BREWING WITH COFFEE: APPROACHES & TECHNIQUES FROM DRY-BEANING TO HOME ROASTING

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Why Coffee Beer?

- It’s delicious! (Don’t take our word for it)
  - Black House
  - Mega Black House
  - Monsters’ Park Aged In Bourbon Barrels with Coffee
- Flavors malt can’t reproduce
MODERN TIMES COFFEE

- How we got started
- Why it makes sense
- How it’s grown and changed
- Cross-over between beer and coffee
- Adventurous palates for all drinks
- Where we go from here
WHO BREWED COFFEE BEER FIRST?

- A homebrewer... probably!
- New Glarus - Coffee Stout in 1994
- Red Hook - Double Black in 1995
CAFFEINE AND ALCOHOL
(NOT FOUR LOKO)

- Caffeine isn’t the point, but it is a consideration
- Not a large amount of caffeine...
- Decaffeinated coffee?
- Modern Times Black House
  - Enough beans to brew one quart of coffee in 5 gallons of beer.
  - Approximately 1/20 the caffeine of regular coffee.
Coffee Bean Origin

- Flavors
  - Origin
  - Processing method:
    - Dry Processing vs. Wet Processing
- The darker the roast, the less origin matters
- Blending coffee varieties
  - Rules
  - Methods
Roasting

- Times
- Temperatures
- Non-enzymatic chemical reactions
  - Maillard Reaction
  - Caramelization
- Rest periods and volatility
- Importance of freshness
- What works best is subjective
**Maillard Reaction**

- Roasting changes amino acids, peptides and proteins which react with reducing sugars to form various compounds through condensation, which form coffee aromas and color.
**IMPORTANT MAILLARD REACTION FACTS**

- The Maillard Reaction doubles for every 10-degree increase in temperature.
- As the bean enters deeper roasting stages, water is driven out of the bean, increasing the concentration of potential reactants, and allowing more reactions to occur.
- Some compounds reach a peak during the reaction, then, because of their volatility, rapidly decrease.
CARAMELIZATION

- Sucrose, Polysaccharides - key carbohydrates in green coffee
- Over caramelization
**Olfactory Analysis**

- **400°**
  - 11 min
  - Varietal Characteristics

- **375°**
  - 10 min

- **345°**
  - 8 min

- **320°**
  - 6 min
  - Baking Bread

- **300°**
  - 5 min
  - Hay

- **275°**
  - 4 min
  - Fresh Cut Grass

- **212°**
  - 2 min

**Vision Analysis**

- **2 min**
  - Water begins to boil

- **3 min**

- **4 min**
  - Maillard reaction begins

- **5 min**

- **6 min**
  - Caramelization of sugars

- **7 min**

- **8 min**
  - Bean becomes exothermic

- **9 min**

- **10 min**
  - First crack begins

- **11:30 min**
  - End of roast
Curious Home Roasters

Oven
Poor results

Stovetop
Mediocre results prone to tipping & scorching

Whirly Pop
Decent results $41
Serious Home Roasters

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<thead>
<tr>
<th>Roaster</th>
<th>Price</th>
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<tr>
<td>Hottop</td>
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Air Popper
WHERE TO BUY GREEN COFFEE

- www.sweetmarias.com
- www.bodhileaf.com
EVALUATING ROASTED COFFEE

- Off flavors
  - Baked, phenolic, woody, papery.
- Not off flavors in roasted coffee
  - Buttery, acetic, green apple, corn
- Cupping
- Coffee preparation
  - Hot preparation
  - Cold preparation
  - Kegged cold brew
- Cold steep
  - Dose a sample beer to taste
BASE BEER

- Roasty?
- Malt changes the perception
- Hoppy?
  - Aroma not bitterness
- Sweetness and body
  - Coffee and cream (lactose)
- ABV and competing flavors
- Barrels!
**Adding Coffee to Beer**

- **Brewed**
- **Hot-side**
  - Mash
  - Boil
  - Whirlpool
  - Hop-back
- **Cold-side**
  - Cold brewed
  - Directly to beer!
ADDING COFFEE TO BEER (CONT.)

- **Amount**
  - 2-5 oz in 5 gallons

- **Time**
  - 12-48 hours prior to packaging

- **Whole bean vs. ground**
  - Whole bean slows extraction (longer window)
ON NITRO

- Mutes aroma, smoothes-out flavor
- pH
- Really pretty...
- Cold brew on nitro
Barrel-Aged Coffee Beans

- Fresh spirit or wine barrel
- Barrel-aging at home
- Short exposure for green coffee beans
  - One to four months
- Light roast
- Flavors/rate etc.
GETTING EVEN WEIRDER

- Hoppy/pale
  - Aleman/Two Brothers/Stone Dayman Coffee IPA
- White stout
  - Noble Ale Works Naughty Sauce
- Flavored coffees
  - Founders Frangelic Mountain Brown
  - Inspiration for flavors to pair with coffee beer
- Adjuncts
- Coffee cherries
  - Ale Apothecary Be Still
**Black House Recipe**

- Batch Size: 5.00 gal
- Color: 35.4 SRM
- Bitterness: 30 IBUs
- OG: 1.058 (14.1° P)/FG: 1.016 SG (4.0° P)
- ABV: 5.5%

**Mash:**
- 5 lbs 10.0 oz US Pale Malt (2.0 SRM)
- 1 lbs 8.0 oz Flaked Oats, (1.0 SRM)
- 1 lbs 3.0 oz Crystal Malt - 60L (60.0 SRM)
- 5.5 oz Kiln Coffee (190.0 SRM)
- 14.5 oz Pale Chocolate (225.0 SRM)
- 11.0 oz Biscuit Malt (23.0 SRM)
- 5.5 oz Carafa Special III (525.0 SRM)
- 3.0 oz Roasted Barley (300.0 SRM)
- Mash: 60 min @ 154°F (1 tsp Chalk)

**Boil:**
- 0.2 oz Hop Extract [50.0% AA] @ 60 min
- 1.00 Whirlfloc Tablet @ 20 min
- 1.00 tsp Yeast Nutrient @ 20 min

**Fermentation:**
- American Ale (Wyeast Labs #1056)
- 1.90 oz Coffee Beans Ethiopian Hambela and Sumatra Mandehling (whole beans added to fermentor - 24 hours prior to packaging)
Questions?

- Modern Times Beer
  - ModernTimesBeer.com
  - @ModernTimesBeer

- The Mad Fermentationist
  - TheMadFermentationist.com
  - @MadFermentationation