

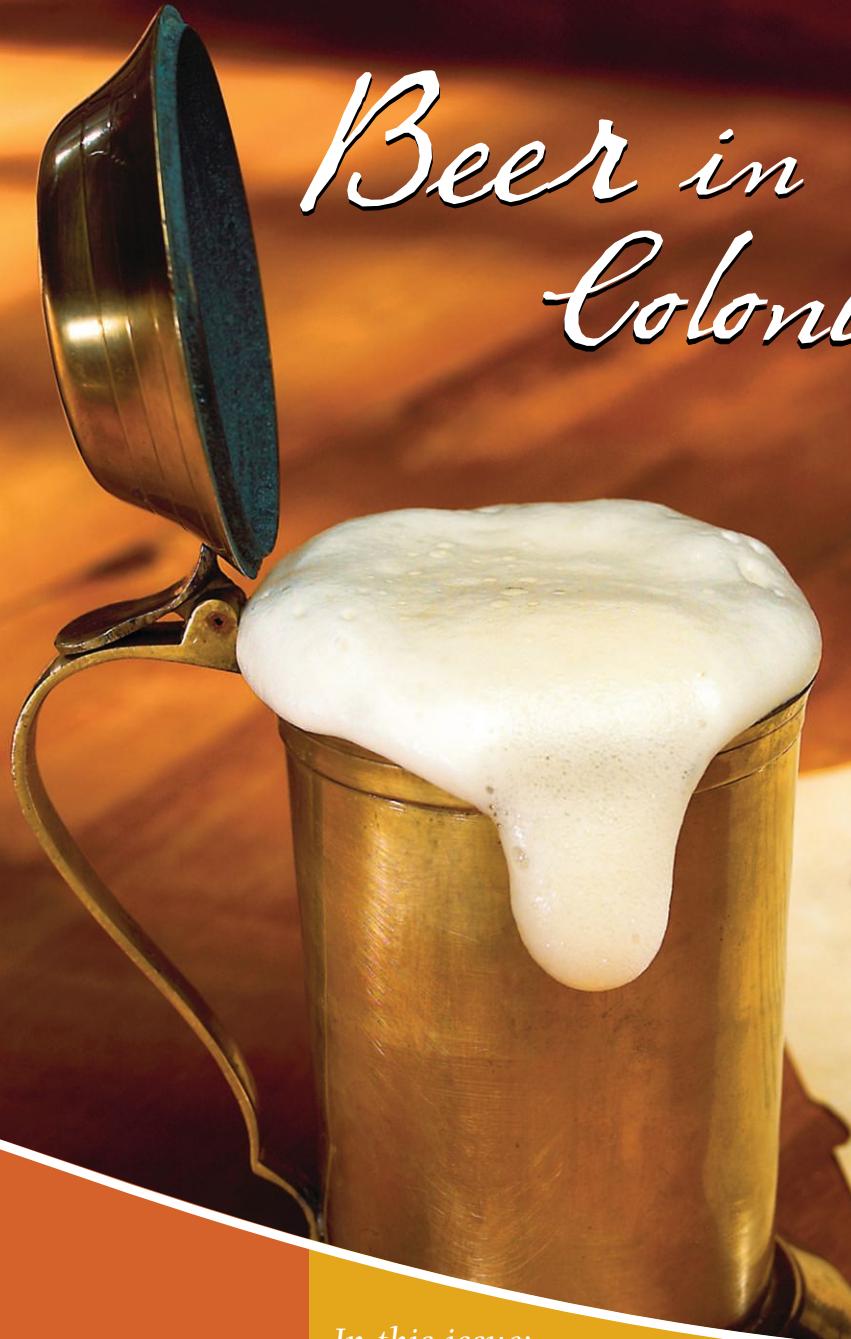
FOR THE HOMEBREWER & BEER LOVER

Volume 28 * No. 3 | May/June 2005

Zymurgy

■ The Journal of the American Homebrewers Association ■

Beer in Colonial America



Brew Day To-Do List

- ✓ Call our friends
- ✓ Pick hops
- ✓ Gather maize and other
- ✓ Pick pumpkin
- ✓ Gather wood for brew
- Relax thyself!

In this issue:

7 BEERS YOU CAN BREW

Homebrewers
Converge
on Baltimore

Primitive
Brewing in
Burkina Faso

Geeks:
Maximize
your
Mash



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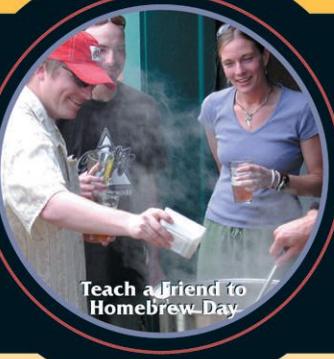
PLUS: Try this at home: Sourdough bread

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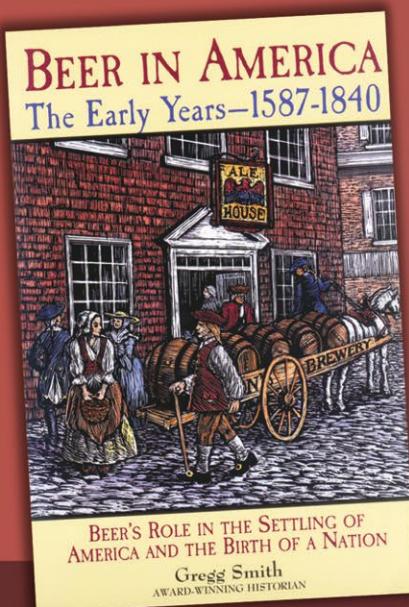
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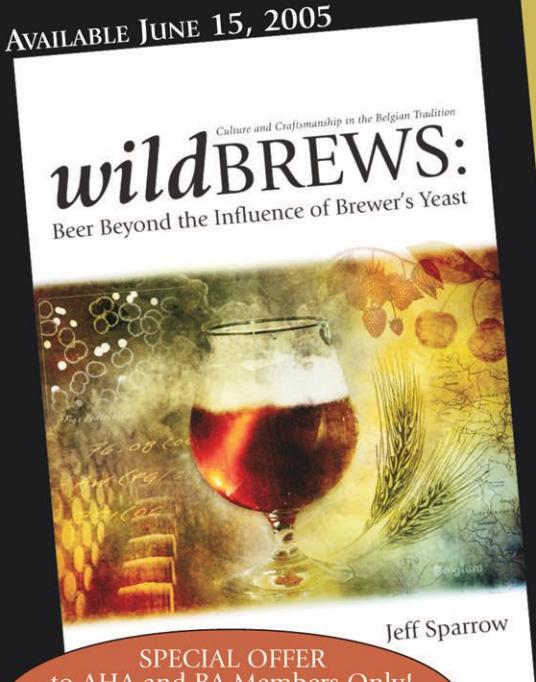
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>> GET THERE!

Boonville Beer Festival

It's not the biggest beer festival in the world, but those who have attended the Legendary Boonville Beer Festival list it among the best.

The taps will pour for only four hours at the ninth running of the annual affair on May 7, but participants will have their choice of beers from a who's who of more than 50 West Coast breweries. The festival has outgrown the Anderson Valley Brewing Company lawn and is now held at the Mendocino County Fairgrounds in tiny Boonville, Calif. (population 715).



Last year's guests came from as far away as Boston and New Jersey to sample some of the best beers in the world, including many World Beer Cup winners from Belgium, England, Germany, Canada and the United States.

In addition to the beers, local food vendors will be on hand and there will be music by the Orjazzmic Sextet, as well as "The Train Singer," who will be strolling the grounds serenading beer sippers with his traditional train and travelin' songs.

The festival takes place at the Mendocino County Fairgrounds from 1 to 6 p.m., with beer being poured from 1 to 5 p.m. Tickets are \$25 in advance (purchase online at www.avbc.com or call Anderson Valley Brewing Company at 707-895-2337, ext. 23) or \$30 on the day of the event. Designated drivers and non-samplers pay only \$5 while children 12 and under are admitted free. Camping is available at the fairgrounds on a first-come basis at \$5 per person (showers available.) Pets are not allowed into the fairgrounds.

April 23-24

8th Annual TAP New York Festival Hunter, NY. Phone: 800-HunterMtn, Web: www.tapnewyork.com

April 23

Microbrew Beer Festival Wilmington, DE. Contact: Richard Hutchins, Phone: 302-993-1202, Fax: 302-993-1203, E-mail: rjhutchins23@yahoo.com, Web: www.ifyoupourittheywillcome.com/

April 25-May 6

European Brewing Study Tour Munich, Germany. Contact: Siebel Institute of Technology, Phone: 312-255-0705, Fax: 312-255-1312, E-mail: info@siebelinstitute.com, Web: www.siebelinstitute.com

For a complete listing of beer festivals and events, see www.beertown.org/craftbrewing/events.asp.

May 7

New England Beer Fest Boston, MA. Contact: Todd Alström, E-mail: todd@beeradvocate.com, Web: www.beeradvocate.com

May 7

World Expo of Beer Saginaw, MI. Frankentrost Pub. Contact: James P. Brown, Phone: 989-771-0055, E-mail: frankentrostpub@earthlink.net, Web: www.frankenmuthfestivals.com

May 12-15

2005 ETC (Eastern Technical Conference) Champion, PA. Seven Springs Resort. Contact: Rick Brundage, Phone: 412-264-7699, E-mail: ebrundage@ONDEO-Nalco.com, Web: [www.mbaa.com/](http://www.mbaa.com)

BREW NEWS: Craft Beer Growth Sets the Pace

America's craft brewers sold 7.0 percent more beer in 2004 versus 2003, making craft beer the fastest growing segment of the U.S. beverage alcohol industry, according to the Brewers Association, the Boulder, Colo.-based trade association for U.S. craft brewers.

"Craft beer volume growth outpaced that of imports, large brewers, wine and spirits in 2004," said Paul Gatz, director of the Brewers Association.

The Brewers Association estimates 2004 sales by craft brewers at 7,023,651 31-gallon barrels, up from 6,563,461 barrels in 2003, an increase of 460,190 barrels or 6.34 million case-equivalents. Spirits volume increased at 3.1 percent for the year and wine volume was up 2.7 percent. The import and mass-market segments of the beer industry rose approximately 1.4 percent and 0.5 percent in volume respectively in 2004.

The craft beer segment includes more than 1,400 breweries that produce primarily all-malt beers. It includes brewpubs (brewery/restaurant), microbreweries (fewer than 15,000 barrels per year) and specialty brewers. The association has tabulated industry growth data for these breweries annually since 1985.

"The craft beer segment continues to show healthy and steady growth with many individual brewers enjoying double-digit volume increases," said Charlie Papazian, president of the Brewers Association. "This year the craft segment sold more new barrels of beer than the much larger import segment of the beer market."

GREAT GADGET

WHAT'S NEW FROM BEER NECK

Keep Those Bottles Handy

For those times when you need a spare hand to hold a beer bottle and when drinking from a glass isn't possible, there's the Beer Neck.

The Beer Neck is made from neoprene (wetsuit material) and is formed to fit a standard 12-ounce bottle. A high-quality zipper is located on the neck allowing for easy access, and a strap is added to hang your bottle around your neck. Or, if you would rather carry it in your hand, the strap disconnects.

The included opener also functions as a capper—simply snap the opener over the top of the bottle and your beer stays in the bottle and carbonated.

The Beer Neck sells for \$9.95.

Photos courtesy of CoolerGadgets.com. Available from www.beerneck.com and various retailers. Submitted by Beer Beer and More Beer, www.morebeer.com.



BEER QUOTE

"I'm going to drink beer and think about champagne."—George Karl after his first victory as coach of the Denver Nuggets

BEER QUOTE

"She took a country boy like me and kind of refined me. I know what fork to use now at the dinner table, and I drink my beer from a glass."—Professional wrestler John "Bradshaw" Layfield commenting on his wife, Fox News analyst Meredith Whitney.

THE LIST

12 Old Brewery Slogans

See how many of these old brewery slogans you can match with the proper brewery.

- >1. "The pale stale ale with foam on the bottom."
- >2. "It's blended, it's splendid."
- >3. "It's what your right arm's for."
- >4. "Refreshes the parts other beers cannot reach."
- >5. "It looks good, it tastes good, and by golly it does you good."
- >6. "The One Beer to have when you're having more than one."
- >7. "Hey neighbor, have a _____."
- >8. "It doesn't get any better than this."
- >9. "Doggone good beer."
- >10. "Beer that is beer."
- >11. "Not a common name. Not a common beer."
- >12. "It's starchless!"

(answers on next page)

BREW NEWS: Beer Drinker Vows to Spread the Word

Tom Ciccateri of Alexandria, Va. was crowned Wynkoop Brewing Company's 2005 Beerdrinker of the Year on February 26. Ciccateri is a specialist in weapons of mass destruction nonproliferation programs. His local brewpub is Founders Restaurant & Brewing Company.

Ciccateri's beer drinking philosophy of "beer is my guiding light" has led him to "a richer and more enjoyable life" and extensive travels around the globe. Ciccateri has tried more than 2,500 beers in 30 countries, has visited 321 of the planet's breweries and attended 95 beer festivals.

Ciccateri's title grants him free beer for life at Wynkoop Brewing Company, \$100 worth of beer at his local pub and other great prizes.



During the finals competition at Wynkoop, Ciccateri vowed that if he were crowned 2005 Beerdrinker of the Year, he'd use his title to spread the merits of American beer to more people. He wasted no time in doing that. The week after claiming his title, he was off to Belgium to attend the Zythos Beer Festival. "I'm excited about carrying out my role as ambassador for America's amazing craft beer culture."

BREW NEWS: German Purity Law Gets the Boot

A German court has upheld a brewer's challenge to the country's centuries-old beer purity laws. The ruling means Helmut Fritzsche's Klosterbrauerei Neuzaelle brewery can continue adding sugar syrup to its dark brew and still call it "beer."

The 1516 beer purity law, Reinheitsgebot, limits beer ingredients to malted grain, hops, yeast and water. Fritzsche's brewery adds sugar syrup after fermentation.

The ruling ends a 10-year legal battle by the small East German brewery. The dark beer, called Schwarzer Abt, can be marketed as "special beer" using similar provisions as some breweries add herbs at the end of the fermentation process.

Fritzsche's brewery adheres to the Reinheitsgebot during fermentation. He argued that the Reinheitsgebot stifles the creativity of small brewers and should be eased.

The Reinheitsgebot, thought to be Germany's oldest surviving law, was drawn up by a Bavarian duke in April 1516. German brewers claim that it is the longest-established food quality standard in the world.

But the law applies only to beers made within Germany, after a European Union court ruled that using it to keep out imported brews would be contrary to free trade rules.



>>YOU GOTTA EAT THIS

Porter-Chili Paste Grilled Shrimp

Submitted by Lucy Saunders

12 oz. porter
 1/3 cup dark toasted sesame oil
 1 tablespoon frozen lime juice concentrate
 2 tablespoons fish sauce
 6 cloves garlic, peeled and minced
 1 tablespoon hot Chinese powdered ginger
 1 teaspoon powdered cardamom
 1 teaspoon (or more to taste) Chinese red chili paste
 1 1/2 pounds large, shell-on shrimp (about 30)
 10 bamboo skewers

Whisk together the porter, sesame oil, lime juice, fish sauce, garlic, ginger, cardamom and chili paste. Rinse shrimp in cold water, drain well and place in a large non-reactive shallow dish. Pour marinade in and stir so shrimp are evenly coated. Cover and refrigerate overnight. Prepare a grill for several minutes of medium heat. Thread shrimp on skewers, three pieces to each skewer. Grill just 40 to 60 seconds on each side or until shells just turn orange-pink. The shrimp will continue to cook when you remove them from the grill so be careful not to overcook them. Place the shrimp on a platter, let cool for several minutes and serve.

Lucy Saunders is a beer writer living in Shorewood, Wis. and the editor of www.beercook.com.

Do you have a favorite recipe that calls for beer that you would like to share? Send it to P.O. Box 1069, Gresham, OR 97030 or jim@brewersassociation.org.

Answers: Old Brewery Slogans

1. Olde Frothingslosh, Pittsburgh Brewing
2. Pabst Blue Ribbon
3. John Courage
4. Heineken
5. Mackeson
6. Schaeffer
7. Gansett, Narangansett Brewing
8. Old Milwaukee
9. Frankenmuth
10. Walter Brewing Co., Eau Claire, Wis.
11. Rheingold, S. Liebman and Son's Brewing, Brooklyn, N.Y.
12. Golden Glow, Golden West Brewing, Oakland, Calif.

>> BEER JOKE

Beauty is in the Eye of the Beerholder

A guy goes to the grocery store and fills his cart with frozen pizzas, burritos, chips, hot dogs and six-packs of beer. When he gets to the checkstand, the woman behind the counter smiles and says, "I bet you are single."



"Why, yes, how could you tell?" he asks, thinking she may be flirting with him.

"Because you're ugly," she says.

>> BEER QUOTE

"If there's anything more embarrassing than watching the numbskull brigade wearing green stovepipe hats and 'Kiss Me, I'm Irish' buttons puking green beer, let's just call it the luck of the Irish that I missed it."—New York Daily News columnist Denis Hamill

by Our Readers

There's More to Belgium

Dear *Zymurgy*,

The new look of *Zymurgy* is great and I particularly loved the focus on my favorite beer nation, Belgium (*Zymurgy* Vol. 28, No. 1). I've dragged my patient spouse there for two lengthy vacations (until she put her foot down and we did a Sauternes tour in Bordeaux).

I enjoyed the reports on beer destinations. The piece on Cantillon brought back yummy memories, as well as Mort Subite. I have found Michael Jackson's guide to Belgian beer to be the best overall tour guide—he obviously loves the country and writes glowingly about it.

Your article overlooked some of my favorite beer destinations "down south." The Orval and Chimay sites offer comprehensive tours, and Orval's monastery is particularly beautiful! The Chimay monks run a bed-and-breakfast offering some rather funky rooms and Chimay chalices as water glasses. Since these sections are a far drive from Brussels (over two hours), we enjoyed staying in the area and having the chance to leisurely sample the beers, cheeses and other foods.

Thanks for the great articles,
Kevin R. Foster

Dear Kevin,

Anytime you write about an area so rich in great beer-drinking spots, you can never mention them all—unless you write an entire book like Michael Jackson. Our goal with our beer travel stories is to give a taste of what's available, or in the case of this issue's story on Burkina Faso, show a brewing world our readers may never get a chance to experience that is amazing in its own right.

—Ed.

Neo-Prohibitionists

Dear *Zymurgy*,

I have to tell you how powerful Paul Gatz's column was this month on the

SAMUEL ADAMS

MAGURE

"All I did was suggest that just maybe it was ready."

"It takes us at least 5 weeks to brew a batch of Samuel Adams Boston Lager because of the care and attention our brewers put in every step. Most other beers take only half as long."

Jim Koch

Neo-Prohibitionists (*Zymurgy* Vol. 27, No. 6). It takes great insight and strength to see past the covers of many organizations that feel it is their goal to control our practices. MADD, the Robert W. Johnson Foundation and others that want to shape us in their own image are a serious threat to freedoms in this country.

State and federal laws/guidelines go well beyond their intended objectives and begin to infringe on what casual alcohol drinkers can or cannot do. (You mention that the U.S. government spent over \$2 billion of our money on efforts to reduce alcohol sales. Well that's nothing compared to the

billions misspent on the so-called war on drugs. But that's for another time...)

As a Libertarian, homebrewer and entrepreneur I'm getting pretty fed up with it. Thank you for having the courage to write this eloquent article, which I've passed on to others.

Allen Perper
President, Accela Consulting Corp.

Dear Allen,
In my other life as a state brewers guild executive, I was always telling my members how important it is to keep an eye on the various state and federal neo-Prohibitionist groups.



Some more of the Belgian "goodies" we didn't show.

Their crusade to demonize beer and make it less available to the overwhelming majority of beer lovers who enjoy it responsibly is a threat to craft brewers, beer lovers and homebrewers alike.

—Ed.

Send your letters to Dear *Zymurgy*, PO Box 1069, Gresham, OR 97030 or e-mail Jim@brewersassociation.org. Hey homebrewers! If you have a homebrew label that you would like to see in our magazine, send it to Kelli McPhail, Magazine Art Director, Brewers Association, PO Box 1679, Boulder CO 80306 or e-mail it to kelli@brewersassociation.org.

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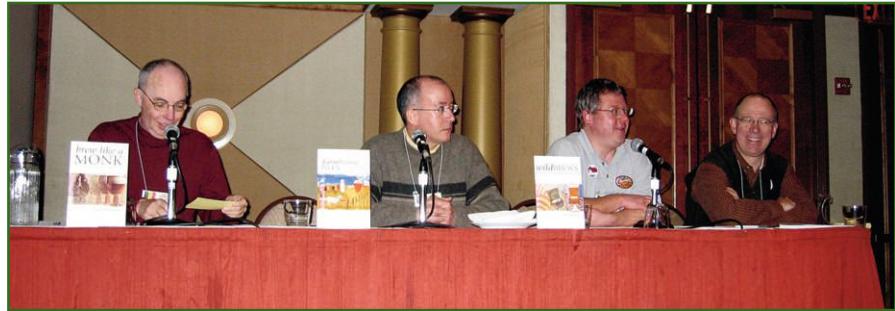
The Spirit of Belgium

In January, those hard-working folks from the Brewers United for Real Potables (BURP) once again produced a weekend-long exploration and celebration of Belgian-style beer in Washington D.C. It was well run, nicely attended and stocked with a heck of a lot of good beer, both commercial and homebrewed.

The thoughtfully assembled panel of speakers reflected the diversity of Belgian-style beers available in this country. It included Belgians like Jean-Louis Dits from La Brasserie Vapeur in Pipaix, Belgium, and Peter Bouckaert of New Belgium Brewing Company in Colorado, who formerly brewed at Rodenbach. Rob Todd, owner and brewmaster at Allagash, the Portland, Maine Belgian-style beer specialist, addressed the group as did Phil Markowski of Southampton Publick House on Long Island, Vinnie Cilurzo of Russian River in Sonoma County, Calif. and Tomme Arthur of Pizza Port in San Diego. All have made notable contributions to the American smorgasbord of Belgian beers. Finally, there was good homebrewer representation on the program as well with guys like Jeff Sparrow from Chicago and Stan Hieronymus from New Mexico as well as East Coasters such as Andy Anderson and Craig Sommers. Kudos to the BURPers, who leave us all wondering how long it will be until the next Spirit of Belgium.

Anyway, I bring this up because U.S. brewers of all stripes have shown a bit of an obsession for Belgian beers during the last five years. Craft brewers and homebrewers who cut their teeth on German lagers and British ales moved on to explore the idiosyncratic brews of the western European lowlands.

Of course as soon as you start to talk about these beers, you run into trouble over the issue of style. In short, many Belgians



Brewers Publications authors Stan Hieronymus, Phil Markowski and Jeff Sparrow with Brewers Association's Ray Daniels.



The Spirit of Belgium included a homebrew competition.

don't believe in categorizing beers by style and they often resist efforts to compare their brews to others that outsiders deem as similar.

The first time I interviewed Bouckaert not long after he joined New Belgium, I asked him something about a particular style of Belgian beer. What I got in response was a spirited lesson in Belgian perspective. And while I'm a big believer in styles generally, that perspective merits review from time to time, especially for homebrewers.

As we learn the science of brewing at home, we sometimes forget about the art, something that smaller Belgian commercial producers still harbor as the key principle of their efforts. Like many musicians, painters and artists of various kinds, they see their work as utterly unique. They insist their

beer falls neither in style X nor style Y, but must be considered on its own merits without reference to other beers.

In some cases, these small brewers seem not to care if you like their beer. In his soon to be released book on lambics and the like entitled *Wild Brews*, Sparrow quotes Armand DeBelder of the Drie Fonteinen Brewery as saying, "If you do not enjoy my beer then I say it is a pity for you!"

While that's admirably independent at one level, I'm not sure the American psyche can be that immune to the approval of others. Still, there is a lesson there, especially for veteran homebrewers. If you have demonstrated that you can emulate the masters by knocking off a great IPA, whipping up a tasty weizen and patiently lagering a gold-medal bock, then what else do you have



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left to prove? You know you can brew great beer and presumably so do your family, friends and neighbors who taste your creations. So why not color outside the lines? And if you like the result—*really* like it—then who cares what it is called or whether anyone else does? After all, if they don't like it, that's the spirit of Belgium (no matter

what the beer tastes like) and ultimately, it is just a pity for them.

Cheers.

Ray Daniels is director of Craft Beer Marketing for the Brewers Association and executive editor of Zymurgy. 

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by Professor Surfeit



Mr. Beer and The Beer Machine

Dear Professor,

I'd have to agree with your statement on the www.homebrew.com Web site regarding the negative communications of some homebrewers out there. Let me share a little of how I approached homebrewing (and I hope you don't laugh, either).

I live in Seattle, where we have an over-abundance of microbreweries and craft brew houses. I have always had a "light-weight" palate. I decided to search the Web for the simplest, most consistent homebrewing method out there. I ran across The Beer Machine. I wanted to be able to save some money and have a good beer every once in a while. I got the machine and was hooked.

Their Web site stated that I could use other homebrew mixes as long as I converted the recipes to 2.5 gallons. I also ran into the Mr. Beer Web site and their mixes were a pretty good price, and I purchased a package where I got their brew "keg" for free. I now have one device (The Beer Machine) for brewing and dispensing and one (Mr. Beer) for brewing and bottling. I love the fact that I can now use any store-bought "5-gallon beer kits" and create the beer I want in the two machines. I can also start enjoying the beer in about seven to 10 days with The Beer Machine.

I looked at several Web sites about homebrewing to find out more info on The Beer Machine and Mr. Beer and almost all of the contributors scoffed at these methods of brewing beer at home. I had to laugh because I was enjoying the same beer kits that were at about one-third less time with The Beer Machine and then I could continue enjoying the same bottled beer with the Mr. Beer bottled batch. Plus, I now can start a new batch that much earlier and try more variations with the same store bought beer

kit. Half the kit in one machine can have different flavoring than the other machine.

You were asked in the same article "What's next for homebrewing?" and you stated, "I think that a stabilization of the hobby is next." If you would've told me a year ago that I would be brewing beer in my house, I would've laughed. But thanks to methods like The Beer Machine and Mr. Beer, it has opened up a new world I never dreamed I would be entering. Since then, two close acquaintances have given me their homebrew equipment because it took up too much space and time for them and they gave up. I am using the funnels and bottles but it is much easier to brew in two self-contained kits as opposed to the large 5-gallon pails and carboys. They are great methods to use to get more batches (two 2.5-gallon batches versus one 5-gallon batch) thus more variety in the same amount of time with so much simplicity. Granted, I am a novice and maybe one day I'll use the bulkier equipment just to try it.

So to get back to the stabilization question, how would you stabilize homebrewing? I would also be cautious about negating viability of The Beer Machine or Mr. Beer because, from what I gather, getting new homebrewers involved in the "art" is very important to you.

Sincerely,
Kim Hofer

Yes Kim,

All of your points are right on. The great thing about homebrewing and homebrewers is that there is no shortage of diversity—in beers made, people who brew and homebrewing methods. The ultimate factor that creates success and a growing hobby is whether the homebrewer enjoys what he is doing and making and also whether he continues.

I was just thinking today that I've been homebrewing since 1970. I still make 15 to 20 batches of beer and mead a year. The ultimate two reasons why I still brew are because I still love to make beer and I love the results. My methods of making beer have not changed much in the last 20 years. I pretty much use the same equipment and my wooden spoon has been my pal for 30 years.

Sure, there are more sophisticated equipment and methods that could possibly improve upon my beer—but I find comfort in the simplicity of my basic methods one 5- or 6-gallon batch at a time.

I've never used the kit "machines" you mention, but I have tasted some of the results. There's always room to improve. This is true whether you are an experienced veteran homebrewer with sophisticated stainless steel kettles and fermenters or you are just starting out with these kits or plastic fermenters and "dump and stir" recipes. Once you are really happy with your results I admit that it is hard to move on to what you may have been told is "better" homebrew.

If you are a happy homebrewer and really find joy with your homebrew, don't let anyone intimidate you into believing otherwise. I know plenty of homebrewers who had become so sophisticated that they "lost the fun" and have stopped brewing. "I don't have the time," they say.

As you and I know making great beer with basic principles and equipment is way better than not brewing at all because of the demands of more sophisticated equipment.

Homebrewing will grow when we as champions of homebrewing recognize that great beer can be made with simple equipment.

*Keep on brewing,
The Professor, Hb.D.*

Super Rapid Fermentation

Dear Professor,

Usually I would not e-mail someone in your position with such a silly question but having read the book *The Joy of Home Brewing* I would trust your judgment regarding my newbie question.

My lovely wife purchased for me a beginner's homebrewing set from the folks over at True Brew. I have followed all directions and supplemented their suggestions with your book. I am brewing a red ale and in the fermentation process I had wonderful CO₂ release through the air

lock for exactly 24 hours. Now there is no movement at all.

My question is, has the yeast already done its eating and is it finished? Should I be concerned that it is done so quickly or should I just follow my course and be ready to bottle within five days from brewing?

I really appreciate any information you can give me as I am in a whole new world when it comes to homebrewing. Drinking beer has really been more my specialty over the years!

Jeff Grey
Newbie Homebrewer
Hyde Park, N.Y.

Hiya Jeff,

This is not an unusual question. Homebrewers have been asking me this same question for over 30 years. The answer has always been relax, don't worry, have a homebrew. Everything is most likely all right. There are several types of yeasts that under certain conditions will ferment out in 24 to 36 hours. The Irish ales seem to be the most common. I know that there are some strains of Irish ale yeast that ferment much more rapidly than many other strains. Regardless, you can always confirm fermentation by comparing your initial hydrometer reading with your end hydrometer reading.

I'll bet you are OK.

Get ready for your next batch,
The Professor, Hb.D.

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Cooling with Heat Sinks

Dear Professor,

This is a follow-up on the original e-mail I sent you asking about the science behind Beer, Beer and More Beer's conical fermenter dubbed "The Ultimate."

I have made four 10-gallon batches since I purchased the fermenter. The first batch did not turn out, but that was my fault. An old dog learns new tricks. I have been brewing for several years. I had to adjust my habits and learn new ones. I purchased a pump to move the wort from the boil kettle to the fermenter. I did not realize it was not a self-priming pump. So, I fumbled around with hoses and clamps. I had to reach into the wort a couple of times with my hands to get things going. I'm sure I contaminated the first batch with bad bugs. The results ended up as fertilizer in my garden. (All the byproducts of brew days end up in the garden. By the way, spent grains and hops grow an awesome tomato crop.)

Not to be beaten, I did a "dry" run with plain water. I figured out the details of priming the pump, sanitizing the tubing and adding some PVC shut-off valves so I would not lose the priming water. I started my second batch with more confidence and experience. Every batch since has been exceptional. The temperature is controlled

precisely. I have done my second and third batch of beer using the cooling units (due to warm weather conditions). I used the heating unit on the fourth batch of beer (cold weather conditions). The heating side worked great as well.

As far as temperature control, this fermenter works great.

I do have some criticisms as well. I will share them with Beer, Beer and More Beer soon, complete with photographs by e-mail. The clamps are difficult to install and remove from the unit without damaging the insulation on the lid and on the rotating racking arm. Welding longer collars to the lid and on the lower side where the racking arm is located may solve the problem. The conical tank moves in the stand, so it is important to make sure the conical is level. Welding the conical tank to the stand and using leveling feet under the stand legs may solve that problem.

There may be reasons I'm not aware of requiring the tank to be loose in the stand. It is important to be careful when cleaning

the fermenter. It is easy to slip and get water on the electrical parts. I solved the problem by taking a large piece of plastic and cutting a hole in it. I placed the plastic over the fermenter and tucked the hole edges under the rim of the tank. The insulation helped to keep the plastic in place while cleaning and sanitizing. I also had a problem with the yeast compacting on the bottom of the fermenter, which made it difficult to harvest my buddies for use in another batch. I can figure that one out later. However, I'm a little leery of using yeast a second time.

In summary, I'm generally pleased with the purchase. I have precise temperature control that allows me to brew year-round. I can clean and sanitize the tank, put the lid on it while mashing and not worry about falling/airborne yeast dinosaurs. Once the wort is in the tank and the yeast is pitched, I walk off with no worries.

Maybe there are some adjustments that can be made. Thanks for putting my question and your response to my e-mail in *Zymurgy*. I feel pretty special now that I've been published.

Searching the globe to find a deserted island for neo-Prohibitionists,
Jeff Meyer
Walla Walla, Wash.

Dear Jeff,

Sounds like you are Walla Wallowing in homebrew heaven with your adaptations to newly acquired technology. Pretty cool if I may say so myself. Keep on brewing and thanks for the continuing assessment of where new technology has taken you and your homebrews.

Certainly,

The Professor, Hb.D.

Tippling Beer to Style

Dear Professor,

Have you ever published a guide for tippling recipes glass by glass? Here's what I'm thinking. If I were to brew an IPA, could I tipple it down and still fall within the style parameters of an EPA or a bitter? If an IPA is OG 1.060 and an EPA is OG 1.050, do I simply have to replace one-sixth of the liquid in the glass with water? I suppose I would have to use carbonated water for the tippling to keep the carbonation level of

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the final beer correct, right? I know this kind of talk is heresy to you high gravity hopheads.

Thanks,
Thomas F. Tipton, Ph.D. (none of this Hb.D. stuff)

Dear Tipton the Tippler,
Hey, whatever suits you tickles me plum to death. You can always create a lighter version of stronger brews by adding carbonated water. Yep. You might call it dilution heresy but it works to some degree. The nice thing about tip-

pling is that you are probably going to end up with a tipped complexity. What do I mean by that? Well, when you ferment at higher gravities you end up with more esters adding complexity to the beer. A tipped beer will not have the same character as a beer originally brewed at the desired O.G. Also your hop balance may not be exactly where you'd want it. But I'll bet you'll be very pleased with your tippling efforts if that's what you want.

I once brewed a "quarterbock." I brewed a strong double bock and then diluted it to about 2-percent alcohol when I bottled it. It was a

great light flavored refreshing lager with subtle hints of high gravity complexity, malt flavor and low alcohol. Way better than any 2-percent beer I've ever bought.

Keep Tippling,
The Professor, Hb.D.
(Ha! I've never bought a 2-percent beer)

More Body Please

Dear Professor,
I've been brewing for almost a year now and have about six batches under my belt of several different styles, all of which I've been very pleased with for the most part. As of right now I'm still at the malt extract and tap water level. My problem is, as good as my beer tastes it seems to taste a bit watery, lacking a bit of body. I've experimented in different batches with using more or less water in my concentrated wort boil, anywhere from 1.5 gallons to 3.5 gallons, and still it always tastes a bit watery, even with strong porters and stouts. What could be causing this? What can I change?

Amanda Allen
Seattle, Wash.

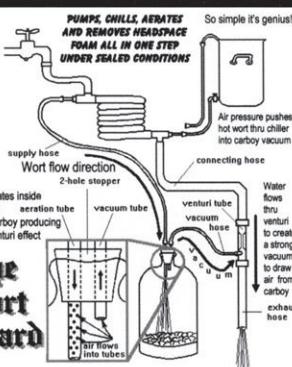
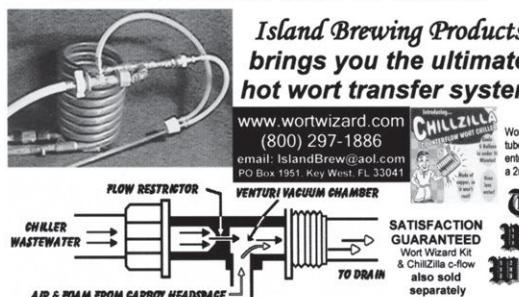
Dear Ms. Allen,
Yours is the perennial question of homebrewers who get a good start and wish to move on to their palates' real desires. Simply, you could add at least a pound of crystal malt to your amber and dark beers and get a fuller-bodied beer. Furthermore I am thinking that you may be using dried yeast. Many dried yeasts attenuate the beer a bit more than you'd like them to. That's to say they are fermented more completely and leave less residual malt body, flavor and character in the finished "dry" beer. The next giant step you should consider taking is to use liquid yeast cultures. I've brewed and tasted plenty of malt extract beers (with and without crystal malt) and I will say they can be superb. I think you'll be happy with my advice if you follow it up with your next batch.

Switched to culture,
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@brewersassociation.org.

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by Amahl Turczyn Scheppach

Making Better Extract Beers

Making beer from malt extract can be a real time-saver for the busy homebrewer, but too often extract beer gets a bad (and undeserved) rap. People label poorly made or amateurish beer as having "that malt extract taste." But the fact is, top-quality ales and lagers can be made with extract.

Perhaps the only thing you cannot do with malt extract is brew the extremely light-colored beers you can normally only achieve with lager malt and a full wort boil, since the extract process can add color through caramelization. Of course, with more sophisticated water-removal techniques used by malt extract producers, even this is becoming less of an issue. And for brewers who love stronger styles like barleywine, old ale and eisbock, malt extract can be a great way to brew high-gravity beer without having to use every pot and pan in the house as extra mash tuns.

So if brewing fast and easy is your bag, here are a few ways to extract the best qualities of this simplified brewing process.

- Choose fresh extract. Those dented cans may be a bargain, but you could end up disappointed by a tinny or metallic brew.
- Don't add salts. Malt extract is concentrated wort and is usually made with treated water, so doing your own water treatment is not only unnecessary but may negatively impact the finished product.
- Don't add sugar. If the instructions say to add dextrose or corn sugar, substitute light dry malt extract instead.
- Start light. If using bulk extract, many brewers go for the lightest powder or syrup they can find and add crushed specialty malts to the brewing water.

This gives greater control over the beer's color and flavor. Ask your local homebrew supply store about appropriate specialty malts for the beer style you want to brew.

- Know whether your extract is hopped. Unhopped extract can be more versatile, since you know both the quality and amount of bitterness going into your beer.
- Use a wort chiller. The faster you go from the end of your boil to the proper pitching temperature, the better your beer. Fans of dunking the brew kettle in cold bathwater are just asking for bacterial troubles.

- Dry yeast can give great results, but we recommend pitching a healthy quantity of fresh, high-quality liquid yeast instead. Several yeast labs have pure beer cultures available, so spend the extra dough on the freshest yeast you can get. And if you aren't sure if one vial or tube will be enough, pitch two—under-pitching is a much more common problem for beginner brewers than over-pitching.
- Aerate, aerate, aerate—but for most styles, only at yeast pitching time.

Amahl Turczyn Scheppach is former associate editor of Zymurgy. He writes and brews in Lafayette, Colo.



American Amber

Malt Extract Recipe

Ingredients

for 5 U.S. gallons (19 L)

2 cans	Coopers Australian Pale Ale Kit
1.0 lb.	(0.45 kg) Crystal Malt 80L
0.50 oz.	(14 g) Cascade 5.75% alpha acid (15 min)
0.50 oz.	(14 g) Cascade 5.75% alpha acid (2 min)
1.0 tsp.	Powdered Irish Moss
	Wyeast 1056 American Ale Yeast or White Labs
	WLP001 California Ale Yeast
0.75 C	(180 ml measure) corn sugar for bottling

Directions

Steep crystal malt 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 bring to a boil. Boil 45 minutes then add 0.5 oz of Cascade hops and Irish Moss. Boil 13 minutes then add 0.5 ounce Cascade. Pour into fermenter with enough cold water to make 5 gallons. When temperature is below 68° F, pitch yeast and aerate well. Ferment at 65-68° F for one week or until fermentation is complete. Rack the beer to secondary. After one to two weeks, prime with corn sugar and bottle.

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Final Specific Gravity: 1.014

IBUs: 36

ABV: 5.3%

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COLONIAL

*Home Brew'd
is Best'*

BREWING

by Hugh Burns





The idea that “home brew’d is best” is probably intuitively obvious to most homebrewers and beer lovers. It was not so apparent to the newly independent citizenry of the United States of America who were trying to develop the new nation’s industry as well as slake its thirst for good ales. The motto “home brew’d is best” was carried on a standard, decorated with the brewers’ arms, by brewer Luke Morris in the July 4, 1788 parade in Philadelphia celebrating Pennsylvania’s ratification of the Constitution.

Beer brewing in America was a necessity for the newly transplanted Old World folks. Beer was a staple beverage. The oft-repeated adage that “the water can kill you, but the beer won’t” bears repeating. Before people understood the pathology of water-borne microfauna, all they knew was that sometimes the water could kill you—or at least make you sick enough to wish you were dead.

On the other hand, beer made you feel OK. You can’t blame them for not having to be beaten over the head on that one. People just didn’t understand that by boiling the water (as they did their wort), they’d make it safe to drink, too.

Beer was very much a fiber of the fabric of society and an integral part of day-to-day life in the Colonies. Even before the Pilgrims came ashore at Plymouth Rock in 1620—because the Mayflower was running out of beer and the crew’s nearest place to make a beer run was back to England—people were brewing beer in America. The settlement at Jamestown, Va. was brewing beer as well as receiving shipments of ale from England in 1607, the year the settlement was founded. Within two years, in 1609, the settlement was advertising in London newspapers’ help-wanted sections for a professional brewer.

An outstanding example of early American ingenuity is beer brewing. Early colonists looked at what they had to work with, and made beer. It wasn’t always made from water, malt,

hops and yeast. Beer was brewed from maize, wheat, peas, corn stalks, pumpkins and dozens of other ingredients that intrepid colonists concocted into brew. In the light of present-day food science, a lot of what was brewed was pretty inspired. Thomas Heriot, who returned to England from the “Lost Colony” on Roanoke Island, referring to the use of

Indian corn wrote: “Wee made of the same in the Countrey some Mault, whereof was brued as good ale as was to be desired.” [sic] (Apparently the iQuill didn’t have a spell checker.) He went on to say “...by the help of hops, therof migh be made as good beere.” [sic]¹

The terminology of the day was that beer was brewed with hops, and ale was brewed with anything and everything except hops.² It was good of Heriot to document the first recorded instance of beer brewing in North America using indigenous ingredients. Too bad he couldn’t remember where he left that colony.

Who’s Who of Brewing

Brewers were pretty much everyone. Among average folks in Colonial America, especially outside of town, Mom was typically the brewer. Dad

usually worked in the field or in the shop, Mom worked in the house and in the kitchen. One of the kitchen chores was making beer. In most households, beer was brewed hearth-side in coppers of 7 to 15 gallons or so. Making beer was right in line with making bread, biscuits or stew. And like everything else, beer was made for household use. Families had a regular recipe, possibly with minor adjustments made

Beer was very much a fiber of the fabric of society and an integral part of day-to-day life in the Colonies.
Even before the Pilgrims came ashore at Plymouth Rock in 1620...people were brewing beer in America.

for local or seasonal availability of a particular ingredient or two. Recipes, or receipt manuscripts, were the notes passed between housewives and gentlewomen and were the basis of the cookbooks of the day.³ Martha Washington's receipts routinely included purchases of hops.

In more substantial households, brewing was usually the chore of a domestic worker such as a cook or gardener who brewed beer in addition to his or her other duties.⁴ In New England, the brewer would have been a hired hand, supervised by the gentleman or lady of the house. In Virginia, the brewer in a large house was often a slave, also supervised by a head of the household. Slave brewers were probably some of the most talented and accomplished practical brewers in the southern Colonies at the time.

Well-documented and well-known early American brewers included Thomas Jefferson, George Washington, Ben Franklin and Patrick Henry, who all wrote their own beer recipes that survive to this day. Samuel Adams, (cousin of John), famous Massachusetts patriot and rabble-rouser, was a commercial brewer, among other things. He was very effective as an organizer for the nation's independence, but not so successful as a commercial brewer.⁵ (If only he'd had Jim Koch doing his marketing.) Sam and the Sons of Liberty would meet regularly at the Green Dragon Tavern to



drink (what might well have been an original Sam Adams) and talk politics. It was from there that they launched the Tea Party. It could have easily been a beer party—beer was also considered to be unreasonably taxed—but they went for the tea. They were revolutionaries, not crazies.

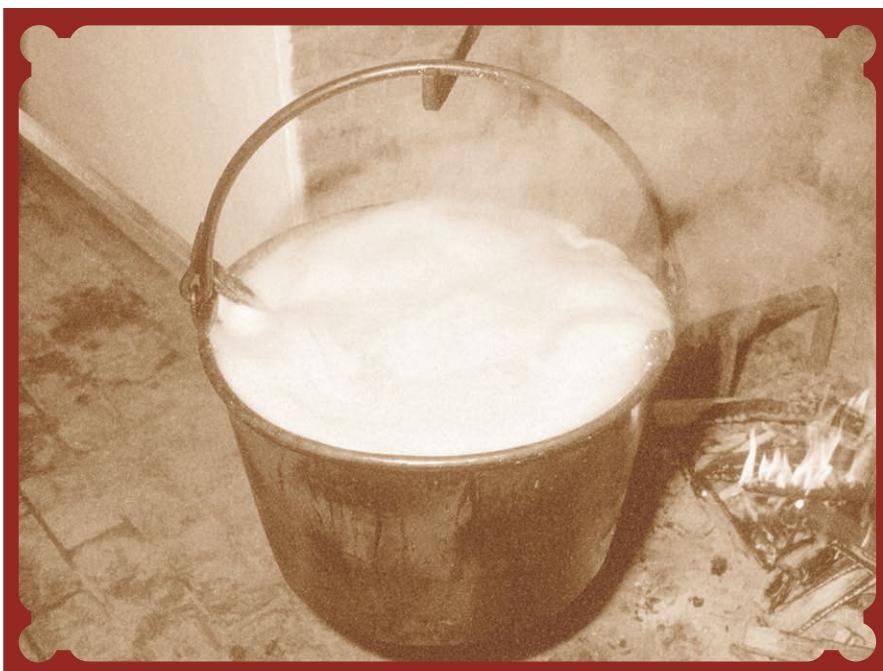
Heating Up in the Brewery

What was a brewery like in Colonial America? Today, the term "brewhouse" refers to the part of a brewery dedicated to wort production. The term comes from an earlier time when the brewhouse was

The first wort beer would be the porter or strong ale, and they would be put-up to cellar for several months as a minimum, the stronger beers benefiting most by cask aging and often by further conditioning in the bottle.

exactly that—a house for brewing. Early breweries were not much more.

Kitchens and sculleries, the places where beer was brewed, were often separate buildings or houses set off from the main house. The structures were usually wooden and hence flammable. They were separate from the main house because it was not uncommon that a cooking fire would get out of control and burn the kitchen to the ground. When that happened, the main house was usually spared, and the kitchen or brewhouse was rebuilt around



the hearth, oven and chimney that were left standing.

It's About the Beer

A typical beer around the time of the American Revolution was most definitely some shade of brown. For the sake of example, we'll look at a porter—a fairly recent stylistic development gaining rapidly in popularity at the time.

The grist bill for a mash would have been huge by today's standards, often upwards of 80 kg/hl (almost 7 pounds/gallon in homebrew terms). This isn't as ridiculously inefficient as it might seem at first glance. Granted, brewing materials efficiency (BME) was not like what we enjoy now, but early American brewers did pretty well considering no one would know what an enzyme was until well over a hundred years later. Also, the grist to liquor ratio considers only the first wort running. A second running on the mash was standard practice and a third was common, though fermentable sugar was often added to give it a boost. The total average yield was probably in the range of 2 to 3 pounds of grist to knock out a gallon of wort with about a 1.035 average specific gravity (9° P), low by today's standards but still pretty respectable, all things considered.

Hop charges would also have been high compared by weight to a typical craft beer today. The percent alpha acid by weight of heirloom hops was low, so more hops, by weight, were

(continued on page 48)



All-Grain Colonial Porter

**Intentionally less efficient,
but rich and tasty all the same.**

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

1.0 lb	(0.45 kg) Chocolate Malt
2.0 lb	(0.9 kg) C-80
3.0 lb	(1.36 kg) C-20 or Victory
4.0 lb	(1.81 kg) Pale Ale Malt or Marris Otter
5.0 lb	(2.26 kg) Two Row Brewers Malt
3.0 oz	(84 g) Willamette hops, 5.0% alpha acid (60 min) English or Scottish ale yeast
4.0 oz	(112 g) dextrose (priming sugar)
1.0 oz	(28 g) oak chips

Original Specific Gravity: 1.065

Final Specific Gravity: 1.014

Primary fermentation: 10 days.

Secondary fermentation: Add oak chips
and condition 3-4 weeks.

Directions

Heat 4 gallons of strike water to 165° F (73.8° C).

Mash grain for 60 minutes. Recirculate, then run-off wort. Add 3 gallons water at 165° F (73.8° C) for additional run-off—don't sparge if you want the "full effect."

Boil 90 minutes Add hops for 60 minutes.
Cool and pitch. Prime and bottle. Condition two more weeks.

Brewer's notes: A small beer can easily be made from what's left in this mash. Add another 4 to 5 gallons water at 165° F and collect the run-off. Add 2 pounds (0.9 kg) molasses, bring to boil, add 0.5 ounce (14 g) Fuggles or Willamette hops for one hour. Cool and pitch with English Ale yeast.

Also, if you have the patience and cellar room, you might try the porter recipe with a lambic-blend yeast and a long time in the secondary.

Extract-based Small Beer

This was a tough one to work through—almost a contradiction of terms. Stick to the idea, and the instructions. It's doable, and very authentic.

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

1.0 lb	(0.45 kg) C-80-C-120, or Special B, crushed (steeping grains)
1.0 lb	(0.45 kg) Amber Dry Malt Extract
2.0 lb	(0.9 kg) Black molasses
0.5 oz	(14 g) Willamette hops, 5% alpha acid (60 min) English or Scottish ale yeast
4.0 oz	(82 g) molasses (priming sugar)

Original Specific Gravity: 1.027

Final Specific Gravity: 1.007

Primary fermentation: 8 days—then
prime and bottle.

Directions

Heat 3 gallons of water to 160° F (71° C). Immerse the steeping grains, turn off the heat and rest for 60 minutes.

Turn heat to medium-high and heat wort to 170° F (76.6° C), then remove steeping grains.

The long, dilute steeping will help bring out the dry husky flavor of the grain—typical of a second running.

Add DME and molasses, and bring to boil. Add hops. Boil 60 minutes. Add make-up water, cool and pitch.

Welcome to Baltimore

Beer Culture Abounds in America's Charm City / By Phil Sides



Baltimore is a great beer town and always has been, notwithstanding the Charm City's brush with the first American temperance movement at the beginning of the 19th century.

The city has a rich history as a blue-collar town. Its Inner Harbor was home to a massive shipbuilding industry and remained a port of great importance until recent times. Maryland's well-developed agricultural industry and the bloom of manufacturing in industrial Baltimore supplied a steady stream of exports, which in turn fueled maritime and railroad transportation activity well into the 20th century.

With employment opportunities abound, the lion's share of an estimated 2 million immigrants entered the port of Baltimore between 1860 and 1930. These English, German, Irish, Polish and Russian immigrants also imported a beer and drinking culture. Prior to Prohibition, dozens of breweries prospered in the city to supply demand for Old World-style beers.

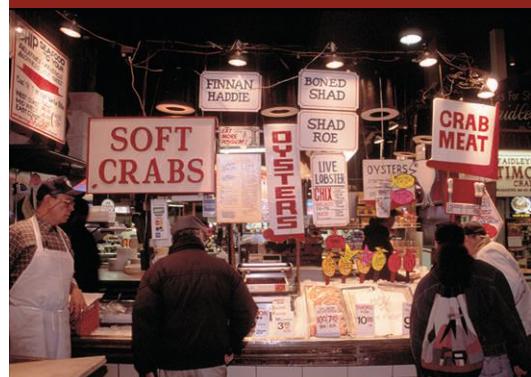
Like that of other American cities, Baltimore's brewing industry was decimated during the 13 years of Prohibition. Likewise, Baltimore's post-Prohibition brewing scene mirrored the trend around the country. The surviving brewers consolidated into somewhat larger regional breweries in fewer numbers, offering fewer choices of brands and generally blander lager-style beers than existed before 1920.

The National Brewery, which was founded in 1872 and later became National Brewing, was the eventual surviving "hometown" brewery. National was a wildly successful brewery that employed more than 900 workers and sponsored the Baltimore Colts National Football League franchise at its peak. National CEO Jerry Hoffberger also owned the Baltimore Orioles baseball team. The brewery's flagship brand was National Bohemian, or Natty Boh' as it is known to native Baltimoreans.

The brand was brewed in the Canton neighborhood of Baltimore until the National plant closed in 1978 and operations transitioned to a new facility in Halethorpe, Md. Natty Boh' flowed from the fermenters in Halethorpe until 1996 when then-owner Stroh ceased operations in Maryland. The brand still exists albeit part of the SABMiller portfolio after a series of brand acquisitions. Through all of these changes, the city's phenomenal pub culture survived with more than 1,000 on-premises accounts licensed today.



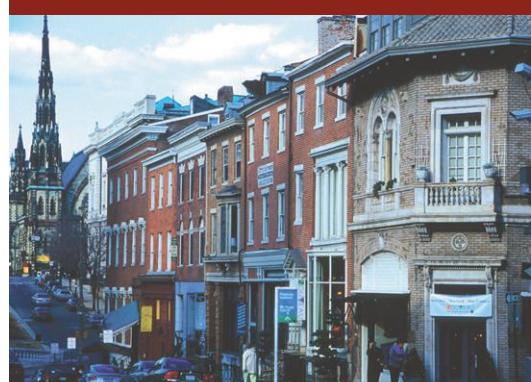
Inner Harbor



Lexington Market



Fort McHenry



Mt. Vernon



Washington Monument



Fell's Point

Charm City Suds

In 1983, Sisson's Restaurant owner Hugh Sisson sought to convert his South Baltimore restaurant and bar into a brewpub, not allowed by Maryland law at the time. Sisson successfully lobbied the legislature for the necessary changes, which were written into law in 1987. He became the pioneer of contemporary craft brewing in Maryland when he first fired his brew kettle at 36 East Cross Street on Federal Hill in 1989. The establishment is still operating as a brewpub but is under new ownership and renamed Ryleigh's Brew Pub & Raw Bar. Typical offerings include four or five regular house beers joined by a seasonal beer. Ryleigh's fruit beers are very popular; Raspberry Wheat and Blueberry Wheat tend to alternate on tap.

With the founding of Clipper City Brewing Company in 1995, Sisson introduced a new packaging brewery to the Baltimore market. After a decade of brewing, Clipper City's lineup includes Clipper City Gold Ale, Clipper City Pale Ale, McHenry Old Baltimore Style Beer, Oxford Raspberry and a line of rotating limited release seasonal offerings marketed under the Heavy Seas banner. The Heavy Seas beers are brewed with the beer aficionado in mind. These small batch beers are esoteric styles that are 7.5-percent alcohol by volume or higher and bottle or keg conditioned. Peg Leg Imperial Stout, Winter Storm "Category 5" Ale, Red Sky At Night (saison) and Small Craft Warning Uber Pils are the current beers in the series. Clipper City beers are widely available at Baltimore's best beer bars.

Perhaps the best view from a brewpub in the city can be enjoyed from Capitol City Brewing Company at Harborplace. Capitol City is a four-location brewpub chain based in the D.C. metropolitan area and Baltimore. The Baltimore location overlooks the beautiful Inner Harbor, the city's focal point for tourists and locals alike. Head brewer Mike Morris keeps the chain's four signature beers on tap including Cap City's award-winning Capitol Kolsch along with several great seasonals specific to the Balto location. Constellation IPA, a summer seasonal, pays homage to the U.S.S. Constellation, the only surviving example of a Civil War-era warship that is permanently moored adjacent to

the pub. Fuel, an imperial stout, makes its annual return to the serving tanks in December and has become a legendary beer within Baltimore beer geek circles.

Wharf Rat, also located in the Inner Harbor area, is just a few steps from the National Homebrewers Conference hotel, the Holiday Inn Inner Harbor. The brewpub is home to Olivers Breweries, which produces English-style ales. Brewmaster Steve Jones hails from England and brews these styles faithfully. In fact, in May 2004, Jones celebrated a decade of brewing professionally and marked the occasion by replicating the exact recipe of the first beer he ever brewed at The Firkin Brewery in the United Kingdom. The 2004 beer, dubbed Anniversary Ale, was an English brown ale brewed with hops and malt imported from the U.K.

Up the hill from the Inner Harbor, set in an absolutely stunning townhouse in the Mount Vernon neighborhood, is The Brewer's Art. The brewpub is widely known as Baltimore's source for Belgian-style beers. Of the impressive breadth of house beers, Ozzy, a strong Belgian golden ale, and Resurrection, an Abbey-style dubbel, are in highest demand both in-house and off-premises at Balto's better beer bars. The decidedly European flair of The Brewer's Art is reflected both in décor and on the menu, which features exquisite meals prepared by chef Ravi Narayanan. The airy upstairs bar adjacent to the dining room is perfect for an aperitif, but do not miss the grotto bar downstairs for a post-dinner digestif.

Balto's Beer Bars

Baltimore is home to literally dozens of great beer bars but due to space limitations, they cannot all be covered here. There are three stellar beer bars that must be visited on any trip to Baltimore. Sean Bolan's Irish Pub & Restaurant in Federal Hill is your favorite neighborhood pub—an authentic Irish-American style pub and an impressive multi-tap all in one. Owner Ken Krucenski's passion for his work pervades all aspects of the operation. An impressive array of local, national and imported fresh beers is always the norm. Much to this writer's delight, a properly conditioned and cared for real ale or two is almost always present as well. For the most memorable experience, attend one of Sean Bolan's special events. If you aren't a

morning person, shoot for the ineffable Octoberfest; otherwise the popular Sean Bolan's beer breakfast or the St. Patrick's Day celebration beginning at 8 a.m. are not to be missed.

Across the Inner Harbor in historic Fell's Point is Max's On Broadway. This tap-house has 68 rotating taps and a dizzying selection of beers from America and Europe's best craft brewers. Properly served real ales from Britain are a constant fixture on Max's two beer engines. An amazing cellar of more than 200 bottled selections is available; ask for the Special Reserve and Ultimate Beer Lover's lists and peruse bottled rare and vintage beers ranging in price from \$4 to \$200. When in town, try to catch a Tuesday night beer social upstairs in the Mobtown Lounge.

Mahaffey's Pub is a relative newcomer on the Balto beer scene but it has quickly become a must-visit. The pub is located in the Canton neighborhood not far from the site of the former National Brewery. Quality, not quantity, is the mantra for proprietor Wayne Mahaffey. The pub has only nine taps and a beer engine, but they rotate constantly. The resultant variety and freshness of the beers is impressive indeed. Mahaffey's is also a great place to grab a bite, with some of the finest pub grub in the city emanating from the kitchen.

Those familiar with Baltimore breweries have no doubt spotted an omission from the preceding list. Sadly, Baltimore Brewing Company, brewer of the DeGroen's line of German style beers, ended its 16-year existence in February 2005. It is not immediately known if the brewery's demise was due to expanding too rapidly or the seemingly never-ending construction project engulfing its proximity. In either case, the result is a step backward for Baltimore beer fans who no longer enjoy the coolness factor of having brewpubs brewing Belgian, English and German style beers all within about a one-mile radius.

Phil Sides lives in Silver Spring, Md. He braves a daily 36-mile roundtrip commute on one of the nation's busiest roads to his office in northern Virginia so he can live relatively close to Baltimore's best pubs.

Where to drink in Baltimore

Ryleigh's Brew Pub & Raw Bar

32-36 East Cross Street
Baltimore, MD 21230
410-539-2093
www.ryleighs.com

Clipper City Brewing Company

4615 Hollins Ferry Road, Suite B
Baltimore, MD 21227
410-247-7822
www.clippercitizenbeer.com

Capitol City Brewing Company

Harborplace
301 South Light Street
Baltimore, MD 21202
410-539-7468
www.capcitybrew.com

Wharf Rat

206 West Pratt Street
Baltimore, MD USA
410-244-8900

The Brewer's Art

1106 North Charles Street
Baltimore, MD 21201
410-547-6925
www.thebrewersart.com

Sean Bolan's Irish Pub & Restaurant

1236 South Light Street
Baltimore, MD 21230
410-837-4440
www.seanbolans.com

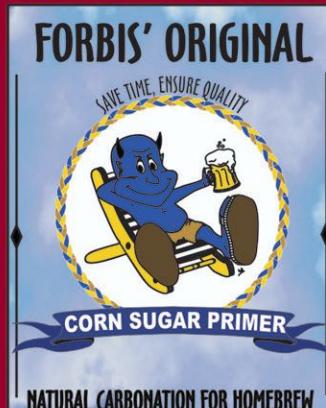
Max's on Broadway

737 South Broadway
Baltimore, MD 21231
410-675-6297
www.maxs.com

Mahaffey's Pub

2706 Dillon Street
Baltimore, MD 21224
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Rammoora: AN HONEST BEER

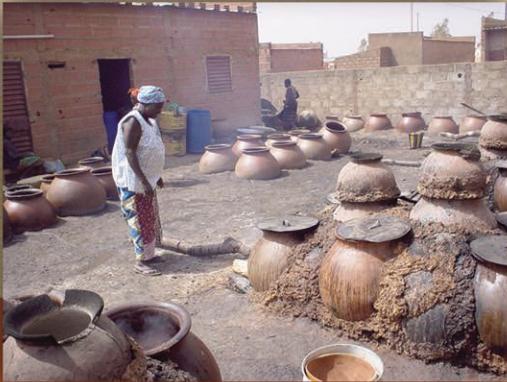


IN BURKINA FASO

by Chris O'Brien

BURKINA FASO MEANS "THE LAND OF HONEST PEOPLE," BUT IT IS ALSO A LAND OF HONEST BEER. THERE ARE A FEW MASS-PRODUCED INDUSTRIAL PILSENER ON OFFER, BUT THE REAL STUFF IS CALLED RAMMOORA, VARIATIONS OF WHICH ARE CALLED DOLO, ZOM KOOM, PIT AND TCHAKPALO.

LAST YEAR I VISITED OUAGADOUGOU (PRONOUNCED OOH-WAH-GA-DOO-GOO), THE CAPITAL OF BURKINA FASO, WHERE I FOUND THIS MEDIUM-SIZED WEST AFRICAN COUNTRY TO BE VIRTUALLY SWIMMING IN HOMEBREWED DELIGHTS.



Rammoora is a red sorghum-based beer, brewed in just two days and consumed immediately upon fermentation. I was introduced to the city's premier brewster and spent several days observing her work.

Madame Kere Marie Zapsonrey Bernadette employs a dozen women and men, plus a handful of the women's daughters who rotate between school and brewery duties. The brewery itself was the women's domain, holding charge over all the serious brewing management, while the men were kept around just for brute labor, like hauling water and chopping firewood.

THE BREW

The brew day begins at 4 a.m. with the crushing of 800 pounds of malt. Malted red sorghum is the fermentable grain of choice. White sorghum is used in a pinch, but is said to be better for eating than brewing. Madame Kere purchases the sorghum pre-malted and doesn't hesitate to send a load back to the maltser if it fails her quality specifications. Unfortunately, I didn't get to see the malt works, but that provides a fine excuse for a return visit sometime in the future.

The malt is crushed into a powder and then mixed by hand into large clay pots filled with water. Once the mixture is of uniform consistency, it is diluted into several identical pots of water.

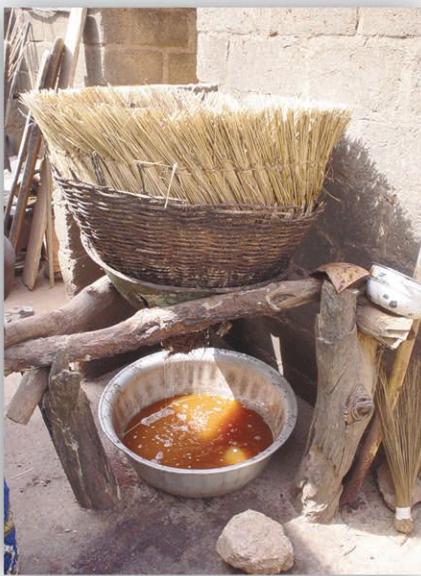


ABOVE: STIRRING THE WORT

RIGHT: STRAINING BASKETS

Meanwhile, a tree bark called youlaga (I couldn't confirm the translation, but in Mali they use a bark very similar in appearance that they tell me is okra stalks) was pounded and stretched, soaked and wrung out by hand in water to create a gluey liquid—the purpose of which is to clarify the beer. Using calabash bowls, the women scooped the youlaga glue into larger clay pots filled with the malt-water mix and allowed it to settle. The women then skimmed off the hard outer part of the grain husks as the youlaga induced them to float to the surface.

Now ready for mashing, the grains were transferred from the clarifying pots to the brew kettles. All of this work was conducted in an open-air brew yard. The yard contained five sets of six large brewing vessels. Each set was comprised of two rows of three pots. A fire was stoked to a roaring blaze underneath the brew pots, which were themselves covered with metal lids. Nestled in the center of the two rows were two more pots turned upside down with their bottoms broken out. These served as chimneys for channeling the heat and smoke away from the brewsters as they tended the boil. Each set of brew pots and chimneys was held together with a mortar, forming a semi-permanent brewing structure that helped maintain an efficient use of firewood. Long wooden paddles fashioned from palm branches were used as mash sticks.



As the mash boiled I noticed the women's deft avoidance of the dreaded "boil-over." As a pot neared the danger stage, the women would nimbly dip a calabash into the pot, scoop out some wort and pour it into a neighboring pot. Scalding hot wort splashing on their hands didn't seem to faze them in the slightest.

One brewster wasn't so lucky though, and during a preoccupied moment, one of her pots breached the rim, spilling hot wort down the sides of the pot and "phooshing" into the fire. At this very inopportune moment, Madame Kere entered the brew yard.

I did not need to understand Moore (the language spoken by these women) to know that Madame Kere was not pleased. Her tone of voice made it clear she was issuing a scolding. She spent several minutes pointing at overflowing pots, under-filled pots, pots with their lids off, fires that were too strong, fires that were too weak and who knows what else. I'm afraid this incident did not endear the ladies to me, since it



TRAVEL TIPS

A guidebook is essential if traveling to Burkina Faso for the first time. I recommend the *Lonely Planet Guide to West Africa*.

The best time to travel is between December and February after the rainy season has ended but before the harmattan winds have dried and heated everything up. It's also worth scheduling your visit during one of Burkina Faso's many festivals like FESPACO, which is Africa's premier film festival, or SIAO, Africa's largest handicraft show. Economy airline tickets range from \$1,100 to \$1,500.

Accommodation options in the capital range from expensive international hotels to cheap backpacker lodges, camping or staying with locals in rural areas. A reasonable hotel in Ouagadougou costs less than \$50 per night. We stayed in the top-end Relax Hotel for \$80 per night.

Ouagadougou is littered with inexpensive watering holes. Except in the most highfalin' tourist hotels, cold beers never cost more than \$2 for a 650-milliliter bottle. No draft beer was available at the time of our visit but this may have changed by now. Jardin de l'Amitié on Place Des Nations Unies has a great outdoor beer garden with good live afro-pop music on most nights.

Even better is to find one of the numerous rammoora stands. These are slightly difficult to find, but are all over the city. Look for an open-air thatched roof with some benches, a big blue plastic barrel and people drinking out of calabashes. You won't find any foreigners in these places and it is virtually impossible to spend much money. The locals will invariably be amused by your presence, and if anyone speaks English they will offer friendly conversation, especially if you buy a round for the house, which will set you back a dollar at the most. It is also easy to find rammoora stalls in rural markets.

seemed clear that it was my presence in the yard that had distracted them in the first place and caused the disruption. Or perhaps Madame was just using me as an excuse to demonstrate her authority.

In any event, the mash eventually concluded and the wort was transferred to cooling pots, into which another addition of the youlaga clarifying glue was added, and the wort cooled for the night. I



noticed some of the younger girls occasionally dipping a finger into the cooling wort, licking the sweet juice from their fingers. I couldn't help but recall my own youth, licking the beaters from my mom's electric mixer when she made up a batch of cookie dough.

There was a Muslim teenaged boy sitting next to me in the brew yard and he was given a pitcher of the cooling wort. He explained that since the beer was non-alcoholic at this stage, it was therefore permissible for him to drink.

The next morning, the boiled grains were scooped out of the wort and deposited into a row of enormous straw baskets. Nested two on top of each other and suspended by a frame of branches over a large basin, they served as a sieve. The grains were sparged by pouring water over them, which slowly filtered through the baskets and dripped into the basins below.

The resulting liquid was added to the rest of the wort and it was all boiled a second time. The wort then cooled again for the remainder of the day, and by evening it was cool enough for a yeast cake to be added. At this point, yeast is pitched in only half of the batch. This half ferments just one night and then early in the morning it is distributed in giant blue plastic

HER FEAR IS THAT TRADITIONAL BREWING, IF NOT PROPERLY ACKNOWLEDGED AND SUPPORTED, WILL Degrade TO SUCH LOW STANDARDS THAT THE INDUSTRIAL, COMMERCIAL BREWERIES WILL THRIVE AT THE EXPENSE OF RAMMOORA.

barrels, transported by donkey cart to "brewpubs" around the city to be consumed fresh in one day.

The other half of the wort is stored for an extra day and kept over a low heat to prevent infections. This half is pitched with

yeast the next day. Since the brewing process takes two days, this storage procedure allows the brewsters to provide a fresh half-batch each day.

A useful byproduct of the brewing is the excess yeast cakes, which are collected

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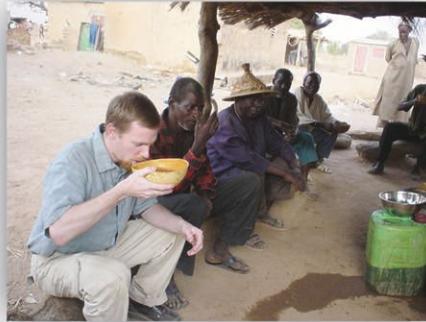
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off the bottom of the brew pots, dried and sold for use in sauces, providing an additional source of revenue from the brewing operation.

QUALITY CONTROL

Madame Kere emphasized her exclusive use of clay pots, rather than metal pots. It wasn't clear whether she was referring to aluminum, iron or maybe lead, but she claimed that boiling in metal pots induces heart attacks in drinkers. Perhaps at one time the metal pots were made with lead, which could certainly be a health concern, or maybe she was mistakenly under the impression that aluminum causes

Alzheimers—a long-standing urban myth even here in the United States. On the other hand, cooking in iron pots would actually be a health benefit, especially in Africa where anemia is common.

In any case, she explained that metal pots are cheaper than clay pots in the long run because they last longer and because they heat the wort more quickly. Hence some brewers use them to shorten the brewing time. However, she dislikes the fast heating because it tends to burn the wort and lower the quality of the final product. She had many disparaging words for the people that brew this way, claiming that they are bad brewers and are just in it for the money. Kere's pride in her choice of high quality clay pots was evidenced when she pointed out one particular pot that was 10 years old and made in her home village.

Madame Kere's biggest lament seemed to be the government's failure to protect or



GLOSSARY

Moore = the dominant language of Burkina Faso's capital, Ouagadougou

Ram = generic term for homebrewed alcohol in Burkina Faso and other parts of West Africa

Rammoora = red sorghum beer, a.k.a. dolo

Raynouga = feast of the new harvest, literally "beer drinking day"

Youлага = okra stalks used as a clarifying agent in rammoora

promote high quality traditional beer brewing. She explained that Captain Thomas Sankara, the previous president of Burkina Faso, had a keen concern in preserving high standards in the craft. He even went so far as to have Kere's brew researched in France in order to develop a way to bottle and sell it on a larger scale, maybe even for export. Unfortunately, Sankara's leadership was cut short when a coup ousted him in 1987, and the new president expressed no interest in the matter. To the contrary, the new leader took care to see that a single brewery—the BGI-Castel Groupe—monopolized Burkina Faso's industrial brewing sector. BGI-Castel owns the only two commercial breweries in the country and pumps out a few passable Pilseners. They are also licensed Coca-Cola and Guinness manufacturers, so they have the commercial drink market pretty well sewn up. Commercial beers in Burkina Faso include Guinness, Flag, SOB.B.RA, Brakina and Castel.

So for the time being, Kere is forced to maintain her high quality standards in the face of pressure from lesser brewers who compete with her by using cheaper equipment, as well as fighting the bigger battle against forced obsolescence at the hand of corporate Pilseners.

When I was first informed about the number of employees, I commented on the number of small girls around who certainly appeared to be working hard but weren't included in the official count. Kere explained that the women bring their daughters to help and to learn the trade. They attend school as well, but

their time off is spent in the brewery. Her hope is that these girls will learn the proper craft of brewing so they can carry on the tradition of high quality rammoora. Kere learned from her own mother, from whom she inherited the brewery.

She said brewing is a good business that brings lots of money to women in Burkina Faso. She wishes the government would recognize this trade, and tax and regulate it so that the standards don't degrade. Her fear is that traditional brewing, if not properly acknowledged and supported, will degrade to such low standards that the industrial, commercial breweries will thrive at the expense of rammoora. Ironically, I noticed that one of the brewsters wore a Guinness T-shirt. Perhaps a symbol of her own ambition, or was it a fateful omen foreshadowing the demise of rammoora?

Through their fermenting art, Burkina Faso's brewsters also keep alive other cultural traditions. Though rammoora is brewed year round, it is prepared especially for traditional feasts, such as Raynouga. Translated as "beer drinking day," Raynouga is a harvest celebration in which beer drinking enjoys a central role. The beer brewed for festivals like this, and for weekend consumption, is stronger than the everyday drinking beer. Finding no scientific metric at hand for confirming this, I was content to simply enjoy a calabash-full and allow the mystery to lift my spirits.

FILLED TO THE GILLS

A few days after visiting Madame Kere, my partner Seung and I headed for the countryside to a community agriculture training school where we noticed a large plastic sheet spread on the ground, covered with what looked like some kind of grain. It turned out the students bought spent brewing grain to feed the pigs, goats and fish that they raise as part of their training.

The next day we were off to visit some community schools as part of Seung's work duties. We passed through a market and noticed a beer stall, which prompted us to stop for a taste of fresh country rammoora. I was reluctant to cause a diversion from our school visits.

This was, after all, a business outing for Seung, and I didn't think a beer stop would be appreciated by her colleagues. They were, however, only too glad to oblige us, so we hopped out and hurried over to the beer stand.

The market was busy, and this stall had plenty of activity. There were two large clay serving vessels, with a woman seated behind each one drawing gourds full of rammoora for the thirsty customers. It was late afternoon, and judging by the level of merriment I suspect some of the patrons had been enjoying themselves since the time the market opened early that morning.

I handed over 50 cents CFA (about 10 U.S. cents, and I suspect that even this was over-payment), gratefully accepted my gourd and greedily slurped the reddish liquid. It was a bit more sour than Madame Kere's, though I suspect this is because of the lateness of the hour. As the day wears on, with the women's hands dipping in and out of the pot, accepting coins and being generally covered with the dust of the market, the beer acquires a certain "earthiness," shall we say. It seems one must become a morning drinker in this country in order to fully appreciate the finest beer.

Chris O'Brien lives, brews and drinks homebrew in Addis Ababa, Ethiopia, from where he also publishes the online newsletter BeerActivist.com. He is part owner of Seven Bridges organic homebrew cooperative.

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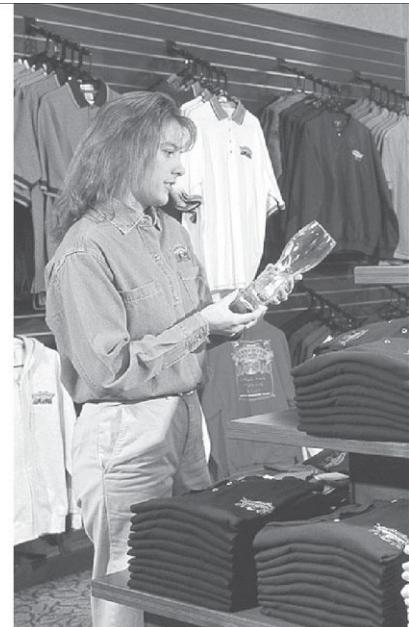
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DO NOT DROP



The SHIPPING Blues

*The Perils of Getting Your Beer
from Point A to Point B*

By Greg Kitsock

In the years leading up to Prohibition, liquor merchants would dodge the law by mailing booze directly to customers in dry states. To allay suspicion, the shippers would mark their crates as containing some innocuous household item. Occasionally, one of these packages would be smashed in transit. Then the intended recipient might get a call from the post office: "Sir, your books are leaking." →



Homebrewers face the same problem in getting their beers to regional and national competitions. Shipping beer is more problematic than it was 10 years ago, for two reasons.

First, in the aftermath of September 11 and the anthrax scares, the U.S. Postal Service and common carriers are on guard against anyone trying to ship explosives, dangerous biological organisms or other contraband. Marking your package "yeast samples for analysis"—a common subterfuge among homebrewers—might bring increased scrutiny. If your package is opened in transit and found to contain unlabeled brown bottles filled with an unidentified liquid, the shipping clerk might very well call in the bomb squad.

Secondly, shipping alcoholic beverages is a political hot potato right now. In fact, a pitched battle is being fought before the U.S. Supreme Court over whether small wineries have the right to ship product to a consumer in another state in defiance of that state's laws.

The wineries—too small to acquire out-of-state distributors but needing out-of-state business to survive—argue that the Commerce Clause of the U.S. Constitution grants Congress the sole right to regulate commerce between states. A coalition of diverse interests, including the National Beer Wholesalers Association and anti-alcohol groups like MADD, contend that the 21st Amendment (which repealed Prohibition) grants the states absolute power to regulate alcohol within their borders. They oppose direct shipping on the grounds that it makes it more difficult for the states to collect taxes and increases the likelihood that alcohol will fall into the hands of minors.

What the Supreme Court will rule remains to be seen. In the meantime, each of the 50 states has its own set of rules governing the shipping of alcohol. Some states allow wine to go through the mail but not beer. Some states permit shipment of alcohol within the state but not from a retailer outside the state. A few years ago Virginia liberalized its laws, allowing residents over 21 the right to receive beer and wine by mail. But step

over the border into Maryland, and you'll find that it's a felony to ship or receive alcoholic beverages.

It should be noted that the states are primarily concerned with policing commercial transactions. In all the debates I've witnessed on direct shipping, the subject of homebrew has not come up once. Indeed, none of the sources I interviewed for this article could recall a hobbyist getting arrested or prosecuted for sending homebrew through the mail.

► *The Brew Must Go Through*

Nevertheless, one shouldn't take unnecessary chances.

The United States Postal Service, for instance, will not accept packages containing alcoholic beverages. If you mislabel a package and you're caught in the act, the post office will probably send you a stern letter ordering you not to do it again. However, the Postal Service, being a branch of the federal government, could haul you to court if it decided to prosecute. That's why the American Homebrewers Association strongly recommends using private carriers. If you're caught, the most they can do is scold you.

United Parcel Service (UPS) has a convoluted and shifting policy toward alcohol that can be interpreted differently at different times. An employee reached via the company's information hotline said that UPS will ship beer in five states—California, Illinois, Michigan, New York and Ohio—but only within a state, never between states. Additionally, the shipper must be a business with an account and a contractual agreement with UPS—the company will not accept packages from individuals. The restrictions are similar for wine, although there is a much longer list of states where UPS will ship wine.

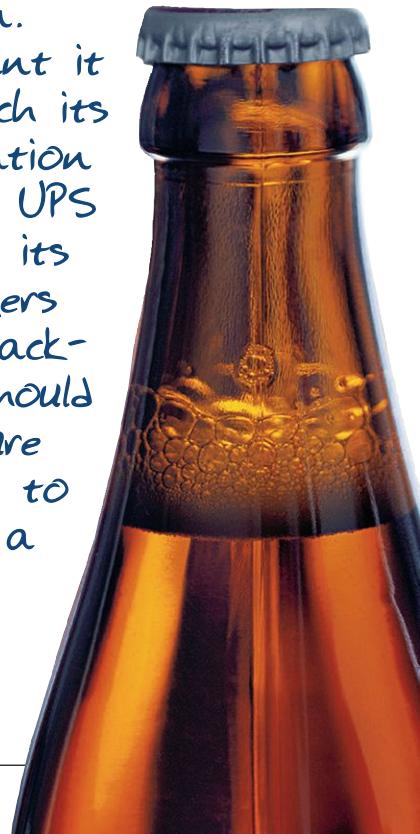
At first glance, Federal Express seemed to be more relaxed in policy. A page on their Web site, titled "unusual shipments," reports that FedEx last year shipped 630 tons (504,000) bottles of 2004 Beaujolais Nouveau from the wine cellars of France to oenophiles in Japan. However, a call to FedEx headquarters revealed a policy more restrictive than that of UPS. FedEx will

accept parcels of beer or hard liquor, but only if they're being sent by one licensed dealer or distributor to another licensed dealer or distributor. A licensed dealer, distributor or winery can ship wine directly to a consumer, but only in certain states, subject to certain restrictions.

Greyhound PackageXpress is an option rarely used by homebrewers. Nevertheless, the bus company advertises that it will get your shipment to its destination within seven business days, or, for perishable material, overnight. Alas, the list of prohibited articles on Greyhound's Web site contains the following: "alcoholic beverages or liquors, including ale, beer and wine." (On the other hand, the company will ship human blood, eyeballs and decapitated animal heads as long as they're kept on ice.) As a passenger, I've often carried beer in my luggage; the drivers never seemed to mind as long as no one was actually drinking on the bus. However, I've never consigned fragile material to the bottom compartment of a bus, and besides, Greyhound reserves the right to inspect all packages.

Getting UPS to accept your package is only half the mission.

You want it to reach its destination intact. UPS advises its customers that packages should be secure enough to survive a three-foot drop.



Less utilized shipping companies all have their limitations. BAX United States, according to a spokesperson, will ship "beer samples," although not large quantities of alcohol ... and they'll only accept deliveries from a licensed manufacturer or vendor, never an individual. DHL Worldwide Express will handle wine but not beer. Yellow Freight is more liberal. According to a customer service representative, the company will accept, beer, wine or liquor, as long as it's "securely packaged," either from a company or an individual, and they'll deliver it to any state except Florida. However, Yellow Freight's Web site at www.myyellow.com states that the absolute minimum for a delivery is \$130, and they'll tack on an extra \$75 for pick-ups at or deliveries to a private residence!

So what are the alternatives?

The American Homebrewers Association project coordinator Gary Glass says there are several strategies that will increase the likelihood of your package being accepted. One is to use UPS's online service to print out your own shipping label. Another is to turn your package over to a shipping business that acts as an intermediary between the customer and UPS. A third plan is to find a friendly homebrew shop that's willing to help. Many homebrew suppliers act as depots for regional homebrew competitions, receiving and sending packages. Such a business is likely to hand over dozens of parcels to the UPS guy on a daily basis, making it unlikely that the deliveryman would question any particular package.

→ It's All in the Packaging

Getting UPS to accept your package is only half the mission. You want it to reach its destination intact. UPS advises its customers that packages should be secure enough to survive a three-foot drop. Glass believes homebrewers need to be even more careful. "Always assume that the UPS man will play football with your package." George Hummel, proprietor of the homebrew supply shop Home Sweet Homebrew in Philadelphia, emphasizes, "You can't overpack it."

First of all, start with a sturdy cardboard box. (No shoeboxes, please!) Use a big enough box so bottles will not be close to

Blackwood also makes two other recommendations:
1) use waterproof ink for printing your labels, so the identity of the individual bottles won't be blurred beyond recognition in case of a spill; and 2) if you're enclosing any paper, such as an entry form or a check, put it in its own plastic bag, preferably a Ziploc.

the edge, recommends Glass. Some homebrewers design their own packages. Hummel once received a shipment of homebrew in a custom-made wooden chest. "It was the only package I needed two different tools to open!" he recalls.

Next, pack the beer in such a way to cushion it against shock (Glass advises wrapping each individual bottle in bubble wrap) and to prevent bottles from moving around in the container, bumping against and scraping each other. Two possibilities are a cardboard grid or a form-fitted piece of Styrofoam with holes for individual bottles. Hummel suggests your local liquor store might be an excellent source of such packaging. Another possibility, he adds, is to take an empty six-pack holder and insert a bottle into every other slot, filling the remaining slots with packing material.

But don't count on a Styrofoam holder alone to protect your beer. Bev Blackwood, a member of the Foam Rangers homebrew club in Houston, said the worst homebrew shipping disaster he ever saw involved a box

of samples that a Florida club called Brewing Anonymously Through Florida sent to Dallas for the Bluebonnet Brew-Off. "They had drilled holes in a huge sheet of Styrofoam and inserted the bottles. An impact along the way shattered the Styrofoam, and every single bottle gravitated to the center of the box, where they banged against each other." Altogether, 10 out of 30 or 40 bottles were lost.

The damage could have been lessened, he asserted, if the shippers had filled the carton more densely with packing material. Nothing more esoteric than old newspapers or Styrofoam peanuts is needed to fill the empty space. Glass prefers newspaper over packing peanuts, especially if you're packing the bottles singly. Packing peanuts tend to shift position in transit, and your bottles will shift position with them. Besides, adds Glass, "they make a mess when the box is opened."

Blackwood recommends against using corn starch-based foam as a packing material. The material is biodegradable,



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Russian River Santa Rosa

Santa Barbara Brewing Co. Santa Barbara

Stone Brewing Co. San Marcos

COLORADO

5280 Roadhouse & Brewery Littleton

Backcountry Brewery & Restaraunt Frisco

BJ's Pizza Grill & Brewery Boulder

Boulder Beer Co. Boulder

Dillon Dam Brewery Dillon

Flying Dog Brewery Denver

Glenwood Canyon Brewing Co. Glenwood Springs

CONNECTICUT

Hops Grillhouse and Brewery Manchester, Newington

Willimantic Brewing Co. Willimantic

DELAWARE

Iron Hill Brewery and Restaurant Newark, Wilmington

Stewarts Brewing Co.

Bear

FLORIDA

Dunedin Brewery

Dunedin

Hops Grillhouse and Brewery Boynton Beach, Bradenton, Ft. Myers, Gainesville, Miami, Ocala, Palm Harbor, Pembroke Pines, Pompano Beach, Sanford, West Palm Beach

GEORGIA

Hops Grillhouse and Brewery Duluth

HAWAII

Kona Brewing Co.

Kailua-Kona

IDAH0

Old Chicago

Boise (2)

ILLINOIS

Great Divide Brewing Co. Denver

Hops Grillhouse and Brewery Denver, Golden, Littleton, Northglenn

Ironworks Brewery & Pub Lakewood

Left Hand/Tabernash Brewing Co. Longmont

Odell Brewing Co.

Fort Collins

INDIANA

Old Chicago

Aurora, Boulder, Broomfield, Colorado Springs (3), Denver (3), Ft. Collins (2), Grand Junction, Greeley, Lakewood, Littleton, Longmont, Silverthorne, Superior, Thornton, Westminster, Wheatridge

Oskar Blues

Lyons

Phantom Canyon

Colorado Springs

Pumphouse Brewery & Restaurant Longmont

Redfish New Orleans Brewhouse Boulder

Redstone Meadery

Boulder

Rock Bottom Brewery

Denver, Englewood, Westminster

Rockyard Brewing Co.

Castle Rock

Smugglers Brewpub & Grille

Telluride

Walnut Brewery

Boulder

Wynkoop Brewing Co.

Denver

ILLINOIS

Elmwood Brewing Co.

Elmwood

Flossmoor Station Brewing Co.

Flossmoor

Goose Island Beer Co. Chicago (2)

Old Chicago Rockford

Mickey Finns Brewery Libertyville

Piece Brewery Chicago

Rock Bottom Brewery Chicago, Warrenville

INDIANA

Buffalo Wild Wings Downtown Indianapolis

Rock Bottom Brewery Indianapolis

Upland Brewing Co.

Bloomington

IOWA

Court Avenue Brewing Co. Des Moines

Old Chicago Bettendorf

Raccoon River Brewing Co. Des Moines

Rock Bottom Brewery Des Moines

KANSAS

Old Chicago Lawrence, Lenexa, Overland Park, Wichita (3)

MARYLAND

Hops Grillhouse and Brewery Owings Mills

Rock Bottom Brewery Bethesda

Watch City Brewing Co. Waltham

MASSACHUSETTS

Cambridge Brewing Co. Cambridge

Rock Bottom Brewery Boston, Braintree

Watch City Brewing Co. Waltham

MICHIGAN

Arbor Brewing Co. Ann Arbor

Big Buck Brewery & Steak House Auburn Hills, Gaylord

Hereford & Hops Steakhouse & Brewpub

Bay City, Escanaba

MINNESOTA

Hops Grillhouse and Brewery Maple Grove

Old Chicago Apple Valley, Blaine, Duluth, Eagan,

Eden Prairie, Minneapolis (2), Minnetonka, Plymouth, Roseville

NEVADA

Chicago Brewing Co. Las Vegas

Rosemary's Restaurant Las Vegas

NEW HAMPSHIRE

The Portsmouth Brewery Portsmouth

NEW JERSEY

Ale Street News Maywood

Triumph Brewing Co. Princeton

NEW MEXICO

Blue Corn Cafe & Brewery Albuquerque, Santa Fe

Il Vicino Brewing Co. Albuquerque

NEW YORK

CH Evans Brewing Co. at the Albany Pump Station Albany

Ellicottville Brewing Co. Ellicottville

Lake Placid Pub & Brewery Lake Placid

Lake Placid Craft Brewing Co. Plattsburgh

Southampton Publick House Southampton

NORTH CAROLINA

Hops Grillhouse and Brewery Matthews

OHIO

Brew Kettle, Taproom and Smokehouse Strongsville

Rock Bottom Brewery Cincinnati, Cleveland

Willoughby Brewing Co. Willoughby

OREGON

BJ's Pizza, Grill & Brewery Eugene, Portland (2)

Laurelwood Public House & Brewery Portland

Old Chicago
Beaverton, Gresham, Portland (2)

Pelican Pub and Brewery
Pacific City

Rock Bottom Brewery
Portland

Rogue Ales Brewery
(includes Brewer's on the Bay)
Newport (2), Portland

PENNSYLVANIA
Barley Creek Brewing Co.
Tannersville

Iron Hill Brewery and Restaurant
Media, North Whales, West Chester

Rock Bottom Brewery
King of Prussia, Homestead

Triumph Brewing Co.
New Hope

SOUTH CAROLINA

Hops Grillhouse and Brewery
Spartanburg

TENNESSEE

Boscos Brewing Co.
Memphis, Nashville

TEXAS

BJ's Restaurant & Brewery,
BJ's Restaurant & Brewhouse
Addison, Houston, Lewisville, Webster

UTAH

Bohemian Brewery & Grill
Salt Lake City

Utah Moab Brewery
Moab

Squatter's Pub Brewery
Salt Lake City, Salt Lake Airport

Uinta Brewing Co.
Salt Lake City

VIRGINIA

Hops Grillhouse and Brewery
Alexandria, Chesterfield

Rock Bottom Brewery
Arlington

Williamsburg Brewing Co.
Williamsburg

WASHINGTON

Rock Bottom Brewery
Bellvue, Seattle

Rogue Ales Issaquah Brewery
Issaquah

WISCONSIN

Angelic Brewing Co.
Madison

Hereford & Hops Steakhouse
& Brewpub

Wausau

Milwaukee Ale House
Milwaukee

Northwoods Brewpub
Eau Clair

Old Chicago
Madison

Rock Bottom Brewery
Milwaukee

WYOMING
Snake River Brewing Co., Snake
River Brewpub
Jackson Hole, Lander

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he warns, and if a bottle should break, the foam will dissolve in the spilled beer, leaving your remaining bottles without a cushion.

Speaking of breakage, a package leaking beer is always bad news. Most likely, UPS employees will intercept such a parcel and destroy it, even if the rest of the contents are intact. For this reason, Blackwood advises wrapping your homebrew samples inside a trashcan liner or some other waterproof plastic membrane. He also makes two other recommendations: 1) use waterproof ink for printing your labels, so the identity of the individual bottles won't be blurred beyond recognition in case of a spill; and 2) if you're enclosing any paper, such as an entry form or a check, put it in its own plastic bag, preferably a Ziploc.

Besides breakage, another concern will be temperature. Once you consign your homebrew to a deliveryman, there's no way to be sure it won't sit in an unheated truck in sub-zero weather or languish in the noonday sun on the doorstep of the drop-off point. Some homebrewers will actually purchase a plastic cooler—the kind you would take to a picnic—and box it up with samples inside ... or simply tape up the cooler and stick a label on it. A word of advice: if you're using

a special container and you'd like it returned, make prior arrangements with the contest organizers. Don't simply insert return postage inside the box and assume that the handlers will find it.

Other homebrewers use gel packs of refrigerant to keep their shipments cool. One simple way to safeguard against temperature extremes is to nest the box with your homebrew inside a larger box, then fill up the space between the boxes with extra insulation.

However, neither Glass nor Blackwood felt that temperature fluctuation presented a major threat to homebrew. "Beer has a significant thermal mass," noted Blackwood. "It would need a fairly long time sitting out in the sun to do any damage." And he's never heard of any sample freezing. Glass noted that at the second round of last year's national homebrew competition, the ambient temperature in Las Vegas hovered in the 90s, but the quality of the homebrew was better than ever.

Blackwood offers one extra piece of advice. If your club is hosting a competition, instead of tossing out the shipping material, recycle it. At the annual Dixie Cup competition in Houston—the largest sin-

gle-site homebrew judging in the nation—"a good packing box will not get thrown away," insists Blackwood.

Finally, if you're a novice homebrewer, don't view the prospect of shipping your beer with undue trepidation. Glass estimates that of 4,443 entries received for the first round of last year's national homebrew competition, only about 15 to 20 were broken in transit—less than half a percent.

The odds are definitely in your favor.

Greg Kitsock is editor of American Brewer and Mid-Atlantic Brewing News as well as a regular contributor to Zymurgy.





Oh, Baby!

The ABCs of Brewing for New Dads



By Stephen
Klump



Congratulation on the birth of a new homebrewer" is the greeting for proud new homebrewing dads everywhere. Usually you are on Cloud 9 after the arrival of a little one, because a birth is a unique, life-altering moment. So, after all the visiting grandmothers leave and the presents stop arriving, you now have a little person who needs to be taken care of.

This takes time—a lot of time.

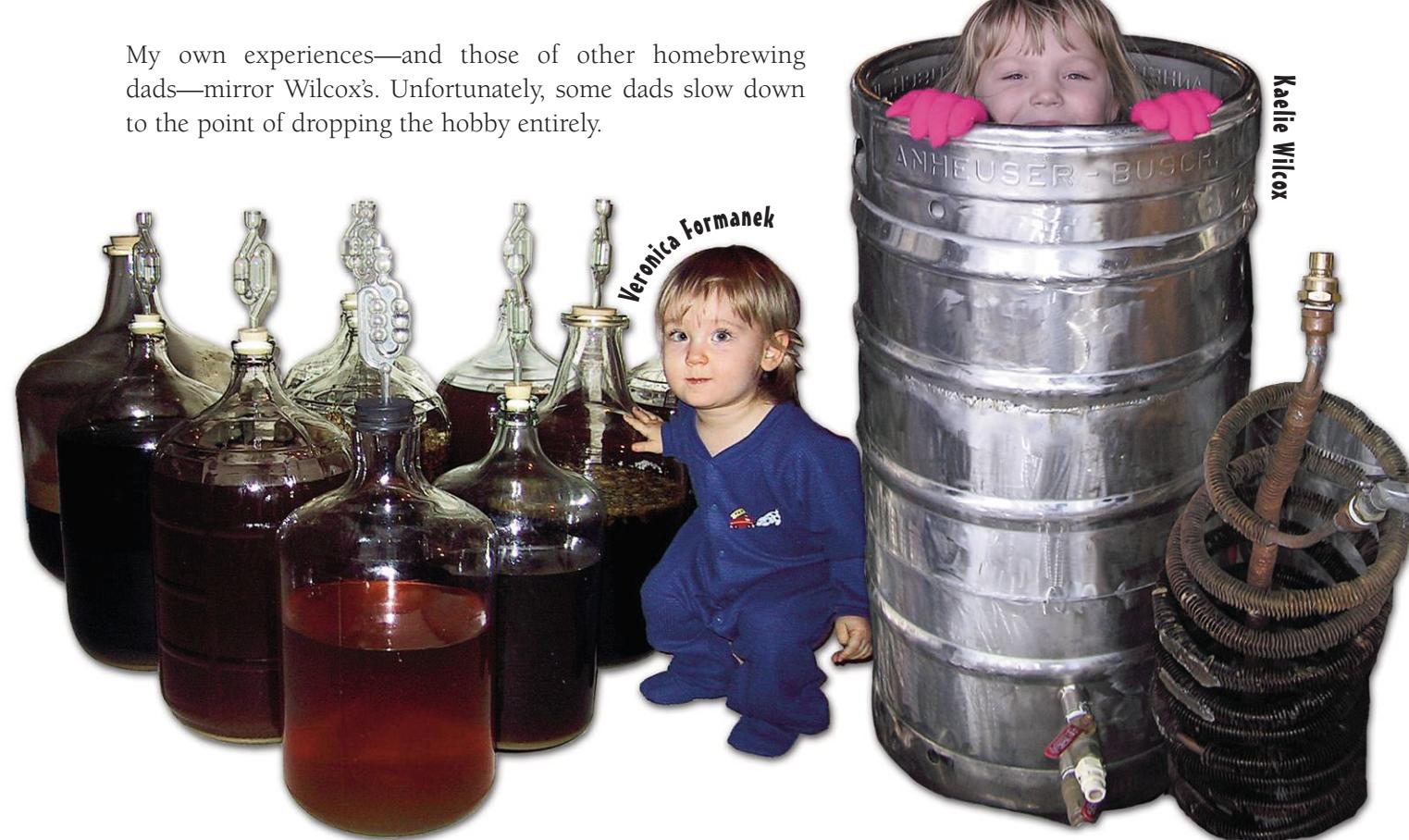
There is a push-pull going on with the arrival of your bundle of work...er, joy! You want to be a good dad and help with the baby, but on the other hand, your brew kettle is calling. "Ian is doing fine. I miss my basement," wrote Guy Zahner of Alchemy Brewing Club three weeks after the arrival of his son.

What's a brewer to do? Plan and prioritize are your best options.

In anticipation of not having time for brewing, I brewed like a madman during the weeks and months leading up to Anna's birth. I figured that I would be able to brew again after a three-month hiatus. Wrong! It was six months till my first brew and a couple of months till the next one. Things were so slowed that a pair of pre-birth brews, a dortmunder and rauchbier, lagered for seven months, patiently waiting to be bottled.

Your priorities will shift. Homebrewing may drop to No. 3 or No. 4. "I have basically given up golf in lieu of parenthood (and kept homebrewing)," says Phil Wilcox, founder of Prison City Brewing and father of three. "Brewing went from 20 batches a year pre-kids to 12 after Kaelie, seven after Kylie and four in the last 12 months (Skye is 10 months old)."

My own experiences—and those of other homebrewing dads—mirror Wilcox's. Unfortunately, some dads slow down to the point of dropping the hobby entirely.



Finding a Balance

In parenting class, the instructor told us wide-eyed, eager parents-to-be to lower our expectations. "Maybe have a goal of getting a shower before the dad comes home from work," she advised the expecting moms. Wow! Was it really going to be this time consuming that you couldn't take a shower? It was! Planning three months till my next batch was aiming too high.

As a dad, I am now responsible for the well-being of another little person. Now there is another ball to juggle during your day: work, homebrewing, wife, sleep and baby (and usually take away sleep).



Klump's daughters jockey for position to see who gets to hand him bottles to sanitize, place cleaned bottles on the bottle tree, choose which cap design, count the caps, put caps on filled bottles and box the capped bottles. Every once in a while they will ask to try their strength and help work the capper's lever.



The one thing a new parent has the least of is time. The one thing brewing takes is time.

The challenge faced by a new homebrewing dad is to squeeze in a brew without slacking off on the baby care. One of the best solutions is to have someone watch the baby so you have free time to brew. When grandmothers show up for a visit, I schedule a brew. After all, they have come to visit the baby, not me. If you are lucky enough to have in-town family, this works even better. Guy Zahner has grandparents who take his son for an overnight once a week. If circumstances are such, a live-in grandmother takes the pressure off and allows for continued brewing without

breaking stride, as was the case with award-winning homebrewer Joe Formanek of the Urban Knaves of Grain and BUZZ, and father of two daughters, Veronica (4) and Hannah (2). Formanek's mother-in-law lived in his house for about the first year of Veronica's life.

Another golden opportunity for brewing is when your wife takes the baby to visit her relatives. Wilcox says, "The best time to brew is when I can manage to send the family to Detroit for a few days for some Grandma time, while I stay home and work during the day and brew at night."

Time-Saving Tips

If you are an all-grain brewer, consider extract brewing for a while. Brewing is much shorter when you eliminate the mash and sparge. If you are a die-hard all grain brewer, Wilcox suggests having a "qualified assistant brewer." That way, you can dash off to change a diaper or solve a crisis and your assistant can monitor the batch to eliminate a mash scorching or brew boil-over.

You can brew overnight, while everyone is sleeping, and nap the next day. It's not as if you will notice being tired; you're losing sleep anyway.

Another option is splitting the brewing process, a suggestion from Formanek. He advises to conduct the mash and sparge at night after everyone is asleep, let the wort sit overnight, then wake up early and brew first thing in the morning. I had my doubts about souring the mash but he assured me that it would be fine. I can't vouch that this is applicable for all styles, but the first brew I tried this on—a brown porter—won a silver medal at the 2004 National Homebrew Competition in Las Vegas (see recipe).

Kegging is a big time saver over bottling. You eliminate the long and tedious bottle cleaning process. However, there is a startup cost with kegging that may not be feasible. Babies take time; they also take money. So, if you choose to stick with bottling, try using no-rinse sanitizer to shave a few minutes from the process.

If your equipment has the capacity, brew a double batch. Wilcox is looking into

"leapfrogging three or four batches simultaneously." You can do "one batch in eight hours, two in 10 hours and three in 12 hours."

While not exactly time saving, taking a day off work allows you to brew and, since you would otherwise be at work, not take any time away from the family.

It may be heresy to suggest the following, but for some brewers, perhaps a sabbatical from brewing would be the best thing. The hobby will still be there when you rejoin the ranks of active brewers, and you might have a capable assistant to help out.

So when will there be time to read *Zymurgy*? During bath time! I started giving baths and quickly expanded the time allotted so my kids could play in the water. Once they were old enough to play on their own, I would sit with them reading while they splashed and played with water toys. The kids had fun playing, I had time to sit (and rest) and read *Zymurgy*, and my wife got a break as well.

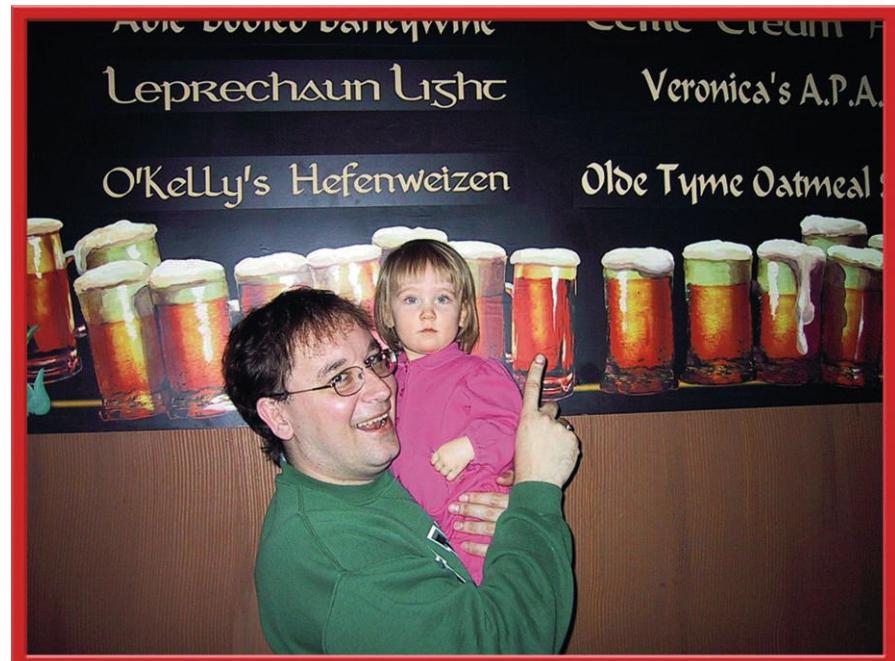
Including Little Ones in the Process

My daughter's first brewing experience was when she was only 9 months old. She was sitting face-forward in the hands-free baby carrier as I mashed, and all the while she was grabbing for the paddle.

Wilcox uses a kiddie gate while brewing. "I keep them behind the fence and pass them grains to chew and hops to smell." Formanek finished a basement kitchen so that he can be near the little ones while brewing.

I got an idea from Dave Russell, formerly of Ann Arbor Brewers Guild, to let the little ones put the caps onto filled bottles. He said to sanitize a few extras because there would be dropped caps. Formanek says his daughters "like to help out with capping—handing me the caps (with very clean hands, of course!) and helping pull down the handle of the capper."

With this in mind, I was able to involve my older daughter at age 2 in bottling. She loved helping me and I enjoyed introducing her to the hobby. Now, at ages 7 and 5, my daughters jockey for position to see who



Veronica Formanek (shown here with her dad Joe) used to give hugs and kisses to the carboys when she was little. Now that's beer appreciation.

Split Rail Porter (Brown Porter)

All-Grain Recipe

Ingredients

for 5.25 U.S. gallons (19.8 liters)

8.5 lb (3.8kg) pale malt
0.4 lb (181 g) black patent malt
0.4 lb (181 g) chocolate
0.5 lb (227 g) 60° L crystal malt
0.4 lb (181 g) biscuit malt
0.4 lb (181 g) special B malt
1.0 lb (0.45 kg) Munich malt
0.5 lb (227 g) dextrine malt
0.25 lb (113 g) torrified wheat
1.0 oz (28 g) Northern Brewer whole hops,
8.9% alpha acid (60 min)
0.5 oz (14 g) Cascade whole hops, 5.8%
alpha acid (60 min)
0.5 oz (14 g) Cascade whole hops, 5.8%
alpha acid (5 min)
1 liter Wyeast 1056 American Ale yeast
starter
1 cup dry malt extract to prime

Original Target Gravity: 1.063

Final Target Gravity: 1.021

IBUs: 51.5

Primary Fermentation: 7 days at 68°F (20°C)
in glass

Secondary Fermentation: 14 days at 63°F
(17°C) in glass

Directions

Evening of Day 1: Mash grains for 20 minutes at 150° F (66° C). Raise to 160°F (71°C) and hold for 30 minutes. Mash-out at 168° F (76° C). Collect wort from sparge and cover with lid. Leave till morning. Morning of Day 2: Brew using wort made previous evening.

gets to hand me bottles to sanitize, place cleaned bottles on the bottle tree, choose which cap design, count the caps, put caps on filled bottles and box the capped bottles. Every once in a while they would ask to try their strength and help work the capper's lever. Occasionally, my 7-year-old will cap one by herself.

She recently told me that she likes helping with bottling the best because there is more for her to do. I am looking to progress to a fully automated, kid-powered bottling system in another two to three years. Another benefit is that while the capping activities are going on, my wife gets approximately three hours of undisturbed time to herself.

Wilcox screwed his bench capper to the bench and if Kaelie hangs on the handle she can cap most bottles. Amazing what a 55-pound 5-year old can do! Wilcox counter-pressure bottle fills, and Kylie delivers it to Kaelie for capping. Kylie then puts it in a six-pack. Talk about a family effort!

Keep in mind that slips will occur and extras of everything—bottles, caps and especially patience—will be needed to keep it fun.



To Sip or Not to Sip?

At some point in time you have to decide when it's OK to let your children try your homebrew.

Due to developmental concerns, Wilcox says, "None until they are 2." At 2-and-a-half, he lets Kylie "dip her finger into my beer and taste it"—no real sips unless they steal them. Kaelie "crawled right up on the table after a party, downed the last inch in a bottle of Victory Hop Devil right before my eyes. She smacked her lips and said, 'ahh!' She stole her first beer the way I did, hop head from the very start."

So, sips yes, glass no.

Your children may just like hanging out with you and the beer is unimportant. Formanek says, "They both seem to like the carboys full of beer more—which one is mine?" Veronica used to give hugs and kisses to the carboys when she was little. Now that's beer appreciation."

Formanek has let both Veronica and Hannah try the wort after it's cooled before fermentation, as well as the finished product after each had reached 2 years old (the kids, not the beer). Says Formanek, "Neither of them really likes the taste of it, which is fine by me, but at least they've tried it. It's not some sort of 'forbidden fruit' that they fantasize about trying. They know what it tastes like, and since they don't like it, they don't bug me to try more."

I'm of the opinion that giving sips of beer will promote a healthy appreciation of

good beer and lead to responsible alcohol consumption. I have been giving my girls sips of beer since they were 2. Our pediatrician told our girls that their age should determine how many bites of each food they should try at dinnertime. Looking to extend this rule to sips of beer did not go over well with my wife. So we started out with one sip and eventually progressed to two. At age 3, Anna told me in a conspiratorial manner, "When I am 25, I'm going to have four sips of beer."

Jeff Renner of Ann Arbor Brewers Guild recalls that for his kids, now 25 and 29, "I always let them have sips, even when they were little." As teenagers, they had tastes, and by the time they were 18, "I felt they were old enough to drink even though it wasn't legal, and they were welcome to have my beer."

Renner's kids learned to appreciate good beer. "When Matt was a pledge at a fraternity, the actives wanted to have an import/micro beer party, and gave the pledges a list of the beers they expected to be provided with. The weekend before, the pledges had a party and drank the exact list, then bought (cheap) light and dark beers and borrowed my capper and rebottled all the bottles with mixed beer. Apparently the actives never caught on."

Conclusion

So when planning a brew, you now have another person to consider. If you can involve that little person in the brewing process everybody wins. I want to be able to look back at how my kids grew up with the satisfaction that I have raised them to appreciate good beer, and if I'm really lucky, maybe one will pick up the hobby as well. And, quips Formanek, "Having kids greatly expands the names you can give your brews."

Stephen Klump is the proud father of his homebrewing helpers Anna (7) and Allie (5). He became a homebrewer thanks to his wonderful wife, Genevieve, who gave him a startup brewing kit 13 years ago. He's a member of Ann Arbor Brewers Guild and a founding member of Alchemy Brewing Club of St. Louis. E-mail him at spklump@yahoo.com.

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by Dan McDonough

Sourdough Starters: The Yeast of Your Worries

Given that bread and beer are pretty closely related—having a common ancestor in the form of some kind of aged porridge—it seems pretty natural for homebrewers to want to bake their own bread. After all, a lot of the same basic concepts about grain and fermentation apply to both crafts. There is an infinite variety of breads that can be baked at home, but for my money, none are more fun to bake than the crusty, tangy, wild-yeast breads commonly known as sourdough.

The primary difference between breads made with commercial yeast and wild yeast is that the dough in the latter is leavened with a cultured soup of microorganisms known as a starter. This starter is grown from a mixture of flour and water left to sit until fermentation takes hold, and it can then be kept alive indefinitely through periodic feedings.

A note of caution: if you try to digest all the available literature on this subject, you'll wind up confused and with a sore brain. Learn how to bake bread with a very simple process like the one I'll outline here, and if the spirit moves you, read some books after you've got a few loaves under your belt.

You'll need a few basic pieces of equipment: a big mixing bowl, a clear plastic Rubbermaid-type container (2- to 3-quart size) for storing your starter, some measuring cups and an oven, preferably with some kind of masonry device (more on that later). Pretty much all of the classic baker's tools can be improvised with stuff already lying around the house. As a general rule, bakers work by weight, so if you have a good kitchen scale (a not-uncommon item in a homebrewer's arsenal), things will go a lot easier.



Preparing the Starter

It takes several days to grow the starter, after which it can be maintained indefinitely through periodic feedings. You'll often hear bakers speak with mystical reverence about starters maintained for centuries and handed down through the generations, but let's not get too worked up about some old flour and water. Any starter, if properly maintained, will make good bread.

I like to use a mixture of three flours, which I usually make up in larger batches and keep in an airtight container. A 5-pound batch consists of 3 pounds (60 percent) unbleached all-purpose flour, 1.5 pounds (30 percent) whole-wheat flour and 0.5 pound (10 percent) rye flour. It's worth the extra money to buy stone-ground organic flours, especially the whole-grain ones, as these provide nutrients and microorganisms that will allow your starter to develop some nice, complex flavors. Dump them all into a big mixing bowl and combine them thoroughly with your hands, then keep in an airtight container.

What follows is the schedule for developing the starter. Weight and volume measurements are given, but again, if you have a scale, using weight is preferable.

DAY 1	WEIGHT	VOLUME
FLOUR MIXTURE	2 OZ.	1/2 CUP
WATER	2 OZ.	1/4 CUP

All ingredients should be at room temperature. Combine flour and water thoroughly in the plastic container, cover with a clean dishtowel and leave for 24 hours.

DAY 2	WEIGHT	VOLUME
FLOUR MIXTURE	2 OZ.	1/2 CUP
WATER	2 OZ.	1/4 CUP

Take a look at the starter before you add the ingredients. There probably won't be too much activity yet, maybe a bubble or two and a faint sweet-pungent aroma. Feed the starter by stirring in the additions listed above, cover with the lid, then let sit for another 24 hours.

DAY 3	WEIGHT	VOLUME
FLOUR MIXTURE	4 OZ.	1 CUP
WATER	4 OZ.	1/2 CUP

The following day, take another look at the starter. This time there should be some activity: bubbling, along with the pungent-sweet aroma I mentioned before. Add the flour and water, then stir and cover. Let the mixture sit for another 24 hours.

By Day Four, things should have changed. The sweet-pungent aroma should be gone, with a definite sour aroma having taken its place, and the mixture should be filled with large bubbles. Your starter is now ready to use in bread.

Some troubleshooting notes: If you don't see any activity by this point, let it sit for one more day to see if anything happens. If you still have nothing (which has never happened in my experience) then you don't have enough naturally occurring microorganisms floating around and you'll need an inoculation of some sort. Throw the starter away and begin again at Day 1, only this time, add the dregs of a good bottle-conditioned beer—a lambic would be ideal. Proceed as above, and trust me, you'll have no problems.

Preparing the Dough

The basic objective in making bread dough is the development of gluten, a stretchy plastic-elastic combination of two proteins that are very plentiful in wheat. Gluten is what gives bread its open, airy structure. In order to go from raw starter to finished dough, it's necessary to take the starter through a couple of feedings known as builds. These feedings will convert the raw starter into a milder form known as levain. It is this levain that gives the bread dough its rise. The reason for building levain instead of using raw starter is that the starter, because of its highly acidic nature, has degraded the gluten-forming proteins to the point where they will no longer be able to form the structure necessary for good bread dough.

This recipe is for classic San Francisco-style bread. It makes 36 ounces of finished dough, which can be formed into one large round or two smaller torpedo-style loaves known as *batards*. If you'd like a country-style brown loaf, substitute the flour mixture you used to build the starter for the unbleached, all-purpose flour used below.

BUILD 1	WEIGHT	VOLUME
RAW STARTER	3 OZ.	3/4 CUP
WHITE FLOUR	2 OZ.	1/2 CUP
WATER	2 OZ.	1/4 CUP

Combine water, flour and starter in a bowl and mix with a spoon. Cover and let stand for 12 hours, after which time the mixture should be very bubbly.

Add the following additions to the mixture from Build 1, and let sit until the mixture has risen and is very bubbly. The

BUILD 2	WEIGHT	VOLUME
WHITE FLOUR	3 OZ.	3/4 CUP
WATER	3 OZ.	3/8 CUP

time will vary but it shouldn't take longer than 12 hours. If your house is very warm you can place the levain in the fridge and let it sit overnight.

FINAL DOUGH	WEIGHT	VOLUME
WHITE FLOUR	16 OZ.	4 CUPS
WATER	8 OZ.	1 CUP
SALT	1 OZ.	4 TSP. (APPROX.)

ALL LEVAIN FROM BUILDS 1 AND 2 ABOVE

Combine water, salt, levain and 12 to 14 ounces (3 cups) of the white flour in a large mixing bowl and work into a mass with a wooden spoon or wet hands. Turn onto a counter that has been generously dusted with some of the remaining flour and work the dough with a series of stretching and folding turns for several minutes until it becomes springy and elastic. Add flour as you see fit, but remember that it is better to err on the side of wet and sticky than to work excessive flour and make the dough stiff and dry. Cover the dough and let sit in a warm place.

After one hour, wet your hands and give the dough a stretch and a fold while still in the bowl. Fold into thirds, taking the farthest part of the dough and folding it toward you, then taking the nearest part and folding away from you, finally flipping the entire mass upside down. This will help to develop the gluten. Cover the dough and let it sit, repeating the entire folding operation after another hour. Cover again, let sit for a third hour, then turn out onto a lightly floured surface for shaping. The dough won't be puffy like a yeast dough.

If you are making two loaves, divide the dough in half and roll each half into a loose ball shape; otherwise work the entire mass into a round. Let sit, covered, for 20 minutes then shape into your final loaf shapes. Place onto a baking sheet lined with a generously floured towel, pulling a fold of the towel up to separate the loaves

(if you're making two). Dust the tops with flour and cover with plastic wrap.

At this point, you have a couple of choices facing you. If you want the hardcore San Francisco-style sour, stick the loaves in the fridge overnight and let them slowly rise while developing a good, sour tang. Otherwise set them in a warm place for another two to three hours until they've just about doubled in size, then proceed with baking.

Baking the Loaves

The biggest challenge facing a home baker is the home oven. Professional bread ovens have steam generators to make a thick, chewy crust and heavy insulated slabs that retain heat for hours, which helps the bread spring up to its full potential. Home ovens need to be helped along with a few tricks.

First, you need some kind of masonry slab—the most obvious choice is a pizza stone, but a few carefully arranged half-inch quarry tiles do a nice job, too. Preheat the oven, with the stone on a lower-middle rack, for a good 45 minutes to 475° F.

Steaming the oven can be done in a couple of ways. The most common is to spray the sides and floor of the oven with cold water and then quickly shut the oven door. Another method is to preheat a cookie sheet on a lower oven rack for the last 10 minutes before baking, then pour boiling water into it just before you put the loaves in. Whichever method you use, please be careful. Steam can and will cause burns, so wear oven mitts.

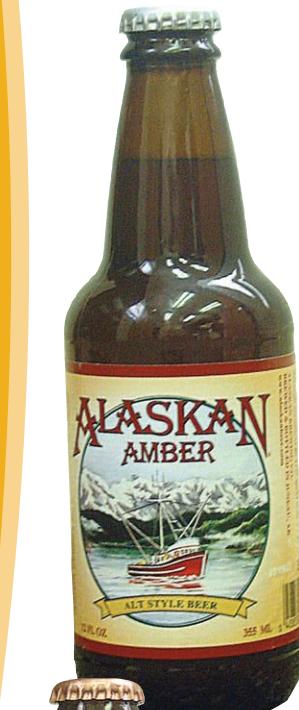
When the oven is hot, prepare the loaves for baking by flipping them off of the towel onto a pizza peel (or a large piece of stiff cardboard) that has been generously dusted with cornmeal. If they stick to the towel, just ease them off gently with your fingertips. Score the tops of the loaves with a sharp knife and let sit while you steam the oven.

When the oven is steamed up, quickly slide the loaves onto the pizza stone with a slight jerking motion, spray a little more water onto the sides and floor of the oven and close the door. After two minutes, open the door (continued on page 48)



COMMERCIAL CALIBRATION

One way beer judges check their palates is by using commercial "calibration beers"—classic versions of the style they represent. Zymurgy has assembled a panel of four judges who have attained at least the rank of Master in the Beer Judge Certification Program. Each issue they will score two widely available commercial beers (or meads or ciders) using the BJCP scoresheet. We invite you to download your own scoresheets at www.bjcp.org, pick up a bottle of each of the beverages and judge along with them in our Commercial Calibration.



For this issue, we decided to give our panel two beers that vary widely in origin and flavor.

First up is Alaskan Amber Ale from Alaskan Brewing Co. in Juneau, Alaska. This quaffable, well-balanced beer has been the company's flagship since Geoff and Marcy Larsen opened what was then the 67th brewery in the country in 1986. The first year medals were awarded in individual styles at the Great American Beer Festival, Alaskan Amber brought home the gold medal in the Alt Beer category—a feat it has twice repeated.

Alaskan Amber is an example of a German altbier. "Alt" means old in German and altbiers are the old-school ales brewed in Germany before the discovery of lager yeast. Alts are fermented at ale temperatures with ale yeast and then cold aged, or lagered, giving them a smooth taste.

According to the company Web site, Alaskan Amber is brewed with two-row and crystal malts and Cascade and Czech Saaz hops. It is a beer of delicate balance.

The beer is distributed only in the western United States but is available from online shops such as Liquid Solutions in Oregon.

From the other side of the country and the other side of the balance spectrum comes Dogfish Head's Indian Brown Ale. Founded in Rehoboth Beach, Del. in 1995, Dogfish Head quickly became known for brewing "off center beers for off center people."

Owner Sam Calagione began brewing on a modified homebrew system, cranking out three batches a day, five days a week. The small batches lent themselves to experimentation and Dogfish Head's lineup began to feature many beers with quirky ingredients.

Don't go scurrying for your BJCP Style Guidelines to find Indian Brown Ale; it's not there. Very few of Dogfish Head's beers fit nicely into a classic beer style category. Instead, judge Indian Brown Ale as a Specialty beer. Free from the shackles of style dogma, check instead for how Calagione's blend of ingredients, which includes aromatic malt and caramelized sugar as well as a healthy dose of hops, works together to create an enjoyable beer.

Our expert panel includes David Houseman, a Grand Master II judge and competition director for the BJCP from Chester Springs, Pa.; Beth Zangari, a Master level judge from Placerville, Calif. and founding member of Hangtown Association of Zymurgy Enthusiasts (H.A.Z.E.); Scott Bickham, a Grand Master II judge from Corning, N.Y., who has been exam director or associate exam director for the BJCP since 1965; and Gordon Strong, a Grand Master II judge and principal author of the new BJCP Style Guidelines who lives in Beavercreek, Ohio.



ON THE WEB

Alaskan Brewing
www.alaskanbeer.com

Dogfish Head brewing
www.dogfish.com

BJCP Style Guidelines and Scoresheet
www.bjcp.org



THE SCORES



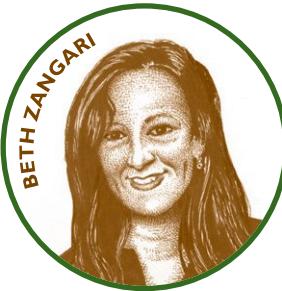
Alaskan Amber—Alaskan Brewing Co., Juneau, Alaska

BJCP Category: 7A North German Alt

THE JUDGES' SCORES FOR ALASKAN AMBER



DAVE HOUSEMAN



BETH ZANGARI



SCOTT BICKHAM



GORDON STRONG

Aroma: Soft, velvety, toasty maltiness up front with light fruity esters and very light hop aroma. No diacetyl or DMS. Clean fermentation but some caramel and sherry notes of oxidation. (9/12)

Appearance: Light brown/copper color with slight chill haze. Thin head dissipated rapidly. (2/3)

Flavor: Soft, toasty maltiness with hints of fruity esters (strawberries and peaches). Some roast malt and caramel to the malt finish leaving a sweet, chocolate aftertaste. Low hop flavor and moderately low hop bitterness. Not as balanced as expected for the style where more bitterness would exhibit the Northern German alt character. Some lemony sourness lingers in the finish. Otherwise a clean fermentation without diacetyl. (13/20)

Mouthfeel: Medium-bodied with low carbonation leaving a soft finish that's not cloying but showing a smooth, almost creamy texture. Low level of astringency that seems to be hop derived. (4/5)

Overall Impression: A nice drinkable beer that was remarkably unassertive in both hops and malt character. This bottle may have been a bit old, showing noticeable oxidation, but still quite pleasant. I can imagine a fresher sample with a plate of roast pork and spaetzle. (8/10)

Total Score: (36/50)

Aroma: Toasty rich malt, slightly grainy with caramel undertones. Very little hop detected. Very slight metallic note reminds me of Czech hops I have used in homebrews. Clean and rich. (10/12)

Appearance: Copper with bright clarity. Even bubbles consistently rise, but the thin head of fairly large bubbles dissipates quickly in my glass. Off-white foam hangs around the edges of the glass. (2/3)

Flavor: Clean rich toasty malt with just enough hop bitterness to balance. Very clean fermentation. Finishes a little on the sweet side. Reminds me of some very good European Festbiers, maybe a little on the rich side for the style characteristics described? Very tasty, though I expect more hop for the style. (15/20)

Mouthfeel: Medium-bodied with surprisingly even carbonation, not prickly or gassy. Finishes a little sticky, but not quite cloying. A slight astringency that echoes the graininess in the aroma follows, with clean noble type hop bitterness in the end. (4/5)

Overall Impression: Bigger and fuller than the other examples I have tried that are listed in the guidelines. The malt character is outstanding for an American produced lager, again, reminiscent of some Ayinger and other German products I have tried rather than the grainy character I have found in many American beers. Close to a Fest or Marzen. Exhibits no ale character as expected from the description in the guidelines, but as mentioned earlier, I really expected more of a hop character in this style. A lovely beer that would go equally well with a schnitzel and gravy or chicken in white wine cream sauce. (9/10)

Total Score: (40/50)

Aroma: Vienna malt, nutty melanoidins with some caramel and a mild roastiness. Low ester level as per style. A hint of wine in the background gives it a bit of a sharp edge, but overall is quite pleasant. (11/12)

Appearance: Deep copper color, excellent clarity and head retention. (3/3)

Flavor: Rich toasted malt character, similar to the malt-oriented examples of this style. Esters are low but not so well hidden to give it too much lager character. Slight roast in the finish, with a moderate hop bitterness to attenuate the malt. Some alcohol is evident—perhaps a little on the big side for the style. A slightly drier finish would be welcome. (15/20)

Mouthfeel: Slight astringency with some metallic notes—a little detracting, but the creaminess, body and carbonation make up for these minor flaws. (4/5)

Overall Impression: Excellent example of the style—exceeded my expectations. The malt had a good complexity but would have been better balanced by either adding three to five more IBUs or backing off slightly on the original gravity. (8/10)

Total Score: (41/50)

Aroma: Moderate strength rich malty sweetness, suggestive of Vienna/Munich malt with some grainy overtones. Restrained noble hops and a soft background of fruity esters. Quite clean, nothing off. Smooth, soft, somewhat sweet with emphasis on malt. (10/12)

Appearance: Pretty coppery-orange color (like an Oktoberfest). Crystal clear. Moderate cream-colored head, settled quickly to virtually nothing. (2/3)

Flavor: Lovely, elegant, rich malt flavor with a moderate bitterness developing in the finish. Complex German-type malt flavor, light caramel, softly bready. Clean, smooth, and fresh; nothing off. Finish is fairly dry and refreshing. Moderate noble hop flavor, very low esters. Malty richness in aftertaste. Bitterness may be higher than it seems due to the high maltiness (16/20)

Mouthfeel: Medium body, starts light and builds mid-palate then finishing dry. Medium to medium-high carbonation. Soft carbonic bite in finish. Very smooth. (4/5)

Overall Impression: Very fresh and clean. Malt-focused and suggestive of a Vienna or Oktoberfest. Not quite as bitter as expected. The rich malt and malt/hop flavors are very German and remind me of the best commercial Oktoberfests. Dry finish and hop kick at end cleans away any malt sweetness and invites the next taste. A wonderful food-friendly beer. I'd like to try it with beer-braised bratwurst and onions. (8/10)

Total Score: (40/50)



THE JUDGES' SCORES FOR INDIAN BROWN ALE



Aroma: Alcohol dominates the aroma but there is a very nice balancing of roasted malts, light fruity esters and low, floral hop aromas. Almost a Belgian Dubbel made with American Ale yeast. (9/12)

Appearance: Dark brown with ruby red highlights. Very clear. Thin but reasonably lasting head retention given the level of alcohol. Good legs on the glass even after the head has subsided. (3/3)

Flavor: Chocolate maltiness with considerable alcohol up front. Caramel flavor persists through to finish and aftertaste. High hop bitterness and moderate hop flavor balances both the malt and alcohol. No diacetyl. Clean fermentation for an ale without excessive esters. (14/20)

Mouthfeel: Medium to full bodied with lots of alcohol warming and some mild astringency, light chalkiness and soft carbonation. (5/5)

Overall Impression: Caramelized sugar added alcohol and lightened the body of a big beer, much like candi sugar in a Tripel. The balance of all the elements yielded a very nice and drinkable beer. I'd classify this as a big, or Imperial, American brown ale. A great beer with a crème brûlée dessert. (8/10)

Total Score: (39/50)



Aroma: Acidic dark malt character with a combination of earthy and floral hop aroma. Clean fermentation, no esters, but a hint of sulfur. A very attractive deep caramel quality emerges as the beer warms. (8/12)

Appearance: Deep clear ruby color with even, tiny bubbles rising to the surface. Creamy though thin tan head forms with a swirl, leaves lace on the sides of the glass. Pouring the beer faster produces a profusion of bubbles that rise in slow motion spirals hinting at a full body. A truly beautiful beer! (3/3)

Flavor: Rich caramel flavor with high alcohol mid-palate suggests the addition of fermentable sugars. Biscuity malt is almost overpowered. Not much hop flavor, but a very balanced bitterness lingers in the finish. Alcohol is a strong flavor component, though not offensively so. (16/20)

Mouthfeel: A little alcohol heat, fairly soft carbonation, but still a little prickly on the tongue. Lighter bodies than I expected, but still creamy. Slightly astringent in addition to the hop bitterness. (3/5)

Overall Impression: The flavor surprised me. The aroma led me to expect a more astringent product, but the flavors of the aromatic malts and caramelized sugars rounded everything. The hop flavors were subdued, but balanced. In fact, the best word to describe this beer is balanced, even with the alcoholic heat, which reminded me of an export stout. This beer could be either an over-the-top Northern English brown or its own style with characteristics of both the Northern English and a softer, higher alcohol American brown. Who knows? Maybe Indian brown could be the next new style! (9/10)

Total Score: (39/50)



Aroma: Roasted malt comes through first, followed by caramel malt. There is an earthy, tobacco character from the Goldings hops. Alcohol and esters are noticeable, but at an appropriate level for a derivation of the IPA style. (10/12)

Appearance: Very deep brown with mahogany notes, long lasting light beige head and excellent clarity. (3/3)

Flavor: Chocolate and roasted malts are dominant—at the level I would expect for a Robust Porter. Lots of malt complexity with the caramelized brown sugar enhancing the dextrins. Alcohol is apparent, along with the related esters and warmth in the finish. Hop bitterness is more restrained than in most IPAs, but works well in combination with the roasted malts in this beer. More hop flavor would add complexity and depth. (13/20)

Mouthfeel: Some alcoholic warmth, slight astringency from roasted malts, but good dextrin contributions to the body and residual sweetness on the lips. (4/5)

Overall Impression: Well-balanced beer, but it was not apparent what would distinguish it from the robust porter style. Most brown ales have a more restrained roastiness, while the brown sugars are also a traditional ingredient in the porter style. More emphasis on hops and less on the roasted malt might be more appropriate. Still quite enjoyable to drink. (6/10)

Total Score: (36/50)



Aroma: Lightly grainy chocolate malt aroma with a sugar caramel sweetness. Lightly fruity esters mixed with a bit of alcohol. The roasted aroma tends to dominate and persist. Hops seem rather low and mixed into the background; they provide some earthy, floral complexity. (9/12)

Appearance: Medium mahogany-brown color with reddish highlights. Crystal clear. Moderate tan head, well-formed, settled slowly. Quite attractive. (3/3)

Flavor: Rich, intense flavors of chocolate, toffee, caramel and brown sugar. Medium hop flavor: earthy and spicy. Noticeable alcohol, especially in the finish. Medium-low fruity esters. Slightly acrid roasted flavors linger into the finish, mingling and accentuating the moderately-high hop bitterness. The bitterness seems lower until the aftertaste. Aftertaste is of roasted malt, alcohol and hop bitterness—a bit rough and unpleasant. Flavors are not well blended yet. (13/20)

Mouthfeel: Medium-full body makes it a bit difficult to drink. Medium-high carbonation. Some grainy astringency with a hot alcohol finish suggesting that the sample is young. (3/5)

Overall Impression: Has potential but seems young; let it age to see if the alcohol and roast flavors will smooth out and blend. At 7.2 percent ABV, this can cellar for a while. Wonderful malt and sugar flavors but hops are in a supporting role. Perhaps "India" suggests a certain strength rather than hop profile. I was expecting an IPA with chocolate malt based on the name. Interesting idea, but a bit thick and rough. Let it age and then try it with Kansas City-style BBQ pork ribs. (7/10)

Total Score: (35/50)

Colonial Brewing (continued from 21)

required to achieve the same level of bitterness. Hop additions of 0.5 ounce/gallon (5 g/l) would have been reasonable for the first wort beer, and proportionally fewer additions for subsequent runnings.

Fermentation and conditioning took place in the cask. The bunghole would be left open during fermentation and the crusty, brown yeast foam was scraped away from the opening once a day or so until no more was coming out. Then the bung was set and the cask was left to condition for several days. Cellaring time would range from no time at all for a small beer to a year or more for a strong porter or ale. The first wort beer would be the porter or strong ale, and they would be put-up to cellar for several months as a minimum, the stronger beers benefiting most by cask aging and often by further conditioning in the bottle. The second running, or "table beer," as well as the small beer would have been drunk fresh before they had a chance to sour or stale.

Like most things Americans were learning to do on their own and with their

own resources, they were soon brewing beer as good as any to be had. By the time Luke Morris was carrying his banner, he was quantifiably correct. At the time, Philadelphia porter was commanding a higher price in the West Indies than was London porter. Home brew'd was indeed best. American homebrewers today should be proud to raise a pint to that.

Hugh Burns is the brewer and founder of Williamsburg Brewing Company in Williamsburg, Va. His first love remains his wife and six children. His second love is making handcrafted beer. 

Resources

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3. Mouer, Dan. Colonial Ale, 2003. <http://byo.com/feature/1035.html>
4. Clark.
5. Smith, Gregg. *Beer in America*. Brewers Publications. Boulder, CO: 1998.

Try this at home (continued from 44)

and quickly steam one more time, then close the door and lower the temperature to 450° F.

After 15 minutes, turn the loaves 180 degrees to ensure even baking (you can do this with your hands—wear oven mitts, obviously). Check the loaves after 20 minutes or so and keep watching them until they develop a nice golden brown color. I frankly prefer the taste if the crust is a bit darker than most commercial breads, so feel free to let them go a little browner than you normally might deem prudent. When you're satisfied with the color, remove the loaves (again, use the oven mitts) and let them cool on a rack.

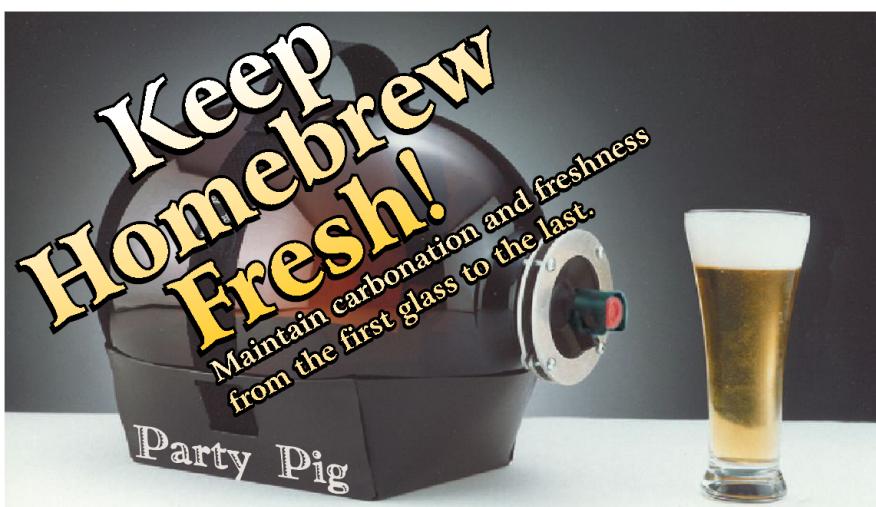
When the loaves have cooled completely, they're ready to be eaten. Don't skip this last part, as important chemical changes are still taking place during the cooling period.

Maintaining the Starter

Your starter needs to be periodically fed in order to stay healthy and continue making good bread. The best way to do this is to take a bowl, add 3 ounces of starter to 3 ounces each of water and the flour mixture then combine them all and store in the fridge in an airtight container. Extra starter can be used, discarded or given to a friend. If you feed the starter once a week, it will be healthy. You might see some separation of liquid occur—if this liquid is black, don't worry about it, but if it is pink or orange, you'll have to discard the starter and begin anew.

Sourdough bread is one of the easiest and most rewarding projects for the home cook. While it might seem like a lot of time is involved, the vast majority is spent doing something else while waiting for the yeast to do its work. It does take some practice, but if you bake even once a week, it won't be long before your efforts are consistently yielding delicious home baked loaves for you and your family and friends.

Dan McDonough lives in Providence, R.I., where he is an avid homebrewer and sometimes makes his dough as a professional baker. 



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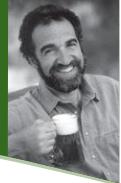
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by Charlie Papazian



A Continuing Celebration of 35 Years

This is my 35th year of homebrewing. I love making beer. If you've been reading my columns over the decades you probably know this. I'm just checking in again to reconfirm with you my passion for the creative hobby of making and then enjoying my own beer.



People are always asking me, "What's your favorite beer, Charlie?" My invariable reply, "The one I'm holding in my hand." Or, "The one brewed in the area I happen to be."

The fact is if I'm home, there are always at least five kegs of homebrew on tap, with bottled options of homebrewed lambic, barleywine, mead and recently brewed yarrow-gruit beer. Mind you there's no shortage of beers I've collected from breweries around the world and craft-brewed locally. I usually break those out for guests in order to share the experience of the flavor and diversity of what others are craft brewing.

There are very few reasons that would interfere with my love affair with brewing. My home is now a construction site, with major remodeling and an addition. My wife and I are surviving in a limited area in the house not drastically affected by the construction. But the garage-homebrewery is my sanctuary! I'm still brewing because we're still having a beer or two with dinner and friends.

Sometimes I think, "Wow, this is crazy—I've had this hobby for 35 years and I'm still loving it. What is the reason for that?" There are a lot of transitions in my life, but homebrewing has only transitioned to a more impassioned affair. Why?

I think about that question when I'm mashing, lautering, boiling, adding the hops in stages, not forgetting the Irish moss 10 minutes before the end of the boil, prepping the fermenter and pitching

the yeast. Or one week later while I'm transferring to a secondary for ale cellaring or lager lagering. Weeks or months later there's always that twinge of anticipation the fraction of a second before tapping into

JulyFest O.V.

All-Grain Recipe

Ingredients

for 5 U.S. gallons (19 liters)

6.0 lb	(2.7 kg) Pilsener malt
4.5 lb	(2 kg) Munich malt
8.0 oz	(225 g) aromatic malt
4.0 oz	(113 g) German Sauer malt
1.0 oz	(28 g) Liberty hops 5.2% alpha (5.2 HBU/146 MBU), 60 minute boiling
0.5 oz	(14 g) Mt. Hood hops 6% alpha (3 HBU/84 MBU), 30 minute boiling
0.5 oz	(14 g) Mt. Hood hops, 5 minute boiling
0.25 tsp	(1 g) powdered Irish moss German or Bavarian type lager yeast
0.75 cup	(175 ml measure) corn sugar (priming bottles) or 0.33 cup (80 ml) corn sugar for kegging

Target Original Gravity: 1.065 (16 B)

Approximate Final Gravity: 1.016 (4 B)

IBUs: about 28

Approximate Color: 11 SRM (22 EBC)

Alcohol by Volume: 6.5%

Directions

A step infusion mash is employed to mash the grains. Add 11 quarts (10.5 liters) of 140° F (60° C) water to the crushed grain, stir, stabilize and hold the temperature at 132° F (53° C) for 30 minutes. Add 5.5 quarts (5.2 liters) of boiling water and add heat to bring temperature up to 155° F (68° C) and hold for about 30 minutes. Then raise temperature to 167° F (75° C), lauter and sparge with 3.5 gallons (13.5 liters) of 170° F (77° C) water. Collect about 5.5 gallons (21 liters) of runoff. Add 60-minute hops and bring to a full and vigorous boil.

The total boil time will be 60 minutes. When 30 minutes remain add the 30-minute hops. When 10 minutes remain add Irish moss. When five minutes remain add the 5-minute hops. After a total wort boil of 60 minutes turn off the heat and place the pot (with cover on) in a running cold-water bath for 30 minutes. Continue to chill in the immersion or use other methods to chill your wort. Then strain and sparge the wort into a sanitized fermenter. Bring the total volume to 5 gallons (19 liters) with additional cold water if necessary. Aerate the wort very well.

Pitch the yeast when temperature of wort is about 70° F (21° C). Once visible signs of fermentation are evident ferment at temperatures of about 55° F (12.5° C) for about one week or when fermentation shows signs of calm and stopping. Rack from your primary to a secondary and "lager" the beer at temperatures between 35 and 45° F (1.5 to 7° C) for three to six weeks.

Prime with sugar and bottle or keg when complete.

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Yes, I dwell on that question in the back of my mind throughout the interactive part of the process, "What is it about homebrewing that is so enjoyable?" Sure it's about the beer, but good beer can be had nearly anywhere in America. I suppose to myself that it is connecting to the spirit that every one of you that reads this also experiences. Knowing that so many others are enjoying the many aspects of beer culture through homebrewing. Knowing that there are hundreds of thousands of people out there having significantly positive feelings about the beer that they make and the beer that is brewed by others. It's about being part of a community spirit.

You'd have to say I'm pretty content with being involved with the grassroots of everything beer.

I was wondering what my readers thought. If you have the time, drop me a short essay about why you brew and what it is you feel. I'd love to hear from you.

KNOWING THAT THERE ARE HUNDREDS OF THOUSANDS OF PEOPLE OUT THERE HAVING SIGNIFICANTLY POSITIVE FEELINGS ABOUT THE BEER THAT THEY MAKE AND THE BEER THAT IS BREWED BY OTHERS. IT'S ABOUT BEING PART OF A COMMUNITY SPIRIT.

Here's a recipe for a German-style Oktoberfest called JulyFest O.V. because it was originally brewed in July and is every bit a festive homebrew. The aromatic malt gives the beer an extra boost of malt aroma. The Sauer malt helps acidify my mash water. Liberty and Mt. Hood hops are American-grown hops derived from Hallertauer stock. I enjoy the soft floral flavor and aroma of late-addition Mt. Hood. The Liberty hops seem to impact the bitterness with a soft

touch; bitter but not overly aggressive. I'm almost out of the original JulyFest O.V., so I'll be brewing another batch, probably about the same time you will be.

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

Charlie Papazian is president of the Brewers Association. Contact him at charlie@brewersassociation.org.

JulyFest O.V.

Malt Extract Recipe

Ingredients

for 5 U.S. gallons (19 liters)

6.0 lb	(2.7 kg) amber malt extract syrup
3.0 lb	(1.36 kg) light malt extract syrup
1.0 oz	(28 g) Liberty hops 5.2% alpha (5.2 HBU/146 MBU), 60 minute boiling
1.0 oz	(28 g) Mt. Hood hops 6% alpha (6 HBU/ 168 MBU), 30 minute boiling
0.5 oz	(14 g) Mt. Hood hop, 5 minute boiling
0.25 tsp	(1 g) powdered Irish moss German or Bavarian type lager yeast
0.75 cup	(175 ml measure) corn sugar (priming bottles) or 0.33 cup (80 ml) corn sugar for kegging

Directions

Mix and dissolve malt extract with 2.5 gallons (9.5 liters) of hot water and then add 60 minute hops. Bring to a boil. The total boil time will be 60 minutes.

When 30 minutes remain add the 30-minute hops. When 10 minutes remain add Irish moss. When five minutes remain add the five-minute hops. After a total wort boil of 60 minutes turn off the heat. Immerse the covered pot of wort in a cold water bath and let sit for 30 minutes or the time it takes to have a couple of homebrews.

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

Pitch the yeast when temperature of wort is about 70° F (21° C). Once visible signs of fermentation are evident ferment at temperatures of about 55° F (12.5° C) for about one week or when fermentation shows signs of calm and stopping. Rack from your primary to a secondary and "lager" the beer at temperatures between 35 and 45° F (1.5 to 7° C) for three to six weeks.

Prime with sugar and bottle or keg when complete.

by Amahl Turczyn Scheppach

Palmetto State Brewers Open

For this edition's homebrew competition, we travel to Columbia, S.C. for the Palmetto State Brewers Open. Jim Yeager won the 2004 event, which is part of a larger circuit of competitions spanning both Carolinas called the Carolina Brewer of the Year (CBOY). Yeager collected enough points in the six circuit competitions to claim the overall title of CBOY.

Organizer Gerald Jowers said one great thing about the latest Brewers Open was the spacious light manufacturing plant where the competition was held. "This facility is much better than the restaurants and bars we have used in the past," Jowers said. "No cooking odors or customers to worry about, or nervous owners who want us out after a long day." And great lighting!

Members of the sponsoring Palmetto State Brewers, Inc. club provided grilled bratwurst and covered dishes of food for hungry judges, and winners received donated prizes. Other prizes were raffled off to raise money for a local children's home. With 309 entries from 13 states, and BJCP judges from three states, there was much to celebrate.

Yeager's Best of Show beer, Big Ass Barleywine, follows a trend by this former home winemaker to "imperial everything." He and brewing partner Matt Long love concocting super-hoppy beers like Go to Hell IPA, which involves adding a total of 3 pounds of hops in five-minute intervals during the boil and an Imperial Amber that Yeager calls "simply awesome."

Yeager loves drinking hoppy beers, but recognizes the challenges of reduced hop utilization as specific gravity increases. Of the Big Ass recipe, he comments, "The interesting thing about this beer is the hops. I brewed this as an American bar-

leywine, but what I've found is that the hops aren't strong enough to come through. They give a great complexity to a big beer and are often misinterpreted as English hops. I had the same thing happen in a big IPA (using Centennial and Cascade) I made in the spring...that beer took a blue ribbon as well, and the judges believed it to be an English IPA. For those

after a hoppy American barleywine, my suggestion would be to not be afraid to add more hops in the last 30 minutes."

Yeager began making wine at home after living in France, where decent wines could be had for \$3 to \$4 a bottle. After returning to the States and having to pay \$20 for a bottle of similar quality, he

Big Ass Barleywine

All-Grain Recipe

Ingredients

for 5 U.S. gallons (19 liters)

17.0 lb	(7.7 kg) U.K. pale malt
0.5 lb	(227 g) Belgian caramel Vienna malt
1.0 lb	(0.45 kg) Belgian aromatic malt
0.5 lb	(227 g) caramel Munich malt, 60° L
1.0 oz	(28 g) pellet Nugget hops, 13% alpha acid (60 min)
1.0 oz	(28 g) pellet Centennial hops, 10.5% alpha acid (60 min)
1.0 oz	(28 g) pellet Centennial hops, 10.5% alpha acid (30 min)
2.0 oz	(56 g) pellet Cascade hops, 4.4% alpha acid (15 min)
2.0 oz	(56 g) pellet Cascade hops, 4.4% alpha acid (10 min)
2.0 oz	(56 g) pellet Cascade hops, 4.4% alpha acid (5 min)
2.0 oz	(56 g) pellet Cascade hops, 4.4% alpha acid (2 min)
1.25 oz	(35 g) whole Cascade hops, 5.75% alpha acid (dry) White Labs WLP 001 American ale yeast
4.0 oz	(13 g) corn sugar to prime

Boiling time: 90 minutes

Target Original Gravity: 1.107

SRM: 13

IBUs: 118.7

Brewhouse Efficiency: 75%

Primary Fermentation: 65° F (18° C)
for two weeks

Secondary Fermentation: 67° F (19° C)
for at least four weeks

Directions

Mash grains at 150 to 152° F (66 to 67° C) for 60 minutes. May have to add a little fresh dry yeast at bottling to help bottle conditioning.



turned to making his own from kits, but found the process too simple and the waiting period too long. His local wine and beer making supply store, Homebrew Adventures in Charlotte, N.C., had the solution: homebrew. After a few rough starts with extract kits, Yeager soon realized his beers were getting better as his wife started drinking them. He soon purchased the equipment to do all-grain batches and now makes 20-gallon batches two or three times per month. Many of those beers were brewed with meticulous attention to style so they could be entered into competitions.

"The BJCP guidelines have done great things for me. I've learned so much by reading style guidelines, trying commercial beers, and brewing over and over...and over," he said. That rigorous research and development may slow for 2005, however. "This year I plan to slow down a bit and brew more beer that I like to drink." And for the future? "Lambics."

Amahl Turczyn Scheppach is former associate editor of Zymurgy. He writes and brews in Lafayette, Colo.

CALENDAR

For complete homebrew event listings, see www.beertown.org/homebrewing/events.asp.

April 22-May 1

2005 AHA National Homebrew Competition—

Ist Round 10 Regional Judging Sites in U.S. and Canada. Sanctioned by: **AHA/BJCP**. Sites: California—San Diego, CA. Canada—Regina, SK. East Region—West Lake, OH; DE, IN, KY, MD, OH, TN, VA, WV. Great Lakes Region—Libertyville, IL; IL, MI. Midwest Region—Roseville, MN; IA, KS, MN, MO, ND, NE, OK, SD, WI. Mountain Region—Denver, CO; AZ, CO, ID, MT, NM, NV, UT, WY. Northeast Region—Rochester, NY; CT, MA, ME, NH, NJ, NY, PA, RI, VT. Northwest Region—Portland, OR; AK, HI, OR, WA. International (except Canada). South Region—Houston, TX; AL, AR, FL, GA, LA, MS, NC, SC, TX. Fee: \$8 members, \$12 non-members. Entry Deadline: 4/4-4/15. Awards Ceremony: 6/18, during Grand Banquet of the AHA National Homebrewers Conference. Contact: Gary Glass, Phone: 303-447-0816 x 121, Fax: 303-447-2825, E-mail: gary@brewersassociation.org Web: www.beertown.org/events/nhc/index.html

April 23

U.S. Open Entry Deadline: 3/1-4/16. Awards Ceremony: 4/23. Sanctioned by: **BJCP**. Contact: Clay Ferguson, Phone: 704-619-7592, E-mail: fclayferguson@yahoo.com Web: www.carolinabrewmasters.com

April 23

Bluff City Brewers 17th Annual Homebrewers Memphis, TN. Fee: \$5. Entry Deadline: 4/9-16. Awards Ceremony: 4/23. Sanctioned by: **AHA/BJCP**. Contact: Jody Kane, Phone: 901-373-8395, E-mail: jkane@midsouth.rr.com Web: www.memphisbrews.com

April 25-30

ALES Home Brew Open and AHA/NHC Canada Qualifier Competition Regina, Saskatchewan, Canada. Fee: \$6 for 6 entries, \$1 each additional. Entry Deadline: 4/5-22. Awards Ceremony: 4/30. Sanctioned by: **AHA/BJCP**. Contact: Barry Bremner, Phone: 306-721-5666, E-mail: barrybremner@sasktel.net Web: www.alesclub.com

April 30

12th Annual Dominion Cup Richmond, VA. Sponsoring Club: James River Home Brewers. Fee: \$5. Entry Deadline: 4/23-30. Sanctioned by: **AHA/BJCP**. Contact: Steve Severtson, Phone: 804-279-3925, E-mail: pre-pro@earthlink.net Web: www.jrhomebrewers.org

May 7-14

The BrewMaster's Open Atlanta, GA. Fee: \$6. Entry Deadline: 4/20-30. Awards Ceremony: 5/14. Sanctioned by: **AHA/BJCP**. Contact: Russ Wilkins, Phone: 678-566-3874, E-mail: russ.wilkins@brewmastersopen.com Web: www.brewmasteropen.com

May 7

Extract Beers AHA Club-Only Competition Gainesville, FL. Covers all BJCP beer styles (Categories 1-23). Extract must make up more than 50 percent of fermentables. Fee: \$5. Entry Deadline: 4/4-26. Awards Ceremony: 5/7. Sanctioned by: **AHA/BJCP**. Contact: Wayne Smith, Phone: 352-466-3695, E-mail: sueandwayne@excite.com Web: www.beertown.org/homebrewing/club.html

May 7

AHA Big Brew—National Homebrew Day

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: 888-822-6273 x 121, Fax: 303-447-2825, E-mail: gary@brewersassociation.org Web: www.beertown.org/events/big-brew/index.html

May 14

Green Mountain Homebrew Competition Montpelier, VT. Fee: \$6. Entry Deadline: 4/1-5/6. Awards Ceremony: 5/14. Sanctioned by: **AHA/BJCP**. Contact: Dave Blumenthal. Phone: 802-229-9810. E-mail: gmhc2005@yahoo.com Web: www.mashers.org

May 14

9th Annual B.E.E.R. Brew-Off Port Jefferson Station, NY. Fee: \$5. Entry Deadline: 4/23-5/7. Awards Ceremony: 5/14. Sanctioned by: **AHA/BJCP**. Contact: Matthew Bobiak, Phone: 610-742-1956, E-mail: aeneas.bobiak@gmail.com Web: www.hbd.org/beer

May 15

9th Annual Silver Dollar Fair Homebrew Competition Chico, CA. Fee: \$7. Entry Deadline: 4/9-5/1. Awards Ceremony: 5/15. Sanctioned by: **AHA/BJCP**. Contact: Ron Hartt, Phone: 530-895-8985, E-mail: bikesnbrew@msn.com Web: www.chicohomebrewclub.com

May 20-22

Sunshine Challenge XVI Orlando, FL. Fee: \$7. Entry Deadline: 4/1-5/1. Awards Ceremony: 5/22. Sanctioned by: **AHA/BJCP**. Contact: Mark Williams, Phone: 407-399-0028, E-mail: mtw06@msn.com Web: www.cfhb.org

May 20-21

9th Annual Amber Waves of Grain Buffalo, NY. Fee: \$5. Entry Deadline: 4/11-5/6. Awards Ceremony: 5/21. Sanctioned by: **AHA/BJCP**. Contact: Keith Bailey, Phone: 716-831-9118, Fax: 716-696-3220, E-mail: keith.bailey@cmworks.com Web: www.niaragrabrewers.org

May 20-21

23rd Annual Oregon Homebrew and Microbrew Festival Corvallis, OR. Fee: \$6. Entry Deadline: 4/16-5/7. Awards Ceremony: 5/21. Sanctioned by: **AHA/BJCP**. Contact: Joel E. Rea, Phone: 541-758-1674, Fax: 541-754-6656, E-mail: joel@brewbeer.cc Web: www.hotv.org

May 21

11th Annual 8 Seconds of Froth Cheyenne, WY. Sanctioned by: **BJCP**. Contact: Richard Mincer, Phone: 307-638-6754, E-mail: windywyo@aol.com Web: www.bbriggs.vcn.com/drafters.html

May 21

2005 WI State Fair Homebrewer's Show West Allis, WI. Sanctioned by: **BJCP**. Contact: Jeffrey D. Enders, Phone: 414-476-5575, E-mail: [jefenders@wi.rr.com](mailto:jeffenders@wi.rr.com) Web: www.beerbarons.org

American Homebrewers Association

■ KUDOS ■

Sanctioned Competition Program Best of Show

November 2004

■ America's Finest City Homebrew Competition (QUAFF-AFCHBC), 398 entries—**Loren Miraglia and Mark Graham**

January 2005

■ Big Beers, Belgians and Barleywines Homebrew Competition—**Matt Hardesty of Alamosa, CO**
■ Upper Mississippi Mash-Out, 511 entries—**Jay Wince of Zanesville, OH**
■ Meadllennium 2005—**Steve Schmitt of Anchorage, AK**

March 2005

■ 16th Annual Regale and Dredhop, 205 entries. Best of Show Beer—**Ted Manahan of Ft. Collins, CO**. Best of Show Mead—**Susan Ruud of Harwood, ND**

Reader Advisory: Warning!

These pages are rated XG (eXtra Geeky) by the Bureau of Magazine Muckymucks. 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.

Maximize Your Mash

By Daniel Morey

"A good rule of thumb is..."

You've heard this expression in hundreds of contexts, usually when getting close is almost as good as getting it right. In homebrewing, too, opportunities abound for educated guessing based on past results. For example, *The New Complete Joy of Home Brewing* advises that when I mix 1 quart of strike water per pound of grain in a simple infusion mash, I can expect my water temperature to drop anywhere from 16 to 18° F. What about in a multistep infusion? A decoction mash? What if I simply wanted to try a different amount of water? Do the same rules apply? With a few relatively simple calculations, any homebrewer can replace the guesswork with quantitative results and a few big bonuses: a better understanding of mash tun thermodynamics, more precise mash step planning and a shorter brew day.

Overall Heat Transfer Coefficient

An ideal system will hold mash temperature constant during each step. As we know, in reality, heat is lost to the environment. An object's heat transfer coefficient (U) is inversely proportional to its thermal resistance. In practical terms, to minimize temperature loss you should better insulate your mash tun. Heat loss to the environment can be expressed as:

[Equation 1]

$$q = UA\Delta T$$

where

q = heat loss (BTUs/min)

U = overall heat transfer coefficient (BTUs/ $\text{ft}^2\text{A}^\circ\text{F}$ Amin)

A = heat transfer surface area (ft^2)

[Equation 2]

$$\Delta T = T_{mash} - T_{ambient}$$

T_{mash} = Initial mash/step temperature (°F)

$T_{ambient}$ = ambient or surround temperature (°F)

For simplicity, we can assume the heat transfer surface area is constant for any given mash tun regardless of the quantity of grain or water used; I have used this assumption with reasonable results. Note that the heat transfer rate will diminish as the mash cools. This is referred to as unsteady-state heat transfer. The lump capacitance model is used in many industries, including food processing, to predict temperature change from unsteady-state heat transfer. You can use this model to quantify your own system's heat transfer characteristic, the product UA . Once you know your system's UA factor, you can predict temperature loss in your mash for any batch. By predicting your temperature loss, you can get a better estimate of the size infusions and decoctions to hit your mash temperatures.

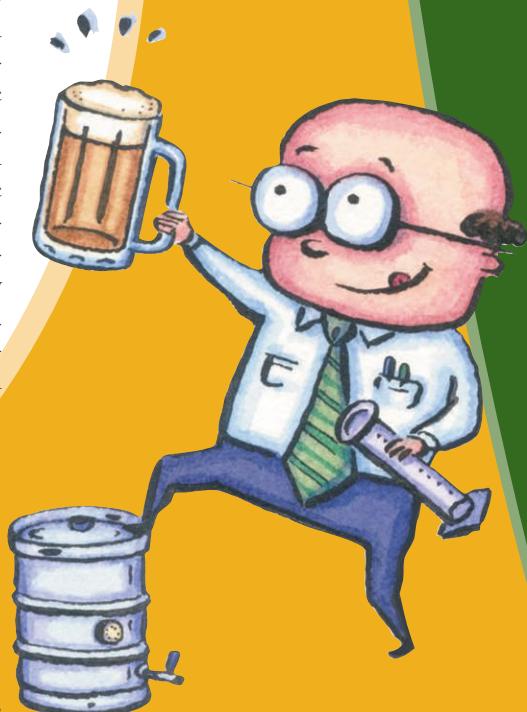
[Equation 3]

$$\frac{T_{ambient} - T_t}{T_{ambient} - T_{mash}} = e^{-(UA/C)t}$$

where

t = elapsed time (minutes)

T_t = the mash temperature at time t and,



[Equation 4]

$$C = (m_{\text{grain}} \times c_{\text{pgrain}}) + (m_{\text{water}} \times c_{\text{pwat}})$$

C = heat capacity (BTU/ $^{\circ}\text{F}$)

m_{grain} = mass of grain in mash (lbs)

c_{pgrain} = specific heat of grain (BTU/lb $^{\circ}\text{F}$)

m_{water} = mass of water (lbs) or 2.08 lbs/qt

* quarts of water

c_{pwat} = specific heat of water (1 BTU/lb $^{\circ}\text{F}$)

Specific heat of the grain can be approximated from Equation 5, where MC is moisture content expressed as a percentage.

[Equation 5]

$$C_{\text{pgrain}} = 0.005MC + 0.38$$

An alternate formula for calculating specific heat based upon composition and mass fractions is:

$$C_p = 0.34m_c + 0.37m_p + 0.40m_f + 0.20m_a + 1.0m_w$$

Each mass fraction (m) is expressed in decimal format. Each subscript is: c, carbohydrate; p, protein; f, fat; a, ash; and w, moisture.

In a perfect system the quotient on the left-hand side of the lump capacitance model is equal to 1. In this case the exponent on the right side of the equation is always equal to zero (0). Given that the mash tun has a fixed, finite heat transfer coefficient, heat capacity and time are the variables we can adjust to limit temperature loss.

So what does this mean to us? How can this help us on brew day? Here are some important relationships to remember.

1. Larger batches will hold temperature better than small batches because they have a greater heat capacity due to the higher masses of grain and water.

2. Similarly, the relatively large quantities of water and grain in high gravity beers increase the heat capacity and slow the rate of temperature loss.

3. Given that water has more than double the heat capacity of grain, thin mashes will have significantly higher heat capacity than thick mashes. As heat capacity increases, the rate of temperature loss decreases.

In order to reduce time, we must have conditions that allow the mash to convert more quickly. Fortunately, thinner mashes promote diastatic enzyme activity. While it may be more typical to use a water-to-grist ratio (WGR) of approximately 1.3 quarts per pound, thinning the mash to 1.9 to 2.4 quarts per pound may cut the mash conversion time nearly in half. Adjusting mash pH to achieve 5.3 to 5.5 further promotes rapid conversion.

Back to characterizing the mash tun, by rearranging Equation 3 we can solve for UA:

[Equation 6]

$$UA = -\ln \left(\frac{T_{\text{ambient}} - T_i}{T_{\text{ambient}} - T_{\text{mash}}} \right) \frac{C}{t}$$

Let's take a look at applying Equation 6 to some measurements taken during a mash session. This mash consisted of 9.5 pounds of grain, assuming 4-percent moisture content, with 1.5 quarts of water per pound of grain. Figure 1 is an example spreadsheet for determining UA. Averaging the calculated values for UA will minimize the impact of measurement error, and averaging over several batches increases the confidence in the results.

Figure 2 shows how the lump capacitance model fits the observed data. Notice that the predicted end point is very close to the observed value. The two middle observations are within 0.5° F of the prediction.

Calculating Mash Steps

Energy or heat is required to raise mash temperature from one stage to the next. This can be done with direct heating of the mash, infusion or decoction. Infusion and decoction are convenient because rapid temperature change can be achieved. Direct heating can be tricky and if you are not monitoring the temperature rise closely you can easily overshoot. Calculating the amount of water to add or the size of a decoction is not difficult and can simplify your brew day.

Infusion Mashing

For an infusion mash, either hot or boiling water can be used as a heat source. I prefer to use boiling water, since it has a known temperature and I don't have to monitor it. Though not necessary for most, brewers at high altitudes may find the following equation useful for calculating boiling temperature. It was derived from Standard Atmosphere and Steam tables.

[Equation 7]

$$T_{\text{boil}} = 212 - 0.00185h$$

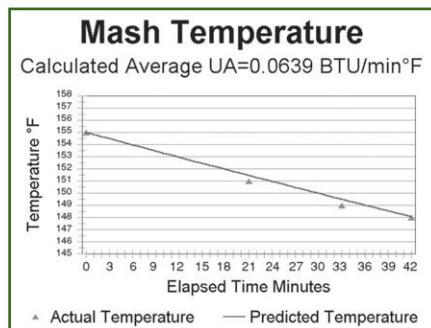


Figure 2

Mash Tun UA Determination

9.5 lbs of grain
1.5 qt water per pound of grain
29.64 lbs of water
4 Assumed %moisture content of grain
0.4 Specific heat of grain BTU/lb $^{\circ}\text{F}$
1 Specific heat of water BTU/lb $^{\circ}\text{F}$
33.44 Heat Capacity of mash BTU/ $^{\circ}\text{F}$

Time Remaining Minutes	Time between measurements minutes	Elapsed time minutes	Temp °F	Ambient Temp °F	UA Step to Step BTU/min $^{\circ}\text{F}$	UA elapsed BTU/min $^{\circ}\text{F}$	Average UA BTU/min $^{\circ}\text{F}$
42			155	65			
20	22	22	151	65	0.069103		
9	11	33	149	65	0.071533	0.069913	
0	9	42	148	65	0.044498	0.064467	0.0639

Figure 1: Spreadsheet for calculating UA from observed temperature data.

where,

T_{boil} = Boiling point of water °F

h = elevation ft

Raising the mash from T_1 to target T_2 requires heat equal to the energy given off by the infusion water as it cools from T_{in} to T_2 . Mathematically this can be expressed as:

[Equation 8]

$$c_{pgrain} \times m_{grain} \times T_1 + c_{pwat} \times m_{water} \times T_1 - c_{pwat} \times m_{win} \times T_1 + c_{pwat} \times m_{win} \times T_{in} = c_{pgrain} \times m_{grain} \times T_2 + c_{pwat} \times m_{water} \times T_2$$

where,

M_{water} = total mass in pounds of water at step 2; initial amount of water plus the infusion water. For single infusion, this is equal to the water to grist ratio (WGR) multiplied by the mass of grain multiplied by 2.08 lbs/qt. ($WGR \times m_{grain} \times 2.08$)

m_{win} = mass in pounds of water infused.

T_1 = initial temperature °F

T_2 = target rest temperature °F

T_{in} = infusion water temperature °F = T_{boil}

Solving the Equation 8 for m_{win} gives us:

[Equation 9]

$$m_{win} = \frac{((c_{pgrain} \times m_{grain}) + (c_{pwat} \times m_{water})) \times (T_2 - T_1)}{c_{pwat} \times (T_{in} - T_1)}$$

This equation is most useful for single infusion mashes. It can also be used for determining the first infusion of a step mash. If there is a known amount of water in the mash already and you want to raise the temperature for the next step, you can use Equation 10 to calculate the amount of water to add.

[Equation 10]

$$m_{win} = \frac{((c_{pgrain} \times m_{grain}) + (c_{pwat} \times m_{water})) \times (T_2 - T_1)}{c_{pwat} \times (T_{in} - T_2)}$$

Unlike Equation 9, the total water used is not known. The term m_{water} is the amount of water currently in the mash, not the total water used. Also, the temperature difference in the denominator is between the infusion temperature and target temperature.

Consider an example similar to that used in the UA calculation. Let's calculate the mash step for a single infusion, but increase the WGR to 1.9 instead of 1.5. The mash should benefit from higher

thermal capacity and the thinner mash should allow us to reduce the mash time to about 30 minutes instead of 42.

9.5 lbs grain * 1.9 quarts water per lb * 2.08 lbs per quart = 37.544 lbs (roughly 4.5 gallons)

$T_1 = 65^\circ F$ (room temperature)

$T_2 = 155^\circ F$ (target temperature)

$T_{in} = 210.7^\circ F$ (700 ft elevation)

$c_{pgrain} = 0.40 \text{ BTU/lb}^\circ F$ (4-percent moisture content)

[Equation 11]

$$m_{win} = \frac{((0.40 \times 9.5) + (1.0 \times 37.544)) \times (155 - 65)}{1.0 \times (210.7 - 65)} = 25.54 \text{ lbs}$$

In this example, the total water used is 37.544 pounds or roughly 4.5 gallons. Of this water, 25.54 pounds (approximately 3.07 gallons) will be added as a boiling water infusion. The remaining 1.43 gallons is used for dough-in. In this example, it is assumed that the dough-in water is at room temperature (65° F).

Notice that the left-hand portion of the numerator in the above calculation is the heat capacity C. Increasing the WGR from 1.5 to 1.9 increased C from 33.44 to 41.34. Using Equation 3, we can calculate the ending mash temperature. After 30 minutes, the expected ending mash temperature would be 150.9° F, nearly 3° F higher. If the mash continued to 42 minutes, as in the original example, the predicted ending temperature would be 149.3° F. This reflects an improvement of about 1 degree. By minimizing temperature loss, the specific enzyme activity is targeted more effectively. The resulting wort will better match the sugar composition desired.

For step infusions, the calculations become iterative if you want to achieve a specific ending WGR. Make an initial guess for the first step WGR, which is less than the ending WGR target. Calculate the ending mash temperature for each step; this becomes the T_1 term used in the next infusion calculation. Figure 3 is an example of a classic Fix 50/60/70 three-step mash.

Decoction Mashing

Decoction mashing is similar to infusion since temperature change is achieved by combining two volumes at different tem-

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peratures to result in a temperature that is in between those of the two volumes. Unlike infusion, which contains only water, the hot volume contains water and grain. Also, the total volume of water is added in the first stage of the mash.

Whereas traditional decoction removes the "thickest" portion of the mash, the method presented here will yield a decoction with the same WGR as the main mash. I believe using the same WGR for the decoction is acceptable, for the following reasons.

1. Modern malts have good diastatic power.
2. The decoction is brought to saccharification temperature and allowed to rest before it is brought to a boil.
3. Enzymes in the main mash are not affected. Subsequent decoctions will remove only a fraction of the enzymes in the main mash.
4. Each step is longer than traditional infusion steps, giving the enzymes time to convert the mash.

Step Mash Calculations

12 lbs of grain
 4 %moisture content grain
 0.4 Specific heat of grain BTU/lb°F
 1.9 water to grist ratio (final target), qts/lb
 1 Specific heat of water BTU/lb°F
 68 room temperature °F
 700 Elevation, ft
 210.7 T_{in} , infusion temperature
 0.0639 Mash Tun UA, BTU/min°F

1.33 Step 1 WGR, initial guess qt/lb

Rest Temperature °F	Time minutes	m_{water} lbs	m_{win} lbs (eq 9)	m_{win} lbs (eq 10)	Dough-In gallons	Infusion gallons	Heat Capacity C BTU°F/(eq 4)	Step End Temperature °F	WGR Actual qt/lb	%Error
122	30	33.20	14.38		2.26	1.73	38.00	119.3		
140	30	44.30		11.10		1.33	49.10	137.2	1.77	
158	30	63.63		19.34		2.32	68.43	155.5	2.55	34.18

The final WGR is too high, approximately 34%. Reduce our estimate for step WGR and recalculate:

0.99 Step 1 WGR, initial guess qt/lb

Rest Temperature °F	Time minutes	m_{water} lbs	m_{win} lbs (eq 9)	m_{win} lbs (eq 10)	Dough-In gallons	Infusion gallons	Heat Capacity C BTU°F/(eq 4)	Step End Temperature °F	WGR Actual qt/lb	%Error
122	30	24.74	11.18		1.63	1.34	29.54	118.6		
140	30	33.68		8.94		1.07	38.48	136.5	1.35	
158	30	49.37		15.70		1.89	54.17	154.9	1.98	4.11

The final WGR is just a bit high. Continue to iterate until error is less than 0.1%.

0.95 Step 1 WGR, initial guess qt/lb

Rest Temperature °F	Time minutes	m_{water} lbs	m_{win} lbs (eq 9)	m_{win} lbs (eq 10)	Dough-In gallons	Infusion gallons	Heat Capacity C BTU°F/(eq 4)	Step End Temperature °F	WGR Actual qt/lb	%Error
122	30	23.59	10.74		1.54	1.29	28.39	118.5		
140	30	32.23		8.64		1.04	37.03	136.4	1.29	
158	30	47.43		15.20		1.83	52.23	154.8	1.90	0.02

Solution converged!

1.54 Dough-In (gallons) @ room temperature
1.29 1st Infusion to raise mash to 122°F (gallons) @ boiling
1.04 2nd Infusion to raise mash to 140°F (gallons) @ boiling
1.83 3rd Infusion to raise mash to 158°F (gallons) @ boiling

Figure 3: Step mash calculations for the classic Fix three step 50/60/70 program

5. The specific heat of water is more than twice that of grain; in thinner mashes, smaller decoction volumes are required to achieve the desired temperature change.

6. Sufficient liquid is necessary to boil the decoction; thick decoctions are likely to burn.

7. Some Belgian brewers practice turbid mash, or removal of the "thin" portion, and they still achieve significant starch conversion.

With this method, the calculation of decoction mass depends only on temperatures and total mass of the water and grain.

$$[Equation 12] \quad m_{dec} = (m_{grain} + m_{water}) \times \frac{(T_2 - T_1)}{(T_{boil} - T_1)}$$

where,

T_1 = mash temperature °F prior to the decoction being added.

T_2 = target temperature for the next rest °F
 T_{boil} = boiling temperature °F (assume to be same as water)

m_{grain} = mass of grain, lbs

m_{water} = mass of water, lbs, $2.08 * WGR * m_{grain}$

Volume is more convenient to work with than mass when removing the decoction. To convert the mass to volume, we need to know the density of the mash. Based upon the bushel weight of various brewing grains and assuming that grain occupies only 50 percent of the volume (the remainder being voids to be occupied by water) I have developed the following approximation:

[Equation 13]

$$\rho_{mash} = \frac{1 + (2.08 \times WGR)}{0.093 + (\frac{WGR}{4})}$$

where,

ρ_{mash} = density of mash lbs/gal

WGR = water to grist ratio, lbs/qt

The constant 0.093 accounts for the volume

occupied by the grain. It is the percentage of space occupied by the grain multiplied by 0.186 gallons (50 percent * 0.186).

The first step in the decoction mash is a single infusion to achieve the initial rest temperature.

Use Equation 9 to calculate your infusion quantity. Next we need to determine the decoction mass. But before we can do this we need to know the rest step end temperature. However, until we know how much mash will be removed for the decoction, we cannot calculate the end temperature. Once again, we have an iterative process. Start the iterative process by assuming that there is no temperature loss. Determine the decoction size and then go back and calculate the rest end temperature. Use this new end temperature to calculate the new decoction size, and compare to the previous guess. Keep modifying your guess until the two values converge.

Figure 4 illustrates decoction mash calculations.

Mash Tun Thermal Mass

Though the previous examples took into account heat lost to the environment, we haven't addressed heat loss to the mash tun itself. To account for the mash tun losses, simply add the thermal mass of the vessel to the thermal capacity (Equation 4). To approximate the thermal mass of the mash tun, multiply the specific heat of the mash tun material and divide by the temperature ratio. The temperature ratio is best determined through experimentation.

[Equation 14]

$$C_{mt} = C_{p-mt} \times \frac{mass_{mt}}{R_i}$$

where,

C_{mt} = Thermal capacity or thermal mass of mash tun (Btu/°F)

C_{p-mt} = specific heat of the mash tun material (Btu/lb°F)

$mass_{mt}$ = mass of mash tun (lbs)

[Equation 15]

$$R_i = \frac{T_{mash} - T_{ambient}}{\frac{T_{mash} + T_{surface}}{2} - T_{ambient}}$$

where,

Decoction Mash Calculations

10.5	lbs of grain	149	Rest Temperature °F
4	%moisture content grain	158	Next Rest Temperature °F
0.4	Specific heat of grain BTU/lb°F	60	Time minutes
1.9	water to grist ratio (final target), qts/lb	41.50	m_{water} lbs
8.72	mash density _/lb/gal (eq 13)	25.94	m_{w1} lbs (eq 9)
1	Specific heat of water BTU/lb°F	1.87	Dough-In gallons
68	room temperature °F	3.12	Infusion gallons
700	Elevation, ft		
210.7	T _b , boiling temperature		
0.0639	Mash Tun UA, BTU/min°F		

1.53 Initial decoction estimate (lbs of grain)
6.05 Initial decoction estimate (lbs of water)
7.58 Sum

Decoction Volume gallons (m _{dec})	m _{water} main mash lbs	m _{grain} main mash lbs	Heat Capacity BTU/F (eq 4)	Step End Temperature °F	Decoction size based upon Calculated T, lbs		New Guess Decimal (eq 12)	Decoction grain lbs	Decoction water lbs	Decoction sum lbs
					Calculated T, lbs	Decimal (eq 12)				
0.87	35.44	8.97	39.03	141.4	12.44	0.390	1.83	7.23	9.06	
1.04	34.26	8.67	37.73	141.2	12.58	0.280	2.09	8.25	10.33	
1.19	33.25	8.41	36.62	140.9	12.71	0.187	2.28	9.02	11.30	
1.30	32.48	8.22	35.77	140.8	12.81	0.118	2.42	9.55	11.97	
1.37	31.95	8.08	35.18	140.6	12.89	0.071	2.50	9.89	12.39	
1.42	31.61	8.00	34.80	140.6	12.93	0.042	2.55	10.10	12.65	
1.45	31.40	7.95	34.58	140.5	12.96	0.024	2.59	10.22	12.80	
1.47	31.28	7.91	34.44	140.5	12.98	0.014	2.60	10.29	12.89	
1.48	31.21	7.90	34.37	140.4	12.99	0.008	2.61	10.33	12.94	
1.48	31.17	7.89	34.32	140.4	12.99	0.004	2.62	10.35	12.97	
1.49	31.15	7.88	34.30	140.4	13.00	0.002	2.62	10.36	12.98	
1.49	31.14	7.88	34.29	140.4	13.00	0.001	2.62	10.37	12.99	

Solution converged!

1.87 Dough-In (gallons) @ room temperature
3.12 1st Infusion to raise mash to 149°F (gallons) @ boiling
1.49 1st decoction to raise mash to 158°F (gallons) @ boiling

Figure 4: Example of iterative calculations for single decoction mash. Note first rest is achieved by infusion. Solution took 12 iterations to converge.

$T_{surface}$ = Outside surface temperature of the mash tun.

For insulated coolers, temperature ratio will be close to 2 since the outside surface temperature will be close to room temperature. For kettles, the ratio will be close to 1 since the exterior temperature is close to the internal temperature.

Updating Equation 4 to include mash tun thermal mass:

[Equation 16]

$$C = C_{mt} + (c_{pgrain} \times m_{grain}) + (c_{pwat} \times m_{wat})$$

Consider a 12-gallon Eastman stainless steel kettle. The kettle weighs 10 pounds, thus the thermal capacity is 1.1 Btu/F (0.11*10/1) or approximately 3 pounds of grain. In the first example, the thermal mass

excluding the mash tun was 33.44 Btu/F. Adding the mash tun would change the thermal capacity approximately 3 percent. My experience is that mash tun loss is minor and can be ignored for these calculations.

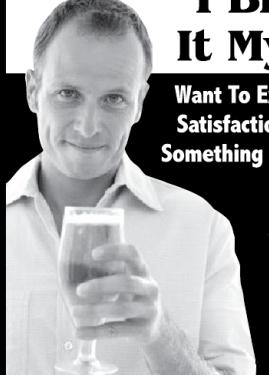
Conclusions

You don't have to be a mathematician to see how performing a few simple calculations can move you toward your target mash program and wort composition. Knowing the physical properties of your mash tun will allow you to fine-tune the calculations for your own system. Imagine maximizing specific enzyme activity through better temperature control, eliminating guess-work involved in measuring your water or decoction volumes, and quite possibly cutting your mash time in half. Give it a try. And above all, as Charlie says, "Relax, don't worry, have a homebrew!"

Dan Morey is a project engineer for Case New Holland working in Ag Tractor Development. He has been brewing since 1992, switching to all-grain on his second batch. He is the originator of the Morey color formula and a member of Club BABBLE in Lake County, Ill. His credo: The best part of science is putting it to practical use! Morey wishes to

Material	cp(Btu/lb°F)
Stainless Steel	0.11
Aluminum	0.21
Foam Insulation/Cooler	0.25
Ceramic on Steel	0.12 (est)

Table I. Specific heat of common mash tun materials.



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thank Matt Mason for the fresh perspective he brought to this project.

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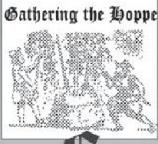
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Thinking Out Loud about Beer Styles

I love to make American-style beers because of the freedom to experiment with hops. I have always thought that we needed more American style categories in BJCP beer contests. Americans have started a beer renaissance, so why all the focus on Euro beers? I see that the 2004 BJCP guidelines have changed to include more American versions of beer, but I think we have a ways to go.

In the expanded porter category, we now have a new sub-category, Baltic Porter. What is that? I can't say I've ever had an example of this type of porter, and in fact had never heard of it until last year. Commercial examples in the BJCP guidelines for Baltic Porter are all foreign beers from places like Finland, Poland, Sweden and Russia.

I see in the IPA category that we have three sub-categories now: American IPA, English IPA and Imperial IPA. It's nice to see the imperial finally added as a style to shoot for, but I'm not sure an English IPA can go head to head with these bigger, more bitter and much hoppier brews. What do you think is going to impress the judges most? I'm thinking hops!

In the new American Ale category we have American Pale, Amber and Brown. Brown ale used to be a separate category. Does it fit with pale and amber? It may be a much better place for this style than competing with English browns, as our versions are more interesting.

An expanded subcategory for stouts includes the addition of American Stout. This is great, but Imperial Stout has been added to this category as well. Now your light dry stout competes with an imperial! Irish Red Ale was added with the Scottish styles and Scotch Ale moved here as well.

It's nice to see a red ale added, but American brewers are producing their own versions. The American red ale tends to have a moderate amount of flavor hops and can also be dry hopped. It has reddish hues and the malt or hops may dominate. The Irish version in terms of hop presence has low to none and uses English hops, of course.

Fortunately we can enter our reds in the Amber category. In fact the Amber category pretty much gives examples of red ales, so why not call it Red instead of Amber? I still think of ambers and red ales as being two different types of beer; the amber much darker in color and subdued in the hopping, as opposed to red ale that is light enough to observe the reddish hue, moderate to highly hopped or dry hopped, but exhibiting a fair amount of caramel and sweetness from crystal malt.

I would have liked to see more imperial categories added, such as Imperial Pale Ale, Imperial Lager or Imperial Red. These versions have been produced by craft brewers for some time now. Also, what about American Strong Ale? Several versions of this ale are crafted in the United States. I make a version that tends to be like a Scotch ale—but take this to competition and they always complain it has too much hop presence. Of course it does...it's an American version! It doesn't quite fit into these European dominated categories. Maybe the American Strong will fit into the Old Ale category but again, too much hop presence is not to style for this type of beer in Old Ale.

Maybe this style would fit into the new Winter Warmer/Christmas Beer category but these brews will probably be dominated by additions of spices, fruits and citrus peel. I am however very happy to see this new sub-category in Herb, Vegetable, Spice Beer. American Strong Ale and many



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other types of American style ales tend to be a lot more flexible in terms of recipe formulation. This is why I love our ales. We are not bound tightly to try and brew specifically to some type of Euro style just to win competitions. We may brew more to taste and still have a real chance of placing in the medals or ribbons for our efforts. This spawns creativity and satisfaction in homebrewing.

We would be lost without the Specialty Beer category. Making a honey beer? This is the category for you, as we still don't have a separate honey beer category. American Strong? Imperial Wheat? American Dark? How about an American-style Dunkelweizen? Our American wheat beer is still in the light ale category and a German beer, Kölsch, has been added, but there is no place for a dark style American wheat—except in Specialty.

I'm looking forward to using the new 2004 BJCP Style guidelines in competition. It shows we are moving in the right direction. Of course it would be nice to keep closer pace with the expanded professional competition styles as they are constantly evolving to keep up with all the new styles being created, but I think homebrewers will be happy with some of the changes in the updated guidelines. As for me, I will fondly hold onto my brewing philosophy, "American style beer, break out of the mold. They're big and bold!"

Alan Johnson lives and brews beer in Deer Island, Ore.

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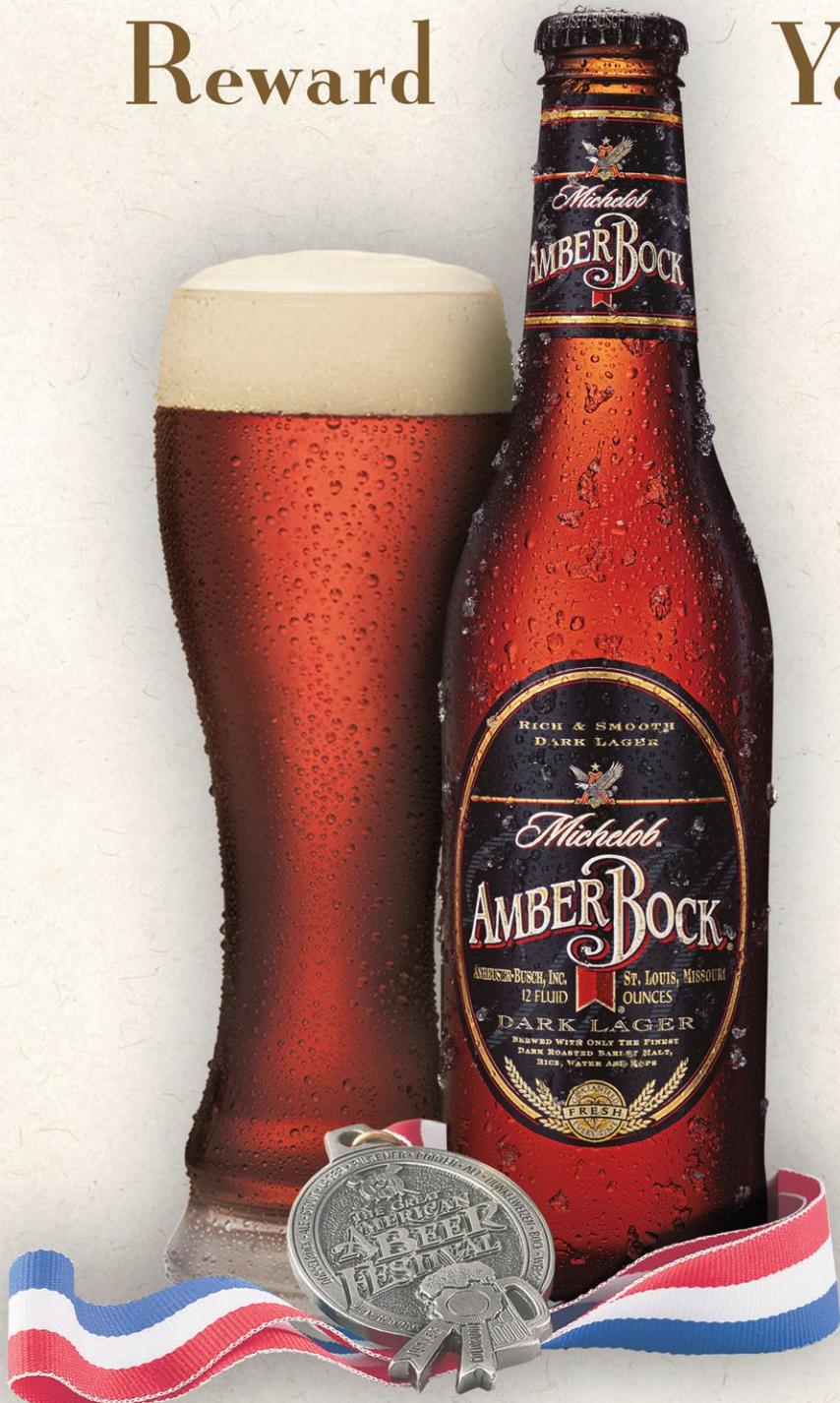
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