

A CENTURY OF CHANGE IN THE AMERICAN LOAF:  
OR, WHERE ARE THE BREADS OF YESTERYEAR?

By Karen Hess

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TO MAKE BREAD

When you find the barrel of flour a good one, empty it into a chest or box made for the purpose, with a lid that will shut close; it keeps much better in this manner than when packed in a barrel, and even improves by lying lightly; sift the quantity you intend to make up, put into a bowl three quarters of a pint of cold water to each quart of flour, with a large spoonful of yeast, and a little salt, to every quart; stir into it just as much of the flour as will make a thin batter, put half the remaining flour in the bottom of a tin kettle, pour the batter on it, and close it with the other half; stop it close, and set it where it can have a moderate degree of warmth. When it has risen well, turn it into a bowl, work in the dry flour and knead it some minutes, return it into the kettle, stop it, and give it moderate heat. In the morning, work it a little, make it into rolls, and bake it. In the winter, make the bread up at three o'clock, and it will be ready to work before bed time. In summer, make it up at five o'clock. *A quart of flour should weigh just one pound and a quarter.*

.....Mary Randolph, *The Virginia House-wife*. Washington, DC, 1824.<sup>1</sup>

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In Colonial times there were scores of breads, and succeeding waves of immigrants brought ever new additions to our bread basket. Many breads have disappeared altogether, or been changed beyond recognition. I cannot discuss them all, so I shall pretty much confine my talk to the classic American yeasted white loaf brought from England, examining historical reasons for the transformation of this loaf, here represented by a photograph of one made by me according to Mary Randolph's directions of 1824 — [SLIDES] — to this travesty, our staff of life. [MAUL WONDER BREAD]

Hail the American loaf!

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<sup>1</sup> All emphasis added for oral delivery.

Bread is the symbol of hearth and home, of life itself, so revered by the ancients that entire theological systems were constructed around its worship, aspects of which were assimilated by some of the world's major religions, and survive to this day.

To break bread together is an expression of trust. An offering of bread is a sign of welcome, even homage. When Abraham prepared to welcome the Lord so long ago, he "hastened into the tent unto Sarah, and said, Make ready quickly three measures of fine meal, knead it, and make cakes upon the hearth." Or so it is recounted in Genesis 18, 6, in what may be the earliest extant recipe for bread, however it came down to us. (Like most old recipes, it is elliptical, it being understood that it was three measures of meal to one of water, a proportion that generally holds up in practice.)

The French like to say that without good bread there is no gastronomy. That is, bread is revered for its own sake, much as rice is among eaters of rice. It must nourish the body and satisfy the senses on its own; in so doing, it forms the palate of a people. Where good bread is eaten, there are no jaded appetites, no frenetic search for ever new and dazzling dishes. Just so, if the bread be insipid and lack character, nothing else can be right, no matter how elaborate it may be.

Ask a master French baker about bread recipes, and he is apt to say something to the effect that there are no recipes, only good flour and the good old methods of yesteryear. All perfectly true, but what if those methods have been largely forgotten and good flour no longer easily available? I have taken as my mission the unearthing of historical recipes for bread from a time when American bread was as good as, say, French bread of the same period, and for the same reasons: Good flour and the good old methods of yesteryear. And time.

It was kind of lonesome out there when I first started preaching about the terrible quality of our bread back in 1973, in *The New York Times*, shortly after our return from France. To have bread that was fit to eat, I had to bake it. This in Manhattan, mind you. Like all Danish girls, I had learned to bake, now nearly seventy years ago, but one should not have to bake one's bread, something best accomplished by a skilled baker working with proper equipment.

Now, twenty-one years and thousands upon thousands of words later, upholding and expounding the quality of American *historical* cookery, including bread, I am happy to report that I no longer feel quite so alone. I no longer have to bake my own bread, a blessing, thanks to Michael London, among others, and there are dedicated artisan bakers here in Washington, D. C., participating in this seminar, whom you will have a chance to meet, and to taste their wares. There is indeed a revival in the art of baking bread, something that would have pleased Elizabeth David, to whose memory I dedicate my part of this seminar. She was my friend, my mentor, and the mentor of many of those laboring in the vineyard for the cause of better bread. (Wheat bread and wine have ever been closely associated, both having originated in the same part of the world.) Heartening as this revival is, it is only a beginning. In Plainfield, Vermont, Jules and Helen Rabin are baking sourdough bread in a wood-fired brick oven, but try and find such bakers in Nebraska, where I was born.

The earliest extant American recipe for our classic white loaf appeared in *The Virginia House-wife* by Mary Randolph, in 1824, seemingly late in terms of Colonial practice, but as of 1824, breadmaking procedures, as recorded by her, still called for a loaf made of flour, water, salt, and yeast, cast directly on the floor of a wood-fired brick oven, that is, procedures virtually unchanged from those of centuries earlier in England, differing only in minor detail from that given in 1615 for making "your best and principall bread...manchet" by Gervase Markham in *The English Hus-wife*, a work we know to have come to the Colonies. And a number of recipes for such bread later appeared in English works that were widely circulated here in the eighteenth and early nineteenth centuries, some coming out in American editions, such as *The Art of Cookery* by Hannah Glasse, beginning 1747, and *A New System of Domestic Cookery* by Maria Eliza Rundell, beginning 1806. Mrs. Randolph's recipe is particularly precious to us, first because it is American, but also because of her meticulous directions, including her observations on the weight of her flour, thus permitting us to make an intelligent guess as to the quality of her bread.

I shall go into some of the research I did for my reconstruction of the Randolph loaf, a loaf with a wonderful crust and a springy crumb. Most American bread was made at home, so I confined myself largely to American breadmaking practice as recorded by, or directed to, the American home cook of the nineteenth century. If I often refer to French method, it is because a good deal of what I learned about traditional baking methods I learned in France. I have a surprise for you, and a confession.

It all starts with the choice of grain, which is first a question of place and time, so much so that in English, the term corn refers to the predominant local grain, whatever it may be, which explains why the early settlers called maize *Indian corn*, or more often, simply *Indian*, thus confounding unwary pop food historians of today.

(An aside in the form of a culinary history lesson. Hearth cakes are all but universal, a form of proto-baking antedating ovens — nothing to do with frying whatsoever — varying only with the local grain and what local technology affords in the way of a bakestone — a flat hot rock will do, or the cake may be wrapped in a leaf and baked in the ashes. But whether it be the wheat of ancient Mesopotamia, the barley of ancient Palestine, the oats of the British Isles, or the maize of Mexico, the elemental gesture is the same [PAT-A-CAKE], a striking case of parallel development. What I am saying is that while the early settlers had much to learn from the Native Americans, they had no need to learn about hearth cakes, which they had been making for centuries on end. What could be simpler than substituting maize for oats, both being fatty grains with no gluten whatsoever? Oaten bread is called *jannock* in parts of England; its assimilation to *Jonny cake*, perhaps by way of *jonnikin*, a diminutive of *jannock*, is hardly mysterious, once one knows that *jannock* referred to oaten bread. My construction even explains the charming spelling that Rhode Islanders insist on, which is *Jonny cake*, without an *h*. I discuss this, along with *rice johnny cakes*, which were the rule in a good deal of the South, at some length in my book *The Carolina Rice Kitchen: The African Connection*. That is, johnny cakes have nothing specifically to do with maize, *but everything to do with the available grain*, that, and the lack of ready use of an oven, which is why hearth cakes generally survived longer among the poor, and in remote areas. I justify the inclusion of this aside by the fact that johnny cakes are very much part of American bread history, North and South, and that so much nonsense has been written about them.)

But from the beginning of its recorded history, wheat has been the noble grain wherever it was known, in England and the Colonies, as elsewhere, not only because its unique qualities enabled the making of wondrously light bread of dazzling whiteness, but also because it was expensive to produce: Rye grows in soil disdained by wheat, for example, and is much hardier as well; almost any grain gives far better yield than wheat. And when wheatmeal was bolted to give white flour, it became dearer yet. So it can be seen how white bread became a mark of class, and why the poor came to demand it, particularly in an increasingly democratic society.

The story of the American loaf is that of making it ever whiter, ever puffier, ever less flavorful, and, ever less nourishing. It all happened in the nineteenth century with the conjugation of such seemingly unrelated events as the building of the railroads and the demographic move westward, the invention of new milling methods, and the general adoption of the iron range in the American kitchen. Before the end of the century, all was in place for the next chapter of the debasement of American bread.

Perhaps the most crucial of those events was the building of the railroads, which opened up our prairies to large-scale production of wheat. This changed everything, in more ways than are immediately apparent, perhaps none more important than the fact that the relationship of wheat grower to consumer was forever changed in this country. In short, the advent of agribusiness. And the first victim was our bread. Previously, Americans largely ate the local wheat; wheat country was dotted with grist mills, where you brought your wheat to be ground into flour. Even if you yourself did not grow wheat, you knew that what you bought was local wheat, and you knew its baking characteristics. Outside of wheat country, there was far more reliance on lesser grains, such as maize, oats, or rye, and wheat tended to be something of a luxury. Even so, people generally knew where the wheat they were buying had been grown and what could be expected of it.

With agribusiness, wheat became a commodity, just like pig iron or coal, and every aspect of its production, especially milling, became increasingly industrialized, the milling early becoming concentrated along the upper Mississippi, centered in Minneapolis and St. Paul, often hundreds of miles from where it was grown, and perhaps thousands of miles from the consumer. For most Americans, the very idea of wheat farmers eating their own wheat faded from living memory, and the grist mill became increasingly quaint, a part of folklore. This insidious alienation from our sources was perhaps the most damaging result of all, a phenomenon that has since touched on every aspect of our food supply. Nothing escaped the steamroller of agribusiness, at least not for long.

The industrialization of milling took place within a matter of a few years, and was made possible by the invention of roller mills, which came along just in time. It is not that there were no problems, but the most dire, from a historical point of view, was that of storage of the flour. In the berry, wheat keeps reasonably well, but milling releases the oils of the wheat germ, which quickly turn rancid, a process that is exacerbated when the germ has been subjected to excessive heat from the new high-speed mills. Previously, the consumer simply bought only as much freshly-ground flour as was convenient, an amount that would be used before it turned rancid. But the new demographics of flour manufacturing demanded incorruptible flour, and the milling giants installed ever more sophisticated systems of blowers and other devices to rid the flour of every last fleck of bran, every last suspicious of wheat germ, the single most important life-giving element of wheat, thereby removing every last bit of flavor. They succeeded so brilliantly, that the golden fragrant flour of yesteryear was transformed — almost overnight — into chalky lifeless dust, so lifeless that yeasts refused to thrive in it, and bakers took to hyping up the dough with sugar, as well as excessive amounts of yeast, a practice quickly reflected in the cookbooks. Now, sugar fools yeasts, just as it fools people, but it causes an unhealthy, over-lush growth that puffs up the bread in a spectacular way, but produces a crumb of miserable quality.

Did nobody complain? Some did, cranks like me. In *Mrs. Lincoln's Boston Cook Book* of 1883, Mary Johnson Lincoln called for a tablespoon of sugar to six cups of flour in breadmaking, but she was defensive about it: "Many object to the use of sugar in bread," she wrote. "Flour in its natural state contains sugar; this sugar is changed in fermentation. Just enough sugar to restore the natural sweetness, but not enough to give a really sweet taste, is necessary in fermented bread." Well, of course, she was wrong, very wrong; the addition of sugar vitiates fermented bread, encouraging puffiness, a flaccid crumb, a soft crust, and, gives an unpleasant sweetish taste. In France, it is banned by law for use in *boulangerie* except in special enriched breads, an entirely different category of baking, having more to do with yeasted cake than bread — well, think of *brioche*, the ultimate in this regard. Nor, had there historically been sugar in American bread. What had happened, is that flour had already been so denatured that it no longer had any flavor, a fault which Mrs. Lincoln was desperately trying to remedy. Actually, American bakers had already been resorting to this falsification; Pierre Blot, the French founder of the New York Cooking Academy, noted in 1867 that "some [bakers] sweeten their bread, to disguise an inferior quality of flour." Witting or not, Mrs. Lincoln was already playing the classic role of the new domestic scientist, that of handmaiden to agribusiness, waxing enthusiastic over the "new" flours and describing them and their milling in considerable detail. In this, she anticipated Fannie Merritt Farmer by more than a decade, whose work of 1896, *The Boston Cooking-School Cook Book*, however, betrays not a hint of defensiveness; by then, it was standard practice. To be sure, she had graduated from the Boston Cooking-School, of which Mrs. Lincoln had been the first principal, but by the 1915 edition of Miss Farmer's work, she had already doubled the amount of sugar in bread.

Nor was sugar the only new additive to American bread. While it was never codified here, standard white bread in the Colonies had been made of flour, water, salt, and yeast, as in England and France. One of the interesting changes in American cookbooks of the last two decades of the nineteenth century is that standard bread recipes came to routinely call for milk, rather than water, as well as shortening, never as much as our older recipes for enriched breads called for, that is, not enough to make them lovely, just enough to destroy the wonderful springy crumb and crackling crust that characterize good bread.

I have yet to discuss the fact that the new wheat from the prairies was hard wheat, wheat high in gluten, the magic tough protein virtually unique to wheat that enables dough to entrap the carbon dioxide created by proliferating yeasts in countless balloons of air, finally to be set at their optimum by baking in the oven. Let us discuss this question of gluten content for a moment.

As in England, the Colonists had soft wheat, and for the same reasons: The same strains, well-watered soil, and generally moderate summers, that is, where wheat was grown. Even with the myriad new strains of today, only soft wheat is grown in the area of the Thirteen Colonies. To oversimplify a bit, wheat grown in a temperate climate on well-watered, low-lying plains produces wheat of lower gluten content than that grown on semi-arid plateaus with lots of sunshine. It has been shown, for example, that samples of Marquis wheat, a prized Canadian hard-wheat strain, produced crops with a gluten content ranging from extremes of 7.5 percent in California to 19.6 percent in Montana, this according to E. J. Pyler, in *Baking Science and Technology*. The composition of the soil also plays a crucial role, but that is more complex. All of these factors, including the changes in amount and timing of rain and heat during the growing season from one year to another, are so critical that we have *crus* and *millésimes* in wheat, as in wine.

Although little discussed by American bakers, this relationship has been known since antiquity. The English herbalist John Gerarde noted in 1597 that: "Wheat...requireth a fruitfull and fat soile, and rather Sunny and dry, than watery ground and shadowie: for in dry ground (As Columella reporteth) it groweth harder and better compact; in a moist and dark soile it degenerateth sometimes to be of another kind." The topography of Italy afforded Columella, the celebrated writer on agricultural affairs of ancient Rome, convenient observation of the effects of climate, soil, and altitude on the hardness of wheat. It also accounts for the dramatic regional variations in bread in Italy, as in France and Greece, for that matter. This is beginning to change, to be sure, but the best breads of my life were eaten, one in a very remote part of Auvergne, the other in an even more remote part of Greece, each made from the local wheat grown on handkerchief-sized plots, milled on the spot in wonderfully archaic ways. And, needless to say, baked on the floor of a wood-burning brick oven.

What we call hard-wheat strains, thus, are simply wheats developed to thrive on semi-arid uplands, while soft-wheat strains flourish in relatively damp lowlands. These variations in strain, in conjunction with the variations of climate and soil mentioned above, result in infinite permutations, again as in wine. Generally, it can be said that hard red winter wheat grows in Kansas, Nebraska, Oklahoma, Texas, and Colorado; hard red spring wheat in Minnesota, the Dakotas, and Montana; soft red winter wheat in Ohio, Missouri, Indiana, Illinois, and Pennsylvania, but also along the Atlantic seaboard, especially as one goes South; and white wheat in Michigan, New York, and the Pacific Coast states, again mostly according to Pyler. (Winter wheat is sown in autumn and harvested in early summer; where winters are too severe, spring wheat is sown in spring and harvested in late summer.)

Jefferson mentioned a red winter wheat that he called "the genuine May wheat of Virginia," observing however that it did "not answer for general culture in this part of the country," that is, Albemarle County, in the uplands. "In the lower country it does better," he wrote. And writing about his visit to Monticello in 1796, François Alexandre Frédéric la Rochefoucauld reported that Jefferson "contends that in the district [the wheat] is whiter than in the environs of Richmond, and all other low countries, and that the bushel which weighs there only fifty-five to fifty-eight pounds, weighs on his farm from sixty to sixty-five." [Emphasis added.] That is, wheat becomes heavier, literally, with an increase in gluten strength, or "better compact," as Gerarde put it.

Hardness is not the only criterion of wheat, nor even the most important one, although to read American works on bread one would be given to think so. At the French government bureau concerned with the quality of grain, I was dumbfounded to learn that their prize bread wheat strain, depending on year and provenance, produces flour running from nine to ten percent gluten content; American bakers consider such flour virtually unworkable for making bread, twelve percent often being given as a minimum. But M. Cocaud, *maitre boulanger* at the time, smilingly explained to this American that, "It is not so much the quantity of gluten that counts as the quality."

The French also believe that **quality is in inverse proportion to the size of the harvest**, whether speaking of wheat or wine: "But it's mathematical!" they exclaim, adding: "There is only so much flavor to the hectare." Since they equate flavor with quality, it follows that enlightened soil management is to be preferred to artificial fertilizers and overdependence on irrigation. In response to a question concerning the decline in the quality of French flour, a wheat broker explained that the production of wheat in the Beauce, France's bread basket, had increased threefold in a period of about two decades. So that the bread of France is also in peril, indeed has declined greatly in quality. But they know the reasons: until American bakers understand this relationship, we shall continue to have poor bread because of poor flour. You can talk about improving breadmaking technique all you please — and I have something to say about that as well — but it all comes to naught without good flour, that is, flour the gluten of which is of high quality, whatever its proportion might be, flour which was raised on soil that has **NOT** been impoverished by decades of artificial fertilizer, flour that has been milled and bolted in the old-fashioned way, above all, neither bleached nor bromated.

(An aside. Elsewhere in his work on travels in the United States, years 1795 to 1797, la Rochefoucauld expressed shock that the most elementary understanding of good husbandry was pretty much lacking all over our young country. Jefferson, discussing husbandry, gives what might be construed as a historical explanation: "...We can buy an acre of land cheaper than we can manure an old acre." And Jefferson was among the enlightened in such matters, preaching the gospel of crop rotation in a land where monoculture was already wreaking damage; indeed, Robert Beverley of Virginia had warned about that early in the eighteenth century. Another reason is that many settlers had not been farmers in the old country, and so not steeped in the lore of centuries of good husbandry familiar to la Rochefoucauld, for example. I know that the fact that my mother's parents had been farmers in Denmark before they came to Nebraska has had an influence on my thinking in this regard.)

Nor did early American writers on bread appear to understand the role of the **quality** of gluten. In *A Treatise on Bread*, 1837, Sylvester Graham, for example, wrote: "The wheat which is raised in Virginia and the southern states generally, contains a larger proportion of gluten than that which is raised in the western part of the state of New York. Hence bakers are able to make a larger loaf of bread out of a pound of southern flour than they can out of a pound of western [New York] flour..." Hot summers may indeed have accounted for a somewhat higher proportion of gluten in Virginia wheat, which was highly regarded and fetched very good prices, but it was actually the **quality** of that gluten that Graham was remarking on, without realizing it. That is, **Virginia wheat was, and remains, soft wheat**. Virginians, and Southerners generally, retain their predilection for soft flour to this day; national brands of so-called "all-purpose" flour — wretched stuff — marketed in the South are appreciably softer than are the same brands in the North, so much so that recipes developed for one often fail when applied to the other.

And Dan Morgan reports in *Merchants of Grain* that, because of changing demographics in England associated with the Industrial Revolution, by 1800 "British millers turned to the new American nation and imported flour from Baltimore and Richmond." This may explain the passage from the 1806 London edition of Mrs. Rundell's work, where she claims that English bakers were getting three pounds more bread from each stone [14 pounds] of American flour than from "the best sort of English flour." England may have been having a series of unusually damp and cool summers, so that the quality of American wheat may have seemed miraculous. I find the figures high, considering the fact that all American wheat of the time was soft. Still, wet summers may produce the degeneration mentioned by Gerarde, what is known popularly as *grown wheat*, wheat so affected by amylase activity that dough made from it turns viscous, particularly as either fermentation or kneading is prolonged; at best, a far higher proportion of flour is required. Nowadays, such flour — indeed, soft flour generally — is consigned to the making of non-fermented cakes, cookies, pastry, biscuits, crackers, and so on, where this defect is of little importance, or the flour is "improved" with nasty chemicals and mixed with hard flours, to be sold as "all-purpose" flour.

"Grown" flour seems to have been an occasional problem in the Colonies, as well. In the second edition of *American Cookery*, 1796, Amelia Simmons gives a recipe, "To make good Bread; with grown

flour," that adds pearlash, a precursor of baking soda, to a highly enriched dough — effectively an unsweetened cake, not proper bread at all.

The question of gluten quality is highly complex, having to do with glutenin, gliadin, thiols, and the many amino acids that figure in the chemistry of wheat proteins, a subject beyond the scope of my talk and, for that matter, beyond my ken. In any event, the final test is in the loaf.

As I said, the new flours were hard flours. Among other effects of this revolution in flour, was the rise of the shibboleth that only hard flour makes good bread. Bakers love hard flour, because its high gluten content enables it to absorb appreciably more water. As Elizabeth David puts it, "Then, of course, there's all that lovely water that the customers pay for." In addition, the loaf is usually more impressive in size. Perhaps most important in the trade, however, is the fact that hard flour stands up to the rough treatment of the kneading machine, whereas soft flour tends to be more fragile. Lionel Poilâne of Paris, another of my mentors, had his kneading machine geared down to a snail's pace, so as not to bruise the dough, as he put it to me. Hard flours do not have the flavor of soft flours, however, a fact grudgingly admitted by the trade.

It is easy to tell soft from hard flour. Soft flour has an almost impalpable texture and feels like velvet; if it is good flour, it retains its shape and even the lines of the hand when squeezed, a test often suggested in nineteenth-century cookbooks. [DEMONSTRATE] This is milled from red winter wheat grown in Amish country, Lancaster County, Pennsylvania, and according to Stephen Kantoor of Great Valley Mills, a grist mill established in 1710, it runs a phenomenally low five percent gluten content, varying somewhat with the year; commercial cake flour runs seven to nine percent. It is organically grown, stone-ground, bolted the old-fashioned way, the only difference being the substitution of nylon for silk, a system that permits the wheat germ, as well as infinitesimal flecks of bran to go through, lending their wonderful wheaty flavor and a lovely cream color to the flour. Needless to say, it is neither vitiated with bleach nor "improved" with bromates or anything else, no matter how benign. (Historically, millers and bakers have often had recourse to various adulterants, but they had the good grace not to call them "dough improvers." To be sure, they did not announce their presence.)

One cup of this flour, **unsifted**, runs just over 140 grams; hence, a quart weighs somewhat more than 560 grams, or so nearly 567 grams, that is, 20 ounces, as to never mind. **Sifted**, it runs under 110 grams to the cup, 440 grams to the quart, or about 15 ounces, depending on the amount of fluffing, the weather, and so forth.

Hard flour, by contrast, feels grainy, and immediately collapses after squeezing. The same miller also offers a superior hard flour from the Dakotas, running close to 19 percent gluten content. I did not bring a sample. One cup of that flour, **unsifted**, runs 160 grams, or 640 grams to the quart, about 75 grams more than the same amount of the soft flour, which is appreciable; if well-settled, it weighs even more. These weights have their importance, as we shall see, especially in regard to the American custom of measuring flour by volume, rather than weight.

Now for my surprise. The Randolph loaf you see pictured here [SLIDES] is made from the soft flour, flour directly from the bag as it comes from the grist mill. In spite of my knowledge gained in France, I initially had a hard time believing that I could make bread from flour running five percent gluten; writers on bread since the early days of hard wheat in Minnesota have convinced us that bread can be made only from hard flour.

In my experiments, I took Mrs. Randolph's 20 ounces of flour as my test batch, trying a score of blends of this flour and that from the Dakotas — effectively my own "all-purpose" flour — before deciding finally to eliminate the hard flour altogether. For one thing, the weight of the soft flour jibed to a hair with that given by Mrs. Randolph, that is, a quart of flour should weigh twenty ounces, requiring 12 ounces of water, that is 60 percent hydration, the traditional soft flour proportions from England. More to the point, my loaf dramatically improved as I lowered the proportion of hard flour.