

Don't Miss the Homebrew Conference! June 17-19, Page 13

Vol. 27 No. 3 May/June 2004 The Journal of the American Homebrewers Association

ZYMURGY

FOR THE HOMEBREWER AND BEER LOVER

Randy Mosher
goes to *Extremes*



An insider's guide
to Las Vegas beer

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"Iron Mash" showdown?

Brewing great beer
behind the "Zion Curtain"

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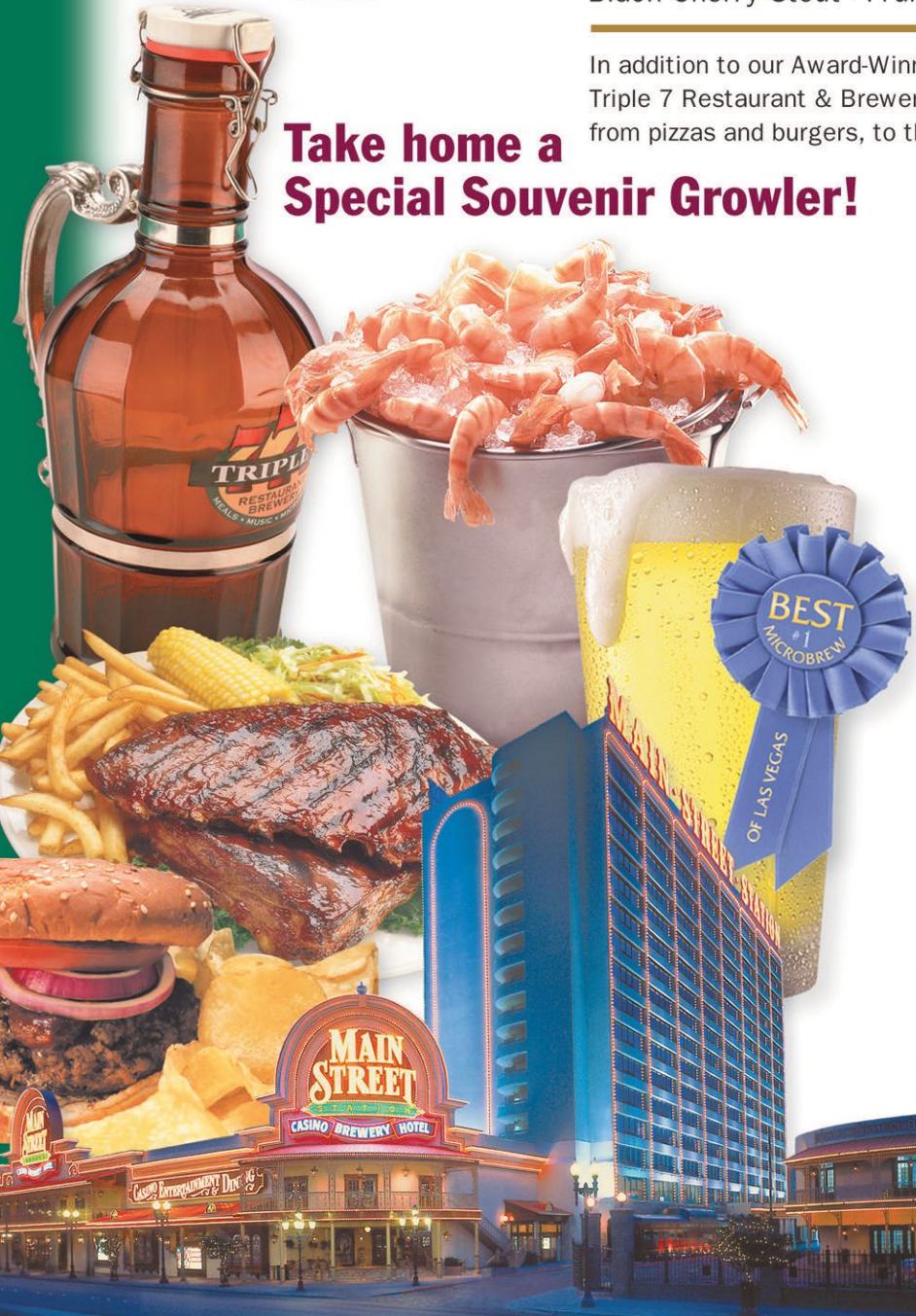
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To make quality beer and brewing knowledge accessible to all.

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COVER ILLUSTRATION BY SCOTT POLLACK

ZYMURGY®

Zymurgy \zī'mər jē\ n: the art and science of fermentation, as in brewing.

GOING TO EXTREMES

Randy Mosher, author of the new Brewers Publication's book "Radical Brewing," gives a sampling of some of the topics covered in his latest book. From strange ingredients and quirky processes to downright scary recipes, Mosher invites readers to take their brewing to radical extremes in the pursuit of new adventures.

By Randy Mosher

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AN INSIDER'S GUIDE TO LAS VEGAS

Coming to Las Vegas for the AHA National Homebrew Conference? Don't gamble on being able to find the best beer spots on your own. We've enlisted a Las Vegas native and veteran beer writer to give the skinny on "Beer and Loafing in Las Vegas."

By Bob J. Barnes

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WHO WILL WIN THE "IRON MASH" CHALLENGE?

Inspired by television's "Iron Chef" cooking show, a Texas homebrew club developed the Iron Mash brew-in challenge. Brewers were given a kit of surprise ingredients and challenged to brew the best beer. Find out who won and how to brew their winning beer.

By John Shank

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BREWING GREAT BEER BEHIND THE "ZION CURTAIN"

Just because he has to brew beers conforming to Utah's 3.2 percent alcohol limit, that doesn't mean Steve Kirkland doesn't brew great beers. Find out how he produces satisfying brews under extreme restrictions and try your hand at his flagship beers.

By William H. Hoff

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LESSONS LEARNED FROM THE GREAT HOP EXPERIMENT

Defining the flavor and aroma characteristics of select hops by brewing single-hop beers can be a real challenge. Members of the Oregon Brew Crew took on the task and learned a few things they might try differently next time.

By Brian Butenschoen and Trevor Millund

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FOR GEEKS ONLY: DISSECTING BEER FOAM

Every homebrewer strives for a thick, long-lasting head of tiny bubbles on his beer. But where does beer foam come from, and how can you maximize your chances for good head retention?

By Chris Bible

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THE LAST DROP: A SECOND GENERATION BREWER

In honor of Father's Day, a son gives thanks to his dad for introducing him to the joys of homebrewing.

By Chris Testerman

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BY PAUL GATZA

Beer and Loafing in Las Vegas

Viva Las Vegas! I hope all of you are making your plans to attend the 26th annual American Homebrewers Association (AHA) National Homebrewers Conference June 16-20 at the Riviera on the Strip in Las Vegas. I can imagine the fun we are going to have in this great city that combines America's adult playground with bright lights, great restaurants and family activities.

The hosting clubs for this year's conference are the Southern Nevada Ale Fermenters Union (SNAFU), the Quality Ale and Fermentation Fraternity (QUAFF) and the Maltose Falcons. They are planning a great time. For those coming early, Wednesday, June 16 starts with a pre-conference beer and food pairing at University of Nevada at Las Vegas. Thursday night features our microbrethren in Pro Brewers Night, where we will get to sample the products of at least 14 different breweries from the region. Our hosts are planning shuttle buses after this event to move people around to the Fremont Street Experience and some of the local brewing hotspots.

Friday night brings the return of Club Night (also known as Beers Without Borders), with clubs from all over the country serving their finest and a display of equipment we all wish we had by event sponsor Beer, Beer and More Beer. Saturday night culminates with the Rogue Ales Grand Banquet, where the Homebrewer of the Year, Ninkasi Award Winner and other winners of the AHA National Homebrew Competition are announced.

The preliminary speakers list includes Charlie Papazian, Peter Zien, Rob Wallace, Ray Daniels, Chris White, Tom Nickell, Vinnie Cilurzo, Geoff Larson, Michael Ferguson, Andrew Hale Feinstein, John Curtis, Steve MacMillan, Rich Link and



David Houseman. Visit www.beerandloafing.org for the latest updates and a link to the registration page.

National Homebrew Day/ AHA Big Brew

May 1 is National Homebrew Day. National Homebrew Day was established in a Congressional resolution in 1988 to recognize the homebrewers around the country and to recognize the work of the American Homebrewers Association (AHA). We celebrate National Homebrew Day on the first Saturday of May each year with a worldwide, simultaneous brewing event called Big Brew.

This year we are featuring new beer styles that are being included in the forthcoming updated homebrew style guidelines from the Beer Judge Certification Program. The newly recognized styles are Baltic Porter, Irish Red Ale and Imperial IPA. See Gary Glass's Clubs Report for more information, and register your site at www.beertown.org. Big Brew is sponsored by Quoin (maker of Party Pigs), Briess Malting and Ingredients Co. and Sierra Nevada Brewing Co. These three companies also sponsor Teach a Friend to Homebrew Day and the AOB on the Road appearances (visit www.beertown.org for information on St. Louis, May 15), and Sierra Nevada also sponsors our efforts and prizes for the AHA Liaison Program.

Old Chicago Restaurant Group Signing on to Pub Discount Program

We got word from Brian Lambert, who runs the loyalty programs for Rock Bottom and Old Chicago, that Old Chicago will be participating in the Pub Discount Program to provide an expected 10 percent food discount for AHA members. This discount will apply in the Old Chicago establishments that are

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owned by Rock Bottom Restaurants, Inc., and Old Chicago franchise-owned establishments will be welcome to participate if they wish to. This major addition to the Pub Discount Program allows us to launch the start of our network of "Better Beer Providers." We'll announce a launch date on TechTalk soon.

The Better Beer Providers offer discounts to AHA members in exchange for the publicity to get you into their establishments. We will be relying heavily on our AHA liaisons to point out better beer bars in their area that we can add to the program and help them pitch membership locally to homebrewers and beer enthusiasts. This in turn will help sell more craft beer onsite, so this is a winning situation for homebrewers, beer enthusiasts, restaurants and craft breweries all around.

AHA-Lallemand Scholarship

The AHA is pleased to announce that Lallemand is again sponsoring an AHA member to attend the 2004 World Brewing Academy Concise Course in Brewing Technology (November 1-12) in Chicago, Ill. The course is valued at \$2,900 and includes \$1,000 to help defray expenses, and will be held at the prestigious Siebel Institute of Technology. AHA board of adviser member Rob Moline will conduct the drawing during the Rogue Ales Grand Banquet at the conference.

Paul Gatza is director of the American Homebrewers Association.



Upcoming Dates

April 23-May 9:

First Round National Homebrew Competition Judging
at regional sites

May 1:

National Homebrew Day/AHA Big Brew, worldwide

June 17-19:

AHA National Homebrewers Conference, Las Vegas

August 7:

Mead Day, worldwide

September 30-October 2:

AOB Great American Beer Festival, Denver

November 6:

Teach a Friend to Homebrew Day, worldwide

See www.beertown.org for club-only competition dates
and mailing addresses.

BY JIM PARKER

A Beer Revolution

Radical brewing. The term conjures up an image of beret-clad brewers, toting placards reading, "Make Beer, Not War."

But maybe that's because I grew up in the 60s in Oregon where, depending on who you talked to, "radical" was either a term of derision or a badge of honor. Back then, the terms "radical" and "brewing" would never be found in the same sentence. Radicals were longhaired, tie-dyed peaceniks, marching for civil rights and against the war in Vietnam. Brewing was what they did in huge brick buildings, like our local Blitz brewery, where they churned out several variations of the same pale yellow belch propellant that was the standard across the land.

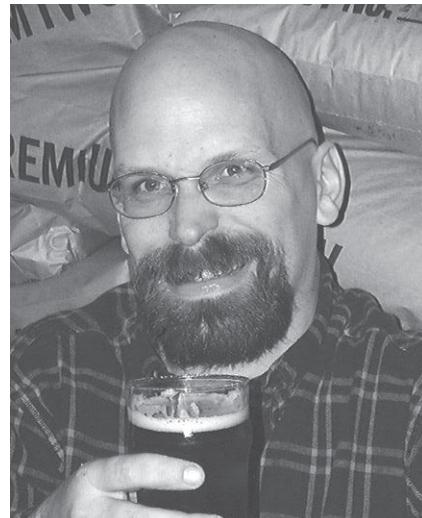
Today, if you are reading this magazine, you can count yourself among the ranks of radical brewers. You are part of a proud revolution that has transformed "beer" from a monosyllabic, monochromatic commodity into an ever-expanding, ever-evolving movement based on the creation and enjoyment of an ancient beverage.

Every time you brew a new style of beer or buy one of the myriad products made by the new breed of American and international craft brewers, you are helping expand the world of beers available.

As author Randy Mosher notes in his upcoming Brewers Publications book, *Radical Brewing*, and in his cover story on the same subject on page 24, brewers have been "going to extremes" since the birth of beer.

Mosher gives several examples of extreme brewing styles and techniques that you can try at home. So we thought it would be fun to build the rest of the magazine around the theme of "radical brewing," or going to extremes.

John Shank of the NetHoppers homebrew club in North East Tarrant County, Texas recounts his club's experience with a television-inspired "Iron Mash" showdown



on page 32. Members from three local clubs competed to see who could brew the best beer from a surprise list of ingredients—much like the television show "Iron Chef."

Many homebrew clubs hold inter-club competitions, collaborative brews and experiments as a way to build club unity. If you'd like to share your club's experiences, we'd love to hear from you. Drop me a line at jim@aob.org and tell me about your Club Collaborations.

It's not necessarily radical or extreme to split one batch of wort in two and hop each half differently. But what about splitting a batch 31 ways and hopping each with a different single variety of hop? In response to Ray Daniels' call for a nationwide Flavor of Hops brewing experiment, Brian Butenschoen and Trevor Millund of the Oregon Brew Crew in Portland share the lessons learned in their club's Great Hop Experiment on page 40.

Radical and extreme beers don't necessarily have to be extraordinarily strong or over the top in hops. Sometimes, making a great beer under extreme restrictions is enough to make you stand out. At Roosters

25th Street Brewpub in Ogden, Utah, brewer Steve Kirkland makes a wide range of delicious beers while meeting the challenge of brewing under the state's 3.2 percent alcohol ceiling. William H. Hoff recounts Kirkland's adventures brewing behind Utah's "Zion Curtain" on page 36. He includes recipes for several of Kirkland's beers. Try them yourself to see that beers don't have to be big to be beautiful.

Charlie Papazian looks at beer from a "radical" perspective in his World of Worts column on page 47. Charlie gives the play-by-play description of the football Sunday when he was banished to the living room so his wife Sandra and three of her friends could hold an all-woman brew session.

Bubble, bubble, toil and trouble: achieving consistent beer foam is a challenge all homebrewers face. Chris Bible gives a primer on beer foam in our For Geeks Only column on page 43.

There are a couple of events in these next two months that merit attention in this issue. The AHA National Homebrewers Conference is rapidly approaching, June 16–20 at the Riviera on the Strip in Las Vegas. If you are like me and it has been a while since you visited Vegas, you may be surprised at what a great beer town it has become. Luckily for us, and for his fictional friend Elbert, Bob Barnes is willing to share his insight as a Las Vegas native and beer lover on page 28.

And let's not forget Father's Day, June 20. Chris Testerman of Colorado tells how homebrewing brought him and his father closer together in our Last Drop column on page 64.

So put down that protest sign and pick up your mash paddle—there are mushroom ales, vanilla porters, single-hop pale ales and a whole variety of radical and extreme beers to brew.

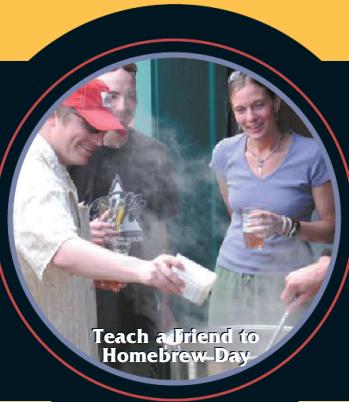
The revolution is counting on you.

Jim Parker is editor-in-chief of *Zymurgy*. 

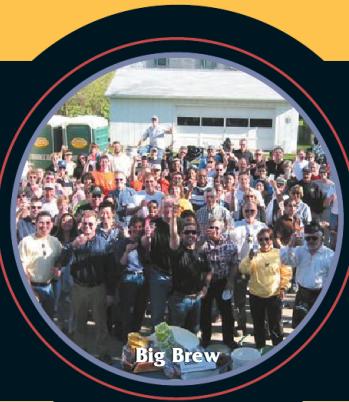
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ZYM04

American Homebrewers Association
A Division of the Association of Brewers
www.beertown.org



BY GARY GLASS

“Building Things” in the Great White North

When I asked AHA liaison Russ Temple of the Ale and Lager Enthusiasts of Saskatchewan (ALES) in Regina what the homebrewers in his club were like, he answered, “We like to build things.” Yes, the ALES have their gadgeteers and tinkerers who are constantly building equipment to brew beer, but the club also has members who like to build other things, such as better homebrewers and a stronger homebrewing community.

The ALES’ mission is “learning and training.” Such a mission is especially important in a country where many homebrewers get started for economic reasons. You see, in Canada, beer is taxed at a much higher rate than it is in the United States, so the incentive for many beginning brewers is to make beer cheaper than it can be bought. Under the training of the enthusiastic members of ALES, however, new brewers quickly learn that quality is more important than cost.

Over the last 11 years, the ALES have built the largest homebrew competition in Canada, the ALES Home Brew Open. In 2004, for the first time, the ALES competition will serve as the Canadian qualifier for the AHA National Homebrew Competition second round. Russ estimates they will receive 300 to 400 entries this year. The entry deadline for the competition is April 23-30. Of course, running and judging a competition, as anyone who has done it knows, is an excellent means of learning more about beer and brewing.

For the ALES, “learning and training” doesn’t end with the club roster. They have helped establish a wider Canadian homebrewing community through a network of sister clubs in Calgary, Edmonton, Lethbridge, Saskatoon and Winnipeg. Given the benefits the ALES get from running their own competition, they feel it’s important to



help others gain the same benefits by supporting competitions hosted by other clubs. In the competitions they enter, ALES members tend to make up 25 to 40 percent of the total entries. Those competitions include the Lethbridge Werthogs Annual Homebrew Competition, the Canadian Amateur Brewers Association’s Great Canadian Homebrew Competition, the Edmonton Hombrewers’ Guild Aurora Brewing Challenge (an MCAB qualifier), the Marquis de Suds Calgary Open and the Saskatoon Headhunter’s Gambrinus Cup.

A big part of the ALES’ success is the support they get from sponsors, especially Bushwakker Brewpub. Bev Robertson, owner of Bushwakker, was one of the club’s founders. These days he provides the club with meeting space and encouragement. ALES members return the favor by patronizing the pub. When I spoke to Russ, he couldn’t remember ever going into Bushwakker and not finding at least one other member of the club already there.

Brewing ingredients can be hard to come by in Canada. The ALES can get some brewing supplies from the local shops, but specialty ingredients are not

always locally available. The club bulk orders hops, grain and yeast from Paddock Wood Brewing Supplies in Saskatoon. In addition, club members are always willing to share with one another. ALES members know that if they need some chocolate malt they can just pick up the phone and dial up Russ, who typically has 400 pounds of malt on hand.

For more information on the Ale and Lager Enthusiasts of Saskatchewan and the ALES Home Brew Open/AHA NHC Qualifier, check out www.alesclub.com.

Your Club and Big Brew

OK clubs, get ready to raise a toast to “your right to homebrew” at noon Central Time on Saturday, May 1. Every year on the first Saturday in May, the AHA celebrates National Homebrew Day with our annual Big Brew celebration. Homebrewers around the globe gather at local sites on this day for a simultaneous toast and brew session and to share some homebrew solidarity.

This year’s Big Brew recipes feature three styles of beer, Baltic Porter, Irish Red Ale and Imperial IPA, that the Beer Judge Certification Program is adding to its style guidelines this year. Drafts of the guidelines for those styles are can be found at www.beertown.org.

2004 AHA Club-Only Competitions Sponsored By Coopers Brew Products

Month	Style or Name	Cat.#	Host
May	Extract Beers-50% or more of the fermentables must come from extract	1-24	Bluff City Brewers
August	Wheat Beer	17	Maltose Falcons
Sept/Oct	Smoke-Flavored Beer	23	Mountain Ale & Lager Tasters
Nov/Dec	IPA	7	James River Brewers

See www.beertown.org/homebrewing/schedule.html for complete schedule

BIG BREW 2004 Recipes

This recipe is based on a Polish Porter recipe we published four years ago in the May/June 2000 issue of *Zymurgy*.

Big Brew Baltic Porter All-Grain Recipe

- 14.0 lb Briess Pale Ale Malt
 - 0.5 lb Briess 20 L Caramel Malt
 - 0.5 lb Briess 80 L Caramel Malt
 - 0.25 lb Briess Munich Malt (Dark, 20 L)
 - 0.25 lb Briess Chocolate Malt
 - 0.25 lb Briess Black Malt
 - 0.5 lb Molasses
 - 2.0 oz Polish Lublin Hops*, 4.5% alpha acid (90 minutes)
 - 0.5 oz Polish Lublin Hops*, 4.5% alpha acid (30 minutes)
- *You may substitute Saaz hops if you cannot find Lublin.
- White Labs WLP830 German Lager or Wyeast 2308 Munich Lager Yeast
- O.G.: 1.089
 - IBU: 32

Mash grains at 150° F for 60 minutes. Mash out at 170° F and sparge with 170° F water. Collect enough run off to end up with 5 gallons after a 90-minute boil. Bring run off to a boil and add molasses—be careful not to let the molasses burn on the bottom of the pot—and add first hop addition. Boil for 60 minutes then add second hop addition. Boil 30 minutes more, then chill to below 75° F, add to fermenter, pitch yeast and aerate well. Ferment at 47-52° F for two weeks. Transfer to secondary and ferment at 57-62° F for four weeks. Lager at 40° F for two months. When lagering is complete, bottle with 1.25 cups of Briess Golden Light dry malt extract or siphon into sanitized party pigs with 0.25-0.33 cups of Briess Golden Light dry malt extract in each. If you are kegging, prime with 0.55 cups of Briess Golden Light dry malt extract or force carbonate.

Big Brew Baltic Porter Extract Recipe

- 8.5 lb Briess Golden Light Dry Malt Extract
- 0.5 lb Briess 20 L Caramel Malt
- 0.5 lb Briess 80 L Caramel Malt
- 0.25 lb Briess Munich Malt (Dark, 20 L)
- 0.25 lb Briess Chocolate Malt
- 0.25 lb Briess Black Malt
- 0.5 lb Molasses
- 3.25 oz Polish Lublin Hops*, 4.5% alpha acid (90 minutes)

- 0.5 oz Polish Lublin Hops*, 4.5% alpha acid (30 minutes)

*You may substitute Saaz hops if you cannot find Lublin.

- White Labs WLP830 German Lager or Wyeast 2308 Munich Lager Yeast
- O.G.: 1.089
 - IBU: 32

Steep grains at 150° F in 1 gallon of water for 20 minutes. Remove grains and sparge with 1 gallon of 170° F water. Stir in extract and molasses then bring to a boil. Add first hop addition. Boil for 60 minutes then add second hop addition. Boil 30 minutes more then transfer to fermenter filled with 3 gallons of cold water (top-up to 5 gallons if necessary). When wort temperature is below 75° F, pitch yeast and aerate well. Ferment at 47-52° F for two weeks. Transfer to secondary and ferment at 57-62° F for four weeks. Lager at 40° F for two months. When lagering is complete, bottle with 1.25 cups of Briess Golden Light dry malt extract or siphon into sanitized party pigs with 0.25-0.33 cups of Briess Golden Light dry malt extract in each. If you are kegging, prime with 0.55 cups of Briess Golden Light dry malt extract or force carbonate.

This recipe comes specifically for Big Brew from Tom Nickel of Ogg's, Left Coast Brewing Co., and O'Brien's Pub. Tom gave a presentation on Imperial IPA at the AOB Craft Brewers Conference April 15, 2004.

Hop Juice Double IPA All-Grain Recipe

- 7.0 lb Briess 2-Row Malt
 - 7.5 lb Briess Pale Ale Malt
 - 1.00 oz Columbus, 15.0% alpha acid (added to end of mash)
 - 1.00 oz Chinook, 13.0% alpha acid (first wort hop)
 - 1.00 oz Columbus, 15.0% alpha acid (first wort hop)
 - 1.00 oz Centennial, 10.5% alpha acid (120 minutes)
 - 2.00 oz Amarillo, 10.0% alpha acid 0 min.
 - 1.00 oz Centennial, 10.5% alpha acid (Dry Hop Primary)
 - 1.00 oz Columbus, 15.0% alpha acid (Dry Hop Primary)
 - 2.00 oz Amarillo Gold, 10.0% alpha acid (Dry Hop Secondary)
- White Labs WLP001 California Ale or Wyeast 1056 American Ale Yeast
- O.G.: 1.077
 - IBUs: 100+

Single infusion mash at 148-150° F. I like to mash low to create lots of sugar. Let the alcohol and boil add maltiness and mouthfeel. About 5 minutes before sparge add Columbus pellets to mash. When kettle is about 1/3 full add first wort hops, add rest at beginning of boil. Add aroma hops after boil, during cooling in a hop sack. When wort temperature is below 75° F, pitch yeast and aerate well. After primary fermentation is done, dry hop and let sit for at least 5 days. Rack to secondary and dry hop again for at least 5 days. Bottle with 1.25 cups of Briess Golden Light dry malt extract or siphon into sanitized party pigs with 0.25-0.33 cups of Briess Golden Light dry malt extract in each. If you are kegging, prime with 0.55 cups of Briess Golden Light dry malt extract or force carbonate.

Hop Juice Double IPA Extract Recipe

- 8.33 lb Briess Golden Light Dry Malt Extract
 - 1.50 oz Chinook, 13.0% alpha acid (first wort hop)
 - 1.50 oz Columbus, 15.0% alpha acid (first wort hop)
 - 1.00 oz Centennial, 10.5% alpha acid (120 minutes)
 - 2.00 oz Amarillo, 10.0% alpha acid 0 min.
 - 1.00 oz Centennial, 10.5% alpha acid (Dry Hop Primary)
 - 1 .00 oz Columbus, 15.0% alpha acid (Dry Hop Primary)
 - 2.00 oz Amarillo Gold, 10.0% alpha acid (Dry Hop Secondary)
- White Labs WLP001 California Ale or Wyeast 1056 American Ale Yeast
- O.G.: 1.077
 - IBUs: 100+

Warm 2 gallons of water, remove from heat and stir in extract. Add 1.5 ounces each of Chinook and Columbus hops then bring to a boil. Add 1 ounce of Centennial hops and boil for 120 minutes. Remove from heat and add 2 ounces of Amarillo hops. Transfer to fermenter filled with 3 gallons of cold water (top-up to 5 gallons if necessary). When wort temperature is below 75° F, pitch yeast and aerate well. After primary fermentation is done, dry hop and let sit for at least 5 days. Rack to secondary and dry hop again for at least 5 days. Bottle with 1.25 cups of Briess Golden Light dry malt extract or siphon into sanitized party pigs with 0.25-0.33 cups of Briess Golden Light dry malt extract in each. If you are kegging, prime with 0.55 cups of Briess Golden Light dry malt extract or force carbonate.

BIG BREW 2004 Recipes continued

Here's one from the AHA Staff:

Big Brew Irish Red Ale

All Grain Recipe

- 7.25 lb Briess Pale Ale Malt
- 1.0 lb Briess 10L Caramel Malt
- 3 oz Briess Extra Special Malt
- 2 oz Briess Roasted Barley
- 0.5 lb Honey
- 1.5 oz E.K. Goldings, 4.75% alpha acid (60 minutes)
- 0.5 oz E.K. Goldings, 4.75% alpha acid (15 minutes)
- White Labs WLP004 Irish Ale or Wyeast 1084 Irish Ale Yeast
 - O.G.: 1.050
 - IBU: 22

Mash grains at 151° F for 60 minutes. Mash out at 170° F and sparge with 170° F water. Collect enough run off to end up with 5 gallons after a 60-minute boil. Stir in honey. Bring to a boil and add first hop addition. Boil for 45 minutes then add second hop addition. Boil 15 minutes more, then chill to below 75° F, add to fermenter, pitch yeast and aerate well. Ferment at ale temperature for two weeks. When fermentation is complete, bottle with 1.25 cups of Briess Golden Light dry malt extract or siphon into sanitized party pigs with 0.25-0.33 cups of Briess Golden Light dry malt extract in each. If you are kegging, prime with 0.55 cups of Briess Golden Light dry malt extract or force carbonate.

Big Brew Irish Red Ale Extract Recipe

- 4.25 lb Briess Golden Light Dry Malt Extract
- 1.0 lb Briess 10L Caramel Malt
- 3 oz Briess Extra Special Malt
- 2 oz Briess Roasted Barley
- 0.5 lb Honey
- 2.0 oz E.K. Goldings, 4.75% alpha acid (60 minutes)
- 0.5 oz E.K. Goldings, 4.75% alpha acid (15 minutes)
- White Labs WLP004 Irish Ale or Wyeast 1084 Irish Ale Yeast
 - O.G.: 1.050
 - IBU: 22

Steep grains in 1 gallon of 150° F water for 20 minutes. Remove grains and sparge with 1 gallon of 170° F water. Stir in extract and honey then bring to a boil. Add first hop addition. Boil for 45 minutes then add second hop addition. Boil 15 minutes more, then add to fermenter filled with 3 gallons of cold water (top-up to 5 gallons if necessary). When temperature drops below 75° F, pitch yeast and aerate well. Ferment at ale temperature for two weeks. When fermentation is complete, bottle with 1.25 cups of Briess Golden Light dry malt extract or siphon into sanitized party pigs with 0.25-0.33 cups of Briess Golden Light dry malt extract in each. If you are kegging, prime with 0.55 cups of Briess Golden Light dry malt extract or force carbonate.

Be sure to register your club's Big Brew site on www.beertown.org. After the event come back and let us know how things went.

Beertown Club Locator

Help us keep our online club locator up-to-date! Please check out your club's listing on www.beertown.org. Select Homebrew Clubs from the Locator drop down box on the right side of the beertown pages. Homebrew clubs are arranged alphabetically by city. If your club is not listed, use the online form to add it. You can also make corrections to listed clubs or delete clubs that no longer exist via the online form. Thanks for your help!

Mead Club-Only Competition

The Mead Club-Only Competition hosted by Pete Devaris and the Great Northern Brewers was held April 10 (too late to make the copy deadline for this issue). This was the fifth of six competitions in the August to May 2003-2004 cycle, with points going toward the Homebrew Club of the Year trophy. Points are awarded on a 12-8-4 basis for first, second and third place in the club-only competitions. First, second and third places in the first and second rounds of the AHA National Homebrew Competition earn points on a 6-4-2 basis. See www.beertown.org for the competition results.

American Brown Ale



Ingredients for 5 U.S. gal (19 L)

- 1 Can Coopers Brewmaster's Nut Brown Kit
- 2.0 lb (0.9 kg) Coopers Light Dry Malt Extract
- 1.0 lb (0.45 kg) Victory Malt
- 0.5 lb (0.23 kg) Crystal Malt 100 L
- 0.5 oz (14 g) Chinook, 13% alpha acid (60 min)
- 1.5 oz (43 g) Mt. Hood, 6.5% alpha acid (15 min)
- 1.0 oz (28 g) Mt. Hood, 6.5% alpha acid (5 min)
- 1.0 oz (28 g) Mt. Hood, 6.5% alpha acid (0 min)
- 2.0 oz (57 g) Centennial, 10.5% alpha acid (Dry Hop)

- 0.5 tsp Irish Moss
- Wyeast 1056 American Ale or White Labs WLP001 California Ale Yeast
- 0.75 C (180 ml measure) corn sugar for bottling
 - Original specific gravity: 1.051
 - Final specific gravity: 1.014
 - IBU: 49
 - ABV: 4.9%

Steep grains in 1 gallon of 150° F water for 20 minutes. Remove grains and sparge with 1 gallon of

170° F water. Add Coopers Brewmaster's Nut Brown Kit and extract and bring to a boil. Add bittering hops and boil 45 minutes. Add Irish Moss and 1.5 oz Mt. Hood. Boil 10 minutes and add 1 oz Mt. Hood. Boil another 5 minutes, turn off burner and add 1 oz Mt. Hood. Pour into fermenter with enough cold water to make 5 gallons. Aerate and pitch yeast when temperature is below 75° F. Ferment at 68° F for a week then rack onto 2 oz of Centennial. Age one week then prime with corn sugar and bottle.

American Homebrewers Association 3rd Annual
MEAD DAY

Saturday, August 7, 2004



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Extract Brews AHA Club-Only Competition

The May AHA Club-Only Competition is Extract Brews, covering BJCP Category 25, Mead. Hosted by Terrence Garland, Kent Brown and the Bluff City Brewers of Memphis, Tenn., this competition is open to any of the BJCP beer categories. All entries must be made with extract making up at least 50 percent of the fermentables in the recipe.

One entry of two bottles is accepted per AHA registered homebrew club. Entries require a \$5 check made out to AHA and an entry/recipe form and bottle ID forms. More information on the Club-Only Competitions and forms are available at www.beertown.org.

Shipping Address:

MidSouth Malts
c/o Bluff City COC
741 N Whitestation Rd
Memphis, TN 38122

Entries are due May 13. Judging will be held May 20. E-mail for questions or those interested in judging is Terrence.garland@autozone.com.

Gary Glass is project coordinator for the Association of Brewers.



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CONFERENCE EVENTS

*Schedule might change.

Pro-Brewers Night

Thursday, June 17

Microbrewery Festival

Club Night

Friday, June 18

Lots of beer, mead and food
from homebrew clubs

Grand Banquet

Saturday, June 19

26th Annual AHA National Homebrew
Competition Awards Ceremony

FEATURED SPEAKERS

Charlie Papazian - Keynote Speaker

Tom Nickel

Tomme Arthur

Geoff Larson

Vinnie Cilurzo

And more to come...

See www.beerandloafing.org for the
complete speaker list.

Register by May 14
and SAVE \$\$.

American Homebrewers Association 26th Annual

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26th Annual American Homebrewers Association
NATIONAL HOMEBREWERS CONFERENCE
 June 17-19, 2004 • Las Vegas, Nevada
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REGISTRATION FORM

Send completed form to: AHA, Attn: Conference Registration, PO Box 1679, Boulder, CO 80306-1679 or FAX to +1.303.447.2825.

First Name _____ Last Name _____ Club/Company _____

Daytime Phone _____ Address _____ City _____

State/Zip _____ AHA Member# _____ E-mail _____

METHOD OF PAYMENT

Cash Check Mastercard Visa American Express Check # _____

Credit Card Number _____ Exp. Date _____

Name on the card _____ Signature _____

REGISTRATION OPTIONS

Prices increase after May 14, 2004

Full Conference Registration

(Includes all conference seminars, Pro Brewers Night, Club Night, Keynote Luncheon, Grand Banquet/Awards Ceremony)

Guest Package

(Includes Keynote Luncheon and Thurs. – Sat. nighttime social and hospitality events)

Guest Name _____

Thursday Seminars Only

Friday Seminars Only

Saturday Seminars Only

Pro Brewers Night - Thursday

(Microbrewery Festival)

Club Night - Friday

Keynote Luncheon - Friday

Grand Banquet Only - Saturday

(AHA National Homebrew Competition Awards Ceremony)

Conference Seminars and Banquet/Awards Ceremony - Saturday Only

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Member Rate

\$195
After May 14 - \$230

Non-Member Rate

\$235
After May 14 - \$270

\$135
After May 14 - \$160

\$160
After May 14 - \$190

\$35
After May 14 - \$40

\$40
After May 14 - \$45

\$50
After May 14 - \$55

\$60
After May 14 - \$65

\$50
After May 14 - \$55

\$60
After May 14 - \$65

\$25
After May 14 - \$30

\$30
After May 14 - \$40

\$20
After May 14 - \$25

\$25
After May 14 - \$36

\$30
After May 14 - \$40

\$35
After May 14 - \$45

\$60
After May 14 - \$70

\$70
After May 14 - \$80

\$85
After May 14 - \$110

\$100
After May 14 - \$137

\$38

\$38



Commemorative T-Shirts - All 2004 AHA National Homebrewers Conference t-shirts are white. (Pick up t-shirts at the conference.)

\$15 (Size Required)
M, L, XL, XXL

\$15 (Size Required)
M, L, XL, XXL

TOTAL

Reproduce this form for additional registrants. Each member may register one guest at the member rate. Call 888.822.6273 or 303.447.0816 with questions regarding registration. For hotel reservations at the Riviera, call 800.634.6753 or 702.734.5110 and reference AHA Conference for special room rate of \$79 per night if booked before June 1, 2004.

For more information, visit www.beertown.org and www.beerandloafing.org.

APRIL

23-May 2 American Homebrewers Association's 26th Annual National Homebrew Competition. Around the USA. AHA/BJCP SCP. World's largest homebrew competition! Entry Deadline: 4/7-4/16. Award Ceremony: 6/19. Entry Fee: \$8/entry for AHA members, \$12/entry for non-members. Contact: Gary Glass, American Homebrewers Association, Phone: 888-U-CAN-BREW, 303-447-0816 x 121. Fax: 303-447-2825, E-mail: gary@aob.org Web: www.beertown.org

24 Ttletown Open Homebrew Competition. Green Bay, WI. BJCP SCP. Contact: Michael Conard. Phone: 920-388-2728. E-mail: ard@itol.com Web: www.rackers.org/

24 U.S. Open. Charlotte, NC. AHA/BJCP SCP. Contact: Gary Cathey, Phone: 704-634-7648, E-mail: garyc3@aol.com Web: www.hbd.org/cbm/

24 Best of Philly 2004. Philadelphia, PA. BJCP SCP. Contact: Joe Uknalis, Phone: 215-233-6439, E-mail: birman@netaxs.com Web: www.hopsclub.org/

24 Bluff City Brewers Homebrew Competition. Memphis, TN. BJCP SCP. Contact: Terrence Garland, Phone: 901-757-0847, E-mail: nce.garland@autozone.com Web: http://memphisbrews.com/

24-25 All About Ales Competition. Toronto, ON. Entry Deadline: 4/1-4/19. Awards Ceremony: 5/1. Entry Fee: \$6 members, \$9 non-members. Contact: Kevin Tighe, E-mail: homebrewer@sympatico.ca Web: www.homebrewers.ca

24 HDBA Spring Fling Thing. Idaho Falls, ID. BJCP SCP. Contact: Bruce Steege/Richard Gelok, Phone: 208-524-7003, E-mail: ruc@srv.net

25 13th BOSS Challenge. Beecher, IL. AHA/BJCP SCP. Sponsored by Brewers of South Suburbia. Competition is on April 3 at the Maple Tree Inn in Blue Island, IL. Entries can be sent to Chicago Dropcloth Service, 8241 S Halsted St, Chicago IL 60620. Contact: Steve Kamp, Phone: 773-783-6001, E-mail: chicago-drop@aol.com

MAY

1 AHA Big Brew—National Homebrew Day. All around the world. Each year on the first Saturday in May, homebrewers unite non-brewing and brewing friends and family to celebrate National Homebrew Day, joining with thousands of homebrewers from around the world in brewing the same recipes and sharing a simultaneous toast at noon Central Time. Contact: Gary Glass, Phone: 888-U-CAN-BREW x 121; 303-447-0816 x 121, Fax: 303-447-2825, E-mail: gary@aob.org Web: www.beertown.org/events/big-brew/index.html

1 Great Canadian Homebrew Conference. Toronto, ON. Anyone who brews, or would like to brew is invited to attend this year's "Great Canadian Homebrew Conference: Basic Training." Topics will focus on brewing techniques of all levels from kits to all grain. Try your hand at a brew as we take you from start to finish with practical demonstrations of the brewing process. Contact: Kevin Tighe, Phone: 905-426-6561, E-mail: homebrewer@sympatico.ca Web: www.homebrewers.ca

1 9th Annual South Shore Brewoff. Braintree, MA. BJCP SCP. Contact: Geoffrey McNally, Phone: 401-624-3953, E-mail: mcnallyga@npt.nuwc.navy.mil Web: members.aol.com/brewclub/

AMERICAN HOMEBREWERS ASSOCIATION

KUDOSSANCTIONED COMPETITION PROGRAM
BEST OF SHOW

• OCTOBER 2003 •

Music City Brewoff, 8th Annual, 310 entries—**Terry Wallis of Nashville, TN.**

• NOVEMBER 2003 •

Autumn Pour, 49 entries—**Arne Oydna of Juneau, AK.**

• DECEMBER 2003 •

UNYHA 20th Annual Homebrew Competition, 193 entries—**Doug Brainar of Rochester, NY.**
UNYHA Empire State Open, 89 entries—**Ric Cunningham of Wheatfield, NY.**
5th Annual Palmetto State Brewers Open, 340 entries—**David Keller of Black Mountain, NC.**

New England Fall Regional Homebrew Competition, 30 entries—**Von Bair of Bethany, CT.**

• JANUARY 2004 •

4th Annual Big Beers, Belgians & Barleywines Festival, 31 entries—**Cowan Bowman of Farmington, MN.**

• FEBRUARY 2004 •

Coconut Cup 2004, 154 entries—**Patrick Gibson of Miami, FL.**
Peach State Brew Off—**Tina Martin & Chris Cole of Columbia, SC.**
Fur Rendezvous, 100 entries—**Breck Tostevin, Anchorage, AK.**

• MARCH 2004 •

BABBLE Leap Beer Brew Off, 119 entries—**George Krafcisin of Grayslake, IL.**

AHA SCP = American Homebrewers Association Sanctioned Competition Program. **BJCP** = Beer Judge Certification Program. The Calendar of Events is updated weekly and is available from the Association of Brewers: info@aob.org or www.beertown.org on the Web. To list events, send information to **Zymurgy** Calendar of Events. To be listed in the July/August Issue (Vol. 27, No.3), information must be received by May 1. Competition organizers wishing to apply for AHA Sanctioning must do so at least two months prior to the event. Contact Kate Porter at kate@aob.org; (303) 447-0816 ext.123; FAX (303) 447-2825; PO Box 1679, Boulder, CO 80306-1679.

1 13th Annual Green Mountain Homebrew Competition.

Winooski, VT. AHA/BJCP SCP. We will judge all beer styles, including cider and mead. Co-sponsored by the Greg Noonan of the Vermont Pub & Brewery, we are also part of the New England Homebrewer of the Year competition circuit. We will crown the Vermont Homebrewer of the Year to the Vermont brewer with the most points earned in the beer categories. Judges receive a specially commissioned pint glass. Entry Fee: \$5. Contact: Anne Duany Whyte, Phone: 802-655-2070, E-mail: gmhc2004@hotmail.com

3 ALES Homebrew Open.

Regina, Saskatchewan. AHA/BJCP SCP. Contact: Barry Bremner, Phone: 306-721-5666, E-mail: bbremnr@accesscomm.ca Web: www.alesclub.com

8 10th Annual Beer Collectibles Show.

Fort Collins, CO. University Park, Holiday Inn 425 W. Prospect Rd 9 a.m.-3 p.m. Contact: Bill Besfer, Phone: 303-527-3565, E-mail: abamrbill@aol.com

10-15 8th Annual Silver Dollar Fair

Homebrew Competition. Chico, CA. AHA/BJCP SCP. Gold, silver and bronze medals for first, second and third Best of Show. Additional prizes and gift certificates. Entry Deadline: 4/10-5/01. Awards on Display: 5/16-5/31. Entry Fee: \$7. Contact: Larry Rauen, Phone: 530-894-2624, E-mail: wetlands@prodigy.net Web: www.saber.net/~jmaretti/chico_ho mebrew_club

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- 22 Wisconsin State Fair Homebrew Competition.** West Allis, WI. **BJCP SCP.** Contact: Chris Belsky, Phone: 414-807-5230, E-mail: belskyc@msoe.edu Web: www.beerbarons.org/
- 22 11th Annual BUZZ OFF.** West Chester, PA. Iron Hill Brewery and Restaurant. Sponsoring club: BUZZ (Brewers Unlimited Zany Zymurgists). BJCP categories 1-26 will be accepted. Qualifying event for the MCAB. Entry Deadline: 4/26-5/16. Entry Fee: \$5. Contact: Paul McGinnis, E-mail: Paul.McGinnis@sungard.com Web: www.hbd.org/buzz/
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- 2 North American Beer Awards.** Idaho Falls, ID. **BJCP SCP.** Contact: Gregg Smith, Phone: 208-524-0970, E-mail: gsmith-beer@aol.com
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- 12 Spirit of Free Beer.** Ashburn, VA. **BJCP SCP.** Contact: Dave & Becky Pyle, Phone: 703-503-7171, E-mail: bigredhophead@netzero.net Web: www.burp.org/events/sofb/2004/
- 13 DEA Spring Competition.** Greenville, NC. **AHA/BJCP SCP.** All BJCP styles accepted including Mead and Cider. Sponsored by The Down East Alers. Contact: Bob Sheck, Phone: 252-258-0279, E-mail: bobsheck@earthlink.net
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- 17-19 AHA National Homebrewers Conference.** Las Vegas, NV. Contact: Kate Porter, Phone: 888-U-CAN-BREW, 303-447-0816 x 123, Fax: 303-447-2825, E-mail: kate@aob.org Web: www.beertown.org/events/hbc/index.html
- 19 10th Annual Eight Seconds of Froth.** Cheyenne, WY. **BJCP SCP.** Contact: Brian Mertz, Phone: 307-777-4082, E-mail: windywyt@aol.com
- 26-July 3 Orange County Fair Homemade Beer Competition.** Costa Mesa, CA. **AHA/BJCP SCP.** California residents only. Entry Deadline: 3/15-6/12. Awards Ceremony: 7/17. Entry Fee: \$5 1st Entry, \$2 each additional. Contact: Julie MacRae, Phone: 714-708-1553, E-mail: jmacrae@ocfair.com Web: www.ocfair.com

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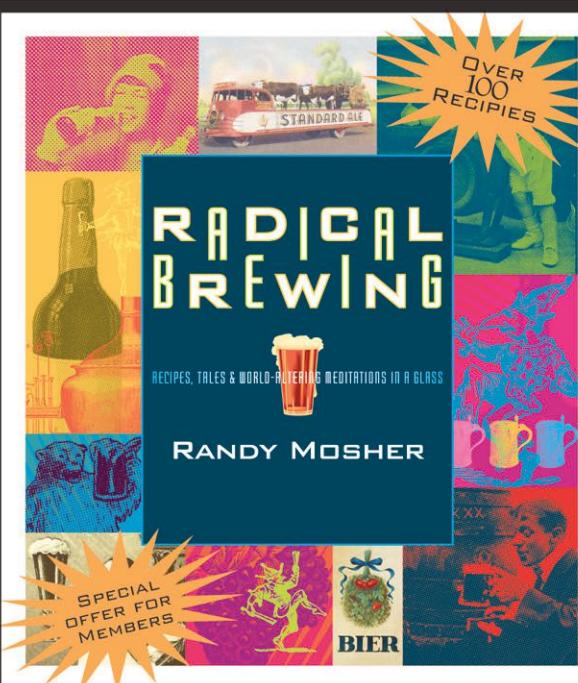
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BY PROFESSOR SURFEIT

A Newbie on the Block

Dear Professor,

I recently received a copy of your special edition, *Zymurgy for Beginners*, and I have decided to invest in some homebrewing equipment and make my own beer. I just had a few questions and I hope that maybe you could lead me in the right direction.

First, I found a kit from [a local homebrew shop] that includes the following:

- 6-gallon primary fermenter (plastic)
- 5-gallon glass carboy
- 2 airlocks and stoppers
- siphon hose, racking cane and clip bottle filler
- 2-handled capper, caps
- bottle brush, carboy brush, sanitizer, cleaner
- hydrometer

All that comes to a grand total of about 80 dollars. Is that everything I need (minus bottles) and is that a fair price? Sorry if these are stupid questions but I am very green.

That all looks good to me, but it seems that the primary fermenter and the glass carboy serve the same function. Is it better to use one or the other? And why would they include the glass carboy in a beginner's kit if you were supposed to use the plastic fermenter?

Finally, what should I do about my first few batches? I assume I should get some kind of ingredient kit, but there are so many choices I am lost without direction. I like light beers such as Corona or the like, but I would like to get into higher quality beers. I don't have too much experience with darker beers and ales, so I was wondering if you have any good suggestions for me. I've had Guinness and that was a bit too, uh "stout" I believe. Sorry that I don't provide much information but I'm an incredibly new newbie, and any kick in the

right direction would be awesome. Thank you so much for your time, and I hope to hear from you soon.

Sincerely,
Steve Herschleb

Dear Stevie my boy,

Good questions. You are definitely in the right hobby. Already you're wondering if you paid too much. Though that is a beginning trait of a lot of homebrewers, you will soon discover that it's not the price of ingredients and equipment (within reason) you should be most concerned about, but the quality. Paying a little more for quality equipment, ingredients and advice from your local homebrew shop is worth every extra dime you pay for each 12-ounce serving of your homebrew.

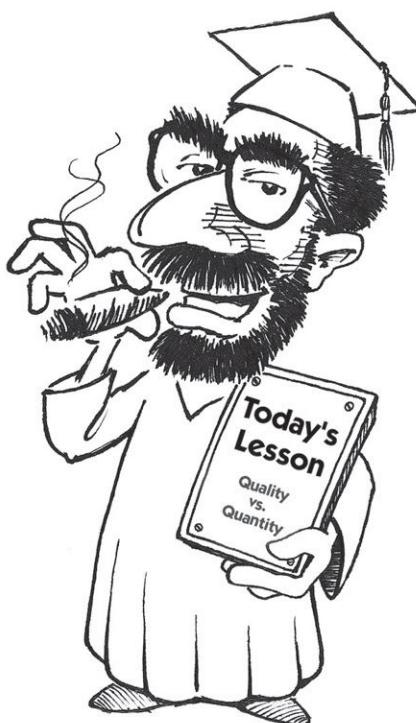
Is \$80 a fair price? It seems reasonable, but hard to tell. There are different qualities of plastic fermenters, bottle cappers and such. If you got good stuff then you are on your way to a great, enjoyable first batch of brew.

You bought both a carboy and a 6-gallon fermenter. Essentially you will ferment 5-gallon batches in your 6-gallon fermenter. You'll need that extra capacity to prevent the fermenting foam from cascading over the sides. Then, when you bottle, you'll be siphoning out of the plastic fermenter into your carboy for bottling. That's probably the best approach for a beginner. You could also ferment in the carboy with a blowoff system and then use the plastic fermenter to siphon into for bottling. The carboy will also serve as a secondary fermenter if you get into lagering your beer at cold temperatures. So you have several options here. But you do need two vessels and it seems you got a good combo.

So you like Corona, but "want to get into higher quality." (Hey, you said it, not me). I'd suggest a moderately hopped light (pale) or amber ale. Don't get into India Pale Ales right away, because it seems you need to wean yourself to the pleasures of hops. You could go with a kit, but since you seem to have all the equipment (we're assuming you have a strainer, brewpot and charismatic brewing spoon), you could easily dive into buying 6 to 7 pounds of amber malt extract syrup and 1 ounce of Cascade hops and make a quite righteous amber ale. Go for it daddy-o.

Check out our Web site at www.beertown.org and get to know your local homebrew club and other resources of great information.

Newbie dooby do,
The Professor, Hb.D.



Scoundrel Tom and Irish Red Recipe

Dear Professor,

I recently bought a copy of *Zymurgy* at my local brew supply. I wanted it for the article on Irish Red Ales. Sorry, I'm not a subscriber. I noticed that the authors created extract recipes from their all-grain counterparts. I question the extract recipes. I believe the extract versions will be too dark brown, or almost black.

i.e. All-Grain

8.0 lb two-row

0.5 lb Crystal 60

4 oz roast barley

For the extract recipe 6 pounds DME was substituted for the two-row.

i.e. "Extract"

6.0 lb Light or Extra Light DME

0.5 lb Crystal 60

4 oz roast barley

Your average extract brewer uses a 4 or 5-gallon pot, and boils about 3 gallons. So, they usually steep the specialty grains in 3 gallons.

If you steep 4 ounces roast barley and 0.5 pound of Crystal 60 in 3 gallons of

water, you will get a very dark brown or black beer, not red! Do the authors actually try their extract recipes, or do they just "assume" the steeping of those specialty grains in 3 gallons of water will produce the same results as mashing? Steeping always seems to produce way darker results than mashing. At least that's my experience. Maybe it has something to do with the grain to water ratio, length of time steeping or solubility of sugar in solution? I don't know why steeping produces such darker results.

I bet a lot of extract brewers are going to be very disappointed with their results. Or am I wrong? I would really appreciate if you could reply via e-mail since I am not a *Zymurgy* subscriber. Sorry.

With that in mind, if topics like this have been covered in *Zymurgy*, let me know.

Thanks a ton,

Tom

Dear Tom,

I don't usually reply to "non-subscribing" scoundrels like yourself, but it seems like you're a nice fellow, despite not being a member in good standing of the American Homebrewers Association. As a matter of my intuition, you're the kinda guy we like hanging around the American Homebrewers Association crowd of homebrewers. Whether it's at the annual AHA National Homebrewers Conference (this year in Las Vegas) or especially online contributing to our moderated AHA TechTalk online forum (there are more than 2,000 members currently online helping each other out every day), we could use the likes of you!

Anyway, your observations are interesting... but if I wanted to make a deep red ale, I wouldn't hesitate to use 4 ounces roasted barley in a steep for an extract recipe. From my experience, the recipe seems reasonable.

The Professor, Hb.D.

Tom's Response

Dear Professor,

Would you still steep the 4 ounces roasted barley and the half-pound Crystal 60? Or just the 4 ounces of roasted barley alone?

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By the way... if you do publish my letter, I intentionally left out a possible reason for extract being darker, and that is from caramelization from a partial boil; although I acknowledge the effect. For me, steeping versus mashing produces the greater color discrepancy.

I've experimented with a 6-pound Extra Light DME recipe to determine the color difference between a "partial" boil versus a "full" boil (boiled 3.5 gallons vs. 6.5 gallons). I used the same recipe and held all other factors constant, with the exception that water has to be added to the fermenter on a partial boil to reach 5 gallons in the end. The caramelization from the partial boil did not change the color very much.

On the other hand, steeping versus mashing the same specialty grains in an extract versus an all-grain batch (full boil each) makes a huge difference in color.

Anyway... I just wanted to eliminate caramelization from a partial boil from the equation, since the effect on color is minimal compared to steeping so much dark malt (Crystal and roast barley combined). I'm convinced there is a major color difference between mashing and steeping the same specialty grains, and wanted to "tap" into your experience to see if you've noticed the same.

Anyway... just more food (uh... beer) for thought.

Tom

Dear Tom,

You're growing on me, even if you still are a bit of scoundrel.

Would I still steep the 4 ounces roasted barley and the half-pound Crystal 60? Probably not. I'd use Crystal 20 or lower... but still, by my software calculations the recipe as stated in Zymurgy should give a color of about 18, which is about what Michelob Dark is/was. Using the roasted barley and Crystal 60 will tend to give more of a red hue than what you would see in Michelob.

I agree it is on the dark side, but it is right on the upper limit of the style's range at 18, according to our Association of Brewers Guidelines.

But you point out that you are observing a difference between mashing and steep-

ing. That is interesting. I do not doubt your observations, but I am wondering how this could be explained scientifically. Aha! (That stands for American Homebrewers Association, by the way.) Perhaps because the steeping is a situation that provides a volume of water that is not saturated with other sugars and therefore it is not as dense and therefore more "color" stuff and probably flavor can be extracted in a less dense environment. I think that is the situation. In a full mash you have lots of sugars and

other stuff that increases the density of the mashing liquid and therefore less "stuff" will be pulled out of the roasted grains.

*Interesting stuff you brought to light (or was it dark?),
The Professor, Hb.D.*

Hey homebrewers! If you have a brewing-related question for Professor Surfeit, send it to "Dear Professor," PO Box 1679, Boulder CO 80306-1679; fax 303-447-2825; or e-mail professor@aob.org.



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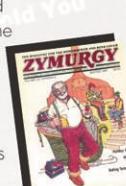
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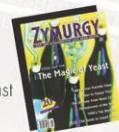
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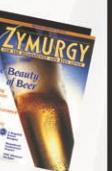
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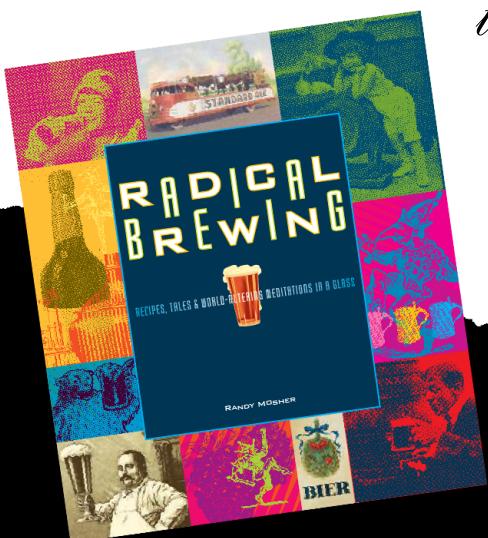
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Vol./Iss. #

going to

EXTREME

*A sampling of ingredients, processes and recipes from
the world of Radical Brewing*



By Randy Mosher

American homebrewing, even with its adventurous repertoire of recipes and techniques, barely skims the surface of brewing as it has been practiced through the ages. In ancient Sumeria, as far back as brewing history goes, brewers were already making black beer, red beer, fresh beer, filtered beer, emmer (a type of wheat) beer, premium beer and light beer. The ancients had a whole cupboard full of herbs and spices, although which ones were used in beer is a bit fuzzy.

A

ccording to myth, the Egyptian goddess Sekhmet was diverted from a humanity-destroying rampage by a draught of mandrake-tinged beer. Mandrake is a garlic-scented root with sedative properties and a long connection to magic and witchcraft. J.S. Arnold wrote in 1911 that brewers throughout history "...neglected no herb or drug, whether harmless or poisonous, in an endeavor to lend some new property of savour to the brew."

In the search for fermentables, every conceivable form of starch has been employed. Brewing techniques also span the full range of possibilities. In the era of poor-quality malts and wooden vessels, a dizzying array of different mashing programs were used, the remnants of which can still be seen in decoction mashing. Of course when using grains such as rice or maize exclusively, a mash is completely ineffective. Other means such as saliva or a specialized fungus or yeast must be used to break starch into fermentable sugars.

In ancient times malt was sometime baked into cakes prior to mashing, and there are more recent bread-based beers as well. Kvass, the Russian small beer, is still sometimes brewed from stale rye bread. England, too,

had a small beer made from stale bread—a product vexingly called "bee's wine."

Yeast and fermentation offer a huge range of possibilities. Lambic, the wild-fermented specialty beer of Belgium, was a mainstream product a few hundred years ago. Even stranger fermentations exist. In a 1916 article, Otto Overbeck described a yeast used to ferment peeterman (a cousin to Belgian witbier) which produced a gas that, if ignited, "burned with a blue flame." An African millet-based beer called *pombe* employs a yeast called *schizosaccharomyces*, which contains an enzyme enabling it to cut up starch molecules into sugars. This yeast diverged genetically from brewing yeast over a billion years ago!

Two things really put an end to wackiness in commercial brewing. First, in early nineteenth-century England, authorities finally cracked down on druggists who had been

selling all manner of noxious ingredients to brewers seeking a little more kick in their beers. This had been going on for more than a century despite laws to the contrary. Opium, *coccus indicus* (a dangerous stimulant), *Faba amara* (*Ignatia amara*, or bitter bean, an Asian hop substitute containing strychnine) and others were used along with the more benign licorice, capsicum and coriander. But poison in beer was a serious public health problem, and so the baby went out with the bathwater as hops became the only sanctioned herb. Frederick Accum's 1820 *A Treatise on Adulterations of Food and Culinary Poisons* chronicles some of the more egregious behavior, and was a final nail in the coffin of doctored beers in England.

In Germany, the incorporation of Bavaria into the German union meant that the Reinheitsgebot went into effect throughout the country in 1877, outlawing a number of regional beer specialties that had incorporated various spices and forms of sugar.

Scientific understanding of the malting and brewing process expanded the possibilities as well as the consistency of malt, and this made some of the more arcane brewing procedures unnecessary. The global trend toward industrial production and mass marketing also favored more straightforward products and processes.

But we homebrewers have no such limitations imposed by the boys in the finance or marketing departments, and are free to pursue anything we think might make for an interesting beer. The following is a smattering of techniques, ingredients and beers I encountered during the researching of *Radical Brewing*.

Double Brewing

This is a technique used as early as Elizabethan times (and possibly earlier) for the production of strong beers. At times it was forbidden, considered wasteful of malt and men alike. The process is straightforward. A mash is made as for a normal beer, then the runoff wort, instead of being boiled, is heated to strike temperature and then used as the liquor for a second mash. This concentrates the wort in a way no single mash can, and the resulting worts were usually over 1.100 (24 °P) in gravity.

During the eighteenth and nineteenth centuries, strong ales were brewed in private

house breweries to celebrate special events. A double beer might be brewed at the birth of a son, then saved and savored when he reached his majority.

"Now Double Ale or Beer is the two first Worts, used in the place of Liquor, to Mash again on Fresh Malt, and then doth it only extract the Sweet, the Friendly, Balsamick Qualities there-from, its Hunger being partly satisfied before, whereby its Particles are rendered globical, so as to defend themselves from Corruption, for being thus being brewed it may be transported to the Indies, retaining its full Goodness..."

—William Worth, 1692

Triticale

Just when you think you've tried everything, up pops something new. A modern creation, Triticum secale is a cross between durum wheat and rye developed in the 1930s to combine the hardiness of rye with the yield and quality of wheat. It is widely cultivated in western Canada, where it is primarily used for animal feed. Malted triticale flakes are sold industrially by Edme, although triticale is not generally available as brewers' malt. Containing between 10 and 13 percent protein, recent studies showed that triticale is actually well suited as a brewing adjunct. Mashing/lautering experiments showed an insignificant increase in wort viscosity (compared to barley malt) at up to 30 percent triticale in a recipe, which means it won't make you crazy-outta-your-mind trying to sparge it as rye is guaranteed to do. This is a pretty high proportion of adjunct grain in a beer recipe, and should be plenty to get some real triticale flavor into the beer.

Substituting triticale for up to half of the wheat in a classic Weissbier recipe would be the obvious place to start, although a triticale bock or a triticale tripel would be two very different ways of showing off the soft spiciness of this grain. Flaked triticale is available through health food channels.

Mushroom Beer and Chanterelle Ale

The list of unusual ingredients used at one time or another in beer includes dangerous psychotropic drugs, hideously bitter



herbs like blessed thistle, toxic heavy metals like cobalt (used in the 1950s for improved head retention) and animal parts such as Rocky Mountain oysters, not to mention the actual shellfish of the same name. So, a few culinary mushrooms don't seem so odd. Another thing to keep in mind is that beer is largely the product of a fungus—yeast—so some of the tastes have certain similarities.

Just when you think you've tried everything,

up pops something new.

I started all this mucking with mushrooms in beer after reading about a rustic German schnapps infused with chanterelle mushrooms.

The mushroom kingdom offers a huge variety of flavors, although in many cases you'll have to go tromping through the woods to get them. This is a fun and engaging hobby on its own, of course, and there are lots of books available if you're interested. Fortunately, supermarkets and specialty stores are stocking a fair number of different mushrooms in fresh and dried form these days, and many of them work as seasonings in beer.

In addition to food and flavor value, many mushrooms have important medicinal qualities as well. Common properties are along tonic lines, with immune and circulatory system benefits. This is another interesting area of study, and fits with the long, historical tradition of using beer as a base for delivering medically useful ingredients. Most mushrooms do have a certain earthiness—not often welcome in a beer—so the choice of which mushroom to use is very important. My own personal favorites are chanterelles. I've long been a fan of these beautiful, apricot-perfumed 'shrooms, and it turns out that they blend in quite well with pale and amber beers, if the hop aroma is held back to allow the subtlety of the chanterelles to shine through.

There are several easy ways to get mushroom flavors into your beer, along the same lines as using

any other spice or seasoning. Chopped mushrooms can be tossed in during the boil, which cooks them and extracts flavor as well as the complex carbohydrate materials bearing the medicinal properties of certain species. More delicate mushrooms may be made into tea, then filtered, cooled and added in the secondary or at bottling or kegging. Species like chanterelles or truffles that

don't require cooking can be finely chopped and soaked for a few days in vodka, strained through a coffee filter, then added in the same manner as a tea.

Chanterelle ale is one of my regular house beers. The chanterelles add an ethereal fruitiness, delicate and complex. I brew a lightly hopped amber ale of 1.070 to 1.080 gravity, mashed a little on the warm side to produce a sweetish brew. Once fermentation is complete, I add the strained liquid off a mixture of chopped chanterelles and vodka. Half a pound to a pound per 5 gallons is the usual dose.

Cooked Sugars

We homebrewers have been taught to spurn sugar, except perhaps for the odd Belgian beer. And as a reaction to a half-century-old tradition of diluting malt extract with corn sugar for the sake of a low-cost get-me-high, this repulsion is well-founded. However, it's time to move on and embrace sugar for what it can be—another trick in the brewer's bag, capable of lightening a beer's body and at the same time adding a layer of rich flavor sympathetic with, but different from, malt.

There are numerous partially refined sugars of ethnic origin that have great utility as well as historical precedent in beer. With names like jaggery, piloncillo, kaong and panela, each has a different personality and is well worth seeking out. But our present topic is a more process-oriented product: cooked sugar.

Commercial brewers have long relied on cooked sugar syrups as colorants, unless prohibited by purity laws. An early coloring material for porter was made by cooking first wort or molasses until it thickened and turned black, at which point it was set on fire and allowed to burn for five

or six minutes, then mixed with water and saved for use as a colorant. Essentia bina was a black syrup made by cooking sugar, and was used in porter production at the rate of 2 pounds per barrel. It was legally allowed only between 1811 and 1817. After that time it was superseded by the newly patented black malt.

Caramel syrups today have a lot more subtlety, and are available in a number of shades. They have commercial application as color adjusters in mainstream beers, where exacting standards are needed to match finely honed consumer expectations. They are also used in a more creative way in Belgium. The Chouffe brewery uses them to provide much of the character for their amber and dark beers. One should be aware that dark sugars lack the kind of melanoidins present in dark grains that have certain protective effects against oxidation, so beers colored exclusively with sugars may age poorly.

Colored sugars also figure heavily in the flavor and appearance of Flanders red sour beers. The Belgians love this stuff. When the old recipes mention "candi" sugar, this is usually what they were talking about, not the expensive crystallized stuff sold to homebrewers under that name. It is commonly used in sour red beers, and was an important ingredient in the blended beer called faro.

There are four chemical classes of caramel, and they are produced industrially for use in food, soft drinks, beer, and other uses. Each class reacts differently to pH, proteins and (continued on page 56)



A LETTER FROM THE CITY OF

By Bob J. Barnes

Editor's note: With the National Homebrew Conference rapidly approaching June 17-19 in Las Vegas, we asked beer writer and Las Vegas native Bob Barnes to give those coming to Vegas a primer on what to see and where to go. His letter to his dear (imaginary) friend Elbert follows.



VEGAS!

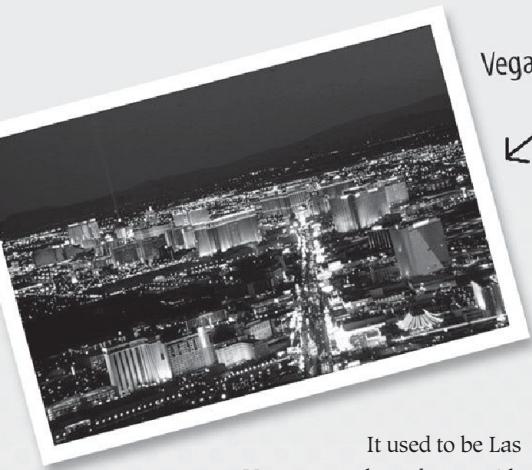
BRIGHT LIGHTS



Dear Elbert,

I'm glad to hear that you are coming out to Vegas for the AHA conference this June. Knowing that you are not wise to the ways of big cities, especially one as flashy and glittery as my town — the city of bright lights—I thought a few tips might be worthwhile. And, since I'm a native Las Vegan, who better than me to educate you on the best ways to spend your time and money while carousing in the party town of party towns?

One thing you may not be used to is that it's truly a 24-hour town. We have no concept of the term "last call." When gambling, the drinks are on the house. Just make sure your "free" beers don't cost you an arm and a leg. If you make a large enough wager at a sports book, you'll be entitled to some free drink tickets, but you have to ask for them. So if gambling's your thing, I say you might as well play at the places that serve the good stuff.



Vegas strip

It used to be Las Vegas was a beer desert, with Heineken or Corona the most exotic beer to be found. Times have changed and you don't even have to leave the Strip to find real beer. Since opening, the Bellagio has been perched at the top of my list as the classiest Vegas mega-resort. Its beer selection is worthy of the resort's excellence. The Petrosian Bar, just steps from the front desk, has a beer selection that is quite elegant with a dozen select quaffables including Celebrator Doppelbock, Chimay Red, Unibroue Blanche de Chambly, Spaten Franziskaner, Lindeman's Framboise and Weihenstephaner Hefeweissbier. Throughout the Bellagio the precept "No Crap on Tap" holds sway. The sports book taps Guinness, Pilsner Urquell, Anchor Steam, Newcastle and Paulaner Hefe-Weizen. At the various bars and restaurants throughout the property, one can also find Chimay Blue, MacTarnahan's Blackwatch Cream Porter, Sierra Nevada Pale Ale and Samuel Smith's Nut Brown.

Vegas has eight brewpubs that have collectively raked in 15 GABF and World Beer Cup medals (Holy Cow/Big Dog's Brewing Co., four GABF, two WBC; Main Street Station's Triple 7, three GABF, one WBC; Chicago Brewing Co., two GABF; Barley's, two GABF; and Tenaya Creek, one GABF). Lucky for us, we'll be able to sample from all of them at the Pro-Brewers Night on Thursday night of the conference. Barley's, Ellis Island, Triple 7 and

Monte Carlo are conveniently situated in casinos. Tenaya Creek, Big Dog's and Chicago Brewing are in suburbs out to the west and Gordon Biersch is a couple of miles east of the Strip. Monte Carlo Brewpub, the only brewery on the Strip, has the distinction of ranking in the top five for U.S. individual brewpub production for the past three years, and is the only Vegas brewpub with a bottling line.

You may have heard a rumor that the famed Holy Cow Brewery is no more. Well, the rumor is false. Holy Cow is no longer on the Strip, having relocated to the Draft House and renaming itself Big Dog's Brewing Company. New means better in this case, as the new brewery has nearly doubled its output, and you can enjoy 12 different beers on tap. The Draft House is at Rancho & Craig in the northwest sector of the Valley.

At the MGM Grand, Zuri, located just steps from the front entrance and room registration, serves Duvel, Chimay Premier Red, Young's Double Chocolate Stout, Spaten Franziskaner, Steinlager and Lindeman's Framboise, Kriek and Peche. The sports book pours Guinness, Sierra Nevada, Newcastle, Steinlager, Gordon Biersch Marzen and Pyramid Hefe.

There are a bevy of Irish pubs in the Vegas Valley. A worthy new arrival is McMullan's Irish Pub. The pub's slogan, "Purveyors of the Perfect Pint" is backed up by proper beer serving practices. Beer glasses never hold anything but beer and when a Guinness is poured, it's filled

three-quarters full and then left to settle for nearly two minutes before being topped off. There are 15 drafts (served

in 20-ounce pours) offering a wide range of styles from all over the world. McMullan's is on Tropicana across the street from the Orleans, about two miles west of the Strip.

Crown & Anchor is a U.K. pub with 30 quality taps, 50-some bottles and great atmosphere. Named the best bar in Vegas by Rolling Stone a few years back, it's authentically British and one can't visit there without encountering some transplants from the British Isles. It's located near UNLV on Tropicana just east of Maryland Parkway about two miles east of the Strip.

New York New York on the Strip has its version of an Irish pub, Nine Fine Irishmen. The two-level pub is both relaxed and elegant and is highlighted by an outdoor patio that overlooks the famed Strip. Comely lasses in sexy attire bring the suds, which include Harp, Guinness, Wexford Ale, Grolsch, Carlsberg and Boddington's. A few steps away is ESPN Zone, a sports bar with a multitude of video screens (even above the urinals) broadcasting a myriad of sporting events. There's a dozen or so taps, the standouts being Sierra Nevada, Widmer Blonde and Pyramid Hefe.

The prize for the beer bar with the largest and best selection goes hands down to Freakin' Frog Beer and Wine Café. Don't be scared off by the name. You'll discover an abundance of exceptional beer with nearly 250 quality choices. It's a real treat to peruse a beer menu that lists just about the whole line of Unibroue, Samuel Smith, Chimay and Stone breweries. The Frog is located on Maryland Parkway, across the street from UNLV behind Moose McGillicuddy's.

If you decide to go out for a gourmet dinner, my recommendation has to be Rosemary's Restaurant. Voted best gourmet restaurant year after year in our local newspaper's readers' poll, it has the most expansive beer lineup of any fine dining eatery in town. Expect several stellar beer choices such as Trappist Ales Orval and Rochefort #8, Duvel, Chimay and Brakspear Bitter. It's located on Sahara just east of Cimarron, about six miles west of the Strip, and has a second location in the Rio in the Masquerade Village.

Las Vegas, the entertainment capital of the world, has become a wonderland replicating world landmarks. Thus it was chosen as the ideal location for an authentic reproduction of the Munich Hofbräuhaus that was originally commissioned in 1589 by King William V. The beer is imported from



its brewery in Bavaria. The Hofbräuhaus features seating for 800, a biergarten with a 45-foot-high domed ceiling and fountain in the middle, daily entertainment with no cover charge and real Bavarian cuisine. Hofbräuhaus Las Vegas is located on Paradise just south of Harmon down the street from the Hard Rock.

As for retail stores, Lee's Discount Liquor is your best bet. There are five stores around the Vegas Valley, but their location at Lake Mead near Tenaya (just west of the 95 freeway) has more than 300 different beers.

If you feel the need to work off some of the beer you'll be drinking, southern Nevada has some of the coolest hiking trails in the Southwest.



Red Rock Canyon, just a half-hour drive from the Strip, has several trails on the Scenic Loop, some that traverse glorious red sandstone hills. You'd better head out early though, for in mid-June the temps will soar to just above the century mark by afternoon. To cool off, head up to Mt. Charleston (an hour drive) where the higher elevation of 8,000 feet or more translates to temperatures below 80. My favorite trail is Mary Jane Falls, a moderate trek to a waterfall that has water year-round.

If you want to get in some time on the links, you've come to the right place. Southern Nevada has nearly 100 golf courses. For a complete listing, including course reviews, rates and phone numbers, go to www.golflv.com.

While you're in town, you'll probably want to do some touristy things and indulge your fan-

tasies. Check out the water/light show at the Bellagio, an erupting volcano at the Mirage, the sexy Sirens of TI show at Treasure Island, fine arts museums at the Venetian and Bellagio and the Fremont Street Experience light show. Other must-sees include a gondola ride with your sweetheart at the Venetian, a ride to the top of the Eiffel Tower at Paris and breathtaking views of

the valley from the top of the Stratosphere or Rio's Voodoo Lounge. Go to www.vegas4locals.com for attraction suggestions and discount coupons.

For a complete up-to-date listing of shows with links, go to www.lvvol.com/lvolleg/lvshows, or pick up a *What's On* magazine (available at all the Strip hotels). For a same-day half-priced ticket, you can stop by the Tix4Tonight (www.tix4tonight.com) office at Harmon and the Strip next to the Harley Davidson Café.

If you want to live on the edge, you can indulge in thrill rides at the Stratosphere, Sahara, Luxor, Excalibur, Las Vegas Hilton, New York New York, Circus Circus and Buffalo Bill's (Primm, Nev.), all of which have monster rollercoasters or motion rides that are sure to help you lose your lunch.

Well, Elbert, this Vegas tour has been all too brief, and I could go on forever talking about my town and my favorite subject, beer. Hopefully I've been able to whet your appetite, and you'll be pestering me for more info and directions. I'll be standing by to assist you.

Bob Barnes is a native Las Vegan and a regional correspondent for *Celebrator Beer News*. He welcomes your inquiries. He can be reached via e-mail at LVBobB@juno.com

the Stratosphere



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Club Collaboration

Editor's Note:

One of the true joys of homebrewing is brewing together with members of your local homebrew club. Competitions, experiments and brew-ins like Big Brew are a great way to have fun and build club unity. Does your club have a special Club Collaboration brewing project? We'd love to let the rest of our readers know. Send your tales of Club Collaborations to jim@aob.org.

Spawned by a thread in a book and spurred on by a late-night TV cooking show, the first hon Mash Brew-In competition was the brainchild of Zee Allison, aka Zazu Sumo, the NettHoppers' competition coordinator...

By John Shank





Anatomy of the hon Mask

His idea, seemingly simple yet ultimately complex, was modeled after the Food Network cooking show "Iron Chef," in which famous chefs from around the world are given an assortment of raw ingredients, and under similar conditions, compete to out-cook one another.

Fast forward to the Iron Mash concept where teams of two or three brewers fashion batches of beer from a defined ingredients list; you don't have to use all the ingredients, but you cannot add anything else, with the exception of yeast. The beers are fermented at your own place, then shared and judged at a party where winners are announced.

When Lazy brought up the idea at our regular monthly meeting, my initial thoughts were, "Yes that's a great idea, but one of those great ideas that, because of apathy, dies on the vine." Man, was I wrong! The rest of the club liked the idea too, and weighed in with unanimous approval. The key to getting this brew-in off the ground was the enlistment of two more members to help organize the event: Tony Stone, our founding treasurer, and Kevin Brooker, our general secretary (who refuses to take minutes).

The Nethoppers (North East Tarrant County) and Cowtown Cappers, Fort Worth's original and only homebrew club, had been meeting jointly throughout 2002. This event was intended to mix club members on different teams, further building camaraderie within the clubs. We already had an aura of friendly competition, as the Cappers had opened up their closely guarded "Master Brewer" monthly competition to the Hoppers. Over the next few months, the committee worked on the plans, and by June 1 had announced their rules package.

The Challenge

Between the two clubs, a total of five teams emerged to accept the challenge. Although we did not actively seek out teams from other local clubs, one team caught wind of our event and decided to join the fray: the Stein Meisters (James Grady and Steve Wesstrom from Arlington's Knights of the Brown Bottle). Mixed teams from Cowtown Capper's/Nethoppers consisted of Jo-

Iron Mash Brew-In Details

- Each team is given, on event day, a kit containing base malts, specialty grains and hops. NO ONE KNOWS THE INGREDIENTS UNTIL BREW DAY.
- Each team provides its own yeast, therefore allowing for starters to be made.
- Teams do not have to use all ingredients in the kit, but may not add anything.
- If late hop additions are made, they must be pulled from the original kit.
- Entry fee will be \$20 per team to cover the cost of ingredients and awards.
- Teams can choose either extract or all-grain versions of the kit; all kits will be identical, with the exception of quantities of base malts vs. extract.
- "Call your shot" style creation, whereby each team must divulge what style of beer they are brewing so that the judges can judge by BJCP style guidelines.
- Six-hour time limit, so that research on recipe formation will be limited.
- The beer is not for personal consumption. It will be enjoyed at the awards ceremony in September and is to be saved for that occasion.
- One six-pack of bottles must be provided for judging. Teams may keg or bottle the rest for consumption at the awards party.
- Since this is our first year we are limiting the event to no more than 10 teams, first come, first served on entering the competition.

Judging:

- Five judges total.
- Two BJCP judges, who will judge style adherence and technical aspects of beers.
- Two judges who are beer enthusiasts, but not BJCP certified (some experience).
- One judge who is not even a brewer, but an interested accomplice and beer fan.
- Blind judging as in other (AHA) competitions, judges will only be given the style.
- Regardless of skill level, each judge's score sheet will count the same. Average score will be the final score given.

Awards:

- First, second and third places will be awarded.
- First place "Iron Brewer" title and large engraved spoon to each team member.

Datelines:

- June 4: Club meeting, begin accepting registrations
- June 8: Kits to be designed on paper
- June 21: Registration/payment deadline
- July 20: Event to be held at Lazy's place (Flower Mound, Texas)
- August 31: Judging (closed event) at Lazy's place
- September 21: Awards party and beer tasting extravaganza

Jo-Ma (Joe Johnson, Josianna Pociask and Mark Wedge) and Dead Presidents (Rob Stenson and myself, both the latter club's lame duck presidents). Two teams consisted of pure Nethoppers: the Old Soldiers, (Larry Kemp and John Fields) and Clear Fork Brewers (Dennis Evans and his trusty protégé, Tom Albanese). The event was to be held in Allison's backyard in Flower Mound. The date was July 20, a warm Saturday afternoon that would come to test the heat resistance of all. The rules set (see box) was released via e-mail to all brew club members with the opportunity to comment.

The organizing committee did a lot of debating early on as to how to build the ingredients kits. Brooker, who eventually gathered most of the kits together, said, "We were basically trying to keep it simple since this was our first year doing this." Said Allison, "We were trying to decide if we should build a kit to some secret style and then see if the brewers

could hit that style. But in the end we decided the best route was 'call your shot' brewing, where brewer teams were allowed to brew whatever style they could pull out of the kits, but had to declare and hit that style" (for judging).

Allison used Strangebrew to compute base malt versus extract quantities so that teams could brew to approximately the same original gravities. Specialty grains were included to give teams a myriad of style options. Two varieties of bittering and aroma hops were made available, allowing for English, German and U.S. hop influences in the beers. Some herbs and spices were thrown in to allow for, or tempt, risk-taking brewers to go for it. A vanilla bean? "We just wanted to see if anyone had guts enough to use a vanilla bean in a beer they've never brewed before," said Stone. "In the end, the recipe kit gave a lot of leeway in which styles the contestants brewed," added Allison.

The Event

After months of planning, the big event arrived. Teams assembled around 10 a.m., with the Dead Presidents (the only extract team) arriving late. "We need less time anyway," said Stenson. The kits were handed out and the fun began.

As the kits were revealed (see box), each team had to sit down and discuss what style of beer to brew. This was the true challenge of the event. Teams were forced to name their style before brewing commenced—not to the crowd, but to the organizing committee. Stone, always the enforcer, answered questions. Teams were allowed to bring their own water or use filtered water supplied by Lazy. No other ingredients could be added after the beers left the event, unless those ingredients were pulled from the kits.

Rob and I decided early that we had to go dark. The specialty grains demanded it, our hops would work out and our yeast(s) strains supported it. The question was whether to do a stout or a porter. Teams were allowed to bring their own yeast, as much and as many strains as they had. We had a starter of English Ale Yeast (Wyeast) and a backup of California Ale (White Labs). We decided to use the starter. We built the recipe by going through our bags and handwriting a recipe and timeline for kettle additions. We debated the use of special ingredients—I had made a few coffee porters and leaned in this direction, while Rob was not comfortable with the idea. We settled on a vanilla porter recipe, although neither of us had ever brewed with a vanilla bean.

One change suggested by Stenson proved valuable—the concept of making a 4-gallon batch to keep our original gravity up. We had no fear at this point and maintained a level of confidence throughout the process. There had been a bit of brewer trash talking, and it was time to back it up. We had access to brewing books and could call accomplices on cell phones or walk around and ask for advice. A member of the Jo-Jo-Ma team tried their hand at sabotaging us by suggesting a 45-minute boil for the vanilla bean. We later found out that only a minute or two of boil time is appropriate or as an addition to the secondary. Such was their desire to win.

Iron Mash Brewing Kits

Here's what the Iron Mash brewing kits looked like:

All-grain version

Base Malts (14 lb)

- 4.0 lb American two-row
- 3.0 lb Munich
- 3.0 lb Vienna

Specialty Malts (2 lb)

- 0.5 lb wheat malt
- 0.5 lb roasted barley
- 0.5 lb chocolate malt
- 0.5 lb crystal malt (120 L)

Extract Version

Substitute 6 lb of dry malt extract for base malts

Hops (4 oz.)

- 1.0 oz. Centennial
- 1.0 oz. Fuggles
- 1.0 oz. Liberty
- 1.0 oz. Tettnanger (a)

Misc.

- 1.0 oz. Irish Moss
- 1.0 oz. coriander
- 1.0 vanilla bean
- 2.0 oz. ground coffee

An excerpt from an original e-mail response sent to all teams

From the Stein Meisters of the Knights of the Brown Bottle:

"As a team we considered several approaches to the 'opportunity.' We worked out preliminary recipes for English, American and German so we would have a basis on the big day, in planning discussions prior to the event. We brought yeast to handle each of these options.

"When we were presented with the ingredients, we determined that our plan for alt was the best. With the grains available, and the gravity unit requirements for a 5-gallon batch, we felt that we could best make the alt. We agreed that the Tett hops would follow the Fuggles to give the bitterness the correct character. The use of pellet hops was the biggest change in our plan, as it has been quite a long time since I have used anything other than whole hops in my RIM system, but that was part of the novelty of the project. Making use of the supplied ingredients: we had a great bit of fun here, as the development of a brew session generally takes place over a day or so, here, but for the pre-planning, we had only a short time to create our plans."

— Steve (Wesstrom) and Jim (Grady)
The Stein Meisters

The Brew

In addition to the teams, a sizeable number of brew club members and friends showed up at the event and before long we had significant quantities of homebrews and fine commercial beers on hand. Around noon the barbecue pit was going, loaded with brisket, venison, brats and other assorted tasty treats. As the brewing session unfolded Rob and I took turns manning the brew kettle and guarding against the dreaded boil over. It was interesting to walk around and learn what the other teams were brewing and what type of systems they were employing. There were three slightly different versions of the basic three-tiered, all-grain brewing systems, used by Clear Fork Brewers, Stein Meisters and the evil Jo-Jo-Ma. The Old Soldiers went with a modified cooler all-grain system and Dead Presidents used an extract system, 7-gallon brew pot (ceramic) and propane burner. The final analysis in recipe formulations yielded two vanilla porters, two altbiers and one brown ale.

Most of the all-grain brewers were not used to making such small batches (4.5 gallons). Additionally, the hop formulations presented a challenge to some teams (see excerpt from the Stein Meisters). The brews were completed, cooled one by one and taken to the most favorable fermentation conditions available. We had six weeks to ferment and bottle or keg our creations. Rob and I chose to bottle condition our entries with dry malt extract, as was our normal operating procedure. We were concerned about having enough time to do this, but thought we could get it done.

The Judging

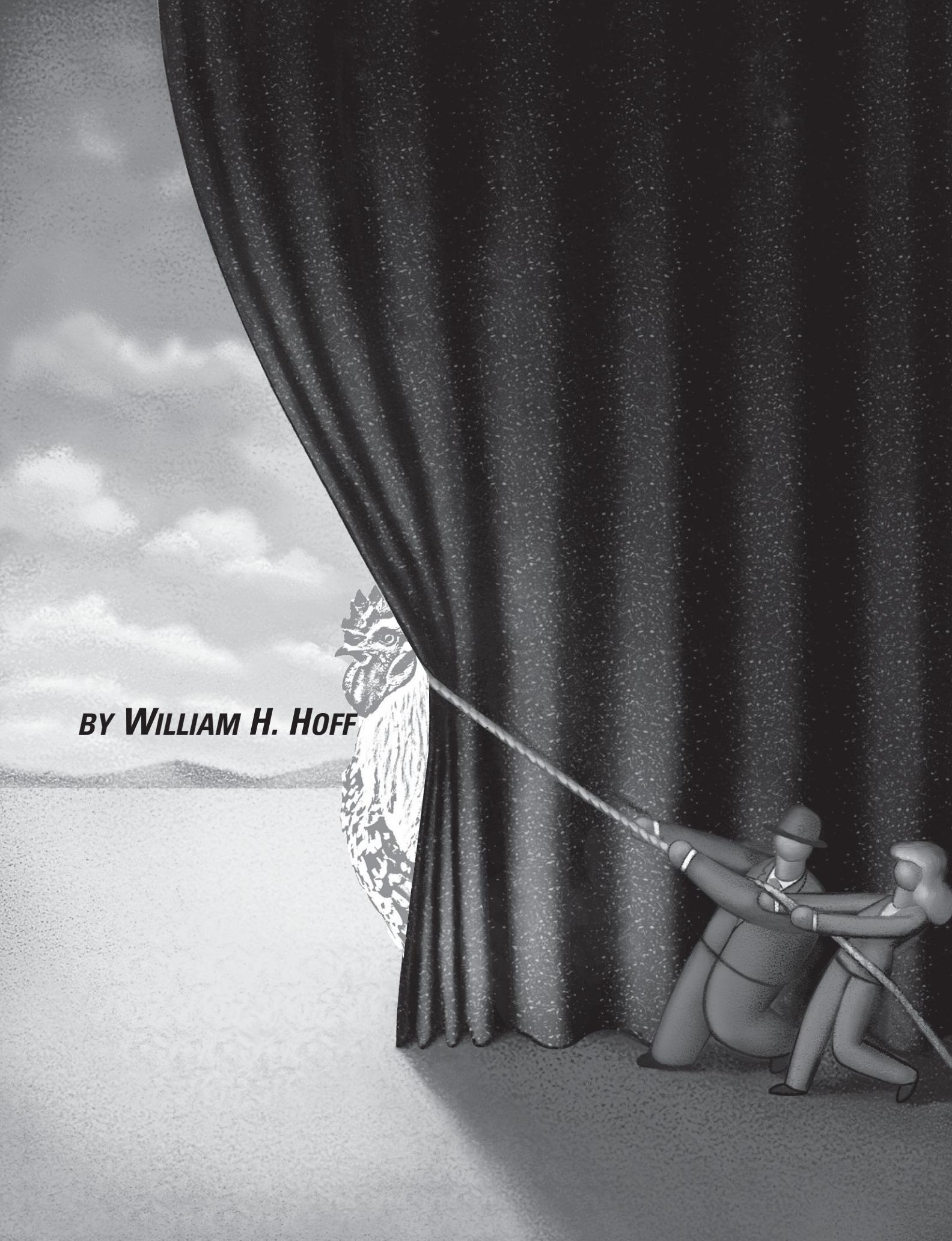
Clint Stapp, Nethoppers president, agreed to have the party at his mom's house, as she was out of the country and wouldn't be able to object. The party was held on September 28 and featured massive amounts of food and homebrew. It was a pool party, no less. All the teams showed up sporting (continued on page 57)



The “Zion Curtain” is an imaginary line representing the beginning of Utah’s restrictive laws on beer and brewing in the land of Zion. Perhaps the most inane restriction mandates that beer cannot contain greater than 3.2 percent alcohol by weight. This factor severely limits the styles of beer that brewers can brew in Utah.

The question is, can brewers really brew good beer behind the Zion Curtain? Pete Buttschardt, co-owner of Roosters 25th Street Brewpub in Ogden, answers this question with a resounding “Yes!”

At Buttschardt’s pub, brewer Steve Kirkland brews a wide range of tasty beer, all falling within the 3.2 percent alcohol range.



BY WILLIAM H. HOFF

The Beer

Kirkland brews more than 700 barrels each year. This production includes Roosters flagship brews and a rotating selection of ales and lagers. Roosters' standard beer lineup consists of the following flagship brews:

Two-Bit Amber An amber ale brewed with three varieties of hops, caramel malt and a touch of roasted barley.

Polygamy Pale Ale A highly hopped ale brewed using both bittering and aromatic hops.

Bee's Knees Honey-Wheat An unfiltered wheat beer made with a touch of honey.

Junction City Chocolate Stout A rich, robust stout brewed with six varieties of malt including large portions of chocolate malt, which lends a roasted, mocha flavor to the beer.

Brewing in Utah presents unique challenges. The 3.2 percent alcohol limitation prevents brewing styles like barley wine, India pale ale, Russian imperial stout or traditional bock beer. Working with this constraint, Kirkland feels that he still brews flavorful, quality beers at Roosters. For instance, in the spring Kirkland brews a maibock style beer called "If-I-Were-a-Maibock." Kirkland grants that "it's not a maibock nor could it be a maibock," yet the beer tastes comparable without the alcohol content. After all, Kirkland notes, the 3.2 percent alcohol content means he "can just drink that much more of it."

Kirkland scoffs at the notion that the alcohol limitation forces him to make light, weak beers. He cites examples where customers at out-of-state festivals believed he brewed higher strength versions for the festival. Believing the beer had a higher alcohol content, people commented the beer was great and returned for more. Conversely, consumers informed that the beer was 3.2 percent found the same beer to be watery and blah, just as they expected.

We've all heard the mantra that one glass of beer equals one glass of wine equals one shot, meaning that all these drinks have roughly the same alcohol content. What we haven't heard about is how Utah's 3.2 percent abv compares to beers brewed in other states. Sitting at Roosters antique oak bar, a man boasts, "Missouri has 5.0 beer." True:

Missouri can serve beer that is 5.0 percent alcohol by volume (abv). Volume, weight, what's the difference? Actually, 3.2 percent by weight is the same as 4.0 percent by volume. So let's take another look at that 5.0 brew. What would its alcohol content be by weight? Try 4.2 percent. An alcohol percentage of less than 1 percent is not discernable by the palate or alcoholic effect. This helps explain why some patrons believe that Roosters beer actually has a higher alcohol content.

Having vanquished the myth that you can't brew good 3.2-percent beer, how does a brewer go about making it? Kirkland fires off three dependable methods and explains that at Roosters, he uses all of them. He uses Carapils malt, which promotes head formation and retention and gives the beer a fuller, rounder flavor without providing an excess of fermentable sugars. In addition, Kirkland does not use high attenuating yeast. This means that the yeast will ferment a larger percentage of fermentable sugars resulting in lower alcohol content. Lastly, he meticulously follows stringent recipes that control the amount of fermentables. This allows him to consistently produce beers without violating the 3.2 percent restriction. These methods can be painstaking and time consuming; however, they still allow Kirkland to maintain good body in his beers.

In addition to their flagship brews, Roosters features a rotating lager and rotating ale. This provides Kirkland the flexibility to experiment with a wide variety of beers and styles. Moving from homebrewing to commercial brewing is like getting a new, bigger set of Tinkertoys—but even though Kirkland now has bigger, better toys, he still relies on his homebrewing background. Whenever contemplating a new style or recipe, he whips out a 5-gallon homebrew system to test it out.

While brewing behind the Zion Curtain does limit the amount of alcohol in his beers, it does not limit the creativity and imagination Kirkland can use. He took advantage of this flexibility to brew 26 different exotic beers such as Holiday Rosemary Porter and Mom's Oatmeal Chocolate Chip Ale, which contains brown sugar, oatmeal and chocolate chips. Kirkland's current original offerings include Mulletbrau,

similar to the standard American lager and Leghorn lager. Kirkland is anxiously looking forward to the fall brewing season and is considering brewing nut-brown ale and a spicy German style Oktoberfest.

Which Came First, the Rooster or the Egg?

Buttschardt grew up working in restaurants in Philadelphia. After high school, he attended the University of Utah. He took what he learned in his economics studies and in 1990 opened the Union Grill in Union Station. He still operates that restaurant today. Four years later, Judy Imlay, who had learned of Buttschardt's interest in food and beer, approached him about opening a brewpub on Ogden's historic 25th Street. Buttschardt considered the idea, thinking he could possibly expand existing operations at Union Grill. Imlay convinced him that they would benefit more if they owned the building instead of leasing it. They drafted a business plan and took the first purposeful strides toward opening a microbrewery.

As the partners drew up duties and responsibilities, Imlay took charge of customer relations, Buttschardt's wife Kym handled accounting, and Buttschardt's initial duties included both brewmaster and chef. Based on his homebrewing background, Buttschardt knew that he could not afford to approach a 7-barrel system with his previous "messy homebrewing" approaches. After attending an accelerated brewing course at University of California, Davis, Buttschardt decided that he couldn't fill the role of chef and brewmaster. He felt that he may have been able to brew the beer, but he also knew that he couldn't consistently produce a quality product until he had gained experience. Rather than have customers suffer through his brewing experiments, the partners looked for an experienced brewmaster.

In his quest, Buttschardt found Kirkland, who had posted his résumé with the Institute for Brewing Studies. After working as an assistant at Sprecher Brewing and Grey's Brewing, Kirkland was ready to run his own show. One visit to Ogden was all it took and Kirkland signed on. He quickly went to work coordinating the 7-barrel infusion mash brewing system installed by ID Northwest

Systems. This system included two 19-barrel fermenters and two 9-barrel fermenters. After fermentation, Kirkland would store the finished beer in six Grundy lauter tanks.

With a brewmaster on board, the next move was to determine where Roosters should locate. Ogden's 25th Street has a bright and varied history, and this is the neighborhood the partners felt best suited their concept. The long and narrow building the group chose originally housed everything from Chinese laundries to a brothel in the early 1900s. It seems almost a natural progression that a brewery would next inhabit the locale. At the time Buttschardt and Imlay bought the building, it housed an antique shop and builders needed to completely renovate before Roosters could open.

After a year of reconstruction, the building reflected an eclectic style reminiscent of its history. Finally, in 1995, the partners opened the doors to Roosters, rolling out the first pints of 2-Bit Amber, and the locals rejoiced. Today thirsty patrons find the cleanliness of a Chinese laundry combined with the sense of camaraderie akin to earlier occupants of the building.

To retain their flexibility and high quality standards, Roosters does not bottle and dis-

tribute beer for individual consumption. Roosters does distribute their beer to more than 30 businesses across the Wasatch Front. This bulk beer is sold in kegs; however, Utah law dictates they cannot sell kegs to individuals. Roosters does sell "growlers," large jugs that hold 64 ounces of refreshment that can be carried out. Although you can find Roosters beers on tap at local hotspots like The Pie, Snowbasin and Bistro 258, the best place to enjoy Roosters brews is at the brewery.

So if your travels bring you to Ogden, whether for world-class skiing or hiking, Roosters provides a warm, inviting atmosphere to kick back and quaff some of the best brews in the territory. Sidle up to the bar or park yourself at one of the tables on the patio—chances are you'll see Buttschardt shuttling between the kitchen and bar or Kirkland lugging bags of grain for his next creation. Start with a pint of Junction City stout or if you're undecided, order the sampler to taste the entire line of Roosters beers. Providing you have enough time, Kirkland will give you a guided tour of the brewery, and if you're lucky and come on brew day, he may even let you load grain bags all afternoon.

William H. Hoff lives and drinks great 3.2 percent alcohol beer in the Odgen, Utah area.

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Roosters' Recipes

Polygamy Pale Ale

Ingredients for 5 U.S. gallons (19 liters)

All-Grain

- 8.0 lb (3.63 kg) two-row malted barley
- 1.5 oz. (43 g) Caramel malt (40 L)
- 0.75 oz. (21 g) Caramel malt (120 L)
- 0.5 oz. (14 g) Nugget hops, 12.1% alpha acid (90 min)
- 1.07 oz. (30 g) Nugget hops, 12.1% alpha acid (60min)
- 0.5 oz. (14 g) Cascade hops, 6% alpha acid (30 min)
- 0.89 oz (25 g) Cascade hops, 6% alpha acid (end of boil)

Junction City Chocolate Stout

Ingredients for 5 U.S. gallons (19 liters)

All-Grain

- 7.0 lb (3.2 kg) two-row malted barley
- 0.6 lb (2.72 kg) Munich malt (10L)
- 0.6 lb (2.72 kg) Caramel malt (120L)
- 0.8 lb (3.63 kg) Chocolate malt
- 0.4 lb (180 g) roasted barley
- 0.09 oz. (2.5 g) Nugget hops, 12.1% alpha acid (90 min)
- 0.33 oz. (9.25 g) Perle hops, 7% alpha acid (60min)
- 0.7 oz. (19.75 g) Cascade hops, 6% alpha acid (end of boil)

Two-Bit Amber

Ingredients for 5 U.S. gallons (19 liters)

All-Grain

- 8.0 lb (3.63 kg) two-row malted barley
- 1.2 lb (540 g) Caramel malt (40L)
- 0.25 lb (110 g) Caramel malt (120L)
- 0.11 lb (50 g) roasted barley
- 0.16 oz (4.6 g) Nugget hops, 12.1% alpha acid (90 min)
- 0.37 oz. (10.4 g) Northern Brewer hops, 7% alpha acid (60 min)
- 0.35 oz. (9.8 g) Cascade hops, 6% alpha acid (30 min)
- 0.41 oz. (11.5 g) Mt. Hood hops, 5.5% alpha acid (end of boil)



THE GREAT HOP EXPERIMENT

LESSONS LEARNED IN THE PURSUIT OF HOPPINESS

BY BRIAN BUTENSCHOEN AND TREVOR MILLUND

EDITOR'S NOTE: IN THE MARCH/APRIL ZYMURGY, RAY DANIELS PROPOSED A NATIONWIDE BREWING EXPERIMENT TO HELP DETERMINE FLAVOR DESCRIPTORS FOR A FEW SELECT HOP VARIETIES. THE CONCEPT WAS NOTHING NEW TO MEMBERS OF THE OREGON BREW CREW, WHO HELD THEIR OWN GREAT HOP EXPERIMENT IN 2002.

How do yeast, hops and malt contribute to the flavor of beer? In 2002, the Oregon Brew Crew launched the Great Hop Experiment to evaluate the differences in bitterness, flavor and aroma that 31 different varieties of hops made on a single batch of wort pitched with the same yeast. Single hop beers can be found across the United States, from Centennial in Bell's Two Hearted Ale, to Brutal Bitter from Rogue made solely from Crystal.

On May 19, members of the OBC convened at Hair of the Dog Brewery in Portland. We had 20 people confirmed the night before—at 8 a.m. we started with just five people. However, more soon began arriving and setting up their equipment. After selecting their hop through a random drawing, they were given a questionnaire to fill out. We asked them to describe what the hops smelled like, and to try to guess the variety and the percentage of alpha acid.

We ran off the wort into kettles, eyeballing our measurements to make sure everyone got some, although more people than expected showed up. We ran through the first runnings and had to mash in again to do a second running. We ran through the second running and still had people who wanted to brew. A few people went home with malt, some yeast and a hop variety to brew at home. All in all, we made beers with 31 hop varieties.

The brewery was soon filled with the aroma of hops and boiling wort. It was impressive to be able to compare the different systems and styles of so many brewers in one place. Everyone followed the same hop addition schedule of 1 ounce at 60 minutes, 2 ounces at 30 minutes, 1 ounce at 15 minutes and 2 ounces at five minutes. We then proceeded to chill all of the worts, transfer them to carboys and pitch them with Wyeast 1968 London ESB yeast.

As always, Alan Sprints (owner and brewmaster of Hair of the Dog) was more than a gracious host and the taps flowed throughout the day. We were done cleaning the last batch and on our way home by 11:30 a.m. Everyone went home with 5 gallons or so of beer to ferment, with the understanding that they would bring half of the beer back to be evaluated at a future date.

We reconvened on July 21 and had more than 50 people show up to taste 31 different beers.

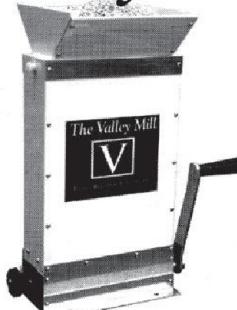
We had each attendee taste a flight of five or six beers in a predefined set, starting with the lowest calculated Homebrew Bitterness Units and working their way up to the highest (the range was from 12 to 73). They were asked to describe the flavor and aromas of the beers, guess which hop was used and what the alpha acid percentage was. They were also asked to rate the beers on color, flavor, drinkability, aroma and bitterness on a scale from 1 to 11.

One hop that scored in the top five on drinkability was Columbus. On the brew day, the brewer had guessed that it was Fuggles, Mt. Hood or Hallertauer and definitely not one of the three Cs (Cascade, Centennial or Columbus). Participants at the tasting described the aroma as floral, citrusy, lemony and hoppy and the flavor as straw-like, spicy, citrusy and hoppy.

From the brew day we learned that it would have been good to measure the exact amount of wort that every person received and after everyone had boiled, to top off the carboys to make sure everyone had the same amount of beer. Due to the higher than expected turnout we had a small group with a significantly lower starting gravity than the rest, but this enabled us to utilize more hop varieties.

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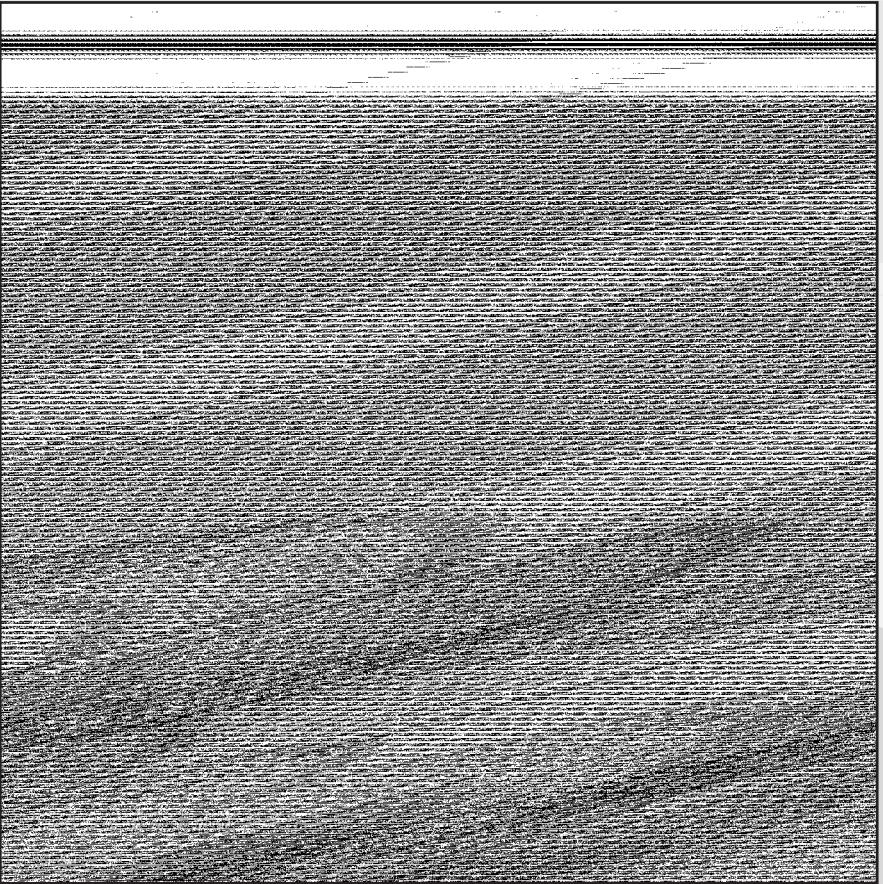
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Our base beer was a pale ale and we chose a neutral ale yeast (Wyeast 1968), but another neutral ale yeast such as Wyeast 1056 or 2222 Scottish Ale yeast would do. With such a wide range of alpha acid percentages (3.5 to 16.5) you can either shoot for one original gravity that can comfortably accommodate the range of alpha acids (around 1.048 to 1.052) or choose hops that are all within the same alpha acid range. Many of our beers had an OG of 1.070-plus, which made the bitterness level on a low alpha acid hop such as Saaz hard to discern. Perhaps it would be better to do two different worts with a lower OG wort for the lower alpha acid hops and a higher OG wort for higher alpha acid hops.

From the tasting notes, we learned that we should conduct a more rigorous evaluation; possibly a tasting panel, where groups of people sit down and evaluate each beer, similar to judging a beer in a competition. Many people commented that they never knew that a hop had certain flavor characteristics, or that they had not used a certain hop because they thought it would taste a certain way. We learned that perhaps some hops are not as well suited to this style of beer. Some do not fit into preconceived ideas of what hop flavor in a pale ale should taste like. However, certain hops that are not generally used in a pale ale were better suited than one might think. Doing the experiment blind gave everyone involved a chance to describe what they smelled and tasted and then compare preconceived notions to actual evaluations.

All the people involved, from Hop Union to Fresh Hops to the NZ Hop Marketers Association, were eager to help us out. Many local breweries also helped to provide materials for these experiments. If you are interested in seeing the complete results they are available in PDF format at www.oregonbrewcrew.com.

Brian Butenschoen is past president of the Oregon Brew Crew and membership services coordinator for the Oregon Brewers Guild.

Trevor Millund is the education committee chair of the Oregon Brew Crew and organizer of the Great Hop Experiment.

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For Geeks Only

Reader Advisory: Warning! These pages are rated XG (eXtra Geeky) by the Bureau of Magazine Mucktymucks. Items in this section may contain raw data, graphic functions, full statistics and undiluted biochemistry. Keep away from poets, squeamish novices and others who may find the joyously technical nature of this prose to be mindbendingly conceptual or socially offensive. Also, because of the complex nature of brewing science, there is no guarantee that you will live longer, brew better or win any awards in the next homebrew competition based upon the conclusions presented here.

Positive Factors of Foam Stability

By Chris Bible

Foams are a dispersion of a relatively large amount of gas in a relatively small amount of liquid. Foams can be produced either by condensation (foam gas phase is initially present within the liquid phase) or dispersion (gas originally exists in the bulk surroundings outside of the liquid phase).

Foam in bottled (or kegged) beer is generated by the condensation method. Dissolved carbon dioxide exists within beer at an equilibrium concentration that is dependent upon the pressure within the headspace in the container. More headspace pressure equals a higher equilibrium concentration of carbon dioxide dissolved within the beer. When the beer bottle is opened, the headspace pressure within the bottle is reduced to atmospheric pressure and suddenly the amount of dissolved carbon dioxide within the beer is no longer in equilibrium with the surroundings. The beer/carbon-

dioxide solution becomes a "supersaturated" solution. The carbon dioxide solute then forms a dispersed gas phase and rushes out of solution. This rapid rush of carbon dioxide from solution is responsible for the formation of the beautiful head of foam that rests atop a homebrew like a crown on a king's head. This lovely head of foam is also the crowning glory for homebrewers throughout the world.

Homebrewers generally strive to make a beer that has "good head retention." Generally speaking, this means that the head of foam that rests atop a beer will have a "half-life" of at least 60 to 90 seconds (i.e. half of the volume of foam originally created from the pour will still be present after 60 to 90 seconds in the glass). This, however, can be challenging, as there are many physical and chemical variables that affect head retention. The ability to control these variables

within a brewing session is clearly both an art and a science.

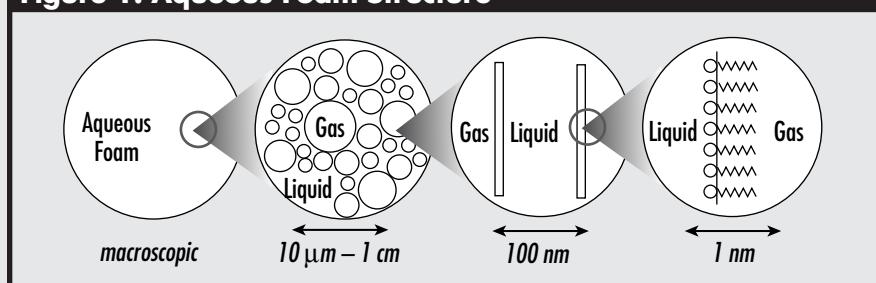
So what, exactly, is foam? As stated previously, foam is a dispersion of a relatively large amount of gas in a relatively small amount of liquid. Foam can be thought of as an agglomeration of gas bubbles separated from one another by thin liquid films. Each gas bubble is enclosed in a film of compounds derived from the bulk of the beer. This is illustrated in Figure 1.

There are numerous physical properties of beer foam that can be measured. Specifically¹:

- Foam volume
- Foam density
- Foam stability
- Cling
- Bubble size distribution
- Foam color

There are, however, no universally accepted methods for measurement of these properties.

Figure 1: Aqueous Foam Structure



Are You A Geek Too? Zymurgy is looking for contributions for the "For Geeks Only" section. If you have studied a particular area of brewing science using in-depth library research or experimental data and would like to see the results published here, let us know by contacting Jim Parker at jim@aob.org or via the mail address listed in the masthead on page 2.



There are numerous factors, both positive and negative, that affect initial foam formation. These are described in Table 1.

Although it is generally accepted that the fundamental basis for beer foam stability is interaction between iso-alpha acids and beer polypeptides², numerous factors positively or negatively influence the stability of this foam. These factors are presented in Table 2¹.

Unfortunately, even the most beautiful and stable head of foam will experience only a short (but glorious!) life. Foams are fundamentally unstable systems. Three main processes occur in foams that eventually lead to the collapse of the foam matrix³:

1. Redistribution of bubble sizes (coarsening)
2. Film thinning
3. Film rupture

The redistribution of bubble sizes is caused by the dependence of the CO₂ gas pressure within a bubble upon the curvature of the bubble walls. CO₂ preferentially diffuses through the bubble film from smaller bubbles into larger bubbles because the pressure of the CO₂ within the smaller bubbles is higher than the CO₂ pressure within larger bubbles. This situation is illustrated in Figure 2. In Figure 2, the radius of curvature of the wall of the larger bubble is given by r₁, the radius of curvature of the smaller bubble is given by r₂ and the radius of curvature of the partition (the area common to both bubbles) is given by r₀.

Laplace's equation⁴ describing the vapor pressure above a curved surface states that the pressure inside a curved surface (on the concave side of the interface) is always greater than the pressure outside. From this it follows that Laplace's equation describing the internal pressure within the larger bubble is:

$$P_1 = P_a + \frac{4\gamma}{r_1}$$

In the smaller bubble the internal pressure is given by:

$$P_2 = P_a + \frac{4\gamma}{r_2}$$

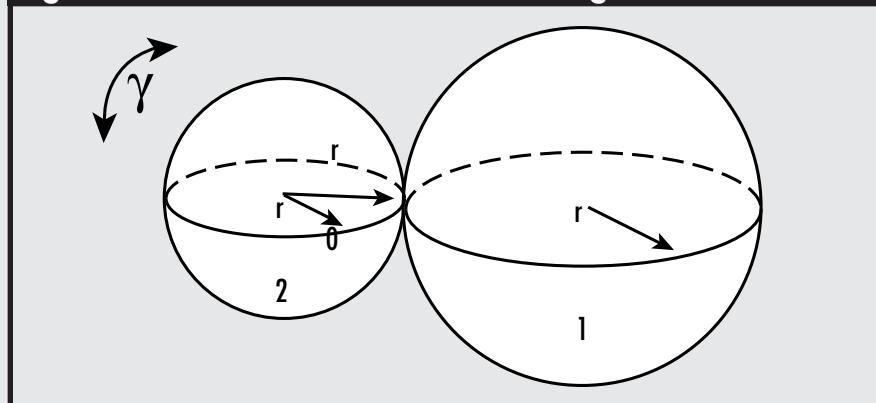
where:

P₁ = internal pressure within the

Table 1: Factors Affecting Initial Beer Foam Formation

Factor	Why Important?
Positive Factors	
Optimal dissolved CO ₂ volume	<ul style="list-style-type: none"> • Too high CO₂ content: gas is released too quickly for adsorption of surface-active colloids • Too little CO₂: if there is not sufficient CO₂ available to release, then it will remain in solution
Turbulence in pouring	Releases CO ₂ and entrains air
Presence of gas release nuclei in the beer	These act as bubble "seeding" points
Higher temperature	Higher temperature means less solubility for CO ₂ , therefore release from solution is more rapid and more extensive
Presence of foam-positive substances in beer	Foam positive substances enhance bubble stability
Negative Factors	
Quiet pouring	Less CO ₂ bubble nucleation and less air entrainment occurs
Temperature too low	Lower temperature means higher solubility for CO ₂ in beer: CO ₂ release from solution is slower and less extensive
Insufficient foam-positive materials in beer	Too few substances that enhance bubble stability

Figure 2: Gas Diffuses From Smaller to Larger Bubbles in Foams



larger bubble

P₂ = internal pressure within the
smaller bubble

P_a = atmospheric pressure

r₁ = radius of curvature of the larger bubble

r₂ = radius of curvature of the
smaller bubble

γ = liquid surface tension

The factor of 4 is due to the fact that the bubbles have two gas-liquid interfaces (internal and external).

In general, the internal pressure difference (ΔP) between the two bubbles is given by:

$$\Delta P = \gamma(1/r_1 + 1/r_2)$$

It is this pressure differential that drives the flow of gas from the smaller bubbles into the larger bubbles. It is also, in part, this

flow of gas that causes the foam system to be unable to ever achieve mechanical equilibrium. To achieve mechanical equilibrium, the septum between the two bubbles must be concave toward the smaller bubble, and its radius of curvature given by:

$$\frac{4\gamma}{r_0} = \frac{4\gamma}{r_2} - \frac{4\gamma}{r_1}$$

or upon rearrangement:

$$r_0 = r_1 r_2 / (r_1 - r_2)$$

where:

r₀ = radius of curvature of the partition
(the area common to both bubbles)

This mechanical equilibrium, if achieved, would remain stable if the septum were impermeable to the gas contained within the bubbles. The septum, however,

Table 2: Factors That Affect Beer Foam Stability

Factor	Why Important?
Positive Factors	
Highly kilned malt	Low proteolytic activity and presence of melanoidins
High wort and beer viscosity	Inhibits "draining" of liquid phase of foam
High hop rate	High concentration of iso-alpha acids
Post-fermentation hopping	High concentration of iso-alpha acids
Presence of positive metal cations (e.g. Mn ⁺² , Al ⁺³ , Ni ⁺²)	Hypothesized to effectively cross-link iso-alpha acids and strengthen bubble film
Low beer pH value	Not a significant stand-alone factor, but affects molecular conformation/geometry of other foam positive compounds
Low beer temperature	Lower temperature increases beer viscosity.
Use of tall narrow glasses	Minimizes exposure to ambient air. Less air exposure means that the CO ₂ can escape from the foam bubble into the ambient air less easily (mass transfer diffusional resistance is increased)
Use of appropriate yeast strain	Minimizes the production of fusel oils
Small bubble size	Smaller bubbles have less interfacial surface area contact with their neighbors. This reduces the rate of gaseous diffusion across the interface from the smaller (higher internal pressure) bubbles to the larger (lower internal pressure) bubbles.
Use of isinglass finings	Additional source of foam-positive polypeptides
Gas mixture containing CO ₂ + N ₂	Small amount of relatively insoluble gas (N ₂) can greatly reduce the permeability of gas through the bubble films. Reduced permeability = slower foam coarsening
Negative Factors	
Over-modified malt	Highly modified malts contain fewer foam positive proteins (e.g. hordeins) and non-starch polysaccharides.
Low kilning temperatures	High proteolytic activity and absence of melanoidins
High level of adjunct	Lowers total nitrogen-containing compounds concentration within beer
Excessive wort boiling	Destroys proteins and shortens chain lengths of organic "foam positive" substances. Leads to overall decreased beer viscosity.
Excessive use of chillproofing enzyme	Can lower beer viscosity through action on foam positive substances.
Excessive use of adsorbents and filter-aids	Can remove foam positive compounds
High fermentation temperature	Excessive fusel oil production during fermentation
Turbulence in beer movements	Foam positive factors are less effective in stabilizing foams after initial foam formation has been disrupted.
Use of old, degraded hops	Lower than desired concentration of iso-alpha-acids
Detergent residues in glasses	Negatively impacts surface tension in beer; bubbles do not exist if surface tension is inadequate
Oil or grease in beer or glasses	Negatively impacts surface tension in beer; bubbles do not exist if surface tension is inadequate
High dispense temperature	Higher temperature decreases beer viscosity.
Short, wide glasses	Increases exposure to ambient air. More air exposure means that the CO ₂ can escape from the foam bubble into the ambient air more easily (mass transfer diffusional resistance is decreased)
Large bubble sizes	Larger bubbles have more interfacial surface area contact with their neighbors. This increases the rate of gaseous diffusion across the interface from the smaller (higher internal pressure) bubbles to the larger (lower internal pressure) bubbles.
Contact of beer in cellar with dead, or dying yeast	Yeast autolysis produces foam negative lipids.
High alcohol content	Weakened bubble films by disruption of bubble surface tension.

is not completely impermeable to the gas within the bubbles. Because of this, mechanical equilibrium is never obtained for very long and the bubble systems within a foam evolve.

Because the septum is not impermeable, CO₂ diffuses, through the bubble interface, from the region of higher pressure into the region of lower pressure. CO₂ from the smaller bubble (with higher pressure) diffuses through the septum into the larger bubble (where the pressure is lower). Small bubbles become smaller and large bubbles become larger (the foam structure "coarsens").

Larger-bubbles-becoming-larger leads to film thinning. This is fairly easy to visualize if you think of the coarsening process as analogous to a balloon being inflated. Assume that each bubble is initially comprised of a very thin film of beer surrounding a bubble of CO₂ gas. As this bubble becomes larger, the same initial beer film volume is forced to "stretch out" around the surface of an ever-increasing volume of CO₂. As the initial beer film volume is forced to cover an ever-increasing surface area, the thickness of the beer film decreases until it reaches a point where the film surface tension forces can no longer contain the required volume of CO₂. The bubble ruptures or "pops," rather like an over-inflated balloon.

The rate at which this film-thinning due to coarsening occurs is dependent upon



numerous factors. Coarsening behavior is greatly affected by the combination of two or more gases of very different solubilities⁵. In brewing, this effect is sometimes exploited by using a mixture of CO₂ and N₂. The ratio of the solubilities of CO₂ and N₂ in water is approximately 50:1. There is also a correspondingly large difference in the permeability of thin films by these two gases. Thin films within beer are much more permeable to CO₂ than to N₂. The total average permeability of a mixture of these gases is given by a mole-fraction weighting of the permeabilities of both gases⁶:

$$k_{\text{avg}}^{-1} = C_{\text{CO}_2} k_{\text{CO}_2}^{-1} + C_{\text{N}_2} k_{\text{N}_2}^{-1}$$

Where:

k_{avg} = average permeability of the gas mixture

k_{CO_2} = permeability of CO₂

k_{N_2} = permeability of N₂

C_{CO_2} = mole fraction of CO₂ present in the gas mixture

C_{N_2} = mole fraction of N₂ present in the gas mixture

From this equation it is apparent that the presence of a small amount of a relatively insoluble gas in the mixture can significantly slow down the coarsening process by reducing the overall rate of gas transfer between smaller, higher-pressure bubbles and larger, lower-pressure bubbles. Lower gas-mixture permeability = slower diffusion

rates between bubbles = slower coarsening = slower film thinning = greater foam stability. Film thinning also occurs due to the influence of gravitational forces. The beer film literally flows downward around the bubble surface due to gravity. If we are willing to accept a physically reasonable approximation (assume a slit is filled with liquid between two vertical walls) and make a simplifying assumption, then this effect is described³ by:

$$\frac{dV}{dt} = \frac{g\rho\omega\delta^3}{12\eta}$$

where:

dV/dt = the rate of the volume of liquid flowing down the walls

g = acceleration due to gravity

r = the difference between the densities of the liquid and the gas around the foam

η = the viscosity of the liquid

d = film thickness

w = width of walls

Note that in the above equation, viscosity is in the denominator and is multiplied by a factor of 12. This illustrates how increasing beer viscosity positively influences foam stability. Increasing beer viscosity decreases the rate at which the beer film flows off of the foam bubbles due to the influence of gravity (i.e. thicker liquids flow more slowly).

Ultimately, when an individual bubble film thickness reaches a critical, minimum-required thickness, the foam bubble ruptures. The rate at which these individual ruptures occur obviously varies within the beer foam depending upon such factors as the specific geometry of the bubble's interface with its neighbors, serving glass geometry, beer viscosity, beer temperature and all of the other factors described in Table 2.

Typically we, as brewers, are not so terribly concerned with the rupture of an individual foam bubble as we are with the overall stability of our foam. It has been shown⁶ that under normal conditions (i.e. no surfactant or lipid residue present within the serving glass) the volume of beer foam present within a glass decays exponentially with time. In a cylindrical serving glass with an area, A, the volume of foam present is

proportional to the height of the foam. This is given by:

$$dV = Adh$$

Assuming that the volume of foam disappearing, dV, in the time between time t and t + Dt is proportional to the volume, V, present at time t:

$$dV = -(V/\tau)dt$$

The theory of exponential decay predicts foam height as a function of time to be given by:

$$h(t) = h(0)e^{-\frac{t}{\tau}}$$

where:

$h(t)$ = foam height at time = t

$h(0)$ = initial foam height at time t = 0

t = time

τ = a constant that is specific to the system in question

e = base of natural logarithms
(≈ 2.71828...)

During the time τ , the amount $1 - 1/e ≈ 63$ percent of the foam disappears. Measured data taken from the referenced source⁶ for three commercially available beers is presented in Figure 2.

In this same reference, the cited author provides the following estimates of the value of τ based upon the experimental measurements:

Commercial Beer	Estimate of τ
Erdinger Weissbier	276 (± 7)
Augustinerbrau Munchen	124 (± 6)
Budweiser Budvar	168 (± 4)

So now that we know all of this, what can we do to brew beers with excellent head retention? Basically, ensure that you provide your beer with as many foam stability "positive factors" as possible:

1. Use cara-pils or add maltodextrin to beer to increase viscosity.
2. Use crystal, chocolate or other kilned malts in your brew to ensure that your beer has low proteolytic activity and that melanoidins are present.
3. Brew all-malt beers; extracts tend to lose foam-positive proteins during processing. Obtain a good, (continued on page 55)



BY CHARLIE PAPAZIAN

Wild Women IPA

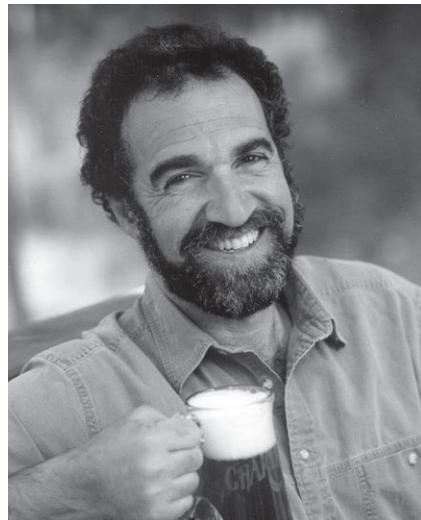
Don't get too excited. This isn't about "my" experience nor is it about my beer. It's about women's perspective on brewing. For years I have known from firsthand encounters that whenever I observe women in charge of homebrewing, it is not only going to result in excellent (and I do mean excellent!) beer, but it will be a most confusing process for anyone of the male species to observe. I knew this before my wife, Sandra, invited three of her chums over to brew beer. I could just as easily have begun this essay with "Holy smokes! What a crew!"

Sandra, the ringleader, already had three brews to her credit. Joyce is the mother of two homebrewers and quoted in *The Complete Joy of Homebrewing*, "Oh, my soul's on fire!" Melissa has never homebrewed, and claims our souvenir "Widmer" pint glass as her favorite glass to knock down our homebrew with while at our home. Sue, an avid homebrewer in the 70s and a 1973 graduate of my second ever homebrew class, is the mother of a homebrewer and award-winning pie maker. This was the lineup.

My lineup for that Sunday afternoon was to watch an NFL playoff game, safely removed from the female process of homebrewing. With foresight, I provided them with a recipe (with a few options) and step-by-step instructions. With added foresight I poured myself a pitcher of ale from the brew house garage and escaped to the comfort of my living room. It was kickoff time!

Their unanimous choice for a beer style was India Pale Ale. Made by several local microbreweries, they all appreciated and knew this style—and Sandra's previous success, an IPA, was currently on tap. They had all arrived and it was their kickoff time, so to speak.

I had mentally barricaded myself from the process, trusting their determination, creativity, imagination and wisdom. But I



I, in my typical male state of mind, figured that I'd by now be greeted with billowing clouds of steam and the sweet smell of wort boiling on the stove in the brew garage.

Instead, I was greeted with four conversations at once, a table full of olive pesto, fig-olive spread, three cheeses, two plates of crackers, avocado dip, salsa, pickled eggs, a huge bowl of tortilla chips, a bowl of spicy pickled okra, cream cheese dip, a bowl of Snyder's sourdough hard pretzels, homemade almond-chocolate toffee and four nearly empty, foam-laced mugs of beer. The stove had not been turned on. Oh yes, the recipe and instructions...they were just getting to that. "Don't bother us right now, we're thinking."

Was that "thinking" or "drinking?" I'm pretty sure they said thinking. I faded back, faded left and took a quick dive up the middle into the avocado dip, grabbed some chips and emerged with my glass full of Sandra's last IPA effort, "Deka IPA."

had a problem. By the middle of the second quarter, I had run out of beer (I'm a slow drinker) and found myself destined to enter the brewsters' lair. It had been nearly one-and-a-half hours since they all had arrived.



Wild bottling (left to right) Suzanne Houck, Sandra Papazian, Joyce Stoner, and Melissa Madden. Ultimate finale...Capping off the final bottle. Now ready for their next batch!

Soon thereafter, during halftime, I peeked out the window and saw Joyce emerge wearing my brewmaster's white brewing coat carrying the grain grinder (Sandra knew not to grind malt in the brew-house) and attach it to the small table under the carport. I thought to myself, it was halftime and they were finally grinding the grain—that's a good sign.

I always knew that women approach brewing uniquely. It is far different than the male experience, if we don't interfere. It is actually quite interesting to secretly observe

the process. It is also comforting that brewing can be approached from an entirely different creative perspective and process and continue to result in fantastic beer. I had no doubt about the fantastic beer, as I had observed the uniquely all-woman process several times during my lifetime. As a guy, I was determined to stay out of the process as much as possible, despite the many invitations to join them. They were having too much fun and if I intruded I know I would have ruined the whole thing—mind you, it was difficult to observe and I could never

imagine sitting there and keeping my mouth shut about what to do next. They were far better off without my "quarterbarking."

The third and fourth quarters were played and the home team won (but not my home team—they blew it in the first round). Darkness had fallen and I eventually returned to the brew garage to see if there were any more delectable snacks left. I opened the door. A rush of cold winter air blew in and now the sensual clouds of steam billowed out and crept along the driveway. There on the floor was an immaculate glass carboy (or was it a cagirl?) neatly filled with 5.5 gallons of IPA wort; wort having the extra blessings of their own handfuls of hops during the final seconds of mystic boil. They were awaiting my promised appearance as the yeast wizard, to bless and inoculate their brewbaby.

There were a few crumbs of cheese, a slice of pickled egg, three broken pretzels and lots of olive-fig (yech!) dip left over. And each had their glasses freshly poured (they were now working on my latest batch of Pilsener Ursos). I heard later that they were going to call me in sooner, but did not want to interrupt me, because they were figuring I was on the Internet looking for a new job (since they had supplanted me in my domain).

The beer fermented joyfully and was bottled as their very own "Wild Women IPA" three weeks later. They've already planned and scheduled their next batch! Football season is a long ways away.

So let's cut the shuck and jive and get on with the recipe.

Wild Women IPA

Malt Extract Recipe

Ingredients for 5 U.S. gallons (19 liters)

- 5.25 lb (2.4 kg) dried light malt extract
- 0.75 lb (340 g) Crystal-10 malt
- 0.25 lb (110 g) Brazilian rapidura or any dark sugar or syrup that has a toffee-intense caramel-mild molasses flavor.
- 1.0 T. Gypsum (calcium sulfate)
- 1.0 oz (28 g) 10% alpha Horizon hop pellets (10 HBU/280 MBU)
- 60 minute boiling

The screenshot shows a Microsoft Internet Explorer window displaying the BrewBay Auctions website. The main header reads "The Ultimate Zymurgist Source buying & selling auctions". Below the header are navigation links for "Auctions Home", "Classifieds Home", "Reverse Auctions", "Instant Purchase", "Hot Items", "New Items", "Last Call", and "Closed". A search bar at the top right contains the placeholder "Keyword - Username - Item Number" with a "Find It" button. Below the search bar is a dropdown menu set to "Post A Traditional Auction" with a "Go" button. To the right of the search area is a "Log In" button. The main content area displays two auction items:

My Brew Collection Software - CD-ROM	Cider & Wine Press	My Brew Collection Software - CD-ROM	Grain Mill - Heavy Duty
\$15.00	\$450.00	\$15.00	\$450.00

Below the items is a "Browse Categories" sidebar with links for Beer, Distillation, Liqueur, Soda, Vinegar, and Wine. To the right is a "Our Links" sidebar with links to various brewing-related sites. A large red banner with the text "BREW BAY FREE Listing & Registration www.BrewBay.com" is overlaid on the bottom left of the page.

The advertisement features the Sierra Nevada logo, which includes a stylized mountain range and the words "SIERRA NEVADA". Below the logo, the text "Great stuff! Quality specialty items, gifts and clothing." is displayed. A woman is shown in a clothing store, looking at a shirt. The text "Visit our store at sierranevada.com or call us at (530) 896-2198" is included, along with the address "SIERRA NEVADA BREWING CO., CHICO, CA".

- 1.25 oz. (36 g) 7.5% alpha Amarillo whole hops (9.4 HBU/262 MBU)
60 minute boiling
- 1.5 oz.(42 g) Cascade whole hops,
30 minute boil
- 1.5 oz.(42 g) Cascade whole hops,
2 minute steep
- Unknown extra handfuls Cascade whole hops, 1 minute steep
- 0.25 tsp powdered Irish moss
- 0.75 cup (180 ml) corn sugar (priming bottles) or 0.33 cups (80 ml) corn sugar for kegging
- English or American ale yeast
- Target Original Gravity:
1.044 – 1.048 (11-12 B)
 - Approximate Final Gravity:
1.010 – 1.012 (2.5-3 B)
 - IBU: About 82
 - Approximate color: 5 SRM (10 EBC)
 - Alcohol: 4.6 % by volume

Lay out the table with lots of great snacking food. Pour yourself a tall mug of your favorite homebrew. Sit down and enjoy the food. Talk a lot. Talk about what has happened with your life over the last week. Enjoy the company of your friends.

Place crushed crystal malt in 2 gallons (7.6 L) of 150° F (68° C) water and let steep for 30 minutes. Then strain out (and rinse with 3 quarts or 3 liters of hot water) and discard the crushed grains reserving the approximately 2.5 gallons (9.5 L) of liquid to which you will now add malt extract, gypsum and “60 minute” hops. Heat to boiling. After 30 minutes of boiling add the “30 minute” hops. After another 20 minutes of boiling add Irish moss. After a final 10 minutes of boiling add the “steeping” Cascade hops and turn off the heat.

Immerse the covered pot of wort in a cold water bath and let sit for 20 minutes or the time it takes to have a couple of homebrews and talk some more.

Then strain out and sparge hops and direct the hot wort into a sanitized fermenter to which 2.5 gallons (9.5 L) of cold water has been added. If necessary add cold water to achieve a 5-gallon (19 L) batch size.

Pitch the yeast when temperature of wort is about 70° F (21° C). Ferment at about 70° F for about five days or when fermentation shows signs of calm and stopping. Then rack from your primary to a secondary fermenter and cool to about 55° F (13° C) if possible and “cellar” for about a week.

Prime with sugar and bottle or keg when complete.

Charlie Papazian is founding president of the Association of Brewers.

Correction

Charlie Papazian's recipe for Heaven Waits Barley Wine Ale in the March/April issue of **Zymurgy** was missing the amount and type of extract for the Partial Mash and Malt Extract version.

Here is the correct information:

- 6.0 lb. (2.72 kg) light dried malt extract
or
7.25 lb. (3.3 kg) light malt extract syrup

HOMEBREW BITTERING UNITS (HBUs) are a measure of the total amount of bitterness in a given volume of beer. Homebrew Bittering Units can easily be calculated by multiplying the percent of alpha acid in the hops by the number of ounces. For example, if 2 ounces of Northern Brewer hops (9 percent alpha acid) and 3 ounces of Cascade hops (5 percent alpha acid) were used in a 10-gallon batch, the total amount of bittering units would be 33: (2 x 9) + (3 x 5) = 18 + 15. Bittering units per gallon would be 3.3 in a 10-gallon batch or 6.6 in a five-gallon batch, so it is important to note volumes whenever expressing bittering units.

INTERNATIONAL BITTERNESS UNITS (IBUs) are a measure of the bitterness of a beer in parts per million (ppm), or milligrams per liter (mg/L) of alpha acids. You can estimate the IBUs in your beer by using the following formula:

$$\text{IBU} = \frac{\text{ounces of hops} \times \% \text{ alpha acid of hop} \times \% \text{ utilization}}{\text{gallons of wort} \times 1.34}$$

Percent utilization varies because of wort gravity, boiling time, wort volume and other factors. Homebrewers get about 25 percent utilization for a full one-hour boil, about 15 percent for a 30-minute boil and about 5 percent for a 15-minute boil. As an example, 1 ounce of 6 percent alpha acid hops in five gallons of wort boiled for one hour would produce a beer with 22 IBUs:

$$\text{IBU} = \frac{1 \times 6 \times 25}{5 \times 1.34} = 22 \text{ IBUs.}$$

METRIC BITTERNESS UNITS (MBUs) are equal to the number of grams of hops multiplied by the percent alpha acid.

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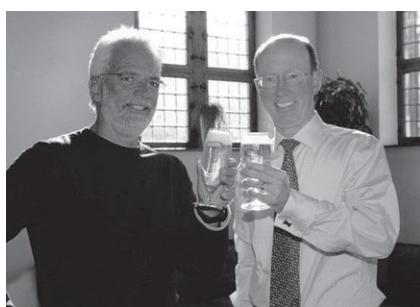
The world's fourth and fifth largest brewing companies have agreed to a merger that will create the world's No. 1 beer producer.

Belgium's Interbrew has agreed to buy a majority stake in Brazil's AmBev in an \$11.5 billion deal to create the world's biggest brewer by volume, surpassing U.S. rival Anheuser-Busch.

Interbrew is the brewer of brands ranging from lagers such as Stella Artois, Beck's and Rolling Rock, to British ales such as Bass and Boddingtons, to Belgian ales such as Leffe and Hoegarten. Under the deal, Interbrew would own 57 percent of AmBev, maker of such brands as Brahma, Skol and Bohemia.

The new group, which will produce 15 percent of the world's beer, will be called InterbrewAmBev, or InterBev for short. Anxious to avoid any negative implications that could accompany a sale, AmBev officials declined to characterize the complex deal as anything other than an "alliance" or share swap.

Under discussion since October, the deal will give Interbrew access to the quick-growing South American market, where AmBev is the dominant player. AmBev will in turn absorb Interbrew's North American operations and launch its brands globally.



John F. Brock (CEO of Interbrew) with Marcel H. Telles (co-chair of AmBev).

"The alliance...will have operations in 32 countries, 70,000 employees and about \$11 billion in annual sales," said AmBev's co-president of the board, Victorio De Marchi.

Drink This Beer Stone Cold

Stone Cold Steve Austin, one of the leading entertainers in professional wrestling, is thinking about body-slamming the U.S. beer market with his own brew produced in Rochester, N.Y. at the home of Genesee Cream Ale.

High Falls Brewing Co. is working with Austin—who has a reputation for downing cold ones during matches—to develop his brand.

"He was here in January and he did taste test a number of new brews that we're working on in development with him," High Falls chief executive officer Tom Hubbard said. "We're very excited about the possibilities."

Austin, the marquee name for World Wrestling Entertainment Inc., has explored opportunities for endorsements and wants to have his own beer, said John Sohigian, a WWE vice president of partnership marketing.

"We're not approaching it as a gimmick beer, we're approaching it as a legitimate brand," he said.

Austin, whose merchandise accounted for \$40 million in sales three years ago, visited the brewery for the first time in November, a day after he invited some High Falls executives to a wrestling show in Cleveland.

He and WWE CEO Vince McMahon toured the facility, and Hubbard learned that Austin was a beer aficionado who was interested in the entire brewing process.

Local Hops Star in New York Beer

With the release this spring of Ithaca Beer Co.'s Double IPA, New York's return to the ranks of hop producing states reach-

es a new milestone. Ithaca Double IPA is the first post-Prohibition commercial beer brewed entirely with New York-grown hops.

Once the leading hop producing state in the country, New York's hop glory days ended with the triple punch of a hop blight, Prohibition and competition from the Northwest.

Over the last few years, a small but dedicated group has worked to reinvigorate New York's hops. That group, the Northeast Hop Alliance, has had input from brewers, farmers and experts from places such as Cornell University.

There have been limited success stories already. Wagner Valley Brewing Co. in Lodi, Seneca County, introduced an India Pale Ale last year that uses New York-grown hops along with hops grown elsewhere. The Syracuse Suds Factory in Armory Square has used local hops in its Pale Ale.

Ithaca Beer Co. owner Dan Mitchell has been working on the idea since he wrote a paper on Upstate's hop industry several years go for a class he took at Cornell. He has been aided in his efforts by Duncan Hilchey, an agricultural development specialist at Cornell who did a marketing study on New York's hop industry.

Mitchell opened his microbrewery on Route 13 across from the entrance to Buttermilk Falls State Park in 1998 and sells his beer, including an Amber Ale and a Nut Brown Ale, across upstate New York.

He's been itching to make a beer using New York hops, but waited until he was sure he could use only New York hops.

"We wanted to make a 100 percent New York hop beer because that will help give it an identity," Mitchell said. "We're really hoping this will spur the industry."

Ithaca buys its hops from Rick Pederson, the same Ontario County grower who supplies Wagner Valley. Pederson's hops are

locally grown, but they've been cultivated from West Coast stock and are classified with West Coast varietal names. Double IPA uses Cascade, Willamette and Mount Hood hops.

Mitchell is hoping his beer will spur other brewers to give New York hops a try, so together they can build a market for local hop growers. The hop alliance is also hoping to convince state lawmakers to provide seed money to help get the hop industry growing.

"If I can walk into a (legislator's) office and show a 100 percent New York product, then I think we can get a response," Mitchell said. "I'm hoping that we're about to start something here."

Wyeast to launch Activator

Wyeast Laboratories Inc. will up the ante on pitchable yeast packs with the introduction of the Activator™ Pure Pitchable Yeast, a completely new look for an industry classic.

The Activator has an average of 100 billion cells of pure yeast ready to pitch, plus nutrients. The Activator provides the pitching rate recommended by professionals; double the active yeast cells in Wyeast's current "XL" 125 milliliter pack and significantly more than any other product on the market.

The Activator "Smack Pack" is the only package design that allows the brewer to activate the yeast prior to using. When activated, yeast metabolism begins, providing proof of viable active yeast ready for brewing.

The Activator Smack Pack from Wyeast Laboratories will be available soon at homebrew shops everywhere. For more information and to locate a homebrew shop near you visit www.wyeastlab.com or call 541-354-1335.

Cheers to Beerdrinker of the Year



Raise a pint to John Marioni, 40, of Bothell, Wash., who was crowned Beerdrinker of the Year at Wynkoop Brewing Co. Marioni didn't out drink his two competitors in the two-hour finale at the Denver brewpub. He won because, in the end, he was the finalist the 11 celebrity judges would most like to hoist a pint with.

Each year since 1997, the brewery has invited three finalists to town to duke it out for the rights to call themselves the top beer drinker in the land—as well as free beer for life at the Wynkoop, a \$100 bar tab at their local pub and a T-shirt.

Judges, who included AHA founder Charlie Papazian and AHA director Paul Gatz, chose Marioni over Tom Ciccarelli, 47, from Kansas City, Mo., and Richard Pedretti-Allen, 45, from McKinney, Texas

after a tongue-in-cheek 13-round competition that included "beer listening," beer trivia and some personal revelations about the finalists' beer drinking accomplishments.

Marioni confessed that "I have not made a decision in my adult life without first considering its impact on my ability to purchase or consume beer." He added, "I got married because of beer. Both of my children were conceived because of a whole lot of beer."

In his opening statement, he likened beer to religion, and led a glass-raised prayer to beer: "Lead us not into incarceration, but deliver us from light beer."

Marioni was a former finalist, as was Ciccarelli. Back for the third time, Ciccarelli brought a cheering section, the rowdy, sign-waving "Drunks for Ciccarelli."

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(Ray Daniels, *Zymurgy* Nov/Dec 2003)

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Near the end of the contest, Wynkoop's co-founder and owner, Denver mayor John Hickenlooper, showed up. Before a jury of judges in black robes and faux powdered wigs, the mayor said he had come to make sure parliamentary law was strictly enforced.

"We collected bribes," said one of the judges. "That's what I wanted to make sure of," answered the mayor.

Put Down that Beer, Mr. Lewis

Kansas City's Boulevard Brewing Co. had a great idea for an ad campaign based on the bicentennial of the Lewis and Clark expedition. The brewery had metal signs made with a takeoff on the familiar silhouettes of the explorers seen on road signs in states the pair traveled through. But in the Boulevard version, instead of pointing west, one of the explorers was holding a bottle of Boulevard Pale Ale.

The sign said: "To those who make maps, not follow them" and "Boulevard toasts the bicentennial of the Lewis and Clark expedition."

The only hitch is the National Park Service holds the copyright to the original image and objected to its use in advertising a product.



So Boulevard was forced to scrap \$15,000 worth of metal signs that were to have been sent to accounts in several Mid-western states.

"Everybody who had seen our graphic had been so excited," Bob Sullivan, a Boulevard Brewing vice president, told the *Kansas City Star*. "But Boulevard is not going to partake in any kind of use that is inappropriate or unauthorized."

According to the *Star*, the advertising agency behind the campaign, CHRW of Kansas City, thought it had performed due diligence by purchasing \$3,000 worth of images from Corbis, the photo archive. Among the images was one of those Lewis and Clark road signs.

Richard Williams of the National Park Service in Omaha, Neb., disagreed. "Just because somebody purchased the image from a Web page doesn't mean they own the image," he said. The logo is a federal insignia, protected by copyright law and federal statute. Any commercial representation of it would suggest federal government endorsement of a product, Williams said.

So CHRW is developing a new Lewis and Clark likeness for the Boulevard campaign. And Boulevard will honor its pledge to offer financial support to their local Lewis and Clark bicentennial observance in July.

Jim Parker is editor-in-chief of *Zymurgy*. 

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Wow! It was a tough call choosing which recipes went into this edition of Winners Circle. Of the five scheduled categories for May/June, we just happened to have two brewers with entries in more than one category. Pete Devaris of the Great Northern Brewers of Anchorage, Alaska was a bronze medal winner in both the Strong Belgian Ale and Lambic categories. Steve Piatz of the Minnesota Homebrewers Association won a silver in Lambic and a bronze in Traditional Mead.

It is certainly not unheard of to have one brewer enter five, 10, even 20 beers in any given NHC, but as veteran brewers win a greater and greater percentage of what they've entered, competition for that Ninkasi award becomes intense. And not surprisingly, these brewers usually represent a brewing club looking to win the highly coveted Homebrew Club of the Year award. As these winners fine-tune their recipes from competition to competition, rest assured that you can benefit from their victories, and with the judges' comments to guide you even further, Winners Circle can make you a winner in the NHC too. So get out there and brew!

Light Ale



SILVER MEDAL

AHA 2003 NATIONAL HOMEBREW COMPETITION

Jeff Oberlin, Friendswood, Texas; Bay Area

Mashtronauts

"Mielikki Light Ale"

Blonde Ale

Ingredients for 7 U.S. gallons (26.5 L)

10.0 lb (4.54 kg) 2-row pale malt
 2.0 lb (0.90 kg) wheat malt
 1.0 lb (0.45 lb) light Munich malt
 1.0 oz (28 g) Saaz pellet hops (60 min)
 0.5 oz (14 g) Saaz pellet hops (10 min)
 0.5 oz (14 g) Saaz pellet hops (0 min)
 White Labs WLP001 California ale yeast
 1 cup corn sugar, to prime

- Boiling Time: 60 min
- Original specific gravity: 1.052
- Final specific gravity: 1.009
- Primary fermentation: 7 days at 65° F (18° C)
- Secondary fermentation: 14 days at 60° F (16° C)

Brewer's Specifics

Mash grains at 152° F (67° C) for 60 minutes.

Judges' Comments

"A very clean, soundly brewed beer with an extremely light malt and hop character. Light apple esters add interest—only suggestion would be to back off on the bitterness to match the malt and hop flavor palate."

"An excellent beer with fine malt and hop characteristics. Could have more fruity ale character. Less carbonation would be nice. Well done."

Belgian Strong Ale



BRONZE MEDAL

AHA 2003 NATIONAL HOMEBREW COMPETITION

Pete Devaris, Anchorage, Alaska; The Great Northern Brewers

"Walkin' with the Man"

Belgian Strong Golden Ale

Ingredients for 5 U.S. gallons (19 L)

10.0 lb (4.54 kg) Belgian pale malt
 1.0 lb (0.45 kg) clear Belgian candi sugar
 0.5 lb (0.23 kg) Belgian wheat malt
 1.0 oz (28 g) Northern Brewer whole hops (60 min)
 1.0 oz (28 g) East Kent Golding whole hops (30 min)
 2000 mL Saxon Belgian Clone ale yeast
 2.0 tsp Wyeast yeast nutrient
 Belgian candi sugar (to prime)

- Boiling Time: 90 min
- Original specific gravity: 1.070
- Final specific gravity: 1.003
- Primary fermentation: 12 days at 68° F (20° C) in glass
- Secondary fermentation: 20 days at 68° F (20° C) in glass

Brewer's Specifics

Mash grains at 154° F (68° C) for 60 minutes.

Judges' Comments

"This is a nicely spicy (specifically, peppery) brew that is quite flavorful and satisfying. I would love to see more variety in the grain bill to showcase malt as well as the spiciness that is so nicely expressed here."

"Would like to see a little more spiciness out of this—higher alcohols detract."

Herb and Spice Beer



SILVER MEDAL

AHA 2003 NATIONAL HOMEBREW COMPETITION

Greg Wondga, Edmonton, Alberta; Edmonton

Homebrewers Guild

"Weddyn Ale"

Spiced Ale

Ingredients for 5 U.S. gal (19 L)

- 12.0 lb (5.44 kg) two-row pale malt
- 2.0 lb (0.9 kg) red caramel malt
- 0.47 oz (13 g) Centennial hops,
10.9% alpha acid (60 min)
- 0.5 oz (14 g) Cascade hops,
9.4% alpha acid (60 min)
- 0.62 oz (17.5 g) Cascade hops,
7.1% alpha acid (20 min)
- 0.71 oz (20 g) Goldings hops,
5.9% alpha acid (20 min)
- 0.36 oz (10 g) cardamom (20 min)
- 0.36 oz (10 g) coriander (20 min)
- 0.64 oz (18 g) ginger (20 min)
- 0.21 oz (6 g) orange zest (20 min)
Wyeast No. 1028 London ale
yeast (1 liter starter)
- 0.66 cup (156 g) corn sugar to prime
- Original specific gravity: 1.070
- Final specific gravity: 1.022
- Boiling time: 80 minutes
- Primary fermentation: 16 days at
54° F (12° C) in glass
- Secondary fermentation: 14 days
at 54° F (12° C) in glass

Brewer's Specifics

Mash at 154° F (68° C) and hold for 60 minutes. Mash out at 165° F (75° C). Sparge at 176° F (80° C). Add spices 20 minutes before end of boil.

Judges' Comments

"Very drinkable, well balanced, but base beer not specified."

"Really liked this beer, but must specify style. Excellent job of magnifying and balancing spices."

"Base beer appears to be a light ale. Spices are balanced. Very nice beer. Drinkable. No flaws. Good work! But, you must identify the base beer for this category."

Traditional Mead



SILVER MEDAL

AHA 2003 NATIONAL HOMEBREW COMPETITION

Rich and Ellen Janevicius, Naperville, Ill.

"How About A Nice Hawaiian Punch"

Sparkling Sweet Traditional Mead

Ingredients for 5 U.S. gal (19 L)

- 12.0 lb (5.44 kg) Kiawe honey
- 1.0 lb (0.45 kg) Christmas berry honey
- 1.0 T gypsum (in boil)
- 2.0 tsp citric acid (in boil)
- 0.25 oz (7 g) Irish moss (in boil)
- 3.0 tsp yeast nutrient
White Labs WLP720 Sweet Mead
yeast
- 0.5 cup corn sugar, to prime
- 3.0 tsp Sparkalloid, to clarify

- Original specific gravity: 1.104
- Final specific gravity: 1.025
- Boiling time: 15 min
- Primary fermentation: 21 days
at 65° F (18° C) in glass
- Secondary fermentation: 21 days
at 65° F (18° C) in glass
- Tertiary fermentation: 382 days at
65° F (18° C) in glass

Brewer's Specifics

Boil 2.5 gallons (9.46 L) water, add honey and nutrients, simmer 15 minutes. Skim foam. Remove from heat, add 3 gallons (11.35 L) chilled water. When temperature drops below 80° F (27° C) transfer to carboy and pitch yeast. After fermentation is complete, add Sparkalloid.

Judges' Comments

"Well presented mead. Perfectly sparkling. Very good expression of honey. Acid/honey balance leans to the sweet side."

"Very good mead. Nice honey flavor. Balance is sweet, but not excessively so."

Belgian Lambic



SILVER MEDAL

AHA 2003 NATIONAL HOMEBREW COMPETITION

Steve Piatz, Eagan, Minn.; Minnesota Homebrewers Association

"Old Rhubarb House"

Straight, Unblended Lambic-Style Ale

Ingredients for 6 U.S. gallons (22.7 L)

- 3.0 lb (1.36 kg) dry wheat malt extract
- 3.0 lb (1.36 kg) light dry malt extract
- 3.5 oz (100 g) malto-dextrin powder
- 4.25 oz (120 g) aged whole hops
(90 min)
- 1 T. Fermax yeast nutrient
- Coopers Dry Ale Yeast
- BrewTek Pedio culture
- BrewTeck Brett culture

A proprietary blend of dregs from bottles of:

- Boon Faro
- Rodenbach Flanders
- Boon Marriage Parafait
- Cantillon Kriek
- Cantillon Gueuze
- Cantillon Rose de Gambrinus
- Rodenbach Grand Cru
- Hanssens Gueuze
- Hannsens Kriek
- Giardin Gueuze
- De Cam Gueuze
- Oud Beersel

(on a small piece of oak—approximately 1x3x6 inches—that has been transferred from batch to batch to be a "home" for some of the micro-organisms.)

- 3.35 oz (95 g) corn sugar (to prime)

- Original specific gravity: 1.057
- Final specific gravity: Unknown
- Primary fermentation: 4 years in plastic, various temperatures

Brewer's Specifics

Piatz notes: "Besides all the above strange stuff, I also ran the hot wort straight from the kettle into the plastic bucket fermenter and left the lid off the bucket while it was in the corner of the kitchen for the first 24 hours. The theory here was to let some enteric organisms get an early start in the beer. After a day I placed the cover on the

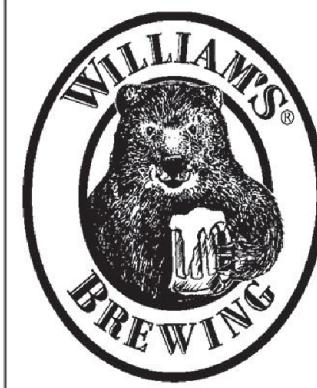
bucket but I didn't pitch Coopers Dry Ale yeast until after approximately 48 hours. After a few more days I pitched some wort from the pure strain starters as well as some of the slurry from the starter made from the dregs from all the commercial beers—this starter is periodically fed sterile wort."

Judges' Comments

"Sourness first with that barnyard flavor. Some citrus flavors with nice complexity. Very good example of style."

"Pretty decent example, and may age well. Right now sourness predominates; try souring at end of fermentation; very good woody character."

Amahl Turczyn Scheppach is a veteran commercial and home brewer and brewing author who resides in Lafayette, Colo.



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For Geeks Only (from page 46)

full-rolling boil for 1 to 1.5 hours. This ensures that iso-humulones are properly isomerized and extracted from hops. Any boil much longer than this will begin to destroy long-chain, viscosity-building compounds within the beer.

4. Use sufficient hops to provide iso-humulones in your beer. Iso-humulones are foam positive materials.

5. Use wheat malt, flaked wheat or flaked barley in your beer. These substances are high in foam-positive materials.

6. Ensure that you have an adequate protein rest in the mash. This allows proteolytic enzymes to break down the large proteins into albumin and smaller fractions and contributes to the total nitrogen content in the beer.

7. Do not oversparge. Oversparging can result in the extraction of foam-negative compounds from the malt.

8. Ferment at lower temperatures using appropriate yeasts to minimize fusel oil production.

9. Ensure that your beer remains uncontaminated by lipids or surfactants. These types of compounds negatively impact surface tension.

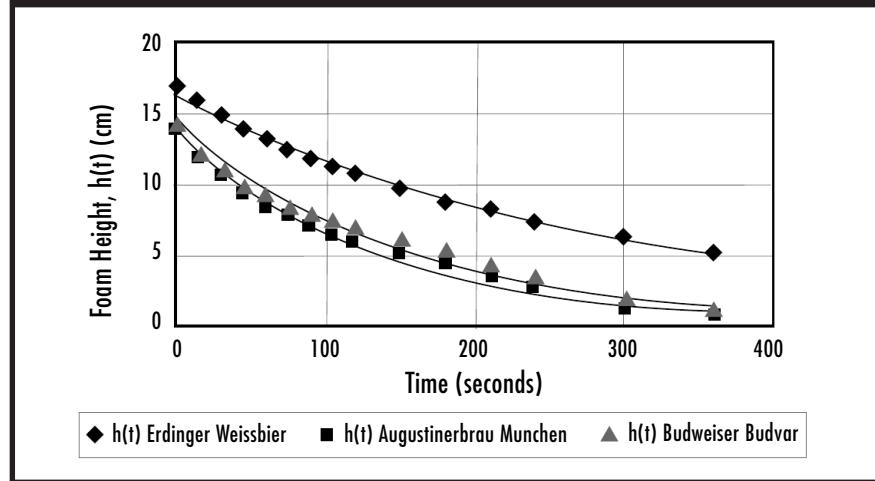
10. Ensure that the carbonation level in the finished beer is optimal.

11. Carbonate finished beer with a CO₂/N₂ mixture. This will lengthen foam life by decreasing rate of foam coarsening.

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- Chris Bible is a chemical engineer (B.S., M.S.) currently working as the engineering and quality manager for J.M. Huber Corporation's Etowah, Tenn. facility. He lives in Knoxville with his wife and son and has been homebrewing for five years. Chris especially enjoys making and drinking stouts and porters.**

Figure 3: Height of Foam for Different Beers as a Function of Time



Going to Extremes (from page 27)

other factors. Not all of them are stable in beer. Some types may throw a haze or lose color as the beer ages. Class III caramels, which are made from invert sugar cooked together with an inorganic source of nitrogen, are the type used commercially in beer.

Unfortunately, these sugar syrups are not available in the homebrew market. The good news is that you can make caramel yourself by cooking sugar until the desired color is reached. Use a heavy saucpan or skillet for this. Mix white sugar with a small amount of water, and apply medium heat. Once a smooth syrup has been formed, do not stir, as this encourages crystallization, which you do not want. The water will slowly boil away and the sugar will start to darken. Once the color change happens, it goes fast, so be prepared to pull it off the heat quickly. You can pour it into a bowl lined with nonstick foil and let it cool, or add cold water carefully (watch for spattering) to the pan to stop the browning process and redissolve the sugar. Or you can just pour it right into your kettle of wort. In my limited experience with this type of cooked sugar in a homebrew setting, stability has not been a big problem. But, for something more in the class III category, I would suggest starting with Lyle's Golden Syrup (an invert sugar) and cooking it with a small quantity (1 percent by weight) of ammonium phosphate, commonly sold as a yeast nutrient. Caramel produced this way has more of a true caramel flavor, as opposed to the toasted marshmallow notes of straight sucrose.

Honey may also be cooked until some color develops, giving it a rich candy-like quality. This delicious material is good in darker honey beers, or to add depth to a malt and honey-based bracket.

Malt extract may also be cooked down until it darkens, with equally delicious but different results. You get a big load of Maillard reaction products, more malty and complex than cooked sugar flavors. There is historical precedence for this both in England and the Continent. Darkly cooked wort was used as a colorant in porter around 1800, after brown malt was abandoned due to its inefficiency and high cost, but before the method of roasting malt to a palatable black was worked out in 1817. A similar cooked

sugar product called Porterine was used to brew porter in nineteenth-century America.

In Germany, a brewmaster's trick sometimes employed was to preheat the brew kettle before the first wort was run in, causing caramelization—a sort of instant decoction as far as the flavor goes. This can be done in the homebrewery, but you are better off putting a pint or so of the thick first runnings in the kettle and boiling it down until it becomes thicker and begins to develop some color. Then you can flood additional wort on top of it and stop the process.

Danziger Jopenbier

Danzig is the German name for the city of Gdansk, now in Poland, but for a long time it was a part of Germany, as was the rest of Prussia. Its beers have a longstanding reputation for strength. Doctor Knaust reported in 1614 that the barley beer of Danzig, "is the queen and surpasses all other red beers. Although there are in Prussia many delicious and good beers, the Danzig beers overtops them all; and in fact, there is not found in the whole of Germany a stronger beer among the barley beers, a thing which cannot be denied, no matter what else may be claimed." And boy, this is a strange one!

According to observers in about 1900, this was a beer brewed with conventional ingredients and processes, except for the massive gravity that was achieved by large amounts of malt, and a boil that lasted ten hours or longer. By the time the wort was turned out, the gravity was at a syrupy 45 to 55 °P! The beer was hopped at a rate of 7 to 8 gallons per kilogram (0.13 ounces per pound) of malt. Then things get really weird. Fermentation was said to have taken place in cellars completely covered with mold, which was carefully guarded against cleaning. No culture yeast was pitched, and the beer went through a five-stage process completely by spontaneous means. Brewing was allowed only between October and April, fermentation in summer having been considered too vigorous.

First, a thin white film of mold formed, then changed to bluish green, which accounted for the first two weeks. Then, bubbling gas started coming up from the wort and broke up the film, which, in turn,

further sped up the fermentation. This proceeded vigorously for ten to fourteen days, and provisions needed to be made to retain and return the overflow to the fermenter. In the third phase, the yeast kind of settled out. Then another film formed on the surface—white at first, then dark brown, then at last green, growing and thickening, folding itself up into great ridges as it floated on the surface.

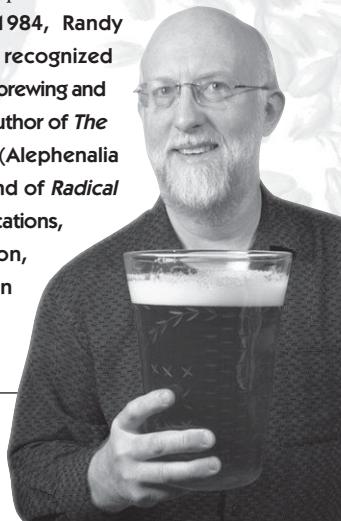
An important part of this ugly fermentation seems to have been the development of certain oxidized flavors that are normally associated with port or sherry, caused by yeast that lives on the surface of the liquid. At this point it's two or three months old. Aging continues for up to a year, and at the end it is slowly forced through a cloth filter bag and placed into 13-liter crocks or jugs.

Lager, ale and sherry-type yeasts were present, as well as Penicillium and Mucor molds, lactobacillus, and possibly other microorganisms. A real zoo. Alcohol was very low, at 2.3 to 7 percent; lactic acid was fairly high (about like lambic) at 2 percent, although given the incredible amount of residual sweetness, it couldn't have been too assertive.

Jopenbier was widely exported to as far away as England, where it was used as a seasoning for soups and gravies. In Germany it was a popular additive to normal beer as a flavor booster. As far as I can tell, it is no longer made anywhere today, which is a shame. It really was a unique product.

All of this extreme brewing is just the tip of the iceberg. The history of brewing is vast and diverse, full to the brim with startling—and often delicious—oddities. And of course, we American homebrewers are adding our own demented touches, making beer a delightful playground for brewer and drinker alike. Jump in!

A brewer since 1984, Randy Mosher is a nationally recognized writer and authority on brewing and beer styles. He is the author of *The Brewer's Companion*, (Alephoria Publications, 1994), and of *Radical Brewing* (Brewers Publications, May, 2004). In addition, Mosher consults on package design and branding. 



Anatomy of the Iron Mash (*from page 35*) their various keg configurations in cooling vessels. It was finally time to sample the fruits of the Iron Mash event. The judging was complete and the winning beer had been selected, known only to the Iron Mash organizers.

A couple hours into the party it was time for Lazy Sumo to announce the winners. Third place went to the Stein Meis-

ters. Second place went to the Old Soldiers. And the winner of the first Iron Mash was... drum roll please: the Dead Presidents, the only extract brewers. Two large handsomely engraved metal spoons were presented to the winners along with their score sheets. It was the first time my beer widow/wife witnessed me winning an award.

Events like these are what make belonging to a homebrew club so cool. The awards party was another smashing success and as the crowd filtered out and the sun went down, Clint began breaking out Belgian beers. I don't remember the rest, but I did get a ride home from Joe Johnson, proving he was not a bitter contestant.

What does this prove? It suggests that in such an event the margin for error is

greater when brewing a partial mash/extract batch than an all-grain batch. Although problems did occur when fermenting our batch these challenges were overcome and detected by both BJCP judges, but were not terminal. One thing is for sure, the extract brewer is alive and well—right Charlie?—and will continue to be a force to be reckoned with today, tomorrow and into the future. Dead Presidents will be defending their spoons as the 2004 version of the Iron Mash Brew-In rolls around.

John Shank is former president of the Nethoppers. He wishes to thank the Wine Maker Shop of Fort Worth and Homebrew Headquarters of Richardson for helping sponsor the Iron Mash, as well as the efforts of all those involved who made it a (s)mashing success.



Dead Presidents' Vanilla Porter Extract Recipe

6.0 lb light dry malt extract
0.5 lb Dark Crystal
0.5 lb Chocolate Malt
2.0 oz. Roast Malt
1.0 oz (28 g) Fuggles hops,
5.1% alpha acid (45 min)
0.5 oz (14 g) Tettnang hops,
3.7% alpha acid (25 min)
0.5 oz (14 g) Tettnang hops,
3.7% alpha acid (10 min)
1 vanilla bean (at knockout)
1 T. Irish moss (15 min)
English ale yeast from starter

Brewer's Specifics

Steep specialty grains in 5 gallons 160° F filtered water for 30 minutes. Remove grains, enact primitive sparging technique (pour approximately 2 quarts 160° F wort over grain bag), bring near boil, add malt extract. Boil 60 minutes. Allow brew pot to settle for 10 minutes, cool to 70° F in 30 minutes with wort chiller/ice bath.

- Original Gravity: 1.054
- Primary Fermentation: 1 week at 55° F (it blew up in 2 days). Moved to plastic.
- Secondary Fermentation: 3 weeks at 55° F.

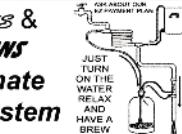
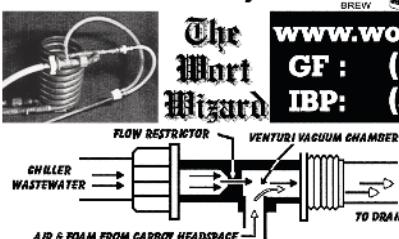
(Note: refrigerator door left cracked open during secondary fermentation by unwary houseguest while Rob was out of town. We were afraid our immaculate creation had been ruined by high temperatures. It was not.)

Judges' Comments

"Good color and clarity—great head retention."
"Lacks vanilla expression and roast malt flavors."
"Creamy medium body with high carbonation."
"I like this one."

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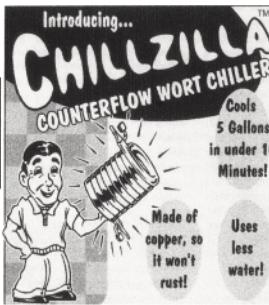
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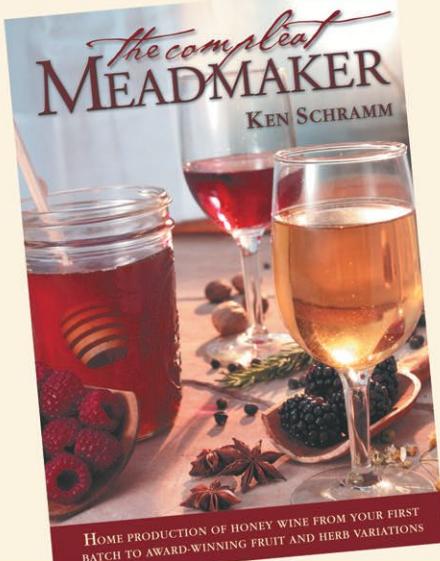
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*Cover 2 is the inside front cover. Cover 3 is the inside back cover. Cover 4 is the outside back cover.

The Next Generation of Homebrewers

I am a second-generation homebrewer. My father began brewing shortly after I moved out on my own (coincidence? I think not). He went to the local community college and took an evening class on brewing with one of his friends. Soon he was brewing every other week and having a great time doing it.

I liked craft brews and what he had made so far. I approached him and asked if he could make Guinness, to which he replied, "We can make something even better." He showed me the National Homebrew Competition stout recipe from a 1995 *Zymurgy* and sent me on a mission to the local brew shop. We brewed and it was the best beer I had ever had, not to mention the first time we had really spent time together since I moved out.

As most teenagers do, I got my wings, flew off and didn't look back. Brewing beer felt like building a model car or rocket when I was a young boy. We had something to talk about, something that we could share with each other. I was just as excited to spend time with my dad as I was making great beer, and I learned a lot from him.

One thing that I have learned after a few years of homebrewing on my own and from my father is that brewing requires patience, not only during the brew session, but also during fermentation and conditioning. I was slow to learn this valuable lesson. I was always looking for a way to make beer faster and easier. In fact, I made an all-grain beer in two hours. The beer went from brew to bottle in eight days and I entered it in a competition expecting to win. I was somewhat shocked when the judge's comments were, "Tastes like it was drawn right from the primary fermenter." I saved some of that beer and a tried a bottle a month later and it was much better. Because of that experience, I became very critical of every aspect of my brewing, which was a mixed blessing.



Father and son Bruce and Chris Testerman.

**I can see why the monks
were drawn to brewing. It
is a magical connection to
man, nature and the
unknown.**

Once I started all-graining and making beer that I thought tasted better than commercial beer, it went to my head. I would go to a beer tasting or event and bad-mouth commercial beers. I would comment negatively about other homebrewers' beer as well, until it happened to me. I handed a respected member of a local brew club one of my finest wheat beers. His lips curled up as he choked down the beer like cough medicine. His eyebrows collided and he revealed his teeth as he exhaled. "Tastes like Lysol." I was crushed.

It was a slap in the face, a wake-up call that hurt enough to really take notice. I realized that I had no idea what I was talking about when it came to beer (neither did

the guy who tasted my beer, but that's not important). Sure, I could tell if a beer was infected or bad, but I had no idea what "to style" meant or which hops, grains or yeast were used in making a particular beer. I had no right to analyze or criticize someone else's creation, and I didn't have the basic tools to make a judgment even if they wanted it.

My "awakening" led me to seek more knowledge about beer. Not just the process, but the history, the raw ingredients, the styles and the people who love it. I started reading articles, posting on message boards and seeking answers to my questions. As I looked deeper into brewing, I began to taste the differences in commercial beer, as well as my own. I gained respect for everyone who contributes to the process of making beer.

I am a part of a community with a long history and far reaching arms, and a family that supports, nurtures and teaches each other every day. This is more than a hobby; to me it is a religion. I can see why the monks were drawn to brewing. It is a magical connection to man, nature and the unknown. Brewing beer combines all the elements; water, earth, fire, air and time. It combines art, science, kinship, experience, the past and the future into our grasp for a moment of enjoyment. It is a small miracle. It is as close to giving birth as any man will ever get.

Of course my wife fails to see the obvious significance. But perhaps one of my boys will someday understand and experience the joys of brewing. I just wanted to tip a pint this Father's Day and say, "Thanks, Dad."

Chris and Bruce Testerman live in Littleton, Colo. and are members of the Mile High Monks homebrew club.

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