

# Batch no. 207 & 208    Ancaster Great & Lesser    Date: Saturday Sept. 22, AS XXXVI (2001)

Based on Gervase Markam, published 1612, describing practices of the 16th century.

This is a scientific approach to the recreation of period process. The use of modern instruments: thermometer and hydrometer, is for observation only, and has no influence over the period process.

Markem calls for a single infusion mash, which is then simply run off with no further sparging (rinsing of the grain). Additional hot water is combined with the grain, and mashed for a second time for a "small beer".

What Markam says to do:

Original recipe: "it is held that to draw 3 hogsheads of beer from each quarter of good malt is the best ordinary proportion that can be allowed, and having age and good cask to lie in, it will be strong enough for any goodman's drinking."

Markham gives great detail in the construction of the kiln, and of the (straw) bedding that keeps the grain away from the flame path.

"Now for the brewing of ordinary beer, your malt being well ground and put in your mash vat, and your liquor in your lead [kettle] ready to boil you shall then little by little and with scoops or pails put the boiling liquor to the malt, and then stir it even to the bottom exceedingly well together (which is called the mashing of the malt) then, the liquor swimming in the top, cover all over with more malt, and so let it stand an hour and more in the mash vat, during which space you may if you please heat more liquor for your second or small drink;

this done pluck up your mashing strom, and let the first liquor run gently from the malt, either in a clean trough or other vessels prepared for the purpose, and then stopping the mash vat again, put the second liquor to the malt and stir it well together; then your lead being emptied put your first liquor of wort therein, and to every quarter of malt put a pound and a half of the best hops you can get, and boil them together an hour together..."

this done, put the hops through a straight sieve, which may drain the hop from it, into your cooler, which, standing over the gyle vat, you shall in the bottom thereof set a great bowl with your barm [yeast slurry] and some of the first wort (before the hops come into it) mixed together, that it may rise therein, and then let your wort drop or run gently into the dish with the barm which stands in the gyle vat [fermenting tank]." This appears to be direction to combine the barm with some cooled wort, to effectively make a "starter", the gyle is allowed to cool overnight, and is finally mixed in with the barm.

#### \* *The drying of malt*

and when the three weeks is fully accomplished, then you shall (having bedded your kiln, and spread a clean hair-cloth thereon) lay the mat as thin as may be (as three finger's thickness) upon the hair-cloth, and so dry it with a gentle and soft fire, even turning the malt) as it drieth on the kiln) over and over in your hand, till you find it sufficiently well dried, which you shall know both by the taste when you bite it in your mouth...

What I do:

That would be approximately 200 gal. I brew a 5 gal batch, and have scaled it down to around 10-12 lbs malted barley. Modern grain is more precisely malted than in the 16th century, so I use a mixture of mostly Pale malt and a bit of Chrystal malt to approximate the slightly uneven kilning in period. Markam's description of kilns indicates opportunities for small amounts of grain to be exposed to higher temperature, which would caramelize it.

**10 1/2 lbs pale malt, 1 lb. chrystal malt, approximately 20 or 30L, plus 1/2 lb. carapils (caramalized pilsner malt).** This mixture will approximate the variety of malts type that would be produced in the kiln if built and used to Markham's specifications\*. (L=lovibund, a measure of color, higher number is darker, from higher kiln temperature.)

Mashing in: insulated cooler is fitted with a false bottom to strain the liquid from the grain, this takes the place of the "strom" or strainer, and is my mash tun. The objective is to hit a very precise mash temperature without the use of a thermometer.

Heat **7 1/2 gal water, or "liquor"** (my well water with 4 tsp. gypsum, to mimic the mineral content of much of central England) to a boil. Then remove the heat and ladle the hot liquor into the malt in the mash tun. I use a **4 oz. ladle**, stir the grist **3** times for each addition of liquor, and take about 25 minutes to add the entire volume, by which time the temp. stabilizes at 152-155°. It takes about 25 minutes to add all the hot liquor.

This batch stabilized at 155°, just about what I wanted. The higher temperature should yield more unfermentable sugars for more body and a sweeter taste.

Mash for an hour & a half.      Yield: 5 3/4 gal.

Ambient temperature has a great impact on this mash technique. In winter the grain can be colder, so seasonal adjustments might need to be made.

Meanwhile heat 2 gallons liquor (1 1/2 tsp. gypsum) for the "small" beer.

While waiting for the boil, stir the second liquor to the grain in the mash tun, where it will sit while boiling the first.

Apply heat to the kettle, as the boil commences, add hop flowers: 3/4 oz. Fuggles (4.1% alpha) & 3/4 oz. Kent Goldings (5.1% alpha acid) and boil for 1 hour, remove heat.

Late addition, at end of boil, 1/4 oz. Fuggles flowers to "freshen" (for aroma).

Near the end of the boil, collect the wort for the small beer, 2 gallons.

Yeast: Brewers Choice #1028 London Ale in 2 stage starter: the "smack pack" was slow to start. When it puffed up, I added the yeast to a starter of 2 Tbs dry malt extract in 500ml water, then I cycled the starter again, pouring off the liquid, leaving the yeast sediment, adding 500ml more starter solution. This is my **barm**, or "kept" yeast.

Into a clean 6 gal. fermenter, first add the yeast, then splash the wort in to add oxygen and mix with the yeast.

**Racked:**

While the first wort is cooling, boil the second wort with the used hops for 1 hour.

Yeast: slurry at bottom of fermenter from batch 189.

Cool and ferment in the same manner. See Batch 188.

Racked the small on

Racked to keg

The makeup of your kettle has a pronounced effect on the final temperature of the mash. Since the liquor is brought to a boil and the heat removed, temperature of the liquor is steadily diminishing, exactly as described in Markham's technique. My pot is an 8 1/2 gal. cheap aluminum steamer. A heavier, commercial pot with thicker walls will retain heat longer, and would require either a smaller ladle, or an overall longer transfer time, such as 4 or 5 stirs between ladles. What I am saying is that your mileage may vary. Experiment and keep notes until you get it right, and in the meantime, drink and enjoy all the beer you make.

**Starter:** We have available today a wonderful variety of single strains of yeast, such that we can select for a strain similar to or even the very type used by Period brewers. The "smack packs" that are commonly available have one drawback: they do not contain a high enough population of yeast cells to quickly inoculate a 5 gallon batch. The "quickly" is useful for establishing a dominance of desirable microorganisms in your beer. When your choice of yeast takes off fast, bacteria and wild yeasts are prevented from growing. It is a matter of dominant colony.

The one or two stages of the starter build a larger, viable population. There are usually on the order of a million cells in a smack pack, but we need more than a billion cells for a speedy start to fermentation. The starter does this quite well.

Sanitation is even more important when you are working with a fledgling yeast colony. Of course you will still need to use ordinary soap & water to first clean equipment of physical debris and oils. Rinse well to be rid of soap. Everything that touches the yeast and nutrient wort must be sanitized. I prefer iodine based agents (called Iodophor). 1 oz. in 2 1/2 gal. water (50 parts per million) makes a solution that will suitably sanitize equipment with 1 minute contact. Most manufacturers say that a weaker solution can be allowed to air dry, but at this strength, most brewers recommend rinsing with tap water.