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A Century of Change in the American Loaf:

Or, Where Are the Breads of Yesteryear?

By Karen Hess

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.[1]

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 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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[1] 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 apetites, 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 suspicioun 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, *maître 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 oldfashioned 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 Rochfoucauld, 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 predilectionn 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.

Mrs. Randolph almost surely used lowland Virginia wheat, which could well have been the red May wheat of Virginia mentioned by Jefferson. I should perhaps have spent more time trying to track down that wheat, but the likelihood of finding lost Virginia strains seemed tenuous, and I had important internal evidence as to the quantity and quality of gluten in her flour: It was soft flour, as evidenced by its weight and her lack of emphasis on lengthy or vigorous kneading — "knead it some minutes," she casually says, and in the morning one is to "work it a little." Hard flour requires proportionately longer and more vigorous kneading. The gluten was of high quality, as evidenced by the flour tolerating the very long fermentation time, 12 to 15 hours. And it was grown, milled, and bolted much as flour was in her day, as I explained above. All in all, based on my research, I feel justified in having used a flour I believe to have been much like what she used, in that it responded perfectly to Mrs. Randolph's directions.

Now for the confession. I find that in my glossary, on page 260 of *The Virginia House-wife*, I nodded and wrote, "ten ounces" of water, rather than the correct "twelve." I must have been reading a parallel recipe from *Mrs. Porter's New Southern Cookery Book* of 1871, which does indeed call for only ten ounces of water for each quart of sifted flour, meaning that the flour must have weighed something over 16 ounces. Mrs. Porter was a Virginian, and was almost surely using flour not too different from what Mrs. Randolph had been using half a century earlier; the interesting item, historically, is that by that time, flour was being sifted *before* measuring. Nor was she alone; Annabella Hill of Georgia, starts her recipe for "Light Bread" calling for "three pints of sifted flour," this in the 1872 edition of *Mrs. Hill's New Cook Book*. The day of weighing flour in the American kitchen had long since passed, in favor of the wildly inaccurate system of measuring by volume, exacerbating the problem by sifting before measuring. I can only conjecture that frontier life conditioned American women in favor of volume measuring; scales were cumbersome, but a cup was always to hand. A pity. We do so pride ourselves on our accuracy in measuring.

Before I leave the subject of flour, I should acknowledge the role of the counterculture, now some decades ago, in spreading the gospel of organic farming and the use of whole grains. Alas, they were dreadful bakers, either baking the bread of affliction or drenching it with blackstrap molasses or honey, hopeless amateurs who would not believe that the past had anything to teach them. I like whole grains well enough, but I also want my white bread — good white bread. Speaking personally, I should like to make a call for white flour of 81 or even 85 percent extraction rate, that is, flour that has an even higher proportion of infinitesimal flecks of bran than the flour I brought. It gives bread of the most extraordinarily intense wheat flavor, yet behaves much as white flour does in breadmaking. A bit of eating your cake and having it too. It is the type of flour used by Poilâne, for example, and was Elizabeth David's chosen flour. I have tried using samples of both, and they were lovely.

I should also note that while most of our historical breads came here by way of the early settlers or later immigrants, there was one truly original American bread, and a very fine loaf it was: The rice-and-wheat bread of South Carolina, a yeasted loaf, a creation of the English and French settlers who had become, against all probablities, eaters of rice, thanks to having bought slaves from the rice lands of West Africa. They loved their rice, but they were historically eaters of bread, and this is something one does not forsake. This was in addition to myriad breads made of rice or maize, or rice and maize, an unusual combination, but they were not yeasted breads. All of this I discuss in my work on the Carolina rice kitchen.

Before we go to the all-important subject of baking the bread, let us consider the other ingredients, starting with the leaven. The phenomenon of San Francisco sourdough, or Alaska sourdough, or any other, is beyond the scope of this talk; it's another subject. But I do want to address **the perfectly ridiculous claim that sourdough is an American invention**, propagated by some of our foremost "authorities." [Julia Child] The purposeful making of raised bread may have originated in ancient Egypt: tomb paintings and a hieroglyphic in the shape of a domed loaf attest to the antiquity of the practice, but it could have been even earlier in the lands of the origin of wheat, essentially Mesopotamia. Whether the yeasting was originally entirely spontaneous, or was due to breadmaking having been carried on in proximity to the brewing of ale, is not known. Certainly the climate is propitious for the spontaneous method in those areas. In any event, it was all well before the days of the Gold Rush. The precise yeast strains, or whatever they are — I tend to think of them as ornery creatures with a mind of their own — and the method of keeping them viable for the

next baking vary with time and place. But whether it be ancient Egypt, old France, San Francisco, or even medieval England, for heavens' sake, sourdough is sourdough — the very word goes back to Middle English, and Markham gave a recipe in 1615 calling for its use — **the principles are identical.** And let us get one thing straight: Sourdough bread cannot be made with a "starter" started with commercial yeast, nor one hyped up with powdered milk — this last purporting to be French method, in one case attributed to Poilâne, if you can imagine! — no matter what some writers say.

This brings us to the second secret of good bread: **Time, that is, fermentation time.** It does not necessarily have to be as long as that entailed in genuine sourdough methods, nor even quite as long as that called for by Mary Randolph. But the incomparable flavor of wheat bread can only develop slowly. Some things you cannot hurry.

I have said that sourdough and yeast methods can exist side by side. Usually, in any given community, one or the other becomes predominant. The use of fresh ale yeast, or even *barm*, which is finally fermenting ale, predominated in English baking because England was a nation of home brewers. France was a nation of vintners, and sourdough methods came to predominate, by law and custom in *boulangerie* until remarkably late, except for enriched breads. Home brewing of ale came to the Colonies, as did English breadmaking methods. As home brewing declined, the cookbooks are filled with recipes for making yeast and ways of keeping it, for the most part, it must be said, very time-consuming and not terribly reliable, at least not in my very limited experience, undertaken only because of scholarly conscientiousness. Well, and a little simple culinary curiosity. I gave it up, over time, even in my experiments; for one thing, I had to start with a paring of commercial yeast, not being a brewer, so that it was not entirely authentic in any event.

What is important is that the **least amount of yeast possible be used**, letting time do its thing. Americans, as is our propensity, almost invariably try to speed things up by using far too much yeast, forgetting that yeasts are living plants and should not be forced. As I wrote in one article, fresh yeasts taste best, and work best; grow your own, all it takes is time. It is difficult to determine exactly how much yeasting strength Mrs. Randolph's "large spoonful of yeast" had, but judging by her liquid yeast recipes, it could not have been great. In any event, the exceedingly long fermentation time precludes great strength of yeast. I came to use one-half teaspoon of fresh compressed yeast for 20 ounces of flour, and this worked perfectly. If you must, use no more than one-quarter teaspoon of dry granulated yeast, preservative-free, for heavens' sakes; too much of this yeast is even more pernicious than fresh yeast, having the taste of sere winter leaves.

A historical note on other leaveanings. The decline of home brewing may help to account for the terrible explosion in the use of alkali as leavening in American baking in the nineteenth century, particularly in frontier situations. The practice had reached the cookbooks by 1796, in *American Cookery* by Amelia Simmons. This use of alkali, often in conjunction with yeast, was the bane of the century, forcing the use of ever more sugar to cover the dreadful taste of alkali. Perhaps the most egregious offender was Elizabeth Lea, the Quaker author of *Domestic Cookery*, 1853, who was not content with recommending the addition of "a heaped tea-spoonful" of saleratus, a precursor of baking soda, to a batch of bread as a "constant" practice, to "insure sweet bread," but also repeated it in virtually every bread recipe, this in addition to its use in quick breads. Some writers inveighed against the noxious practice, including Mrs. Lincoln in 1883, showing that it was still current.

As for the salt, I use three teaspoons of sea salt to 20 ounces of flour. Somewhat less will do, if you must, but the long fermentation requires the braking action of sufficient salt. As for water, I consistently have better bread when I use spring water from a reliable source; yeasts are living things, and respond badly to the chlorine and other nasty things in our city water systems. Her advice to use cold water in the original dough is the mark of a real baker. The use of hot water is death to yeasts, especially if it comes from the hot water tap.

I tried to follow Mrs. Randolph's recipe to the letter; I was, after all, doing historical research, but I part company with her on making bread in a "tin kettle," much preferring stoneware. She talks about finding a warm place for her dough to rise, but in our overheated homes, it is more to the point of finding a cool place, depending on ambient temperatures, to be sure. I am also a follower of the oldfashioned practice of wrapping the bowl of rising dough in a woolen blanket, to create a cozy miniclimate.

I am here, not to teach you how to bake bread, but to give the historical view, so I am not going to give details on the kneading and shaping except to say this: Mrs. Randolph called for baking her bread as rolls, meaning that patrician Virginians were continuing the English custom of considering large loaves fit for peasants. That is, she was effectively making *manchets*, large rolls made of the finest flour. I made this point, now a decade or so ago, and I received several letters from Southern readers, agreeing that large loaves were still thought to be "common." Since my simulated oven system does not handle rolls easily, I took the liberty of baking the bread as a *miche*, a lovely round loaf. For myself, I prefer the way a larger loaf bakes. I proofed the loaf in the classic French *banneton*, the canvas-lined basket, but one can be easily improvised by lining a basket of appropriate size and shape with floured layers of cheesecloth or a tea towel. I rather doubt that Mrs. Randolph used a *banneton;* with rolls, it is of less importance since they proof very quickly and are often simply placed on a floured surface. One word of caution: This final proofing must not be overextended, or the magical oven spring will be compromised.

In 1824, Mrs. Randolph still used the brick oven. But by the time of Eliza Leslie and Elizabeth Lea, toward mid-century, the iron monster was becoming more general; each author discusses both brick and iron ovens, as well as the ancient so-called Dutch oven method.

But the art of breadmaking evolved around the use of the brick or clay oven: The superheated dome with its unique convection patterns that encouraged oven spring; the initial steaminess generated by the dough itself that gradually gives way to searing dryness, the process responsible for the incomparable crust; and the principle of the "falling" oven, that is, gradual loss of heat; all combine to produce a loaf against which all other loaves must be measured. There are other wonderful wheat breads, with other qualities — the tandoori breads of India, for example, among scores I could name. I speak of the wheat loaf that came to Europe, I don't know when, but it was all in place by early antiquity, as evidenced by the ovens of Pompeii, completely evolved probably long before.

One of the early steps in the debasement of bread was baking it in pans, rather than casting it. Highly enriched breads had long been baked in molds of various kinds, a different story altogether. But something new was signalled in 1806 when Mrs. Rundell wrote: "If baked in tins, the crust will be very nice." What she meant, of course, is that the crust would be nice and soft. Baking in tins is clammy; earthenware is not as bad in this regard. Baking in pans had the advantage of permitting the use of slack dough, often a fault of either using "grown" wheat, or over-fermented dough, but it also encouraged the use of slack dough. Slack dough puffs nicely, especially if assisted by the addition of alkali.

Nor does bread bake properly in the iron box. The convection patterns are all wrong, there is not sufficient steaminess at the beginning of baking, but mysteriously, the oven retains a clamminess toward the end, precisely when it should be searingly dry. The only things that bake really well in the iron box are baking powder biscuits and layer cakes.

Of course, any bread baked at home is going to be better than factory bread. My husband John likens those bread factories to oil refineries, with industrialization of baking having gotten to such a point that a people can say, in all admiration about some new idea, "The greatest thing since sliced bread." It was, of course, the final desecration.

My problem, thus, in reconstructing the loaf of Mary Randolph was to simulate the conditions of the brick oven. The basic premise came from Elizabeth David, with her discussion of baking under a clay flowerpot. I went a step or two further. I installed a soapstone slab on the floor of my gas range oven, and found an outsize clay flowerpot to use as a *cloche*. For my oven peel, I used a pizza paddle. Indeed, a pizza

stone, if it be large enough, can make do for the floor of the tiny brick oven, a good deal more convenient than the stone slab. Also cheaper. There is now available a very pretty earthenware *cloche* baking set, but of flawed design in that it is too small for a loaf of any real size, and worse, the loaf cannot be cast because the baking plate is deeply rimmed; it is also overpriced. That said, the *cloche* could be used with a pizza stone instead of the plate, and would be far more comfortable to work with than my flowerpot system which works wonderfully well but is awkward to handle when hot.

Baking stone and *cloche* are heated in an ordinary oven, all to a temperature of 500° F. When all is ready, the loaf is turned out of its *banneton*, right side up, on your floured oven peel. Working very quickly, make the appropriate slashes with a single-edge razor, unless you have a *lame*, of course, in such a way that they are actually very shallow. With a confident flip of the wrist, cast the loaf on your baking stone, dead center, and clap over it the super-heated *cloche;* if it is a flowerpot, plug the drainage hole with a tile or even foil, so as not to lose steaminess. Then turn down the thermostat to 400° F, and about half an hour later down to 350°, or less, all to simulate the "falling" oven. Even modern ovens are highly idiosyncratic, and most have faulty thermostats, often unbeknownst to their users. Fortunately, within limits, the bread is forgiving in this regard. Much also depends on how heat-retentive the oven is and how much heat is lost in the casting operation. **WARNING:** Be sure to practice all logistics in a cool oven before actually baking the bread. **Wear welders' gloves and keep your arms covered.**

An aside. I had no historical information on slashing rolls in Virginia, nor in America. Markham, in 1615, instructed the reader to "scorch [the manchet] about the wast to give it leave to rise, and prick it with your knife in the top." Since cast loaves are invariably slashed, I slashed, using the classic tic-tac-toe pattern. I should like to point out how nicely the slashes developed, always an instantaneous sign of quality of texture. **[SLIDES]**

Bread must be well-baked. Americans tend to underbake bread, resulting in sogginess. A loaf made with 20 ounces of flour takes a good hour to bake. The traditional test is to rap the underside of the loaf with your knuckle; if it resounds, it is done. A dull thud sends it back to the oven; it need not continue to bake under cover at this point.

I don't pretend that this is the real thing. Certain nuances from the burning wood are lost, for example, but the results are astonishingly close to bread baked in a brick oven because, while the source of the heat may be gas, the loaf is effectively baking in a tiny brick oven with the proper convection patterns. No amount of wildly dangerous dropping of superheated axe heads into pans of water placed on the oven floor — such as recommended by a certain writer [Julia Child] — is going to give those convection patterns. Or the right crust. If my method seems daunting, and I can see why it might, I suggest baking your loaf in a Dutch oven, preferably earthenware. This method has been used, one way or another, for millennia, and as I noted, was still current here in mid-nineteenth century. Obviously, the shaped loaf has to have its final proofing in the baking pot, which must be greased, but I preheat the cover to give the oven spring a little boost. Oven temperatures and baking time are the same as given above.

In conclusion, I want to say that my purpose was to show some of the historical reasons for the transformation of Mary Randolph's loaf of 1824 to the Wonder bread of today. The French would say, "**It is progress that wills it thus.**" Surely there is some way to have both progress and something more like the bread of yesteryear.

There are many aspects of our bread history that I have not even touched upon. I should perhaps have given more attention to Sylvester Graham and his crusade for wholegrain flour, he for whom wholegrain wheat flour was named. I have not mentioned the many ingenious combinations of grains that went into early breads, often, I suspect, to eke out supplies of expensive wheat, such as "Thirded Bread," a yeasted bread which contained wheat, rye, and maize, often called "*Injun* Bread" because it contained Indian meal, that is, cornmeal. By the way, the earliest published recipe for any sort of bread containing maize that I have found is given by Antoine Augustin Parmentier in 1778, a yeasted bread. In France.

I do not want to leave the impression that all Americans, everywhere, ate good bread in the early days. They did not. First, there were the poor. And the frontier. And years of bad crops, including the problem of "grown" wheat. But the bread that they ate could not have been worse than what most Americans eat today. **You call that bread? [SHOW GLOB OF WONDER BREAD]**

What I do say, is that those who had the means, in this case specifically patrician Virginians, ate wonderful bread, bread that would grace the finest table today, anywhere, including France.

Some may object that I have slighted — even omitted — the contributions of Native Americans, African-Americans, and immigrants from many, many parts of the world. But the story of yeasted wheat bread in America is primarily that of our English heritage, the English, in turn, probably having learned it from the French now nearly a thousand years ago. In any event, what happened to our white bread also happened in varying degree and in varying ways to all the other breads. **It is still happening.**

I tried to give documentation as I went along. For more details, ask me, or consult the various books and articles I have written and, of course, the source books themselves, all of which are included in the bibliography, of which you should have a copy. Also, of Mary Randolph's recipe.

I should note that I have cannibalized a certain amount of my own writings in preparing this talk; it's inevitable, although I should also note that I have had reason to change my views as I have done more research. Not the long view — the transformation of Mary Randolph's loaf, a thing of beauty, into Wonder bread remains constant. What has changed, but only in detail, is certain aspects of trying to achieve something like the breads of yesteryear in a modern kitchen.

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