



# **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!
- Charlie Papazian - *The New Complete Joy of Home Brewing* in 1991
- 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



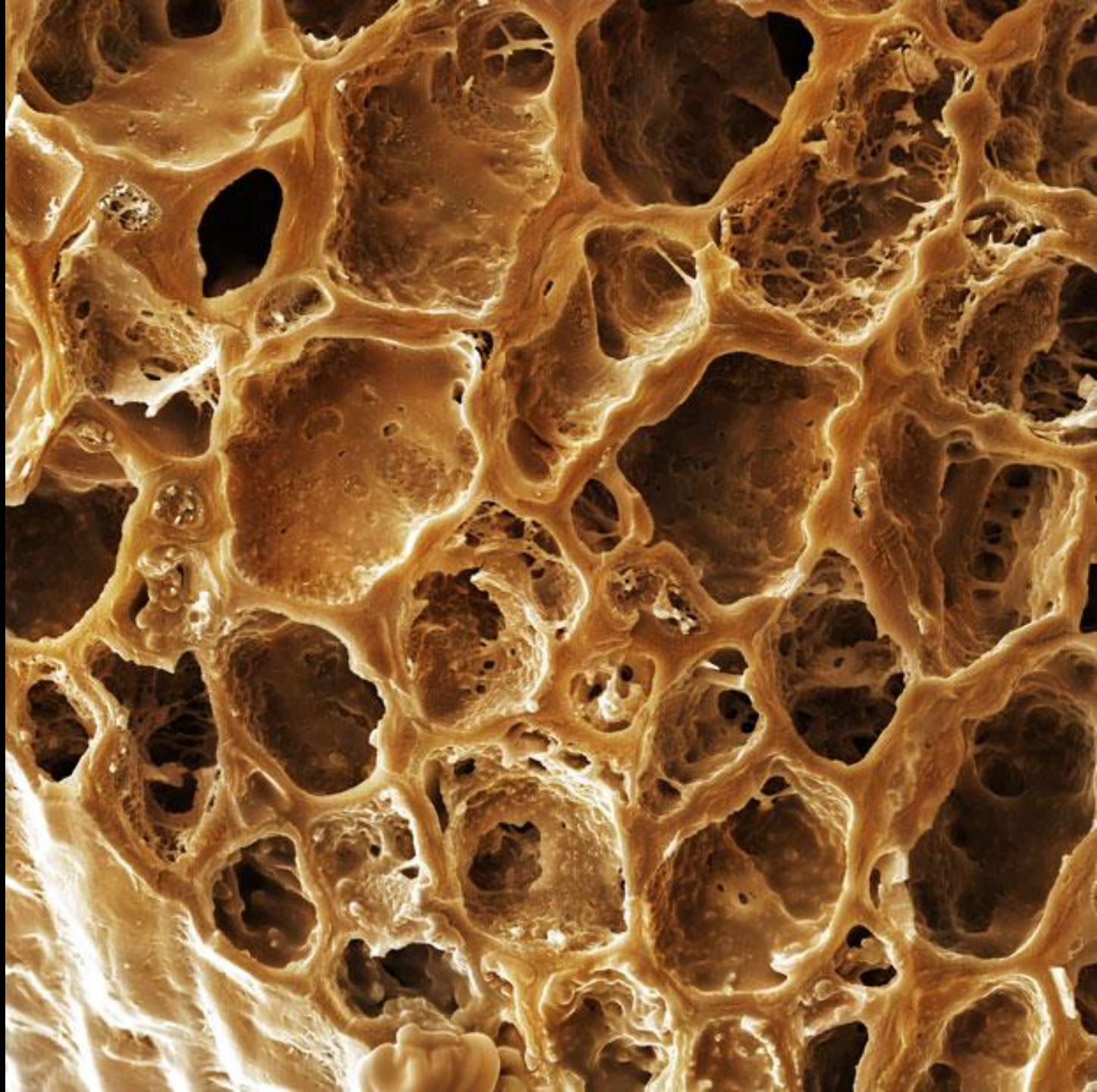


# ROASTING

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



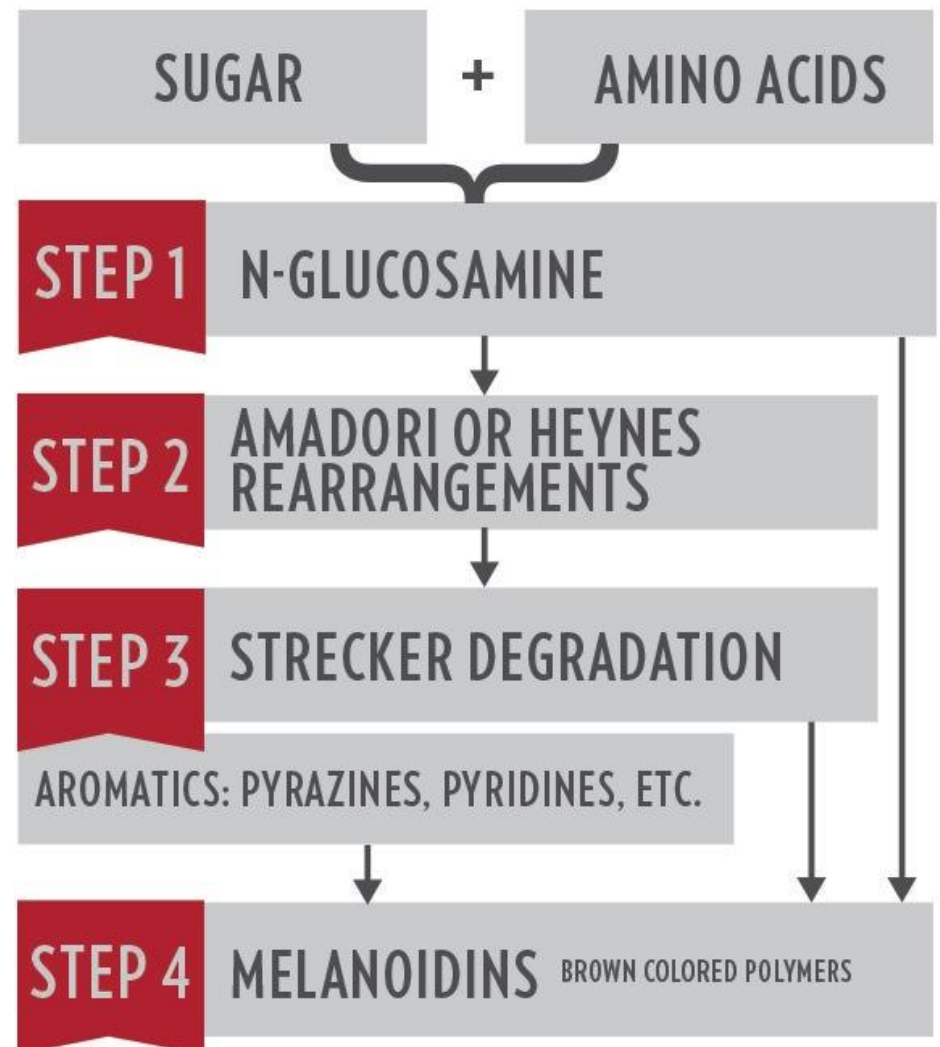






# MAILLARD REACTION

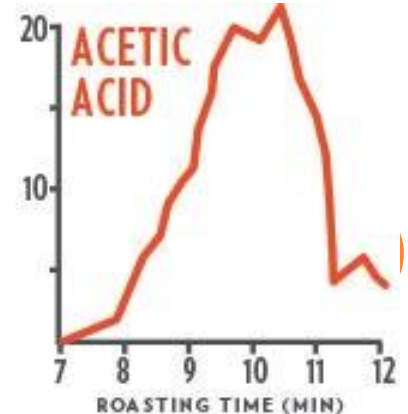
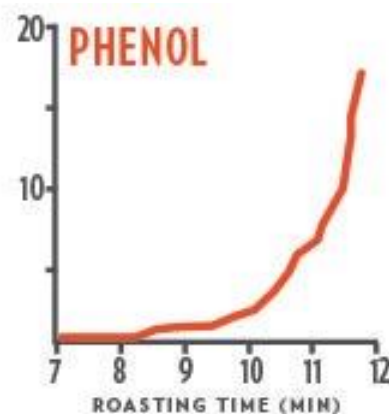
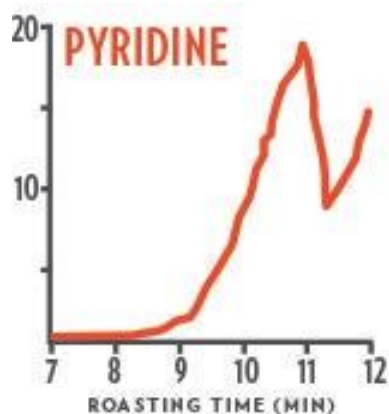
- Roasting changes amino acids, peptides and proteins which react with reducing sugars to form various compounds through condensation, which form coffee aromas and color.





# 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.





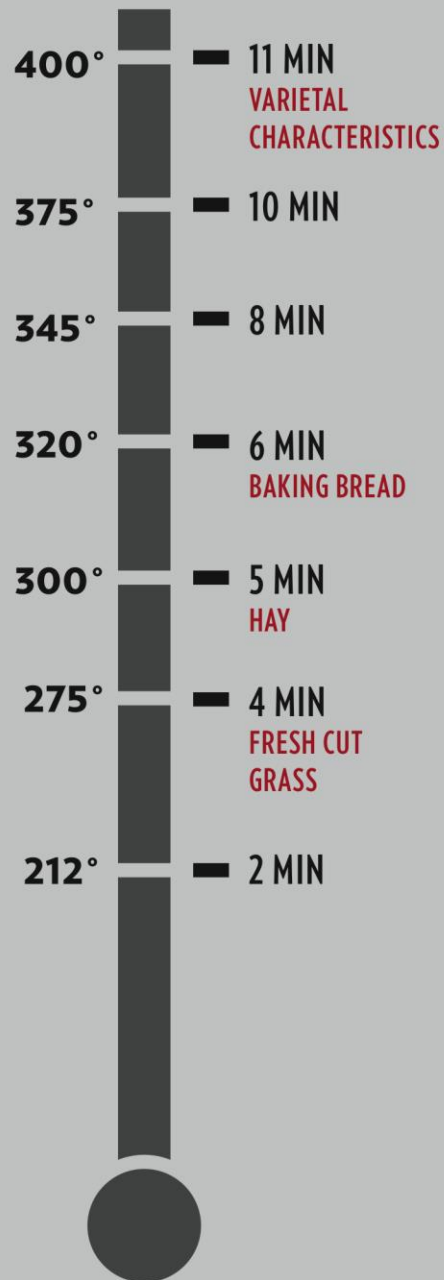
# CARAMELIZATION

- Sucrose, Polysaccharides - key carbohydrates in green coffee
- Over caramelization





# OLFACTORY ANALYSIS



# 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

BEHMOR 1600

\$370



HOTTOP

\$1200



PROASTER

\$8000





# AIR POPPER









# WHERE TO BUY GREEN COFFEE

- [www.sweetmarias.com](http://www.sweetmarias.com)
- [www.bodhileaf.com](http://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







WHOLE BEAN  
SAN DIEGO, CA

*Modern  
Times*™

ONE BAG COFFEE FOR YOU

REALLY REALLY  
TASTY



MADEIRA BARREL AGED  
COLOMBIA HUILA LA BETANIA

NET WT. 8 OUNCES ROASTED ON

OAK • PLUM • MILK CHOCOLATE



# 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) 14.5 oz Pale Chocolate (225.0 SRM)
- 1 lbs 8.0 oz Flaked Oats, (1.0 SRM) 11.0 oz Biscuit Malt (23.0 SRM)
- 1 lbs 3.0 oz Crystal Malt - 60L (60.0 SRM) 5.5 oz Carafa Special III (525.0 SRM)
- 5.5 oz Kiln Coffee (190.0 SRM) 3.0 oz Roasted Barley (300.0 SRM)
- Mash: 60 min @ **154F (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](http://ModernTimesBeer.com)
  - [@ModernTimesBeer](https://www.instagram.com/ModernTimesBeer)
- The Mad Fermentationist
  - [TheMadFermentationist.com](http://TheMadFermentationist.com)
  - [@MadFermentation](https://www.instagram.com/MadFermentation)

