

# Evolution of English Mild, Stock, & Strong Ales

By Sean Stewart

“Mild Ale” is often referred to as the oldest continuously brewed beer style in the UK, but no style has reinvented itself as drastically or as often

- “Mild” was an adjective simply meaning “young” and could refer to ales or beers of different colors and strengths
- Aged beers were referred to as “stale”, from the original meaning of the word:
- c. 1300, “freed from dregs or lees”, probably literally “having stood long enough to clear,” from Old French estale “settled, clear” - “Stall” comes from the same root word

## The Dawn of Stock Ales

The rise of stock or “keeping” ales is tied to the story of hops’ arrival in England:

- Hops were introduced to England, in Kent, in the 1500s, by Flemish immigrants - first recorded beer import to England was from Flanders in 1400 [1]
- According to beer historian Martyn Cornell, there is little evidence of very strong ales being brewed before then - they found they could brew something that would remain drinkable and improve with age [2]

The rise of hops led to a centuries-long debate between brewers of unhopped “ale” and hopped “beer”

- Ale was a separate tax category and had a different standard barrel size [3]
- The lines blurred around 1700 when the British government banned the use of hop substitutes - hop rate now differentiated them
- Brewing industry insider Obadiah Poundage also reports how a malt tax from a war pushed brewers to make more beer instead of ale:

*“However, at last, it was realised that the duty on malt surpassed by much the duty on hops, from whence the Brewers endeavoured at a liquor wherein more of these last should be used. Thus the drinking of beer came to be encouraged in preference to ale. This beer, when new, was sold for £11/2/- per barrel, but the people not easily weaned from their wonted sweet heavy drink, in general used ale mixed with beer, which they purchased from the Ale draper at twopence halfpenny, and twopence three farthings per quart.” — Obadiah Poundage’s Letter of 1760*

## 18th Century: Keeping Beers Are Keepers

At this time, four dimensions of British beer are: base malt color (pale, amber, brown), age (mild, keeping), strength (common, strong/stout), hop rate

- Beer and ale were brewed at a wide range of strengths, though the weakest and strongest were usually beers because the hops helped it keep
- According to Obadiah Poundage, the stale beer was simply the Mild beer kept for “some time”

Strong pale ale was brewed between October and March to manage fermentation temperatures before artificial refrigeration

- At this time, brewing was done on country estates who practically competed to make the strongest, most well-aged beer
  - “Mild” Pale Ale would have had an OG around 1.127 and was hopped at less than 1/2 oz per gallon
  - “October Beer” would be made from recent harvest of hops and malt and have an OG around 1.141 and about 4x the hop rate [4]
  - “March Beer” would be normal strength beer, even more heavily hopped, some thought March was the better month for brewing, others disagreed:
- “It is pretended that March is the best Month for Brewing, and the Water then better than in October: But I allways found that the October Beer, having so many cold Months to digest in, proves the better Drink by much; and requires not such watching and tending as the March Beer does, in opening and stopping the Vent hole on every change of Weather.” — Directions for Brewing Malt Liquors (1700)*

By the end of the 18th century, the invention of the hydrometer revolutionized brewing - other than Porter, most beer went pale:

- Pale Malt was discovered to be much more efficient despite the higher price, and a malt tax during the Napoleonic War further pressed this point
- Pale beers were seen as higher class since they were usually more expensive, so it was a win-win for brewers and consumers
- The dominance of Porter from “beer” brewers at the time led to an association where ales were pale, and beer/porter was dark [5]

## 19th Century: Mild Overtakes Porter’s Popularity

The Beer House Act of 1830 created a free market in beer and enabled big Porter brewers to jump into the ale trade

- Only had a few basic requirements in order to open a special pub that could only serve beer, as part of an effort to curb gin consumption at the time
- This was at a time when Porter was declining in popularity and Mild was about to take the baton:

*“He states that he brews entirely for the beer shops, and is the only brewer in London whose business is exclusively confined to that branch. Such is the revolution, however, that has been occasioned in the trade generally, that ‘Barclay and Perkins,’ he says, ‘and other great houses, finding that there is a decrease in the consumption of porter, and an increase of the consumption of ale, have gone into the ale trade; nearly all the new trade is composed of mild ale.’”*

-- “The Companion to the Newspaper,” by Society for the Diffusion of Political Knowledge, Published by Charles Knight, 1834

Mild and Stock Ales of this time usually had the same grist, at a different hop rate

- Usually, they were 100% pale malt, some was “high dried” for more flavor, and was generally a little darker and lower quality than IPA / Pale Ale
- Hops were usually Goldings, or one of a handful of varieties that are no longer available and had disadvantageous growing characteristics or poor disease resistance - which were superseded by the introduction of Fuggles
- Hops usually were added in three equal additions, with additional dry hops in the cask for stock ales, creating a hop creep to feed the Brettanomyces secondary fermentation, which also carbonated the cask while bunged
- “X Ales” differed from Pale Ale/IPA, the latter was: more expensive to brew, lighter in color, used the best pale malts, higher attenuated, water was hardened, used different mash and fermentation temperatures [6]

Breweries often would parti-gyle and create strong ales of many different strengths, often signified by number of X’s on the side of the barrel

- The X probably refers to 10 shillings, or eXcise - either way something to do with a tax system that ended in 1830 and had X (strong) and T (table) classifications. The tax was 10/- per barrel of strong, 2/- per barrel of table or small, starting in 1802 until the Beer Duty was abolished [7]
- In the late 1830s, Barclay Perkins Mild ranged from OG of 1.072 (X) to 1.120 (XXXX)
- The “Keeping” or “Stock” version would have ~2.5x the hops, and a “K” either at the beginning or end (KXXX or XXXK), simplified later to K’s

## Burton & Scotch Strong Ales

Burton Ales were a popular export until Russian export market dried up in 1822 due to a tariff

- Burton had the reputation for producing the best “aged” beers - the best aged London beers would be called “Burton” as a compliment:

*“Indeed the best character you give to ale in London is calling it Burton Ale; from whence they fend vast quantities to England : Yet they brew at London some that goes by that denomination” - A Journey through England, John Macky, 1722*

- Seems to originally have used a brown malt base, likely went pale around 1820, but evidence is lacking, other than a source that’s essentially a book for homebrewers, the same source showing molasses and ginger as ingredients in this particular recipe:

"As in other brown ales, high dried malt is essential; the same is also required for burton ale. For one hogshead of burton, use five bushels of the best brown malt, and four pounds and a half of hops" - *The Spirit, Wine Dealer's and Publican's Director* by Edward Palmer, 1824 [8]

- Reformulated to be less strong, and made primarily from pale malt for the domestic market, became a staple of British pubs by the 1830s
- Brewers in London and elsewhere would brew a "Burton Ale" in reverence for the beer the town was known for, and in London "old" and "Burton" would be used as synonyms somewhat arbitrarily. The term "Old Ale" first appears in brewing records at Chelmsford Brewery in 1854
- Burton brewers offered higher hopped "numbered" ales on top of mild and stock draft offerings, as a flagship premium product - Bass No 1 Burton Ale was the first beer marketed as a "barley wine" around 1870
- A special bottle of No 1 was drinkable after spending 140 years in the brewery cellar, reportedly tasting like "sherry and smoky Christmas pudding"
- Allsopp's brewed a stronger "old" Burton strength "Arctic Ale" for arctic expeditions

Edinburgh brewers followed a similar system to London brewers for their ales, but produced a wider range of strengths

- The products were differentiated by their destination: draft products were given "X" designations like London Milds, "Shilling Ales", from 40/- table beer up to 160/- strong ale were sold by the Hogshead to be bottled and then sold.
- William Younger used "S" to signify their stock ale, and then added X's from there. 100/- was the dividing line between Mild and Stock ale
- e.g. for William Younger, XX=60/-, XXX=80/-, S=100/-, XS=120/-, XXS=140/-, XXXS=160/-
- Edinburgh brewers like William Younger also produced "numbered" higher hopped ales, seeming to follow the example of Burton brewers

### 1880-1900: Modernization in the Free Mash Tun Era

Mild grists stay the same until around 1880 - certain sugars were legal as of 1847, but the duty made it prohibitive to use for a lot of brewers

- Around 1860, Barclay Perkins Mild Ale had OGs of 1.065 (X), 1.079 (XX), and 1.098 (XXX)
- Hop rates are higher, British and Scottish beer in this time period seemed to use a lot of hops in general. After 1880, hop rates plummet
- Edinburgh Ales of this time period could be very hoppy (low hop use is a pervasive myth), but an 1854 brewing book implies Burton Ale traditionally had a higher hop rate than Scotch Ale

Britain couldn't grow enough barley or hops to satisfy the demand of brewers, so both were imported:

- Hops are usually listed by the growing region, American hops (Cluster) would be used for bittering, Saaz or Hallertau for finishing
- Barley came from all over the world, including some American 6 row barely, but was malted in England or Scotland [9]

The "*Free Mash Tun Act of 1880*" starts to shape the modern form of Mild and Stock Ales as brewers are now taxed on all of the fermentables instead of just malt:

- Unmalted adjuncts are allowed, some brewers experiment with Flaked Rice at first, but Flaked Maize becomes the preferred adjunct
- Crystal malts were around for a while before this point, but start to be used in Milds and Porter in this time period
- Sugar adjuncts become more common, invert sugar syrups add color and flavor, and caramel coloring becomes popular to differentiate products in the early 20th century. Scottish brewers resist adjunct use longer than English brewers
- It's probable in this time that Mild starts to go dark, but it can be tough to pinpoint due missing details in records. Ron Pattinson's research shows some brewers started adding amber, brown, or black malts in Mild in this time period [10]

At the height of Mild's popularity, many breweries reduced to a X and XX, as the stronger milds were seen at that point as "old fashioned"

- They would also have stock ales often called Burton and "Old Burton" Ales. Barclay Perkins Burton, when bottled, was called "No 1 Southwark Ale"

Stock ales began to fall out of fashion as public taste generally moved towards sweeter beers that could be produced more quickly

- Barclay Perkins had Stock ales at 6.68% of their ale output in 1870, down to just 1.19% in 1880
- Introduction of artificially filtered and carbonated beers around 1890 is cited as adding to the steep decline
- Higher availability of glassware in pubs led to expectation for crystal clear beer, and this is when Mild and Stock ales start to darken again [11]

In 1903, Niels Hjelte Claussen discovered the organism responsible for the "British aged taste" and named it after the source: *Brettanomyces*

- His research shortened production of such ales with deliberate Brett secondary infection, ironically as the "aged" taste fell out of fashion

### The World Wars & The British Beer Apocalypse

WW1 saw the slashing of gravities across the board in the face of wartime restrictions, and further consolidation of beer styles:

- Barclay Perkins X Mild Ale went from OG 1.051 at the start of WW1 to 1.036 at the end, temporarily bounced back between wars, but not all the way to pre-war levels
- The biggest gravity drop came after 1917, when U-boats restricted grain shipments and average gravities were imposed on brewers
- Brewers were highly incentivized to drop gravities of popular beers like X ale in order to make money off of the stronger beers in the face of the average gravity restrictions - each barrel of strong ale that was not price restricted had to be matched with a barrel of weak, watery mild
- A new classification of weaker price-controlled "Government Ale" (below 1.030) was introduced, and some breweries continued to produce "A" ales

Scottish breweries consolidated their offerings, transforming the meaning of the "shilling" system by WW2

- The old "Shilling" system did not necessarily imply any specific beer style - there was 54/- Stouts, 60/- Scotch Ale, etc
- Scottish brewers maintained more mild and stock offerings until WW1, but Scotch Shilling ales were trending on their way out - William Younger went from 10 in 1885, to seven in 1898, to five in 1913, before WW1 effectively finished them off [12]
- After WW1 Scottish Mild was a rarity and many breweries would offer a recolored Pale Ale to fill the slot occupied by Mild Ale in England [13]
- Maclay's 60/- went from being a 4.5% Pale Ale to a 3% Dark Mild over a half century as number of products offered dwindled, and the beers came to be known as "Light", "Heavy", and "Export" [14]

Gravities bounced back temporarily in between the wars but were again driven down by a tax during the Great Depression:

- In this period, breweries made pale and dark versions of a lot of Milds, as well as reintroduced "XX" milds that were pre-war strength
- Beer production slumped and the gravities went down again - Barclay Perkins Mild Ale had OG of 1.035 (X) and 1.043 (XX) in 1935

WW2 era restrictions pushed gravities down and prompted the use of unusual ingredients

- Flaked Maize was tough to come by - Flaked and Torried Barley appear in 1942 Barclay Perkins recipes because of government requirements. Barley production was soaring and skipping the malting stage saved on energy
- A bumper crop of oats in 1943 led to the government similarly requiring a proportion of flaked or malted oats in beers
- The British government did a study where they considered using potatoes as a fermentable, but decided it would change the taste too much [15]
- According to Ron Pattinson, brewers continued to use Flaked Barley until the end of the 1940s, when maize supplies resumed
- At the end of this journey, Barclay Perkins X Mild Ale bottoms out at 1.029 OG in 1944, after starting out as a pale, 1.072 strong ale a little over 100 years earlier.

“Burton Ales” remained a popular draft product into the 20th century, before being renamed and marketed as Winter Seasonals / Winter Warmers

- Demand for “KK” Burton Ale increased in the 20th century, but many weren’t necessarily aged for any significant amount of time anymore [16]
- Burtons lost gravity like Milds: Barclay Perkins KK dropped from 1.073 to 1.043 from 1900 to WW2, and also offered a stronger bottled version
- Burtons disappeared quickly, along with Milds, as demand for Bitter and Lager grew in the 1960s [17]

The heyday of Barley Wines came after the war, perhaps as a reaction to the austerity of wartime and lifting of prior restrictions

- According to Martyn Cornell, a survey in 1956 showed almost 70 Barley Wine and strong ales being brewed in Britain
- Many of these post war additions were pale barley wines - Tennant’s Gold Label was introduced in 1951 along with their darker barley wine

### Old Recipe Considerations

Caveats about talking about old beers, and recreating old recipes - mostly lifted from *Old British Beers and How to Make Them*:

- "Generally, the older the beer, the harder it is to reproduce faithfully, and at best they are just recreations"
- East Kent Goldings was the primo UK hop, many others were around but had poor yield, disease resistance, etc, and were all basically superseded by Fuggles in 1875. Imported hops like Hallertau and Saaz were seen as high quality, too. Often times they’re listed only by growing region
- Ron Pattinson’s old recipes often fill in missing detail: logs often don’t have details about proprietary sugars, or when hop additions are made (but hop additions had best practices that could be inferred), sometimes the brewer’s chicken scratches are illegible, or use coded symbols
- Hops are assumed usually to be around 4% AA in calculating the IBUs. They pressed, treated, and stored them in cold cellars, but sometimes used hops from previous harvest years

### References

- 1 H.A. Monckton: A History of English Ale & Beer p.66
- 2 Martyn Cornell: Amber, Gold, & Black p.157
- 3 Martyn Cornell: Zythophile: The Long Battle Between Ale and Beer <https://zythophile.co.uk/2009/12/14/the-long-battle-between-ale-and-beer/>
- 4 London and Country Brewer, 1736
- 5 Ron Pattinson: Strong! p.17
- 6 Ron Pattinson: Shut up About Barclay Perkins: Difference Between Pale Ale and X Ales <https://barclayperkins.blogspot.com/2010/11/difference-between-pale-ale-and-x-ales.html>
- 7 H.A. Monckton: A History of English Ale & Beer p.204
- 8 Ron Pattinson: Shut up About Barclay Perkins: Burton Ale III <https://barclayperkins.blogspot.com/2008/02/burton-ale-iii.html>
- 9 Ron Pattinson: Scotland! Volume II, p. 76
- 10 Ron Pattinson: Mild! P. 104
- 11 Ron Pattinson: Strong! p.358; Ron Pattinson: A Short History of Mild <https://www.beeradocate.com/articles/5538/a-short-history-of-mild/>
- 12 Ron Pattinson: Scotland! Vol 2, p.101
- 13 Ron Pattinson: Scottish Shilling Ales <https://www.beeradocate.com/articles/8709/scottish-shilling-ales/>
- 14 The Shilling System: [scottishbrewing.com](http://scottishbrewing.com) [scottishbrewing.com/history/shilling.php](http://scottishbrewing.com/history/shilling.php)
- 15 Ron Pattinson: Shut Up About Barclay Perkins: Let’s Brew 1943 Barclay Perkins XX <https://barclayperkins.blogspot.com/2017/09/lets-brew-1943-barclay-perkins-xx.html>
- 16 Ron Pattinson: Strong! p. 343
- 17 Martyn Cornell: Zythophile: Come-back for the Burtons <https://zythophile.co.uk/2007/10/08/come-back-for-the-burtons/>

## Barclay Perkins X Mild Ale Recipes

Source: *Ron Pattinson's Shut up About Barclay Perkins Blog*

|   |   |  |
|---|---|--|
| <p><b>1838</b><br/>OG 1072.5<br/>FG 1013<br/>IBU 46<br/>SRM 7</p> <p>Mash at 147° F<br/>Sparge at 166° F<br/>Boil Time 180m<br/>Pitch Temp 58° F<br/>Yeast Wyeast 1099 Whitbread</p> <p>100% Pale Malt</p> <p>33% Goldings 180m<br/>33% Goldings 90m<br/>33% Goldings 30m</p>   | <p><b>1880</b><br/>OG 1060.4<br/>FG 1018<br/>IBU 106<br/>SRM 7.5</p> <p>Mash at 160° F<br/>Sparge at 170° F<br/>Boil time 90m<br/>Pitch Temp 59° F<br/>Yeast Wyeast 1099 Whitbread</p> <p>86% Pale Malt<br/>14% Invert Sugar No 1</p> <p>46.7% Cluster 90m<br/>26.7% Fuggles 60m<br/>26.7% Fuggles 30m</p>  | <p><b>1887</b><br/>OG 1.058<br/>FG 1.015<br/>IBU 34<br/>SRM 9</p> <p>Mash at 150° F<br/>Sparge at 180° F<br/>Boil Time 75m<br/>Pitch Temp 63° F<br/>Yeast Wyeast 1099 Whitbread</p> <p>70.8% Pale Malt<br/>4.2% Crystal Malt 60L<br/>12.5% Flaked Rice<br/>12.5% No 1 Invert Sugar</p> <p>33% Fuggles 75m<br/>33% Spalt 60m<br/>33% Goldings 30m</p>   |
| <p><b>1914</b><br/>OG 1.051<br/>FG 1.0014<br/>IBU 27<br/>SRM 20</p> <p>Mash at 153° F<br/>Sparge at 170° F<br/>Boil Time 120m<br/>Pitch Temp 61° F<br/>Yeast Wyeast 1099 Whitbread</p> <p>61.9% Pale Malt<br/>7.1% Amber Malt<br/>11.9% Flaked Maize<br/>19% No 3 Invert Sugar</p> <p>33% Fuggles 120m<br/>33% Fuggles 60m<br/>33% Goldings 30m</p> | <p><b>1935</b><br/>OG 1.035<br/>FG 1.007<br/>IBU 20<br/>SRM 11</p> <p>Mash at 155° F<br/>Sparge at 170° F<br/>Boil Time 150m<br/>Pitch Temp 62° F<br/>Yeast Wyeast 1099 Whitbread</p> <p>16.8% Pale Malt<br/>43.6% Mild Malt<br/>6.7% Crystal Malt 60L<br/>8.8% Amber Malt<br/>13.4% Flaked Maize<br/>10% No 2 Invert Sugar<br/>0.5% Caramel coloring</p> <p>33% Fuggles 150m<br/>33% Fuggles 60m<br/>33% Fuggles 30m</p> | <p><b>1943</b><br/>OG 1.031<br/>FG 1.008<br/>IBU 14<br/>SRM 13</p> <p>Mash at 145° F, 150° F after Underlet (Step after 30m)<br/>Sparge at 165° F<br/>Boil Time 105m<br/>Pitch Temp 61° F<br/>Yeast Wyeast 1099 Whitbread</p> <p>59.5% Mild Malt<br/>4.9% Crystal Malt 60L<br/>7.4% Amber Malt<br/>4.9% Oat Malt<br/>11.2% Flaked Oats<br/>11.2% No 3 Invert Sugar<br/>0.9% Caramel coloring</p> <p>50% Fuggles 105m<br/>25% Fuggles 60m<br/>25% Fuggles 30m</p> |

## How to Make Invert Sugar

Ron Pattinson Recipe

- For each pound (455 g) of sugar you use, bring 1 pint (473 ml) of water to the boil.
- Switch off the heat and add the sugar slowly, dissolving it.
- Add 1/4 teaspoon (1 g) of citric acid per pound of sugar.
- Turn on the heat again (not too high) and set the alarm on the candy thermometer to 230°F (110°C).
- Stir frequently while it starts to simmer.
- When the temperature hits 230°F (110, reset the alarm for 240°F (115.6°C).
- Heat slowly (the slower the better) until the temperature gets to 240°F (115.6°C).
- Lower the heat to keep at 240°F–250°F (115.6°C –121.1°C).
- For No. 1 maintain at heat for 20–30 minutes.
- For No. 2 maintain at heat for 90–120 minutes.
- For No. 3 maintain at heat for 150–210 minutes.
- For No. 4 maintain at heat for 240–300 minutes.

The colors you're aiming for are:

- No. 1, 12-16 SRM
- No. 2, 30-35 SRM
- No. 3, 60-70 SRM
- No. 4, 275-325 SRM

### Dilution Method

Source: <https://www.homebrewtalk.com/threads/making-2-or-3-invert-sugar.693520/>

| Syrup        | EBC | White Sugar Invert (g) | + | Blackstrap (g) | - OR - | Golden Syrup (g) | + | Blackstrap (g) |
|--------------|-----|------------------------|---|----------------|--------|------------------|---|----------------|
| Invert No 1  | 30  | 495.00                 |   | 5.00           |        | 500.00           |   | 0.00           |
| Invert No 2  | 65  | 489.17                 |   | 10.83          |        | 494.17           |   | 5.83           |
| Invert No 3  | 130 | 478.33                 |   | 21.67          |        | 483.33           |   | 16.67          |
| Black Invert | 350 | 441.67                 |   | 58.33          |        | 446.67           |   | 53.33          |
| Invert No 4  | 600 | 400.00                 |   | 100.00         |        | 405.00           |   | 95.00          |