

The Four Journals of the **Sunday Afternoon Drinking Club At The Saxon** **S.A.D.C.A.T.S.**

Compiled and Edited by Rob of the Bushveld



BREWERS NOTES

The Brewery Tor

When my old mate Paul Hathaway moved to the Hebridean island of Islay to open a brewery, I knew this would be a brewery visit with a difference!

The island is about 100 miles due west of Glasgow and reached via some winding roads around Loch Lomond, Loch Long, Loch Fyne and Inveraray making a slow (up to 3 hours) but pleasant trip to the ferry at Kennacraig. Then 2 hours on the Cal-Mac ferry. An institution to islanders, and one that doesn't rip off a captive audience! On morning ferries make sure you have the Full Scottish Breakfast, and on the others go for the curry. Excellent food at down to earth prices!

For those with a liking for whisky you'll find the island is still home to seven distilleries despite the mothballing of the 1980s. Sadly their eighth member closed permanently and became the Maltings store for the survivors. That was Port Ellen and the final offerings of their product are just coming out of bonded store at 25 years old and approx £185 a bottle. Expensive? Perhaps, but when it's gone, *IT'S GONE!*

Islay is noted for producing a very peaty dram and I am sure you will recognise some of the names. Clockwise from the North East corner of the Island: Coal Ila, Bunnahabhain, Ardbeg, Lagavulin, Laphroaig, Bowmore, and Bruichladdich.

And now there is a brewery on the island. Sitting on the quay at Bowmore Distillery looking across Lochindaal to wards Bridgend, its just a few miles to the Islay Ales Brewery at Islay House Square.

An important event in the Islay calendar is Feis Ile - The Annual Islay Festival of Malt and Music otherwise know as 'Whisky Week'. That's because it's a week long festival where each of the 7 distilleries has its own open day. This takes place every year starting on the late May bank holiday weekend.

The open days are as different as the distilleries themselves so there is no chance of getting bored. A favourite of mine, and many others, is Bruichladdich Day which has pride of place on the first Sunday. Perhaps I forgot to mention that they alone also have a real ale tent. And did you guess who runs the ale tent? My mate Paul. And so it is incumbent upon me to go up every year and help out at the tent. A tough call I know, but that's what friends are for!

Then I have to help move the tent up to the brewery and get set up for their own open day on Wednesday. Don't forget that whilst all this is going on, the brewery still has to function so I also have to get stuck in with whichever part of the brewing process needs doing. It's all very labour intensive and very hard work, so it's not like being on holiday! But Paul's been a good mate for 20 odd years and it's my Duty to go and help him!

Over the years Paul has taught me the brewing process and I've done a complete brew from start to finish several times. One year he left me brewing while he did the Open Day Guided Tours. I really enjoyed that and didn't get any complaints so Paul awarded me a Certificate for completing my Brewers Masterclass.

Paul took photographs while I was brewing and I have arranged them into 'Brew' order here with some narrative to explain the brewing process in simple terms. I hope it helps to unravel the picture you get when on a large brewery tour and give you a better perspective.

Islay Ales is a 4 Barrel plant. Brewers refer to this as their 'Brew Length' and a Brewers Barrel is 36 gallons which means one run produces 16 x 9 gallon firkins - in other words 16 pub sized 'Casks'.

So let's get started, on the brew.....

① The Hot Liquor Tank



The night before brewing the Liquor tank is filled with 1000 litres of cold water and left to heat overnight so that by morning it has reached 70°C.

If you are brewing on the mainland you probably need to check your water for calcium and chlorine content amongst other things! Fortunately we are on a remote Scottish Island and the water is pure! But now that it has entered the brewing process it is called 'Liquor'. See Appendix – Burtonising water

② Grist Mix

'Grist' is the Brewers term for the ingredients used for the mash of a particular beer recipe.



Having checked previously that all are in store we proceed to measure them out to prepare our Grist. Today I am brewing the 4.2% Black Rock (*It's not black and it doesn't have rocks in it!*). This requires a mix of three crushed malts & barley totally 105kg.

③ Mash Tun – 1st fill

The first job here is to fill the Mash Tun with 220 litres of Hot Liquor from the Hot Liquor Tank. We have a glass tube on the side of the tank to gauge this.



Paul fills the Mash Tun

④ Stir in The Grist



Gradually stir the 105kg of Grist into the Mash Tun

⑤ Get lumps out of Grist



and keep stirring until all the lumps have gone, just like making porridge!

⑥ Mash Tun – 2nd fill - Underlet Liquor



The 2nd fill is underlet into the Mash Tun (bottom fill) and this takes another 80 litres.

⑦ Start the Mash



The 'Mash' is simply letting the mixture bubble away at 65°C for 80 minutes during which time the enzymes in the malt are activated and convert most of the starch contained in the malt into fermentable sugar. The time & temperature alter the proportion of unfermentable sugars and so the sweetness of the beer. Paul is carefully checking the accuracy of temperature.

⑧ Most Important Job!



Making the coffee while we wait for the mash

⑨ Clean out the Copper



Shovel the previous brew into bags for the farmer. Scrub the copper and clean the heating elements before giving it a final steam clean.



⑩ Preparing the Run Off



1 1 Balancing the Run Off



The liquid in the Mash Tun is now called Wort and the run off is the process of draining this off through the perforated false bottom of the vessel and pumping it into the Copper. In larger breweries this process uses an 'Under-back' to balance the flow, but here we just use a bucket.

1 2 Sparging The Run Off



The Run Off takes about 90 minutes during which time the remaining sugars in the Mash are rinsed out by spraying it with 500 litres of hot liquor. This process is called Sparging and the over sized garden sprinkler attached to the inside of the Mash Tun Lid, used for this purpose, is called a Sparge Arm.



Sparge Arm in operation



The Sparge Arm

1 3 In the name of Quality Control



Tasting the Run Off – Analysis Mr Spock?

1 4 The Finished Mash



1 5 Disconnecting the Run Off



1 6 Measuring Hops



Black Rock uses 2150gm of 3 different hops.

1 7 Start Rolling Boil in Copper



As the wort was pumped into the Copper the 6kw heating elements were turned on until rolling boil achieved

1 8 Main Copper Hops added



Black Rock uses 1kg of Goldings as the main hop which are added as soon as Copper starts to boil. The rolling boil is maintained for 80 mins during which three other ingredients are added.

10 mins into boil 25gm of Irish Moss Copper Finings are added.

1 9 Late Hops 1



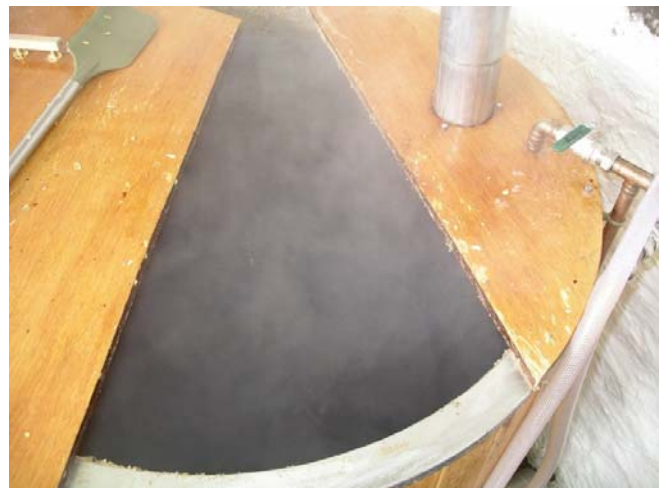
Late Hops 1 are added to The Copper 10 mins from the end of the running boil. In this case 750gm of Fuggles.

2 0 Late Hops 2



Late Hops 2 are added to The Copper 1 min from the end of the running boil. In this case 400gm of Mount Hood

2 1 Start The Chill



After an 80 min boil the Copper heating elements are turned off.

2 2 The Heat Exchanger



The pump on the floor is attached to a small heat exchanger on the wall through which the hopped wort is pumped to the sterilised (*another job I did earlier!*) Fermenting Vessel. By the time the cooled wort reaches the FV it should be approx 22°C

2 3 Hop Bed in Copper



As the wort is pumped out the spent hops are collected on another perforated false bottom.

2 4 Filling The Fermenting Vessel



As the hopped wort is pumped from the Copper via the heat exchanger the Fermenting Vessel (FV) starts to fill. This will take about 70 minutes.

2 5 Pitching The Yeast



250gm of Brewers Yeast is pitched into the FV when it is approx half full and the temperature is around 22°C.

2 6 The Brew begins to ferment



Shortly after the yeast is added to the hopped wort it starts to convert the sugar that we extracted from the malt into alcohol and CO₂ generating a thick head on the fermenting beer which serves as a protective coating as it ferments for the next 5-7 days.

2 7 Paul checks the final temperature



All OK at 22°C

②⑧ The Completed Brew – 7 Hours



③① Writing it up



Completing the Brewing Records for Gyle 17

But there's still plenty to do!

②⑨ Final checks by Paul



OG reading 1038

③⑩ Then some Quality Control checks!



③③ Recycling The Mash



Sacked up ready for delivery to local farmer

③ ④ Cleaning and preparing Casks



Bob Removing old Keystone
then the Shive plus Steam clean

③ ⑤ Racking Off into 16 x 9 gall casks



New Keystones have been inserted, new Shives are placed ready and sprayed with ??????? to avoid contamination

③ ⑥ Racked Beer



Some to be sold in Cask, the rest has to be bottled

The Labour Intensive Bits

③ ⑦ Washing the Bottles



③ ⑧ Bottle Filling



③ ⑨ Crown Capping bottles



④ ⑩ Labelling Bottles

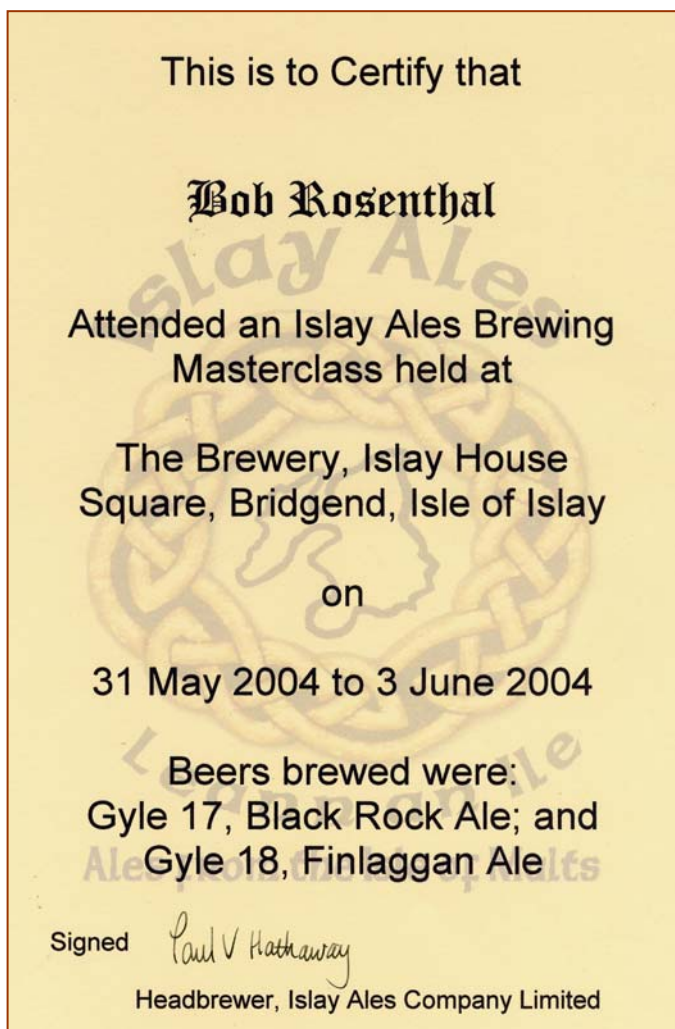


4 1 Barman



Hand pumps on the Bar in Brewery Shop

4 2 Brewer – Certified!



APPENDIX 1 – Brewers Terms

Burtonise Brewers test the calcium content of their water (liquor) and adjust by the addition of dilute acid and gypsum based dry treatment. The idea is to emulate the water used in Burton-on-Trent, historic home of British Beer as we know it. Have you looked in the Trent lately? To get the water like that you'd have to **** in it!!!

Epilogue

I hope you enjoyed reading this simplified account of the brewing process as much as I enjoyed my time at the brewery.

Many thanks to all my friends at The Brewery and especially my old friend Paul Hathaway. It's always a pleasure to pay him a visit and we look forward to seeing him and the crew again at the next Feis Ile.

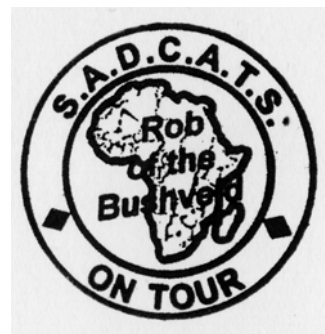
Paul is an Honorary Member of SADCATS and you can read about his involvement in our founding on the Club History pages of our website. It goes without saying that Islay Ales feature is one of our 'Worthy Links' so please view their site.



www.islayales.com

As an Appendix, I have attached a CAMRA (Campaign for Real Ale) fact sheet which illustrates how a Victorian Tower brewery was put together.

Please enjoy your real ales responsibly and, as often as possible!



*Bob Rosenthal
aka
Rob of the Bushveld, Saxon Scooper
SADCATS Editor in Chief*

WWW.SADCATS.CO.UK

Fact sheet: How beer is brewed



The Brewing Process Demonstrated

Real ale is made by taking raw ingredients from the fields, the finest malting barley and hops, along with pure water from natural springs or the public supply, and carefully cultivated strains of brewers' yeast; in this exploded drawing by Trevor Hatchett of a classic British ale brewery, it is possible to follow the process that begins with raw grain and finishes with natural, living cask beer.



- 1** On the top floor, in the roof, are the tanks where pure water - called liquor by brewers - is stored. Soft water is not suited to ale brewing, and brewers will add such salts as gypsum and magnesium to replicate the hard, flinty waters of Burton-on-Trent, home of pale ale.
- 2** In the malt store, grain is weighed and kept until needed. The malt drops down a floor to the mills, which grind it into a coarse powder suitable for brewing. From the mills, the ground malt or grist is poured into the mash tuns along with heated liquor. During the mashing period, natural enzymes in the malt convert starches into fermentable malt sugars.
- 3** On the same floor as the conditioning tanks are the coppers, where after mashing, the wort is boiled with hops, which add aroma, flavour and bitterness.
- 4** At the end of the boil, the hopped wort is clarified in a vessel called the hop back on the ground floor. The clarified wort is pumped back to the malt store level where it is passed through a heat exchange unit. See 5.
- 5** The heat exchange unit cools the hopped wort prior to fermentation.
- 6** The fermenters are on the same floor as the mash tuns. The house yeast is blended or pitched with the wort. Yeast converts the malt sugars in the wort into alcohol and carbon dioxide. Excess yeast is skimmed off by funnels called parachutes.
- 7** Fermentation lasts for a week and the 'green' beer is then stored for a few days in conditioning tanks.
- 8** Finally, the fresh beer is run into casks on the ground floor, where additional hops for aroma and sugar to encourage a secondary fermentation may be added. The casks then leave for pubs, where the beer reaches maturity in the cellars.