pasteurized milk is inferior to raw milk, they do not address why one should risk drinking raw milk, however minimal that risk may be. Schmid points out that most of us would shy away from many raw foods in which enzymes are available, such as raw meat and fish, and would prefer to consume raw animal products in the form of milk and milk products. He argues that "this fact makes access to raw, unprocessed dairy products a necessity if we are to reverse the tide of chronic disease that has engulfed our culture and achieve optimal health" (110).

The association of raw milk with health is not new but dates back at least to the popular "milk cure" of the nineteenth century (Schmid 2003, p. 71). This treatment, purported to alleviate the symptoms of numerous chronic diseases, involved the

consumption of large amounts of raw milk as one's only food for a period of time (Schmid 2003). Despite its popularity, the enthusiasm for this treatment ended with the pasteurization of milk. Schmid argues that this is because pasteurization kills enzymes and "when one takes enzymes away from milk, it loses some of its health value and most of its curative properties" (81). Although the demise of the milk cure coincides with pasteurization, Schmid offers no causal evidence for this connection, only their correlation in time.

Thus, most arguments made for raw milk are based on its aesthetic, cultural and nutritional superiority to pasteurized milk. Controversies surrounding the legal right of consumers to purchase raw milk, however, rest on a different set of considerations. This part of the debate addresses the issue of the freedom of individuals to do things, even if the exercise of such freedoms could harm them. Proponents for the right to purchase raw milk contend that "those who want to produce, sell and consume raw milk and raw milk products have a constitutional right to do so, and that the denial of that right by the government is a violation of our most basic freedoms" (Schmid 2003). Although opponents of raw milk do not consider it safe, they are not necessarily opposed to its sale. Many opponents accept the legitimacy of the legal right to sell and purchase raw milk, so long as such transactions are accompanied by warnings that make clear the lack of scientific evidence for its alleged health benefits.

Problematic Aspects of Proponents' Arguments

Despite some persuasive arguments about the aesthetic, cultural and nutritional integrity of raw milk, several problems haunt the arguments made by its proponents. For a start, the model of milk production and distribution proposed by proponents does not appear to be universally applicable. One of the early obstacles to providing safe raw milk

after industrialization was the difficulty and cost of monitoring all the dairies that produced milk. Even today, there is no evidence that the level of regulation needed to assure the public of the safety of their raw milk exists. This is especially true if milk were to be produced in a traditional, rather then industrial, manner, such as proponents like Schmid prefer. Therefore, even if raw milk were available legally in all states, it would be economically inaccessible to large segments of the population due to the cost of producing and distributing it in a safe way.

Problems also arise in relation to the argument that raw milk connotes a return to more "traditional" ways of life. Assertions about tradition lead proponents to cite the prevalence of raw milk in a variety of contexts, from the Bible to Shakespeare. The variety of contexts, as well as our inability to verify them historically, raises questions about the ambiguity of a "traditional" way of life: how far back in history do we go to find it and whose tradition, exactly, are we referring to? Furthermore, depending on how far back one looks, milk might be absent from human diets altogether. Swagerty et al speculate that intolerance to dairy products is a natural state for most human beings and that tolerance for milk, such as that observed in northern Europeans, is abnormal (Swagerty 2002).

Most pressingly, there are problems with the scientific evidence given in support of the factual claims made for raw milk's benefits. Most of this evidence, especially in relation to nutritional value, dates from the early twentieth century. The lack of recent data on raw milk calls into question the validity of its proponents' claims about nutritional superiority. Of course, the absence of recent evidence does not necessarily falsify claims about the benefits of raw milk; in fact it may even suggest an area of neglect by the scientific community, perhaps because of the dominance of the dairy industry in determining the research agenda in relation to milk and milk products. For example, Schmid points out that "many of the medical and public health officials who denigrate raw milk are tied to a system that demands compulsory pasteurization of milk" (2), implying that it would be against the best economic interests of those who have the power and resources to prove the superiority of raw milk to do so. In any case, because raw milk is no longer being consumed by large numbers of people, sufficient statistical data related to its benefits is not currently available for large studies.

Opponents' Arguments

Although those who oppose the sale of raw milk will concede that milk has played an important role in history, they counter that milk is essential only to infants and that in infancy human milk is preferable to nonhuman (Leedom 2006). This stands in direct opposition to proponents who claim that raw animal milk is essential to optimal health beyond infancy.

Opponents also point out that it is impossible to produce sterile milk even under the most ideal conditions. The potential hazards of milk are further exacerbated by modern production techniques in which milk from thousands of animals is pooled prior to bottling or manufacturing (Leedom 2006). Sources of contamination along the way include "commensal or pathogenic flora of the udder or teat canal, the animal's skin, fecal soiling of the udder, contaminated milking equipment, water used to clean the milking equipment, and milk storage containers" (Leedom 2006, p. 610). Opponents of raw milk argue that these factors make pasteurization necessary to insure the safety of our milk supply.

Pasteurization, although it does not sterilize the milk, kills most potential pathogens. There are several methods, all of which involve heating the milk for a certain

amount of time. The specific regulations are supervised by individual states (Leedom 2006).

Even with the success of pasteurization, proponents admit that contamination of milk can still occur after pasteurization. Most recent cases of illnesses from pasteurized milk products have been the result of a failure in the process that occurs after pasteurization (Leedom 2006). By contrast, improvements in public health and hygiene have eliminated the spread of most milk-borne diseases by human carriers, while improvements in animal husbandry made by milk producers and processors have led to the decline of diseases spread by milk producing animals (Leedom 2006).

Despite the lowering of disease risk prior to pasteurization, opponents point out that there are still outbreaks of milkborne illnesses caused by raw milk as well. From 1973 to 1992, there were 46 outbreaks (1,733 cases of illness) associated with raw milk reported to the Centers for Disease Control and Prevention. Products manufactured from raw milk, like cheeses, have also caused outbreaks. States that allow the sale of raw milk have "experienced a disproportionate share [87%] of milkborne outbreaks of illness reported to the Centers for Disease Control and Prevention from 1973 through 1992" (Leedom 2006, p. 611).

Problematic Aspects of Opponents' Arguments

Although opponents prove the potential hazards of consuming raw milk, they fail to establish that raw milk poses a greater hazard than pasteurized milk. In fact, their own statistics show that the number of disease outbreaks from pasteurized milk far outnumber outbreaks from raw milk. Over a nineteen year period 1,733 cases of illness were associated with raw milk (reported to the Center for Disease Control and Prevention). By contrast, one outbreak of salmonellosis from pasteurized milk led to between 168,791 and 197,581 cases of illness (Leedom 2006).

This difference may partly due to the difference between the numbers of pasteurized milk drinkers versus those who consume raw milk, but the risk of infection remains nonetheless. The possibility that pasteurized milk may proportionately lead to as many cases of illness as raw milk calls into question the disproportionate blame placed on raw milk by scientists. Although the dairy industry and research scientists advocate for warning labels about the risks of raw milk, they make no such suggestion for pasteurized milk, despite their admission that "even pasteurized products have been implicated in outbreaks" (Leedom 2006, p. 614). For example, Leedom seems to place the majority of blame on raw milk, saying "milk and milk products—particularly those that are unpasteurized—are potentially hazardous" (Leedom 2006, p. 614). The use of the word "particularly" implies that raw milk is worse than pasteurized milk in terms of its risk for spreading disease, despite the fact that he does not provide statistics that verify this.

Alongside their concerns about the safety of raw milk, opponents also dismiss claims about raw milk's nutritional superiority, suggesting that "internet and lay publications are replete with claims that raw milk will cure diverse ailments and prevent many more" (Leedom 2006, p. 614). While it is true that claims found within such contexts might not be considered scientifically reliable, this does not disprove the truth of such claims, nor does it establish their falsity. To verify such claims, serious and extensive scientific research would have to be undertaken.

Perhaps most tellingly, opponents criticize not just raw milk itself but also the proponents of raw milk, claiming that their motivations are based primarily on faith rather than on science. In Leedom's report to the *Journal of Clinical Infectious Diseases*

he quotes a dairyman saying, in reference to raw milk; "The Lord gives us everything in its wholeness, and that's the way He meant us to keep it" (614). This is the only time in this article that Leedom directly quotes a proponent of raw milk. Because of this, his selection of this quote to represent their side of the debate implies that faith is a more important motivation to them than science.

Opponents tend to shy away from commenting on the aesthetic superiority of raw milk's taste, probably because it is a subjective claim, and therefore hard to disprove. Because of this some opponents include the caveat that "raw milk and raw milk products should be avoided, unless the consumer believes that the improved taste of the product warrants the risk" (Leedom 2006, p. 614).

Conclusion

Despite strenuous efforts on both sides of the raw milk debate, neither proponents nor opponents have successfully eliminated the claims of their opposition. Although opponents have the advantage of large, well-funded scientific studies, they face several road blocks. One is that the values-based arguments made by proponents of raw milk, such as the aesthetic superiority of raw milk and the link to a traditional lifestyle, cannot be addressed scientifically. Also, the legal right to consume raw milk despite its dangers is a constitutional debate and not a scientific one, therefore one that opponents with a scientific background are not qualified to dispute.

In addition, opponents of raw milk simply fail to address some of the more scientifically testable claims made by raw milk proponents. While proponents of raw milk do not disagree that raw milk can lead to infectious diseases, they contend that raw milk, when produced properly, lowers the chances of becoming ill from milk, and that the benefits from enzymes, lost in pasteurized milk, far out weigh the risks. In order to derail this line of reasoning with any success opponents would have to prove that there is no scientific basis for the benefits of raw milk enzymes.

While opponents of raw milk have failed to disprove the arguments of raw milk proponents, the proponents have also failed to establish the credibility of their position in a scientifically accepted way. The scientific research they point to is generally outdated, a problem compounded by the fact that many of their arguments are cultural and aesthetic in character rather than scientific.

Putting aside the non-scientific positions inherent in the debate, it is impossible at this juncture for someone with a neutral standpoint to make a firm decision on the relative benefits and risks of raw milk consumption. Perhaps, if proponents of raw milk were able to obtain the recourses necessary to fund studies to verify their scientific claims, they would at least be able to enter the debate on a level playing field.

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The Rhode Island Jonnycake: Believe it or Not

Many New England states have their own special foods: Maine has its lobsters, Boston has its baked beans, and Vermont has maple syrup. Not only are these foods special because of their historical and cultural significance, but they also taste good. Rhode Island on the other hand has the jonnycake. Although jonnycakes taste good, especially when doused with a helping of maple syrup, do they taste good *enough* to be on par with a Maine lobster?

Unlike other regional foods which have made their way into everyday use all across the country, the jonnycake remains an enigma to many, usually found only at Rhode Island festivals and a select few restaurants in the state. This is due in part to the fact that jonnycakes are difficult to make and not terribly exciting in terms of flavor. These factors combine to make jonnycakes a rare appearance in most Rhode Islander's homes.

So why is the jonnycake still around? This is especially puzzling considering the time and money that go into keeping them available, from growing the corn to grinding it in the traditional way to frying them in the conventional manner. It takes a lot of effort to make a johnnycake, both in the pan and behind the scenes. Nothing more than Rhode Island pride appears to be what is keeping them alive.

This should be no surprise to anyone who has spent a good deal of time in Rhode Island. Rhode Island is a small state with a long history, making anything uniquely local a source of fierce pride and fierce debate. The jonnycake is no exception. A closer look at the johnnycake phenomenon, however, raises questions about its alleged tradition, where debates about ingredients, history and even the name abound throughout the state.

For a start, one of the main sources of disagreement about the johnnycake is whether or not it is made with milk or water, which varies depending on what part of the state you are from. This disagreement is itself rooted in the ambiguous history of the jonnycake. Extant texts disagree on where the jonnycake originated, whether or not it was adapted from the Native Americans in the region, where the name came from and whether it is really unique to Rhode Island.

All this uncertainty makes the justification for preserving the jonnycake - its history - even odder. But rather than abandon the johnnycake in light of its ambiguities, Rhode Island should, in preserving the johnnycake, serve as an example for other regions. Culinary preservation as the conscious upholding of food traditions is a part of cultural preservation, which in turn serves the identity of a uniquely local culture. In the case of the johnnycake this entails maintaining among other things an outdated milling infrastructure for grinding the cornmeal in a traditional manner. Although the identity of the jonnycake may contain more myth than actual history, it is still a powerful enough local icon to warrant preservation if for no other reason then to fight the inevitable march toward global homogenization of culinary culture.

Appendix C: Jonnycakes

Introduction

Outside of Rhode Island the jonnycake may not be as famous as its rival food the Maine lobster, but within the state any self respecting local knows about the fried corn bread that is a Rhode Island legend. While the precise history of the jonnycake remains controversial, including its origin, name and recipe, the basic idea of the johnnycake has been around at least since colonial times. Today it makes rare appearances in Rhode Island at local festivals, and at times appears on a local menu or two (George's of Galilee or Bishop's 4th Street Diner in Newport for example).

What distinguishes the jonnycake from other local food traditions is the motivation behind its preservation. Unlike the Maine lobster or Vermont's maple syrup, which are preserved not only for their regional significance but mainly for their aesthetic appeal, the jonnycake appears to have survived technological advances that would render its production obsolete were it not for its status as a local legend. Because of this the jonnycake serves as a unique example of a historical food which, despite having neither widespread aesthetic appeal nor consensus as to its historical basis, has survived to present day. In this paper I plan to discuss not only what we do and do not know about the origins of the jonnycake but also the question of why it, and the obsolete means of production that are necessary for it, remain today.

History

As in other New England colonies, in Rhode Island white flour was scarce and expensive. Because of this Rhode Islanders mainly used cornmeal to make their breads and cakes. Jonnycakes, probably the most well known Rhode Island corn product, consist of fried corn bread made from a batter of cornmeal, hot water and salt, which is then cooked on a hot stone or iron griddle (Lee 1992).

The spelling "jonnycake" also appears to be a product of Rhode Island. Some claim that it is derived from "journey cake" because jonnycakes are small, hard and well suited to being packed in a bag for traveling (Lee 1992). Another theory states that jonnycakes were probably adopted from the Native American dish named either "Nocake" or "Nókehick." Still another hypothesis identifies a possible origin of the name in a combination of "nocake" and journey cake (Stavely 1994).

Specific origins aside, Thomas Robinson Hazard offers a possible explanation for the transition from "journey cake" into "Johnny cake." He writes that the Legislatures of Connecticut and Rhode Island, after the War of Independence, changed the cake's name to honor Governor Jonathan Trumbull, who had been a trusted friend of George Washington. Although historical evidence beyond Hazard's account remains scant, the earliest use in print of the name Johnnycake does seem to date from around the time of the War of Independence (Stavely 1994). For example, it appeared in Amelia Simmon's *The First American Cookery* in 1796, where she gives a recipe for "Johny Cake, or Hoe Cake" using "Indian meal" (Simmons 1958, p. 34). Although this may be the earliest recipe for the cake, a still earlier reference to jonnycakes occurs in the diary of Thomas Vernon who, on July 30th, 1776, writes that he had "tea, with Jonny cake and radishes" for breakfast while dining in Rhode Island (Vernon 43).

Even if disagreements about the origins of the name persist, purists agree that jonnycakes must be made with whitecap flint corn and ground on a waterwheel-driven mill. According to one source, during World War II, the Rhode Island legislature designated whitecap flint cornmeal as the official ingredient and "jonnycake" the official spelling (Lee 1992). Another source dates the legislation of this spelling further back, in the 1890's (Stavely 1994).

Jonnycakes as so specified appear to have originated in Rhode Island. Although similar dishes existed in other parts of New England, what appears to make the Rhode Island version distinct is that it is fried (Stavely 1994). Even this distinctive method of cooking jonnycakes, however, has undergone change over time. While the early recommended approach involved baking "on a board before the fire," by the 1870's the method had transitioned to frying on a griddle (Stavely 1994, pgs. 37-38).

Furthermore, while jonnycakes are called "cakes," they have never been considered desserts. In the seventeenth and eighteenth century the use of the word cake did not necessarily classify something as a dessert but could refer to any small bread that was either baked or pan-fried. This confusion probably goes back to the Middle Ages, when the categories of baked goods were not as clearly defined as they are today (Stavely 1994).

What is clearly understood about jonnycakes, despite the linguistic and historical ambiguities of its emergence, is the method for grinding the johnnycake cornmeal. The Kenyon Corn Meal Company, a historic grist mill dating back to the early 1700's and located in Usquepaugh, is Rhode Island's sole current source for jonnycake meal. When the Kenyon Mill first opened farmers would bring their corn to be ground and the owner received payment in the form of a percentage of that meal. After 1909, C.D. Kenyon, the mill's new owner, decided to sell the meal on the open market. At that time the meal was transported as far away as Providence by horse and buggy, although the advent of the car allowed the meal to be sold all across Rhode Island as well as in parts of Connecticut and Massachusetts (The Kenyon Corn Mill 2008).

Today Kenyon's continues to use "the original granite millstones quarried from Westerly, RI" to grind its meal. They claim that the quality of their meal is due to their use of a single pass stone grinding method, which not only produces good texture but also preserves the nutritional content of the grains (The Kenyon Corn Mill 1998).

Why do we preserve jonnycakes?

Although the jonnycake's exact origins and development may be vague, it provides an interesting sample of the history of Rhode Island from the influence of the Native Americans to the way in which new forms of transportation changed commerce in the state. What is perhaps most extraordinary about the food, however, is Rhode Island's commitment to preserving it. The first place most would look when asking why we preserve a certain dish is to its flavor. Presumably a food that has stood the test of time tastes good to a large number of people. Jonnycakes, especially when served with a liberal application of maple syrup, are often thought to be good to eat. But are they sufficiently delicious to warrant the effort of preserving the traditional method of producing them?

Consider: the <u>New England Yankee Cook Book</u> begins its discussion of jonnycakes with the statement: "Rhode Island jonnycakes are NOT easy to make" (Wolcott 1939, p. 132). <u>The New England Cookbook</u>'s recipe for jonnycakes is accompanied by a similar warning, which first appeared in John Thorne's <u>Simple</u> <u>Cooking</u>: "Let's be honest: unless you come from Rhode Island, a true jonnycakes isn't worth making for anyone but yourself. They're tricky to make and no one will thank you for your effort—at least until they've acquired the taste" (Dojny 1999, p. 413).

The difficulty of preparation combines with the jonnycake's lack of outstanding aesthetic appeal to make an unlikely candidate for cultural commitment or preservation. Most Rhode Islanders will admit that they do not often, if ever, make jonnycakes at home as a part of a regular meal. Indeed most of us only encounter these historic anachronisms at festivals or a few select local restaurants.

So if jonnycakes are not distinctively flavorful, and are difficult to make to boot, why are we not only still making them, but also maintaining an obsolete infrastructure which remains necessary to keep the traditional cornmeal available? The answer appears to lie in local pride: Jonnycakes have been kept alive as a Rhode Island tradition because they are so uniquely local (or so we like to claim). It is probably no coincidence that this occurred in Rhode Island, where small size and long history lead people to be fiercely proud.

One could argue that local pride is also a motivation behind the preservation of other food traditions like the Maine lobster or another of Rhode Island's food oddities, coffee syrup. Although this is partly true, were we to have no knowledge of their historical significance, lobsters and coffee syrup would likely be preserved based on their aesthetic worth or their more widespread utility. This is confirmed by the crowds who flock to Maine every year for lobster despite the fact that is has no local significance for them, while coffee syrup finds a place in ice cream, coffees, dessert toppings and even, in Rhode Island, in milk.

Conclusion

If jonnycakes have been preserved for their historical significance, one would assume that their history is well established. But for jonnycakes this is not the case. Everything from the details of their origin, to their name, to the recipe itself is still debated. One can only conclude that the persistence of the johnnycake rests on their status as a Rhode Island myth.

This of course is not to say that we should stop our preservation of the jonnycake. What the ambiguities do tell us is that there are valid reasons to preserve food traditions beyond history, fact or aesthetics. The jonnycake serves as an example of culinary preservation within the larger framework of cultural preservation: otherwise outdated infrastructure necessary to insure the continuity of a local food tradition is deliberately preserved and even cherished, in order to sustain and pay tribute to a part of local identity - however mythical and ambiguous its actual provenance.

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