NHC 2014 Judge Reception

KENTUCKY COMMON

AN ALMOST FORGOTTEN STYLE

Presented By

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- What Exactly is Kentucky Common?
  - One of only 3 Indigenous Beer Styles of the United States
    - Variously known as Common, Dark Cream Ale
  - Unique to the Louisville Kentucky metropolitan area
  - Evolved from mid 19th Century to Prohibition
  - 75+% of all beer consumed in Louisville in early 1900's
  - Faded into obscurity with Prohibition

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- Why Was Kentucky Common So Popular?
  - In was relatively simple to produce
    - Very adaptable to small 19th Century breweries
  - It was quick to produce
    - Typically 6 to 8 days from mash to delivery
  - It was quite inexpensive
    - In 1912 cost $5.00 per barrel or 2 cents per pint
  - But the bottom line;
    - It tasted good!

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- Kentucky Common Grows
  - From 1880's Louisville brewing industry prospered
  - Electric power revolutionized brewing
    - General brewhouse improvements (pumps, milling, etc.)
    - Major improvement – Refrigeration
  - Breweries consolidated, taking advantage of larger scale
    - Able to afford refrigeration
    - Internal cooperage operations
    - Bottling plants
  - Dedicate malt houses supplying quality malt
    - Cellar space freed up in the breweries

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- Louisville Grows Into Major Brewing Center
  - Louisville 12th largest city in the US after Civil War
  - Major population growth in late 19th century
  - Immigration primarily Irish and German – clearly beer lovers
  - 15th largest brewing center in US by 1900
- Louisville Brewing Grows in Sophistication
  - By 1912 all major breweries headed by German Brewmasters
    - Well trained in brewing arts
    - Integrated into national network of brewers

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- What Exactly Is Kentucky Common?
  - Rather obscure in the literature
  - Fortunately brewhouse records were preserved
    - All were hand written
    - Documented in odd mixture of English & German
    - Gravities in ° Balling
    - Temperatures in ° Reaumur
  - Typical Brewing Records attached
    - Figure 1 – Kentucky Common from 1912
    - Figure 2 – Bock Beer from 1911 for comparison

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Figure 1

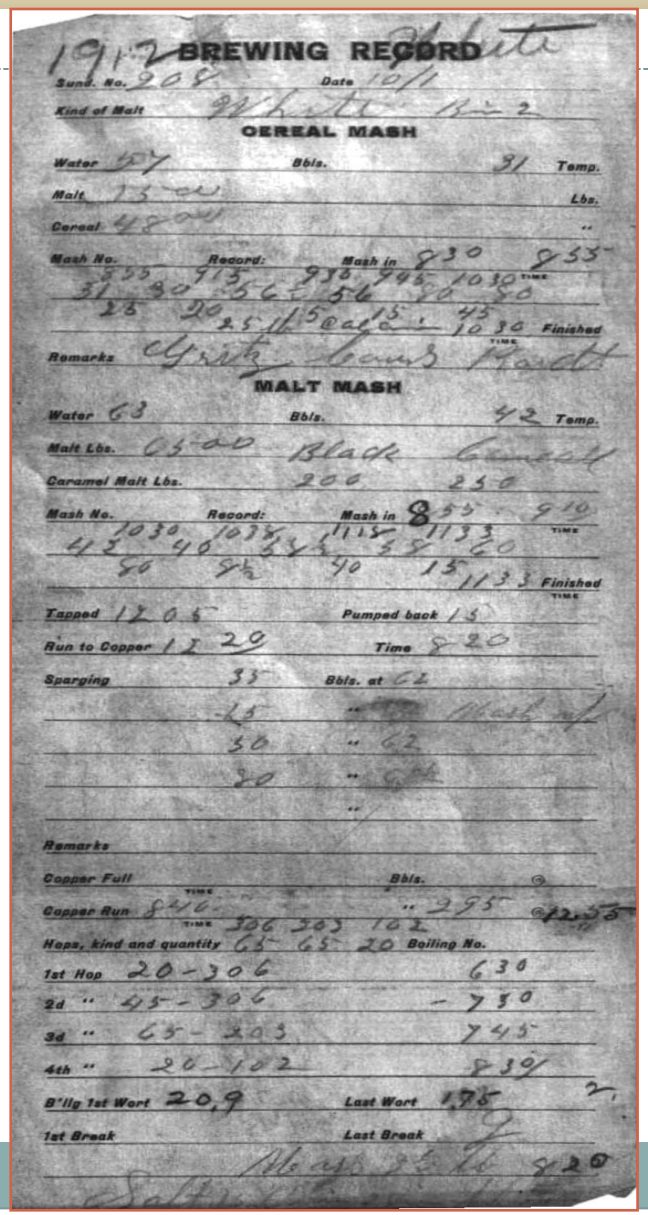
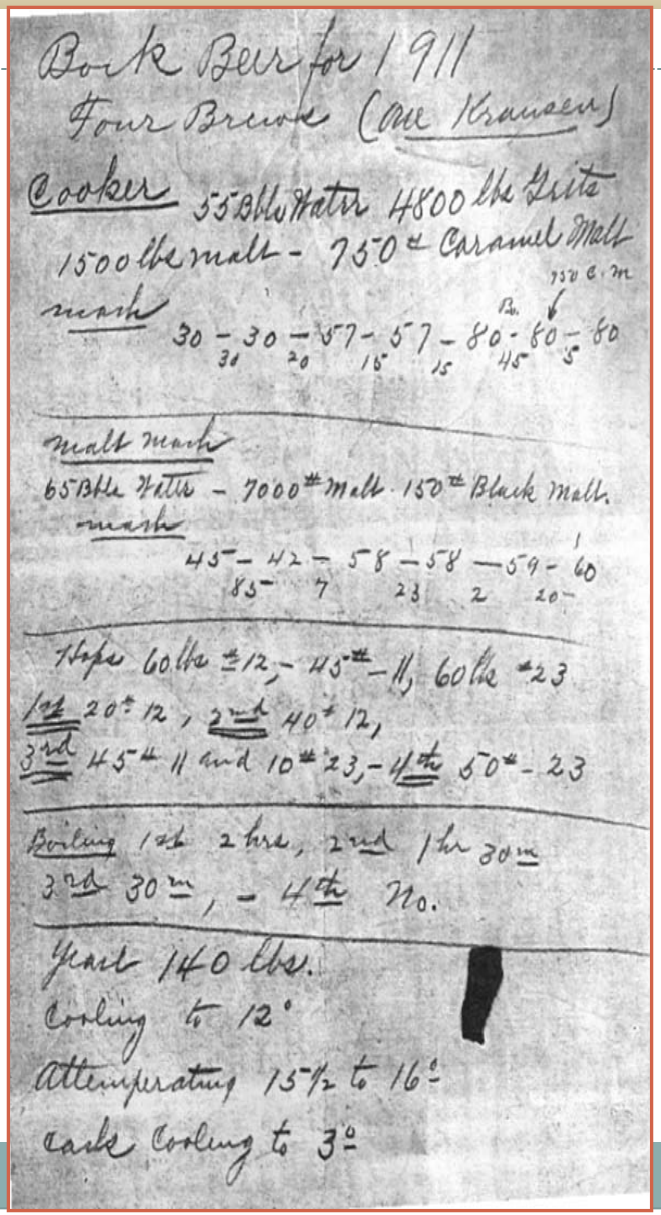


Figure 2



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- Brewing Logs Provide Significant Detail
  - Brewlogs recovered from 4 of largest breweries
    - Covers period from 1904 to 1912
  - All ingredients detailed
  - Gravities throughout process and durations per brew (Sud)
- Record Keeping Grows in Sophistication
  - Far more detail recorded
  - Ingredients and process become more standardized
    - 1904 Butchertown Brewery Log shown in Figure 3
    - 1912 Oertel's Brewery Log shown in Figure 4

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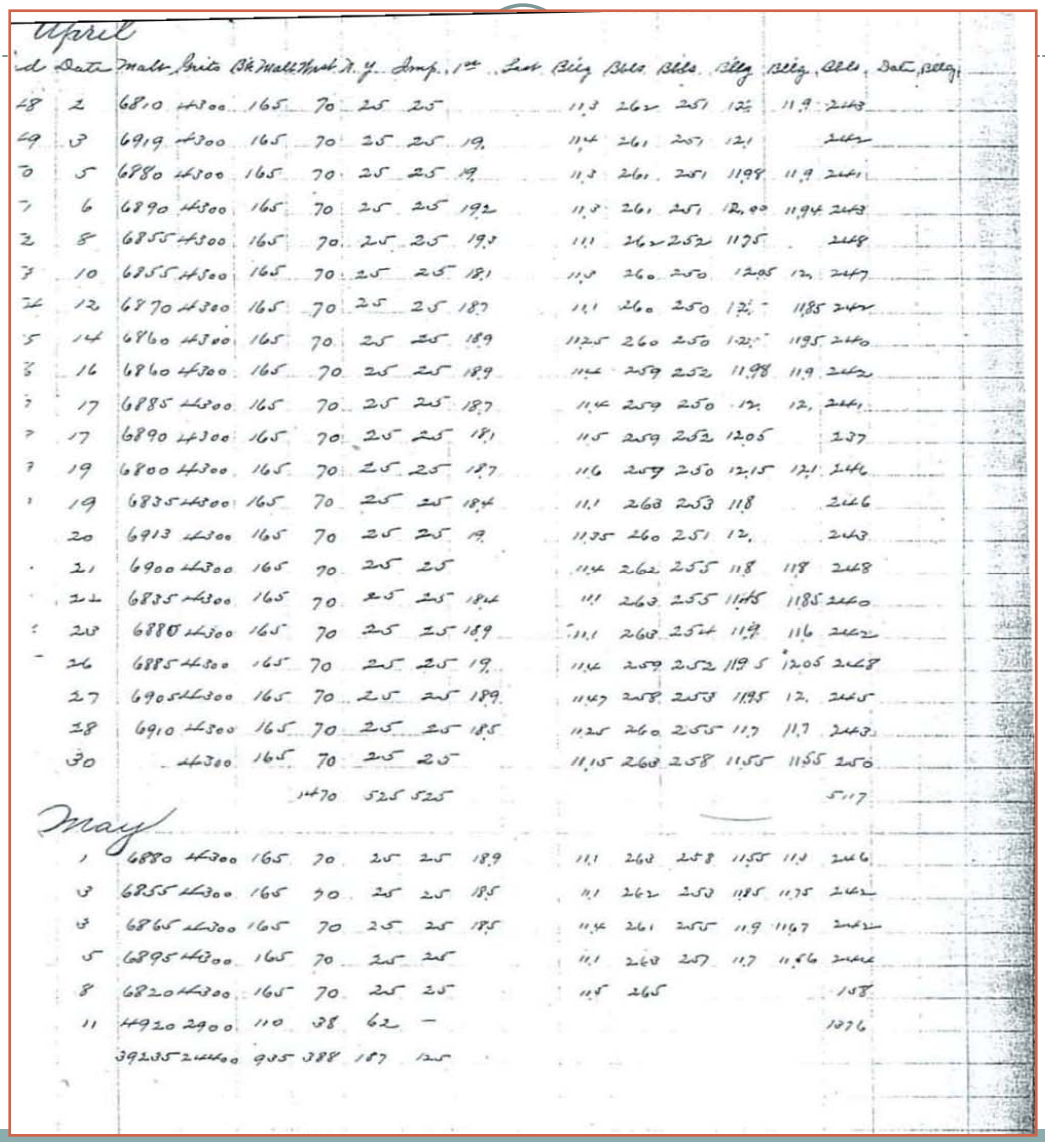

April

d	Date	Malt	Grits	Bk Malt	Mash	R. Y.	Jump	1st	Last	Bldg	Bldg	Bldg	Bldg	Bldg	Bldg	Date	Bldg
48	2	6810	42300	165	70	25	25			11.3	262	251	12½	11.9	2463		
49	3	6919	42300	165	70	25	25	19		11.4	261	257	12.1		2462		
0	5	6880	42300	165	70	25	25	19		11.3	261	251	11.98	11.9	2461		
7	6	6890	42300	165	70	25	25	19.2		11.3	261	251	12.03	11.94	2463		
2	8	6855	42300	165	70	25	25	19.3		11.1	262	252	11.95		2468		
3	10	6855	42300	165	70	25	25	18.1		11.3	260	250	12.05	12.	2467		
26	12	6870	42300	165	70	25	25	18.7		11.1	260	250	12½	11.85	2467		
5	14	6860	42300	165	70	25	25	18.9		11.25	260	250	12.1	11.95	2470		
6	16	6860	42300	165	70	25	25	18.9		11.4	259	252	11.98	11.9	2462		
7	17	6885	42300	165	70	25	25	18.7		11.4	259	250	12.	12.	2464		
7	17	6890	42300	165	70	25	25	18.1		11.5	259	252	12.05		2.37		
7	19	6800	42300	165	70	25	25	18.7		11.6	259	250	12.15	12.1	2466		
1	19	6835	42300	165	70	25	25	18.4		11.1	263	253	11.8		2466		
	20	6913	42300	165	70	25	25	19		11.35	260	251	12.		2463		
.	21	6900	42300	165	70	25	25			11.4	262	255	11.8	11.8	2468		
	22	6835	42300	165	70	25	25	18.4		11.1	263	255	11.85	11.85	2460		
:	23	6880	42300	165	70	25	25	18.9		11.1	260	254	11.9	11.6	2462		
-	26	6885	42300	165	70	25	25	19		11.4	259	252	11.95	12.05	2468		
	27	6905	42300	165	70	25	25	18.9		11.47	258	253	11.95	12.	2465		
	28	6910	42300	165	70	25	25	18.5		11.25	260	255	11.7	11.7	2463		
	30		42300	165	70	25	25			11.15	268	258	11.55	11.55	2450		
					1470	525	525								5117		

May

	1	6880	42300	165	70	25	25	18.9		11.1	263	258	11.55	11.4	2466		
	3	6855	42300	165	70	25	25	18.5		11.1	262	253	11.85	11.75	2462		
	3	6865	42300	165	70	25	25	18.5		11.4	261	255	11.9	11.67	2462		
	5	6895	42300	165	70	25	25			11.1	268	257	11.7	11.86	2466		
	8	6820	42300	165	70	25	25			11.5	265				1.58		
	11	44920	2900	110	38	62	—								1076		
		392.35	214400	935	388	187	125										

Figure 3

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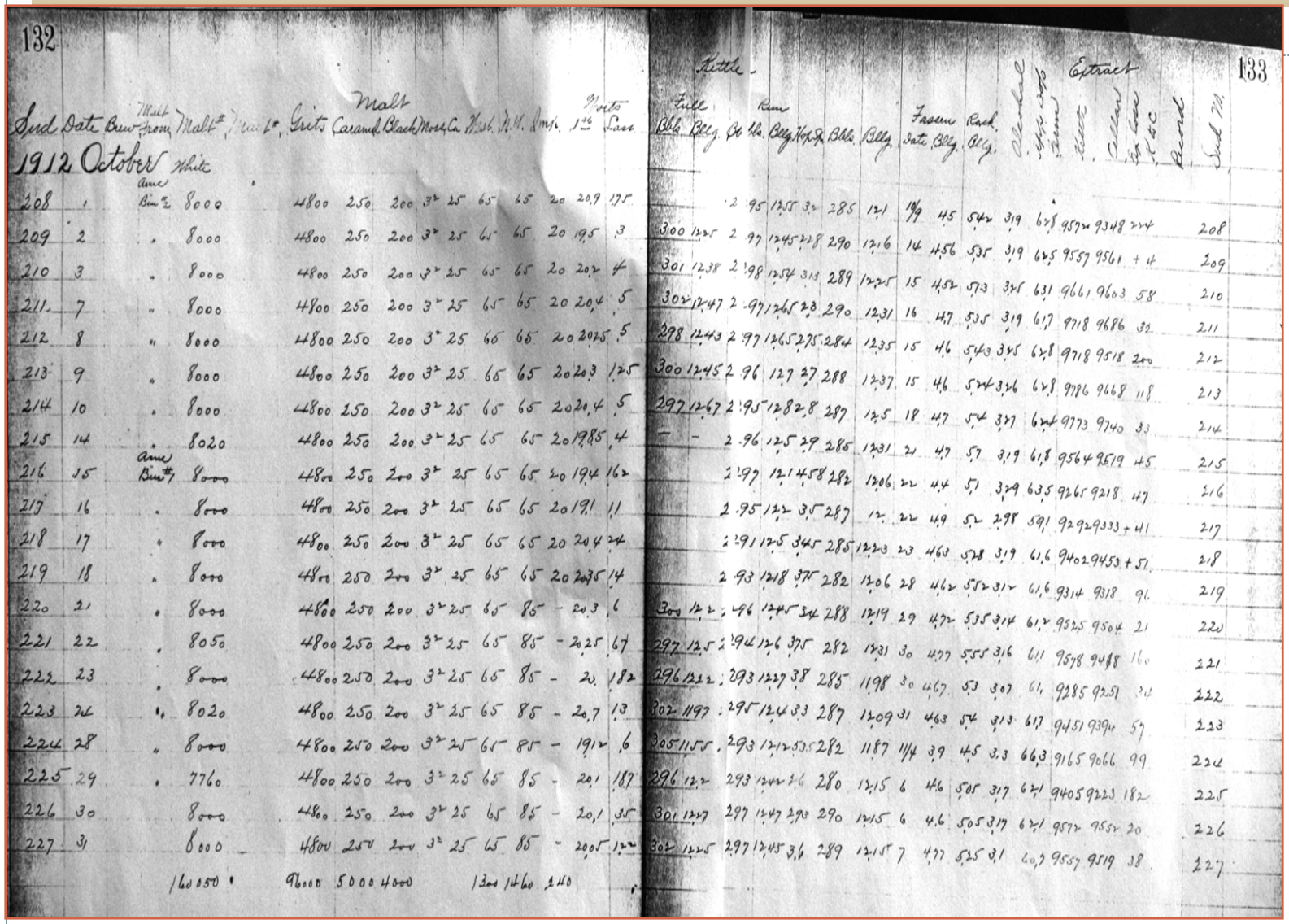

Figure 4

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- Basic Recipe for Kentucky Common
  - Grist
    - 60% Pale Malt (most likely locally available 6 row malt)
    - 36% to 38% corn grits
    - 1½% to 2% Black malt
    - 0 to 1½% Caramel malt (possibly caramel coloring in early years)
  - Mashing technique
    - Cereal mash with corn grits and ~ 25% of malt
      - Mash in at 102°F, raise to 156°F then to boil
    - Malt mash with remainder of malt (pale & dark)
      - Mash in at 125°F, raise to 156-158°F (cereal mash add back)
      - Mash out at 168°F
    - Gypsum added to cereal mash water at about 65 ppm

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- Out of the Lauter Tun
  - First runs were typically 1.085 to 1.090
  - Last runs seem to be the cut off for sparge
    - Last runs typically 1.006 to 1.008
  - Sparge water supplied at 170˚F
    - Record appears that sparge was batch in 4 additions
    - Volume of sparge approximately 70% of kettle fill
  - Composite pre-boil gravity 1.046 to 1.050

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- Hop Bill & The Copper
  - Western hops (more than likely variant of California Gray)
    - ¼ pound per barrel for bittering
      - About one third first wort and two thirds for 90 minutes
  - New York Hops
    - ¼ pound per barrel for flavor
      - For 45 minutes
  - Imported Hops
    - Most likely German Noble hops or Czech hops
      - .05 to .1 pounds per barrel at knock out
  - Total boil time – 2 hours

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- Preparation for Fermentation
  - Hot wort settled for brief period (usually 15 minutes)
  - Hot wort cooled by running over Baudelot cooler
    - Early 20th century breweries used chilled water or brine
    - Added benefit of aerating wort as it cooled
    - Cooled to about 60˚F to aid in break separation
  - Allowed to warm to 66˚ to 68˚ F prior to pitching yeast

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- Fermentation
  - Yeast pitch about ½ pound of slurry per barrel
    - Obviously an aggressive top fermenting yeast
    - Most often yeast strains were proprietary to the brewery
  - Normal fermentation temperature 66˚ to 72˚F
  - Typical fermentation cycle – 3 to 5 days

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- Finishing And Kegging
  - Beer is racked for clarification
    - Usually to a chip cask with isenglass
    - Rest usually only one day
  - Kräusen is added and Kräusen cask or barrel is bunged
  - When sufficient carbonation is attained, racked to trade barrel
    - Usually 3 to 3½ volumes of CO_2

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- Delivery
  - Finished beer delivered immediately to the Saloon
    - May set in saloon for 1 to 3 days to further clarify
    - Most often dispensed at cellar temperature
    - Not uncommon to gravity dispense directly from the barrel

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- Was Kentucky Common Sour?
  - Myth and Legend, Fact or a little of both
  - Not mentioned in earliest published record
    - Second edition of Wahl & Henius "*American Handy Book of Brewing, Malting and Associated Trades*" 1902
    - See Figure 5

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KENTUCKY COMMON BEER.

Like California steam beer, Kentucky common beer is mainly consumed by the laboring classes, and is chiefly brewed in Louisville, Ky. It is marketed while still in an early stage of fermentation.

Materials employed are: Barley malt and about 25 to 30 per cent of corn, with some sugar color, caramel or roasted malt to give a dark color.

Balling of wort about 10 to 11 per cent.

Mashing temperatures vary greatly, both low and high initial temperatures being taken. In the latter case the corn mash is cooled with water before running into the mash-tun.

Boiling.—The wort is boiled with about one-half pound of hops per barrel, and cooled to 60° F. (12° to 13° R.).

Fermentation.—The wort is pitched with one-third of a pound of top-fermentation yeast per barrel, allowed to come full in Kräusen, and then transferred from the fermenter directly into the trade packages, which are placed on troughs, into which the yeast is allowed to work out. The barrels are kept full continually by topping up every few hours. After 48 hours in the barrels the fermentation is over and the barrels are bunged; when very much gas is required they may be closed in 24 hours.

The beers are not as a rule Kräusened, nor fined, and consequently have a "muddy" appearance, but a moderately clear article can be obtained if the saloonkeeper lays in a supply so that it can settle a few days before tapping.

TOP-FERMENTATION GERMAN BEERS.

BERLINER WEISSBEER.

Of the many varieties of top-fermentation German beers, it is only *Weiss beer* that has been able to compete with the lager beers, while the others, being gradually displaced, are but little known, or enjoy only a local reputation.

Although the methods for the production of Weiss beer vary considerably in different parts of Germany, it may be of interest to consider only the Berliner Weiss beer, as that is the kind which seems to have outstripped its rivals in Germany in point of quantity consumed, as well as in the United States, where it is considered the one type worthy of imitation.

Berliner Weiss beer should have a very pale color; be moderately clear, distinctly tart, rich in carbonic acid, so that it

Figure 5

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- Was it a sour mash?
  - After all regularly employed by Kentucky Bourbon distillers
  - Requires several hours to days for effective souring
  - Brewing records clearly do not support sour mashing
- Was it lactic bacteria added during or after fermentation?
  - Third edition of Wahl & Henius, (1906) gives some insight
    - See Figure 6

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(122° F.), and temperature raised by addition of grits mash and water to about 58° R. (162° F.). The wort is boiled for a short period (about 30 minutes) with hops from one-half to three-quarters pound per barrel.

Strength of wort about 10 to 12 per cent Balling.

For treatment of beer during fermentation, see "Berliner Weiss Beer." Ale yeast should not be employed as is often the case but yeast from a Weiss beer yeast should be obtained in case of need. In America the fermentation is generally conducted in vats instead of casks, in which case the yeast is skimmed off.

After fermentation the beer is kräusened and filled in bottles.

Undoubtedly the American article could be much improved by employing the materials, as well as the mashing method in vogue in German Weiss beer breweries, especially the material, as grits will under no circumstances yield those albuminoids that give Weiss beer its character, as wheat malt does. Certainly there seems no reason why American Weiss beer brewers should not be able to procure a good wheat malt.

Weiss beer in America is sometimes stored, bunged, and fined like lager beer, but a brilliant Weiss beer does not seem to catch the fancy of the consumers, who are accustomed to the cloudy, lively article of Berlin fame.

For details of Weiss beer production in Germany see further on.

KENTUCKY COMMON BEER.

Common beer is brewed chiefly in Louisville, Ky. Its color is dark, being about the same as that of average Bavarian beers. The beer should possess a pronounced malt flavor, be full to the palate, of somewhat sweet taste, and mild in character. Besides these properties as to taste, the beer should have a slight but characteristic bacteria taste and flavor, which can be obtained by employing a yeast containing a moderate number of bacteria of the rod-shaped variety. If a yeast with a too large number of bacteria is used, this taste may become too pronounced, which not alone would make the product obnoxious, but also endanger its brilliancy and stability. To obtain the desired results, the yeast should contain about 2 per cent of such bacteria (20 bacteria per 1,000 yeast cells).

Materials Employed.—Pale barley malt and 25 to 35 per cent

of corn, either grits or meal or corn flakes, are employed, together with some colorant, as a rule, caramel and black malts, but also sugar coloring, to give the desirable depth of color.

Hops: ½ to ¾ pound per barrel of wort in the cellar.

The Balling of the wort in the cellar varies from 10 to 12.5 per cent.

Mashing and Boiling.—The general brew-house methods of mashing and sparging and of boiling the wort in the kettle employed in the larger common beer breweries are similar to those used when brewing lager beer. In smaller plants, the methods vary greatly, both low and high initial temperatures being taken.

Fermentation.—The wort is cooled to 12° R. and pitched with ½ to ¾ pound of yeast per barrel. The temperature of the fermentation is allowed to rise to 16-17° R., the Kräusen usually working out over the rim of the fermenter, due to the very vigorous fermentation. The beer toward the close of the fermentation is cooled to about 6° R. before racking into the chip casks.

Duration of fermentation: 5 to 7 days.

Finishing.—Formerly, the beer after coming full into Kräusen was transferred directly into the trade packages, which were placed on troughs into which the yeast and foam were allowed to work out. The packages were kept full continually by topping up every few hours. After 48 hours in the barrels, the fermentation was over, and the barrels were bunged; when much gas was desired, they were closed in 24 hours. The beer was not fined, and consequently had a "muddy" appearance. However, by allowing the package to stand for 2-3 days before tapping, a moderately clear article was obtained.

Most common beer brewers nowadays Kräusen the beer and clarify it by means of chips and isinglass. The beer is run directly from the fermenter into the chip cask, and 15-20 per cent, and even more, Kräusen added, fining and bunging it immediately after Kräusening. As soon as the beer has acquired the proper life and brilliancy, it is filtered and racked into the trade packages.

Figure 6

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- From 3rd Edition of Wahl & Henius' "*Handy Book….*"
  - *"slight but characteristic bacteria taste and flavor"*
  - *"employing a yeast containing a moderate number of bacteria of the rod shaped variety."*
    - Which we now know to be of the Lactobacillus genus
  - *"the yeast should contain about 2 percent of such bacteria"*
  - From these descriptions we must conclude that the analyses were the result of microscopic evaluations of finished beer

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- Two possible souring possibilities are explored
  - Inoculation during mash cycle
    - *L. delbrueckii*
      - Optimum ecology – 105˚ to 114˚F and pH 6 to 3.6
      - Hop intolerant above ~ 10 IBU
      - Primary used in Berliner Weiβe – either split or co-fermentation
    - *L. hordei*
      - Natural bacteria found on malted barley
      - Optimum ecology – 85˚F and pH 6
      - Also hop intolerant above 10 IBU
      - One of species used in sour mashing

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- Inoculation during mashing cycle (cont.)
  - Conditions for either of these species could be ideal
- Brewing records do not support their use
  - Neither cereal mash or malt mash have sufficient time for souring
  - Neither could survive the boil nor the 25 to 30 IBU wort

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- Greater Possibility a Post Boil Addition
  - Three potential species of Lactobacillus common
    - *L. plantarum*, *L. paracollinoides*, *L. brevis*
    - All three known as beer spoilage bacteria
      - (identified post prohibition)
      - All very hop tolerant
      - Ideal ecology 60˚ to 90˚F and pH 4.5 to 7
      - *L. brevis* most active in brewery environment
        - 75% of beer spoilage attributable to this species
        - Primary source - contaminated cooperage

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- Bottom Line on Post Boil Bacteria
  - No turn of the century brewer would contaminate their brewery with these spoilage bacteria.
  - Most likely origins of Kentucky Common as sour beer
  - Contaminated cooperage from small brewers of early 20th century

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Questions

or

Comments