

# HISTORICAL EXTREME BEERS



It's All Been Done Before!

Mitch Steele  
Stone Brewing Co.

# Outline of discussion

- Introduction and definitions
- Review of brewing practices 1700-1900
- Some historical extreme styles
- Researching historical beers

# Introduction

- This discussion focuses on English Ales primarily.
- Information we found while researching for upcoming book on IPA
- Strong beers the norm until late 1800s-mostly because higher abv allowed for better preservation. Souring not desirable.
- Some confusion exists regarding actual specifications of these styles.
- Temperance movements worldwide in the late 1800's and early 1900s resulted in lowering of alcohol contents
- There is growing interest in re-discovering these older beer styles.

# Definitions

- Keeping Beer= A beer that was stored for several months or years prior to consuming.
- Stock Beer=Keeping Beer, often used for blending with fresher beers.
- Stale= Old and Mature. Used until 1800s. Comes from the word “Stall” which meant “held”
- Mild=beer that was served fresh. Usually lower hopped, but could also be quite hoppy and strong.
- Double, Triple, Extra, Stout= All terms used to describe stronger versions of beer.
- Foxed= Beer that has been spoiled and sour.

# Definitions

- Mashing=process of mixing grain and water.
- Rest=the conversion step
- Double Beer (Doble Doble)=Beer made from sending the 1<sup>st</sup> wort back into the mash and mashing again. Resulted in extraordinarily high gravities.
- Gyle=The wort produced from a mash
- Parti-Gyle-Separating the worts from a sparged mash, and blending in the fermenting vessels to produce different beers. Still practiced by Fullers.
- Entire=Blending all the gyles to make 1 beer.

# Definitions

- Barrel=36 gallons (UK) 31 gallons (USA)
- Hogshead=54 gallons. A wood barrel
- Kilderkin=double size firkin.  $\frac{1}{2}$  a UK bbl or 18 gallons.
- Butt=108 gallons. Also called a puncheon.
- Noggin = A pint
- Pot= A quart
- “K” = keeping Ale
- “AK” =Single Beer. KK, KKK = increasing strength.
- “X” = fresh, or mild ale

# Ale vs Beer

- Definition has changed several times over last few hundred years
  - Originally hopped (beer) vs. unhopped (ale)
  - After hopping became commonplace, ale was from wort from the first two mashes, the stronger beers-mid 1700s.
  - Porter = beer, or porter. Never “ale”.
  - Today-beer = ales and lagers, based on yeast type

# Brewing procedures, prior to mid 1800s

- 3-4 mashes made from same batch of malt.
  - Doble or Strong Ale-50% of available extract. 1.100+ SG
  - Stock, March or October Beer/Ale-1.080 SG
  - Table Beer- 1.050 SG
  - Small Beer- 1.030 SG
- Entire Beer=blend all worts together
- After hopping became common practice:
  - 1<sup>st</sup> 2 mashes = ale, rest are beers

# Brewing procedures

- Sparging:
  - Invented by Scottish brewers
  - First noted in literature in 1747
  - Not widely used by other brewers until the mid-late 1800s.

# Brewing procedures

- Malt:
  - Until 1700's, malt was kilned over wood or other fuel.
    - Temperature control difficult, resulting color Amber or Brown
    - Occasional smokey flavors (though not desired)
  - Coke fuel resulted in ability to make Pale Malt
    - Resulted in development of:
      - Many new beer styles
      - Reformulating traditional styles
- Other starch sources:
  - Sugars, beans, oats, and wheat

# Hops

- Use not widespread in England until 1600's, 1700's.
- Locally sourced
- Hops from Kent region highly prized
- Other areas' hops noted as either excellent, or rank and coarse
- Could be recycled in the brewing process
- Michael Combrune in the 1760's ( a brewer) wrote that hops should be used at 1 lb per quarter for every month beer was to keep. If the beer was kept for 18 months, it would be 6 lbs per barrel
- Dry-hopping standard practice for barrels or casks. Hops often boiled 1<sup>st</sup>.

# Yeast and Fermentation

- Yeast not understood as a living organism until late 1800s
- Brewers knew yeast was important, and inoculated worts with it to ensure proper “working”
- Brewing seasons were October and March to ensure proper “working” .
- Free rise ferments common. Pitch at 65°F, rise to 80°F.
- Water pipes used for temperature control before refrigeration
- Beer aged in wood (casks or vats) after primary fermentation.

# Styles

- Baltic 13<sup>th</sup> Century
- Mum
- Stock ale
- October/March ale
- Burton ale
- Scotch Ale
- Majority Ale
- Imperial Russian Stout/ Barley Wine
- Mild Ale
- Allsopp's Arctic ale
- East India Porter
- Unhopped ales
- Other styles

# Baltic 13<sup>th</sup> Century Ale

- Wind blown malt = very first pale malt
- Highly hopped
- High alcohol

# Mum (Mumm, Mumme)

- Originated in Germany.
- Popular in London in the 1600's
- Strong Ale brewed with wheat, not barley
- Could also be brewed with some oats and beans
- No hops. Spiced with a variety of herbs including fir and birch, marjoram, thyme, cardamom, elderberry flowers during fermentation.
- Casked with 10 uncracked eggs.
- Aged for 1-2 years, or on a ship voyage (thought to improve flavor)

# Stock Ale

- 1.070-1.080
- Popular in the USA also-average 1.065-1.075 SG, 5.5-6.5% abv
- Similar to today's Old Ales
- Often used for blending with fresh beer, at the pub or tavern.
- Fuller's still blends some of their special releases.
- Green King's Strong Suffolk, Thomas Hardy's

# October and March Ales

- 1.100-1.140 plus gravities
- Brewed with one malt and one hop
- 22 bushels malt for 2 hogsheads and 6.5 pounds hops per 8 bushels = *OG 1.120-1.20 (28-30°P), about 5.5-6 lbs hops per barrel*
- October Ale kept better than March Ale (because of winter?) kept for a year before drinking, and used for family celebrations. Some kept 10 years or longer. During aging, new hops would be added to the hogshead. After racking to a cask, it would sit until spring, the bung removed as temp warmed up, and ferment would start again.
- 1<sup>st</sup> wort recycled through the mash to increase strength
- March Ale OG slight higher but lower hopping? Or higher? Contradictory citations.
- Aged 2 years. One year in barrels, then another in bottles.
- Secondary fermentation.
- J.W. Lees Harvest Ale is today's best example:
  - 100% low color Maris Otter Malt and EKG hops
  - 3.5 hr boil
  - 28 °P (1.120 SG), 11.5% abv

# Burton Ale

- Burton's beer, 1740's until 1820's
- Shipped to Russia and the Baltics.
- Political situations, taxes resulted in demise
- Strong and Sweet, amber to brown
- 6-8 lbs hops/quarter malt
- Sugars, honey, dark malts used added?
- Strength: 30-40 lbs/bbl = SG 1.083-1.111
- Ballantine Burton Ale-per M.J. "a very hoppy barley wine".  
10-11% abv.
- Theakstons Old Peculiar, Young's Winter Warmer, Fuller's  
1845

# Scotch Ale

- “Edinburgh Ale”, Scotch Burgundy
- 1.100(25 °P).
- Most shipped to France, the Baltics, or the USA
- Strong, sweet and dark.
- Similar to Burton Ale



# Majority Ale

- Scottish Beer- Youngers
- Brewed extra strong upon birth of a noble heir and kept in a barrel for 21 years, opened on the birthday.
- Starting gravity=1.140
- Final gravity= 1.040
- A Supreme Barley Wine
- Most likely double brewed, or extra long boil

# Imperial Stout and Barley Wine

- Imperial Stout:
  - Courage Imperial Stout-the original. Discontinued in 1993.
  - Additions of herbs and other flavors?
- Barley Wine
  - Bass No. 1

# Mild

- As high as 1.100 OG, and highly hopped at several pounds per barrel
- FRESH!



Once Upon  
A Time...

A recreation of  
a beer originally  
brewed on Brick Lane,  
London, on  
February 27th, 1832

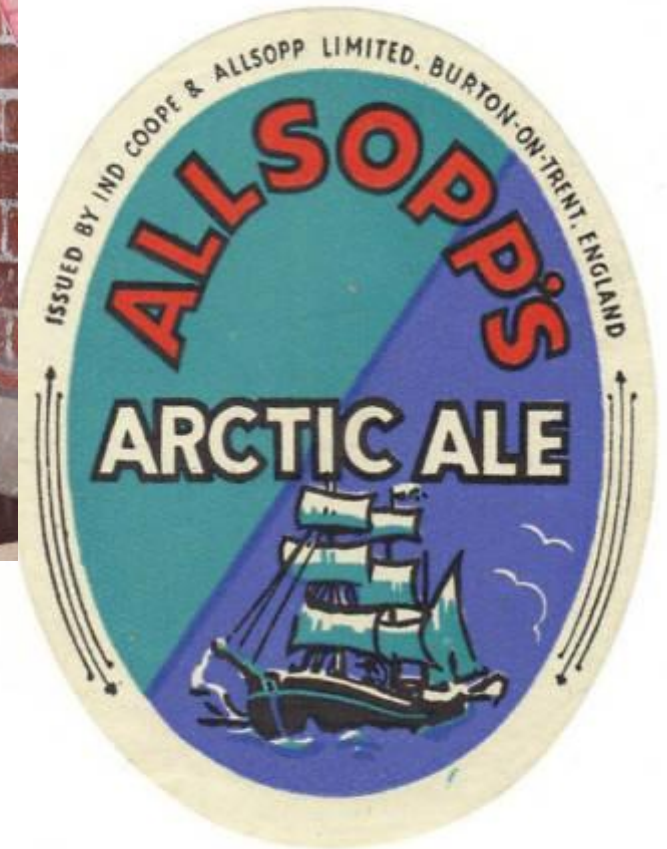
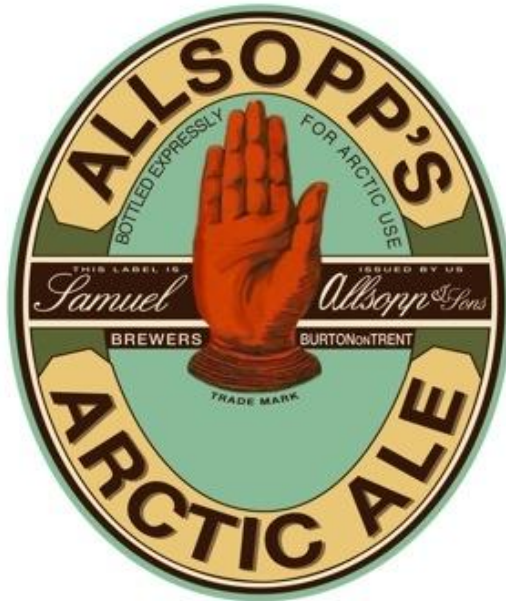
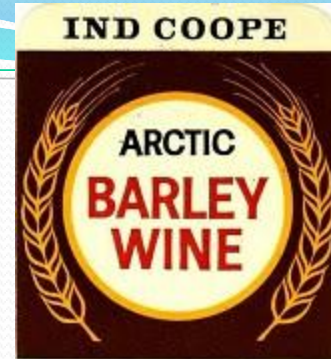
## MILD ALE

OG 1.101 Alc. 10.5% by Vol.  
style confounding beers from the  
oh-so-credible past

BREWED AND BOTTLED BY PRETTY THINGS BEER AND ALE PROJECT, WESTPORT, MA

# Allsopp's Arctic Ale

- “Life Sustaining Ale” originally commissioned by Queen Victoria for Sir Edward Belcher’s trip in 1852 to the Arctic to search for lost expedition led by John Franklin in 1845.
- Brewed to high abv (>11%) and sugar content (final gravity 1.040+) to prevent freezing and provide nourishment.
- Wort was so thick it could not be lautered.
- Described as “still, similar to a port or Madeira, as mellow as an old burgundy and as hearty as a beefsteak”.
- 1852 Sir Edward Belcher  
1857 Sir Francis Leopold McClintock  
1875 Sir George Strong Nares
- Ind Coope merger in 1934: AAA Barley Wine
- Christopher Bowen: Arctic Alchemy



# East India Porter

- Aka “Government Porter”
- Heavily hopped Porter
- Hopped at 4-6 lbs/bbl (2.5-3 oz per gallon)
- 1.050-1.060 OG (same as domestic version)
- 4-6% abv

Nº 1675	2 7/8	46"			
Nº 19 - 30007	1	91a"			
Nº 30	1 1/8	R <sup>s</sup>	54	2	4 64
Nº 5 - 4007	5/8	Eng <sup>xxx00</sup>	2	3	1 120
Nº 18 - 3007	5/8	Eng <sup>N</sup>	2	2	0 15
	15	14			
Sacc 1/2	2	2	59	3	8
	17	16	3	19	6 63.5
Hallertau 10	1	23			
Ek'10	1	23			
CS Sonoma '09	1	23			
CS Ek'09	1	23			
	1	3	8	204	(12 lbs pr 2) = 3.6p
Hallertau (Russ) Pilcher, Sonoma CS, Farmer CS					

3<sup>rd</sup> F. V.  
80.6



# American Stock Ale/Imperial Pale Ale

- 19°P, 1.076 SG
- Hopped 2-3 lbs/bbl
- Sugars often used to increase gravity
- Aged for several months

# Unhopped Ales

- From medieval times
- Sweet and strong
- Herbs used include:
  - Sweet gale/bog myrtle
  - Mugwort
  - Yarrow
  - Heather
  - Juniper

# Other big ales

- Huff Cap
  - High alcohol ale from the 1500's
  - Also called mad-dog, dragon's milk and angels' food
  - Inducing people to set their caps in bold or huffing style
- Groaning Ale
  - High gravity ale made for expectant mothers to consume during childbirth
- Hock
  - Hock = harvest. Strong ale made from fresh ingredients and aged in the "Hock Cellar".
- Hogen Mogen
  - Strong spiced ale from the 1600's
- Windsor Ale, Welsh Ale:
  - Strong (7-8% abv) hopped and spiced ales from late 1700's.

# Researching Historical Beers

- Internet:
  - Shut Up About Barclay Perkins by Ron Pattinson
  - Zythophile by Martyn Cornell
  - All sorts of beer blogs and homebrewing websites.
  - Google Books-lots of historical beer books.
  - “Google Search” is your friend!

# Some of the best books

- Historical

- The Town and Country Brewery Book, Every Man His Own Brewer, by W. Brande
- The Noted Breweries of Great Britain and Ireland, by Alfred Barnard 1889
- The Theory and Practice of Brewing by W.L. Tizard 1846
- The Scottish Ale Brewer and Practical Maltster by W.H. Roberts 1837-1846
- The Complete Practical Brewer –or- Plain, Accurate and Thorough Instructions in the Art of Brewing Ale, Beer and Porter, ML Byrn, M.D. 1852
- Practical Brewings by George Amsinck 1868

# Some of the best books

- Recent Books and publications:
  - Radical Brewing by Randy Mosher
  - The Story of the Pint, and Amber, Gold and Black by Martyn Cornell
  - Old British Beers and How To Make Them, by Dr. John Harrison and The Durden Park Beer Circle
  - The Brewing Industry in England 1700-1830 by Peter Mathias 1959
  - The British Brewing Industry 1830-1980 by T.R. Gourvish and R.G. Wilson 1994
  - The Journal of The Brewery History Society
  - The Brewing Industry: A Guide to Historical Records, by Lesley Richmond and Alison Turton 1990
  - Ron Pattinson's books
  - Country House Brewing by Pamela Sanbrook 1996

# Archives

- Coors Visitor Centre/Bass Museum- Burton-On-Trent
- Scottish Brewing Archive-Glasgow
- National Brewing Library-Oxford Brookes University, Oxford.
- Brewing History Society Archive-Birmingham
- London Metropolitan Archives
- The British National Archives-website
- The British Library-newspapers from 1800 on...
- Museums

# Challenges to research

- Archives destroyed or lost
- Language barriers
- Terminology barriers
- Handwriting barriers
- Differences in knowledge levels
- Understanding the process
- Brewers' Codes



BAILEY'S  
UNIVERSITY  
DICTIONARY  
1735

VERY OLD BOOKS!

DOMESTIC BREWING: BRITISH WINES

A PRACTICAL TREATISE — CHILD

PUBLICAN'S BULLY COMPANION — BOARDS

AN ESSAY ON BREWING

THE NEW BOOK

A TREATISE ON BREWING

MORNING

1803

THE NEW BOOK

THE NEW BOOK

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1

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THE  
LONDON  
AND  
COUNTRY  
BREWER

V O L.  
III

LONDON  
BREW

LONDON  
BREW



No. of Brew... 237

Date... Friday Feb. 6 1877

# Stout

QRS. MALT & SUGAR.

HOPS.

Black 1  
 Crystal 1  
 Brown 1  
 Pine English 6  
 Pine Californian 3  
 Budyett 3  
 Caramel 1 1/4  
 W.M.E. 1 1/4

1916 Knightly 78  
 1916 foodwin 75

Barrels Liquor.	Heat of Liquor.	Stood.	Heat of Mash.	Heat of Taps.	Barrels in Copper.	Boiled.	Quantity of Wort turned out.	Quantity of Wort in Squares.	Weight of 1st & 2nd Wort.
20	162	1/2	146		2 Boiled on 94	2 1/2	67	53 1/2	226
6	198	1 1/2	149	147	2				
65	165								
153		91			96		67	53 1/2	226

1. 1. 13 = 9 lbs per quart

LIQUOR NOTES.

14 lbs. Na Cl  
 9 " " in Copper

EXCISE ENTRIES.

Gallons. Grav. Gallons at 55°

		3999	
1896	61	2103	74.8 61
29	135	71	17V 16.5 135
29	139	73	27V 16.5 139
29	133	70	27r 16.8 133

WEATHER.

Wind NE sharp frost

Grav. 1st Wort in 15.6  
 " " out 21.6  
 " " in tun 22.6  
 Grav. 2nd Wort in  
 " " out  
 " " in tun

GYLE ATTENUATION.

No. of Tun .. 7 .....

Yeast. lbs.

BB 436

90

Date. Heat. Gravity.

6	e 3	59	22.6
7	m 6	60	21.6
	12	61	19.8
	e 6	62	18.8
8	m 6	67	15.8
	12	68	12.0
	e 6	68	10.8
9	m 6	69 1/2	8.4
	12	69	7.6
10	e 6	69	7.2
	m 6	67	6.8
	12	66	6.8

1/8 pine per Bar Cytol added

REMARKS.

1/2 lb Irish Moss

1 lb Spanish Juice

2 cut Cane Crystals Mon Tues

Dropped to No 5

Racked Tues Feb 14 51 1/2 Bar

No. of Brew... 213

Date... Wed. Feb.

QRS. MALT & SUGAR.

Crystal  
 Pine Calif  
 Pine Engl  
 No 3  
 Budyett  
 W.M.E.

LIQUOR NOTES.

18 lbs. Ca Cl  
 27 lbs. Na Cl

WEATHER.

Wind N.E. Very sh

Grav. 1st Wort in  
 " " out  
 " " in tun  
 Grav. 2nd Wort in  
 " " out  
 " " in tun

Part	Days	Wt	Sp. Gr.	Heat	Wt	Wt
1	66	52 1/2	35	144	243	
3	66	54 1/2			Pale	
3	53	117 3/4	Average	145 1/2		
1	53	33 3/4				

3 About 10 days. The weight 1 1/2 lbs. was lost.  
 began to wash & to test this afternoon, by giving the 1<sup>st</sup>  
 large tubbed boiler of boiling water Cool to 150 and run in  
 the 2<sup>nd</sup> or large tub 23 inches of same water and turn over  
 15 Paals from 1<sup>st</sup> to 2<sup>nd</sup> tub. The heat was mark<sup>d</sup> which reduced to  
 the healthy stand of 140. The 15<sup>th</sup> at which it was mark<sup>d</sup>  
 afterward run into the 3<sup>rd</sup> tub, or middle sized, 25 inches of  
 same water and turn over from 2<sup>nd</sup> to 3<sup>rd</sup> tub. 15 Paals of water  
 to the 3<sup>rd</sup> tub, which reduced the heat to 135 and then it  
 was mark<sup>d</sup>. Afterward run in 22 inches of Boil<sup>d</sup> Water  
 to the 4<sup>th</sup> or mid sized tub, and turn over to it 20 Paals from  
 the 3<sup>rd</sup> tub, raising the Heat to 21 inches and heat 135 at  
 which it was mark<sup>d</sup>, and turn back to the 3<sup>rd</sup> tub. Paals  
 Then mark<sup>d</sup> stood 3 hours, and produced a full Copper  
 say 240 Paals. Afterward the regularly process of catching  
 and turning over was attended to, and the small spent  
 well, and produced as above.

49 BELVEDERE ROAD, LAMBETH, S.E.,  
LONDON, ..... 1882.

Mr. ....

Dear .....

*We beg respectfully to inform you that our  
will have the pleasure of calling  
upon you on or about .....  
when the favour of your Orders, as per Price List, will oblige,*

*Your obedient Servants,*

W<sup>m</sup>. YOUNGER & CO.

PRICE LIST.

DRAUGHT ALES.

Mark.	Description.	Price per Barrel.
XP	India Pale Ale, . . . . .	54/
XXP	Export do., . . . . .	60/
X	Mild Edinburgh Ale, . . . . .	42/
XX	Do. do., . . . . .	50/
XXX	Do. do., . . . . .	54/
XXXX	Stock do., . . . . .	60/
No. 1	Edinburgh Ale, . . . . .	84/
No. 2	Do., . . . . .	72/
No. 3	Do., . . . . .	60/

BOTTLING ALES.

XP	India Pale Ale, . . . . .	54/
XXP	Export do., . . . . .	60/
No. 1	Edinburgh Ale, . . . . .	84/
No. 2	Do., . . . . .	72/
No. 3	Do., . . . . .	60/
DA	Dinner Ale, . . . . .	36/

*Carriage paid. Discount and Terms on Application.*

# Scotch Ale

Brewed in Edinburgh from the Finest Malt  
and Hops—full flavoured, heavy in gravity.

## A PRE-WAR STRONG BEER

*Retailed in Saloon Bar at same  
price as Bass and Guinness*

\*\*\*O\*\*\*

If free, ORDER NOW for the Autumn and Winter  
from one of the following, first-class Bottlers:—

Mr. L. C. Bates.

Messrs. Child & Co.

„ Daukes & Co.

„ M. B. Foster & Sons, Ltd.

„ Winckworth & Co., Ltd.

„ Fremlin Bros., Ltd.

Messrs. Johnson, Philpott & Co., Ltd.

„ Plowman, Barrett & Co., Ltd.

„ Robert Porter & Co., Ltd.

„ Probyn & Co., Ltd.

„ Thos. Egan & Co., Ltd.

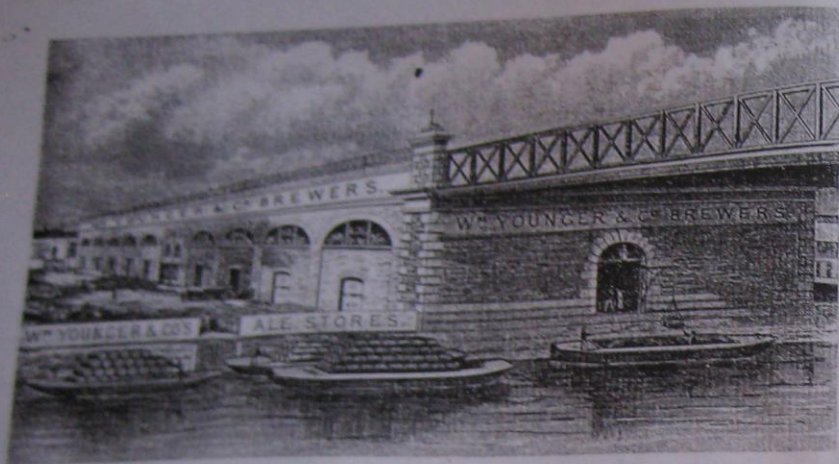
Or from

WM. YOUNGER & CO., LTD.

49 BELVEDERE ROAD, LONDON, S.E.1

*Write for Advertising matter.*

W. Younger's  
No. 3 Scotch Ale.



49 Belvedere Road,  
LAMBETH, S.E.

LONDON, October, 10<sup>th</sup> 1885.

### OCTOBER BREWINGS

Dear Sir,

We are now registering orders for the October Brewings  
of our **INDIA PALE ALE** 54/- per Barrel.

**EXPORT PALE ALE** 60/-

**N° 3 STRONG ALE** 60/-

**KXXX STOCK ALE** 60/-

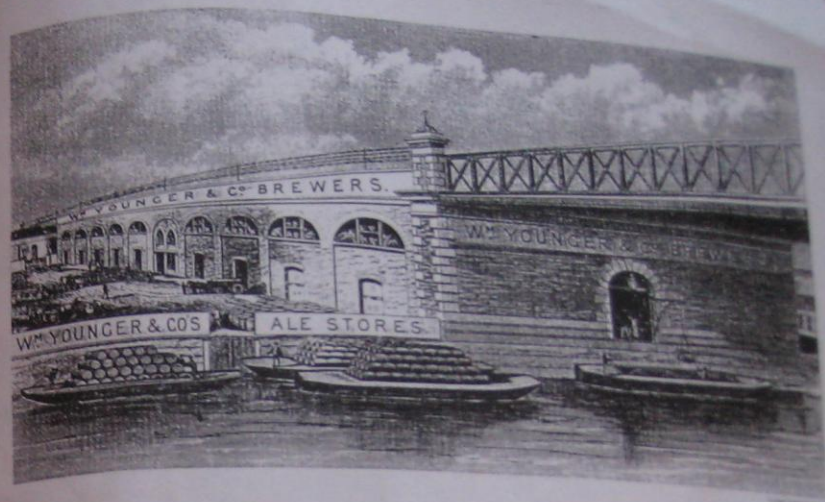
The reliable quality of our Ales has been so long known and is so thoroughly established in this market, that we deem it unnecessary to do more than assure our friends and the trade generally that we continue to maintain our high standard.

When in London, the honor of a visit to our Stores will be much esteemed. Our representative will have the pleasure of waiting upon you shortly. We are, Dear Sir,

Your obedient Servants

*Wm. Younger & Co.*

ALL ALES  
DARRAGE PAID



49 Belvedere Road,  
LAMBETH, S.E.

LONDON, March 21<sup>st</sup> 1886

### MARCH BREWINGS.

Dear Sir,

We are now registering orders for the March Brewings  
of our **INDIA PALE ALE** 54/- per Barrel.

**EXPORT PALE ALE** 60/-

**N° 3 STRONG ALE** 60/-

**KXXX STOCK ALE** 60/-

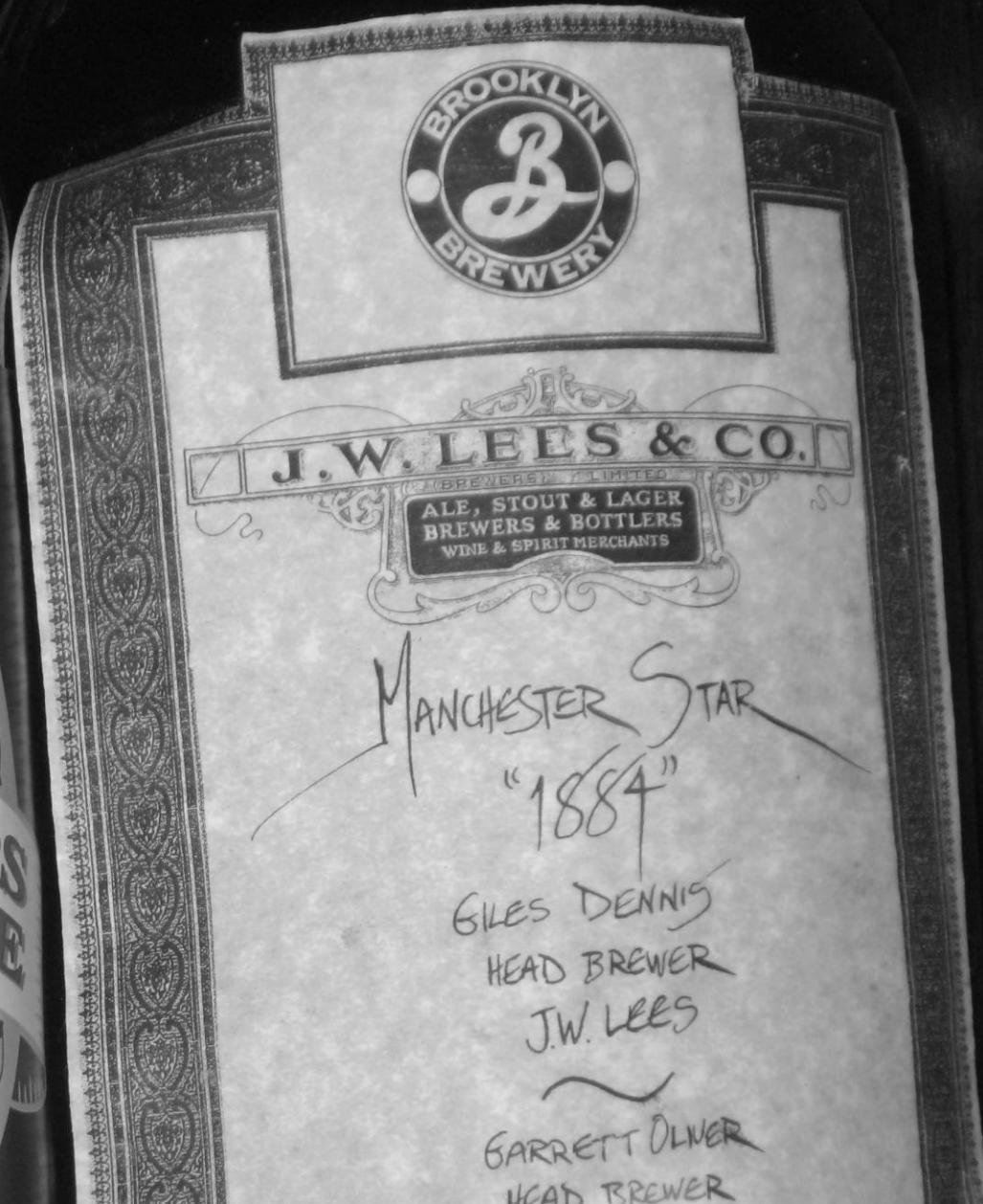
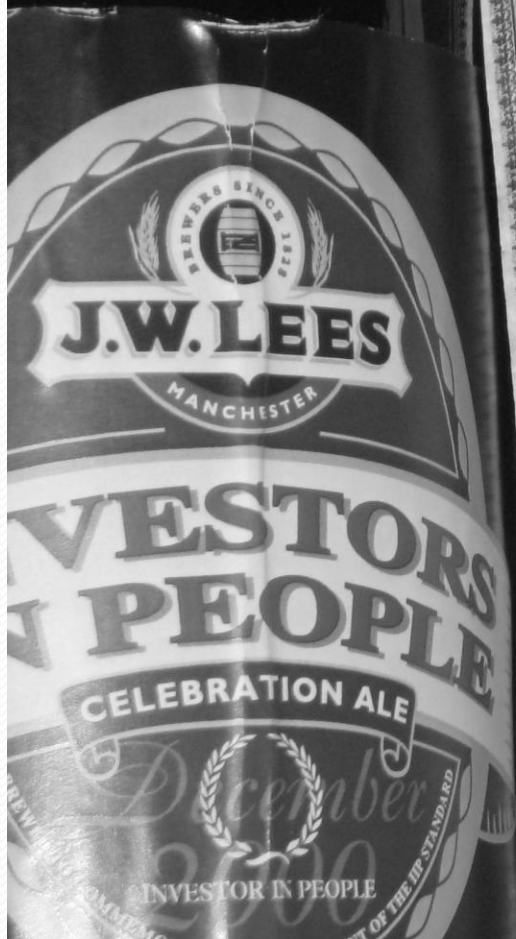
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The honor of a visit to our Stores will be much esteemed.

We are, Dear Sir,

Your obedient Servants

*Wm. Younger & Co.*







ONLY BY THE WHITE SHIELD  
IMPERIAL STOUT  
P2  
IMPERIAL STOUT  
BREWERS BURTON UPON TRANT

*William Kestinger*

**E**

**BOTTLE CONDITIONED  
FINEST BURTON ALE**

Fresh and lively with a rich, smooth taste  
and a full, a hint of grainy character  
popular with those who like a  
spicy finish.

Best Before End

# Translating Old Recipes

- Malt amounts often listed in *Quarters* or *Bushels*
  - *1 quarter of malt = 336 pounds*
  - *1 quarter of malt = 8 bushels*
  - *1 bushel = ~42 pounds malt*
- 1 barrel water = 36 gallons (UK barrel) = 360 pounds
- 2 bushels malt yield 1 bbl beer at 1.056 gravity
- Hops often added on a “per quarter malt” basis
- Wort gravity listed as
  - *Brewers Pounds* = weight of 1 bbl wort vs. one bbl water
  - Specific gravity = last 2 digits of convention SG
    - 1.060 SG would be referred to as “60”

# Translating Old Recipes

- Constants:
  - 85 Brewers Pounds from each quarter of malt
  - 3-4 bbls beer/qtr malt
  - ~4 bbls at std og of 1.056
  - Or....2 bushels malt = 1 bbl beer
- Conversions:
  - $SG = BP/0.36$ 
    - Ex:  $85/0.36 = 236/4 = 59$ , -or- 1.059

# Examples:

- 1: Brew is made with 55 quarters of malt and the OG is 1.065. How many bbls of wort were produced?
  - 1.065 OG:  $65 \times 0.36 \text{ brewers pounds/SG} = 23.4 \text{ brewers pounds}$
  - $85 \text{ bp/qtr} \times 55 \text{ qtr} \times 1 \text{ bbl}/23.4 \text{ bp} = 200 \text{ bbls.}$
- 2: A brew is made with 30 qtrs of malt and the brew length is 70 bbls. What is the theoretical OG of this brew?
  - $30 \text{ qtrs} \times 85 \text{ bp/qtr} / 70 \text{ bbls} = 36.4 \text{ bp/bbl}$
  - $36.4 \text{ brewers pounds} / .36 = 101, \text{ or SG } 1.101$

# Special thanks:

- Martyn Cornell
- Ron Pattinson
- Kristen English
- Christopher Bowen
- Mark Dorber and The IPA Hunters: Roger Putman, Paul Bayley, Ray Anderson, Tom Dawson, Steve Wellington, Steve Brooks, and Des Gallagher
- Ray Daniels
- Stone Brewing Co.
- The NHC Staff



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QUESTIONS????