

KVAS



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Abstract

KVAS

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"Русский квас много народу спас"

A thesis presented on the quintessential beverage of the Russian countryside; kvas. The origins of this lacto-fermented drink can be traced back to the very first societies that leveraged grain in their diets and may, in fact, be the first fermented drink consumed by humans. The nutrition derived from the lacto-fermentation process is such that it prevented widespread vitamin deficiency among poor Russian farming communities throughout history. Its ubiquity in the Russian countryside transforms kvas into a symbol for that rural life, a symbol used throughout Russian literature as a hallmark of that which is truly Russian. In the modern age, kvas is in transition. Still considered a true Russian drink; mass production has eliminated fermentation as the means of production. Though kvas is still around is it really kvas? This paper aspires to be a complete exploration of the question, what is kvas?

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Dedicated to...

Aidan & Emma

...the two people who have taught me more than anyone else.

Introduction

So, why not just drink water?

Water, literally, falls on us from the sky and can be found in great abundance all over the earth. Why do humans invest so much effort into making things to drink when we are surrounded by water? We ourselves are mostly water, and cannot live without water for more than a few days, so voracious is our need to replenish the water within us. Our appetite for water in modern America is such that selling bottled water is a 7.7 billion dollar a year industry. (Rubenstein) Water drives a whole sector of the economy. What self-respecting exercise devotee would be caught dead without their requisite liter of purified H₂O? Yet, this is only recently so. Throughout history, human cultures across the planet have gone to great measures to avoid drinking fresh water.

Not just humans, but all creatures on earth are dependant on water, and therein lay the problem with respect to human consumption. Whenever water sits still the opportunity arises for all manner of organic organisms to take advantage of that environment. Micro florae such as bacteria or fungi simply need a touch of moisture to begin their life-cycles. While some of these organisms cause no harm to humans, others can cause terrible disease, or death. Long experience with this taught the earliest humans to avoid consuming stagnant water.

When the onset of agriculture and animal husbandry caused human society to become more sedentary, proximity to fresh running water often dictated the location of early settlements. Yet, unbeknownst to those early farmers, the purity of even moving water was now at risk given the high probability that a sudden concentration of human and animal waste nearby would contaminate it.

The perception grew among the first farmers that all water was dangerous, eventually leading to the conclusion that something had to be done to make it safer. Suddenly the investment of time in the pursuit of a drink other than fresh water seemed worthwhile. Were the first attempts at purification an effort to add something to the water to sterilize it, or to heat it? Regardless of the order of experiment, heated water to which something has been added is the starting point of the story of all beverages that eventually replace water in the human diet.

This paper contains the story of one of the earliest substances developed to replace water in a farmer's diet. This is the story of kvas.

Kvas Paper Goals

Kvas is a Russian beverage that through-out the written history of the Russian people has come to symbolize the culture of Russian country life. Yet kvas also has a history that predates any concept of Russianness. The grains that are made into kvas have recently had their origins traced to a region that lies only a thousand miles south of the major areas of kvas consumption. An exploration of those regions and the initial uses for domesticated grains indicate that a kvas-like substance may have been the first fermented drink ever made.

In addition to its history and origins, this paper will explore the 'meaning' of kvas and how kvas came to be such a strong symbol of 'Russianness'. The paper will also carefully consider what it means to ferment something and why Russian and even older cultures would want to consume something that under some circumstances might appear to have 'gone bad'.

Lastly, the paper will describe what it is like to make kvas today, both on an industrial and individual scale. Who makes kvas in the 21st century and why?

What is kvas?

The ubiquity of kvas in Russian rural culture cries out for explanation, and perhaps it is the Russians themselves who best explain the central role of kvas when they write; "Even if it turns your nose aside, at least it's kvas, not water". (Smith & Christian 288)

The Russian peasant is struggling with the ancient issue of potable water. "Clothes are washed, and the cattle drink and are bathed in ponds whose water is a yellowish brown...in summer the water is covered with mould, and swarming with myriads of insects". (Smith & Christian 288) Akin to the problems we have seen in many societies throughout time, "Water from [Russian] wells was never entirely safe". (Smith and Christian 288) Frequent attacks of typhus, scarlet fever, dysentery, and measles were all a result of drinking the stagnant water found through-out Russia.

In *A Gift to Young Housewives* by Elena Molokhovets written in the 19th century and recently translated by Joyce Toomre, the source of water for cooking and drinking was an extremely important consideration. Molokhovets embodies a sense of wariness regarding water through her qualification of almost all references to water in her cookbook. She clearly states whether a recipe should use 'rain' water, 'river' water, 'well' water, or in only one instance 'spring' water. Toomre points out in her introduction that the source of water was important to Molokhovets because "pond water was liable to be muddy and stagnant, well water might be too hard, and river water might be unavailable at certain seasons either because it froze in the winter or dried up in the summer". (Toomre 35)

Another scholarly compendium on 19th century Russian life is Smith and Christian's opus *Bread and Salt* in which they quote a 19th century Russian idiom that

indicates the ranking order of drinks for the typical peasant; "no vodka, then drink a little beer, no beer, then drink a little kvas, no kvas, then drink a little water from a small spoon". (Smith & Christian 290) Clearly water is a substance to be approached cautiously. It is also interesting to note here that all alternatives to water, including kvas, are fermented. Thus, due to a lack of fresh water, and the debilitating intoxicating effects of most of the other alternatives, kvas becomes the chief drink of the Russian peasant home.

Deceptively simple to describe, kvas is a drink made by boiling sourdough bread, typically rye bread, cooling the liquid, then letting it sit out on the countertop to harden, or sour, as one might do with apple cider. While the 'hardening' process is a type of fermentation, it does not result in an alcoholic beverage. Apart from black bread, kvas was the "central element in the everyday diet" of the Russian peasant, and making kvas was "as basic a skill as making bread." (Smith & Christian, 292) It's difficult to think of a modern American food that is equally ubiquitous, our food traditions are so regional, but I imagine homemade clam chowder, or nachos could approximate at least the spirit of kvas. Each of these regional specialties are made from a few simple ingredients that are readily available to the people in those regions where each food originates, however, like kvas, while the main ingredients of each dish are agreed upon by all, these recipes are subject to as much variation as there are cooks preparing the dish. While kvas is a basic food, it also allows for a plethora of variation, making it a complex subject of study. Often these variances differentiate 'fancy' versions of kvas from 'plain' versions, and therefore can be a measure of the economic power of the cook or home that is producing the kvas.

This variation is only true of the middle classes in Russia, for when it comes to the diet of the nineteenth century Russian peasant there is little differentiation, economic or otherwise. A peasant's breakfast lunch and dinner were a relentless

monotony of the same foods with exceptions made for those times of the year when there was nothing to eat at all. The peasant diet was primarily vegetarian, yet not vegetable based. Grain products dominated each meal in a way that only a macrobiotic could appreciate. Kasha, black sourdough bread, and kvas were the grain based staples consumed at almost every meal. Each morning the first task of the peasant matriarch was to head to the cellar to “draw some kvas from the barrel”...and get some...“sauerkraut, onions and buckwheat groats to make into shchi and kasha for dinner”. It was kvas and bread for breakfast, kvas and shchi for lunch. Then, just before dark, “the last meal of the day consists of buckwheat kasha with some flaxseed oil and kvas.” (Vucinich 21)

This style of diet, grain based, can be the source of dire nutritional deficiencies. As we see in eastern Asian cultures where the poor mainly subsist on polished rice, vitamin B deficiencies cause rampant disease, yet the Russians of western Asia do not suffer the same grain-based fate. Kvas might be the key to understanding why.

Our first step towards understanding the nature of a grain-based diet, and the place of kvas within it, requires us to step back and reflect on the origins of agriculture itself. How did humans come to use grains as food, and why?

Origins of agriculture

What can we learn of the origins of bread and beer that can teach us more about kvas? Well for starters, the oldest ‘beer’ recipe that we know of, from 1800 BC, is identical to several of the kvas recipes found in this paper and unlike any ‘beer’ we encounter today. But let’s take a step back in time before we address the particulars of kvas’ origins and ask an even more fundamental question. Why did humans begin to use grain as the mainstay of their diet?

To explore the origins of agriculture is to enter a murky world of speculation where there is virtually no agreement among scientists on precisely what happened when. In fact, there may never be any agreement on the precise starting point for agriculture, for the origins of human agriculture presents researchers with a classic chicken and egg problem. As population density rose in fertile areas, agriculture would begin to suggest itself as a survival mechanism, or was it that the 'discovery' of agriculture was the impetus for populations to increase? Regardless of your take on this issue, the fact is that, one acre of farmed land provides 10 -100 times more food to a farmer than a hunter-gatherer might glean from the same space. (Diamond 88). At some point, someone was bound to figure this out.

The dismissal of the concept that agriculture was 'discovered' is not at all specious when one considers evidence that the Natufian Culture, foragers in the Jordan Valley around 12,000 BC had developed tools for processing grains that are almost two thousand years older than the evidence of morphological changes which indicate that grains are being domesticated. (Kiple et al 82) This illustrates that hunter-gatherers were using grains long before they planted and harvested them. People would have 'gathered' wild grains in the same fashion as they would have collected any nuts or berries they encountered. These foods would have been considered insurance against a poor hunt. Dinner would still be available each evening. Agriculture therefore is simply the evolution of an established practice from consuming that which is gathered to consuming that which is sown.

In 1997 scientists discovered via genetic 'fingerprinting' that the first 'modern' wheat was cultivated in a 20 square kilometer area near the Karacadag Mountains which lie on the border of Turkey and Iraq. They estimate that this took place 8,000 years ago, or in 6,000 BC. (Keystone Crops) The multi-volume work *The Cambridge Ancient History* indicates that, once invented, agricultural technology was quickly on

the move out of this region in Turkey and that by 5500 BC people living on the east coast of the Caspian Sea in what is now Turkmenistan, almost 1000 km away from Turkey, had adopted the use of sickle blades to collect grains. (Cambridge Ancient History 295) Pottery was not far behind, making its appearance on those same shores just a few hundred years later in a form that used an Iranian decorative motif. The author of *The Cambridge Ancient History* pauses here to point out that 5500 BC is also the time period where the first pottery is found in south-east Europe with the Starcevo culture of the Balkans. Agriculture, and the attendant technologies and techniques that allowed its practitioners to take advantage of their new food supply, was spreading outward in all directions from western Turkey with the speed of an explosive force. The heartland of Russia, the center of kvas culture, is as far north as the Caspian and Balkans are east and west of the area where 'modern' wheat was first sown.

Wild rye continues to grow to this day in the same areas of the earliest agriculture, but also far to the north in the Trans Caucasian region of modern day Georgia. Rye is different from wheat in that it is far hardier with respect to cold temperatures. It

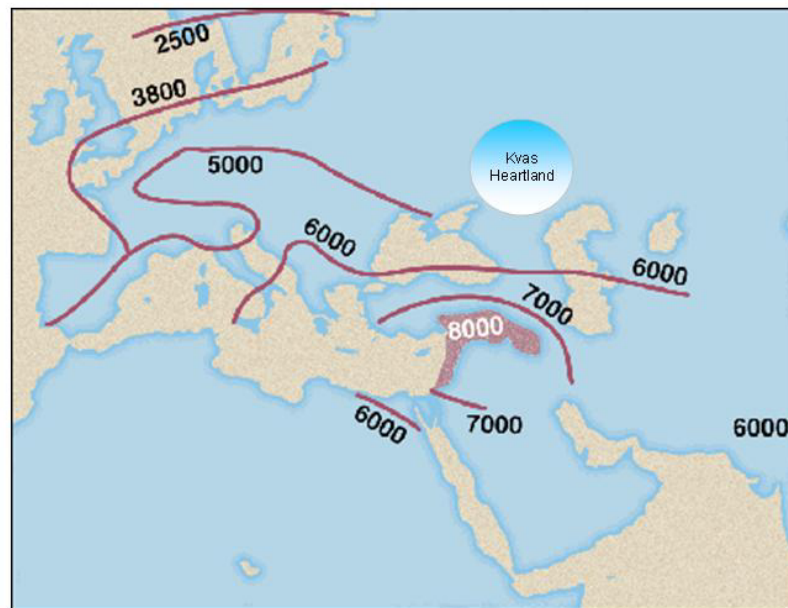


Figure 1, Expansion of Agriculture, contour line dates are BC.

will grow whenever the temperature is above 0° centigrade. It is a far better grain for the continental climate of central Asia which is characterized by long cold winters

and short hot summers. (Kiple et al 149) It can be planted after the first thaw and will be ready for consumption in mid-summer rather than the late fall, in fact, most rye is sown in the fall so that it will partially grow before winter sets in and therefore be available to eat even earlier in the upcoming year. Rye with its adaptability to cold and an early harvest make it an essential crop in Central Asia.

Thus does the main ingredient of kvas find it's way into the larder of Russia.

The Origins of Fermentation

Several thousand years after the initial evidence of the domestication of grains, and a few hundred miles to the southeast of the area where agriculture was invented, we find evidence of another first, that of brewing. A 1992 *Science News* article reports that graduate student Virginia Badler had noticed that the crisscrossing hash-marks found inside of a 5,000 year old pot residing at the Royal Ontario Museum closely resembled the Mesopotamian cuneiform symbol (a pot with hash-marks) for the word 'beer'. She knew this pot to be from *Godin Tepe*, a site in Iran's *Zagros* mountains where some of the earliest evidence of wine making has also been found; might beer have been made there too?

Badler's close inspection of the pot revealed a pale yellow residue still visibly evident in the hash-marks which lined the inside of the vessel. She shared her evidence with archeological chemist Patrick E. McGovern who was able to isolate the main component of the residue, calcium oxalate. This is the same residue found in a modern brewer's vat after it is emptied of its beer. (Bower) Together Badler and McGovern had revealed the first hard evidence that a fermented grain product was being made and consumed over 5,000 years ago. But the fact that such specialized pottery and literary symbols were already associated with beer making suggests that, as a concept, beer was far older than the five thousand year-old site.

Similarities between Ninkasi's Beer and Kvas

Though tempting to say that the proximity of the kvas heartland and the ancient home of the first brewers link the two inextricably together, another piece of anthropological evidence suggests that kvas may in fact be the first beer. The Sumerian 'Hymn to Ninkasi', a prayer to a goddess whose name literally translates to 'you who fill my mouth so full', is not just the first recorded beer recipe, but also a complete recipe for kvas. This assertion can be safely made because, unlike beer recipes, the main ingredient of the Sumerian brew is a bread made from unmalted or raw grains. Any sugars that will be fermented are added to the *bappir* as date honey.

First rendered into English by Miguel Civil in 1964, in 1991, he revisited and revised his translation based on efforts made by the owners of the Anchor Brewing Company of San Francisco CA to make Ninkasi's beer. Dr Solomon Katz and Anchor owner Fritz Maytag had decided to try and re-create the 'Ninkasi' brew to celebrate the 10th anniversary of Anchor's new brewing facility and needed Mr Civil's help to ensure that they were using the right ingredients in the proper fashion. An article describing their efforts was published in *Archaeology* magazine.

The 'Hymn to Ninkasi' is remarkably similar to the recipe for 'Grain Kvas' (#2185) in *A Gift to Young Housewives*. Both recipes detail an elaborate process by which the bread that becomes the beverage must first be made. Also, each recipe calls for the addition of some sugar, presumably to boost the alcohol levels. The Sumerians add honey and Molokhovets adds malted grain. Each recipe also adds 'aromatics' to improve flavor. For Molokhovets', mint is the preferred aromatic, in Sumer it could have been either the licorice-flavored skirret weed, the juice of dates, or a radish, but it is not altogether clear which. (Katz & Maytag 30) The Hymn's call for honey, is mirrored by another kvas recipe reported by the 19th century traveler

Kennard. In their article on making 'Ninkasi's Beer' Katz and Maytag mention that translating the Sumerian ingredient, 'gestin', was troublesome because it can mean wine, grape, or raisin. In the end they believed that what the recipe called for was raisins. Why?; because the natural yeasts that live on the skin of a grape can easily survive the drying process that turn a grape into a raisin and would have provided the yeast necessary to ferment the grains of Ninkasi's recipe into beer. Across the millennia we find Molokhovets instructing her readers to do the same. She instructs them to put a raisin in each bottle of kvas before bottling. Not only would it float to show that fermentation was complete, but unknown to her at the time, the natural yeasts on the skin would cause a second fermentation to occur after the bottle was stopped up, the result of which would be the addition of 'fizz' to the kvas.

If the main identifier of Ninkasi's brew as a type of kvas is the emphasis on boiled bread, then what is this the nature of the bread called for in Ninkasi's recipe? *Bappir* was the first challenge that Katz and Maytag had to overcome when attempting their own version of Sumerian beer. The *bappir* called for in Ninkasi's recipe was a specialized product baked primarily for storage purposes. It was as hard as a brick, shaped like them, and stacked just like bricks for later consumption. According to the scant literary references available, *bappir* was only consumed during food shortages, the Sumerians preferring to use the *bappir* exclusively for beer production when possible. (Katz & Maytag 30) Similar to what is called for in kvas recipes, a critical characteristic of *bappir* is that it is made from raw, not malted grains. Baking this bread would have gelatinized the starch in the grain, and because the bread is still primarily a starch, not sugar, fermenting this bread-soup would have meant that alcohol levels would remain low. The Ninkasi beer brewed by the Anchor company turned out, in fact, to have just such a low alcohol content; 4.3% by volume, or 2% less than modern beer.

Finally, there is very interesting linguistic evidence that may link Mesopotamia and the valley of the Volga. The word *kvas* seems to have ancestors from the Euphrates river basin. The Sumerian root word *kas* means 'man of beer loaf', while the later Babylonian word for beer, *kassi*, is a derivative of the name of the goddess Ninkasi herself. (Nathan) This all seems to suggest that *kvas*, *kas* and *kassi* are all ancient concepts of the same thing, namely a boiled-bread beer the origins of which are found in the earliest agricultural societies of central Asia.

Judith Stone starts her entertaining 1991 Discover magazine article on the subject of beer origins by writing, "You think the most passionate bar-room controversy is 'tastes great' versus 'less filling'? Then you haven't heard a bunch of scientists arguing over which came first, beer or bread...toast or toasts".

The argument outlined in her article was begun in the late 1950's by Professor Jonathan Sauer of the University of Wisconsin. Dr Sauer was one of the first to theorize that beer making might be considered a compelling factor in the Neolithic decision to give up hunting and gathering in favor of farming. Ms Stone's article details how, by 1991 a new generation of anthropologists, led by Dr Solomon Katz of the University of Pennsylvania, (the same person who helped brew Ninkasi's beer) had resurrected the argument.

Now, no one can know precisely what was happening ten-thousand years ago as the transition from hunting to farming was taking place, but I would be inclined to state that both bread and beer came about at the same time, especially when, studying Ninkasi's Hymn, one defines beer as a low alcoholic, bread soup; a *kvas*. But is that a fair definition of the first beer? Soaking grains is how one would begin a 'starter' for sour dough. In fact, one might argue that the manufacture of bread and *kvas* are identical up to a certain point. The hymn and modern efforts to create the brew which it lauds seems to suggest that a sour dough bread, beer and *kvas* share

a common heritage, and that, in fact, the first known beer was more a kvas than a beer.

A new facet is thus added to the almost humorous argument regarding the intoxicating interest the first farmers presumably showed in brewing. What if the first beer were non-alcoholic? Are there other reasons that a fermented drink would gain favor?

To properly explore this question, and explain what is meant by malted vs. raw grain fermentation one must explore the nature of how fermentation transforms grains.

Fermentation

Kvas is a fermented food. As such, any effort to understand the nature of kvas must include an exploration of what it means to be fermented.

Why do people consume fermented foods? In the case of beer and wine, the desire to achieve an altered mental state via alcohol is a strong inducement to consume these products, but as mentioned in the previous section of this paper, kvas, though fermented, does not contain enough alcohol to make it inebriating. Why is that so? How can you ferment something without making alcohol? The answers to these questions put us, finally, in a position to fully explain how a kvas-like substance might usurp water as the main beverage in the diet of the first farmers.

Each of us is familiar with the fact that beer and wine are the world's most well known fermented foods. Some of us may even be able to identify cheese and yogurt as the world's next most famous pair of fermented products. Consider yourself expert if you know that Soy Sauce is also the result of a fermentation. Yet, not even the experts among us are familiar with all the products listed in the three-

hundred-plus page *Fermented Foods of the World* dictionary, nor is it likely that they will be able to name more than a dozen or so of the foods that appear in that book! Human beings have learned how to ferment a multitude of different foods; grains, dairy products, fruits, vegetables, legumes, even the leaves of plants and trees. This pervasiveness flags fermented foods as an important part of the human diet. In fact, fully one third of the food that the world eats is fermented food. (Haard et al 19)

Fermentation is one of the oldest forms of food technology in the world. (Haard et al 1) Typically labeled 'alcoholic' substances, another equally familiar designation for fermented food is that of 'sour' such as when it is used to refer to; sour-dough bread, half-sour pickles, and Sauerkraut (*Sauer* means sour in German). In fact the Merriam Webster dictionary defines the word *sour* as a reference to something "having the acid taste or smell of...fermentation". The literal translation of the Russian word kvas as 'sour beverage' cements the relationship of the drink and the method that produces it.

As human culture became more sedentary people had their first opportunity to observe and experience what happened to food when left undisturbed. While some food rotted, other food in certain circumstances would transform into something different yet still edible. The primary advantage of fermenting foods, the advantage most evident to the ancient and modern cultures that do so, is that a fermented food lasts longer than its fresh counterpart. Pickles, for instance, are fermented cucumbers which keep for an exponentially longer time than their fresh equivalent. Again, as human culture became more sedentary, keeping a ready food supply nearby through-out the seasons emerges as an important survival tactic. Fermentation was a way to facilitate this need. Fermentation also improves the palatability of food by changing its flavor and texture. (Haard 19) Who doesn't like the sour crunch that a well made pickle has?

It has only been recently, however, that science has shown that fermented foods also have a nutritional advantage over their non-fermented counterparts, an advantage that would motivate consumers of these products to keep fermented foods as part of their diet. (Haard 19) Fermentation has only been understood as a chemical process for the last one hundred years or so. Unraveling the chemistry of fermentation has allowed us to observe that fermentation improves the availability of lysine, an essential amino acid. Fermentation also neutralizes phytic acid, a substance that naturally occurs in many foods, so that people who eat fermented foods can more easily absorb certain minerals in them. Even vitamin content is increased by fermentation with niacin and riboflavin (B Vitamins) almost doubling in concentration in a fermented food. (Haard 19). Cultures that consume fermented foods consume a wider variety of vitamins and minerals than would otherwise be available to the consumers of non-fermented products. It may have been the promise of intoxication that brought fermented foods to the table, but what kept them there, even when no alcohol was present, was the nutritional advantage these foods gave to their consumers.

What is a fermented food? How do you make them? Let's return to the dictionary where fermentation is defined as "an enzymatically controlled anaerobic breakdown of an energy-rich compound". As we consider each individual element of that definition we will get a better sense of what it is trying to convey.

The "energy" in food is contained in chains of molecules. Breaking these molecular chains releases a food's energy. The longer, more complex, a chain of molecules is, the more energy is in the chain. This dictates whether a food is "energy rich". Among the foods we eat, lipids (otherwise known as fats) have the largest molecular structure and therefore the most energy per gram of food. Proteins have the next most complex molecular structure, while carbohydrates have

the shortest molecular chains of the three major food types. Though they are the least energy dense food, short molecular chains make the energy contained in carbohydrates the most easily accessed among all three food types. This is especially true for the very simple forms of carbohydrates such as sugars. For the purposes of this paper, references to fermented substances will, from this point on, focus solely on the transformation of carbohydrates.

To release energy from a chain of carbohydrate molecules, a chemical must be applied to the chain that will break it. When the chain breaks, energy will be released. The chemicals that perform this work are called enzymes. Our bodies manufacture these chemicals to facilitate digestion.

Humans are not the only animals interested in releasing energy from molecular chains. All animals use enzymes to release the energy that fuels their lives via digestion, even some of the smallest animals alive. Yeast and bacteria are the primary source of the "enzymatically controlled" process mentioned in the dictionary definition of fermentation. Just like humans, single cell organisms use enzymes to facilitate the release of energy from a food. (Smolin & Grosvenor 77)

When enzymes break apart molecules, energy and multiple smaller molecules are the by-products. For those interested in food, the new smaller molecules are what is most interesting about fermentation.

Each single cell organism uses its own specific set of enzymes to break up carbohydrates; therefore, fermentation by-products are unique to each microbe. Whereas the well known by-products of yeast fermentation are alcohol and carbon dioxide, when bacteria ferment the same carbohydrates, the different enzymes at work create various acids instead of alcohol. Different species of bacteria further differentiate the set of fermentation by-products by favoring the creation of a particular type of acid. Lactic acid is the most prevalent by-product of a bacterial

fermentation. The family of bacterium that produce lactic acid (*Lactobacillus*) are the most important bacteria in food fermentation. (Battcock 1) The lactic acid that they produce is the primary flavor of the world's most well known 'sour' foods; sourdough bread, yogurt, sauerkraut, half-sour pickles. These are known as lacto-fermented foods. Lactic acid is the characteristic flavor of kvas marking kvas as a lacto-fermented food. Some bacteria produce *only* lactic acid as a by product, while other, heterofermenter species, can create up to 50% non-lactic acid by-products. Acetic acid, the flavor of vinegar (25%) and carbon dioxide (25%) are the most typical additional by-products. (Battcock 2). The enzymes of each species of microbe dictate the composition of the end product.

The final key concept essential to a full understanding of the process of fermentation is to be found in the dictionary's description of fermentation as an "anaerobic" process. It is via this concept that we are able to differentiate fermentation from spoilage. When food decomposes it is also going through a process where it is broken down by microbes. When the environment in which this break down takes place is anaerobic, that is, when there is no oxygen present, the end result is fermentation not spoilage. Adding oxygen to the environment encourages the growth of species of microbes whose enzymes create unpleasant or toxic fermentation by-products. The most obvious example of this is the transformation of wine into vinegar. When grape juice is allowed to ferment in an environment where exposure to oxygen is minimized the familiar flavors of wine are the result. An open bottle of wine on your kitchen counter will turn to vinegar in a few days by virtue of presence of oxygen and aerobic bacteria that ferment residual grape sugars into acetic acid.

This highlights for us some of the risks involved in fermenting food. Vinegar is not the worst thing that can result from an uncontrolled fermentation. If the food

being fermented is in poor condition when the process begins, then the fermentation microbes will compete for nutrients with the microbes already decomposing the food. The by-products of each will be included in the resulting food. The by-products of decomposing microbes are typically toxic to people who eat them. Perhaps the food is in good condition. If the conditions under which the fermentation takes place are poorly controlled, and oxygen is introduced to the process, the same dangerous and unpleasant by-products may result. How can one mitigate these factors?

Several things encourage the selective growth of friendly microbes. Some bacteria are particularly tolerant of high concentrations of salt. One can ensure that only bacteria that produce lactic acid are present by adding salt to the mixture that will be fermented. Most recipes for sour-dough bread and kvas call for salt. Of course there could be no such thing as sauerkraut or pickles with out salt. The pH of the mixture can also dictate which bacteria thrive. As you might expect, bacteria that create acid by metabolizing carbohydrates are tolerant of low pH levels whereas most other microbes are not. Vinegar is not just added to pickle brine for flavor. It ensures a low PH which, in turn, encourages the selection of lactobacillus. Once a lacto-bacterial fermentation process is kicked off, the acidic environment that is created encourages lactobacillus and other fermentation friendly bacteria to thrive.

Ultimately, human use of fermentation must be understood as the result of a selective process. As soon as a living thing ceases to be so, microbes work to decompose it. By trial and error, over the course of millennia, humans have discovered methods to control and slow the spoilage process in the food we eat by restricting the type of microbe that is metabolizing the dead food. In a sense we have learned how to herd even these smallest of animals and use them to our advantage. These methods we have developed have increased the availability of nutrients in our diet not only by lengthening the amount of time certain foods can be

safely eaten but also by making more vitamins and minerals available than would otherwise be.

Makers of kvas leverage many of the techniques mentioned above to ensure that a lacto-fermentation takes place when kvas is made. Recipes for kvas call for salt. Increasing the salinity of a mixture of grains and water encourages only desirable bacteria to flourish. It also discourages a yeast fermentation ensuring that acid not alcohol is the result of the fermentation. The technique of 'boiling' in a Russian peasant stove also encourages a lacto-fermentation process by creating an anaerobic environment. Several 19th century descriptions of the manufacture of kvas indicate that after the grain was mixed with water and salt it was sealed in an oven to 'boil', there being no burners on a Russian stove. Fire can only burn in the presence of oxygen. Sealing the door of the oven would eventually result in an anaerobic environment as the dying fire consumed that last of the available oxygen to keep itself going. Without oxygen, fermentation not spoilage would commence as the oven cooled. Finally we are admonished by several authors to consume our kvas quickly. Like wine, or any other liquid that has carbohydrates suspended in it, spoilage can commence as soon as the brew is exposed to air.

Kinship, Bread & Kvas

There is a strong link between the two staples of the Russian peasant diet. Indeed, both sour dough bread and kvas rely on each other in their manufacture and might be considered the same substance with simply different proportions of grain to water.

The famous 'black bread' of Russia was a "sour dough raised with yeast, kvas, or beer lees..." (Smith & Christian pg 258). An English writer traveling through Russia in the 1840's described his distaste for this bread. "They ferment their bread to the third or acetous degree; the black bread, unlike that of all other countries, is

bitter and sour, as nauseous in the mouth as alum". (Smith & Christian pg 258)

Black bread is certainly in the same flavor spectrum as kvas.

What is remarkable about making sour dough bread is how even the modern manufacture of the 'starter' or sour agent of the bread so closely resembles the making of kvas.

Mix together the one cup of freshly stone-ground organic or biodynamic flour (traditionally rye was used, but any grain will do: best is the grain you will be making the bread from) with enough purified water to form a smooth lump-free batter...Cover the bowl with a clean tea towel or plastic cling wrap (to keep out airborne yeasts and molds) and leave at room temperature to ferment two or three days

When the mixture begins to smell slightly sour and alcoholic and has little bubbles on the surface it is ready to use." (Zeffertt)

Without doubt, the addition of more water to this starter along with some mint or juniper would turn this substance into kvas. An appendix to this paper contains a recipe for kvas that achieves this very goal and, in fact, resembles sour dough starter far more than any drink I have ever encountered.

Is kvas a beer? ...sort of.

Having home-brewed beer for 10 years, I immediately recognized the predominantly sour characteristic of kvas as a flavor which was highly suggestive of a peculiar kind of beer-making called sour-mash brewing.

Exposure to air is something modern home brewers attempt to control very carefully. Most guides to getting started on this hobby vehemently admonish the neophyte to maintain as sterile and air-tight a fermentation environment as possible, for, when a sugary liquid is exposed to air, all manner of nefarious things can happen. Wild yeasts and airborne bacteria can ferment a brew quite well if you are lucky, but as previously described, they can also turn your batch of beer into vinegar. Interestingly, those same books also contain appendixes or chapters on

advanced techniques that instruct the brewer in precisely the opposite manner. An expert home brewer can leave the lid off! Appendix six of Charlie Papazian's *The New Complete Joy of Homebrewing* describes a method for 'souring' a batch of beer in order to produce an end product with a unique sour 'tang'. This process emulates the technique of making kvas. After boiling the grains with water, the beer-brewer is instructed to leave the mixture exposed to air over-night in a warm place. Bacteria and wild yeast will 'sour' the brew. "When you open the container you may notice some mold growing on the surface. Don't worry. Skim off and discard the mold...You will definitely notice the absolutely abominable, putrid odor the bacteria has caused...It's supposed to smell awful. Almost awful enough to throw out. *But don't!*" (Italics are Papazian's). Brewers who manage to resist disposing of these smelly concoctions are the makers of Belgian Lambic, German Weissbier, and even Guinness Stout. (Papazian, pg 349) Belgians like to add cherries or raspberries to these 'sour' beers and play sweet and sour flavors off of each other. This is not inconsistent with kvas recipes that, like lambics, might also call for sweeteners like raisins, raspberries, or cherries. A classic Russian flavor combination, in kvas, sweet and sour flavors compliment each other.

What a strange and hardly palatable brewing technique! Why, for Pasteur's sake, would such a practice persist? Perhaps Darwin might suggest the answer. It must have been something akin to innate genius (or utter desperation) that made the ancient Russian farmer / brewer ignore the prompting of their palate in order to take advantage of the enhanced nutrition of 'sour' foods which prominently feature in Russian cuisine. Foods like sauerkraut, sour black bread, as well as sour kvas all feature the same flavor characteristic, a flavor which is the by-product of a technique that increases the nutritional density of the raw ingredients of each food. Darwin might point out that the less picky thrive where the finicky perish! Apart from being

an indicator of cultural flavor preferences, the increased nutrition of fermented foods would be an advantage to the peasant population living in the marginal agricultural lands of central Asia.

With little or no opportunity to brew in a hygienic environment, the earliest brewers would have had no means by which to prevent sourness from being one of the first flavors that they ever encountered. Though kvas is not a beer, certain beers use a kvas like process as the starting point for their manufacture. This may yet be another indication of the order of invention when one considers the origins of kvas and beer.

There is a type of beer however that kvas does resemble, and that is 'small beer'. Small beer can be made in one of two ways. After all of the liquid is drained of the grains you have boiled for beer, fresh water can be poured over the grains creating a second weaker solution that, when fermented, would result in a thin, weak version of the beer made from the initial run-off. Small beer also refers to any fermentation which results in a very low alcohol product such as birch beer, root beer, or ginger ale. Small beer is so called because, with little sugar in the solution, fermentation cannot produce a drink much stronger than 1 or 2% alcohol by volume, the same as kvas. Small beer should be considered a tea (if you will excuse my use of one drink to describe another) made of whatever happens to be about the household. It is fermented, one, because at a time when all drinks are home-made, hygienic food storage is virtually not known, allowing fermentation to occur spontaneously, and two, because it would allow the product to last longer. Small beer is almost unheard of today, but for a great long while, it was, like kvas, a homemade alternative to drinking suspect water while avoiding inebriation.

The 'small beer' tradition was brought to the New England colonies by Europeans well-used to its traditions. The art of 'small beer' brewing was as well

known to colonial homemakers as kvas brewing was to their Russian counterparts. Similar to kvas, 'small beer' is not an intoxicant, and was drunk by young and old alike.

The American Colonial impetus to brew and drink small beer comes from the ancient concern for the purity of local waters as expressed in The American Herbal written in 1772 by one Dr Stearns; "Springs afford different kinds of waters, some as soft as that of rain; but most of them afford the hardest and most impure waters". Ponds and lakes were "stagnant, and therefore unfit for use". Rivers fared somewhat better, but only rain water was recommended as fit for human drinking and that only after it had been boiled". (Brown, pg 95)

It is no wonder that 'small beer' flourished as the main drink of the colonies next to hard cider. As in so many places around the globe, good water seems to be just too much trouble to come by in New England, and if you have to boil all your water anyhow, why not just add your grains and hops and brew something more tasty?

Having explored the origins of brewing and the nature of fermentation we may turn to the consideration of kvas as part of the Russian culture. What do Russians think of kvas?

Kvas & Culture

Kvas is "the main drink" of rural Russian households as well as "the alcoholic drink most commonly encountered by foreign travelers in Great Russia". One such 19th century English traveler, Parkinson, who, when introduced to "the Russian nectar quass [sic]", wrote that he found it to be a "quenchy draught". (Smith and Christian pg 291) Kvas is the Russian 'everyday' drink. Making it is a skill that all homemakers possess. It is used at each meal, including breakfast, and even though it

is slightly alcoholic, typically one half to two percent alcohol by volume, it is not considered a cocktail.

The Primary Rus / Domostroi

Reference to Kvas can be found in the earliest written documents associated with Russian culture.

The Primary Rus is a history of the founding of the Kievan Rus civilization. It was written in the first century following the year 1000 AD, and contains several references to *kvas zhitnyi* or 'grain kvas' implying that other types of kvas also existed. One reference to kvas relates how Prince Volodimir distributed kvas, among other things, to the poor and sick of 996 AD Kiev. (Glants, Toomre pg 23)

Interesting to note, in the Primary Rus we already see a linguistic distinction between Kvas and Beer. There are rare references to *pivo* in the Primary Rus. *Pivo* is the root of the word for beer in all Slavonic languages other than Bulgarian (where beer is called *Bira*). (Glants, Toomre Pg 24) Though *pivo* is undefined in the text of the Primary Rus, the emergence of a separate term for beer in this first written history of the Rus bolsters the idea that kvas is a conceptually distinct substance from beer.

The Domostroi, a book of domestic advice written in the 16th century is the next oldest Russian source of kvas info. It contains many references to kvas, and also our first kvas recipe; "Take four parts honey and strain it until it is clear. Put it in a jar and ferment it using an ordinary soft loaf, without additional yeast. When it is done, pour it into a cask." (Pouncy, Chapter 65)

Though the recipe gives us no clear idea of the proportions of these ingredients to each other, it does highlight for us the key concept of kvas production in that the maker of kvas is instructed to use loaves of bread which contain raw

rather than malted grains as the basis of the brew. The fact that the use of additional yeast is also forbidden is an interesting one. Modern science shows how that yeast would compete with the lactobacillus bacterium for the carbohydrates dissolved in the brew. The writer of this recipe intuitively tells the kvas maker to do what they can to encourage a bacterial rather than yeast fermentation of the drink by prohibiting the addition of yeast to the brew. After all, we're not making beer...

The Domostroi also illustrates for us how kvas fits in to early Russian culture. Wives and servants must know how to make "beer, mead, vodka, weak beer, kvass, vinegar, and sour cabbage - every liquid normally used in cooking and breadmaking." (Pouncy, Chapter 29) Here is our first inkling that kvas is used in cooking as well as bread making. In chapter 36 women are admonished to avoid strong drink and instead "drink either weak beer or kvass", whether they are "at home or in public" confirming for us that kvas should be considered non-alcoholic. Finally, the Domostroi also provides us with our first glimpse of the variation of kvas recipes and methods of its use. Apple kvas is part of the list from chapter 54 of things to be stored in the icehouse, while a list of wedding rituals from chapter 67 includes the prescription that a sideboard heavily laden with mugs of various mead and kvas based cocktails stand at the ready in the wedding night bedchamber!

The Domostroi offers the researcher of kvas their first glimpse of the many and varied uses kvas has as part of the greater Russian larder.

Kvas vs Beer

One question that must be asked is; why didn't the Russian peasant eventually switch their everyday drink from kvas to beer - the drink that predominated in the rest of northern Europe?

There is an extremely gray area that defines the line between beer and kvas. Indeed, to avoid paying 19th century Russian beer taxes, beer makers began to call their weaker brands of beer 'kvas' adding to an already confused situation. (Smith & Christian pg 293) This practice suggests the reason why beer never 'made it' in Russia; the state taxation scheme discriminated against beer manufacturers.

Why would the state discriminate against beer? Simply put, the government was encouraging the sale of another intoxicant, namely vodka. Very soon after distillation came to Russia, the state began to make a great deal of money by controlling and taxing the manufacture and sale of vodka. In the time of Peter the Great, taxes on vodka became the single largest source of revenue of the Russian Tsar. Throughout the 19th century taxing vodka provided the Tsar with 30% of his annual revenue. (Smith & Christian pg 301)

In addition to the state, vodka merchants -the middlemen- had a keen interest in keeping beer taxes high so that beer sales would not cut into the volume of vodka they could sell. Simply put, it was so easy to 'game' the vodka distribution system that vodka sellers did not want any other beverage to compete with it. Vodka was shipped in high concentrations from the government factories where it was manufactured and then diluted by the vodka-seller at the point of sale. To increase the profit margin on a shipment of vodka concentrate, all a vodka-seller had to do was increase the degree to which the vodka was diluted while continuing to charge the same price. Beer cannot be treated in the same way; it cannot be concentrated and then diluted. Beer needs to be made and sold at the same volume. Thin, or adulterated beer is easy to spot. Beer is a more inherently 'honest' product.

But then, the Russian peasant had access to all the grains required to make beer at home didn't they? Why didn't they just make beer themselves if it was too expensive to buy?

True, the peasant had easy access to all the raw materials that are required for beer, but home-brewing with raw grains can certainly be a challenge due to the specialized skills needed to malt grain properly.

Malting a grain consists of moistening raw grains until the germination process begins. This moistening 'tricks' the raw grain into believing that spring is here and it should sprout. To support the growth of the new sprout until such time as the plant is large enough to begin to photosynthesize its own food, the initial stage of the germination process converts all of the starch in the grain into simple sugar, glucose. This glucose will be the plant's food for its first few days of life. A brewer must recognize, without any visual cues, when this transformation of starch to sugar is complete and 'fix' the sugars before the sprout begins to form. This 'fixing' of the sugars is accomplished by roasting the grains at a low temperature. Just describing the process is a chore, can you imagine having to manipulate the temperature of your giant Russian peasant stove for hours on end such that you could roast off enough grains to brew a good batch of beer? This also assumes that you are able to determine the optimal time to fix the sugars in the first place.

This effort would have been a great deal of trouble for a peasant class constantly teetering on the edge of starvation. How could a family risk bungling the malting and roasting process of grains when they might be starving for the same grain later in the year? It is interesting to note that, in the eastern Russian provinces where kvas production predominates, the specter of a yearly dearth of grain was always present. Western provinces near the Ukraine and Poland, provinces with richer soil and stronger economic ties to Europe, had better harvests and brewed more beer than they did kvas. (Smith & Christian 292)

It is also almost impossible for a person of the peasant class to buy malted grains. Malting a grain is an expensive process that increases, exponentially, the

cost of the grain. Also, because much of that malt was later distilled into vodka, control of the malting process lay almost exclusively in the hands of the landed gentry who in 1754 were granted “virtually the sole right to undertake contracts for the supply of spirits to the state monopoly”. (Smith & Christian 208)

Unlike the ingredients for beer, the ingredients for kvas were always at hand. For most of the year a ready supply of raw grains was readily available to the Russian peasant. Indeed, making kvas could even turn stale bread into something useful and nutritious. Beer was simply beyond the peasant’s grasp, and when they had a little extra money to spend on alcohol, they typically favored the strong stuff.

Kvas vs Vodka

The absence of beverages of moderate alcohol content (beer & wine) meant that there was only one substance in Russia that could allow the peasant to transcend the misery of everyday life; vodka.

In her book Food, the Body and the Self Deborah Lupton describes alcohol, especially strong spirits as a thing “deeply connected with mood-setting” and as a “substance that divides the everyday working world from times of enjoyment and festiveness”. “As a symbolic marker of relaxation and gaiety, alcohol prepares the body for release before it is even imbibed”. (Lupton, pg 32) Just the thought of having a drink at the end of a long day is sometimes enough to put one in a relaxed mood!

In a peasant culture typified by the oppressiveness of hunger, disease, and an absolute monarchy, there would be a powerful lure to consume a beverage that offered a temporary escape from life, or even the thought of it.

Kvas could not provide this transforming escape. It is not alcoholic enough to inebriate the drinker. It is also a ‘homey’ product, made by the women of the house

and consumed next to the home hearth. It doesn't separate the consumer from their environment in the same way that drinking vodka outside the home in a tavern could. In the same way vodka could never compete nutritionally with kvas, kvas could never compete psychologically with vodka as the peasant's preference. The dichotomy of kvas and vodka, home and tavern, feminine and masculine makes kvas a powerful symbol of the sober, feminine world most reformers offered as an alternative to the abuse of vodka. As we will see, kvas is both admired and reviled in this role.

Kvas vs Tea

Anyone familiar with Russian culture immediately recognizes the Samovar as an integral part of the Russian home. With such a rich traditional symbol associated with it, would tea not present itself as the primary alternative to vodka rather than kvas?

Though tea was first brought to Russia in 1618, the Russian appetite for it grew slowly. It remains a luxury item available to only the wealthiest through-out the 18th and first half of the 19th centuries. Only by the 1870's had tea drinking become affordable such that temperance advocates could present it as an alternative to spirits. (Smith & Christian pg 236)

Because of its traditionally high cost and only recent adoption when compared to the long history of kvas consumption, tea has only a modern role to play in the story of kvas, and in no way diminishes the devotion of the peasant classes to kvas prior to the 20th century.

Kvas, food or drink?

Scholarly works sustain and embellish the concept that kvas can be many things. Kvas, it turns out, is not just a drink. Kvas can be the base for many other dishes and sauces. As we saw in the *Domostroi*, from very early on, kvas was used as an ingredient of traditional wedding cocktails. Modern works perpetuate the reference to kvas as an 'ingredient' of a drink. In the introduction to her cookbook *Complete Russian Cooking* Lynn Visson describes how Soviet food writers admonished 20th century Russian consumers to give up traditional foodways by exercising restraint when it came to certain "peasant" drinks like *tiuria* "a thin [Lenten] concoction of kvas, onion, and dried bread". "These dishes" the Soviet authors wrote, "are as in-appropriate to our lives as an old cart on the streets of a modern city". (Visson Pg 18)

Not just a cocktail ingredient, kvas is also used as the base of hot or cold soups. Marta Pisetska Farley's cookbook *Festive Ukrainian Cooking* calls for a quart of beet kvas with which to start a borscht broth. Though she allows the cook to substitute crystallized citric acid when kvas is not available, Farley indicates that the kvas adds an "unduplicatable" mildly tart flavor to the borsch. For the curious, (or perhaps the brave) a beet kvas recipe is provided alongside the borscht recipe so that the cook might experiment, but be forewarned, one of the steps in the recipe nonchalantly indicates that you will need to remove any mold you find growing on the surface of the kvas before its use.

Cold soups seem to be the predominant form of kvas based dishes. *Okroshka*, *svekolnik*, and *botvinia* are three different kinds of kvas soup, *okroshka* (*kholodny* in Poland and the Ukraine) being the most famous of the three. Recipes for *okroshka*, a cold kvas & cucumber soup featuring potatoes, dill, and hard boiled eggs, and *botvina*, a cold kvas & spinach soup featuring salmon, can be found in Elena Molokhovets' *A*

Gift to Young Housewives. Her audience, however, was the Russian middle and upper-class. How did the peasant cook with kvas? There are few sources of Russian peasant recipes, but Smith and Christian quote an intriguing mention of kvas where kvas “was not used as an intoxicant, but rather as a sort of sauce (*priprava*) for dry food”, such as kasha, or stale bread. (Smith & Christian pg 292) Kvas use certainly blurs the line between modern definitions of drink, sauce, and soup. “During the winter [kvas] was prepared as a first course with sauerkraut and horseradish. It was sometimes cooked with peas, particularly during feasts, and during the summer the poor would add bread crumbs and chopped scallions, while the more affluent added cucumbers, onions, and eggs”. (Smith & Christian, Pg 292) Whereas the final few ingredients mentioned confirm that the economically advantaged were making *okroshka*, peasants use kvas as a simple base for porridge as well as a dressing for horseradish flavored coleslaw.

The above citation infers a difference between the kvas-based soups of the poor and affluent. Both Molokhovet’s and Smith & Christian offer recipe variations on that theme. Howard Percy Kennard, quoted by Smith & Christian, traveled throughout Russia in the late 19th century. He carefully observed the behavior of the peasants he encountered and in 1908 published a travelogue. A brief part of his book contains his observations regarding how a Russian peasant made an austere version of kvas. “To make it one puts a pailful [sic] of water into an earthen vessel, into which one shakes two pounds of barley meal, half a pound of salt, and some honey, more or less according to the wealth of the family. This is placed in the evening in the oven with a moderate fire...In the morning it is left for a time to settle; the clear liquid is poured off and it is ready to drink in a few days”. (Smith & Christian, Pg 291) The three ingredients called for in Kennard’s recipe are quite a contrast to the seven ingredients of Molokhovet’s Grain Kvas recipe. Her ‘affluent’ version of kvas

includes the addition of several 'middle class' ingredients such as; raw rye meal, wheat and buckwheat flour as well as malted barley. Malted grains are not typically available to the peasant class. Their inclusion of them in the 'Grain Kvas' recipe places this kvas economically outside the peasant's grasp.

Kvas the literary symbol

Though scholars reference its ubiquity in the peasant class, it is interesting to note that, searching through the great works of Russian literature one finds very few descriptions of kvas. But then, modern writers don't compose long paeans to traffic lights either. Sometimes such a common thing needs not be mentioned. The few references to kvas that can be found in Russian Literature have a great deal in common. Kvas typically serves one of two literary functions; as either an efficacious reminder from the narrator of the veracity of their story or as a direct metaphor intended to highlight the Russian-ness of a character, setting, or theme.

An example of the first use of kvas can be found in Tolstoy's *Anna Karenina*. During the final scene of part 7 where Anna struggles with her suicidal thoughts on the train platform, she notices that "a boy selling kvas never takes his eyes off her". Tolstoy simply mentions kvas to set the scene and remind the reader of the materiality of the story. There is no metaphor here, simply an allusion to Anna's growing paranoia when faced with the typical presence of a seller of kvas at the train station.

Kvas can also 'mark' the social class of the drinker as well; on occasion even a non-Russian person. There is a scene in chapter twenty-nine of Tolstoy's War & Peace where both kvas and wine are brought to a table where a Frenchman and a Russian are to eat. They are being served by a French orderly. We learn that the French have nicknamed kvas "pig's lemonade" and that the Captain prefers to pour

the French wine pillaged from Moscow for both himself and his Russian guest leaving the kvas for the orderly to drink. Kvas and wine not only symbolize each respective nation at the table, but also each social stratum in the scene. The only member of the scene from the lower class, the orderly, is expected to drink the kvas even though he is French.

The predominant use of kvas in Russian literature, however, is as the direct metaphor for good-'ol-Russia. Kvas, which saturates Russian peasant culture, becomes the symbol of the simplicity and hominess of Russian rural life. Like modern American attitudes towards 20th century rural life, 19th century Russian attitudes manifest themselves in one of two ways; the kvas metaphor either affirms the blessings of a sober, simple and therefore wholesome rural life, or is used to condemn this same life as a stagnant mire of ignorance. When the Russian literature using the metaphor is an unsentimental portrayal of Russian culture and society, kvas tends to be used as the symbol for all that is overly simplistic and simply awful about Russia. Andrey in the fourth act of Chekhov's play *The Three Sisters* typifies this as he dreams of a better life for his children, a life free from "...idleness, from kvas, from goose with cabbage, [and] from vulgar parasitism."

In *Dead Souls*, Gogol uses kvas to the opposite effect. When Chickikov and Planton arrive at Planton's brother's house they find an ancient home whose gabbled roof is of "a type no longer built". There is a beautiful courtyard in the house surrounded by lilac bushes, cherry and lime trees, and just beyond the courtyard wall there is a grove of birch "from the recesses of which came the echoing songs of nightingales". Gogol tells us that this blissful place was as peaceful as any in Russia "so eloquently did it speak to that carefree period when everyone lived on good terms with his neighbor, and all was simple and unsophisticated". What do they drink there? A servant of Planton's brother "...brought [the travelers] decanters containing

various kinds of kvas (some of them as thick as syrup, and others hissing like aerated lemonade)...” Chichikov tastes the first, which he likens to fizzy linden-flower honey, “Nectar” he cries. Then he tries the thicker kvas which he exclaims to be “A beverage of beverages...here I have tasted the finest kvas”. But of course! Kvas is the drink of all true Russians! This is the only liquid to be found in a Russian paradise.

Kvas Today

Do these attitudes toward kvas persist into the 21st century? Is kvas still the drink of the *narod*?

Kvas is certainly still around. Any pass through a Russian grocery store in America will yield at least a few plastic bottles of the stuff. But this has only recently been the case. For a short time, kvas almost became extinct.

Raymond Sokolov, in his 1988 travelogue article on the Soviet Union continues to refer to kvas as the “Russian national beverage”. “So far as I know, kvas is not sold in bottles...” says Sokolov. He does, however, richly describe the plain little building near the *Smolenskaya* subway station where he had the opportunity to quaff a quarter liter of kvas. “It was something like root beer, but sour as well as sweet. And it had the freshness of old fashioned fermentation, perishable and unstabilized”. These shops are not very clean. Patrons drink from the same glass, casually rinsed out between uses. The flavor marks this as a kvas made traditionally, via lacto-fermentation. Not restricted to kiosks, this type of kvas was also sold from tanker trailers that visitors to pre-1990’s Russia recall dotting the streetscape wearing the letters KBAC proudly on their side.

Though kvas was made in bulk it remained a locally made drink. Kvas manufacture was not regulated by the government; therefore it was not subject to the health codes that guarantee that foods are pasteurized and microbe free.

This is one of the factors that contributed to the disappearance of kvas from the street corners of Russia after the fall of communism in the early



Figure 2: Enjoying kvas in Erevan, Armenia 1976

1990's. "New health laws banning its sale on city streets and post-Soviet economic disruptions forced *kvas* factories to close...For most of the 1990s, [traditional] *kvas* virtually disappeared from the market". (Lyons) The manufacturers of Coke and Pepsi quickly moved in to exploit this new market. Russians themselves seemed to crave these new western drinks. At its height, Coke and Coke manufactured products had a 40% share of the domestic Russian beverage market. (Lyons)

By 1995, however, the backlash against western products had begun. The Mayor of Moscow was one of the several people who invested in *Russkoye Bistro* a restaurant modeled after McDonald's yet serving, for 5000 rubles (\$1) a 'meal deal' of mushroom soup, meat *pirozhok* and *kvas*. This meal cost about a third of a McDonald's meal and, with its traditional ingredients satisfied the "elderly and poor" sector of the population who were found, through market research, to "resent trappings of the West that remind them daily that they are worse off than in Soviet times". (Germani) One of the investors was even quoted as saying "We try to avoid

using foreign words [in the restaurant]. We don't even have the words 'coffee' or 'soda' on the menu." (Germani) What else would be served at a restaurant purporting to be the 'true' Russian alternative to McDonald's, but the true Russian beverage, kvas?

Then in 1998, taking a page from the book of Coke, local drink makers struck back. They developed, attractively bottled, and then began to market kvas as a



Figure 3, Tzar Kvas

Russian alternative to western sodas. In three years time, this new bottled kvas grabbed 30% of the 'soft' beverage market while Coke's share fell from 40% to just 23%. (Lyons) According to Aki Hirvonen, Coke's Baltic marketing manager, people

over 30 who had fond memories of kvas were the people most likely to switch back. It didn't hurt that kvas cost half of what Coke was selling for.

After losing a million dollars of market share in the Baltic States alone, what was Coke's response? The headlines from Baltic News Service for November 29, 2001 proclaimed; "Coca-Cola to Launch Kvas Production at own Facility in Tallinn". When it comes to the Russian taste for kvas, Coke executives quickly learned, if you can't beat them, join them, or more precisely, buy them out.

But is what they are selling actually kvas?

Vyacheslav Shamarin is the man who is in charge of kvas manufacture at *Kok and Company*, one of the firms that participated in the resurgence of kvas in 1998. "Everything that has been made since the 1980s is not kvas. It's nothing more than

cola” he says. (Lyons) Tatyana Boiko who emigrated to America in 1990 feels the same way. “The kvas you buy today is more like soda”. Mass-produced kvas is nothing like the “fizzy”, “amber colored” liquid that her grandmother made with the taste of “very good lemonade”. (Boiko)

Familiarity with the true nature of kvas explains why this must be. The traditional process which ferments the drink relies on several different microbes. Traditional kvas made in the home is a ‘living’ drink. Governments, however, have little tolerance for allowing micro-flora to persist in foods sold en masse. One way to kill these microbes, and make the drink ‘safe’ is to pasteurize or heat the drink. The requirement to do so originally pushed kvas off the streets in the early 1990’s, in order for it to return, pasteurization had to be accepted as a fact of life for kvas producers.

What is lost in the mass production of kvas is the sourness that links kvas to all of its fermented cousins in the Russian diet. In the same way that Marta Pisetska Farley tells us to use powdered citric acid in our borscht to simulate the sour flavor of beet kvas, even though she admits that beet kvas is an unduplicable flavor, bottled kvas approximates, but cannot duplicate the flavor of a ‘soured’ brew. The bacteria that are the essential component of traditional kvas never find their way into modern kvas, nor do the nutrients they create as they ferment the grains that are the most basic ingredient of kvas.

In a way, the evolution of kvas emulates the trajectory of several beverages that we now characterize as ‘soft’ drinks. First made in the home, these drinks such as ginger ale, or root beer, were also slightly alcoholic because they were fermented by yeast and bacteria, hence their names. Properly stopped up, these drinks, like kvas, could be pleasantly fizzy. Once the drinks become mass produced, the bubbles that result from fermentation are replaced by bubbles from carbonation. There is

nothing 'alive' about these safe, some would say 'sterile' drinks. All of the flavors are the result of the ingredients of the drink, not the process by which the drink is made.

So, in a sense, we might say kvas is still alive, even though kvas itself is no longer 'alive'. Russians love their kvas, and seem to choose it over Coke whenever possible. The idea of kvas, kvas as the true Russian drink, persists, even if that drink is just a shade of the fermented substance that prevented a thousand generations of Russians from suffering terrible diseases of vitamin deficiency. Russians continue to honor the metaphor of kvas as traditional Russia, despite the fact that modern kvas no longer keeps its traditional flavor. This makes perfect sense when one considers that the alternative are themselves, metaphors for the western nations that Russia wishes to differentiate itself from.

Conclusion

I believe there are several factors that contribute to the pervasiveness of kvas in the diet of a 19th century Russian peasant. Clearly, kvas is a healthy drink. It is safer to drink than water, and the methods of making it allows for more nutrients from grain to be available to the consumer than would otherwise be the case. The ingredients were cheap, easily available and, unlike beer-making, required little processing. Because of its availability, kvas had the opportunity to evolve beyond the role of 'drink' and become the base of sauces and soups, further cementing its central place in the peasant home. The pervasiveness of kvas' sister food, sourdough black bread, also contributes to the ubiquity of the drink. It is very little trouble when making one, to make the other as well. Finally, we have overwhelming evidence of the cultural preference for 'sour' flavors. "For the peasants, something acidic [*kislota*] is an essential part of any diet. Without something sour, a meal is not a meal...Even maggoty sour cabbage is better than no sour cabbage at all". (Smith &

Christian 276) The lacto-fermentation that is essential to kvas production creates this much sought after flavor in all the sour foods appreciated by the Russian palate.

Kvas has spent most of its phenomenally long history as the true drink of the *narod*, but this is changing. *The Guardian* newspaper from London reported back in 1997, that several high ranking Russian officials had begun to lament the loss of traditional kvas' popularity in Russia. They went so far as to claim that "the consumption of non-national food and drink had led to a 30 percent increase in diseases of the digestive system". (Meek)

By 1998 kvas had begun a remarkable rebound. Can modern kvas remain the predominant drink of the Russian everyman? Perhaps a kind of kvas can. Kvas is being transformed from a homemade, every-family-has-its-own-flavor, type of product, to a mass-produced uniform substance, not likely to retain much of the bacterial sourness that was once its hallmark. This removal of the lacto-fermentation stage of kvas manufacture by the mass producers of kvas means that kvas will become a nutritional shade of its former self. Russia's national drink is evolving into an empty-caloried soda-pop pretender.

If there is one aspect of kvas culture likely to keep the traditional substance alive, it would be the fact that kvas is the unduplicable flavor of true borscht and *okroshka*. Devotion to the unique sour flavors of these soups, a sourness properly achieved only through the use of kvas as the base for the soup, may be enough of an impetus to keep small-scale home production of traditional kvas alive.

Though my efforts to define kvas never yielded a simple recipe that could accurately reproduce the quintessential kvas experience, my research revealed to me that it was pointless to seek such a thing. Kvas has ancient origins that suggests it may be the first grain-based drink mankind ever made or worshiped for that matter, and it may have nutritionally contributed to the ability of an entire culture to subsist

in marginal agricultural climate. Kvas, it turns out, is a rich and complex substance perhaps as rich and complex as the culture it typifies, a point which illustrates both the folly and error of reducing it to a simple generalization.

Appendix A: Tasting Modern Kvas

Label

KVAS 1



Description

Color: Amber Brown

Smell: Yeasty with acidic tinge

Taste: Predominantly sweet. No fizz. Raisiny? No sourness. No yeasty flavor despite nose that suggests otherwise.

KVAS 2



Color: Same as first kvas, Amber

Smell: Prunes, Raisins. No Yeast.

Taste: Very sweet. Tastes like it smells.

Note: Traditional Kvas Tankard on label. I found many of these for sale on the internet.

KVAS 3

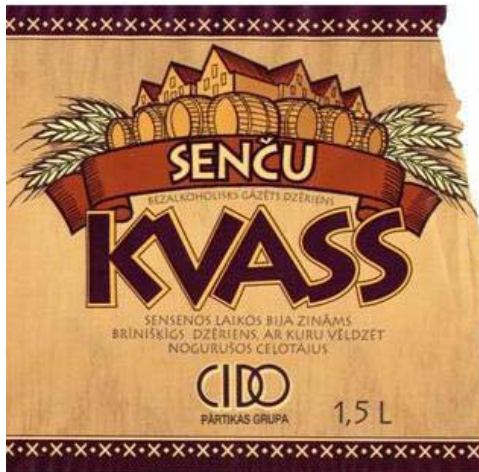


Color: Pale Brown. Watered down Coke?

Smell: All Prunes.

Taste: Very fizzy when poured. Bubbles dissipate after a minute or so. Tastes thin, but of Prunes.

KVAS 4



Color: Slightly Darker Brown than others

Smell: Yeast (very slight) / Prunes

Taste: Very Sweet. Raisin flavors.

KVAS 5



Color: Dark like Coke

Smell: Somewhat like Robitussin

Taste: Robitussin Soda, except that it has gone flat.

KVAS 6

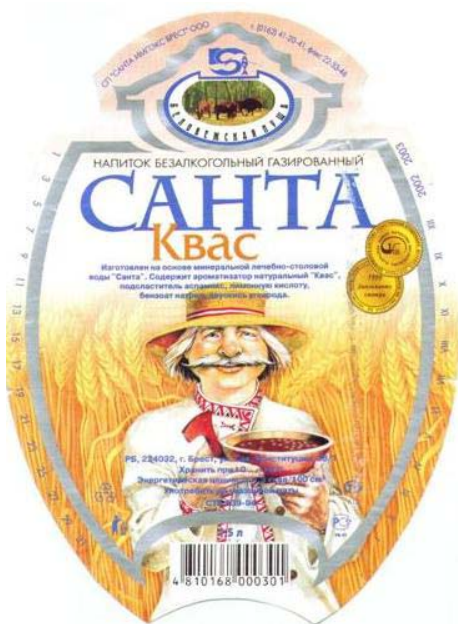


Color: Dark Brown. (Darkest of all that have been tasted).

Smell: Hardly any smell at all. Somewhat of raisins.

Taste: Flat Moxie.

KVAS 7



Color: Lightest Brown of all brews.

Smell: The only kvas with a slightly sour smell, but more acidic than sour. Also has the more typical scent of boiled raisins.

Taste: Only kvas that even had a hint of a sour taste. Still sweet though with prune and raisin flavors.

General Notes:

Kvas 7 was my favorite of the tasting. It was in my fridge for several weeks however before I went back to finish it. I found that those weeks had made more pronounced the sour flavors I had originally tasted when it was first opened. I wonder what would happen if I just let it sit on the counter for a few days?

Kvas 1 was the next favorite, but it would be hard for me to characterize the flavor of any of these kvas' as authentic.

Also, 'Moxie' is a New England specific soft drink that is easiest to find in the state of Maine. There are stores, such as Stop & Shop that carry Moxie in the Boston Area. It tastes like a cross between Dr Pepper and prune juice.

Appendix B: Making Kvas

As I was researching this paper the thought began to cross my mind; 'I really need to taste some kvas!' It's one thing to write about a food, but another altogether to taste it, and yet another to make it!

I had seen and bought bottled kvas at Russian markets in Boston. It was cloyingly sweet. I wondered, would a Russian peasant have so much sugar available to them that they could make a kvas like this? This kvas did not exhibit any of the sour flavors that my readings had claimed were the hallmark of kvas.

Then I came across recipe #2185 'Grain Kvass' in Joyce Toomre's translation of Elena Molokhovets' A Gift to Young Housewives. More than just a list of ingredients and instructions, recipe #2185 suggested to me that I could experience kvas by making some of my own. I have been brewing my own beer for over almost 10 years, so it didn't seem like much of a stretch to try my hand at kvas.

I had encountered many kvas recipes during the course of my research. I returned to them now in an attempt to identify a few that would be suitable for my own brewing efforts. Ever mindful of the many different descriptions of kvas I had encountered, my goal was to make different 'styles' to see how each type of kvas varied from the other. Finally, I decided to also compare 'traditional' recipes with modern variants to see if sweetness increased with the recipe's proximity to our modern age.

I eventually settled on making 4 types of kvas recipes, two from the 19th century and two from the late 20th.

Molokhovets' recipe #2185 was, of course, the first I selected. It seemed to have all of the elements required of an authentic kvas experience. Grain-based, this kvas did not list a sweetener, other than malted grains, among its ingredients. This

kvas' flavor would only be embellished with an infusion of mint. The second 19th century kvas recipe came from Smith and Christian's book Bread and Salt. There they quote the travelogue of a turn of the twentieth century traveler named Kennard who describes how he saw peasants making kvas. Apart from water, there were only three ingredients to this kvas; rye, salt and honey. To adapt this recipe I would simply have to be mindful of the proportion of these ingredients to each other.

My 20th Century recipes were from two very different sources. The first was the 1988 Raymond Sokolov *Natural History* article. In it he described how kvas was made and consumed during the Gorbachev era. Sokolov's recipe still retained the basics of what I thought a true kvas recipe should, the kvas was made from unmalted grain or in this case boiled pumpernickel bread, but with the modern addition of one and 1/2 cups of cane sugar. This recipe with sugar would test my modern-equals-sweet theory. The second 20th century kvas recipe I chose was a departure from my grain based criteria, but when I read the recipe for 'Beet Kvas' in Marta Piseyska Farley's cookbook, Festive Ukrainian Cooking, I knew I had to give it a try. Any recipes that require the removal of mold 'as needed' seemed authentic enough.

Finally, I thought it would be interesting to try a recipe that would allow me to compare different cultural traditions of 'small beer'. The Boston University 'Special Collections' library contains a fragile turn of the 20th century pamphlet called Olden Time Beverages edited by Alice Earle Hyde. In it Ms Hyde collected the recipes for various colonial drinks from various old sources. One recipe, for 'Small Beer', was from *Mrs. Washington's Unrivalled Cook Book* of 1870. Like kvas this 'small beer' contained unmalted grain, in this case, wheat bran, but it also had some interesting American elements, notably the inclusion of molasses as one of the ingredients. Would 19th century American small beer be anything like 19th century Russian kvas?

Whereas I felt I could get started right away on my modern recipes, the 19th century recipes needed some more attention first.

Trouble with Tradition

The first obstacle to overcome with respect to my traditional Russian recipe set was that of converting from Russian to English measurements. What was a 'pood' anyway? When Molokhovets' calls for 12 pails of water, just how much is that?

Thankfully, Ms Toomre provides some guidance in Appendix B of her translation of Molokhovet's book. This allowed me to better understand that a Russian pound is approximately 0.9 English pounds and that a pail of water is the English equivalent of 3.25 gallons. A 'pood' turned out to be the English equivalent of 36.1 pounds!

Suddenly I had a problem. Recipe #2185 calls for one 'pood' of Rye flour and twelve pails of water. Those proportions would yield close to 40 gallons of kvas! Not only would I have to convert to English measurements, but I had to significantly reduce the amount of ingredients called for in a way that kept their ratio to each other intact. What I really wanted was a recipe that, like the modern ones, would yield about 1 gallon of kvas. Dividing by 12 seemed to be the first step. By so doing I could create a recipe that yielded about 1 pail (3.25 gallons) of kvas. By again dividing that in half I could create a recipe that would produce just a little more than the English gallon I was hoping for. Converting the Kennard recipe was even easier. It already was meant to yield 1 pail of kvas, so all I had to do was convert from Russian to English measurements and divide the volume of ingredients in half. Eureka! Time to go shopping...

Where does one find Rye malt in Boston? Fortunately my home-brewing experiences have encouraged me to explore a number of the regions brewing supply

shops and I am particularly fond of 'The Modern Brewer' on Massachusetts Avenue in Cambridge because it always seems to have those 'hard to find' ingredients like rye or wheat malt. A quick call confirmed that they had what I needed. But what of whole rye flour, wheat bran, and buckwheat flour? Though readily available to the 19th century Russian peasant, our culture of pre-packaged foods seemed to preclude finding so 'basic' a foodstuff easily. Fortunately, just around the corner from the Modern Brewer is one of Boston's whole foods markets, the Bread and Circus on Fresh Pond Parkway in Cambridge. I was able to easily to find all the grain that I needed there; whole rye flour, buckwheat flour, even the wheat bran that I needed for the 'small beer'. Armed with what seemed to be the most flour I have ever bought at one time, I trooped the bags back home to my kitchen knowing there was one last obstacle to overcome before the brewing could start.

It was time to think of how I was going to adapt the methods called for in the 19th century recipes to my modern kitchen. Most Russian kitchens in the 19th century were dominated by their oven. In the traditional peasant home the oven typically occupied $\frac{1}{4}$ of the area of the house and was large enough for the family to sleep on top of. (Glants & Toomre 1) Not possessing a cook-top, these mammoth ovens were excellent for baking and braising, but not for boiling, at least not in the way we are used to doing it today where flame is applied directly to the pot of liquid. For a Russian peasant to 'boil' grain and water, traditional recipes called for building a good sized fire in the back of the oven, putting crocks full of your kvas liquid into the center of the oven, then sealing the door closed with clay for a day. The kvas in each crock would be heated to a simmer, then cool slowly as the fire died down. Not owning an oven that could hold a good clay seal I decided that I needed to adapt these kvas recipes to the beer making techniques I was used to. That meant I would be doing all of my boiling on top of the stove. The modern kvas recipes were a good

guide in this respect. Reviewing their techniques and drawing on my brewing experience allowed me to adapt all of my 19th century recipes to stovetop production methods.

I began by brewing the simplest recipes first. Both 'Small Beer' and 'Beet Kvas' are the kind of recipes where everything gets boiled together for an hour and then left to cool. Once the liquid returns to room temperature, it is safe to add the brewers yeast, so, like beer, 'pitched' the yeast into the cooled kvas, gave the it a good stir, and set the stuff on the counter to spend a week fermenting at room temperature.

With the exception of the beet kvas where I needed a large opening to later remove the quartered beets and sourdough bread chunks, all the liquids associated with my kvas experiments fermented in clean 1 gallon plastic milk jugs, their tops covered with cheesecloth. My other bow to beer making concerned the yeast. Rather than let any old yeast from the air of my kitchen ferment the kvas, and to ensure that fermentation actually took place, I bought ale yeasts from The Modern Brewer.

The next recipe I tried was the 'Kennard Kvas' so named by me because the source of the recipe found in Bread & Salt was Kennard's travelogue. Similar to the 'boil it all together' approach, this kvas taught me that the order in which ingredients were added was often important. My initial attempt found me boiling the flour and water together first, only adding the honey adding the honey after the fact. Unfortunately, the honey could not easily dissolve in the pea-soup-thick concoction. It, instead, settled to the bottom of the pot and burned. I threw away that batch and tried again, this time dissolving the honey in the water first. Things went much more smoothly the second time. I still had, however, a substance of the most intriguing consistency. This kvas appeared to almost be a paste. It occurred to me

that only a little more rye flour was required to make this kvas so thick that a spoon could stand up in it!

While these first brews were boiling, I took the opportunity to begin preparations for the Molokhovets 'Grain Kvas'. This was the most complex recipe I had to follow due to the fact that it was the only recipe that required me to make the bread which I would then boil to get the kvas. There are many steps to this traditional recipe that result from the need to heat the kvas up in a traditional Russian oven, so I had to simplify these steps into a single boil on the stove. First, however, there was the matter of the bread. Molokhovets recipe called for all the grains to be added to "enough water to make a thick dough" which I did, shaping it into a loaf of approximately nine inches across and four inches thick. Seeing as how there is no yeast in this dough, it did not rise. Not being overly familiar with rye and buckwheat flours, I was surprised to find that after an hour of resting, this dough had turned into a nine-pound flour brick (I put it on the bathroom scale to see how much it weighed). After a rest, the next step was for me to dissolve this flour-brick in half the water called for in the recipe. I would then add the rest of the water for the full boil. As it heated, I found that my flour-brick never dissolved, it just turned into the largest noodle I had ever cooked. Even as I used a wooden spoon to break it into smaller and smaller pieces, the pieces would hold together rather than dissolve. I was concerned; my kvas might end up tasting more like left over pasta water than kvas! But then I remembered the *bappir* from the hymn to Ninkasi, and thought, like the ancient dough-bricks of Mesopotamia, my modern dough-brick might work just fine after all. After three hours of boiling, I removed the kvas from the heat, added the infusion of fresh mint and let it all cool to room temperature before pitching the yeast, and setting it up to ferment.

My final kvas cooking project was to tackle the kvas recipe from the Sokolov article. I dubbed this recipe 'Glasnost Kvas' to remind me of the *Glasnost Gourmet* article that was its source. Rather than use whole grains, flour, or a dough of my own making, Sokolov instructed me to boil a loaf of rye bread. The choice of which rye bread did not seem to matter to Sokolov, but I wanted to buy something as close to the *borodinsky* I have eaten as possible. There is a particular kind of German pumpernickel that is made from whole grains, has a moist consistency, and a 'sourish' flavor similar to *borodinsky*. I had eaten on a recent trip to Germany, and not knowing where to find authentic *borodinsky* in Boston, I thought that this German bread might fairly substitute. Fortunately, this bread can also be found at the Bread & Circus. Funny, Ninkasi seemed to follow me throughout this project because this pumpernickel from Bread and Circus comes shaped just like, well, a brick! One 1.5lb 'bread-brick' was all I needed for the 'Glasnost' recipe. Like Molokhovets' recipe this process called for a double boiling of the bread before straining out the solids and pitching the yeast. Similar to my approach to the Molokhovets' recipe I eliminated the second boil from the 'Glasnost Kvas' and instead used the home-brewing technique of a single boil.

A week passed as I watched each gallon of kvas fizz, gurgle and perk on my counter. Something was definitely happening in each brew! Then just before bottling the kvas and putting it in the fridge for keeping, I thought it would be helpful to estimate just how much alcohol each variety had produced.

To determine the alcoholic volume of each of the types of grain kvas I made (I didn't measure the alcohol of the beet kvas) would require that I bring out more of my brewing equipment, specifically a hydrometer. A hydrometer measures how much material is dissolved in a liquid. Because yeast transforms sugar, a substance more dense than water, into alcohol, a substance less dense than water, the

difference between the first and second hydrometer readings gives a fair approximation of how much sugar was turned into alcohol. After subtracting the 2nd value from the 1st, one then multiplies the resulting difference by 105 to get the alcohol by weight, but because alcohol weighs less than water, another calculation must be performed to obtain the alcohol by volume. Simply multiply the % alcohol by weight by 1.25. It will slightly increase the % of alcohol, but be more true to the actual value. What I found regarding the kvas was...

Name	1st SG	2nd SG	Potential Alcohol by Volume
Molokhovets'	1.010	1.008	0.26%
Glasnost	1.024	1.004	2.6%
Kennard	1.048	1.018	3.9%*
Small Beer	1.022	1.001	2.7%

Figure 4

Where 'SG' refers 'Specific Gravity'.

*The Kennard kvas was so syrupy that it was difficult to take accurate readings. The .75 lbs of honey added as part of the recipe may have resulted in this high a % of alcohol by volume, but it was hard to tell.

The Taste of Homemade Kvas

After taking my second hydrometer measurements a week after brewing, it was time to see what homemade kvas tastes like.

The one characteristic shared by all the beverages was that they were 'flat'. To create carbonation in a batch of homebrewed beer, a beer gets a last minute infusion of malt sugar just before bottling. This sugar incites the yeast to perform a final fermentation in the bottle so that the carbon dioxide produced would be trapped inside. No such step was called for in the kvas, or 'small beer' recipes that I had

found, resulting in a bubble-less brew. My guess is that Gogol's 'fizzy' kvas was bottled in some manner to capture any carbon dioxide that was released during fermentation.

Small Beer

I thought I would start my tasting with the 'small beer', favoring something familiar to my home-brewer's palate. I found that the small beer to have the familiar yeasty, ale-like nose that many of my homebrews have, but the taste really surprised me. The wheat bran in the recipe gave the brew a crispness that was a nice compliment to the strong molasses flavor that appeared first on my palate. It was like drinking homemade iced tea that had only a small amount of sugar put in it. But the hops asserted themselves very quickly and bitterness overwhelmed the flavors. This was a pleasant brew that I would add less hops to next time.

Glasnost Kvas

The 'Glasnost Kvas' had a more pronounced yeasty nose than the small beer. There was no doubt that this straw colored, translucent brew was made from bread. But whereas the 'small beer' quickly turned bitter, there were no hops in the kvas, so the sweet start to the Glasnost kvas clung to my palate. There was a lovely minty after taste as well. Both alcohol and glycerin, two by-products of yeast fermentation, give beer its 'mouth feel'. Beer is slightly viscous and coats the inside of your mouth when you drink it. Sugar in soda has the same effect, which is why diet soda feel thin in the mouth. Without much of alcohol, glycerin, or residual sugar kvas feels thin in the mouth. The Glasnost kvas was light in this way, barely coating the inside of my mouth before slipping past my taste buds. In that respect might I call it ephemeral? The first 'breadly' flavors of this kvas faded fast which was when I first encountered the sourness that I had come to understand through my reading was the hallmark of kvas. Similar to a 'lemonade-like' sour, kvas has more of an 'earthy'

flavor to it, a sourdough type sour. Because this was the only recipe that called for cane sugar, I had wondered if some sweetness would remain, but the kvas fermented as dry as brut champagne. Far from a fault, this 'dry' quality brought great backbone to the drink.

Molokhovet's Grain Kvas

Molokhovets' kvas on the other hand, had quite a pronounced roasted smell and flavor. It had a roasted brown color too! This was the only recipe that called for 'malted' grains which are roasted to 'fix' the sugars. Knowing that the degree to which a malt is roasted can effect a brew's flavor as well as color, I had selected a lightly roasted malt, but the toasty flavor of even a lightly roasted 'crystal' type of malted barley predominated over all other flavors in the Molokhovet's kvas. Even the mint was lost in this brew. Whereas, in a beer, hops and a higher alcohol content can compliment and tame this 'roasted' flavor, kvas has no such qualities with which to counter this aggressive flavor. This kvas had an almost 'burnt cookie' flavor at first, that would then subside to a 'yeasty', 'sourish' finish. Also thin in the mouth, this finishing sour flavor had that 'tang' which reminded me of Charlie Papazians 'sour mash' appendix in The New Complete Joy of Homebrewing. I was surprised at how easily I discerned the flavor. I would not add roasted grains of any kind to any future attempts of this recipe.

Kennard Kvas

The syrup-like kvas of Gogol's Dead Souls was manifested by the Kennard kvas. This beige colored kvas was a most remarkable substance. Unlike anything I had ever brewed, it separated into three distinct layers when allowed to settle. The top-most layer had a sweet and sour flavor to it. This is where the alcohol in the brew had concentrated given that alcohol is so much lighter than water. It was also briny, but drinkable. The middle layer was thicker and saltier, yet still passable, but

the bottom layer was a thick flour paste that tasted like an un-cooked dumpling. The sourdough nose on this kvas made me think that it must have been used for cooking in its initial, syrupy state. Only when thinned down could it make a passable drink, and yet Gogol specifically had his characters mention the syrupy nature of their 'beverage of beverages'. Then I noticed something. While in the refrigerator the kvas was static, but after the kvas had sat for sometime at room temperature during my tastings, it began to bubble. It was alive! After another half hour, all three layers had re-mixed and a foam was forming at the top. Kennard kvas was an animate object, seeking air and nourishment! This settled it for me. I have seen enough of bread-starters to know that Kennard kvas firmly fell into that category. Have you ever taken a sip of sourdough starter? I just had.

Beet Kvas

The beet kvas was next on the list to try and its simplicity was a fitting finale. Briny, with a hint of the scent of 'musty basement', this kvas made complete sense to my palate. There were straight forward beet flavors, and a touch of sour / saltiness. I was surprised that the mold I had removed had contributed so little to the flavor. Not that I wanted it to, but I had prepared myself for the worse (especially after the Kennard kvas). Perhaps it is because I have eaten so much of my grandmother's borscht through the years, but I could definitely recognize the taste the borscht in this kvas and made plans to make some that very night using my kvas.

In the end, the 'Glasnost Kvas' was the kvas that I would consider making on any sort of regular basis. Cold from the fridge, perhaps with a touch more mint next time, or even a little lemon juice, it could take the edge off a hot summer day quite nicely.

Appendix C: Kvas Recipes

Gogol's passage from Dead Souls highlights the enigma that kvas can be. How can one kvas be fizzy while the other is thick? Surely Planton's brother made two very different kinds of beverages for his guests. How could each be kvas?

Wouldn't it be interesting to taste kvas for ourselves? Today, almost two hundred years after Gogol dreamt of his Russian country paradise, what does kvas, the Russian ambrosia taste like? How hard could it be to make? Kvas is just boiled bread right?

Please find below the recipes that I developed for each kvas. Appendix XX details the process of making and tasting the kvas from the recipes below. These recipes are modifications of recipes I encountered during my research. I have edited them to such that they accurately reflect the process I went through to make them. That process was informed by my 10 years of home-brewing experience.

Please note, I have included as part of each recipe, the cost of all ingredients (except water) as well as calculated the per serving cost of each kvas. Kvas is presumed to have become so pervasive in Russia because of the cheapness and availability of the ingredients. As you can see below, kvas continues to be an extremely cheap beverage to produce.

Ingredient Key:

- Color* = *Where ingredient can be found*
- Green** = Modern Brewer, Mass Ave Cambridge
- Blue** = Bread & Circus, Fresh Pond Parkway

'Kennard Kvass' (Pg 291 Smith & Christian)

<u>Russian Measures</u>	<u>= English</u>	<u>1.5 Gallon Recipe</u>	<u>1.5 gallon cost Cost</u>
1 Pail Water	3.25 Gal	1.6 Gallon	
2 lbs Barley OR Rye Meal	1.8 Lbs	.9 lbs	.65 cents
½ lb salt (I used kosher salt).	.45 lbs	3.6 oz	.07 cents
Some honey...(?)		.75 lb	.68 cents
			Total Cost = \$1.40
			Cost per 16 oz serving = \$.18 cents

Process:

1. Boil 1 gallon of water
2. While constantly stirring, slowly add honey to boiling water
3. After honey has dissolved add 2 teaspoons of salt.
4. Then add the .9 pounds of rye flour, or two scant cups.
5. Cool, place on counter to ferment.

'Glasnost Kvass' (from 'Natural History' 8/88)**Ingredients**

	<u>Cost</u>
1 Gallon Water	
1lb Rye Bread (Dark) German 'Brick' Style...	\$2.24 per lb
1 ½ cup sugar	.17 cents (@\$.22 per lb)
Beer Yeast	
½ cup fresh mint.	

Total Cost of Recipe = \$2.41 per gallon
One serving = 16 oz = \$.30 per serving.

Process:

1. Boil one pint of water, remove from heat, add fresh mint leaves.
 - a. (Let infusion cool as you proceed with the rest of the recipe)
2. Dry the bread out for 25 minutes in a 325° oven
3. Chop the bread into inch sized dice
4. Boil 1 gallon of water, let cool to 175°
5. Add bread and stir.
6. Leave for 1 hour, then transfer liquid to new pot while straining out bread.
7. Dissolve 1 ½ cups of sugar in 1 Cup of gently heated water (substitute ½ sugar for ½ cup molasses for flavor if desired)
8. When all liquids have cooled to room temperature, combine, add yeast, stir, and transfer to the fermentation vessel.
9. Let ferment at room temperature for 1 week.
10. Bottle and enjoy!

'Molokhovets' Kvas' (not quite Recipe # 2185)

<u>Russian Measures</u>	<u>=English</u>	<u>Scaled down portions...(/12)</u>	<u>Cost of 3 Gal</u>	<u>1.5 Gallon Recipe</u>
1 Pood Rye Flour	36.1 lbs	3 lbs	\$1.77	1.5 lbs (2.5 cups dry)
3lbs Wheat Flour	2.7 lbs	.2 lbs	\$.11	.1 lbs (1.6 oz) (1/4 cup dry)
3lbs Buckwheat Flour	2.7 lbs	.2 lbs	\$.11	.1 lbs (1.6 oz) (1/4 cup dry)
1 garnet Barley Malt	5.29 lbs	.44 lbs	\$.66	.22 lbs (3.52 oz) (Shy 1/2 Cup)
1 garnet Rye Malt	5.29 lbs	.44 lbs	\$.66	.22 lbs (3.52 oz) (Shy 1/2 Cup)
1 garnet Wheat Malt	5.29 lbs	.44 lbs	\$.66	.22 lbs (3.52 oz) (Shy 1/2 Cup)
2 Glasses Yeast	.92 pint	1 Packet Beer Yeast		1/2 packet
1/2 lb Mint	.45 lb	.04 lbs		.02 lbs (.32 oz)
12 Pails Water	39 Gal	3.25 gallons		1.6 gallons

Total Cost for 3 gallons = \$3.97

One serving = 16 oz = \$.16 cents per serving.

Process:

1. Grind malted grains until fine
2. Make thick dough out of flour and malts & as much water as you need (1 or 2 pints?).
3. Let rest for 1/2 hour so that all grain dissolves into dough. Dough will become hard and 'brick-like'. The dimensions of my round dough-brick were: 9 inch diameter / 4 inch height.
4. Bring remaining water to a boil, add dough 'brick'.
5. Boil for 2 hours (this beer technique replaces overnight stay in sealed oven).
6. Break up the 'brick' into golf ball sized pieces, boil another hour.
7. Transfer liquid to new pot while straining out solids.
8. Add mint infusion.
9. When liquid cools to room temperature, pitch yeast.
10. Stir, and then transfer to fermenting vessel.
11. Ferment for 1 week at room temperature
12. Bottle and enjoy.

'Small Beer' (from *Olden Time Beverages*)

Ingredients	Cost
1 Gallon Water	
5.3 oz (2/3 Cup) Ounces Molasses	.90 cents
5.3 oz (2/3 Cup) Ounces Wheat Bran	.21 cents
½ ounce Hops	.68 cents
Beer yeast	

**Total Cost of Recipe = \$1.79 per gallon
One serving = 16 oz = \$.22 per serving.**

Process:

1. Boil Molasses & Bran for 1 hour.
2. Pitch hops for last 10 minutes of boil (I used .5 oz of 'Styrian Golding' hops 4.0 % alpha acid).
3. Cool liquid to 70 degrees F
4. Filter out solids, cool, and then pitch yeast.
5. After a good stir, transfer liquid to fermentation vessel.
6. Let ferment at room temperature for 1 week.
7. Bottle and enjoy!

'Beet Kvas' (from *Festive Ukrainian Cooking*)**Ingredients**

3 Pounds of Beets
3 Tablespoons of coarse or Kosher salt.
1 thick slice of sourdough bread.
2-3 quarts of water
1 square piece of cheesecloth and string
1 Gallon glass jar or crock
4 quart or 8 pint jars

Process

1. Scrub Beets, pare and cut in quarters.
2. Place in crock with salt
3. Boil water, and then pour into crock.
4. Add bread, cover with cheesecloth and tie with string.
5. Set in cool place for 1 week. Remove mold as it appears. (Do not make in hot, humid weather. The kvas will decompose, not 'sour').
6. Remove liquid from solids. Taste; it should be sourish but mild, not brackish.
7. Pour into clean dry jars, cover and refrigerate.

Recipe Cost Notes:

Flour / Bran = \$.59 per pound OR .04 cents per oz ($.59 / 16 = .036$).

Honey = \$.89 per pound OR .06 cents per oz ($.89 / 16 = .055\dots$)

Molasses = \$2.72 per pound OR \$.17 per oz ($\$3.99 / 24 \text{ oz jar} = .17 \text{ cents per oz}$)

Sugar = \$.22 cents per pound OR .01 cents per oz

Salt = \$.32 cents per pound OR .02 cents per oz

Malt = \$1.50 per pound OR .09 cents per oz ($1.50 / 16 = .093$)

Mint = Assume it's free to the peasant

Water = Assume it's free to the peasant

Yeast = Assume it's free to the peasant

Appendix D: Recipes for Cold Kvas Soups

Okroshka

(As presented in 'Glasnost Gourmet' by Raymond Sokolov)

2 Hard Boiled Eggs
1 Boiled Potato, cooled and grated.
2 Scallions, trimmed, minced, sprinkled with a little salt, and then rubbed with a spoon until soft and green juice appears.
1 Teaspoon of Sugar
1 Quart of Bread Kvas
1 Boiled Carrot, cooled and diced
1 Medium Cucumber, peeled and diced
2 Tablespoons Sour Cream
Mustard
Minced Dill

1. Separate the egg yolk and whites. Chop the whites. Beat yolks with mustard.
2. In a serving bowl, combine potato, scallions, yolks, sugar and salt. Stir in the kvas. Add the carrot, cucumber and egg whites.
3. Serve garnished with dollop of sour cream and dill.

Polish kholodnik with Sour Cream; (Kholdnik pol'skij so Smetanoju).

(Adapted from Molokhovets', recipe # 161)

1 lb of beets with greens
1 Large Cucumber (12 inches long)
1 Hard Boiled Egg
1 Pint of Sour Cream (16 oz)
1 Pint of 'Grain Kvas'
Juice of ½ a lemon
Salt and Pepper to taste.

1. Wash and cook beets with greens until beet are soft. Then cool.
2. Remove and chop greens to a small dice.
3. Peel, remove the seeds from, then chop the cucumber to a small dice.
4. Chop the egg to a small dice.
5. In a serving dish combine the kvas and sour cream. Whisk until incorporated. Then add the rest of the ingredients.
6. Salt and pepper to taste just before serving.

Appendix E: The ‘Hymn to Ninkasi’

(trans by Miguel Civil)

Borne of the flowing water
Tenderly cared for by the Ninhursag
Borne of the flowing water
Tenderly cared for by the Ninhursag

Having founded your town by the sacred lake
She finished its great walls for you
Ninkasi, having founded your town by the sacred lake,
She finished its great walls for you

Your father is Enki, Lord Nidimmud,
Your mother is Ninti, the queen of the sacred lake.
Ninkasi, your father is Enki, Lord Nidimmud,
Your mother is Ninti, the queen of the sacred lake.

You are the one who handles the dough [and] with a big shovel
Mixing it in a pit, the bappir with sweet aromatics;
Ninkasi, you are the one who handles the dough [and] with a big shovel
Mixing it in a pit, the bappir with sweet [date]-honey.

You are the one who bakes the bappir in the big oven,
Puts in order the piles of hulled grains,
Ninkasi, you are the one who bakes the bappir in the big oven,
Puts in order the piles of hulled grains

You are the one who waters the malt set on the ground
The noble dogs keep away even the potentates
Ninkasi, you are the one who waters the malt set on the ground
The noble dogs keep away even the potentates

You are the one who soaks the malt in a jar,
The waves rise, the waves fall.
Ninkasi, you are the one who soaks the malt in a jar,
The waves rise, the waves fall

You are the one who spreads the cooked mash on large reed mats,
Coolness overcomes,
Ninkasi, you are the one who spreads the cooked mash on large reed mats,
Coolness overcomes,

You are the one who holds with both
Hands the great sweet wort,
Brewing [it] with honey [and] wine.
(You the sweet wort to the vessel)
Ninkasi, (...) (You the sweet wort to the vessel).

The filtering vat, which makes a pleasant sound,
You place appropriately on [top of]
A large collector vat.
Ninkasi, the filtering vat, which makes
a pleasant sound,
you place appropriately on [top of]
A large collector vat.

When you pour out the filtered beer out of the
Collector vat,
It is [like] the rush of Tigris and Euphrates.
Ninkasi, you are the one who pours out the filtered beer out of the
Collector vat,
It is [like] the rush of Tigris and Euphrates.

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