

“Consisting merely of flour and water”

## Reproducing the Eighteenth-Century English Biscuit

BY Jeff Pavlik ✎ CONTRIBUTOR

Jeff Pavlik was on track to take his university degree in American History and find work at a living-history museum. Somehow, he ended up buying a bakery. Fortunately history and bread are intertwined, and his passion for research and practicing his art were able to be realized in re-enacting as a baker in colonial North America. Jeff maintains a website, [www.colonialbaker.net](http://www.colonialbaker.net), where he posts his research on colonial baking and sells these biscuits.

Making a reproduction biscuit, also called ship's bread or sea biscuit during the eighteenth century, would seem like a simple task if we follow the period description that, "a large lump of dough, consisting merely of flour and water, is mixed up together."<sup>1</sup> But in the course of my research, I have found many intricate details in the historical record concerning the types of flour used, the manners in which various nations made their sea biscuits and observations on the science of baking these simple breads. Intricacies that all assist in better reproducing a period biscuit in modern times. This article focuses on the details of an unleavened English biscuit.<sup>2</sup>

The first hurdle in reproducing biscuits is that modern flours are in many ways different from historic flours. The most significant problem is that millers of the period marketed a sort of coarse ground wheat flour that is no longer produced with modern milling technology. The lowest and least expensive grade of flour to make common bread in the eighteenth century would be similar to our stone-ground white whole wheat flour. In the period it was known as household flour and defined as, "the whole substance of the grain, without taking out either the coarse bran or fine flour."<sup>3</sup> The flour used for any biscuit, whether for a traveler, soldier, sailor, or

tradesman, would have been made from the least expensive flour available at the time and place.

Millers sifted the ground whole wheat for finer flours and kept the partially ground wheat for other uses including biscuits. "The greatest portion of the whole flour is constantly thrown into that assortment which is called Household, the rest and residue being Middlings only, such as is chiefly used for Biscuit Stuffs."<sup>4</sup> Various names were given to this sort of roughly ground wheat: fourths, middlings, pollard and ships stuff. But a writer from the mid-eighteenth century sums it up best, "The other sorts of flour, which biscuit and gingerbread makers use should be called coarse flour."<sup>5</sup> While community grist mills of the period might not have carefully sifted out the large pieces of meal and bran when grinding household flour for a private family, most commercial mills that supplied flour to bakeries making biscuits for government or company contracts did sift flours for specific purposes.<sup>6</sup>

Large pieces of course flour observable in a period biscuit do not reflect the lack of the miller's skill as some modern writer's suggest, but rather the clever and cost-saving addition of the biscuit baker's skill to utilize this by-product of the milling and sifting process. To replicate the look of a period biscuit a portion of the flour

should be some sort of course flour with recognizable pieces of the wheat grain to imitate the addition of ship's stuff. Working in collaboration with Alisa Crawford, the miller at *De Zwaan*, a relocated eighteenth-century Dutch windmill now grinding wheat in Holland, Michigan, I have been fortunate to utilize some of these sorts of period flours in my research and reproductions.<sup>7</sup> The best manner to replicate this sort of flour at home is to crush white wheat berries with a rolling pin, which will give a close approximation of stone-ground ship's stuff. Add 1 cup of this course flour to 2 cups of white whole wheat flour to get a good approximation of a pound of period biscuit flour.

What will be adequate for most people in replicating a more period-correct biscuit is simply using stone-ground flour made from white whole wheat, the common type of wheat during this time period. Missing in this flour, however, is the ship's stuff - the grittiness of sharps and the coarseness of flour stuck to bran called pollards. Red whole wheat, the common whole wheat in American stores today, was not used by colonists and rarely by Western Europeans. It should also be noted that long pieces of bran, so evident in red wheat flour, were sifted away as much as possible even during the colonial period. Thus, adding red wheat or additional bran to the

Image ✎ Summer Criswell - Ship's Biscuits baked by author with Ship's flour.





dough will not make the biscuit more period-correct. Large pieces of bran, in fact, will slowly absorb moisture and will make a biscuit soften, break, or even mold. This was known by eighteenth-century biscuit makers and who were advised to:

*avoid the defects which prevail... which leaves the bran in the flour, or the flour in the bran, and injures the manufacture" and was understood that "sometimes it is in the bran, which occasions insects, and hollow spaces in the interior parts of the biscuit, giving it a disposition to mould."*<sup>8</sup>

Some modern versions of eighteenth-century biscuit recipes have called for the addition of salt to the dough. I have yet to find a period document in which salt is named an ingredient for a biscuit. Salt is very important in the process of making risen bread as it helps bind the gluten proteins that hold the loaf's shape, helps control fermentation, gives bread a better flavor, and maintains moisture in a baked loaf. But none of these virtues of salt in bread making are required for a biscuit. Yet it is such a mainstay in bread making that salt has made its way into modern interpretations of a biscuit without any merits. Biscuit makers of the period were well informed of the detrimental effects of salt in a biscuit and were advised to "not use salt... salt can make it more likely to attract

Image (Above) ☞ Jeff Pavlik - One pound of white wheat, ground and separated into various types of flours. In the middle is one unground pound. Surrounding that is one pound that the author "milled." [Left to right: pollards, middlings, sharps, household and fine flour. This was done with rolling pin, coffee grinder, and several types of sifters.]

moisture from the air."<sup>9</sup> Along with no mention of salt in any documents on biscuits, there is one poignant definition of a biscuit from 1701 that empathizes the lack of salt: "*Sea-Bisket*- of excellent use for the Sea, because baked without Salt, and well dried."<sup>10</sup>

Biscuits begin with approximately 30% water, which is reduced by baking and drying to a mere 5% or less of its total weight. A period source confirms this ratio: "the water must be nearly a third of the mass, and is lost completely in the oven." Using one pound of flour results in about a pound of biscuits, the same ratio I follow. In comparison, a one-pound loaf of bread after baking is about 70% flour and 30% water. The economic inefficiency of biscuits' use of flour was countered by its efficiency in making a necessary and durable foodstuff. A food used for trans-Atlantic voyages, continental warfare, exploration, and trade in the interior of North America. Several period descriptions of the biscuit-making operation confirm this flour-to-biscuit ratio. One such description is in the *The Seaman's Guide* from 1797, which states that "it requires an hundred pounds of flour to make ninety-two pounds of biscuits."<sup>12</sup> Dividing the pounds of flour used to make each pound of biscuit in these various period documents we can arrive at a common ratio to confirm that for every 1 pound of biscuit produced, an average of 1.1 pounds of flour is required.

The recipe I have recreated will make 1 ½ pounds of unleavened dough. This amount can be divided into three to five pieces, the average ration of biscuit for one man for one day. The water lost by baking and drying the biscuits will reduce the bread's weight by 1/3 and give you the proper weight for each biscuit of the given size. Biscuits were baked with the purpose of being rationed, and so each barrel, box, or bag of biscuits had a predetermined allowance for each person, per day. This is an important point when displaying biscuits at re-enactments, as demonstrating the actual rationed amount conveys to the public the amount of hard bread a person would eat each day.

Oven temperatures and baking times are inconsistent in period documents. While the root of the word biscuit means "twice-cooked," there are only a few references to these breads being baked multiple times. There was a wide array of methods and devices used by biscuit bakers to facilitate the further drying of these breads in the period. The easiest manner to dry them at home today is to place them on a cookie rack.

An example of an English biscuit from 1784 is in the collections of the National Maritime Museum, Greenwich, England, and can be viewed on its website.<sup>13</sup> The dimensions of this biscuit are 95mm

(3¾ inches) in diameter by 10mm (9/16") thick. To replicate this size, I recommend dividing the dough in the following recipe into five pieces. A piece of dough that fills a ½ cup measuring cup will make a biscuit about this size. Whatever the size biscuit you choose to make, it is best to press them down so that they are about ½ inch thick. Biscuit presses of the period were hefty pieces of metal imbedded with spikes that would puncture the bread to assist in evaporation. A modern pizza docker works well for this task; an ice pick can also be used to poke multiple holes in your reproduced biscuit.

After baking and thoroughly drying, the biscuit should be dense and not prone to breaking easily. Cracks in the dough come from insufficient kneading and if the biscuit is not thick enough it will break in storage or transport. When finished making biscuits you can compare them to a period test of a properly made biscuit: "A good biscuit breaks clean and crisp, has a shining appearance within, and the outside is glossy. When soaked, it swells considerably in the water, without crumbling, or sinking to the bottom of the vessel."<sup>14</sup> I wish you happy baking and *bon appetite*. I also suggest you take the precaution of chewing your biscuit carefully or soaking it in a beverage or soup before enjoying. ☞

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Image (Below) ☞ Jeff Pavlik - These five pieces of dough equal one pound of biscuit when baked and dried. The steps of making a biscuit are shown: dividing the dough into the proper weight, rolling the dough into a ball, flattening the dough to the proper size and then marking it with a biscuit press. The press is a replica English press with the King's Mark and a W signifying that the biscuit is from the victualling yard at Woolrich. A common biscuit would only have holes punctured in it to vent the moisture while drying.





**Endnotes for “Consisting merely of flour and water”  
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by Jeff Pavlik.**

<sup>1</sup> The British Encyclopedia, Vol. 1, William Nicholson, 1809, s.v. “Biscuit, sea” reprinted on *Google Books*, <http://books.google.com/books?id=-jQPAQAAlAAJ&> [accessed June 12, 2010].

<sup>2</sup> Descriptions of French sea bread of the time reveal that it was similar in its uses, but differed in that it was a leavened, risen dough of a much larger size. This makes for an intriguing research question for those interested in the fur trade in French North America.

<sup>3</sup> *Encyclopedia Britannica*, Vol. 3, Bell and Macfarquhar, 1797, 528 reprinted on *Google Books*, <http://books.google.com/books?id=43pBAAAAcAAJ&> [accessed June 12, 2010]

<sup>4</sup> Report from the committee appointed to consider of the methods practised in making flour from wheat, *Parliament Procedures*, (London, 1774), 8 reprinted on *Google Books*, <http://books.google.com/books?id=-5oNAAAAQAAJ&> [accessed June 12, 2010].

<sup>5</sup> Jonas Hanway, *Letters on the importance of the rising of the generation of the laboring part*, (London, 1766), 276 reprinted on *Google Books*, <http://books.google.com/books?id=sDEUAAAAIAAJ&> [accessed June 12, 2010].

<sup>6</sup> *Flour From Mill to Market*, Tom Kelleher, *Food History News*, Vol. VI, No. 2, p.2.

<sup>7</sup> Information on this windmill can be found at: <http://www.cityofholland.com/windmillislandgardens> [accessed February 12, 2011].

<sup>8</sup> *The Domestic Encyclopaedia*, vol. 1, Florian and Willich, 1802 p 267 reprinted on *Google Books*, <http://books.google.com/books?id=VJ5bAAAAMAAJ&> [accessed June 12, 2010].

<sup>9</sup> *Encyclopédie Méthodique ou par ordre de Matières: Marine*, Volume 1. (Paris, 1783), 145 reprinted on *Google Books*, <http://books.google.com/books?id=XIIPAAAAQAAJ&> [accessed June 12, 2010].

<sup>10</sup> Samuel Jeake, *A compleat body of arithmetic*, (London, 1701), 74 reprinted on *Google Books*, <http://books.google.com/books?id=zP7mAAAAMAAJ&> [accessed June 12, 2010].

<sup>11</sup> *Encyclopédie Méthodique ou par ordre de Matières: Marine*, Volume 1. (Paris, 1783), 154 reprinted on *Google Books*, <http://books.google.com/books?id=XIIPAAAAQAAJ&> [accessed June 12, 2010].

<sup>12</sup> John Cochrane, *The Seaman’s Guide*, (London, 1797), 26.

<sup>13</sup> <http://www.nmm.ac.uk/collections/nelson/viewRepro.cfm?reproID=D4001%5F1&picture=1#content>. This link will take you to the National Maritime Museum where you can observe the biscuit in detail. I am not in full agreement with the text given along with this biscuit. Hard tack is not a word used during this period, nor were weevils a significant problem with the provisions. To see an excellent debunking of the weevil myth see this article: <http://www.hms.org.uk/nelsonsnavyaggot.htm>

<sup>14</sup> *The Domestic Encyclopaedia*, vol. 1, Florian and Willich, 1802 p 267 reprinted on *Google Books*, <http://books.google.com/books?id=VJ5bAAAAMAAJ&> [accessed June 12, 2010].



Image (Above) ☼ Summer Criswell - Ship’s Biscuits baked by author.

Image (Below) ☼ Jeff Pavlik - Author explaining biscuits at the oven of Fort Michilimackinac, Michigan. Biscuits were a vital part of provisions for Great Lakes sailors and voyageurs. The ovens at this fort provided thousands of biscuits for resupplying the workforce of the fur trade.



## Biscuit Recipe

This is how to replicate the basic biscuit of the eighteenth century using readily available ingredients. The amount of dough made using this recipe will equal a ration of one pound of biscuits after they are baked and dried.

3 cups white whole wheat flour  
1 cup plus 2 tablespoons of water

Preheat oven to 375 degrees.

Combine flour and water. Let the stiff dough rest for 10 minutes to allow the flour to soak up the water. If the dough is too stiff for you to mix it by hand, add an additional tablespoon of water. The dough will be denser than bread dough and you should be cautious using modern mixers as they might not do well under the stress of this stiff dough. The initial water added to the flour will seem insufficient to experienced bread makers, but give it time to incorporate and dough will form.

Knead dough until it is smooth. This will take a few minutes. The amount of kneading necessary is less than when developing gluten in yeasted dough, but the time and effort needed for this stiff dough is often the same. After a short while once the water has had time to soak into the flour the dough will become easier to knead.

Divide the dough into three to five pieces. Hand roll each piece round like a dinner roll until it is a smooth mass. Press the dough down with the palm of your hand until it is about ½ inch thick. If the dough cracks on the edges or splits, then more kneading is required.

Make evaporation holes using a pizza docker or an ice pick. The holes should be about ¾ inch apart from each other and cover the entire surface of the biscuit. They do not need to go all the way through the biscuit dough.

Place biscuits on a cookie tray and bake for one hour at 375 degrees. Once or twice during the baking, open the oven door to allow the evaporating water to escape. When the hour is up, remove biscuits from the oven and place them on a cookie rack to cool. Continue to dehydrate them by leaving them exposed. You can also store them in the oven to dry once it has cooled. Once they have dried for several days, the biscuits will be ready to use. They will keep indefinitely if maintained in a dry, cool place, and stored so that insects cannot access them. Enjoy them on a trek, in a camp, or as part of your demonstration kit.