

# Craft Distillation:

## *A Marriage of Art & Science*

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**American Institute of Chemical Engineers**

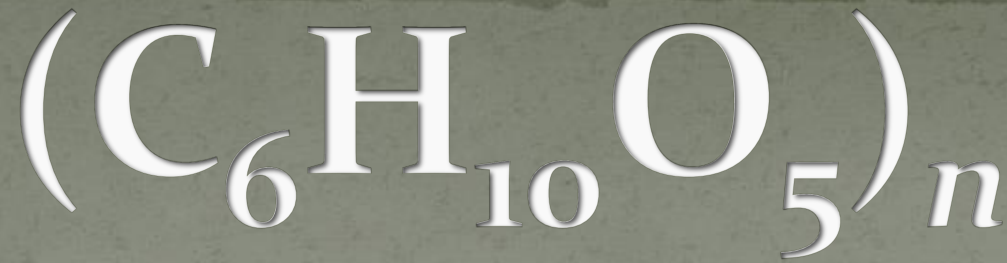
*Puget Sound Local Section*

7 December 2010

**Berle W Figgins, Jr**



- Glucose (Dextrose), Fructose
- Mono-saccharide
- Present in tandem with each other in the juice of all fruits
- Easily fermentable



- Amylose
- Poly-saccharide
- Present with amylo-pectin in all plant starches
- Fermentable only after enzymatic breakdown by  $\alpha$ -,  $\beta$ -amylase or amylo-glucosidase



# Fermentation



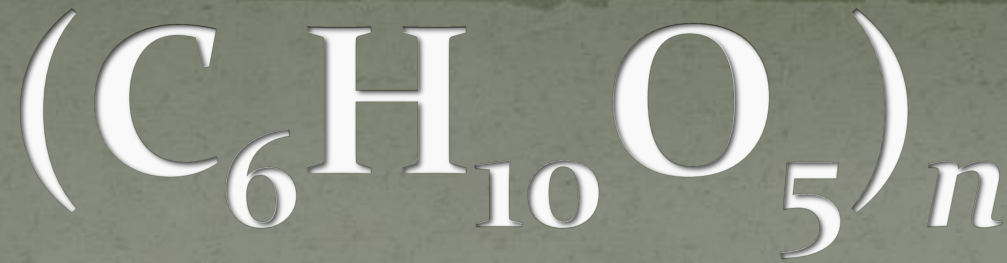


- Ethyl alcohol, or Ethanol
- Present with trace volumes of methyl, propyl, butyl and amyl alcohols
- With congeners when distilled
- Fusel oil, esters, aldehydes....

# Distillation

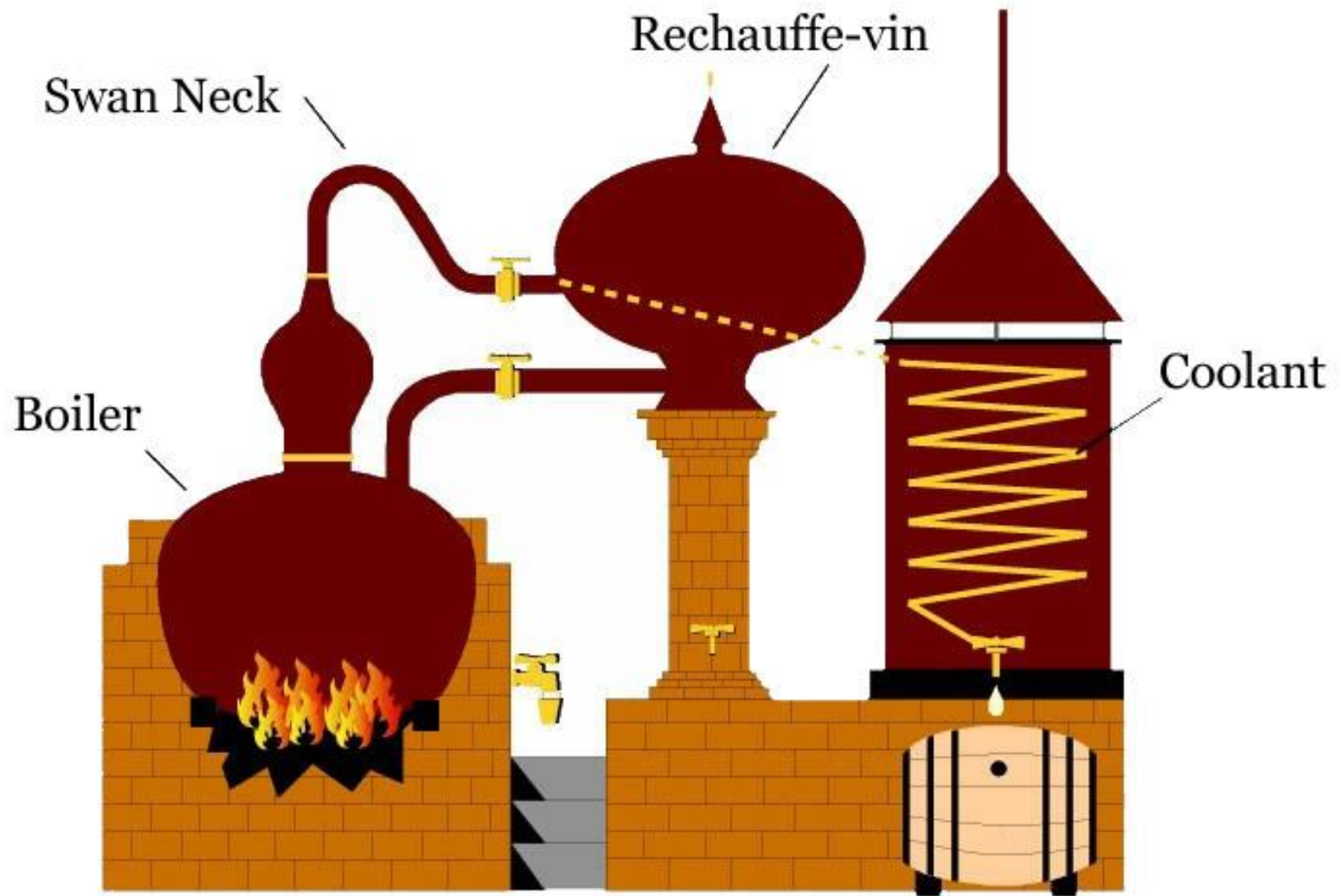
- Using heat, ethanol can be driven away from its substrate
- Differential of boiling points makes fractional separation of spirits possible
- Heads (foreshots), hearts (body) and tails (feints)
- Yields matrix of alcohol and water





- Cellulose
- Many hundreds to tens of thousands of molecules in the chain
- With lignin/tyloses in wood
- Poly-saccharide
- Perfect interface for spirits

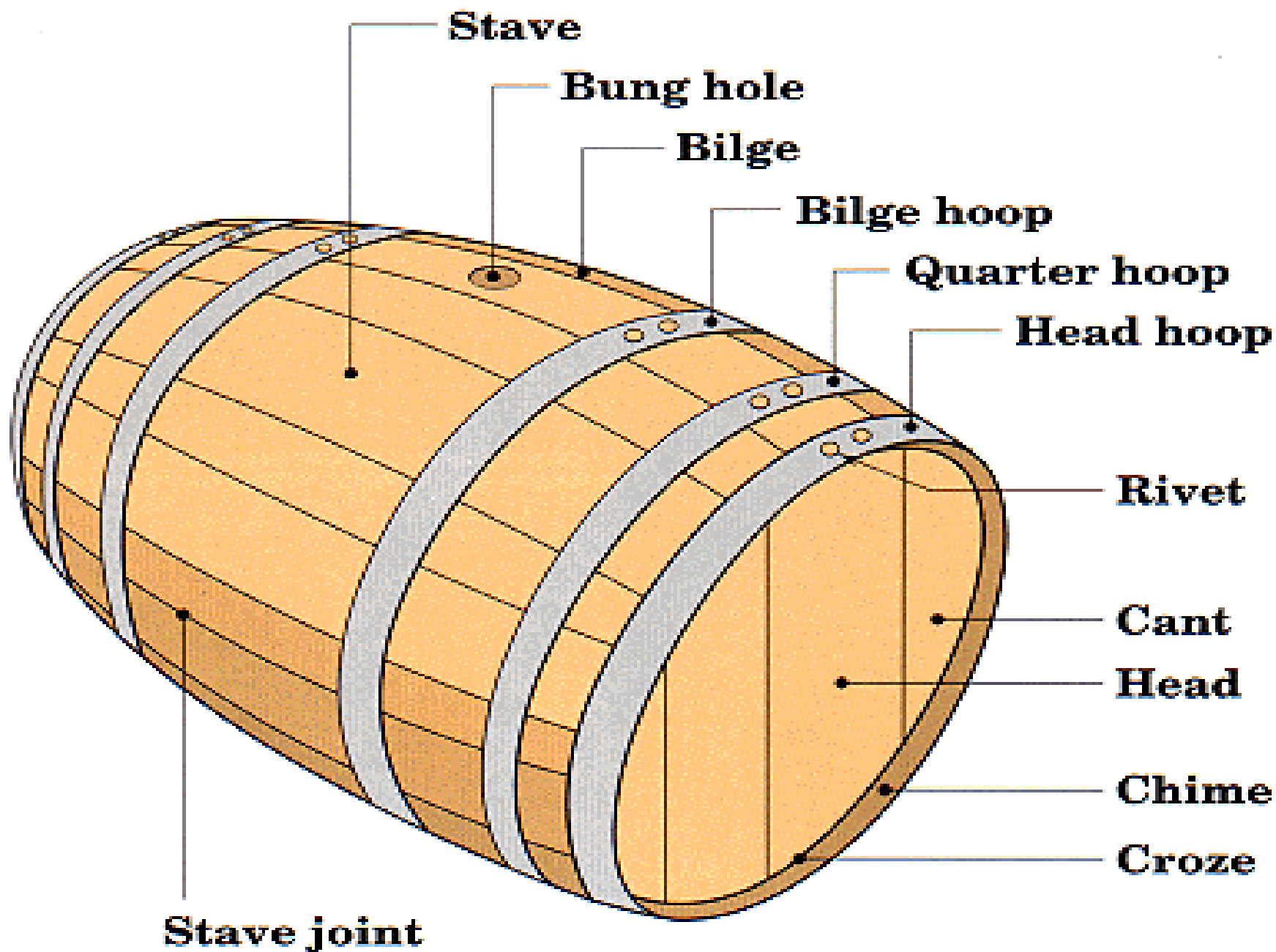
# The Copper Alambic





# Maturation

- Maturation in barrel is essential for certain spirit types
- Interface with charred or toasted oak (*Quercus spp.*)
- Time, volume, temperature; all important variables
- Color, aroma, flavor; oak infusion cannot replicate effect
- Slowly oxygenates, polymerizing certain compounds
- Rapidly absorbs coarse compounds attributed to disagreeable aromas and flavors
- Giving and taking; remarkable process all in one vessel
- “Angel’s share” actually concentrates the alcohol
- Diurnal effect; i.e. daytime/nighttime, winter/summer
- Eastern Washington climate & use of small barrels matures four times faster than cool, humid Scotland



# Art in Distillation?

- Choice of class / type of spirit desired to be produced
- Choice of raw substrate
- Choice of fermentation regimen
- Choice of nutrition regimen
- Choice of distillation method
- Choice of maturation regimen
- All determine properties of final product
- Choice of bottle/closure impacts brand identity
- Choice of label design impacts brand identity
- Choice of packaging options essential to “branding”
- “Branded House” versus “House of Brands”
- All determine direction and strategy of marketing



# House of Brands

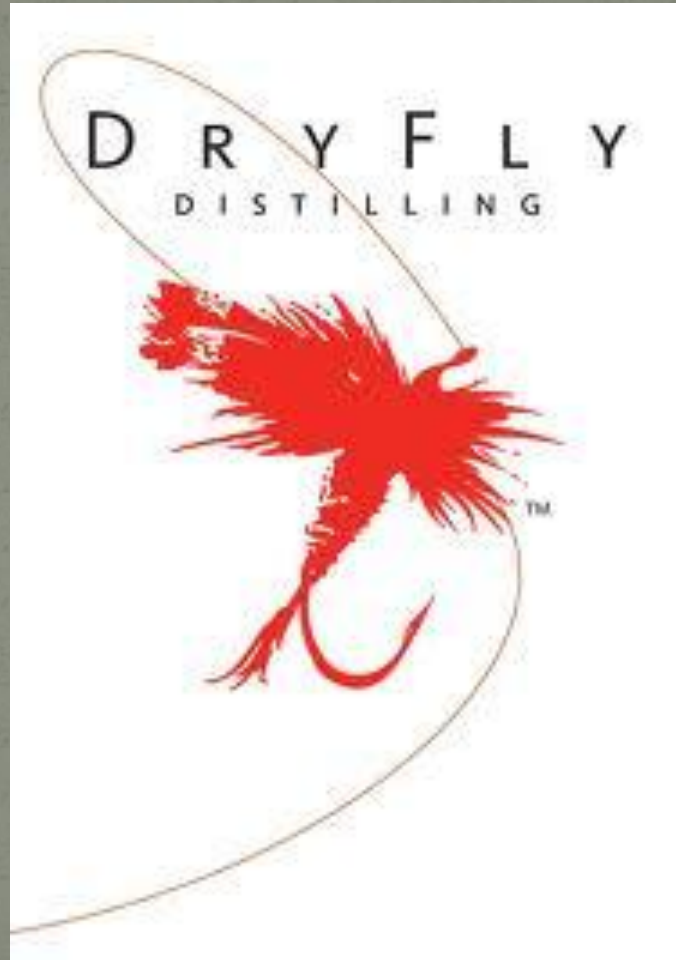


*The Ellensburg Distillery*

# House of Brands

- GOLD BUCKLE CLUB® frontier-style, single-malt whisky
- EL CHALÁN® Pisco-style brandy
- WILDCAT WHITE® “moonshine” whisky
- KELLEHER’S® Irish-style cream liqueur
- SAINT BERNARD® Armagnac-style brandy
- *et cetera* (limitless possibilities)

# Branded House





# Branded House

- Dry Fly<sup>®</sup> vodka
- Dry Fly<sup>®</sup> gin
- Dry Fly<sup>®</sup> wheat whiskey
- Dry Fly<sup>®</sup> Bourbon-style whiskey
- Dry Fly<sup>®</sup> *ad infinitum*

# Branded House vs House of Brands

- Strong company focus
- Strong identity
- Consumer loyalty to entire company
- Simple marketing strategy
- Branding created only once
- No room for new directions of branding creativity
- *“Love all that we make”*
- Brand is company’s forever
- Affordable to market one
- For the safe operator
- Diverse company focus
- Strong identities
- Consumer loyalty to one brand over the other
- Complex marketing strategy
- Brands constantly evolving
- New, limitless frontiers of branding creativity
- *“Love this,” “love that”*
- Each brand a company asset
- Expensive to market all
- For the risk taker

# Art:Science Ratio

- Craft distillation is by its very nature a subjective exercise because of the myriad of choices made in the production of spirits, its brand creation and the marketing of such branded spirit products
- Heavy reliance on the creative / artistic aspect
- Heavy reliance on the technical / scientific aspect
- More scientific if a process is repeated
- More artistic if a process is varied
- Never an evenly weighted, 50:50 ratio
- ALWAYS A PERFECT MARRIAGE OF THE TWO!



# *THANK YOU!*

- Go forth with great spirit
- Dare to be rare
- Brought to you using healthy proportions of both art and science
- A VIP tour and tasting for all present

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