

Vol. 21 No. 2 Summer 1998 Published by the American Homebrewers Association

ZYMURGY

FOR THE HOMEBREWER AND BEER LOVER

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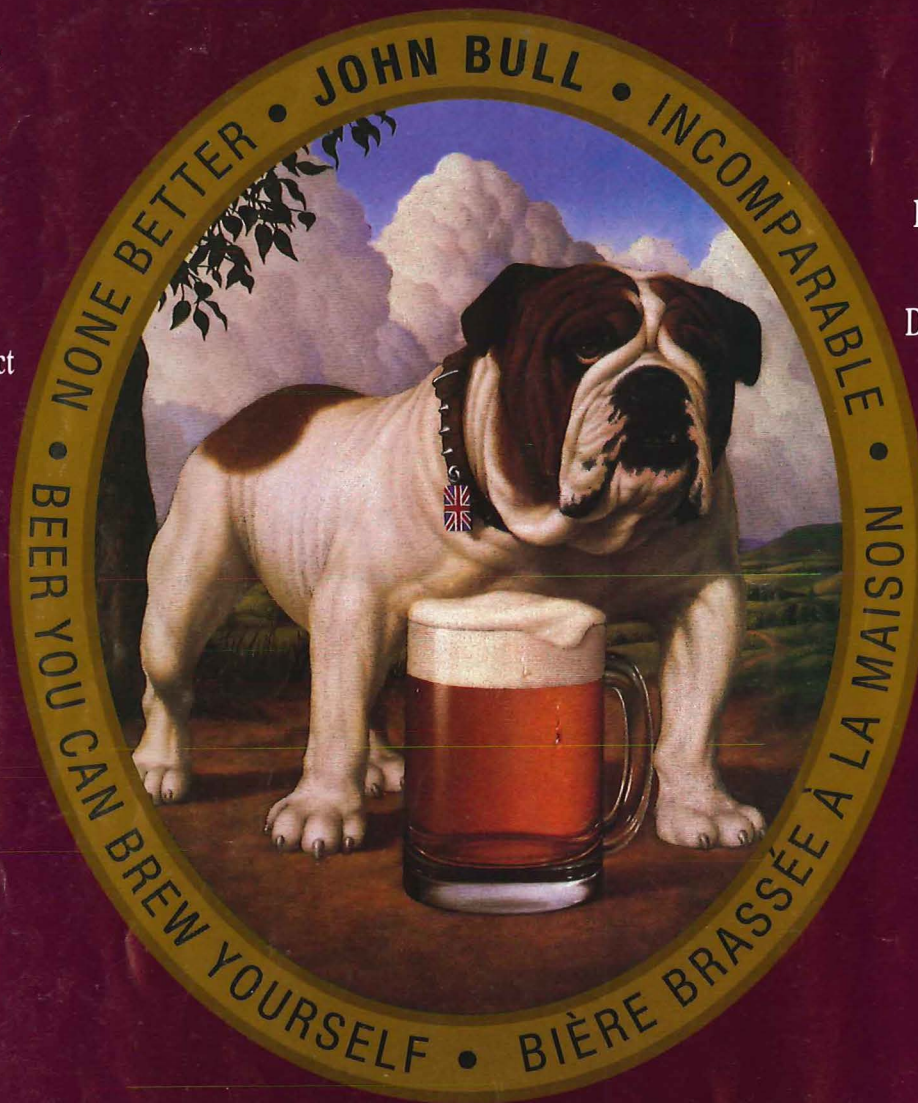
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1 oz. Saaz hops

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2. Add grain bag to 2 gallons
of cold water in a 3 gallon (or
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heat. Bring temperature to
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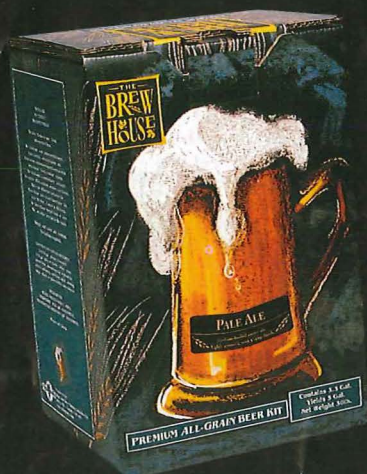
3. Remove and discard grains and boil
for 20 minutes. At the end of the boil, add
Saaz hops; remove pot from heat and steep
hops for 5 minutes.

4. Cool the liquid and use it to make up the volume of the kit. Top up with
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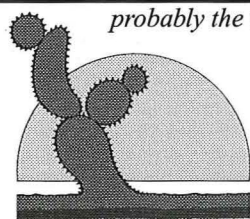
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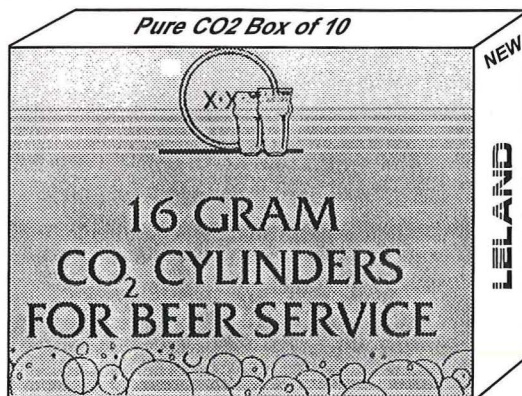
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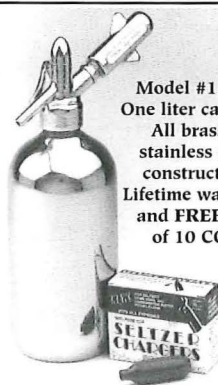
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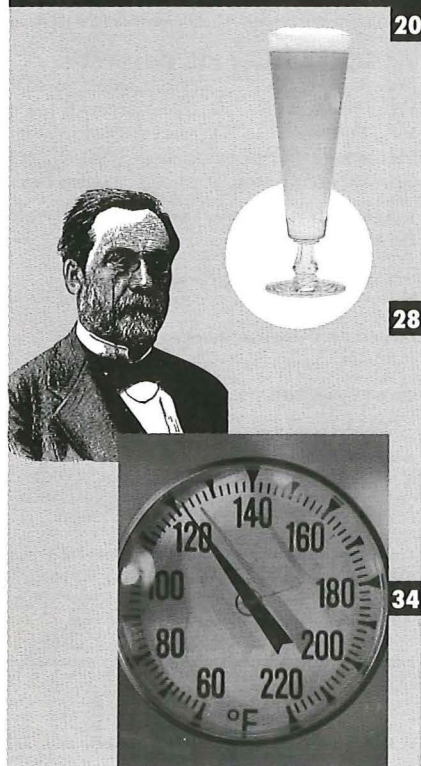
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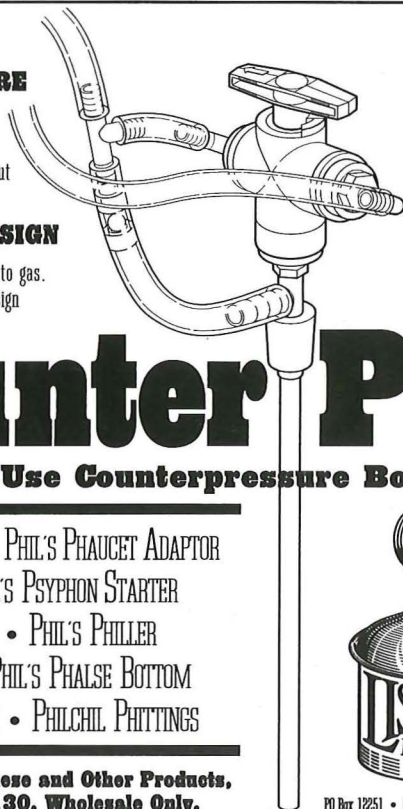
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IT'S THE BEER TALKING

Jim Parker

Okay, brewers and brewsters, today's lesson is on sharing. No, I don't mean sharing homebrew—most brewers I've met are very good when it comes to sharing homebrew. Especially when a batch comes out juuuust riiight. What I want to talk about is sharing *homebrewing*.

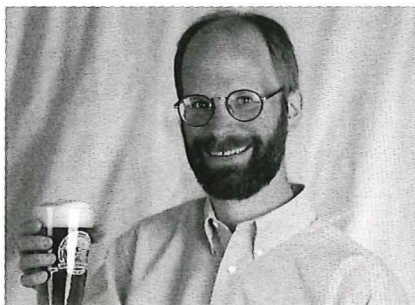
There's a T-shirt that's become popular with brewers that says, "Buy a friend a beer, he'll waste an hour. Teach a friend to brew, he'll waste a lifetime." And while I appreciate the humor, I have to disagree with the sentiment. My life has definitely improved since the day—now 11 years ago—when Greg Jones, founder of the Devil Mountain Brewery, first taught me to brew. I often wonder where I'd be today if Greg hadn't told me that, no, I couldn't come watch him brew to research my story for the local newspaper. But, if I wanted to, I could come help him brew.

I often think of Greg, who is now out of the brewing business, and wish I could find him to thank him for sending me off on this grand adventure. I'm sure most of us have someone like Greg in our pasts—a mentor who took us under his or her wing and got us started on the right foot. So that got me thinking, "Who have I done that for?"

Sure, I taught some homebrewing classes back in California in the late '80s, but I haven't talked to any of those people in years, let alone mentored them or brewed with them. I don't even know if they're still brewing. The answer is, I really haven't returned the favor that Greg paid me 11 years ago. And though it's a bit late for new year's resolutions, I am resolving now to teach at least one friend to brew this year. I think everyone should.

Why?

It's simple, the more people brewing, the better for everyone. More brewers



means healthier homebrew shops. That means better access to a wider range of supplies. More brewers also means more clout with local state and federal regulatory entities on issues such as homebrew legalization, shipping of homebrew for competitions and the ability to hold homebrew events. And more brewers means more good homebrew to share with those who may not have discovered the joys of fresh, flavorful beer.

There are plenty of opportunities for building new brewers. Next time a friend says, "Hey, this is great beer," say, "How would you like to make your own?" And then invite them over for a brew session. Get them started right. Invite them to a club meeting of your local homebrew club. Better yet, invite them to your nearest site for the Big Brew '98—AHA's celebration of the 10th Anniversary of National Homebrew Day on May 2. Brewers around the country will be getting together to brew simultaneous batches of Rob Moline's 1996 Great American Beer Festival gold medal-winning barleywine. If you need more information on the Big Brew '98, call Brian Rezac at 1-888-UI-CAN-BREW or e-mail him at brian@aob.org.

The bottom line is teach a friend to brew. It won't be a waste of time for anyone.

Jim Parker is the director of the AHA. 

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DEAR ZYMURGY

Our Readers

Baby Blanket Bingo

Dear *Zymurgy*,

Thought I would send a few of the labels I am proud of. First, instead of handing out cigars, I handed out beer at the birth of each of my three children. I no longer have a sample of the label from my first child, Rick Jr., but I sent a copy of Michael's and Danielle's. Danielle's is a bit more professional, since I obtained a computer and even used adhesive labels.

Hope you enjoy the labels and the background. Thanks for putting out such a quality publication.

Sincerely,
Rick A. Deering
Frankfort, IL

Congratulations are, of course, in order. We're a little surprised, however, that you didn't name your children Stout, Heffie and little IPA.

Hop Growers of the World, Unite!

Dear *Zymurgy*,

It was great to read Greg Kitsock's article, "Once upon a Vine", in the 1997 Special edition (Vol. 20, No. 4) of your magazine. Long have we been fans of *Zymurgy* magazine and its commitment to informative and entertaining pieces. Of special note was the history of hops and their cultivation. We were quite thrilled to see you mention of the Industrial Workers of the World (IWW) and the connection to early labor

It's a Girl! Danielle Christine



Parents: Rick & Michele Deering
Happy Brothers: Rick & Michael
Born: August 7, 1996 @ 9:37 am
Weight: 6 lbs 8 ozs
Length: 19 inches

organizing in the hop fields. As members of the IWW and microbrewers, it is always welcome to see the connection of products and its associated labor. Keep up the good work and we'll keep agitating for a better society and a better pint of beer.

In Solidarity.

Eric Chase, Ben Brotman, and Phil Roche
Fish Brewing Company
Olympia, WA

Thanks for the kind words, guys. We were recently listening to some Woody Guthrie songs from the '30s ourselves and thinking of Solidarity Stout...

Another Cinderella Fan

Dear *Zymurgy*,

I just finished reading Charlie's "World of Worts" story on "Christmas Cinderella Dou-

ble Brown Ale," *Zymurgy* Winter 1997 (Vol. 20, No. 5). I have been brewing my own version of this recipe for three years now. Every year when I make it, my fellow club members ask for the recipe or to bring more of this beer to the next meeting. I have had nothing but spectacular results from this recipe (but have) experienced the same problem that Charlie has. There is no category in competitions for this style. I did however, find that my last batch fit the Strong English Ale category and did not do too badly.

When I came up with my version of the Double Brown Ale, I wanted to make a beer that was similar to Doppelbock without the wait. What I ended up with is something very similar to that style, which I call Home-toasted Caramel Munich. I get the caramel from a generous spray of brown sugar diluted in water, which I spray over the roasting malt.

I tone down the hops for a closer comparison to Doppelbock. The only other significant change I make is yeast. I use the Wyeast European because of the malty and attenuation profile. The end result has always been a high alcohol beer that is very clean and refreshing, full-bodied and a beautiful ruby color. The alcohol content is not evident up front and the beer does have quite a malty profile. Not quite as much as a Doppelbock, but for an Ale, this beer does very well among friends.

Jeff Harvey
Tacoma, WA
Homebrewers of Puget Sound
Ozoftac@AOL.com

Send us the recipe, Jeff, and we'll publish it. It sounds great.

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Aussie Apology Due

Dear *Zymurgy*,

When I opened my '97 Special edition of *Zymurgy*, I thought 'oh boy' a wall chart on hop varieties and planned to give it a pride of place on my brewery wall. On close examination I became filled with horror as I saw my country's claim to fame in the hop business attributed to a group of remote and primitive islands in the east Pacific, namely New Zealand.

The hop variety to which I refer is Pride of Ringwood, a Tasmanian variety, which

even the Germans are using in their prize lagers. Tasmania is the sixth state of Australia and is well-protected from New Zealand by thousands of miles of ocean. How would you like it if we claimed that your famed Cascade variety originated in the Bermudas?

What really hurts is that we have always been so good to you Americans, you know, helping you out in wars, etc., whereas the New Zealanders won't even let your ships dock there. (Not that you're missing out on anything.)

Please consult an atlas before formulating your next wall chart.

Yours bitterly,
Lynton J. Forrester
Vermont, Victoria
Australia

You're just jealous about the Kiwis inventing bungy and all. And we had an atlas in the office, but Charlie Papazian took it and left town.

Die, Yuppie Scum!

Dear *Zymurgy*,

I can no longer support the direction homebrewing has taken! The Yuppies have taken over! Count me out.

G.D. Lloyd
Topeka, KS

Oh man...After reading this letter, we banned Dockers in the office, cut everyone's salaries so they couldn't afford even a used SUV and emptied the refrigerator of fruit beers. The empire strikes back!

Moderate Discipline

Dear *Zymurgy*,

It couldn't get much better! As a fifties rocker (now age 55), and an avid brewer, you now combine my two favorite interests. And, it seems, with a sense of humor, too!

Don't sweat the homebrewing learning curve. With moderate discipline and attention to sterile technique, it's as easy as fallin' off a log. And the results are gratifying, usually much better than you'll find in your local market. I look forward to the future of *Zymurgy*, colored by your spirit.

Barry Baum, a.k.a. Barrymore Brew
drbaum@metro.net

Of course, the secret of life is that everything is possible with moderate discipline and attention to sterile techniques. Wasn't that in the Hitchhiker's Guide to The Galaxy chapter on brewing?

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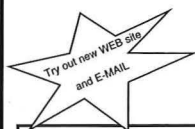


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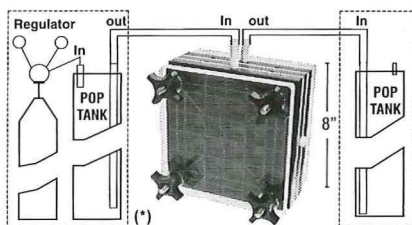
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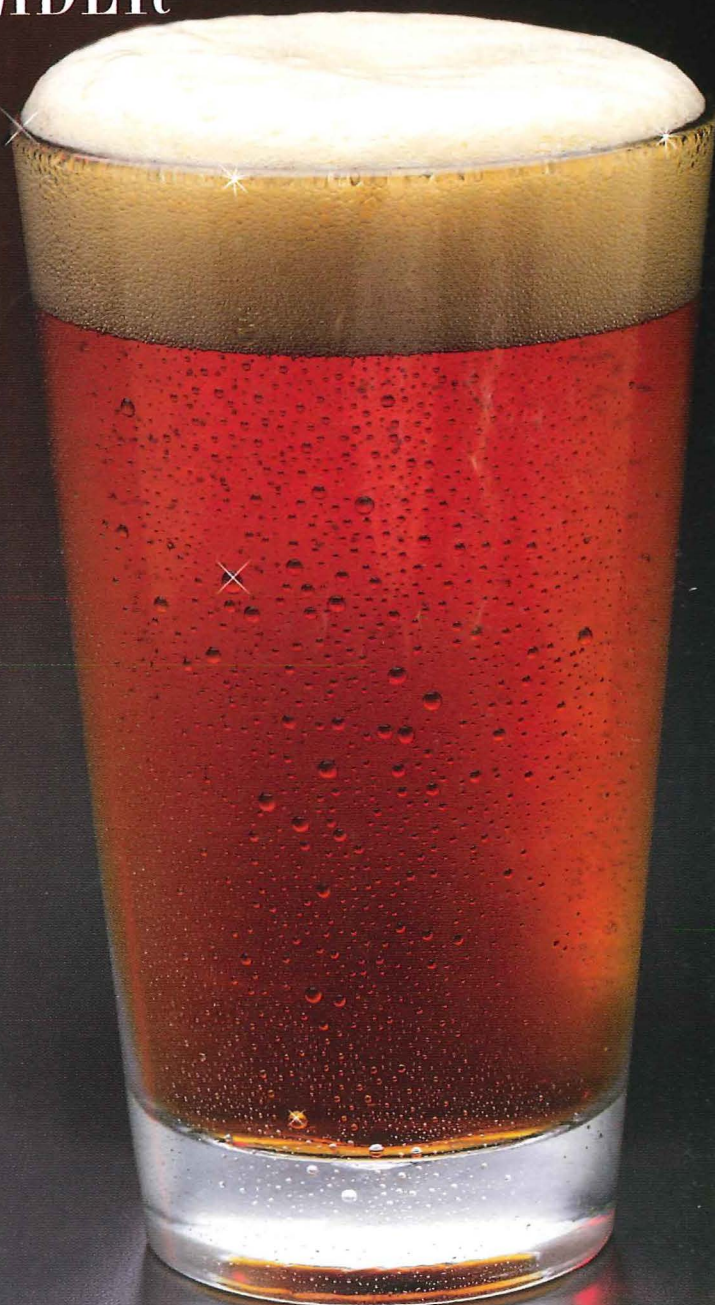
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BREW NEWS

Amahl Turczyn

HEADLINES

Anheiser-Busch wins Budweiser Battle



The ongoing battle between Czech Republic brewery Budweiser Budvar and American brewing behemoth Anheiser-Busch is finally over, with the U.S. brewer claiming the victory. After A-B threatened to stop buying Czech hops if it was not allowed to claim exclusive rights to the Budweiser name, Budweiser Budvar finally relented. Anheiser-Busch currently purchases over 18% of the total hop crop of the Czech Republic, so the Czech government and Budvar were forced to cease their opposition to Anheiser-Busch's claim that there should be only one Budweiser. From now on, Budweiser Budvar can only be called Budvar. As a consolation, however, A-B promised to purchase at least 10% of the total Czech Republic hop crop for the next five to 10 years. (*The CABA Times*, Vol. 8, No. 6, February 1998)

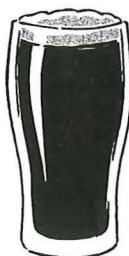
Does Beer Demotivate Leeches?

According to *The European*, leeches—once used for medical purposes—have made a comeback for use in microsurgery. The medicinal leech secretes an anti-coagulant when it bites, thereby preventing blood clots from forming. Unfortunately, when the little suckers become unruly and don't bite when they're supposed to, their usefulness to sur-

geons diminishes. So, at the Department of Public Health and Primary Health Care in Norway, Anders Baerheim and Hogne Sandvik conducted an experiment to find out what could be done to motivate leeches. Anders and Hogne were awarded the prestigious Ig Nobel Prize in biology in 1996 for their earlier scientific achievements.

The study was based on ancient medical knowledge from various sources that claimed that some substances (among them beer, garlic and sour cream) could be applied directly to the leeches for motivational purposes. The current study, however, found that these motivations weren't all positive ones. In a controlled experimental setting, leeches were randomized to different pre-treatments (beer) or different preparations on the application site (sour cream and garlic).

Two batches of six leeches each were timed from application to biting of one of the experimenters. Leeches dipped in Guinness Stout bit after 187 seconds, those dipped in Norwegian Hansa Bock bit after 136 seconds, and the controls bit after 92 seconds. The leeches biting sour creamed forearms bit after 25 seconds, as opposed to their controls at 34 seconds, but those biting garlic-smeared forearms died two and a half hours after biting. In conclusion, it seemed the sour cream was the greatest motivator, beer tended to slow and disorient them, and garlic proved fatal. Hopefully,



there were enough leftovers for the weary scientists to have a light snack. (*The Effect of Ale, Garlic and Sour Cream on the Appetite of Leeches*, Baerheim A, Sandvik H., 10/97. Special thanks to Bob Wargo)

THE BIG WORLD OF BEER

German Beer Bath?

The Kloster Brewery in the German town of Neuzelle, near Berlin, plans to sell three-quart bottles of a dark beer concentrate for the purpose of bathing. Four bottles of this beer concentrate, mixed with water, will fill the average 32-gallon bath tub. The differences between this new product and normal beer produced by Kloster include, obviously, no carbonation, but also a good dose of yeast that would normally be filtered out. Helmut Fritsche, the owner of the brewery, claims that the beer is soothing to the skin and is helpful in treating eczema. (*BEERWeek™*, March 2-9, 1998)



Malt-Free Beer Brewed in Kenya

Kenyan Breweries, Ltd. unveiled its plan to brew a beer that contains no malt at all, but rather is made from raw barley with added cereal or vegetable starch. The process is apparently much cheaper than conventional brewing methods, saving energy and resources required for malting. The beer taxation laws in Kenya also favor such methods, as taxes are much lower if locally-grown barley (which apparently isn't very suitable for malting) is used by breweries instead of imported varieties. The no-malt

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brew, called "Citizen," sells for about half the price of regular beer in Kenya. (*Bio-Times*, 1997, (2), 4-5)

The Swan Neck Debate

In Northern England and Scotland, cask-conditioned ales are commonly dispensed via a hand pump, or beer engine, through a curved pipe called a "swan neck" that reaches almost to the bottom of the glass. On the end of this pipe is a device known as a "sparkler," which creates quite a bit of turbulence in the beer, spraying it into the glass and creating a rich, creamy head not unlike that achieved with the increasingly-common "nitro" systems.

Now, the swan necks have caught on in southern England and are drawing criticism. Opponents contend that beer not specifically designed to be dispensed through a swan neck system runs the risk of losing volatile flavor and aroma compounds, especially hop bouquet, with such treatment. On the

other hand, some regional breweries argue that the rich, nitro-like foam produced by the swan neck is a necessary draw for the public if cask-conditioned ales are going to be able to compete with the new nitro beers available. (*Brew Guardian*, 1997, 126(6), 19-20,23 and *Journal of the Institute of Brewing*, Vol. 103, No. 6., Nov-Dec 1997)

A Fight to the Bitter End



According to Joh Barth & Sohn of Nuremberg, Germany, over-production of hops worldwide has led to fierce competition between the two largest hop-producing nations, Germany and the United States.

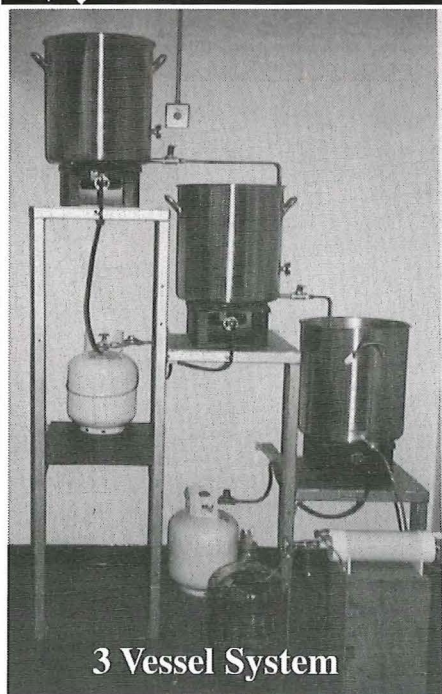
Declining world beer consumption and a trend towards preference of lower-bitterness beers are causing problems for the hop industry as a whole.

"The breeding of new varieties of hops has been the biggest cause of our problems," said Ernst O. Krakenberger, chairman of Lupofresh A&E. "Bittering hop varieties now yield 13-15% alpha acids compared to the 8-10% of a few years ago, led by English Target and followed by American varieties Nugget and Galena, which pushed it to 12%. Now we have the super alpha hops that yield 14, 15 and 16% alpha."

"The 1996 crop produced a record volume of alpha percentage, which the international brewing industry has not been able to absorb completely. The move towards high alpha varieties will cause growers to reduce their acreage," according to Joh Barth, "either voluntarily or by price pressure."

This may also have the effect of squeezing out noble-type, low-alpha varieties so highly prized by homebrewers and craft-brewers. (*The Barth Report—Hops 1996/7* and *Brewers Guardian*, Vol. 126, No. 10)

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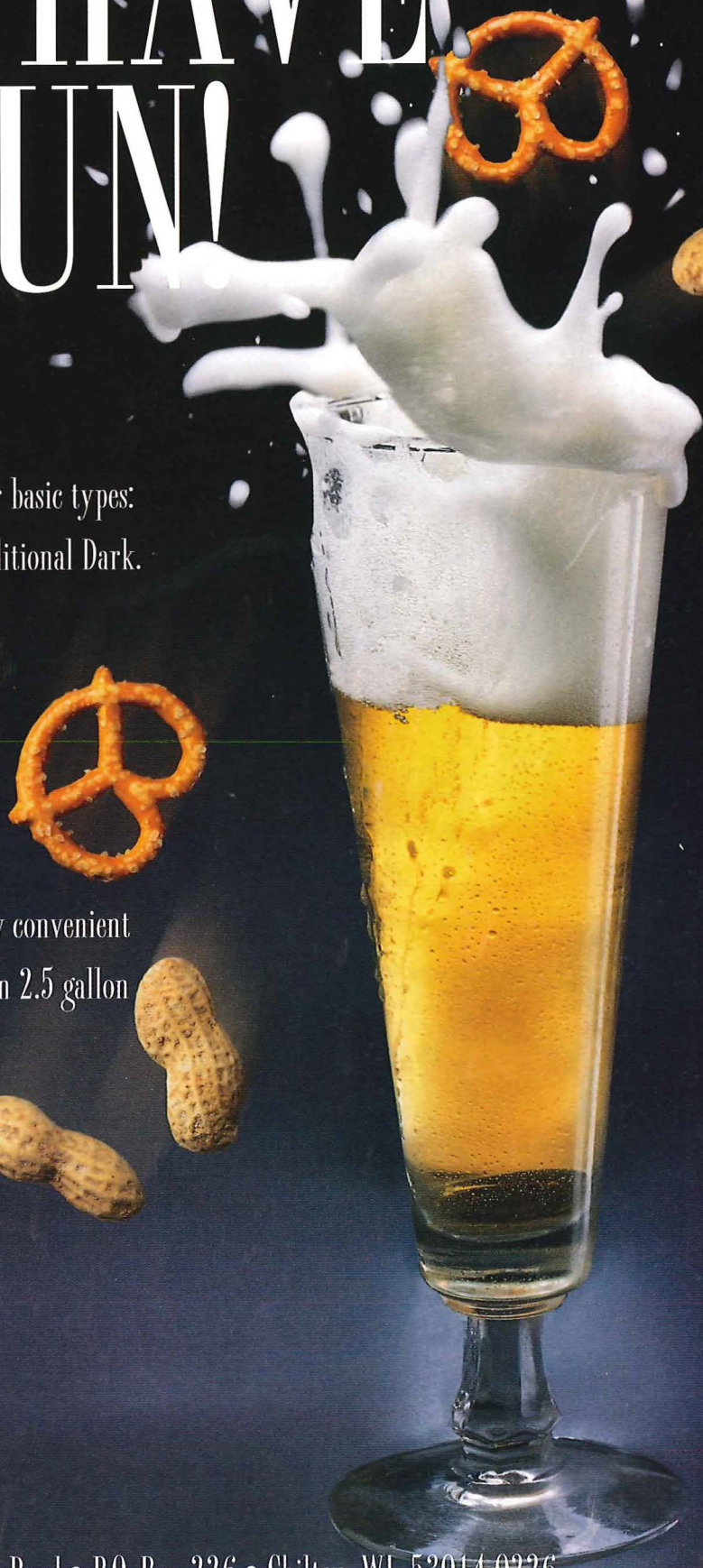
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TECHNOTES

Flash Pasteurization: Pros and Cons

It is fairly common knowledge that high thermal stress is detrimental to the quality of finished beer, but there is some question as to what affect a very brief exposure to high temperatures, called "flash pasteurization," has.

One study found that in terms of carbonyl substances formed, intensive pasteurization is similar in effect to accelerated aging of the beer. The presence of oxygen further accelerates deterioration. Conversely, another study showed very little difference in quality between beers that had been briefly exposed to heat and those that had been sterile-filtered, as long as they also contained very low amounts of oxygen. Interestingly, some beers tested did suffer slightly in terms of freshness and delicacy of flavor, but did not deteriorate further with

age after the pasteurization process; whereas their control counterpart samples that were not flash pasteurized started fresher, but showed significant deterioration and staling over time.

Beers were also tested in terms of several beer character components. It was found that flash pasteurization at relatively low thermal stress levels did not change beer color or bitterness. Beer darkened very slightly with very high thermal stress levels. A slight deterioration of foam stability was found with any degree of pasteurization. Flavor was the most telling character component, however. Samples of a relatively hoppy Pilsener were put through the process at three increasing levels of thermal stress, then aged at 28 degrees C (82 degrees F). Each sample had an oxygen content of .15 to .2 mg/L to accentuate the effect of the process with oxidation. Staling took place in all three over time, beginning with a cardboard flavor (accompanied by staling aldehydes), which changed after a few weeks to a bread-like flavor, then to a sherryish flavor.

Each change took place along with diminishing carbonyl concentrations. The higher the thermal stress, the more intense these staling compounds tasted. Surprisingly, the next batch of lagers tested, in which there was extremely little oxygen, showed no difference in flavor between non-pasteurized and pasteurized samples, even at very high thermal stress levels. No caramel or breadlike off-flavors commonly associated with over-pasteurization were detected. Freshness did suffer a bit, however.

Though research is continuing, from the results of this particular study, flash pasteurization was proved to be safe and viable process as long as one starts with a low-oxygen product. Little difference was detected between pasteurized and non-pasteurized samples, even with extreme pasteurization on yeast-containing beers. In that case, the yeast cells were killed off, but all aspects of beer quality survived more or less intact. (*Brauwelt*, No.2, Vol 15., 1997 pp. 90-95)

AHA Project Coordinator Amahl Turczyn recently returned from a beer tour of Belgium and hopes to recover soon.

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HOMEBREW COOKING

Michael Bane

Grilling Without Tears

 I believe there's some kind of fundamental connection between summer, beer and grills; some sort of atavistic gene that makes us want to celebrate the summer by kicking back in a beach chair, watching the condensation roll down the side of the bottle and waiting for just the right moment to take the grilled beast off the fire.

Too, there's a single sublime moment when the first cap pops off that triggers a rush of memories—other caps, other days, other grills, other beaches...

Through a fortuitous series of assignments, I'd been able to chase the same wind across three countries. I'd windsurfed the glacier lakes of Canada with nothing higher than trees between me and the North Pole. I followed the north wind down through the Outer Banks and into Florida. Finally, weeks later, I'd ended up at a place called Baie Rouge on the French side of the Dutch windward island of St. Martin in the Caribbean. The north wind had long since burned itself out, leaving only the steady 19-knot trade winds to drive the board.

I'd picked Baie Rouge not because it was secluded, which it was, or because the windsurfing was good outside the bay, which was also true. Rather, it was the Rastafarians and their outdoor catch-of-the-day grill, cooked up with blazing hot jerk sauce on a halved oil drum and served with ice-cold Mexican beer from a beat-up cooler that sold me on the beach. My first day there, I'd started to walk away with my jerked grouper sandwich and beer when one of the dreadlocked guys actually opened his mouth and spoke.

"Toll, mon," he said. "Pay."

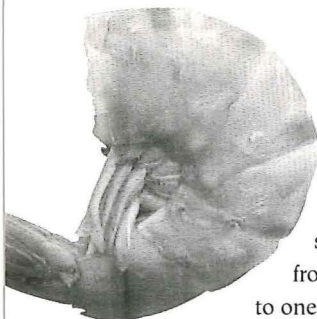
He picked up a piece of bread and flipped it to an unblinking, statue-still iguana a few feet away.

"De lizard, mon," the Rastafarian said solemnly. "Pay him he toll."

I always paid de lizard de toll, and, in all honesty, when I grill outside, I always keep one eye peeled for assorted hungry reptiles.

The other eye remains focused on the grill, because grilling seafood is a second-by-second operation. In my brief tenure in cooking school, my instructor pointed out that a charcoal grill was one of the fastest ways known to man to destroy good seafood. In fact, one of our final tests was grilling a whole salmon for a chi-chi dinner party. I passed, by the way.





There are some fundamental secrets to cooking seafood on the grill. I've cooked seafood on everything from \$9.95 faux-hibachis to one of those nuclear-powered things that looked like it escaped from Tim Allen's backyard, and I've come to believe that the grill itself is the smallest part of the equation. Charcoal, gas, cheap, expensive, mass-produced briquettes or handmade secret recipe charcoal, the most important factor in grilling is the selection of seafood.

When I shop for fish to grill out, my overwhelming concern is *fresh*. The fish should look glistening and appetizing, not old and gray-looking. Look at the fish's eyes—are they clear or cloudy? Clear is good. I will often use the “push test,” which is simply pushing a dent into the side of the fish and seeing if the flesh springs back. If the dent remains, the fish isn't fresh.

If the fish smells, well, fishy, pass it up. Fresh fish doesn't smell. I think of shopping for fish for the grill as more a common-sense thing. If I have any question at all about the fish, I pass. A consequence of erring on the

side of freshness is that I sometimes can't get the specific fish I want. No problem—I'm willing to shop around. My three favorite fishes for the grill are salmon, grouper and mahi-mahi. I would rather chain saw off my foot than attempt to grill catfish, tilapia or trout. At the risk of getting too PC here, I pass on swordfish because the breed needs a break from commercial fishing. Ditto for shark, which is a great grill fish. I do a lot of diving, though, and last summer in the Caribbean, I didn't see a single shark. Not one, even in some pretty obscure nontourist areas off Central America. Sharks are extremely slow breeders, often producing only one pup a year. I urge you to pass on shark and ask your friends to do the same. It's hard to imagine an ocean without the great torpedo-shaped predators—sort of life without decent beer.

With shellfish, I stick to shrimp or, if I'm feeling flush, lobster tails. I invariably prepare shrimp on a skewer, because I'm lazy. I go with lobster tails for exactly the same reason. With the tails, make sure you cut away the top membrane, then use the knife to loosen the meat from the shell. For the shrimpies, shell and devein. I get the largest shrimp I can afford at the moment, partly out of the laziness factor, but also because the larger shrimp cook a bit slower.

The single biggest secret of cooking seafood on the grill is very simply *pay attention!* Seafood cooks quickly. Every cookbook on earth has charts of cooking times for various kinds of seafood, of varying thicknesses, at assorted temperatures. If you read closely, you'll also discover that they're such broad approximations as to be pretty much worthless. Here are some basic pointers:

- The fish should be flaky, not dry. Yeah, yeah, you say, this is like your grandmother saying, “It needs a pinch of this.” Do this—apply pressure with a fork to the thickest part of the fish. If the fish flesh easily splits along its natural lines, it's done.
- Other seafood is a bit touchy. Lobster tails usually take about 18 minutes per pound. Cook shrimp until they change color. If you overcook, they'll be like eating smoked tennis balls.
- Always lightly grease the grill, which helps minimize sticking. It's best to keep the seafood in the refrigerator until

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you're ready to cook. This will help slightly lengthen the cooking times.

- Sometimes I marinate seafood with a couple of tablespoons of herb-infused olive oil, which helps keep the seafood moist. My favorite oils are basil or garlic-infused ultra-virgin olive oil. Some health food stores offer spicy garlic olive oil, which not only gives white-fleshed fish a great spicy flavor, but also is good for warding off vampires and other assorted Undead. I always make sure my significant other eats an equal amount of this garlicky treat, so we can stand to be around each other. I brush the oil on and let the seafood marinate in it for at least a half hour.

- You can cook the fish directly—that is, over the coals—or indirectly, with the coals pushed off to one side. Thicker cuts of fish and lobster tails get the direct treatment, while thinner cuts and shrimp are cooked indirectly.

While thumbing through the new *Famous Chefs (And Other Characters) Cook With Beer* (Doubleday, 1996), I came across a spectacular grilled shrimp recipe from Chef Nobu Matsuhisa, who owned a little eatery in New York City's TriBeCa area with Robert "You talkin' to...me?" DeNiro. Called "Exot-

ic Grilled Spicy Shrimp," it combines two of my favorite flavors—Cajun and Asian—with my favorite beverage.

This recipe would work for appetizers for four or dinner for two. For dinner, I add herbed wild rice (I get a mix at the health food store...see earlier reference on "laziness") and crunchy French bread.

Exotic Grilled Spicy Shrimp

- .75 cup lager (177 mL) (What kind of insane person would use good homebrew in cooking? I use whatever microbrew is in the house, Celis Golden or Full Sail Golden, any medium hop, medium malt beer.)
- 3-4 tbsp Cajun seasoning (44.4-59.1 mL) (Paul Prudhomme's brand, if you have a choice.)
- 1 tbsp black bean garlic sauce (14.8 mL) (Always available in Asian markets and, these days, in most large supermarkets with an international section.)

- 1 tbsp black pepper (14.8 mL)
- 1 tsp garlic purée (4.9 mL)
- 1 tsp chili paste with garlic (4.9 mL) (Get it where you get the black bean sauce.)
- 2 tbsp butter (29.6 mL)
- 1 lb extra large raw tiger shrimp, peeled and deveined (.45 kg)

Preheat the grill, and don't forget to grease it lightly. Thread the shrimp onto those lazy cook's skewers. In a small saucepan, combine the beer, Cajun spices, black bean sauce, garlic and chili paste. Briskly cook over medium-low heat until the sauce thickens, about 8-10 minutes. Add the butter and heat just to melt, stirring frequently to keep the butter from separating. Dip the skewered shrimp into the sauce and grill 2-3 minutes each, or until tender (and pay attention).

Serve with your favorite homebrew; although, in keeping with this issue's summery theme, I'd suggest a good icy cold wit-bier. And don't forget to pay the lizard's toll!

Michael Bane is the editor of *Zymurgy* magazine.

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Picnic Cooler Runoff Control

When using a picnic cooler for mashing, controlling the flow rate of runoff can be a problem. Many homebrewers secure flexible tubing to the cooler's drain hole and regulate flow with a plastic clamp. This method will drain wort from the cooler, but adjusting the rate of flow is imprecise. I found that much greater flow control can be achieved by using an inexpensive plastic spigot intended primarily to dispense water from storage tanks on campers and RVs.

These mini-spigots, sometimes referred to as "draincocks," come in two sizes and cost about \$2 each. Coincidentally, the two sizes work nicely with the two sizes of drain holes I've encountered on picnic coolers. For picnic coolers with the smaller drains, you'll need a short length of 3/8 inch ID rigid plastic tubing (three to five inches will work). I cut off a piece from the end of an old racking tube. One end of the tube fits snugly in the inlet (threaded) end of the spigot. The other end of the tube fits snugly in the drain hole of the cooler. A length of 3/8 inch flexible tubing will slide securely inside the spigot outlet. For coolers with the larger drain holes, the setup is identical except you use larger tubing between cooler and spigot.

Since no fasteners or adhesives are used with this setup, at first I was afraid the whole assembly might become detached from the cooler during runoff. But I've employed this system for dozens of mashes and never once encountered this problem.

Dan Rabin, Boulder, CO

The Pizza Sparge Solution

Like any homebrewer beginning all-grain brewing, I needed a method of introducing sparge water to my mash tun gently enough not to upset the grain bed. Though there are many methods and devices available for this task, the solution I settled on, and still use years later, is simple and inexpensive. In fact, the only equipment I needed was already in frequent use in my kitchen.

I found that by pouring hot sparge water through a perforated pizza pan, the water would gently sprinkle down over the top of the grain bed, leaving it undisturbed. My pizza pan is about 12.75-inches in diameter and can be purchased for under \$10. When I used a picnic cooler as a mash tun, I would carefully balance the pizza pan on one end of the cooler and pour water through it from a plastic pitcher. When I acquired a second cooler that wouldn't securely support the pan, I wore a rubber glove and held the pan over the grains while pouring the hot sparge water from the pitcher with my other hand.

Now that I mash grains in a converted half-barrel keg, my pizza pan method works even better, as the pan sits nicely over the hole on the top of the keg. Instead of pouring sparge water from a pitcher, the water is gravity-fed from a second keg elevated above the mash tun.

By the way, I still use the pan to make homemade pizza.

Dan Rabin, Boulder, CO

Cleaning Up

In order to guarantee a clean Cornelius keg inside and out, I not only remove, clean and boil all the small hardware, i.e. poppet valves, short gas pipe, etc., I also take out the long beer pipe and clean it in much the same way one would clean a rifle barrel. Construct a cleaning rod out of a coat hanger by straightening it and cutting off the ends, then push a small piece of sponge through the pipe.

You can soak the beer pipe with a caustic solution to clean, then use an acid cleaner to remove beer stone. Then, I sanitize the long pipe by holding it with a few pot holders, getting the teapot boiling, then holding one end of the pipe over the teapot whistle hole (60 seconds of this gets it boiling hot). Finally, if you want to follow with a sanitizer solution, you can be doubly sure.

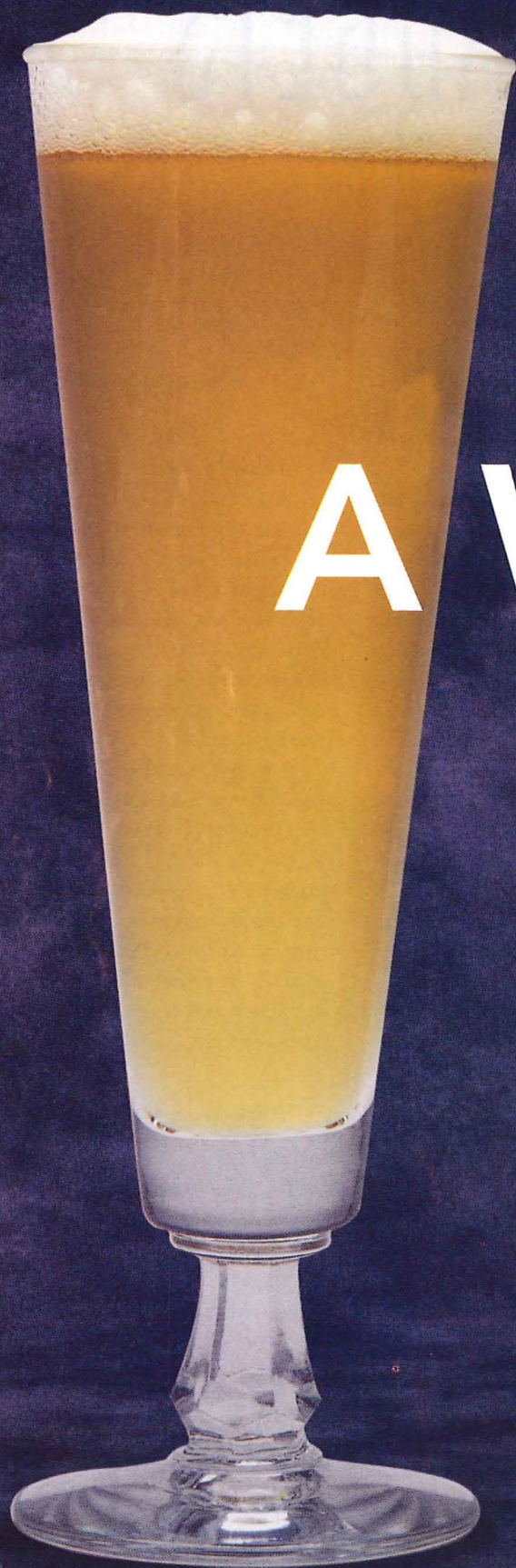
Amahl Turczyn, Boulder, CO

Speed Demons

For those in a hurry to get started brewing, warm up the mash water in two pots and combine them into one when the temperature is close to the desired mash-in target. I have a stove top that is somewhat wimpy for heating 12-plus quarts, so I split the water and heat on two burners and save myself 20 minutes or so.

Amahl Turczyn, Boulder, CO

If you have a quick tip or a tested gadget to share, send a brief description and photo to Tips and Gadgets, PO Box 1679, Boulder, CO 80306-1679.



A Whiter

Shade of Ale

By Jim Dorsch

One of the fastest growing craft-beer styles is also one of the oldest. How old is anyone's guess, but it's safe to say Belgian-style witbier—also called *bière blanche* or white beer—has been made for several centuries.

Belgian farmers brewed white beer the way they did out of necessity. After all, no rational person would purposely wrestle with raw wheat to brew a sour beer. No rational person except a homebrewer, that is—and there's some question about rationality there...

Origins

White beer's roots are in the Eastern part of the Belgian province of Brabant, an hour or so east of Brussels. Brewers used the materials at hand, and probably employed raw grain to the extent possible because it was cheaper than malt. Some of the malt might have been unkilned "wind" malt, which made for a very pale beer.

Historically, witbier has been a sour beer, but only a few of those sold in the U.S. have been soured, and those are nowhere near as sour as past examples. Early white beers became sour from spontaneous fermentation, and perhaps also from extended mashes required to convert raw grains, responsible for the style's cloudiness.

White beers are spiced with a variety of ingredients. Writer Bill Metzger speculates that spices were used to mask bacterial odors and balance sourness. Of course, spices were quite common before the advent of hopped beer, and Belgium has historical ties to the Netherlands and its spice trade.

Style Guidelines for Belgian-Style White Beer

Belgian white ales are brewed using unmalted wheat and malted barley and are spiced with coriander and orange peel. These very pale beers are often bottle conditioned and served cloudy. The style is further characterized by the use of noble-type hops to achieve a low to medium bitterness and hop flavor. This beer has low to medium body, no diacetyl and a low to medium fruity-ester level. Mild acidity is appropriate.

Original gravity is 1.044-1.050 (11-12.5° Plato). Final gravity: 1.006-1.010 (1.5-2.5° Plato). Alcohol is 4.8-5.2 percent by volume, or 3.8-4.4 percent by weight. Bitterness is 15-25 IBUs and color is 2-4 SRM.

Source: *North American Brewers Resource Directory 1997-1998* (Brewers Publications, 1997)

Ingredients

Witbier traditionally is made from about 50 percent raw wheat, with the remainder of the grain bill consisting of pale malt and up to 10 percent oats. The style is not known for its hop character, but usually is hopped with Styrian Goldings, Kent Goldings or Saaz, which reinforce the beer's spicy, herbal flavor. Most white beers are spiced with coriander, the peels of bitter oranges and sometimes sweet oranges.

Then there's the matter of secret ingredients. Peter Camps, executive vice president at the Celis Brewery in Austin, TX, has said Celis White contains a secret spice. Pierre Celis, who founded the brewery, has denied it.

Asked if Blue Moon Belgian White contains a secret spice, Keith Villa, brewmaster at the Blue Moon Brewing Co., Denver, CO, coyly maintains, "There could be, but we can't say."

Gino Vantieghe, brewmaster at Unibroue in Chambly, Quebec, admits his Blanche de Chambly has a secret ingredient. "I'm always bugging people to guess what it is," he says. "If you take it out, you can tell the difference."

The Grain Bill

Witbier can contain a variety of grains, including Pilsener malt, pale malt, raw wheat, wheat malt, wheat flakes and oat flakes. Homebrewers we spoke to tended to favor Pilsener malt for the base.

Tom Peroulas and brewing partner Daniel Juliano of Chicago, IL, use several

grains, including DeWolf-Cosyns Pilsener malt. "I like the Pils flavor for a typical Belgian ale," says Peroulas. But he and Juliano never use just Pilsener malt. In their witbier they include DeWolf-Cosyns pale malt and balance it with Schreier pale malt. "DeWolf-Cosyns is very malty," says Peroulas. "Schreier is less malty and has more enzymes."

Wheat can be added in various forms. Villa uses both raw and malted wheat in Blue Moon Belgian White. "Raw wheat is tough to mill," he says. "It's like milling little BBs made of rubber."

Allen Bavry Jr. of Sarasota, FL, uses a Corona mill to pulverize the unforgiving wheat grains, because his roller mill twists them apart.

Oats are optional. Villa adds over 10 percent rolled oats to Blue Moon Belgian White. "It gives an oily creaminess in the mouth, and the beer doesn't taste quite as thin," he says.

Judy Schaumberg of St. Peters, MO, credits oats for the silky body of the white beer she and husband Jim brew. The Schaumberts buy flaked wheat at a homebrew shop, but the oats come right off the grocery shelf. Rolled oats are gelatinized and can be added directly to the mash. Watch out for steel-cut oats, which are not gelatinized.

Brewers use all manner of mash schedules to make witbiers, but most include a protein rest at about 122 degrees F (50 degrees C). "With the wheat, it can use all the help it can get," says Bavry.

The Schaumberts used to use that temperature, but they've hiked it to 130 degrees F (54 degrees C), which they believe works better. "The protein rest breaks down proteins and aids in head retention," says Judy.

Rudi's Wit Belgian White Beer

Jim and Judy Schaumberg
St. Peters, MO

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

- 5 lb DeWolf Cosyns Pilsener malt (2.3 kg)
- 3 lb flaked wheat (1.4 kg)
- 3 lb wheat malt (1.4 kg)
- 1 lb rolled oats (.45 kg)
- 1 oz Tettnanger hop pellets, 5% alpha acid (28 g) (60 min.)
- 0.5 oz crushed coriander (14 g) (20 min.)
- 0.3 oz Curaçao orange peel (9 g) (20 min.)
- 0.5 oz Saaz hop pellets, 3.5% alpha acid (14 g) (10 min.)
- 0.5 oz crushed coriander (14 g) (10 min.)
- 0.3 oz Curaçao orange peel (9 g) (10 min.)
- 0.5 oz Tettnanger hop pellets, 5% alpha acid (14 g) (1 min.)
- Wyeast No. 3944 Belgian white beer liquid yeast culture in a 1-quart (0.95-L) starter

- Original specific gravity: 1.050
- Final specific gravity: 1.016
- Boiling time: 75 min.
- Primary fermentation: 19 days at 66 degrees F (19 degrees C) in glass
- Secondary fermentation: 18 days at 66 degrees F (19 degrees C) in glass

Brewers' Specifics

Adjust mash pH to 5.3 with lactic acid. Protein rest: 45 minutes at 122 degrees F (50 degrees C). Raise temperature to 154 degrees F (68 degrees C). Hold for 30 minutes or until negative iodine test. Adjust pH to 4.9 before boil.

Prime with .75 cup dextrose (177 mL) and bottle.

"It breaks down gumminess in the wheat so it sparges better." After 20 minutes at 130 degrees F (54 degrees C), they raise the mash to 154 degrees F (68 degrees C) to achieve a medium maltiness.

Peroulas and Juliano take their beer through a six-step mash at 104, 122, 128,

Warlock Wit

Belgian White Beer

Jim Busch

Silver Spring, MD

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

- 5 lb wheat/barley malt extract (2.3 kg)
 - 0.5 oz Hallertauer hops (14 g) (60 min.)
 - 0.5 oz Willamette, Cascade or Hallertauer hops (14 g) (15 min.)
 - 0.5 oz Curaçao orange peel (14 g) (20 min.)
 - 0.5 oz crushed coriander (14 g) (end of boil)
 - Wyeast No. 3944 Belgian white beer liquid yeast culture in a 1-quart (0.95-L) starter
- Original specific gravity: 1.046
 - Final specific gravity: 1.012
 - Boiling time: 60 min.
 - Primary fermentation: 7 days at 68 degrees F (20 degrees C) in glass
 - Secondary fermentation: 14 days at 68 degrees F (20 degrees C) in glass

Brewer's Specifics

Prime with .75 cup dextrose (177 mL) and bottle.

An extract recipe will produce a beer that is darker than a typical witbier and lacks the requisite cloudiness. Commercial wheat/ barley malt syrups made from English ingredients will produce a different character than ingredients based on continental malts.

To achieve some cloudiness, mash 1 lb (.45 kg) two-row barley malt and 1 lb (.45 kg) raw wheat at 150 degrees F (66 degrees C) for 1 hour. Sparge into brewpot, reduce amount of extract to 4 lb (1.81 kg) and proceed as usual.

148, 158 and 170 degrees F (40, 50, 53, 64, 70, 77 degrees C), while Bavvy does well with a simple two-step mash at 122 degrees F (50 degrees C) and 154 degrees F (68 degrees C).

Decoction is an option, but it will darken the color of what should be a very pale beer.

Extract Alternatives

It's difficult to make a proper witbier from malt extract. Few extracts, if any, are light enough in color for this very pale style. "A full wort boil will keep the resulting wort as light as possible," says Jim Busch, a homebrewer and writer in Silver Spring, MD. "Condensed or concentrated boils will yield darker wort than desirable."

The character of the ingredients is another concern. Wits are best made from continental malts and raw wheat. Extracts made from mixtures of wheat and barley malts are

generally made in the United States or Great Britain, and the wheat is malted. The Ireks brand of pure wheat malt extract is of German origin, but it comes in a 6.6-pound (3-kg) can, which is about twice the amount needed.

Without mashing some barley malt and raw wheat, an extract witbier will likely not have the desired cloudiness. Using a small picnic cooler or a kettle on the stove top, it's possible to mash two or more pounds of Belgian or German Pilsener malt and raw wheat in equal quantities. Mash for an hour or so, sparge into your brewpot, add malt extract and proceed as usual. (continued on page 86)

Commercial Examples

There's no shortage of white beers on the market these days. Two of the best known are associated with Pierre Celis.

Celis' original white beer, now made by Interbrew in Belgium, is Hoegaarden, a bottle-conditioned brew with a creamy head, some sweetness in the nose, a palate balanced toward orange, slight sourness and a clean finish.

The Celis Brewery in Austin, TX, produces Celis White. Like Hoegaarden, Celis White undergoes a lactic fermentation, or so it's thought—the Celis people aren't talking about production details these days. Celis White is conditioned in a tank rather than in the bottle. It's subtly spiced, with a hint of sourness and a soft finish.

Blanche de Bruges comes from Brouwerij De Gouden Boom, a lovely old facility in Bruges, Belgium. It's spicy and refreshing, with some sourness and spiciness in the finish. Blanche de Bruges is bottle conditioned and includes grains of paradise in its spice mix.

Dentergems Wit is brewed at the Riva brewery in Dentergem, Belgium. It's spiced with orange peel and coriander, and is bottle-conditioned. There is plenty of orange in the nose, well-balanced spice in the palate and a bit of tartness in the finish.

Rogue Half-a-Weizen (Rogue Ales, Newport, OR) is deeper gold than most witbiers, with a dense head, minimal aroma and a round, spicy finish.

Death Valley White Beer (Le Cheval Blanc, Montreal, Quebec) is pale straw in color, with a thick head, some orange and spice in the nose, some astringency in the palate and a bitter orange finish.

Blue Moon Belgian White (Blue Moon Brewing Co., Denver, CO) is pale gold with a thick head, ample fruit in the nose, a good balance of seasonings in the palate and a clean finish.

The Spring Street Brewing Co. (New York, NY) sells three contract-produced witbiers. Wit is straw-gold with a creamy head, powerful orange and herb in the nose, prickliness on the tongue and a citric aftertaste. Wit Amber tastes of hops and caramel malt, with a fast middle and a bit of lingering hoppiness. Wit Black is very dark, with an emphasis on malt and caramel.

Oxford White Ox (Oxford Brewing Co., Linthicum, MD) blends British and Belgian materials and techniques to produce a hybrid beer. The clear amber-gold beer has a creamy head, a malty-perfumed nose, a clean, refreshing flavor and some malt in the finish.

Blanche de Chambly (Unibroue, Chambly, Quebec) is a finely balanced, bottle-conditioned beer with subtle spicing. Brewmaster Gino Vantieghem uses local wheat and a secret spice.

Samuel Adams White Ale (Boston Beer Co., Boston, MA) has a complex flavor resulting from nine spices.

Thomas Kemper Belgian White (Pyramid Ales, Seattle, WA) has a soapy head, some orange in the nose, coriander on the palate and a clean, citric finish.



PURE PALE FROM Sierra Nevada

BY RAY DANIELS

Nestled in California's Sierra Nevada mountains is a little town called Chico, noted for little and known by few—except for those in the beer world. Most brewers and beer lovers can tell you that a special beer, the prototype American pale ale called Sierra Nevada Pale Ale, comes from Chico. Many among them will also claim that Sierra Nevada Pale Ale (or SNPA to aficionados) is the best pale ale in America, perhaps the best beer in the world.

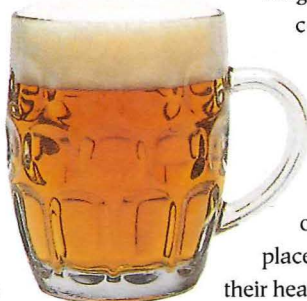
Such passion motivates beer drinkers to extreme lengths in pursuit of the great Sierra Nevada beers. For many, the ultimate experience is a pilgrimage to Chico, where the beers can be consumed fresh. Fans have traveled hundreds and even thousands of miles for this treat. And most who haven't been long to go. Those who have visited the fount of SNPA have spread it far and wide. The brewery has received reports of beer and merchandise being found in Britain, Singapore, Thailand, Ecuador and the Galapagos

Islands. Former Soviet president Mikhail Gorbachev even had his picture snapped quaffing a bottle of the brew. One soul spotted in Wisconsin even had the SNPA label tattooed on his arm. Chicagoan Andy Ager dreamed about the beer during a period when he couldn't get it.

A Passionate Brew

Such passion for a specific beer often comes from the heat of the moment, but Sierra Nevada's appeal has proven longer and stronger. Many discovered hops when they drank their first SNPA. And even though they may now enjoy other hoppier brews (including other Sierra Nevada offerings), there's always a place for the original pale ale in their hearts and their refrigerators.

"My first SNPA was consumed at a small pub in Santa Rosa, CA," says brewer Todd Ashman. "I was told by the bartender





LEFT PHOTO BY ROBERT GOLDMAN
ALL OTHERS COURTESY OF THE SIERRA
NEVADA BREWING CO., INC.

that this was a favorite of most customers and was 'hoppy.' I had a sip and knew that hoppy was a great thing." At the time, Ashman knew little about beer.

Today he is a professional brewer at Flossmoor Station Brewing Co. in Illinois and has national awards to his credit. "I like to think that first sip in early 1987 has taken me all the way to where I am today," he concludes.

Veteran homebrewer Charlie Gow lives in Santa Rosa, the same town that brought Ashman into the fold. For him Sierra Nevada beers are a continuing passion, but he still remembers trying his first. "When I tasted it, I said, 'Ugh, I can't drink this!' but once I got the hang of hops, I fell in love with it," he says. Today, of course, there are many hoppy beers, but Gow remains loyal to the Chico flagship. "You can't go wrong with SNPA," he says. "You never get a bad beer from them and even with their exponential growth they have maintained the quality of the beer."

That sustained quality is something that everyone seems to appreciate in SNPA. Not only has the product been consistently good, but it has been consistently the same for many years.

"It hasn't changed," says beer expert Fred Eckhardt. "It's the same wonderful beer that it was in the beginning." Eckhardt should know. He had his first SNPA in the early 1980s, not long after production began. "I was quite impressed," he says of the experience. "And I am still quite impressed with their beer today."

Same as the First Batch

As it turns out, there's a very good reason why the beer tastes the same.

"The recipe is the same today as it was for the first batch," says Sierra Nevada Brewing Company President Ken Grossman. "We have refined our techniques some, better control of oxygen and so forth, but the ingredients are still the same."

The success and longevity of that original recipe are truly remarkable. Sierra Nevada sold their first SNPA in early 1981, and they have been making it ever since. And much of what made that first beer a success



Former homebrew shop owner Ken Grossman is the man behind SNPA.

can be traced back to Grossman's history as a homebrewer.

"I had been homebrewing for many years before starting the brewery," he says. In fact until construction of the brewery started in 1978, Grossman owned and operated a homebrew shop in Chico. "I had a lot of experience homebrewing all types of ales and lagers," he says.

Despite this experience, Grossman and his original partner dumped the first 10 batches of beer they made in the Sierra Nevada brewery. "Those early brews would have been acceptable in most people's minds," he says, "but we knew what our beer could taste like and the early batches just didn't measure up."

Proper wort aeration was one issue that turned out to be very important. "We knew how to make five gallon batches, but at five barrels we had to deal with some new issues."

As a result of the time and patience spent in refining the first beer they would sell, their products have been able to stand the test of time. The quality and consistency of SNPA have fueled passion for many, and undying loyalty in many more.

Old Shoes

Joel Plutchak of Champaign, IL, says SNPA isn't a hot passion; more like a comfortable shirt or a pair of shoes. "I may get dressed up on special occasions, but I always come back to the casual comfort and familiarity. That's what SNPA is for me." SNPA has

engendered this sort of loyalty in enough people that it has developed a cult following, a hidden cadre of fans. Looking across the Internet, one finds references to SNPA in every walk of life. In the beer and brewing forums, it's often touted as a favorite. Beyond that, references to this hoppy brew pop up in discussions of nearly every outdoor sport: skiing, sailing, skydiving, rock climbing, horse riding, motorcycling and even juggling. SNPA even finds its way into lifestyle forums from literature and audio to pets and gardening. Even the gay nets sing the praises of Chico's finest.

The Grateful Dead Connection

Deadheads form their own special pool of SNPA supporters. No one knows how it began, but followers of the Grateful Dead developed a mighty thirst for America's favorite pale ale. Sierra Nevada brewmaster Steve Dresler, who describes himself as a "former hippie," says that it might be traced back to some of the early workers at the brewery. "There was an organic cooperative nearby, and we would bring in some of their folks every so often to help with assembling cartons and so forth. I sometimes wonder if they introduced our beer to the Deadheads." Veteran Deadhead Mike Anderson says it was just a grassroots phenomenon. "I never saw any marketing campaign. It just appeared on the scene. The horde tasted it and found that it was good." Anderson, a veteran of the 1994 Grateful Dead concert tour, says that SNPA was a mainstay of the parking lot scene.

For the uninformed or uninitiated, this was a different type of tailgating. "Tie-die flags were waving, bongos were playing—it was a playground. You could buy a bottle of Bud for one dollar, or a bottle of Sierra Nevada Pale for two dollars," Anderson remembers.

Over the years, other breweries have tried to get into the Sierra Nevada niche, says Anderson, but many of the beers were just lame.

If imitation is the sincerest form of flattery, then the folks in Chico have been thoroughly buttered up: From homebrewers to the pros, nearly everyone who fires up a brewpot has tried to emulate Sierra Nevada's flagship beer at one time or another. Recipes

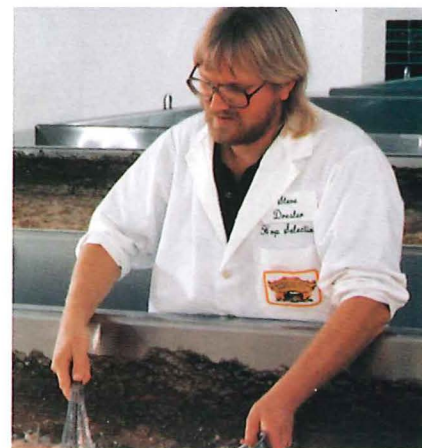
abound in books, magazines and the Internet. Homebrewer Gow even has a photo of the original recipe sheet hanging in his brewing area. As a result, nearly every homebrewer who cares about hops has brewed pale ale with Chico in mind. For most homebrewers, the malt and hops of a famous recipe are easy to imitate. But it's the yeast that can be hard to capture. Not so for Sierra Nevada beers. First off, every bottle of SNPA has a layer of yeast right on the bottom. "I talk to homebrewers all the time who say they have cultured our yeast out of the bottle," says Dresler.

And if that isn't easy enough, nearly every yeast supplier offers a "Chico" or "American" ale yeast that is understood to

be the Sierra Nevada strain. Among both homebrewers and craft brewers it is the most widely used yeast strain. Inevitably, this widespread emulation among homebrewers spilled over into commercial ranks.

A while back, a British brewery contacted Sierra Nevada with an interest in producing their beer under contract in England. But the folks in Chico declined the offer. "We will never allow anyone else to brew our product for us," says Brewmaster Dresler. "Our philosophy is that would bastardize the product."

Despite this, the British brewer went ahead with production of a similar beer and used the name "Sierra Nevada Pale Ale" in their packaging and marketing. Not surpris-



Sierra Nevada brewmaster Steve Dresler.

ingly, lawyers are now involved. But perhaps the most interesting source of similar beer is none other than America's biggest brewer.

Sierra Nevada Pale Ale Clone

Target original specific gravity: 1.052

Target final specific gravity: 1.011

Expected ABV: 5.5%

Target IBUs: 38

All-grain recipe for 5 U.S. gal (19 L)

11 lb American 2-row malt (41.6 L)

1 lb crystal malt (30-60 °L)

Mash with four gallons (15.1 L) of water to achieve 149 degrees F (65 degrees C). Rest for one hour. Sparge with 4 to 5 gallons (15.1-18.9 L) of water to collect 5.5 to 6.5 gallons (20.8-24.6 L) of wort. (Assumptions: 5.5 gallons (20.8 L) at end of boil, 70% efficiency.)

Extract w/specialty grains recipe for 5 U.S. gal (19 L)

6.6 lb malt extract syrup (light or pale) (3 kg)

OR

5.5 lb dry malt extract (light or pale) (2.5 kg)

1 lb crystal malt (30-60 °L)

Put crushed crystal malt in grain bag into pot with cold water. Heat pot stirring every few minutes. Just as the pot begins to simmer, remove the grain bag and let drain into the pot. Add the malt extract and stir until dissolved.

The Boil

1 oz Perle pellet hops (7% alpha acid)

2.25 oz Cascade hops (64 g)

American Ale Yeast (Wyeast 1056 or similar)

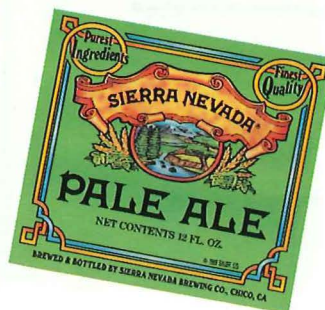
As soon as you begin heating the wort, add the Perle hops as follows: 7 alpha acid units of pellets, OR 8.5 alpha acid units of whole hops. (7 alpha acid units = 1 ounce x 7% alpha acid content.)

Fifteen minutes before end of boil, add 0.5 ounces of Cascade hops. Five minutes before end of boil, add 0.75 ounces of Cascade hops.

At end of boil, chill, aerate and pitch with American Ale Yeast (Wyeast 1056 or similar).

At the end of primary fermentation, add 0.5 to 1 ounce of whole Cascade hops for secondary fermentation.

After 7-10 days in secondary, package, condition and enjoy!



SNPA Goes Mainstream

Through the Specialty Products division that produces craft beer products such as Michelob Weizen and Porter, Anheuser-Busch has put out a pale ale that is remarkably similar to Sierra Nevada's. The product is called "Pacific Ridge Pale Ale" and packaged in the same short, soft-shouldered bottle as Sierra Nevada. "Analytically it is quite similar to our product," says Dresler, explaining the values for color, bitterness and alcohol content. "But we did some side-by-side tasting and decided that no one would ever mistake it for our beer."

Homebrew veteran Eckhardt says that A-B's production of the Pacific Ridge beer is a testament to the impact that homebrewers have had on the American beer market. "It is amazing that A-B would copy a beer like that," says Eckhardt. Still many in A-B's target market—Deadhead Anderson for instance—haven't heard about the A-B clone. As a result, Dresler doesn't share Eckhardt's amazement. He knows his market and he understands the deep loyalty that the Sierra Nevada products enjoy. "When I see A-B guys at a Dead show then I will be amazed," he says.

Veteran homebrewer Ray Daniels is founder of the Real Ale Festival in Chicago and believes in cask conditioning ales the way some folks believe in Elvis. He is a regular contributor to *Zymurgy*.

History in the Brewing



Tavern keeper (1296 AD)



Ancient brewing tools (Circa 900 AD)



Sumerian goddess Ninkasi (1800 BC)



Picking hops (1500 AD)

You think you've got an interesting family tree? Consider beer's family tree, which is exactly what award-winning *Zymurgy* author Greg Kitsock did. Should we now be searching for the elusive "Prehistoric Stout?"

3,800,000,000 BC—Yeast has made its appearance on the primeval earth. In 1979, a trio of researchers—H.D. Pflug, H. Jaeschke-Boyer and E.L. Sattler—report finding yeast-like structures in metamorphic rock from the Issua region of west Greenland. This is an amazingly early appearance for even a single-celled organism, as these rocks date from a time when the earth's crust had barely cooled off.

97-66,000,000 BC—Flowering plants, otherwise known as angiosperms, dominate the earth during the late Cretaceous period. Among these are the ancestors of modern barley and other cereal grains. From time to time, a natural experiment takes place. Seeds fall into a puddle and sprout, triggering the breakdown of complex starches. Ambient yeasts settle into the puddle and metabolize sugars, releasing alcohol. "Beer was on the planet before our arrival. All conditions for biochemical production were present," notes retired brewer Klaus Zastrow, presently a consultant for Anheuser-Busch. But it does raise a philosophical question: is it still beer if no one is around to drink it?

10,000 - 50,000 BC—Prehistoric man discovers beer. *One possible scenario:* one of our hunter-gatherer ancestors is surprised by a sudden downpour and drops a basket of loaves as he/she scurries to take shelter. Returning to recover the food, he/she discovers that the bread—now a soggy gruel—has acquired a pleasant lactic twang and causes a mild state of euphoria when consumed. Through a process of trial and error, members of the tribe learn to duplicate what nature has wrought.

Alternate scenario: In order to provide nourishment for the toddlers and toothless old men, women of the tribe masticate the

tough grain kernels and spit the softened food into a bowl. For some reason, the bowl is put aside and temporarily forgotten. Amylolytic enzymes in human saliva break down starches into fermentable sugars and ambient yeasts complete the transition to a malt beverage. (In the Andes, a corn-based beer called chicha is still produced in this way.)

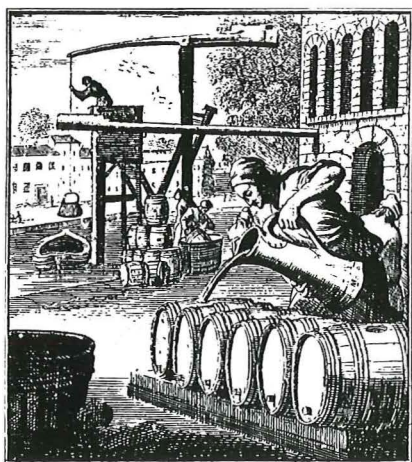
Of course, the two scenarios are not mutually exclusive. Beer was almost certainly discovered many times by many different cultures. "There is no birthplace of beer," asserts beer historian, archaeologist and author Alan Eames.

10,000 BC—Barley is domesticated in the Middle East. But what was the barley used for? Dr. Solomon Katz, a bioanthropologist at the University of Pennsylvania, believes that Neolithic man could feed himself simply by foraging. But to have sufficient grain for bread and beer, he had to learn how to sow crops. Because these crops required constant tending over the course of the growing season, our ancestors were forced to abandon their nomadic existence and form permanent settlements. Hence, beer is responsible for that sedentary state we call civilization.

6,000 BC—Residue of fermented malt beverage is found clinging to pottery shards unearthed in Ecuador and Chile.

4,000 BC—The earliest known beer advertising dates from this time. A Sumerian clay tablet, excavated in what is today northern Syria, exhorts, "Drink Ebla Beer—the beer with the heart of a lion!" The tablet is adorned with a large-breasted woman holding two goblets. It appears that the ancients anticipated Madison Avenue's selling techniques by several millennia.

2,800 BC—The first known drunk-driving fatality is recorded in ancient Egypt. According to a papyrus at the American University in Cairo, an inebriated charioteer is apprehended after running down a vestal virgin of the goddess Hathor. The culprit is crucified



Casks (Circa 1700)

By Greg Kitsock

on the door of the tavern that sold him the beer, and his corpse allowed to hang there until scavengers have reduced it to bones. "Just a gentle social reminder," notes Eames.

About 2,000 BC—The Egyptians produce the first non-alcoholic beer. Temple acolytes of the goddess Hathor heat vessels of full-strength beer at the feet of the goddess' statue. The alcohol boils off and the fumes rise to heaven, intoxicating Hathor and putting her in a good mood to hear her subjects' petitions. The remaining punchless liquid is allowed to cool and sold by the cup on feast days to raise money for the upkeep of the temple.

1,800 BC—The earliest known recipe for beer is written down in the form of a hymn to the Sumerian goddess Ninkasi (whose name means "You who fill my mouth so full"). The eleven-verse hymn has been described as a "linear description of brewing." Sumerian beer was brewed from the mineral-laden waters of the Tigris-Euphrates, bappir (a kind of barley bread), malted barley flour and "sweet aromatics" (probably date-juice). The mash was spread on large mats of woven reeds in order to cool. The wort was filtered to remove grain hulls and fermented in long vessels with narrow necks. San Francisco's Anchor Brewery created a close facsimile of this

beer in 1989, making a few concessions to modernity such as using a standard ale yeast and flash pasteurizing.

250 BC—The Greek geographer Pythias comments on heather ale of the Picts, a fierce, cave-dwelling tribe inhabiting Scotland. The exact recipe was lost when the Irish king Niall massacred the Picts in the 4th century AD, but it's believed they drained wort over the flowering tips of the heather, a plant that covers 11 million acres of Scotland. Today, it's known that ergot—a fungus with properties similar to LSD—grows beneath the leaves of heather. Could this have accounted for the wild abandon of the Picts in battle? A modern version of heather ale—minus the hallucinogenic properties—was created by brewer Bruce Williams at Maclay's brewery in Alloa, Scotland in 1994.

100 AD—In his *Natural History*, Roman historian Pliny the Elder notes that Germanic tribes are joining curved staves of wood with metal hoops to create the earliest known barrels.

736 AD—Enter the hop (*humulus lupulus*), a perennial vine related closely to cannabis and more distantly to the mulberry and morning glory. Documents indicate that hop gardens are being cultivated in the Hallertau region of modern Bavaria.

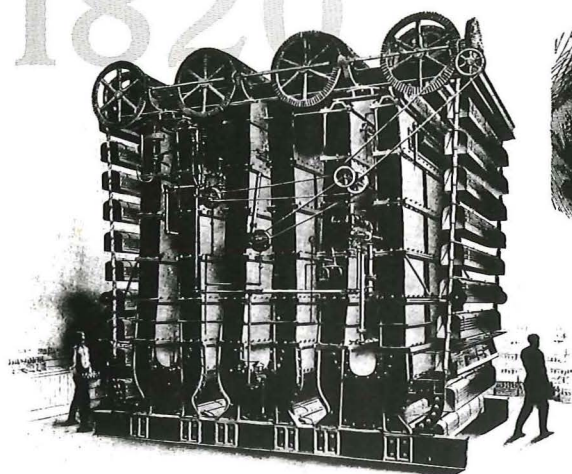
816-837 AD—A new monastery is built at St. Gallen in southern Germany; the blueprints include a domus confisiendae celiae, or house brewery. The monastic tradition of brewing is well underway.

Circa 990 AD—Water power and the invention of the cam begin the industrialization of Western Europe. The first mill-driven brewery is mentioned about this time in a document having to do with the monastery of Saint-Sauveur at Montreuil-sur-Mer.

1079 AD—The Abbess Hildegard of St. Ruprechtsberg notes the bacteriostatic power of hops, recording that beer flavored with hops lasts longer than unhopped beer. Her *Physica Sacra* contains the oldest known mention of hops in brewing.

1420—The minutes of the Munich town council contain the earliest known reference to lager brewing. Because the proliferation of wild yeasts makes brewing impossible in the summer, Bavarian brewers store beer in Alpen caves, to be tapped as needed. The cool temperatures and extra aging produces a mellower, stabler brew. By the twentieth century, about 90% of the beer brewed worldwide will be lager.

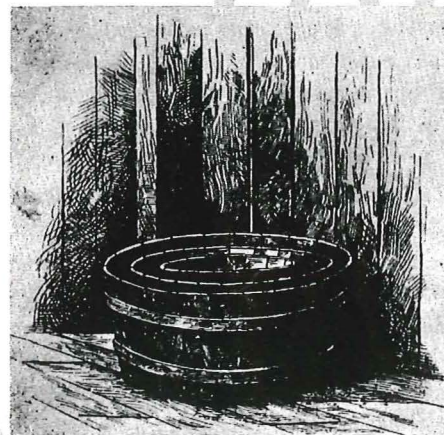
1516—William IV, Elector of Bavaria, decrees the Reinheitsgebot ("purity law"),



Pasteurizer (1870)



Louis Pasteur (1860)



Wort Cooler (Circa 1700)

which states that only malt, hops and water may be used in brewing. (Yeast as a separate ingredient was unknown then.) Not until the early twentieth century will the Reinheitsgebot be adopted by a united Germany.

1614—Brewmaster Elias Pichler, working at the Hofbrauhaus in Munich, successfully reproduces the potent beer popular in Einbeck in the north. The term "bock," a corruption of "Ainpoeckisches (Einbeck) Bier," is said to originate at this time.

Late 17th century—German chemist Georg Ernest Stahl publishes *Zymotechnica Fundamentalis*, the first attempt to construct a scientific theory explaining fermentation. Stahl believes that fermentation takes place when component substances "rub and knock against each other so that the combining ties of the original components are torn asunder" and "new and even stronger compounds" are formed.

1680—Peering through his microscope, the Dutch scientist Anton van Leeuwenhoek glimpses individual particles of yeast.

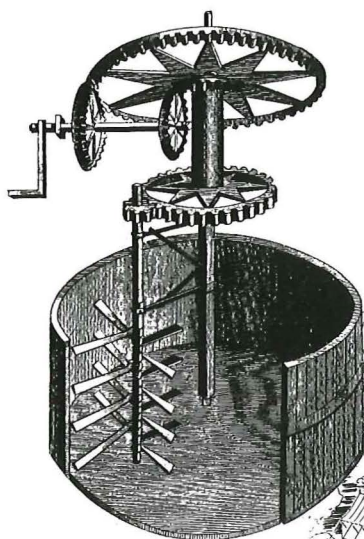
1690-1710—To finance war with France, the English government levies prohibitive taxes on malt. Brewers react by skimping on the malt and using more hops, which are taxed at a lower rate. Drinkers wean

themselves off sweet, spiced beers and unto bitter, paler beers by mixing beverages. One popular blend, called "three threads," consists of equal parts of pale, brown and sour beer.

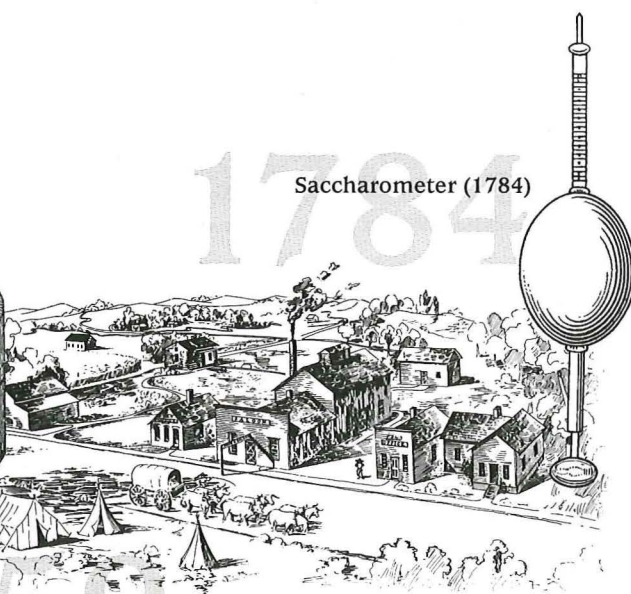
1722—Tired of the waste and effort involved in mixing beer by the mug, publican Ralph Harwood of the Blue Last in Shoreditch devises a recipe to duplicate the flavor profile of three threads. A new style, originally called entire butt and later renamed porter, is born. According to beer historian Alan Eames, Harwood's formula consisted of one-third expensive barley, one-third cheap barley and one-third beans.

1762—English brewer Michael Combrune publishes his *Theory and Practice of Brewing*, advocating, for the first time, the use of a thermometer. He publishes a table of kilning temperatures and the color of malt they produce. These range from 119 degrees Fahrenheit (white) to 171 degrees (color of burnt coffee) and 176 (black). The thermometer will end forever the "rule of thumb"—sticking one's digit into the wort to feel if it is cool enough for pitching yeast.

1769—James Baverstock of Alton, Hampshire, England becomes the first brewer to use a hydrometer to determine the specific gravity of the wort. (continued on page 89)

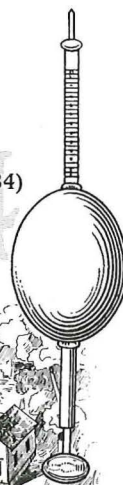


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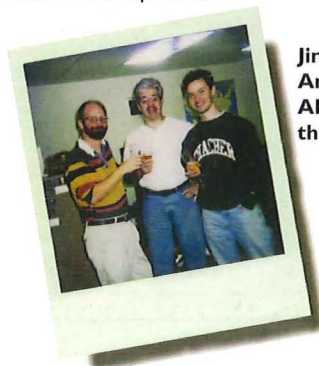
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The Guys in the Lab Wouldn't Leave Well Enough Alone

If you haven't taken a close look at AHA in recent months, now is the time. AHA members asked for more benefits, and the guys in our lab delivered. In each issue of *Zymurgy*® magazine — yours **FREE** when you become a member of AHA — we ask for your opinions on each homebrewing article. We also ask you for ideas on how we can do a better job of supporting you in your homebrewing quest. Then we do our best to give you what you want. (The guys in the lab wouldn't have it any other way.) Here's what we came up with...



Jim, Brian and Amahl: our AHA "guys in the lab."

How to Avoid Alien Encounters

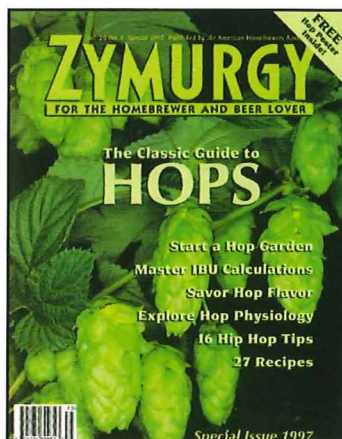


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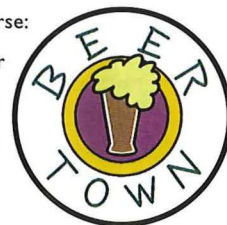
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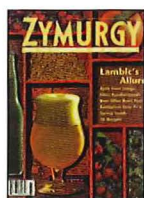
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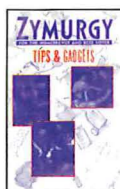


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ONE HUNDRED TWENTY-TWO DEGREES FAHRENHEIT

(With apologies to W.S.)

*To rest or not to rest, that is the question
Whether 'tis better for the proteins to suffer
The time and torture of another mash rest
Or to brave on to the saccharification step
And thereafter to mash out? To mash: to steep:
No more, and by this steep to say we end
The heartache and the thousand natural questions
That wort is heir to, 'tis a consummation
Devoutly to be wished.*

Just as Hamlet's soliloquy is familiar to most English speakers, anyone who has studied the art of the mash has heard of the protein rest. It's the short period of time when the mash is held at about 122 degrees F (50 degrees C), called a protein rest because the key enzymes that are active at this temperature solubilize and degrade proteins from the malt.

From time to time, homebrew discussions both face-to-face and across the Internet question the necessity of the protein rest. Some plead ignorance and want only to do what's needed to make the best possible beer. Others claim knowledge and dispense sage advice in 25-word parcels.

Like Hamlet's classic conflict, the protein rest question is complex. The time that a mash spends at 122 degrees F brings dozens of enzymes into play, producing changes that can affect nearly every aspect of a beer, including clarity and head retention, body and original gravity, color and wort viscosity, flavor and wort acidity.

To make an informed decision about when to conduct a protein rest, a brewer must first consider the full range of activity that occurs at 122 degrees F. But this is not enough. Any consideration of what will happen during the rest must start by understanding the condition of the malt before the rest begins. Thus full consideration of the protein rest decision relies on more than a half-dozen complex variables.

BY RAY DANIELS

PROTEINS AND OTHER COMPOUNDS

Raw barley includes 10 to 12 percent protein in an insoluble form. During malting and mashing, up to 50 percent of the total protein can be solubilized. Soluble proteins include a wide range of different sized molecules. The smallest are amino acids, the basic building blocks of protein. Between the huge insoluble proteins and the small amino acids, we find a vast range of intermediate length proteins.

Two other organic compounds are also of interest when we discuss the protein rest. They are beta-glucan and phytin. Like starch, beta-glucan is a polysaccharide, or chain of sugars, although with a very different structure. It serves as a cell wall component in raw barley and can also be released into wort during mashing. Once soluble, beta-glucans have a gel-like property and brewers refer to them as "gums."

Phytin is a vitamin-like storage compound that is rich in phosphate.

THE SIMPLE ANSWER

Those who are thinking that brewing was meant to be a hobby and not a graduate course in food chemistry will be glad to hear that I have a simple answer. Just ignore the protein rest. Completely. Forget you ever heard of it. I'll guarantee that the overall quality of your beers will be just as good, if not better, than produced by those who decide on a case-by-case basis.

The support for this position can be easily summarized. Traditional British brewing

techniques rely on a simple infusion mash. Historically the Brits have been able to do this because their malts were "well-modified." The whole concept of the protein rest comes to us from the German brewing culture. German malts have historically been "under-modified."

Here's a simple rule of thumb: well-modified malts don't need a protein rest; under-modified malts do. You can tuck that in your brain and use it confidently for the rest of your brewing career. But chances are you'll never need it.

In North America today, you really have to go out of your way to find an

under-modified malt, even among those imported from Germany (see Figure 1). If you generally make ales (as most homebrewers do), and if you generally prefer American malts, if you do make a lager (as most homebrewers do), then it is entirely possible that you could brew for 20 years and never see an undermodified malt.

So forget about the protein rest. You don't need it now; you won't need it ever unless you use under-modified malt.

THE HUE AND CRY

Among some in the brewing community, I've just earned the label of heretic.

"The protein rest is a traditional brewing tool," they will insist. "What about haze reduction? Will there always be enough amino acids? What will this do to head formation?"

If I ignore them, they'll soon have a stake piled with firewood and my name on it. So if you'll excuse me, it's time to get technical. Come along for the ride if you like—I promise you'll learn something, and there are just one or two exceptions that can make

FIGURE 1. A RANGE OF BASE MALTS AVAILABLE IN THE UNITED STATES

U.S. MALTS

Maltster	Briess			Schreier				Great Western	Gambrinus		
Type/Name:	2-row	Pale Ale	6-row	2-row	6-row	Special Pale	Pilsen	NW Ale	2-row	Pale	ESB Pale
Protein (%)	11.7	11	12	11.5	13	11.5	10	11-12	11-12	<10.9	<10.9
Kolbach	45.5	48	45	45.2	43.1	44.3	45	44-49	42-48	45-50	45-50

IMPORTED MALTS

Maltster	Crisp		Pauls	Baird	Munton	DeWolf-Cosyn		Durst	Weyermann
Country	UK		UK	UK	UK	Belgium		Germany	Germany
Type/Name:	Pale	Marris Otter	Pale	Pale	Pale	Pale	Pilsen	Pilsen	Pilsner
Protein (%)	9.4	9.3	9.7	9-10	<9.7	11	10	10.5	10-11
Kolbach	45.5	42.5	40-45	41-44	>38	43.1	48.6	42.5	38-42

Total protein tells how much of the malt, by weight, consists of protein. For all-malt mashes, levels of 12 percent or lower are desirable.

The Kolbach index is an indicator of modification that is specific to proteins. It is a percentage based upon how much of the total protein in the malt has been converted into soluble form. (Kolbach Index = soluble protein / total protein)

Since the limit of protein solubility is about 50 percent, Kolbach values range from 30 to 50 percent. Anything over 40 percent indicates a very well modified malt. (Kunze, p 159). The Figure 1 data show that the extent of protein modification in malts used by U.S. brewers is rather high.

the protein rest useful to mere mortal brewers. If you see something you don't understand, check out the sidebar covering compounds and enzymes.

TO REST OR NOT TO REST?

As with most brewing questions, the answer depends on what you are working with and what you're trying to achieve.

Protein rest compounds affect so many aspects of wort and beer chemistry that we really need to start with a wish list. What characteristics associated with the protein rest do we really want in our beers? Here is a list that I think most brewers would agree with, presented in approximate order of priority:

- Adequate yeast nutrition
- Reasonable finished beer clarity
- Decent head formation and retention
- Appropriate body and mouthfeel
- Proper pH levels
- Good extract

Next, we must consider what type of brewing we're doing and what type of malt is involved. Most home and craft-brewed beers where a protein rest might be considered are all malt and all grain and nearly always use two-row malts. As I show in Figure 1, it is nearly impossible to brew with anything other than well-modified two-row malt in the U.S.

Given these assumptions, let's review each of the items on our wish list to see if a protein rest is likely to improve our beer.

First we have the issue of amino acids. They are an essential yeast nutrient and inadequate levels can result in detectable to assertive diacetyl levels. Despite this concern, data from the Siebel Institute in Chicago have shown that U.S. two-row malts and European ale malts will deliver adequate levels (175 ppm) of amino acids to the wort without the use of a protein rest. In fact, a 100 percent two-row mash subjected to a protein rest may produce excessive amino acid levels that can cause yeast overgrowth and negatively affect head formation. Thus, the protein rest provides no advantages with regard to yeast nutrition and might result in some disadvantages in other areas.

PROTEIN REST ENZYMES

By Ray Daniels

The process of extracting sugar and other good stuff from barley in order to make beer involves reactions that generally convert complex molecules into simpler ones. These processes begin during malting and often continue during mashing as well. Virtually all of them involve enzymes acting on the complex molecules to make them smaller.

In a process that is similar to that seen in the conversion of starch to sugars, two groups of enzymes play a role in the breakdown of proteins.

One group of protein enzymes are the endoproteases, usually just called proteases. More than 40 different proteases are found in barley. Their job is to attack the insoluble storage proteins and break off pieces. The pieces they produce are still very big, but they are now small enough to be soluble in hot water and wort. These enzymes are relatively heat-resistant and will continue to be active up to 122 degrees F (50 degrees C).

A second type of enzyme known as a "peptidase" now comes into play. It acts on the soluble protein created by the proteases. Peptidases break small pieces off of the large soluble proteins, creating amino acids or small peptides. This enzyme is active up to a temperature of 131 degrees F (55 degrees C).

Beta-glucan is also digested by at least two enzymes. One is a solubilase that releases beta-glucan from cell walls in the barley. While not yet thoroughly studied, the activity of this enzyme is believed to occur mostly during malting. A second enzyme, generally known as "beta-glucanase," breaks specific bonds in soluble beta-glucans. The simpler compounds that result impart less viscosity and less gum-like character to wort and beer.

Beta-glucanase is somewhat sensitive to heat, but works well in the temperature range from 104 to 122 degrees F (40 to 50 degrees C). At higher temperatures, it is rapidly inactivated.

Phytase is an enzyme that liberates phosphate from phytin leading to increased mash acidity. Phytase is most active at lower temperatures, 104 degrees F (40 degrees C) or less, but some level of activity continues even at 122 degrees F (50 degrees C).

As you can see, all of these enzymes are active to some extent at the accepted temperature for a protein rest. Indeed, their combined activity at this temperature is the very reason that this specific rest has evolved as an accepted brewing practice. Still our review of these issues has yet to consider the advisability of using the protein rest. To begin addressing it, we must look at the raw material of mashing, the malt itself.

OF HAZE AND FOAM

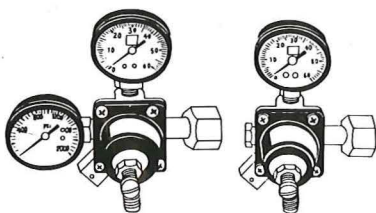
The relationship between the protein rest and wort clarity is somewhat confusing.

Both chill haze and permanent haze in finished beer result from the formation of colloids that involve not only proteins, but also complex polyphenols, metal ions and polysaccharides or carbohydrates. (Hardwick, 373) The proteins that participate in these colloids are believed to range in size from 1,000 to 40,000 molecular weight (MW). (Hardwick, 373). Unfortunately, these potentially troublesome proteins are jumbled up with more beneficial compounds. The amino acids that we just discussed are, at 75 MW to 200 MW, clearly

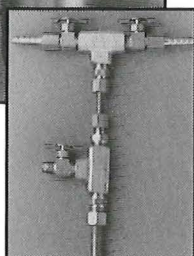
smaller, but head formation and retention proteins cover some of the same ground, ranging from 10,000 MW to 40,000 MW. (Kunze, 569)

In highly modified malts, the primary effect of a protein rest will be to reduce the overall size of the soluble proteins in the wort. This is true because nearly all of the soluble proteins have already been released during malting. Thus, during a protein rest, foam proteins will become haze proteins and, finally, small peptides or amino acids.

While the effect on clarity may be positive in this scenario, the resulting protein profile will be negative in other ways. Large head-forming proteins will be reduced, and the negative effect on head formation may be noticeable. (continued on page 90)



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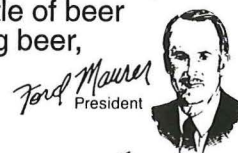
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ZYMWARP

Michael Bane

Who says homebrewing hasn't come far these last 20 years?

In our Fall 1981 issue of *Zymurgy*, we asked readers to help us out with their "brew bloopers." Some of these timeless helpful hints deserve to be printed again, so—hopefully—we won't all be doomed to make the same mistakes over and over again:

- **DON'T let your cat jump in your beer.** This helpful tip involved a cat, Ellis by name, who thought a swim in a fermenting batch of beer would be lots of fun. Cats are apparently as thrilled about beer as they are about water in general. Interestingly enough, both the cat and the beer survived.

With more than a decade of additional brewing experience behind us, *Zymurgy* now recommends allowing no pets—not just cats—to jump into fermenting beer. This includes ferrets and aquarium fish. *Zymurgy* also recommends that you look very closely at strange homebrew.

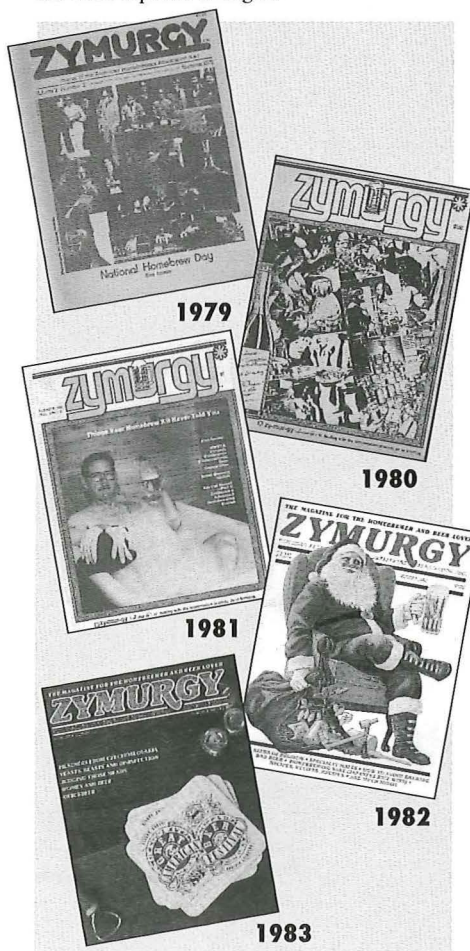
- **DON'T pour four pounds of salt in your beer.** This bit of timeless information involves a hapless homebrewer who, while demonstrating the joys of homebrewing to his friends, proceeded to show how to boost things along by throwing in some "corn sugar." Of course, after intensively sampling previous homebrew efforts, all white powder looks pretty much the same.

Zymurgy still supports the 1981 solution to this problem: "Pour another homebrew. Have a good cry, and forget the entire episode as soon as possible."

- **DON'T measure out water in a container full of unknown white growth.** To wit, plastic milk jugs with a bit of milk hang-

ing on for dear life. If we have learned anything over the decades, it's that large globs of mysterious white substances are contraindicated for good homebrew, as well as continued life.

Once the Mysterious White Substance started growing, our homebrewer described the top of his beer as "looking like Los Angeles from a plane at night."



"Just say no" to globs of funny-looking white stuff in mysterious containers.

- **DON'T bottle up yeast from the primary fermenter to save for future batches.** Suffice to say, "Ka-boom!"

- **DON'T take homebrew on a plane in a box marked "gasoline."** This particular homebrewer not only did so, but put it through the x-ray, where security guards saw a box marked "gasoline" and four capped bottles. In 1981, this was funny. In today's security conscious airports, you'd probably be instantly shot to death by the \$6 an hour security guards, or, at the very least, taken to one of those mysterious back rooms and grilled for hours by guys named Xavier or Hollis.

With our years of experience behind us, *Zymurgy* would also like to caution you about traveling with homebrew in boxes labeled "Explosives," "BIO-HAZARD," or "Saddam Hussein, c/o General Delivery, Baghdad."

- **DON'T mistake whole wheat flour for dried malt.** This advice is as true today as it was in 1981. No matter what you've read in *The Joy Of Cooking*, this is not how you make German weizen.

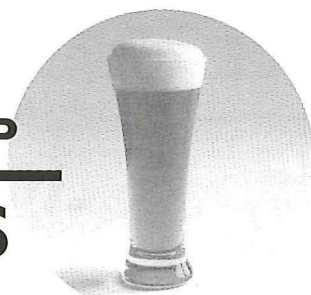
- **DON'T put your new homebrew into old commercial rootbeer bottles...** Unless, as our brewer found out in 1981, you want to come home to a very happy babysitter.

Remember, the more things change, the more they stay the same.

Michael Bane is the editor of *Zymurgy* magazine.

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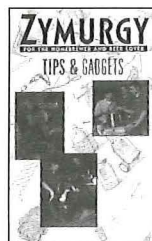
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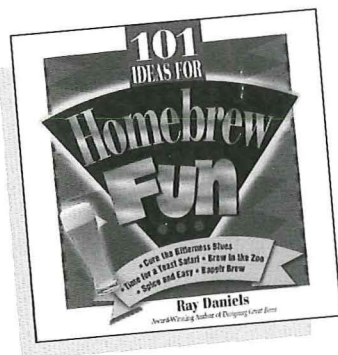
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Corrections

The email and website addresses for Eb's Humidors (New Products, *Zymurgy* Spring 1998, Vol. 21, No. 1, page 43) should have read ebs@atn.net or visit his website, www.atn.net/ms/ebsweb.

The phone number for TLC Digital Printing of Scandia, MN should have read (612) 415-9713. We apologize for any confusion.



101 Ideas for Homebrew Fun

There's more to brewing than waiting for the wort to boil. Ray Daniels offers 101 bizarre, interactive and zany activities for homebrewers of all levels and anyone who relishes beer.

No one could have imagined so many outrageous activities to celebrate beer and homebrewing as Daniels. He suggests

brewing in wacky places, like the zoo; creating culinary delights with homebrew ingredients, like malt waffles; and brewing weird beers, like the Great Pumpkin Beer. And last but not least, how about grabbing your pith helmet, khakis, and petri dish for a yeast safari?

Daniels, a well-known authority on homebrewing, travels throughout the world teaching beer evaluation and appreciation. Based in Chicago, he is the award-winning author of *Designing Great Beers*.

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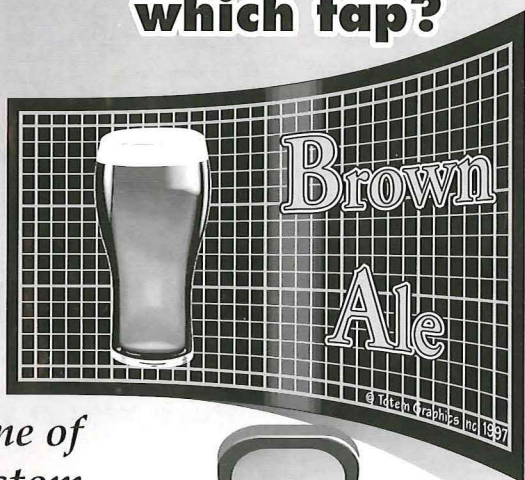
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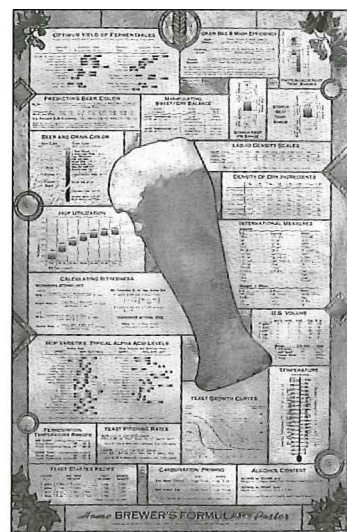
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FOR THE BEGINNER

Dan Rabin

Secrets Of Pitching

All we are saying... Is give yeast a chance. — with apologies to John Lennon, 1940-1980

In my estimation, brewing is 50% science, 50% magic. Biochemists will try to skew this ratio in favor of science, but these are the same people who can discuss flocculation in mixed company with a straight face. Of the various substances we deal with as brewers, yeast is the most magical. This fact was not lost on our ancestors who, before Louis Pasteur came along, sometimes referred to yeast as godisgood.

What is this magical stuff we call yeast? Though it's neither animal nor vegetable—yeast is classified as a fungus—it's very much alive and present all around us. Beer yeast has a voracious appetite for sweets and shows its appreciation for a good malty meal by excreting alcohol and burping CO₂. This is the wonderfully mysterious process we call fermentation.

One of the more common ways homebrewers manage to screw up an otherwise well-made batch of beer is by pitching (adding) too little yeast to unfermented wort. This is called underpitching. Overpitching can also adversely affect beer quality, but this situation is far less common for homebrewers, and the consequences far less severe.

Underpitching

Underpitching simply means you haven't introduced enough viable yeast cells into your unfermented wort to initiate proper fermentation. Underpitching often is evidenced by any, or all, of the following conditions:



- Long lag time
- Prolonged fermentation
- High final gravity

Long Lag Time

Lag time is the period of time between adding yeast to your cooled, unfermented wort and the visible onset of fermentation. It is during this phase that wort is most susceptible to contamination by micro-organisms such as bacteria or wild yeasts. Once active fermentation has begun, the chance of beer-contaminating microorganisms becoming

established in your wort is greatly decreased.

Obviously, the longer the lag time, the more chance these undesirable organisms have to establish themselves. Pitching the proper quantity of yeast should initiate active fermentation within 24 hours, under normal conditions.

Prolonged Fermentation

During a typical fermentation, yeast cells reproduce until they reach an optimal population of approximately 50 million cells per

milliliter of wort. This population of yeast cells rapidly consumes the fermentable sugars in your wort before dropping out of suspension and becoming dormant. Fermentation typically should take from three to seven days. Again, temperature, wort gravity, yeast strain and other variables come into play here. Underpitching can result in yeast cells ceasing reproduction before the optimal concentration of cells has been reached. Because there are fewer cells at work converting fermentable sugars, fermentation can be prolonged, perhaps by two or three weeks.

High Final Gravity

Even if your underpitched wort has survived a long lag time and prolonged fermentation, your finished beer may display some undesirable flavor characteristics. Yet another consequence of underpitching can be a beer that is not fully attenuated. This means that the process of fermentation may stop, and the yeast drops out of suspension, before the task of converting fermentable sugars to alcohol and CO₂ is complete. Because fermentable sugars remain uncon-

verted, the beer will have a high final gravity and an overly sweet, worty flavor.

How do you know if your beer has fully attenuated? Though different yeasts will produce different degrees of attenuation, a properly fermented beer should result in an Apparent Degree of Attenuation (ADA) in the range of 70-75% using the simple formula below (skip this if you're mathematically challenged):

Apparent Degree of Attenuation (ADA) =

$$[(\text{original gravity} - \text{final gravity}) / \text{original gravity}] \times 100\%$$

Note: When entering original and final gravity in this formula, ignore the "1" and decimal point in the gravity reading. For example, if your starting gravity is 1.055, you would enter the number 55.

As an example, if your original gravity is 1.055, and your final gravity is 1.022 then

$$\text{ADA} = \left[\frac{(55 - 22)}{55} \right] \times 100\% \\ = 60\% \text{ attenuation (pretty low!)}$$

Overpitching

Overpitching seldom is a problem for homebrewers, though it is possible to do. The consequences of overpitching are far less severe than for underpitching. One result of overpitching can be autolysis, which is the breakdown of yeast cells. Autolysis can produce a yeasty flavor in your beer. Other potential consequences include reduced hop utilization (meaning you will perceive less hop character than expected in your finished beer), and a reduction of esters. Esters are the fruity aromas that are desirable in many beer styles. Your beer may also take a long time to clear. All in all, if you're going to err in the quantity of yeast you pitch, too much yeast is less troublesome than too little yeast.

How Much Yeast?

This brings us to the most important question regarding yeast pitching. How much yeast is enough? A generally accept-

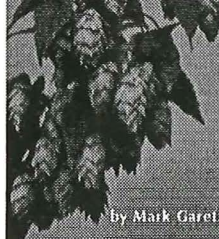
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ed yeast pitching rate for ales of normal gravity is five to 10 million cells per milliliter of wort. For lagers the rate is one million cells per milliliter per degrees Plato (degrees Plato is roughly specific gravity divided by four). Now, unless your beginner's homebrew kit included a hemocytometer, these numbers won't be especially helpful to you. More useful is the pitching rate used by many breweries, which is approximately one pound (3.79 L) of yeast slurry per barrel (31 gallons or 117.49 L) of wort. Reducing this to a quantity useful to homebrews, it translates to roughly one-half ounce (14 g) by weight per gallon (3.79 L), or 2.5 ounces (64 g) for a five-gallon (18.93-L) batch.

Now don't go mucking about trying to weigh yeast slurry. You'll find that 2.5 ounces of nice, thick yeast slurry like you find at the bottom of your carboy after fermenting a beer equals about four to six ounces liquid measure (118-177 mL) or about two-thirds cup. As a general rule, this quantity of yeast slurry should be sufficient to initiate a proper fermentation in most five-gallon batches of homebrew.

As always, there are some other factors to consider. Lagers require more yeast than ales. High-gravity beers require more yeast than normal-gravity beers. Furthermore, if yeast is stored, the number of viable cells decreases over time. Because of the number of variables involved, you should realize that there is considerable leeway in the recommended pitching rate stated above. In reality, some worts will do fine with less yeast, some may require more. The bottom line is, when in doubt, pitch more! Overpitching is seldom a problem.

You may be thinking, "All this is fine and good if you repitch yeast from a previous batch, but what if you purchase dry or liquid yeast? How can you be sure you have

enough yeast to pitch when starting with a packet, pouch or vial?" Future articles in this section will discuss how to prepare yeast derived from these sources.

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Dan Rabin is a freelance writer from Boulder, Colorado, has been homebrewing for seven years and is active with the Hop Barley and the Alers homebrew club.

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WORLD OF WORTS

Charlie Papazian

Supercilious Mild Ale

It was about this time last year—just as it has been for the last 20 years—I was suffering (or was I enjoying?) the bitter cold of winter by dreaming about summer beers for the coming solstice. It was a refreshing rice adjunct Pilsener that made its way from my cool lagering space into this column for the last issue. Oh, what a fantastic beer that was! I've brewed it once again; also a variation with corn. Great flavor. Great hop character. Great reviews by my friends.

Sometimes it's hard to get into the mood of imagining the warmth and thirst of summertime while swirling the snows and tickling the icicles hanging from my porch. So I've taken a different tack this year.

I've abandoned the conditions, taking a holiday to Points South, where winter is summer and summer never ends. It's January, poolside. The water cascades into a nearby kiddie pool. There is heat. The humidity is up there, but tolerable. The sun is high. I've carried my tools of the trade with me: a Swiss army pocket bottle opener, a heat-inspired thirst and my computer.

In my line of work, vacations aren't all sun, sea, water, coconut palms and sand. I'm thinking of you, dear reader, far from homebrew, near in thought. Trying to imitate the mindset required to inspire thoughts of recipes appropriate for the summer.

Last June I brewed an English-style mild ale, a light brown ale with clean, smooth ale notes, low alcohol, soft, gentle, unobtrusive bitterness, which provided an unexpected refreshment for all who dropped by my SlowDown Ranch.

With first hesitancy, the reactions of virtually all of my friends was to prefer a lighter

colored beer—that's the state of the universe as we know it. It's called chaos, I think. So naturally in my contrary state of mind, which I am typically acclaimed to inhabit, I would serve them a chilled—no not chilled...I would serve them a cold Supercilious Mild. I invariably saw the hesitancy in their eyes.

And it was natural. A dark beer—what to expect? Full flavor, heavy, bitter, rich; not at all the conditioned mood for the summer brews.

The glass was often frosted, fresh from the freezer (Okay, so crucify me!). First sips were hesitant, "this is not what I asked for" brainwaves emanated from cerebral plateaus. But then, as invariably was the case, superciliousness set in. Eyebrows wavered and then slowly migrated to points far above where hairlines normally began.

"Wow, this is different..." Not familiar with how to react to such mild and refreshing sensations with a darker brew, my



clientele (a.k.a. my friends) often found the experience disorienting. Before they realized what they were saying, they blurted out, "Wow, this stuff is pretty good. Not what I expected. Not heavy. Really light, but with just enough flavor to be worthy of real beer. I like this. What a surprise. Wow, this blows my mind..."

So what's the jive? What's the deal with Supercilious Mild? What makes it special and apart from your traditional English mild? In reality, the original intent was to produce an authentic English mild ale with proper balance and body. My attention to some of the details, such as fermenting at somewhat cooler temperatures than typical of real ales, resulted in an ale with less fruitiness. Almost a lager-like smoothness resulted. In fact, I wouldn't hesitate to make this very same recipe, only with a lager yeast that ferments kindly between 65 and 50 degrees F (18.5 - 10 degrees C).

Carbonating the brew at higher levels than a typical English mild real ale promoted refreshing qualities. While the bitterness is relatively low, the accent is well-balanced, even at colder serving temperatures. Crystal malt helps soften the hop palate. The touch of Cascade hops helps bring a refreshing aroma to the forefront. A clean aftertaste and all-malt character prevails.

One aspect of this brew that I kept in mind was that it's summertime in America for most of our AHA members. Where is our thirst? After all, we're not likely to be enjoying this in the cool early evening ambience of a British pub.

I give this recipe my unconditional guarantee: If you aren't fully satisfied, simply send me the beer.

So let's cut the shuck and jive and get on with this simple, yet perfect, malt extract recipe.

Ingredients for 3.8 U.S. gallons (14.5 L)

- 1 3.3-lb can EDME Maris Otter malt extract (1.5 kg), or 2.8 lb light dry malt extract (1.3 kg)
- 1 lb English crystal malt (75 °L) (.45 kg)
- 8 oz chocolate malt (225 g)
- 0.6 oz U.K. Wye Northdown whole hops, 5.1 HBU/143 MBU (17 g) (60 min.)

- .5 oz American Cascade whole hops, 2.5 HBU/71 MBU, (14 g) (1 min.)
- 1 tsp powdered Irish moss
- .68 cup corn sugar/glucose (160 mL) (to prime)

Wyeast 1275 Thames Valley ale yeast or clean, neutral lager yeast


- Original specific gravity: 1.036-1.038 (9-9.5 °B)
- Final specific gravity: 1.008-1.010 (2 - 2.5 °B)
- IBUs: about 25

- Approximate color: 23 SRM (46 EBC)
- Alcohol: 3.6% by volume
- Apparent yeast attenuation: about 75%

Add the crushed chocolate and crystal malt to one gallon (3.8 L) of 160 degrees F (71 degrees C) water. Let steep for 30 minutes. Afterward strain out the spent grains, sparge with some hot water and collect the liquid extract. Add the malt extract syrup (or light dried malt extract) and .5 gallons

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(1.9 L) additional water. Bring to a boil and add 5.1 HBU/143 MBU of whole Wye Northdown (or similar U.K. variety) and continue to boil for one hour. When 10 minutes remain add Irish moss. After a total wort boil of 60 minutes turn off the heat, add Cascade whole aroma hops and let steep for 1 to 3 minutes. Then strain out and sparge hops and direct the hot wort into a sanitized fermenter to which 1.5 gallons (5.7 L) of cold water have been added. If necessary add additional cold water to achieve a 3.8 gallon (14.5 L) batch size.

Add a starter culture of yeast when temperature of wort is between 60 and 70 degrees F (15.5-21 degrees C). Preferably ferment at 63-65 degrees F (17-18.5 degrees C) range for about 10 days. For best results "cellar" or age at 50 degrees F (10 degrees C) for 2-3 weeks. Bottle with corn sugar. Age and carbonate/condition at temperatures between 60 and 70 degrees F (15.5-21 degrees C) until clear, about one week.

Then imagine a perfect thirst with a very real perfect beer.



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HOMEBREW BITTERING UNITS (HBUs)

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

INTERNATIONAL BITTERNESS UNITS

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

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

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

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

METRIC BITTERNESS UNITS (MBUs) are

equal to the number of grams of hops multiplied by the percent alpha acid.

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Meanwhile I'm bottling a well lagered Dortmund style light lager, another batch of SlowDown (rice adjunct) light lager and a German style rauch (smoked) beer. My ales, cellared for over a month, include an India pale ale and an India pale lager. I'm out of stout and porter, so it feels like some dark brews are in the chute. But for now, far from home I can only think of homebrew and all those batches getting better each day I'm away.

World traveler Charlie Papazian is the founding president of the Association of Brewers and the author of numerous best-selling books on homebrewing. His most recent is *Home Brewers Gold* (Avon 1997), a collection of prize-winning recipes from the 1996 World Beer Cup Competition.

THE BEST FROM KITS

James Slaton

Cheap, Fast and Out of Control

*How to Brew Two out of Three Beers in Nine Days;
a Lesson in Speed and Bad Brewing Techniques*

There's a Hunter S. Thompson quote that goes something like this: "Faster, faster, until the thrill of speed overcomes the fear of death." A sentiment like that can get an impressionable young person in trouble. It might make them commit to do something they shouldn't do only for the sake of the adrenaline rush.

It might make them do something stupid. Case in point: this column. In early February, I sent *Zymurgy* editor Michael Bane an e-mail volunteering to do a "Best From Kits" column. A few days later, apparently in need of a last-minute column, he took me up on my offer on the condition that I get the beers done by March 1.

Keep in mind I didn't have the kits and didn't really have time to order them. But hey, I took the assignment anyway. What followed was an ugly series of coincidences that resulted in my not having the kits until February 20. There's no point in going into the reasons; suffice to say fate was to blame. I had three beers to brew and only nine days to do it.

It's fitting, really, because historically this column has been about how kits make brewing easy and quick. I set out to find just how quick. It was a brutal nine days. One of the three kits didn't make it, a casualty of what was likely the most frenzied and recklessly ambitious project written about in these otherwise staid and academic pages.

Two did, however, giving me a batting average anyone in the majors would be proud of. It wasn't a pretty site, and I dare say many brewing geeks would be offended by what I did. But you don't brew three beers in nine days without cutting a few corners and breaking a few rules. Later, I'll rehab my kitchen.

Let's not forget that brewing is practiced for the most part by beer drinkers, who are typically thought of as people who enjoy fun. What happened to the fun in homebrewing? What happened to the thrill of speed?

I was about to find out.

Speed Kills

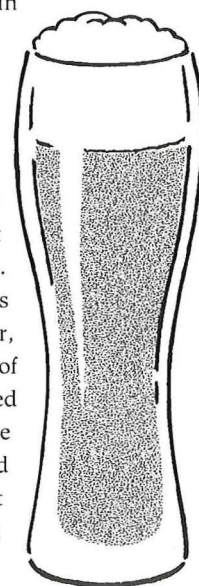
Long before speed entered the picture and became the essential lesson of all this, the theme was wheat beer. Seems innocent enough. My two successes were Edme MicroBrewery Series Wheat Beer and Ireks Weizenbeer Extract. After careful consideration, we're not going to name the third contender, because, as the old "Howard The Duck" comic books used to say, "(It was) Trapped In A World It Never Made!"

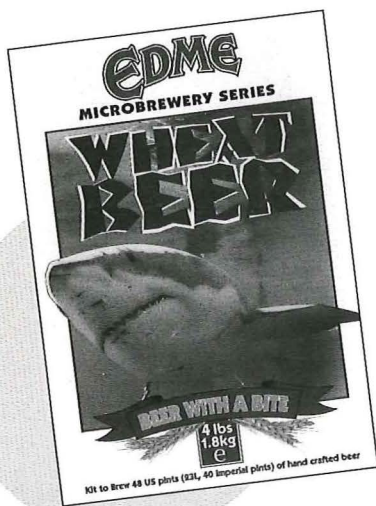
For some strange reason, Number Three failed to ferment, even after attempts were made to rescue it. After two days, I'd pitched two more packets of yeast in a starter made with corn sugar

and yeast nutrient. Still nothing several days later; the O.G. had not budged from 1.036. Seven days after initially pitching the yeast, no fermentation had begun, so I threw it out. I was disappointed but, hey, Speed Kills.

I hesitate in blaming the manufacturer for the kit's problem. For one thing, there was obviously sugar and yeast—lots of yeast—in the wort. Because sugar plus yeast should mean fermentation, then something else must be wrong. Extract isn't that complicated; it can't be "broken" like faulty stereo component from the manufacturer.

I tend to believe something happened on my end of all this in the haste to complete all three beers in such a short time. Perhaps my sterilizing solution (I use no-rinse Iodophor) was in too strong a concentration and tainted the beer, killing the yeast upon its introduction. That explanation seems unlikely too, however, considering five gallons of wort should have diluted any residual traces of the already highly diluted chemical and made it impotent even against helpless little yeast.





Edme Wheat Beer

I brewed the Ireks and Edme at the same time, boiling each in separate brewpots on the stove. The Edme was a hopped kit, so I followed the instructions with one exception: I boiled the extract. No-boil kits are so-called because the primary purpose of boiling beer during brewing is to activate the bittering qualities of the hops. Because the

extract is already hopped, the boiling stage is deemed unnecessary. I disagree, however, that the only value of boiling is for the hops. Boiling also eliminates any questions about the sterility of your extract or other ingredients, so I boiled the extract. Instead of following the recipe, however, I added two pounds of Munton's 55% Wheat/45% Barley Dried Malt Extract. That was the extent of my tinkering.

I dumped the beer in a glass carboy with a yeast starter made from two packets of Edme yeast, nutrient and sugar. Fermentation was completed in about two days, with gravity dropping like a rock from 1.038 to 1.009. I bottled on the third day and let it condition for six days.

The final result was a slightly darker than expected, almost reddish-golden colored brew with a wonderfully wheaty nose and thick creamy head. The beer started crisp and slightly sweet. The wheat character was subtle and most apparent in its mildly tart finish. Excellent for a beer ready in less time than it takes to receive most mail-ordered goods.

Ireks Weizenbeer

The Ireks was the most involved. It was a three-kilogram (6.75-lbs) can of unhopped extract. I added hops (see recipe at end) and dried malt extract and boiled. Again, when the temperature dropped, I pitched two packets of dried Edme yeast in a starter. It also fermented completely in about two days and sat bottled for six days.

The Ireks came out with a very nice golden hue. It was slightly thinner than I would have liked and without much of an apparent wheat taste. I prefer the strong bite of a German weizen. Instead, the Ireks was a mild and slightly sweet beer. It was still pretty good for a beer completed in only nine days.

The moral of this story is that if you want perfect beer, don't try to make it fast, even from kits. Brewing is a serious and complicated endeavor that takes discipline and patience to truly do right. Haste really does make waste, too; given the proper amount of time, I would have had three fine beers instead of only two.

But if you've got to have it fast—and you have the resources to play the percentages and brew enough batches so that at least the majority have a good shot at coming out OK—then kits are a good way to get the beer you want in the time you have. They're uncomplicated and basically self-contained, two pluses when a deadline is running up fast behind.


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

Ireks

- 3 kg Ireks Weizenbeer Extract (unhopped)
- 1 lb Munton's DME (55% wheat, 45% barley)
- 1 oz Cascade hops, boiling
- .5 oz Hallertauer, finishing
- 2 packets dried Edme ale yeast

Edme

- 4 lb can Edme Wheat Beer kit
- 2 lb Munton's DME (55% wheat, 45% barley)
- 2 packets dried Edme ale yeast

New Orleans-based journalist James Slaton is a regular contributor to *Zymurgy*. 

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With the warmth of the summer months upon us, we look for lighter, more refreshing styles of beer that those of us who are not blessed with ample refrigeration space can still brew at ambient temperatures. Light doesn't necessarily mean low in alcohol, however—brew up a batch of Kelly Robinson's colossal Belgian-Style Strong Ale, "Rhinocopter," and get trampled on a warm summer evening. Or for a real challenge, start a batch of Belgian-Style Lambic, like Bert Zelten's framboise, dosed with a fresh helping of homegrown raspberries.

Lots of things from the summer vegetable garden can be used in homebrew; how about Ron Kline's "Picante Pilsener", with fresh jalapeño and serrano peppers. For the more traditional brewers, a classic weissbier like Mike Rivard's "Amber Waves" is guaranteed to quench one's thirst, or a hoppy, spicy American Pale Ale like Doug Jeffs' "Columbus Pale Ale."

And with the spring honey harvest, you can try your hand at Thomas J. O'Connor's wonderfully fragrant orange blossom honey mead. Selected from the 1997 National Homebrew Competition, the following recipes are from the elite ranks of the second round winners. Summer's no excuse to ease off on your brewing schedule, and with these excellent recipes, now you don't have any excuses. So get brewing!

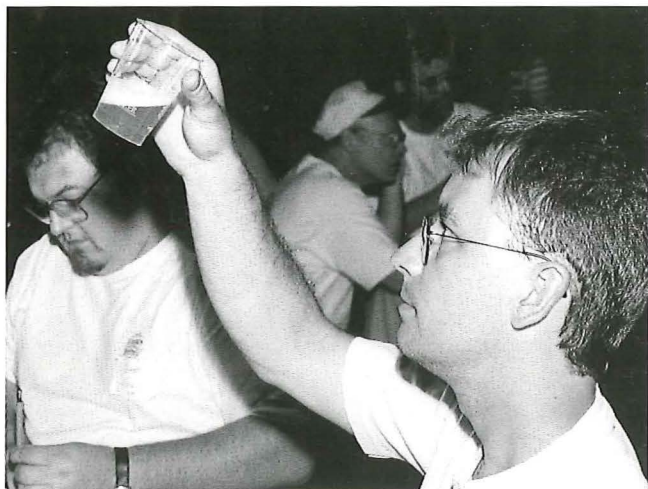


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BELGIAN-STYLE LAMBIC



SILVER MEDAL
AHA 1997 NATIONAL HOMEBREW COMPETITION
Bert Zelten
Kewaunee, Wisconsin
Untitled
Fruit Lambic

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

- 7 lb two-row malt (3.18 kg)
- 3.5 lb wheat malt (1.59 kg)
- .5 oz aged Tettnanger hops, 3.3% alpha acid (14 g) (90 min.)
- 5 lb raspberries (2.3 kg)
- BrewTec Lambic yeast culture
- 1.5 cup malt extract to prime (355 mL)

- Original gravity: unknown
- Final gravity: unknown
- Boiling time: 90 min.
- Primary fermentation: 14 days at 63 degrees F (17 degrees C) in glass
- Secondary fermentation: 30 days at 60 degrees F (16 degrees C) in glass
- Age when judged: nine months

Judges' Comments

"Good raspberry. Very dry. You have achieved a level of delicacy that is difficult to reach in this style."

"Good effort. Reminds me a little of the Oud Beersel Framboise. On the lighter side for lambic."

"Very nice beer, nearly a 'commercial' type."

BELGIAN & FRENCH ALE



BRONZE MEDAL

AHA 1997 NATIONAL HOMEBREW COMPETITION

Kelly Robinson

Ceres, California

"Rhinoceptor"

Belgian Strong Ale

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

- 10 lb American 2-row malt (4.54 kg)
- 7 lb Pilsener malt (3.18 kg)
- 1 lb clear candi sugar (.45 kg)
- .75 lb pale candi sugar (.34 kg)
- .25 lb amber candi sugar (.11 kg)
- 1.5 oz Strisselspalt hops, 3.4% alpha acid (43 g) (60 min.)
- 1.6 oz Spalt hops, 3.4% alpha acid (45 g) (45 min.)
- 1 oz Strisselspalt hops, 3.4% alpha acid (28 g) (15 min.)
- 1 oz Saaz hops, 2% alpha acid (28 g) (5 min.)

Wyeast No. 1214 Belgian Abbey ale yeast culture
forced CO₂ to carbonate

- Original gravity: 1.090
- Final gravity: 1.012
- Boiling time: 75 min.
- Primary fermentation: 10 days at 70 degrees F (21 degrees C) in glass
- Secondary fermentation: 90 days at 45 degrees F (7 degrees C) in glass
- Other fermentation: 120 days at 35 degrees F (2 degrees C) in glass
- Age when judged: 17 months

Brewer's Specifics

Mash grains at 136 degrees F (58 degrees C) for 15 minutes, raise to 140 degrees F (60 degrees C) for 15 minutes, then to 150 degrees F (66 degrees C) for 60 minutes, then to 158 degrees F (70 degrees C) for 45 minutes, and mash out at 176 degrees F (80 degrees C) for 20 minutes. Add candi sugar to boil.

Judges' Comments

"Well-balanced. Sweet start, ending in a long, bitter finish. Very drinkable strong ale. Nice Belgian character."

"Tight head which clings to the glass. Full body—sits well on the tongue. I could enjoy more of this."

"Powerful beer. Some age will mellow the esters and alcohols. Good job."

AMERICAN-STYLE ALE



BRONZE MEDAL

AHA 1997 NATIONAL HOMEBREW COMPETITION

Doug Jeffs

Kaneohe, Hawaii

"Columbus Pale Ale"

American Pale Ale

Ingredients for 13 U.S. gal (49L)

- 20 lb American two-row malt (9 kg)
 - 2 lb 40L crystal malt (.91 kg)
 - 1 oz whole Columbus hops, 15% alpha acid (28 g) (30 min.)
 - 1 oz whole Columbus hops, 15% alpha acid (28 g) (15 min.)
 - 1 oz whole Columbus hops, 15% alpha acid (28 g) (10 min.)
 - 1 oz whole Columbus hops, 15% alpha acid (28 g) (5 min.)
 - 4 oz whole Columbus hops, 15% alpha acid (113 g) (steep)
- Wyeast No. 1056 American ale yeast
forced CO₂ to carbonate

- Original gravity: 1.047
- Final gravity: 1.012
- Boiling time: 75 minutes
- Primary fermentation: 7 days at 67 degrees F (19 degrees C) in glass
- Secondary fermentation: 14 days at 67 degrees F (19 degrees C) in glass
- Secondary fermentation: 30 days at 31 degrees F (0 degrees C) in glass
- Age when judged: three months

Brewer's Specifics

Mash grains at 150 degrees F (66 degrees C) for 60 minutes.

Judges' Comments

"Nice fruity flavor up [front], followed by a very pleasant hop bite. Surprisingly pleasant. Very drinkable APA. Good job! Very clean beer."

"Gorgeous. Well balanced with this amount of hops. Great beer. Surprisingly smooth. Beauty to look at, but I'd rather drink it."

Brewer's Comments

"This brew was merely a test for bitterness, flavor and aroma of Columbus hops. Using Columbus from start to finish gave me an absolute taste of its character."

GERMAN-STYLE WHEAT BEER



SILVER MEDAL
AHA 1997 NATIONAL HOMEBREW COMPETITION
Mike Rivard
Chicago, Illinois
"Amber Waves"
Weizen/Weissbier

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

- 6 lb American wheat malt (2.72 kg)
- 5 lb American two-row malt (2.27 kg)
- 1 oz Willamette pellet hops, 4.2% alpha acid (28 g) (60 min.)
- .5 oz Hallertau pellet hops, 2.1% alpha acid (14 g) (45 min.)
- .5 oz Hallertau pellet hops, 2.1% alpha acid (14 g) (20 min.)
- Wyeast No. 3068 Weiherstephan wheat ale yeast
- 1.6 qt unfermented wort (1.5 L) (to prime)

- Original gravity: 1.060
- Final gravity: 1.014
- Boiling time: 60 min.
- Primary fermentation: seven days at 65 degrees F (18 degrees C) in glass
- Secondary fermentation: seven days at 65 degrees F (18 degrees C) in glass
- Age when judged: three months

Brewer's Specifics

Mash grains at 154 degrees F (68 degrees C) for 90 minutes.

Judges' Comments

"Good creamy clove in the middle. Crisp finish with nice phenolics. Some sour, full mouth feel due to the conditioning. Very clean. I'd grab another. Nice beer."

"Rather pleasant beer."

HERB & SPICE BEER



SILVER MEDAL
AHA 1997 NATIONAL HOMEBREW COMPETITION
Ron Kline
Cupertino, California
"Picante Pilsener"
Classic-Style Herb & Spice Beer

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

- 14 lb American two-row malt (6.36 kg)
- 2.5 lb American wheat (1.13 kg)
- .75 lb Cara-Pils malt (.34 kg)
- .5 lb 30 °L crystal malt (.23 kg)
- .25 lb light Munich malt (.11 kg)
- 2.5 oz jalapeño peppers (71 g)
- .4 oz serrano peppers (12 g)
- 1 oz yellow peppers (28 g)
- .25 lb flaked barley (.11 kg)
- 3 oz Saaz pellet hops, 3.1% alpha acid (85 g) (90 min.)
- .25 oz Tettnanger pellet hops, 4.4% alpha acid (7 g) (10 min.)
- Wyeast No. 2278 Czech Pils lager yeast
- forced CO₂ to carbonate

- Original gravity: 1.044
- Final gravity: 1.012
- Boiling time: 90 min.
- Primary fermentation: 8 days at 50 degrees F (10 degrees C) in glass
- Secondary fermentation: 20 days at 40 degrees F (4 degrees C) in glass
- Age when judged: one month

Brewer's Specifics

Mash grains at 150 degrees F (66 degrees C) for 60 minutes. De-seed and roast chile peppers, add 15 minutes before the end of the boil.

Judges' Comments

Well balanced, very clean beer. Nice effort! Quite drinkable."

"Very good pepper beer, nice level of burn. Just a great Pils pepper beer."

TRADITIONAL MEAD & BRAGGOT



SILVER MEDAL
AHA 1997 NATIONAL HOMEBREW COMPETITION
Thomas J. O'Connor III, M.D.
Rockport, Maine
"J. Duck's Sparkling Mead"
Sparkling Traditional Mead

Ingredients for 3 U.S. gal (11.36 L)

- 9 lb orange blossom honey (4 kg)
- 3 tsp Fermax yeast energizer (14.8 mL)
- 2 tsp acid blend (9.9 mL)
- Wyeast No. 3184 sweet mead yeast
- forced CO₂ to carbonate
- Original gravity: 1.116
- Final gravity: 1.012
- Boiling time: 10 min.
- Primary fermentation: 30 days at 68 degrees F (20 degrees C) in glass
- Secondary fermentation: 90 days at 68 degrees F (20 degrees C) in glass
- Tertiary fermentation: two years at 68 degrees F (20 degrees C) in glass
- Age when judged: three months

Brewer's Specifics

Boil honey and water for 10 minutes.

Judges' Comments

"Nice clear straw color. Really sweet taste. Beautiful carbonation. A deliciously sweet drink. Nice expression of orange blossom flavor."

Every gold-medal winning recipe from the AHA 1997 National Homebrew Competition was printed in *Zymurgy* Special Issue 1997 (Vol. 20, No. 4) "Winners Circle."



1998 HAIL TO ALE Club-Only Competition Winner



John & Doran Moranville
Memphis, Tennessee
"American Pale Ale"
American-Style Pale Ale

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

- 9 lb Alexander's pale malt extract (4 kg)
- .75 lb 20 °L crystal malt (.34 kg)
- .75 lb 30 °L crystal malt (.34 kg)
- 1 oz Nugget pellet hops (28 g) (50 min.)
- 1 oz Chinook pellet hops (28 g) (50 min.)
- 1.25 oz Willamette pellet hops (35 g) (5 min.)
- .5 oz Perle pellet hops (14 g) (5 min.)
- 1.25 oz Centennial pellet hops (35 g) (5 min.)
- .5 oz Chinook pellet hops (14 g) (5 min.)
- 1 oz Centennial pellet hops (28 g) (dry)
- Wyeast No. 1056 American ale yeast
- 4 oz corn sugar (priming) (113 g)
- Original gravity: 1.065
- Final gravity: 1.024
- Boiling time: 60 min.
- Primary fermentation: 5 days at 68 degrees F (20 degrees C) in glass
- Secondary fermentation: 9 days at 68 degrees F (20 degrees C) in glass
- Age when judged: three months

Brewer's Specifics

Steep grains at 155 degrees F (68 degrees C) for 30 minutes.

Judges' Comments

"Very good brew. My compliments to the brewer."
 "Could have a little fuller body and malt character. Overall a very nice beer."
 "Very few distractions."

Amahl Turczyn has been homebrewing since 1985 and professionally brewing since 1995. He compiled *A Year of Beer* (Brewers Publications, 1997) and is the AHA Project coordinator.

Professor Surfeit

DEAR

P R O F E S S O R

Chilling Thoughts

Dear Professor Surfeit,

I have a couple of very chilling questions for you. The first concerns counter-pressure filling bottles from Cornelius kegs. I am a devoted kegger, I feel that they are much easier to work with and much easier to clean after a bunch of my thirsty homebrew loving friends stop by. I am also interested in entering my beers and ales in both local and national competitions that require bottles. Besides, I wouldn't want to send a whole keg of my delicious Dopplebock away; it's bad enough having to part with a few bottles!! I have read that one should chill both the keg of beer and the bottles before filling to limit foaming. I can see the sense in this but my concern is this: Is it bad for your beer to cool it down and then let it go back to room temperature? I usually keep many kegs in my beer closet at room temperature as I can only tap two at a time, and if I decide to send in many entries I don't want to have all of these cold kegs around (I will throw out the milk and leftovers in my food fridge!!).

The second question is also a chilling question. I love to make lagers, especially in the summer months. I usually let them ferment at around 70 degrees F (22 degrees C) for a day or two and then transfer to secondary and place in the fridge where it will cool down in the 45 degrees F (7 degrees C) range. I have read that you should primary ferment a lager at 50 to 60 degrees F (10-16 degrees C) and then secondary ferment in the 40s (4-9 degrees C) for six

or so weeks. Now, my question is this: After the cold secondary fermentation do I need to leave the lager at the cold temperature or can I store it at room temperature? The reason I have these questions is because I have heard that once you cool a homebrew down, it should stay cool or it will develop off flavors.

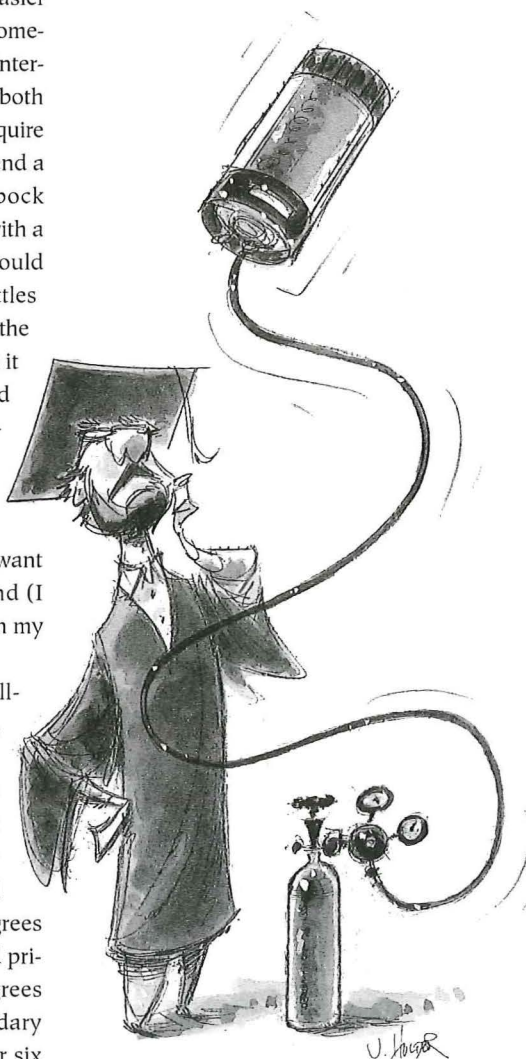
Please be advised that I am extremely relaxed, not in the least bit worried, and will have a homebrew as soon as I get home from work.

To chill or not to chill,
Michael R. Caprara
Littleton, CO

Dear Michael,

Is it bad? Well, let's assume that you're brewing good clean beer and having good clean fun. That said, you shouldn't have problems with letting your beer go back to what you say is "room temperature." Room temperature in Seattle, WA might be about 60 degrees F (16 degrees C) and 85 degrees F (29 degrees C) in Tampa, FL, so you've got to watch out when you generalize "room temperature." Any beer brought up to above 80 degrees F (27 degrees C) is going to suffer. The best deal is to keep your carbonated brew at 50 degrees F (10 degrees C) or less if you can't get to enjoying them within a month. As temperature increases the aging process accelerates; oxidation. Also, depending on your bacterial count, your beer will get "funky" faster with warmer temperatures. That's just a fact. But as far as physical damage of bringing your beer from cold lager temperatures back up to 60 to 70 degrees F (16-21 degrees C) you won't notice any immediate difference.

What concerns the commercial brewers is the brutal conditions between extreme temperatures that may be experienced on the train, van, truck or boat ride to the cooler warehouse then up again to the store and then down again in their cooler and then up again on the way to your home and then down again when about to be served. All the while



in a state of agitation. Hell, can you blame the beer? I'd be pissed too, if I were treated that way. Homebrewers generally are a kinder and gentler society.

To address your second question: "...After the cold secondary fermentation do I need to leave the lager at the cold temperature or can I store it at room temperature?" Well, Mike, why would you want to store it any longer after lagering? Hell, man, bottle that sucker up! And enjoy it. You won't do the beer any good at all by

continued storage at warmer temperatures—no good at all.

Keep it chilly,
The Professor, Hb.D.

Stuck at 20

Dear Professor Surfeit,

I'd like to share my homebrewing problem with you. I hope that someone may be

able to explain the cause and offer advice regarding a solution.

All of my fermentations stop at a specific gravity of .020, read at a temperature of 60 degrees F (16 degrees C).

Over the course of the last few years, I've brewed 53 batches of beer. I boil two or three gallons of wort in a stainless steel pot; the starting specific gravities of the five gallon batches have ranged from a low of .036, to a high of .080; these brews were lagers and ales; I've used dry and liquid yeasts; I've used many and varied sources of water; I've fermented at temperatures ranging from 60 to 75 degrees F (16-24 degrees C); I use primary and secondary carboy fermenters; I've used three different hydrometers; I've used yeast nutrients; I've fermented from as few as six days to as many as 30 days. It makes no difference! Fermentation stops at .020. I've even tried adding additional yeast when the original fermentation stopped. Nothing happened.

I've discussed this problem with many homebrew suppliers. All have expressed puzzlement and have said that they've never heard of this problem before. When I ask whether or not it makes a difference that the town I live and brew in sits at an elevation of 7,000 feet, I am always assured that it doesn't.

There must be some explanation for this phenomenon. Any ideas, suggestions or comments that you could send my way would be appreciated.

Thanks,
Allan Vesely
Crownpoint, NM
jimmiwhistle@msn.com

Dear Jimmi,

Getting to 1.020 from 1.080 is mighty respectable. Getting stuck there from 1.036, now that's a problem. You don't indicate that you make extra efforts to aerate the wort prior to fermentation. That might be something to try. Certainly a lack of oxygen would get you stuck. Using enough yeast is another essential. Have you ever repitched a new batch with a cup of yeast slurry from a secondary fermentation?

Could it be some trace minerals in the water that inhibit yeast activity? You're at 7,000 feet. I wonder (continued on page 91)

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REVIEWS

The opinions of individual reviewers do not necessarily represent the opinions of the American Homebrewers Association or *Zymurgy*.

Milling Made Easier

Okay—I admit it. I am very susceptible to gadget envy. I'm always checking out friends' brew rooms to see what new toys they have that I may want. Whether homemade or purchased off the shelf, I'm always looking for new items to improve my home system.

Lately, I've been guilty of coveting my neighbors' malt mills. Too often, I've found, I go to the homebrew shop, buy and crush grain with the intention of brewing the next day and then something comes up and the crushed grain sits there for a week before it gets used.

So I've been checking out friends' mills, trying to decide which to buy. I'd compiled a short list, checked the *Zymurgy* mill road test in the Fall 1994 issue, surfed a few web pages, checked rec.crafts.brewing archives and was ready to make a choice when I brewed at my friend Wayne Waananen's house. There I saw a mill that made me do the old cartoon double take. My eyes popped out, my jaw hit the floor. This puppy was gorgeous. Big steel rollers, hardwood case, big hopper. And it weighed a ton.

"So where'd that come from?" I asked.

"A local guy makes 'em," he said.

It turns out this new mill that hadn't yet shown up on my personal research radar is called the Rollmaster Roller Mill. It is manufactured by John Louch of Environmental Marketing Group in Littleton, CO, and initially marketed through Highlander Homebrewers' & Winemakers' Supply, a Littleton, homebrew retailer (I have since learned that dealer inquiries are welcome from the man-

ufacturer). At \$189 retail, it is more expensive than the other mills that were on my short list. So I figured its performance would have to be quite impressive to move it to the top of the list.

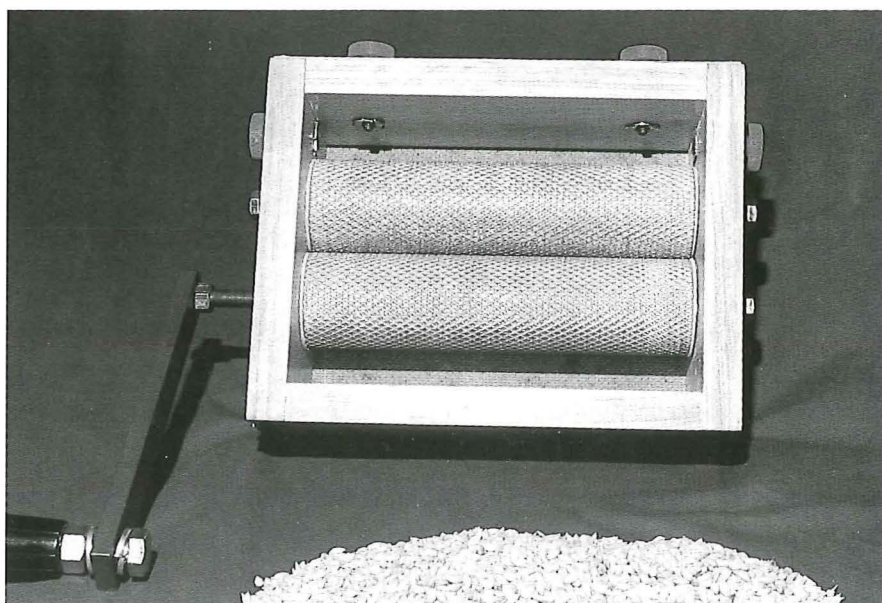
Since I'd never seen or used this particular mill, I decided further study was a must. I volunteered to crush the grains for that day's brew and then made a date to come back with more grains and really give it a workout. On both occasions, I was very impressed.

Here's why:

The construction. This is a solid, sturdy product. The mill's frame is solid wood; maple, as I learned from the information sheet on Highlander's home page www.highlander-brew.com/rollermill.html. The joints are dovetailed for further stability.

The rollers are two inches in diameter, solid steel and well-knurled. The hopper is a three-gallon-or-so food-grade plastic container that the literature says holds eight to 10 pounds (3.63-4.54 kg), depending on the type of grain used. I can attest that 19.5 pounds (8.85 kg) of Maris Otter pale fit in two hopper loads. The mill can be set on top of a catch bucket or, as Wayne has done, mounted to a plastic bin and drawer unit that can be picked up at any discount store for about \$10 or less. A template is included to help you drill mounting holes.

Ease of operation. All of the warm, fuzzy feelings that I got from just looking over the Rollmaster were intensified with the first turn of the handle. You might say it was love at first crank. This was the smoothest, easiest cranking mill I have used. Bar none. Again, from reading the literature, I learned that this is because the roller shafts are held in place by sealed ball

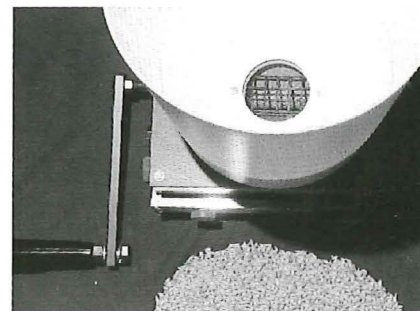


bearings. Even wheat malt, which is like crushing gravel, is no sweat. Plus, the two-inch rollers (one is turned by the crank, the other is turned by friction, as in my previous favorite) have an amazing throughput. Each hopper load of grain took only four minutes of easy turning to crush.

At this point, I should address the motorizing issue. I called the manufacturer, John Louch, to see if the mill can be motorized. He said it can be done, but because of the design, it is better to order it motorized, which he will do, than to do it yourself. And, as he

pointed out, with the mill's easy cranking and high throughput, you'd need to be milling a lot of grain at one time to need a motor.

Adjustability. I know there has been some debate on this topic, but this is one feature I definitely want. And the Rollmaster gets top marks here. The second, friction-driven roller is on a slide assembly with easy-to-turn thumbscrews. By using a spark plug gap tool, you can set the gap between the two rollers to any setting you want. Then, once you get the proper gap for a given grain, you can record the settings in



a log to help you get a consistent crush. My second time using the mill, I crushed a pound each of 10 different grains—everything from plump Maris-Otter pale malt to some thinner six-row; from caramel malt to black patent, to wheat. Each adjustment took only about 30 seconds, and I could get the exact crush I was looking for.

What's more, when you adjust the Rollmaster, you adjust both sides, so the gap is uniform the entire length of the rollers.

The adjustability debate was settled for me when, after getting the settings perfect for one pale malt, I tried running another, less plump, pale malt through the mill with no adjustment. All I got were a bunch of uncracked old maids and some lightly cracked kernels.

Quality of grist. The knurled rollers do a great job of cracking the grain, leaving the husk fairly intact, while still crushing the starchy endosperm.

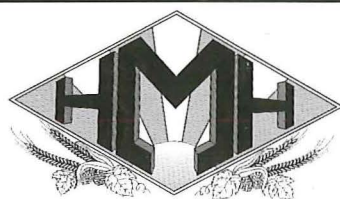
Durability. I stopped by Highlander, where the Rollmaster has been in use as the shop's sole mill for customer use. I asked Keith Wanles how much grain the mill has crushed in that time. He estimated about 30,000 pounds. And the only maintenance he's done is periodically spray a little WD-40 on the crank handle to keep it turning smoothly.

All of those features added up to make the Rollmaster worth the extra money to me. I'm sure it's more mill and more money than fits many brewers' needs. But for a piece of equipment that will last me a lifetime, I'm willing to splurge on myself.

For more information on the Rollmaster Mill, call Highlander Homebrewers at 303-794-3923, or check out Highlander's homepage: www.highlander-brew.com. Dealer inquiries are welcome at Environmental Marketing Group Inc., 6219 S. Sterne Parkway, Littleton, CO 80120, phone 303-795-8646.

Reviewed by Jim Parker, director of the AHA.

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ALEMENDMENTS

Mark L. Snyder

More Good News for Homebrewers

So many homebrew bills have made it to the homestretch only to get shot down before they cross the finish line. Utah's homebrew bill recently was sent back to committee, a certain death sentence; the bill won't come up for a vote this session. I was told Utah legislators came into the session with intentions of sending the bill back to committee, killing it for this year.

The state of Iowa has a homebrew bill that, as of press time, is sitting in a committee awaiting a vote. If it doesn't pass out of committee by Friday, February 27, then it's dead for this year's session.

There is some good news to report, however. Pennsylvania just passed their homebrew bill. The governor signed House Bill No. 985, Act No. 25, on February 18, 1998. This law statutorily recognizes homebrewing and allows for homebrew events.

The new Pennsylvania law offers homebrewers the opportunity to manufacture beer in their homes, and was based on the 1978 federal statute that recognizes homebrewing at the federal level. It allows each state to regulate its own alcohol laws, and most states have laws that allow for homebrewing.

Alabama currently has a homebrew bill, Bill No. 24, on the House calendar. On March 14, two homebrew events—Heart of Dixie and Marty Conner's Irish Party—were scheduled to help support Alabama's homebrew bill. Instrumental in Alabama's effort is Marty Conner, a well-known lobbyist who is rallying Alabama legislators to support this bill.

Homebrewers make beer in all 50 states, but nine remaining states have laws that do not statutorily recognize homebrewing. The

holdouts are: Alabama, Delaware, Idaho, Iowa, Kentucky, Mississippi, Ohio, Oklahoma and Utah. Seven states—Louisiana, Maine, Nevada, New Hampshire, New Mexico, New York and West Virginia—have unclear laws concerning homebrewing.

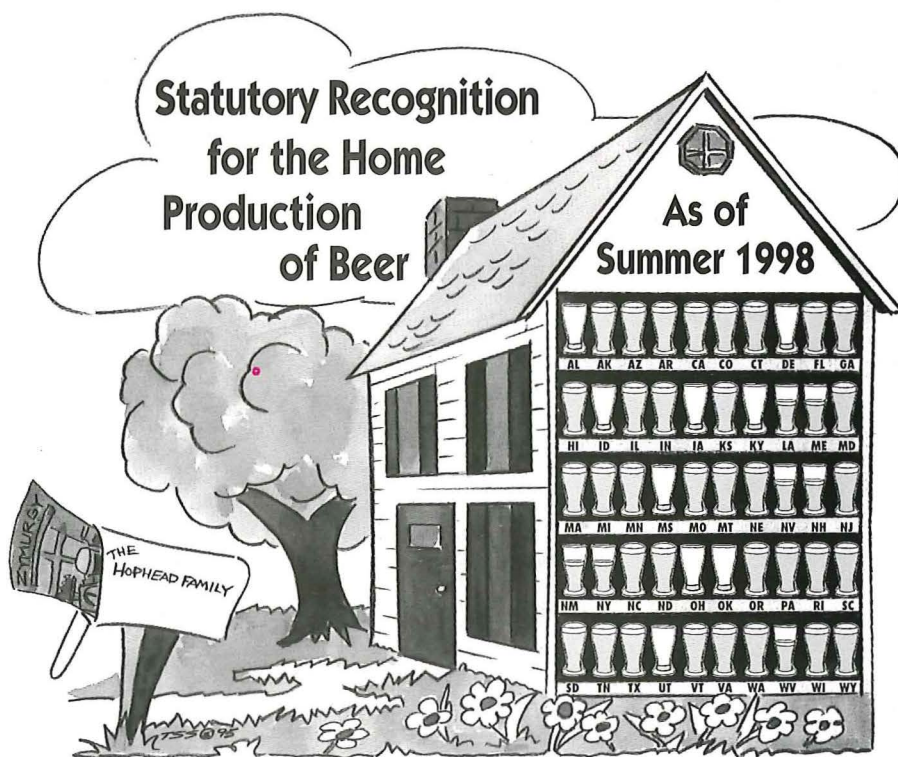
Many states that do statutorily recognize homebrewing forbid homebrew events. The AHA wants to work with those states as well to craft better homebrewing laws.

Please lift up your beer and give a toast to those states that now statutorily recognize homebrewing. And to those that don't, please raise your voices, so that all home-

brewers can enjoy their craft and have the right to share it with family and friends.

Mark Snyder is the American Homebrewers Association's Legalization Advisor. Contact him at marks@aob.org; (303) 447-0816 or by fax at (303) 447-2825.

For information on your state's laws please check out our web site at <http://www.beertown.org>, click on the "City Hall" icon and this will take you to our legalization page, which includes a listing of all the states' homebrewing laws and the federal statute. If you do not have access to our web site, please contact me and I will send you the information concerning homebrewing in your state.



Home production of beer permitted in 34 states.



Home production of beer possibly permitted in 7 states.



Home production not permitted in 9 states.

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(415) 459-2520; (888) HME-BREW

Home Brew Mart

731 South Hwy 101, Ste 1B2
Solana Beach, CA 92075
(619) 794-2739;
brewmart@connectnet.com;
<http://homebrewmart.com>

Home Brew Mart

5401 Linda Vista Rd., #406
San Diego, CA 92110
(619) 295-2337;
brewmart@connectnet.com;
<http://homebrewmart.com>

HopTech

3015 Hopyard Rd., Suite E
Pleasanton, CA 94588
(510) 426-1450; (800) DRY-HOPS;
FAX (510) 426-9191;
mgaretz@hoptech.com;
<http://www.hoptech.com>

Murrieta Homebrew

24710 Washington Ave., #3
Murrieta, CA 92562
(909) 696-9967; (800) 879-6871;
FAX (909) 600-0411;
<http://www.beer-brewgear.com>

Napa Fermentation Supplies

575 Third St., Suite A
PO Box 5839
Napa, CA 94581
(707) 255-6372; (800) 242-8585;
FAX (707) 255-6462

Portable Potables

1011 A-41st Ave.
Santa Cruz, CA 95062
(408) 476-5444

Ruud-Rick's Homebrew Supply

7273 Murray Dr. #17
Stockton, CA 95210
(209) 957-4549

San Francisco Brewcraft

1555 Clement St.
San Francisco, CA 94118
(415) 751-9338; sfbrew@sirius.com;
<http://www.sirius.com/~sfbrew>

Santa Barbara Brew Buddies

137 West Mission St.
Santa Barbara, CA 93101
(805) 569-9975

South Bay Homebrew Supply

23808 Crenshaw Blvd.
Torrance, CA 90505
(310) 517-1841; (800) 608-BREW;
SouthBayHB@aol.com;
<http://member.aol.com/southbayhb>

Stein Fillers

4180 Viking Way
Long Beach, CA 90808
(562) 425-0588

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Beer at Home

3157 S. Broadway
Englewood, CO 80110
(303) 789-3676; (800) 789-3677;
FAX (303) 781-2388;
beer@boulder.earthnet.net;
<http://www.beerathome.com/~beer>

The Brew Hut

16883 E. Iliff Ave.
Aurora, CO 80013
(303) 752-9336; (800) 730-9336;
<http://www.thebrewhut.com>

Highlander Home Brew Inc.

151 W. Mineral Ave., Suite 133
Littleton, CO 80120
(303) 794-3923; (800) 388-3923;
highlander@csn.net;
<http://www.highlander-brew.com>

The Homebrew Hut

555 I Hwy. 287
Broomfield, CO 80020
(303) 460-1776

The Homebrew Store

PO Box 172, 446 East Hwy 50
Poncha Springs, CO 81242
(719) 530-0825; grunner@chaffee.net

Liquor Mart Inc.

1750 15th St.
Boulder, CO 80302
(303) 449-3374; (800) 597-4440

My Home Brew Shop-Homebrew Supplies and Brew-On-Premise

1822 Dominion Way
Colorado Springs, CO 80918
(719) 528-1651; FAX (719) 528-1651;
bdpro1@classic.msn.com

Rocky Mountain Homebrew

7292 N. Federal Blvd.
Westminster, CO 80030
(303) 427-5076;
rmhbrew@ix.netcom.com;
<http://www.rmhbrew.com/~vsabbe/>

What's Brewin'

2886 Bluff St.
Boulder, CO 80301
(303) 444-9433

The Wine Works

5175 W. Alameda Ave.
Denver, CO 80219
(303) 936-4422

CONNECTICUT

Appy's Homebrew Supply

7 Marion Dr.
East Lyme, CT 06333
(860) 691-1473

Great American Home Brew Supplies at Geremia Gardens

1720 West St. (RT 229)
Southington, CT 06489
(860) 620-0332; (800) 94-UBREW

Wine and Beer Art

1501 E. Main St., Route 202
Torrington, CT 06790
(860) 489-4560

Yankee Brewer

26 Broadway; Norwich, CT 06360
(860) 886-7676; BrewerGuy@aol.com

DELAWARE

Delmarva Brewing Craft

Rt. 3, Box 190, County Rd. 411
Millsboro, DE 19966
(302) 934-8588

Wine Hobby USA

2306 W. Newport Pike
Stanton, DE 19804
(302) 998-8303; (800) 847-HOPS

FLORIDA

Brew Shack

4025 W. Waters Ave. (Waterside Plaza)
Tampa, FL 33614
(813) 889-9495; (800) 646-BREW;
FAX (813) 889-7677;
<http://www.wp.com/brewshack>

Brew Yourself

724 St. Clair St.
Melbourne, FL 32935
(407) 752-1105; (888) BREWSLF
(273-9753)

BrewCrafters

11212 Blue Sage Place
Bradenton, FL 34202
(800) HOT-WORT;
hotwort@brewcrafters.com
<http://www.brewcrafters.com>;

Heart's Home Beer and Wine Making Supply

5824 North Orange Blossom Trail
Orlando, FL 32810
(800) 392-8322; (407) 298-4103;
FAX (407) 298-4109;
<http://www.Heartshomebrew.com>

Sunset Suds, Inc.

PO Box 462
Valparaiso, FL 32580-0462
(800) 786-4184;
SunsetSuds@aol.com;
<http://members.aol.com/SunsetSuds/Index.htm>

Worm's Way Florida

4402 N. 56th St.
Tampa, FL 33610
(813) 621-1792; (800) 283-9676;
<http://www.wormsway.com>

GEORGIA

Brew Your Own Beverages Inc.

20 E. Andrews Dr. N.W.
Atlanta, GA 30305
(404) 365-0420; (800) 477-BYOB;
<http://www.OnlineSU.com/BYOB>

Wine Craft of Atlanta

5920 Roswell Rd.
Parkside Shopping Center
Atlanta, GA 30328
(404) 252-5606

HAWAII

Maui Home Brew Supply

50 North Market St.
Wailuku, HI 96793
(808) 244-6258 (MALT);
homebrew@maui.net

ILLINOIS

Bev Art Homebrew & Mead Making Supply

10033 S. Western Ave.
Chicago, IL 60643
(773) 233-7579; (773) BEER579

The Brewer's Coop

30W114 Butterfield Rd.
Warrenville, IL 60555
(630) 393-BEER;
FAX (630) 393-2323;
<http://www.TheBrewersCoop.com>

Chicagoland Winemakers Inc.

689 W. North Ave.
Elmhurst, IL 60126-2132
(630) 834-0507; (800) 226-BREW

Crystal Lake Health Food Store

25 E. Crystal Lake Ave.
Crystal Lake, IL 60014
(815) 459-7942

Evanston First Liquors

Homebrewing
1019 W. Davis St.
Evanston, IL 60201
(708) 328-9651; FAX (708) 328-9664

Home Brew Shop

307 W. Main St.
St. Charles, IL 60174
(630) 377-1338

Lil' Olde Winemaking Shope Inc.

4 S. 245 Wiltshire Lane
Sugar Grove, IL 60554
(630) 557-2523;
<http://www.elnet.com/~lows>

Old Town Liquors

514 S. Illinois Ave.
Carbondale, IL 62901
(618) 457-3513

INDIANA

Beer & Wine by U

1456 N. Green River Rd.
Evansville, IN 47715
(812) 471-4352; (800) 845-1572

The Gourmet Brewer

PO Box 20688
Indianapolis, IN 46220-0688
(317) 924-0747;
(800) 860-1200 (ext. 166739);
gbrewer@iquest.net;
<http://www.the-gourmet-brewer.com>

Great Fermentations of Indiana

1712 East 86th St.
In the Northview Mall
Indianapolis, IN 46240-2360
(317) 848-6218;
(888) HME-BREW (463-2739)

Something's Brewing

847 N. Green St.
Brownsburg, IN 46112
(888) 858-1617; (317) 858-1617

Worm's Way Indiana

7850 N. Highway 37
Bloomington, IN 47404-9477
(800) 598-8158; (812) 876-6425;
<http://www.wormsway.com>

IOWA

Heartland Homebrew Supply

7509 Douglas Ave., Ste 19
Urbandale, IA 50322
(515) 252-0979;
HeartlandHBS@msn.com

KANSAS

Bacchus & Barleycorn Ltd.

6633 Nieman Rd.
Shawnee, KS 66203
(913) 962-2501;
FAX (913) 962-0008;
<http://www.bacchus-barleycorn.com>

Lawrence Brewers Supply

11 East 8th St.
Lawrence, KS 66044
(913) 749-3278 (Yeast);
(800) 464-1744

KENTUCKY

New Earth Homebrewing & Hydroponics

9810 Taylorsville Rd.
Louisville, KY 40299
(502) 261-0005; (800) 462-5953;
HYDROBREW@aol.com

Winemakers Supply & Pipe Shop

9477 Westport Rd.
Westport Plaza
Louisville, KY 40241
(502) 425-1692

LOUISIANA

Alfred's Brewing Supply

PO Box 5070
59125 Carroll Rd
Slidell, LA 70469-5070
(800) 641-3757; (504) 641-2545;
save@home-brew.com;
help@home-brew.com;
<http://www.home-brew.com>

MARYLAND

The Flying Barrel

103 South Carroll St.
Frederick, MD 21701
(301) 663-4491; FAX (301) 663-6195;
<http://www.flyingbarrel.com>

Four Corners Liquors and Homebrew Supply House

3439 Sweet Air Road
Phoenix, MD 21131
(410) 666-7320;
FAX (410) 666-3718;
4corners@homebrewsupply.com;
<http://homebrewsupply.com>

Happy Homebrewing Supply Co.

810 Beaglin Park Dr., Unit 8
Salisbury, MD 21804
(410) 543-9616

Maryland Homebrew

6770 Oak Hall Lane, Suite 115
Columbia, MD 21045
(410) 290-FROTH;
FAX (410) 290-6795;
(888) BREWNOW (toll free order line);
<http://www.mdhb.com>

Midnight Homebrew Supply

11 Liberty St., Ste G
Westminster, MD 21157
(410)-876-6999; FAX (410) 876-7954;
midnight@qjs.net;
<http://www.qjs.net/~midnight>

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Barleymalt & Vine

26 Elliot St.
Newton, MA 02161
(800) 666-7026; (617) 630-1015;
<http://www.bm-v.com>

Beer and Wine Hobby

180 New Boston St.
Woburn, MA 01801
(617) 933-8818; (800) 523-5423;
bdvh@tiac.net;
<http://www.beer-wine.com>

The Modern Brewer Co.

2304 Massachusetts Ave.
Cambridge, MA 02140
(617) 498-0400; FAX (617) 498-0444;
(800) SEND-ALE;
modernbrewer@modernbrewer.com;
<http://modernbrewer.com>

NFG Homebrew Supplies

72 Summer St.
Leominster, MA 01453
(978) 840-1955; FAX (978) 840-1955

Strange Brew Homebrew Supply

197 Main St.
Marlboro, MA 01752
(508) 460-5050; (800) 248-6823

Worm's Way Massachusetts

1200 Millbury St.
Worcester, MA 01607
(508) 797-1156; (800) 284-9676;
<http://www.wormsway.com>

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Brew & Grow

33523 W. 8 Mile #F-5
Livonia, MI 48152
(248) 442-7939; (800) 734-4195

Brew-it Yourself Center

13262 Northline Rd.
Southgate, MI 48195
(313) 284-9529

Homebrew Shop At Music Express

5049 West Main
Kalamazoo, MI 49009
(616) 342-1239; FAX (616) 342-1588

Lake Superior Brewing Co.

7206 Rix St.
Ada, MI 49301-9189
(616) 682-0091; (800) 345-CORK

Things Beer

100 E. Grand River
Williamston, MI 48895
(517) 655-6701; (800) 765-9435;
thingsbeer@voyager.net

Wine Barrel Plus

30303 Plymouth Rd.
Livonia, MI 48150
(313) 522-9463; FAX (313) 522-3764;
<http://www.winebarrel.com>;
marc.george@worldnet.att.net

MINNESOTA

L.L. Kraemer Co.

9925 Lyndale Ave. S.
Bloomington, MN 55420
(612) 884-2039; (800) 200-3647;
FAX (612) 884-1065;
LLKraemer@aol.com;
<http://www.LLKraemer.com>

Von Klopp Brew Shop
Highway 52, Box 386
Pine Island, MN 55963-0386
(800) 596-2739; FAX (800) 320-5432;
vonklopp@means.net;
http://www.hps.com/vonklopp

WindRiver Brewing Co. Inc.
7212 Washington Ave. S.
Eden Prairie, MN 55344
(612) 942-0589; (800) 266-HOPS;
FAX (612) 942-0635;
windrvr@bitstream.net;
http://www.windriverbrew.com

MISSOURI

St. Louis Wine & Beermaking
251 Lamp & Lantern Village
St. Louis, MO 63017
(314) 230-8277; FAX (314) 527-5413

St. Louis Wine & Beermaking
9979 Lin Ferry Dr.
St. Louis, MO 63123
(314) 843-9463

Winemaker's Market
4386 N. Essex Ave.
Springfield, MO 65803
(417) 833-4145; FAX (417) 833-8949

Worm's Way Missouri
2063 Concourse
St. Louis, MO 63146
(314) 994-3900; (800) 285-9676;
http://www.wormsway.com

NEBRASKA

Kirk's Do-It-Yourself Brew
1150 Cornhusker Hwy.
Lincoln, NE 68521
(402) 476-7414

NEVADA

Mr. Radz Homebrew Supply Shop
4972 S. Maryland Pkwy. #4
Las Vegas, NV 89119
(702) 736-8504;
Outside NV (800) 465-4723; FAX
(702) 736-7942; mrradzhb@aol.com

NEW HAMPSHIRE

Beer Essentials
611 Front St.
Manchester, NH 03102
(603) 624-1080; (800) 608-BEER

Hops & Dreams
PO Box 914
Atkinson, NH 03811
(888) BREW-BY-U;
http://www.hopsanddreams.com

NEW JERSEY

BEERCRAFTERS Inc.
110A Greentree Rd.
Turnersville, NJ 08012
(609) 2 BREW IT

Cherry Hill Homebrew Supply
1845 Route 70 East
Cherry Hill, NJ 08003
(609) 424-3636;
NJHOMEBREW@compuserve.com

Cumberland Brew Works
1101 N. 2nd St., Reema Plaza
Millville, NJ 08332
(609) 825-0040

Hop & Vine
11 DeHart St.
Morristown, NJ 07960
(973) 993-3191; FAX (973) 993-3193;
(800) 414-BREW;
http://www.hopandvine.com

The Keg & Barrel
535 Vaughn Ave.
Forked River, NJ 08731
(888) BRU-BEER;
aleman@hometowncomm.com;
http://207.86.100.195/keg&barrel/

**Perrines Farm-Homebrewing
and Winemaking Supplies**
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(Route 631)
Milford, NJ 08848
(908) 996-4001; FAX (908) 996-6468;
katydid@sprintmail.com

Princeton Homebrew
82 Nassau St., Suite 20
Princeton, NJ 08542
(609) 252-1800; FAX (609) 252-1800;
schd@pluto.njcc.com

U-Brew Corp.
319 1/2 Millburn Ave.
Millburn, NJ 07041
(973) 376-0973; (973) 376-0493;
DJBrew@AOL.COM;
http://www.kzed.com/brew

NEW YORK

At Home Warehouse Distributors
PO BOX 185
Clarence, NY 14031
(800) 210-8585 (Mail Order/Retail);
(716) 685-2306; FAX (716) 681-0284;
ahwd@commtech.net;
http://www.ahwd.com

Beer Necessities
71 Dove St.
Albany, NY 12210
(518) 434-0381;
homebrew@albany.net;
http://www.albany.net/~homebrew

The Brew Shop @ Cornell's
310 White Plains Rd.
Eastchester, NY 10707
(800) 961-BREW; FAX (914) 961-8443;
brewshop@cornells.com;
http://www.cornells.com

Brewers Den
24 Bellemeade Ave.
Smithtown, NY 11787
(516) 979-3438; (800) 499-BREW

**The Brews Brothers at KEDCO—
Beer & Wine Supply Store**
564 Smith St.
Farmingdale, L.I., NY 11735-1168
(516) 454-7800;
(800) 654-9988 (outside N.Y. only);
FAX (516) 454-4876

D.P. Homebrew Supply
1998 E. Main St., Route 6
PO Box 625
Mohegan Lake, NY 10547
(914) 528-6219

E.J. Wren Homebrewer Inc.
Ponderosa Plaza (behind Heids)
off Old Liverpool Rd.
Liverpool, NY 13088
(315) 457-2282; (800) 724-6875

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Coast Hydroponics Inc.**
439 Castleton Ave.
Staten Island, NY 10301
(718) 727-9300; FAX (718) 727-9313

The Homebrew Experience
110 Fairview
Kingston, NY 12401
(888) BREW-GUYS (toll free);
brewguys@brewguys.com;
http://www.brewguys.com

New York Homebrew
221 Old Country Rd.
Carle Place, NY 11514
(800) YOO-BREW; (516) 294-1164;
FAX (516) 294-1872;
info@yoobrew.com;
sales@yoobrew.com;
http://www.yoobrew.com

Niagara Tradition Homebrew
1296 Sheridan Drive
Tonawanda, NY 14217
(716) 877-8767; (800) 283-4418;
FAX (716) 877-6274

Party Creations
RD 2 Box 35 Rokeby Rd.
Red Hook, NY 12571
(914) 758-0661

NORTH CAROLINA

Alternative Beverage
114-0 Freeland Lane
Charlotte, NC 28217
(704) 527-9643; (800) 365-BREW

Brew Better Supply
10207 C Chapel Hill Rd.
Morrisville, NC 27560
(919) 467-8934; (800) 915-BREW;
BREW BETTER@AOL.COM

City Beverage Homebrew Shop
915 Burke St.
Winston-Salem, NC 27101
(910) 722-2774; (910) 725-1481;
FAX (910) 725-1481

NORTH DAKOTA

Happy Harry's Bottle Shops
2051 32nd Ave. S.
Grand Forks, ND 58201
(701) 780-0902

OHIO

The Grape and Granary
1302 E. Tallmadge Ave.
Akron, OH 44310
(330) 633-7223; (800) 695-9870;
http://www.grapeandgranary.com

HoMade Brewing Supplies
505 Superior St.
Rossford, OH 43460-1246
(419) 666-9099; (888) 646-6233;
homade@primerenet.com;
http://www.primerenet.com/~homade

JC Homebrewing Co.
8306 State Route 43
East Springfield, OH 43925
(614) 543-4200; (800) 899-5180;
jcbrew@clover.net;
http://www.jchomebrew.com;

Portage Hills Vineyards
1420 Martin Rd.
Suffield, OH 44260
(800) 418-6493;
portage@ix.netcom.com;
http://www.portagehills.com/portage

**Shreve Home Brewing
and Wine Making Supply**
299 Jones St.
PO Box 17
Shreve, OH 44676
(330) 567-2149 (free catalog);
bkr@bright.net

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Homebrew Heaven
1292 12th St. S.E.
Salem, OR 97302
(503) 375-3521

PENNSYLVANIA

Beer Unlimited
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Great Valley Shopping Center
Malvern, PA 19355
(610) 889-0905;
BrewIPA@aol.com

Bierhaus International
3723 W. 12th St.
Erie, PA 16505
(814) 833-7747; (814) 838-4090;
bierhaus@erie.net

Country Wines and Beer
3333 Babcock Blvd., Suite 2
Pittsburgh, PA 15237-2421
(412) 366-0151;
info@countrywines.com;
http://www.countrywines.com

The Frothy Shoppe
4807 SR 103 North
Lewistown, PA 17044
(717) 242-8744;
FAX (717) 899-7723

Home Sweet Homebrew
2008 Sansom St.
Philadelphia, PA 19103
(215) 569-9469;
FAX (215) 569-4633;
homsweet@voicenet.com

Keystone Homebrew Supply
779 Bethlehem Pike
Montgomeryville, PA 18936
(215) 855-0100; FAX (215) 855-4567;
keystonehb@juno.com

Survey Results

Okay homebrewers, you're falling down on the job. We only got 40 responses to the survey on the '97 SPECIAL on hops. Maybe this means you're all pretty "hoppy" with the issue. Or maybe it means that the "Hoppy Holidays" took a heavier toll this year than in previous years. Whatever. Now that we're paying the postage, we fully expect you send in bushels of comments.

You will notice some changes in our next SPECIAL issue. We won't be letting the cat too much out of the bag if we tell you that the topic is "Yeast." Our last SPECIAL on yeast was in 1989, and there have been tons of development in the field since then. One of the things we're going to be trying in this SPECIAL is keeping the columns intact, but having them themed to yeast. This is in direct response to the comments on the previous SPECIAL. We think you'll really like it, and we guarantee it'll be a "keeper."

We'd also like to ask you, in your comments, to tell us how you've used **Zymurgy** to improve your brewing. How has a specific article changed the way you brew?

Okay, you 40 brave souls who popped for your own stamp, here's what you thought:

Please rate the features in this issue.

"Once Upon a Vine"

Very interesting/helpful-54%
Somewhat interesting-38%
Not my mug of beer-8%

"Harvesting Green Gold"

Very interesting/helpful-49%
Somewhat interesting-41%
Not my mug of beer-10%

"In the Backyard"

Very interesting/helpful-60%
Somewhat interesting-30%
Not my mug of beer-10%

"The Hop Shop"

Very interesting/helpful-44%
Somewhat interesting-50%
Not my mug of beer-6%

"Hunting for the Heart of the Hop"

Very interesting/helpful-32%
Somewhat interesting-60%
Not my mug of beer-8%

"Hop Physiology and Chemistry"

Very interesting/helpful-40.5%
Somewhat interesting-40.5%
Not my mug of beer-19%

"Bitterness Basics"

Very interesting/helpful-55%
Somewhat interesting-34%
Not my mug of beer-11%

"What's Your IBU"

Very interesting/helpful-51%
Somewhat interesting-30%
Not my mug of beer-19%

"The Spice of Life"

Very interesting/helpful-42%
Somewhat interesting-53%
Not my mug of beer-5%

"Helpful Hop How-Tos"

Very interesting/helpful-60%
Somewhat interesting-34%
Not my mug of beer-6%

"Zymurgy's Guide to Hops" poster

Very interesting/helpful-73%
Somewhat interesting-22%
Not my mug of beer-5%

Continued on back.

FEED BACK

Your responses to the following questions will help make **Zymurgy** and the AHA even better. Please take the time to write your answers, remove the page, fold and mail it, or fax your response to (303) 447-2825. You can also fill out the survey in the AHA members-only area on the web (<http://beertown.org>). Thank you!

Cheers,



Jim Parker
Director, American Homebrews Association

Are you an AHA member?

☐ yes ☐ no
membership number _____ (optional)

How long have you been an AHA member?

☐ less than one year ☐ 1-2 years
☐ 2-3 years ☐ 3-4 years
☐ 4+ years

FOLD HERE

PLEASE RATE THE FEATURES IN THIS ISSUE.

"122 Degrees Fahrenheit"

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
1 5 10
Not Useful Very Useful

"Tips and Gadgets"

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
1 5 10
Not Useful Very Useful

"Pure Pale from Sierra Nevada"

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
1 5 10
Not Useful Very Useful

"For the Beginner"

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
1 5 10
Not Useful Very Useful

"A Whiter Shade of Pale"

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
1 5 10
Not Useful Very Useful

"World of Worts"

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
1 5 10
Not Useful Very Useful

Continued on back.

Survey Results

"Winners Circle"

Very interesting/helpful-60%

Somewhat interesting-37%

Not my mug of beer-3%

Overall, how to you rate **Zymurgy** content?

Too technical-8%

Nice balance-87%

Too basic-5%

Again, we're seeing the too-easy; too-hard seesaw at work. You will be seeing more extract/partial extract brew articles in **Zymurgy**, just because of the volume of mail we get asking for them.

By the way, do any of you **Zymurgy** readers out there have an extract recipe that closely replicates Guinness? We drew a blank on that one.

Any article suggestions?

• Turczyn's article "The Mystery of First-Wort Hopping" as the best article in the

magazine. Overlapping of information in several articles. "What's Your IBU" is too technical. C.M. Regenfelde

• A poster for grains and yeast. List of GABF winners (had a great time!) Mark Kelley

• Not really, but I did jump when I saw the price on the cover! I don't know too many brewers around here who would spend \$14 on a magazine no matter how helpful I tell them it is! Actually, it would be interesting to have an article each month dedicated to one style of beer. For instance: The IPA: hops used, yeasts used, flavor profile described, commercial examples, history etc. You already sort of do that. I remember a good article on Porter last year, and the fall Lambic issue was also good. But you could continue this pattern by making it a column or a repeating feature. Just a thought. denis@cam.org (We're headed in that direction with the Cult Beer series, and we try to have a style feature in each issue, with the exception of the SPECIAL. Ed.)

• I really enjoy **Zymurgy**, but wish it included more recipes geared towards extract brewers. Meier

• I really like the "Winners Circle" and the bios of the four different brewers of the year. Funny, all this hop physiology & bio-chem literature, but no mention of its close resemblance to marijuana. (Did you, by chance, win a gold medal in snowboarding at the last Winter Olympics? Ed.)

• A lot of information on hop basics is repetitive (some info found in four articles). Info on IBU complex and confusing. Overall: congratulations with the Special Hops issue '97. (What was the old Robin Williams line? Definition of "redundancy...see redundant..." Or something like that. Ed.)

• Maybe an article on minorities in brewing or the brewing industry. I am a black American and I don't know of any black American homebrewers. I am not looking to start a club, but it's just a question! James I. Taylor

TAPE TOP WITH THIS SIDE FACING OUT. PLEASE DO NOT STAPLE CLOSED.

"History in the Brewing"

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Not Useful

Very Useful

"Best from Kits"

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Not Useful

Very Useful

"Homebrew Cooking"

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Not Useful

Very Useful

Which articles have helped your brewing?

Any article suggestions?

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To have your shoplisted, please call Linda Starck at (303) 477-0816 ext. 109 or Chris Lowenstein, ext. 108.

CALENDAR



April

25 U.S. Open Homebrew Competition, **AHA SCP**, Charlotte, N.C. Entries due 4/20/98 with a \$6/entry fee, \$4 for each add'l. Contact John Mitchell at (704) 864-3450 (h) or (704) 868-0877 (w), e-mail: jlmitch@charlotte.inf.net.

25 High Desert Brewers "Spring Thing", **AHA SCP**, Idaho Falls, Id. Entries due 4/18/98 with a \$5 fee/1st entry, \$4 ea. add'l. Contact Bob Beckwith at (208) 346-6870 (h) or (208) 533-4655 (w), e-mail: bfirth@srv.net.

25 20th Annual Contest & 9th Empire State Open, **AHA SCP**, Rochester, N.Y. Entries due 4/10/98 to 4/25/98 with a \$5/entry fee. Contact Stephen Hodos at (716) 242-9626 (h), e-mail: unyha@aol.com.

25 Land of the Muddy Waters Homebrew Competition, **AHA SCP**, Rock Island, IL. Entries due 4/24/98 with a \$5/entry fee. No fee for 4+ entries. Contact Tim Dugan at (319) 388-6476 (h), e-mail: tdugan@netins.net.

25 2nd Annual B.E.E.R. Brew-Off, **AHA SCP**, Nesconset, N.Y. Entries due 4/17/98 with a \$5/entry fee (add'l entries over 11 are free). Contact Les Stoddard at (516) 467-3951 (h) or (516) 234-3800 (w), e-mail: mikebeer@aol.com.

May

2 Northern Brewfest (formerly St. Paul Brewing Competition), **AHA SCP** St. Paul, Minn. Sponsored by Northern Brewer and Town Hall Brewery. Entries due 4/22/98 with a \$7.50/entry fee. Contact Peter Aussenhus at (612) 291-8849 (w), e-mail: aussenhus@nbrewer.com.

2 Green Mountain Homebrew Competition, Burlington, Vt. **THIS COMPETITION HAS BEEN CANCELED!**

2 The 5-Bs Eastern Panhandle Home Brew Competition, **AHA SCP** Frederick, MD. Entries 4/11/98 with a \$6/1st entry fee, \$4 ea. add'l. Contact Doug "Hutch" Hutchins at (304) 728-1797 (h) or (540) 955-3151 (w), e-mail: kahlua@intrepid.net.

2 7th Annual B.O.S.S. Challenge, Tinley Park, IL. Entries due 4/25/98 with a \$5/entry fee for the 1st 3, \$4 for 4+. Contact Mike Brennan at (708) 430-1686, e-mail: MicBrennan@fdic.gov.

2 May Fest, **AHA SCP**, Tacoma, Wash. Entries due 4/26/98 with a \$5/entry fee. Contact Robert Christian at (253) 531-6995 (h) or (253) 581-4288 (w), e-mail: robn2beer@aol.com.

2 Kearney Area Brewfest, **AHA SCP**, Kearney, Neb. Sponsored by Kearney Area Brewers. Entries due 4/25/98 with a \$5/entry fee. Contact Kevin Fraber at 308-234-3531 (h) or 308-237-5163 (w), e-mail: KFraber@aol.com.

9 Oregon Homebrew Competition & Festival, **AHA SCP**, Corvallis, Ore. Entries due 5/5/98 with a \$5/entry fee. Contact Bill Baxter at (541) 753-5228 (h) or (541) 715-7516 (w), e-mail: bill_baxter@hp.com.

9 2nd Annual St. Vrain Spring Runoff, **AHA SCP**, Longmont, Colo. Entries due 5/6/98 with a \$5/entry fee. Contact Don Blake at (303) 772-2307 (h) or (303) 473-9170 x172 (w), e-mail: dblake@ortechology.com.

9-10 Elizabeth Homebrew Competition, **AHA SCP**, San Bernardino, Calif. Sponsored by Renaissance Pleasure Faires, Inc. Entries due 4/27/98 with a \$10 fee. Contact Laurie Poel at (909) 880-6211 ext. 202.

15-17 The 9th Annual Sunshine Challenge, **AHA SCP**, Orlando, Fla. Entries due 5/1/98 with a \$6/entry fee. MCAB QE. Contact Steve Vallancourt at (407) 293-5094 (h) or (407) 290-5437 (w), e-mail: stevebrau@aol.com.

16 2nd Annual Celtic Brews Competition, **AHA SCP**, Arlington, Texas. Sponsored by Knights of the Brown Bottle Homebrew Club. Entries due 5/8/98 with a \$5/entry fee. Open to AHA categories in Celtic styles. Contact JB Flowers at (817) 229-3500, e-mail: bpflover@flash.net.

16 2nd Annual Western New York Homebrew Competition, **AHA SCP** Buffalo, N.Y. Entries due 5/2/98 with a \$7/entry fee for 1st, \$5/2+ entries. Contact Becky Dyster at (716) 285-1938 (h) or (716) 877-8767 (w), e-mail: ntbrew@localnet.com.

16 Dominion Cup, **AHA SCP**, Richmond, Va. Entries due 5/9/98. Fees: \$6 first, \$5 second, \$4 each add'l. Contact Steve Jarrett at (804) 745-8091 (h) or (804) 530-6313 (w), e-mail: steve.jarrett@alliedsignal.com.

17 2nd Annual New England Home Brew Competition, **AHA SCP**, South Norwalk, Conn. Entries due 5/12/98 with a \$5/entry fee. Contact Carol Farley at (203) 866-1339.

20-29 San Bernardino County Fair/Bell Mountain Brewing Competition, **AHA SCP**, Victorville, Calif. Entry forms due 5/2/98, bottles due 5/19/98 with an \$8/entry fee. Contact Annette Keoppel at 760-247-4447 (h) or 760-240-BEER (w).

23 Classic Pilsener Club-Only Competition, **AHA SCP**, Clayton, Mo. Sponsored by St. Louis Brews. Entries due 5/18/98 with a \$5/entry fee. Contact Brian Rezac at (303) 447-0816 ext.121, e-mail: brian@aob.org.

June

7 Nation's Capital "Spirit of Free Beer" Homebrew Competition, **AHA SCP** Washington, D.C. Sponsored by BURP. Entries due 6/1/98. \$6 1st entry, \$5 2nd, \$4 each add'l. entry. MCAB QE. Contact Mark Stevens at (540) 822-4537 (h) or (410) 338-4963 (w), e-mail: stevens@burp.org.

12-13 4th Annual Boneyard Brew-Off, **AHA SCP**, Champaign, Ill. Sponsored by Boneyard Union of Zymurgical Zealots. Entries due 5/30-6/10. \$6 first entry, \$5 ea. add'l. MBOY QE. Contact Joel Plutchak at (217) 359-4931, e-mail: plutchak@uiuc.edu.

13 San Joaquin County Fair, **AHA SCP**, Stockton, Calif. Entries due 5/30/98 with a \$5/entry fee. Contact Rick Stanton at (209) 957-4549.

13 E'Ville Triple Threat, **AHA SCP**, Ellicottville, N.Y. Entries due 6/27/98 with a \$7 fee for the 1st entry, \$5 for ea. add'l. Contact Gerald Embs at (716) 488-2565 (h) or (716) 945-2093 (w).

14 4th Annual Mill Creek Classic, **AHA SCP**, Salem, Ore. Sponsored by Capitol Brewers. Entries due 6/6/98. Contact Ron Thomas at (503) 873-5181.

- 14** 3rd Annual Big Batch Brew Bash, **AHA SCP**, Houston, Texas. Entries due 5/30/98. Contact Brian Ellis at (713) 849-5309 (h) or (281) 444-4575 (w), e-mail: century1td@aol.com.
- 19-20** 4th Annual Eight Seconds of Froth, **AHA SCP**, Cheyenne, WY. Entries due 6/11/98 with a \$4/entry fee, or 3 for \$10. Contact Paul Dey at (307) 635-9481 (h) or (307) 777-4559 (w), e-mail: allday@aol.com.
- 20** Saxer/Nor'Wester Homebrew Competition, **AHA SCP**, Portland, Ore. Sponsored by Saxer/Nor'Wester Brewing Co. Entries due 6/13/98 with a \$4/entry fee. Guest judge will be Michael Jackson. Contact John Heltkemper at (503) 238-6931 (h) or (503) 294-3010 (w), e-mail: rosefest98@barley.patch.com.
- 27-28** 11th Annual Southern California Regional Homebrew Championships, **AHA SCP** Riverside, Calif. Sponsored by Inland Empire Brewers. Entries due 6/24/98 with a \$5/1st entry fee, \$3/each add'l. Contact Derek Yeane at (909) 352-4828 (h) or (909) 270-1400 x2204 (w), e-mail: acmebrew@empirenet.com.
- 27-28** Buzz-Off, **AHA SCP**, Downingtown, Pa. Entries due 6/21/98 with a \$5/entry fee. MCAB QE. Contact Robert Mattie at (610) 429-3848 (h) or (610) 962-7521 (w), e-mail: rpmattie@voicenet.com.
- July**
- 11** Oregon State Fair Amateur Beer Competition, **AHA SCP**, Salem, Ore. Entries due 6/26/98 with a \$5/entry fee. Contact Curt Hausam at (503) 585-1627 (h) or (503) 378-0774 (w), e-mail: Biersudz@aol.com.
- 18** Ohio State Fair Homebrewed Beer Contest, **AHA SCP**, Columbus, Ohio. Entries due 6/20/98 with a \$5 fee. Ohio residents only. Contact Brett Chance at (614) 644-4126 (w).
- 18** Blues Brews & Barbeque, **AHA SCP**, Lexington, Ky. Entries due 7/14/98 with a \$5/entry fee. Contact Ira Proctor at (606) 223-1400 (w).
- 19** Lunar Rendezbrew V, **AHA SCP**, Houston, Texas. Sponsored by The Bay Area Mashtronauts. Entries due 7/11/98 with a \$6/entry fee. Contact Rich Sommer, e-mail: rjsommer@aol.com.
- 22-24** AHA National Homebrewers Conference, **AHA SCP**, Portland, Ore., at the Doubletree Inn Lloyd Center. Sponsored by American Homebrewers Association. 2nd round and Best of Show judging for the 98 NHC held 7/22/98-7/23/98. Contact the AHA at (303) 447-0816, e-mail: aha@aob.org.
- 28** Washington County Fair, **AHA SCP**, Hillsboro, Ore. Entries due 7/26/98. Contact Frank Johnson at 503-648-7398, e-mail: johnson@iscn.com.
- August**
- 8-10** Buckeye Brewer of the Year at the Ashtabula County Fair, **AHA SCP**, Jefferson, Ohio. Entries due 8/3/98 with a \$13 fee for one to three entries. Contact Richard Longden at (440) 964-8654.
- 15** 10th Annual Beer & Sweat, **AHA SCP**, Cincinnati, Ohio. Sponsored by Bloatarian Brewing League. World's largest all-keg homebrew competition. Contact Robert Pinkerton at 513-459-1046 (w), e-mail: robertp@cinti.net.
- 15** Josephine County Fair, **AHA SCP**, Grants Pass, OR. Entries due 8/13/98 before 1pm. Contact Michael Maas at (541) 476-0737.
- 15-16** Evergreen State Fair Beer Brewing Competition, **AHA SCP**, Monroe, Wash. Entries due 8/8/98 through 8/10/98. Contact Steve Titterness at (360) 653-5168 (h) or (360) 658-9577 (w), e-mail: kimsplace@tgi.net.
- 26** Derby Brew Club 5th Annual Homebrew Competition **AHA SCP**, Derby, Kan. Entries due 9/11/98 with a \$5/entry fee. Contact Chuck Stiner at (316) 488-2659, e-mail: cnstiner@feist.com.
- 29** Mid South Fair Oenology and Beer Making Competition **AHA SCP**, Memphis, Tenn. Entries due 9/23/98. Contact Jim Malone at (901) 758-1794 (h) or (901) 795-0065 (w), e-mail: Jiminmem@juno.com.

September

- 12** 3rd Dayton Beerfest, **AHA SCP**, Dayton, Ohio. Sponsored by DRAFT. Entries due 9/4/98 with a \$5/entry fee. Contact Robert Bateman at (937) 845-0572, e-mail: batman@erinet.com.
- 19** West Hundred Open, **AHA SCP**, Chester, Va. Entries due 9/11/98 with a \$6 fee 1st entry, \$5 each add'l entry. Contact Brian Dueweke at (804) 276-4669 (h), e-mail: wkendbr@erols.com.
- 19** Barley Literate Octoberfest, **AHA SCP**, San Marcos, Calif. Entries due 9/12/98 with a \$5/entry fee. Contact Don Bennett at (760) 740-8684 (h) or (619) 233-4755 (w), e-mail: dbenman@hotmail.com.



AHA SCP = American Homebrewers Association Sanctioned Competition Program

The Calendar of Events is updated weekly and is available from the Association of Brewers: info@aob.org or <http://beertown.org> on the web.

To list events, send information to **Zymurgy** Calendar of Events. To be listed in Fall Issue (Vol. 21, No. 3), information must be received by June 12, 1998. Competition organizers wishing to apply for AHA Sanctioning must do so at least two months prior to the event. Contact Amahl Turczyn at amahl@aob.org; (303) 447-0816 ext. 116; FAX (303) 447-2825; PO Box 1679, Boulder, CO 80306-1679.

AMERICAN HOMEBREWERS ASSOCIATION • KUDOS • SANCTIONED COMPETITION PROGRAM

• January 1998 •

The New Meadmillennium Mead Competition

Orlando, FL, 42 entries—Doris Parsons of Linden, N.J. won best of show.

The Great Alaska Beer Festival

Anchorage, AK, 76 entries—Shawn Wendling of Anchorage, Alaska won best of show.

Big Bend Brew-Off '98 Homebrew Competition

Tallahassee, FL, 136 entries—Weston Sampson of Orlando, Fla. won best of show.

War of the Worts III Homebrew Competition

Warrington, PA, 360 entries—Pat Bannon of Jeffersonville, Pa. won best of show.

Growlers Pub's 2nd Annual Homebrewers Contest

St. Louis, MO, 52 entries—Mike Focht of St. Peters, Mo. won best of show.

Emerald Coast Homebrew Competition

Niceville, FL, 61 entries—Bob Carbone of Grande Cane, La. won best of show.

• February 1998 •

Ninth Annual Reggale and Dreadhop

Boulder, CO, 146 entries—Mark Tomusiak of Boulder, Colo. won best of show.

Bay Area Brewoff

Oakland, CA, 152 entries—Charles Webster of Fremont, Calif. won best of show.

1998 Florida State Fair Homebrewing Competition

Tampa, FL, 77 entries—John Nanci and Penny Jacob of Tampa, Fla. won best of show.

Fur Rondy Winter Carnival

Anchorage, AK, 200 entries—Michael Kiker of Anchorage, Alaska won best of show.

Kansas City Bier Meisters 15th Annual Homebrew Competition

Shawnee, KS, 441 entries—Gregg Ferlin of New Lenox, Ill. won best of show.

Third Annual MASH Homebrew Competition

San Rafael, CA, 110 entries—Matt Wyss of Albany, Calif. won best of show.

4th Annual Commander Saaz's Interplanetary Homebrew Blastoff

Cocoa, FL, 113 entries—Mel Thompson for West Palm Beach, Fla. won best of show.

• March 1998 •

5th Annual America's Finest City Homebrew Competition

Carlsbad, CA, 300 entries—Michael Westcott of Clarkdale, Ariz. won best of show.

3rd Annual Knickerbocker Battle of the Brews

Latham, NY, 198 entries—Francois Espourteille of Lakeville, Mass. won best of show.

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Hotels

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Tremont Plaza

(410) 727-2222 5 blocks from Festival

Quality Inn & Suites

(410) 889-4500 5 miles from Festival

GABF Schedule

Friday,	May 15	5:30-10 p.m.
Saturday,	May 16	12-4:30 p.m.
Saturday,	May 16	5:30-10 p.m.

Ticket Cost

Tickets \$25 advance, \$30 at the door (per session)

Early Entry Preview for Members of the American Homebrewers Association® and the Institute for Brewing Studies 11 a.m. to 12 noon, Saturday, May 16. AHA and IBS members in the Baltimore area will be mailed a free voucher to this Members-Only event. Members must purchase tickets for the 12 to 4:30 p.m. session on Saturday to use the voucher for early entry. (Members outside the Baltimore area may call for a free voucher.)



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AHA Registered Homebrew Clubs

"YOU CAN NEVER HAVE TOO MANY FRIENDS OR ENOUGH HOMEBREW."

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information about starting a homebrew club in your area. A request for a current AHA registered homebrew clubs list can also be made via e-mail sent to info@aob.org, or by contacting the AHA by phone or mail.

To register your club with the AHA, send an e-mail or brief letter including the same type of information that is included in this list to Brian Rezac, AHA administrator, PO Box 1679, Boulder, CO 80306-1679; (303) 447-0816 ext. 121; FAX (303) 447-2825; brian@aob.org.

AUSTRALIA

AUSTRALIAN CAPITAL TERRITORY

Canberra Brewers Club
PO Box 1999,
Tuggeranong
Canberra, ACT 2903
(06) 294 4378
jnagle@pcug.org.au

The Ferm

c/o Christopher Pittcock
46 Glossop Crescent
Campbell, ACT 2601

New South Wales

Northside Wine/Beermakers Circle
c/o Brian Starley
1 Young Crescent
Frenchs Forest, NSW 2086
(02) 9451-3999

Redwood Coast Brewers

c/o Mark Sayer
35 Chalmersford St.
Tamworth, NSW 2340
(067) 66-7852

QUEENSLAND

Brisbane Amateur Beer Brewers

c/o John Thorp
23 Malanda St.
Rosedale South, QLD 4123
(07) 3223-8573
wzgofto@qdot.qld.gov.au

VICTORIA

Amateur Brewers Association— Victoria

c/o Colin Penrose
5 Raleigh St.
Seville, VIC 3139
(800) 637 072

Amateur Brewers of Victoria

c/o Barry Hastings
10 Aston Heath
Glen Waverly, VIC 3150
(03) 561-4603

Bayside Brewers Club

PO Box 175
Chelsea, VIC 3195
future@alphalink.com.au

The Fermenters

276 Raymond St.
Sale, VIC 3850
(03) 5143 1143

Sale Area Amateur Zymurgists (SAAZ)

c/o Paul Robinson
276 Raymond St.
Sale, VIC 3850
(03) 5143 1143

Wort Hogs—The Feral Fermenters

c/o Glenn Mountain
30 Turner St.
Briar Hill, VIC 3088
wally@labyrinth.net.au

AUSTRIA

Austrian Homebrew Club

c/o Fernando Gerevini
Krottenbachstrasse 58A/37
Wien, A-1190
<http://www.wu-wien.ac.at/usr/h90/h9001590/>

CANADA

ALBERTA

Dryland Brewers

c/o Dale Merkel
Box 3113
Drumheller, AB T0J 0Y0
(413) 823-9591

Edmonton Homebrewers Guild

c/o Ross Hastings
10932 130th St.
Edmonton, AB T5M 0Z3
(403) 451-7633

Fairview Independent Zealous Zymurgists (FIZZ)

c/o Garth Hart
10912-103 Ave., Box 2230
Fairview, AB T0H 1L0

Marquis De Suds Homebrewers

c/o Randy Davis
226 Huntington Close N.E.
Calgary, AB T2K 5B2
(403) 274-5195

BRITISH COLUMBIA

Campaign for Real Ale (CAMRA) Victoria

PO Box 30101 Saanich
Central Postal Outlet
Victoria, BC V8X 5E1
(604) 595-7728

Kootenay Amateur Brewers Association (KABA)

c/o Gerald Pinard
Box 184
Rossland, BC V0G 1Y0
gpinard@mlc.awinc.com

Royal Canadian Malted Patrol

c/o Jim Cave
828 E. 17th Ave.
North Vancouver, BC V7L 2X1
(604) 987-8262

NEW BRUNSWICK

Sparky's Social Club

c/o James E. Sellars
120 Queen St.
Moncton, NB E1A 1R7
(506) 876-7977

NEWFOUNDLAND

Fish N' Brew's

c/o David McKinnon
240 Portugal Cove Rd.
St. John's, NF A1B 2N6
(709) 368-5038

St. Florian's Brewers' Guild

c/o Christian St. Pierre
21 North St.
Corner Brook, NF A2H 2K9
(709) 634-8138

NOVA SCOTIA

BrewBashers Home Brew Club

c/o Graham & Nancy Wentzell
RR.#4, Hwy. #208
New Germany, NS BOR IEO
(902) 644-3449
IEO@pop1.sympatico.ca

Brewnosers

c/o Jeffrey Pinhey
2325 Clifton
Halifax, NS B3K 4T9
(902) 425-5218

Fellowship Against Repulsive Tasting Suds (FARTS)

c/o Gerald Peters
RR #1
Aylesford, NS B0P 1C0
(902) 847-3288

Valley Brewnosers

c/o Alan W. McKay
PO Box 642
Wolfville, NS B0P 1X0
(902) 542-1661
brewers@dragon.acadiau.ca
<http://www.acadiau.ca/cc/alan/brew/>

ONTARIO

Amateur Winemakers of Ontario

c/o Paul Jean, Jr.
28 Otten Dr.
Nepean, ON K2J 1J2
(613) 825-3229

Brewers Or Zymurgists Only Society (BOZOS)

c/o Kirk Nelson
245 Hannah Rd., RR# 1
Baileboro, ON K0L 1B0
(705) 939-1791
MDAYLWARD@aol.com

CABA — Canadian Amateur Brewers Association

c/o Matthew Plexman
146 First Ave.
Toronto, ON M4M 1X1
(416) 462-9981

Canadian Association for Better Ale and Lager (CABAL)

c/o B. Peter Holland
PO Box 631
Toronto, ON M5C 2J8
(416) 287-0195

The Chartwell Brewers Union

c/o Glenn Anderson
12 Chartwell Crescent
Keswick, ON
(905) 476-9658
gramps@interlog.com

Cochrane Homebrewers Club

c/o Adrian J. Cantin
PO Box 1185
Cochrane, ON P0L 1C0
(705) 272-5335

Collingwood Brewing Club

c/o Joanne Anderson
Box 3068, RR3
Collingwood, ON L9Y 3Z2
(705) 445-1087

East Enders

c/o Erich Mann
67 Brockman Crescent
Ajax, ON L1T 2L2
(416) 427-9324

Golden Horseshoe Amateur Brewer's Association (GHABA)

c/o Craig Pinhey
25 Melbourne St.
Hamilton, ON L8P 2A5
cpinhey@dhc.dofasco.ca

Thunder Bay

Homebrewer's Association

c/o Bruce Holm
160 Iris Crescent
Thunder Bay, ON P7A 8A1
(807) 767-5077
bholm@microage-tb.com

Toronto Regional Association of Specialty Homebrewers' (TRASH)
c/o Dave Kimber
1540-C King St. W.
Toronto, ON M6K 1J6
(416) 532-3754
<http://www.io.org/~ath/trash-can.html>

QUEBEC

Montreal Association of Serious Homebrewers (MASH)
c/o Scott Vitus
1385 Garneau St.
Bruno, PQ J3V 2V5
(514) 441-9529

Technovin

c/o Mitch Hamilton
475 Dumont, #112
Dorval, PQ H9S 5W2
(514) 636-3669

SASKATCHEWAN

Ale and Lager Enthusiasts of Saskatchewan
Larry Raynard
2245 Rae St.
Regina, SK S4X 2E7
(306) 757-5532

Saskatoon Berry Brewers

c/o Robert Schultz
326 Brunst Crescent
Saskatoon, SK S7N 3S8
(306) 966-7822

EGYPT

El Nil Brewers

c/o Wayne Hocking
#8 Rd. 208 Maadi
Cairo
(20) 2353 2953
ruwh@lockmtm.dom.eg.net

GERMANY

German Homebrewers Association

c/o Walter Simon
Am Felsenkeller 2
91090 Gaiganz,
0049 9133 - 60 34 67
zurueck-zum-bier@forchheim.baynet.de

ITALY

The Congo River Delta Master Brewers Association

c/o A.V. Bonetti
Via Moretta 25030 Rudiano
Brescia

JAPAN

Beer Club of Japan

c/o Beer Club of Japan, Inc.
2-1-19 Shichinomiya-cho
Hyogo-ku Kobe 652,
(078) 651-1437
bcjkobe@osk.threewebnet.or.jp
<http://www.threeweb.ad.jp/bcjkobe/>

Far East Brewers

c/o Norman Fewell
Nakagusuku son, Kita Hama
381 Ban Chi, Okinawa

Foreign Fermentations

c/o Randy Ulland
343 Nikaido, Kamakura-shi
248 Kanagawa-Ken,
(046) 723-5187

Japan Homebrewing Promotion Association

c/o Miyanaga-Biru 301
Motoakasaka 1-5-1 Minato-Ku
Tokyo

Japanese

Homebrewers Association
c/o Satoru Ishii
994-19 Shiratori-cho, Tsuchiura
Ibaraki, 300
(029) 832-2735
s-ishi@da2.so-net.or.jp

KENYA

Hoopoe Brewers

c/o Russ Kruska
ILRI, PO Box 30709
Nairobi, Kenya,
r.kruska@cgnat.com

NETHERLANDS

Bergsch Bierbrouwersgilde

c/o Marc vander STEEN
Krokussenveld 19
4613 DX Bergen op Zoom,
01640 37715

DE Roerstok

c/o René van Gestel
Diederikdreef 30
50456 GT Tilburg,
01335 1011

De Wortketel

c/o Piet Strijker
Schoolakkers 21
7932 PM Echten,
05288 1251

Delta Brouwers

c/o Jan Passieux
Wilhelminastraat 58
4413 BB Krabbendijke,
01134 2364

HAB Twents Bierbrouwersgilde

c/o Roy Revet
Uelsenerweg 32
7651 KW Tubbergen,
05793 1518

Noordhollandse Bierkring

"De Herrezen Pauw"
c/o Hans Aikema
Venenlaan 100
1623 RK Hoorn,
0229 218175
JohanNico.Aikema@asd.akzonobel.com

St. Petri — gilde

c/o G. W. Wolf
Ruitersveldweg 46
8091 HW Wezep,

Stichting Noordhollandse Alternatieve Bierbrouwers (SNAB)

c/o Secretariaat
Postbus 4189
1620 Na Hoor,
0206 932448

"Triple-W"

c/o Steven van den Berg
Willemsweg 110
6531 DN Nijmegen,
080 562952

'tWort wat

c/o Theo van de Voorde
Houtwijkerveld 24
2131 MG Hoofddorp,
02503 31286

NEW ZEALAND

Auckland Guild of Winemakers

c/o Hec Denniston
426 Sandringham Rd.
Auckland 3

Far North Brewers & Vintners

c/o Nancy Barden
PO Box 214
Mangonui Northland

Hamilton Brewers & Winemakers Club

c/o Barry G. Whiteley
45 Radiata St.
Hamilton
(64-7) 8559653
barry@datacom.co.nz

Hibiscus Winemakers & Brewers

c/o Jessie Evans
111 Whangaparaoa Rd.
Orewa, Auckland

Manukau Winemakers & Apiarists

c/o Basil Dempsey
30A King St.
Papatotot, Auckland 1701

North Shore Fermenters Club

c/o I.M.T. Ansin
13 Sundown Ave.
Whangaparaoa, Auckland

Waimea Amateur Brewers Society

c/o Marie Stephens
4 Churchill Ave.
Richmond, Nelson 7001

SLOVENIA

Drustvo domacih pivovarjev Ljubljana

c/o Miran Sinigoj
Cankarjeva 10
Ljubljana 1000
(386) 61 1253 071
miran.sinigoj@lek.si

Wort Hog Brewers

c/o Jeremy Wallis
PO Box 100599
Moreleta Plaza
Pretoria 0044
(012) 98-5689
jwallis@csir.co.za

SWEDEN

Amylase

c/o Tommy Sandstrom
Tomrosvagen 29
Molnlycke 43531
(031) 882371

Heimbrewed

c/o Anders Jonasson
Rådhusgatan 60
83134 Östersund
(063) 131463

Högbergs Brygg Kollektiv

c/o Charles Cassino
CF Box 1419
S-111 84 Stockholm
(070) 7221296
charles.cassino@cf.se

Olsallskapet HBK

c/o Tony Magnusson
Centralgatan 75
S-149 40 Nynashamn
(46) 8520 203676

Swedish Homebrewers Association

c/o Håkan Lundgren
Vallstanäsavägen 72
S-195 70 Rosersberg
(046) 8 590 35 727
lundgren@shbf.se

Vörtens Vänner

c/o Patrik Sjöberg
Lomvagen 643
S-19157 Sollentuna,
(08) 758 16 35

SWITZERLAND

Association des Buveurs d'Orges (ABO)

c/o A. Schmid
Case Postale 2
1800 Vevey 1

Swiss Homebrewing Society

c/o Marco Sängler
Langmattstrasse 494
CH-5064 Wittnau,
(62) 871 73 03
rholtkamp@access.ch
<http://www.access.ch/whoiswho/rholtkamp.html>

UNITED KINGDOM

Beeston Beer Circle

c/o R. N. Brooksbank
17 Dovecote Ln.
Beeston, Notts NG9 1HR
0115 925 5999

Campaign For Real Ale (CAMRA)

c/o I.W. Dobson
230 Hatfield Rd.
St. Albans, Herts AL1 4LW
0172 786 7201

Craft Brewing Association

c/o James McCrorie
82 Elmfield Rd.
London SW17 8AN
0181 675 0340

North Cotswold Brewers

c/o Steve Merrett
17 Hall Rd.
Cheltenham, Glouc.
0124 223 8086
paul@ptalder.demon.co.uk

UNITED STATES

ALABAMA

Birmingham Brewmasters

c/o Kim Thomson
2208 2nd Pl. N.E.
Birmingham, AL 35215
(205) 854-4884
darren@ua1vm.ua.edu
<http://www.bham.net/brewmasters.html>

Lower Alabama Lagers

c/o Maarten van der Giessen
366 Michigan Ave.
Mobile, AL 36604
(205) 649-9436

Madison Sobriety Club

c/o Tom Rix
130 Spinnaker Ridge Dr., #F228
Huntsville, AL 35824
tcrix@ingr.com

Tuskaloosa Brew Club
c/o Edwin Hicks
4114 Shaw Dr.
Tuscaloosa, AL 35404
(205) 553-4833

Wiregrass Brewers Clubs
c/o John Sartwell
Rte. 3, Box 107
Ozark, AL 36360
(205) 299-3472

ALASKA

Great Northern Brewers
c/o James S. Roberts
3605 Arctic Blvd., #1204
Anchorage, AK 99503
(907) 337-9360
docherty@arco.com

Matanuska Thunder Brewers
c/o Stuart Wells
453 N. Bonanza St.
Palmer, AK 99645
(907) 373-0885

Q & Q Brewers Guild
c/o Laurence Livingston
PO Box 2433
Homer, AK 99603-2433
(907) 235-2874

**Zymurgists Borealis—
the HomeBrewers of the North!**
c/o Roger P. Penrod
939 High Grade Way
Fairbanks, AK 99712-2017
(907) 479-8795

ARIZONA

**Arizona Brewers
and Vintners Association**
c/o Bruce E. Dahlgren
3713 W. Gelding Dr.
Phoenix, AZ 85023
(602) 843-4337

Arizona Society of Homebrewers
c/o Zach Hilgers
2322 S. Rogers St., Villa 61
Mesa, AZ 85202
(602) 491-8236
Greatdaen@worldnet.att.net

Brewmeisters Anonymous
c/o Greg Sharrer
6901 E. Joan De Arc
Scottsdale, AZ 85254
mclynn@paloverde.com

Dead Brewer's Society
c/o Homebrewers Outpost
823 N. Humphreys
Flagstaff, AZ 86001
(520) 774-2499

Desert Home Brew Club
c/o Aaron Black
12488 Dorothy
Yuma, AZ 85367
(520) 305-0450
aaron.black@smtp.cnet.navy.mil

Old Pueblo Homebrewers
c/o John Francisco
2635 W. Sandecker Pl.
Tucson, AZ 85745
(520) 743-7961
cisco@u.arizona.edu
<http://www.u.arizona.edu/~cisco/op.html>

Prescott Union of Brewers
c/o Nathan Jones
220 Grove Ave.
Prescott, AZ 86301-2912

**Rillito Creek Brew
and Yacht Club**
c/o Charles Scott
4775 North First Ave.
Tucson, AZ 85718
(520) 293-1740
rillito@azstarnet.com

**Southern Arizona
Natural Draughts (SAND)**
c/o The Home Brewery
4641 S. Hwy. 92
Sierra Vista, AZ 85635
(520) 378-4290

Suds of the Pioneers
c/o Slim Tighe
PO Box 144
Bisbee, AZ 85603
(602) 432-5242

White Mountain Spotted Ales
c/o Mike Friedman
PO Box 2298
Pinetop, AZ 85935
(520) 537-0369

Wort First!
c/o Perry Davidson
277 E. Kiowa St.
Flagstaff, AZ 86001-9546
(602) 774-7513

ARKANSAS

**Arkansas Home Wine
and Beer Makers Association**
c/o Dr. Martin Ronis
7214 Apache Dr.
Little Rock, AR 72205
(501) 664-2774

**Fayetteville Lovers of Pure Suds
(FLOPS)**
c/o John Griffiths
625 W. Dickson, #9
Fayetteville, AR 72701
(501) 521-0456

**Hell on the Border
Homebrewers**
c/o Tim Chilcott
PO Box 3
Fort Smith, AR 72902
(501) 783-5404

CALIFORNIA

**Anderson Master
Brewer's Association (AMBA)**
c/o Bill Garretson
402 The Strand
Hermosa Beach, CA 90254
wgarrets@agsm.ucla.edu

Antelope Valley Brewers
c/o Jay D. McGough
6330 Prairie Ct.
Quartz Hill, CA 93536
(805) 722-8138
103331.1125@compuserve.com

Bakersfield Foam
c/o Steven Gibbs
4550 California Ave., Ste 150
Bakersfield, CA 93309
(805) 633-1144
gibbs@lightspeed.net

Barley Bandits
c/o Dick Reese
218 S. Alice Way
Anaheim, CA 92806-4033
(714) 630-6527
reeses4@earthlink.net

**The Barley Literates
Homebrew Club**
c/o Dave Woelke, VP
PO Box 462972
Escondido, CA 92046
(760) 741-1122
barleylit@aol.com
<http://members.aol.com/imakebeer/barleyliterates.html>

Bay Area Brew Crew
c/o Mike Winslow
3336 Kimberly Way
San Mateo, CA 94403
(415) 341-0696
mksgrist@aol.com

Bay Area Mashers (BAM)
c/o Doug Ashcraft
5998 Alhambra Ave.
Oakland, CA 94611
(510) 339-1816
Spm67@aol.com

Big Ring Brew Club
c/o Scott Parr
1596 Nuala St.
Concord, CA 94518
(510) 691-8534

Bonita Avenue Brewers
c/o R. Graham Jones
1624 Bonita Ave.
Berkeley, CA 94709

Brew Angels
c/o Rick Stanton
7273 Murray Dr., #15
Stockton, CA 95210
(209) 957-4549
NancyLHawkins@juno.com

Brewbirds of Hoppiness
c/o Kelly Dunham
1229 Lerida Way
Pacifica, CA 94044
(415) 355-7143

Brewers Guild of the Green Dragon
c/o Tom Messenger
1424 Bayoaks Dr.
Los Osos, CA 93402

**Brewers of the Central Coast
(B.O.C.C.)**
855 Capitolio Way, Ste 2
San Luis Obispo, CA 93401-7175

Caligula's Guard
c/o Rich Mansfield
1040 N. 4th St.
San Jose, CA 95112
(408) 288-6645

Clan de Stein
c/o Brewers Resource
PO Box 916
Camarillo, CA 93011-0916
(805) 445-4100
tloveles@blackbird.jetlink.net

Crown of the Valley Brewing Society
c/o Shawn Olsson
955 Sandstone Dr.
Glendora, CA 91740
(626) 914-6738
oleolsson1@aol.com

**Culinary Brewing Arts Assoc.—
Sacramento**
c/o David Avalos/
Lederwolff Culinary Academy
3300 Stockton Blvd.
Sacramento, CA 95820
(916) 446-9426

**Culinary Brewing Arts Assoc.—
San Francisco**
c/o Mark Davis
5340 Paso Del Rio Way
Concord, CA 94521
(510) 672-6471

Dampf Brewers
c/o Rasco Lesiam
PO Box 3593
Pinedale, CA 93650-3593

Davis BrewCrafters
c/o Robert Arguello
2124 East 8th St.
Davis, CA 95616-2508
(530) 756-4956
robertac@calweb.com

Delta Brewing Club
c/o Pat Meadows
24 Drake St.
Antioch, CA 94509
(510) 757-0976

**Diablo Order
of Zymiracle Enthusiasts**
c/o Olin Schultz
PO Box 4538
Walnut Creek, CA 94596
(510) 939-2337
beerx3@ix.netcom.com
<http://www.tucson.com/beerx3>

Diablo Valley Homebrewers Guild
c/o Leo Smith
342 Ridgeview Dr.
Pleasant Hill, CA 94523
(510) 372-8060

Die Hopfen Koepfe Brew Club
c/o Dave Albright
18017 Skypark Cir., Ste. K
Irvine, CA 92714
(714) 851-0798
diehopkopf@aol.com
<http://users.aol.com/diehopkopf>

The Draught Board Homebrew Club
c/o Lisa Gros
159 John St.
Oakland, CA 94611-4900
(510) 601-6780
lgros@jps.net
<http://www.valhallabrewing.com/dboard/index.htm>

The Fermenters
c/o O'Shea Brewing Co.
27324 Camino Capistrano, #114
Laguna Niguel, CA 92677
(714) 582-BREW

Foam on the Brain
c/o John DeGrazia
1487 Arthur Neal Ct.
Lemon Grive, CA 91945
(619) 697-4933

Fog City Brewing Enthusiasts
c/o C. Jason Mancebo
2650 Cottonwood Dr.
San Bruno, CA 94066
(408) 988-2285
jmancebo@sirius.com

Foothill Fermenters
c/o Dan Bell
21332 Adamson Dr.
Grass Valley, CA 95949

Frantic Fermenters
c/o Bob Christopher
903 Oceana Blvd., #111
Pacifica, CA 94044-2341

GenenBrewers
c/o David Allison
460 Pt. San Bruno Ave.,
M/S #70
S. San Francisco, CA 94080
(415) 225-5764
allison2@gene.com

**Gold Country
Brewers Association**
c/o Donna Bettencourt
PO Box 160854
Sacramento, CA 95816
(916) 381-1300
<http://www.ns.net/GCBA>

Grain Damage
c/o Kurt Steinhebel
1928 W. Tedmar Ave.
Anaheim, CA 92804
(714) 648-2207

**Hangtown Association of
Zymurgy Enthusiasts (HAZE)**
c/o Gary Sandler
PO Box 1662
Placerville, CA 95667
(916) 676-9722
sandler@spider.lloyd.com

Hetch Hetchy Hopheads
c/o Bucket of Suds
317 Old County Rd.
Belmont, CA 94002
(415) 637-9844

High Desert Barley Hoppers
c/o Don Miller
8755 Devon Ave.
Hesperia, CA 92345
(619) 947-7944

Hobbiton Imbibing Consortium
c/o Jeanpaul Powell
16150 Showlow Ln.
Lathrop, CA 95330

Homebrew Consumers Union
c/o Mark Thompson
4055 Valerie Dr.
Campbell, CA 95008
(408) 379-1046
markt@cup.hp.com

Hoppy Trails Brew Club
c/o Allan Kosup
9446 Haley Ln.
La Mesa, CA 91941
AKosuponi@Aol.com

Humboldt Brewers Guild
c/o Cary Bellak
PO Box 883
Blue Lake, CA 95525
(707) 668-5456
cdb1@axe.humboldt.edu

Humboldt Brewers United
c/o Aaron Gates
2434 Albee St.
Eureka, CA 95501
alg6@axe.humboldt.edu

Inland Empire Brewers
c/o The Home Brewery
1506 Columbia Ave, Unit 12
Riverside, CA 92507
(909) 796-0699
acmebrew@empirenet.com

Lagerheads Homebrewing Guild
c/o Bruce Garlinger
PO Box 651
Inyokern, CA 93527
(619) 378-4BRU

Lodi Brew'ns
c/o Jerry Melton
330 S. Fairmont Ave., Ste. 9
Lodi, CA 95242

Long Beach Homebrewers
c/o Wayne Holder
3810 E. Ocean Blvd., #1
Long Beach, CA 90803
(310) 434-1611
zymie@sprynet.com
<http://ourworld.compuserve.com/homepages/geldridge/lbh.htm>

MAD BREWERS—Bakersfield
c/o Mike Shue
9118 Leslie Deann Ct.
Bakersfield, CA 93312
(805) 399-8936

MAD BREWERS—Napa/Sonoma
c/o Dan Sullivan
3167 Laurel St.
Napa, CA 94558
(707) 448-8926
mtruhe@ucdavis.edu

**Maltose Falcons
Homebrewing Society**
c/o Brian Vessa
22836 Ventura Blvd. #2
Woodland Hills, CA 91364
(310) 558-8458
bav@earthlink.net
<http://www.westval.com/mfalcons>

Marin Mountain Hoppers
c/o Jed Douglas
30 Woodland Ct.
Novato, CA 94947
(415) 883-5035
jdouglas@wco.com
<http://www.ncal.verio.com/~jdouglas/mmh.html>

**Marin Society of Homebrewers
(MASH)**
c/o Mike Riddle
2 Mt. Rainier Dr.
San Rafael, CA 94903
(415) 472-3390
mjri@chevron.com

Mash Historia
c/o Donn R. Westmoreland
3972 N. Fresno St.
Fresno, CA 93726
(209) 221-8345

Mike Bier
c/o Mike Smith
137 N. 13th St.
San Jose, CA 95112
(408) 998-5029

Monterey Beer Nuts
c/o Jim Morrison
511 Grand Ave.
Pacific Grove, CA 93950
(408) 375-0950

Mountain Mashers
228 Commercial St., #192
Nevada City, CA 95959

The Odd Grogs
c/o Gregor Nelson
1641 El Camino Real
Palo Alto, CA 94306
gregor@ndesign.com

Pacific Gravity
c/o Troy Bommelaere
12143 Valleyheart Dr., #6
Studio City, CA 91604
(310) 397-3453
pg@brewsupply.com
<http://www3.ios.com/~cchbs/pg.html>

Parrots Ferry Homebrew Club
c/o Al Lemke
19326 Grand View Ct.
Sonora, CA 95370
(209) 533-3497

**Pescadero Ale & Lager
Enjoyment Society (PALES)**
c/o Ken Groves
21 Preuss Rd.
Pescadero, CA 94060
(415) 879-9726
kenneth_groves@fmc.com

**Quality Ale & Fermentation
Fraternity (QUAFF)**
c/o Tod Fitzsimmons
11505-91 Caminito La Bar
San Diego, CA 92126
(619) 536-9616; quaff1@pipeline.com
<http://www.softbrew.com/quaff>

Redwood Coast Brewers Association
c/o Ken Sommers
445 La Fonda Ave.
Santa Cruz, CA 95065
(408) 423-7183

Riverside Homebrew Crew
c/o John Walker
6212 Tarragona Dr.
Riverside, CA 92509
(909) 683-5050

San Andreas Malts
c/o Russ Wigglesworth
PO Box 884661
San Francisco, CA 94188-4661
(415) 885-1878
rad_equipment@radmac1.ucsf.edu

San Diego Brew Tech's
c/o Greg Distefano
12840 Carmel Country Rd.
San Diego, CA 92130
(619) 481-7883

San Joaquin Worthogs
c/o Bencomo Homebrew Supply
1004 San Jose, #102
Clovis, CA 93612
(209) 322-9203; ralph@cybergate.com

**San Luis Obispo Brewing Society
(SLOBS)**
c/o Howard Gootkin
1568 Frambuesa Dr.
San Luis Obispo, CA 93405
(805) 541-0713

**Santa Barbara Co.
Home Brewers Assoc.**
c/o Kyle Carrell
PO Box 597
Los Olivos, CA 93441-0597
(805) 686-0730
73160.1441@compuserve.com

**Santa Clara
Valley Brewers Association**
c/o Bob Hight
433 California St.
Santa Clara, CA 95050
(408) 247-6853

Shasta County Sudsers
c/o Raymond Ault
4621 Balls Ferry Rd.
Anderson, CA 96007
(916) 365-6284

Silicon Valley Sudzers
c/o Roger St. Denis
7206 Via Corona Ct.
San Jose, CA 95139-1136
(408) 224-5194
roger@rahul.net
<http://www.laquebrada.com/svs>

Society of Barley Engineers
c/o Andy Gamelin
1218 Melrose Way
Vista, CA 92083
(619) 631-8210

**Some of Upland's Diversified
Zymurgists (SUDZ)**
c/o Bob Bottomley, Sr.
880 Emory Ct.
Upland, CA 91786
(909) 981-1106
Robert.A.Bottomley.Jr@cdc.com

Sonoma Beerocrats
c/o Nancy Vineyard
840 Piner Rd., #14
Santa Rosa, CA 95403
(707) 544-2520

Sons O' Beaches Brewers
c/o Jeffrey L. Lee
2301 Valley Dr.
Hermosa Beach, CA 90254
(310) 222-3791
jefflee@harbor3.humc.edu

**South San Diego
Brewers and Vintners Club**
c/o Jarrod Bell
661 Gretchen Rd.
Chula Vista, CA 91910
(619) 427-2474

**Stanislaus Area
Association of Zymurgists**
c/o Micah Millspaw
309 S. 6th Ave.
Oakdale, CA 95361-4032
(209) 847-9706

Stanislaus Hoppy Cappers
c/o Wayne Baker
1907 Central Ave.
Ceres, CA 95307
(209) 538-2739

Strand Brewers Club
c/o Steve Fafard
21726 Evalyn Ave.
Torrance, CA 90503
75654.3055@compuserve.com

**Susanville Homebrew
Institute of Technology**
c/o Larry Anthony
PO Box 524
Janesville, CA 96114-0524

**Tahoe Homebrewer's Club
(THC)**
PO Box 624337
S. Lake Tahoe, CA 96154-4337

TC HOPS

c/o Mike Nickel
1804 E. Westcott Ct.
Visalia, CA 93292
kcsllgs@theworks.com

Temecula Valley**Homebrewers Association**

c/o Bill Satmary
42600 San Ignacio Rd.
Hemet, CA 92544
(909) 676-6270
satmary@pe.net
<http://www.pe.net/~satmary/tvha.htm>

Terminal Gravity

c/o Acton Home Brewing Supply Co.
39553 Sierra Hwy., #B
Palmdale, CA 93550
(805) 265-7837
www.p2000.com/brewkit/club/index.html

Underground Spirits Association (USA)

c/o The Coddfish
8343 Quartz Ave.
Winnetka, CA 91306
(818) 998-1637

Wild Yeast Culture

c/o Gareth Gordon
641 Paloma Ave.
Oakland, CA 94612
(510) 893-0385

Worts of Wisdom

c/o Jeremy Ballard Bergsman
PO Box 2002
Los Altos, CA 94023-2002
(415) 988-0118
jeremybb@leland.stanford.edu
<http://www.leland.stanford.edu/~jeremybb/beerstuff/wow.html>

Yolo County Homebrewers

c/o Vern Wolff
PO Box 538
Esparto, CA 95627
(916) 787-3615

COLORADO**14ers Homebrew Club**

c/o Dan Ryan
PO Box 172
Poncha Springs, CO 81242
(719) 530-0825; grunner@chaffee.net

Bierewolves of Loveland

c/o Bob Green
PO Box 411
Loveland, CO 80537

Brownion Colony

c/o Tony Demarse
2131 Wedgewood Dr.
Greeley, CO 80631
(303) 352-9162

Colorado Beer Club

c/o John Myers
5500 S. Forest Ln.
Greenwood Village, CO 80121

Crested Butte Brewskiers

c/o Graham Ullrich
PO Box 2045
Crested Butte, CO 81224-2045
(303) 349-5969

Deep Wort Brew Club

c/o Duane Lujan
1822 Domionion Way
Colorado Springs, CO 80918
(719) 528-1651

Fermentations of Aurora Mashers (FOAM)

c/o Jesse Boone
3700 E. Jewel Ave., #B-526
Denver, CO 80210
(303) 782-0993
jboone@du.edu

Foam on the Range

c/o George Schamel
11162 Conifer Mountain Rd.
Conifer, CO 80433
(303) 838-5902
george.schamel@ast.lmco.com

Grateful Head Homebrew Club

c/o West Slope Homebrewing
111 S. 6th St.
Grand Junction, CO 81501
(303) 244-8947

High Attitude Home Brew Club

c/o Scott Ferguson
1309 W. Browning Ave.
Woodland Park, CO 80863
(719) 687-2327
209-0507@mcimail.com

High Plains Hoppers

c/o The Home Brewery
4697 E. Evans, Unit 104
Denver, CO 80222
(303) 639-5332
brewdog@ix.netcom.com

Hop Barley & The Ale's

c/o Colin Frager
PO Box 17935
Boulder, CO 80308-0935
(303) 604-2116; cpf@iws.net
<http://members.aol.com/hopbarley>

Hops Around the Rock

c/o Bob Burns
45587 Summit Rd.
Parker, CO 80134
(303) 841-8853

Keg Ran Out Club (KROC)

PO Box 1162
Broomfield, CO 80020
(303) 465-1776
brewmaid@bouldernews.inf.net

Louthan Street Deadbeats

c/o Jezebel Swartzensterne
6547 S. Louthan St.
Littleton, CO 80120
(303) 798-2953
mcaprara@awwarf.com
<http://www.dimensions.com/~godbey/louthan.html>

Mash Tongues

c/o Scott Mills
7512 Leslie Dr.
Fort Collins, CO 80537
(970) 669-6088
smills@webaccess.net
<http://www.fortnet.org/~smills/masht.html>

Moffat County Outlaws

c/o Jim Abney
709 E. 9th St.
Craig, CO 81625
(970) 824-6138

One Brew Over the Cuckoos Nest (O.B.O.C.N.)

c/o Dave Lipitz
1614 E. Orman
Pueblo, CO 81004
(719) 564-1611

Rainbrewers

c/o Russ Staska
433 E. Baylor St.
Ft. Collins, CO 98525

The TRIBE

c/o Don Blake
928 Buffalo Ct.
Longmont, CO 80501
(303) 772-2307
dblake@ortechology.com
<http://www.geocities.com/NapaValley/4003/>

The Unfermentables

c/o Jim Collins
110 S. Reed Ct.
Lakewood, CO 80226
(303) 233-3985
rwhyman@milehigh.net

The Weissenheimers

c/o Herschal
4422 1/2 Delaware St.
Denver, CO 80216
brewwhersch@aol.com

Weiz Guys B. C.

c/o Kevin Irwin
502 Sherri Dr.
Loveland, CO 80537
(970) 669-1838
elceem@webaccess.net

Yampa Valley Yeast Ranchers

c/o Tom Williams
PO Box 775868
Steamboat Springs, CO 80477

CONNECTICUT**Beer Brewers**

of Central Connecticut
c/o Judy Lawrence
1550 Randolph Rd.
Middletown, CT 06457
(203) 346-5440

Connecticut Beernutts

c/o Steve Henry
14 Waverly Ave., #2
Portland, CT 06480-1842

Hop River Brewers

c/o Richard Rosen
265 Rte. 6
Andover, CT 06232
(203) 742-5465

Millstone Mashers

c/o Bill Rigby
72 Richard Brown Dr.
Uncasville, CT 06382
(860) 848-1752
rigbywe@gwsmtpt.nu.com

Sanderflohansontappanberg Brew Club

c/o Mark Floberg
27 Bonita Dr.
Huntington, CT 06484

Shoreline Sudsers

c/o Chuck Imbergamo
PO Box 4121
Madison, CT 06443
wind@snet.net

Stratford Union of

Dedicated Zymologists (SUDZ)
c/o Jim Miklos
55 Kings College Pl.
Stratford, CT 06497
(203) 377-7777

Those Crazy Brewers

c/o Elizabeth Pryor
34 Sachem Rd.
Southbury, CT 06488
(203) 264-4958

UConn Zymurgy Club

c/o Robert Vieth
Univ. of Connecticut, Box U-139
Storrs, CT 06269

Underground**Brewers of Connecticut**

c/o Tom Miklinevich
17 Patmar Terr.
Monroe, CT 06468
(203) 261-7453

Whale of an Ale Brewers Association

c/o Samira Hakk
68 Ridge Hill Rd.
Oakdale, CT 06370

DELAWARE**First State Brewers**

c/o Scott Bieber
407 Pheasant Cir.
Bear, DE 19701
(302) 834-8747
sbieber@infosysinc.com
<http://triton.cms.udel.edu/~oliver/firststate/firststate.html>

Southern and Nearby Delaware Ale and Lager Society (SANDALS)

c/o Doug Griffith
Rte. 3, Box 190
Millsboro, DE 19966
(302) 934-8588
baltobut@aol.com

Tri-State Brewers

c/o Mark Warrington
PO Box 334
Rockland, DE 19732-0334
tristateb@aol.com

FLORIDA**2 Dudes That Brew**

c/o Peter Coleman
317 Citrus Dr.
Nokomis, FL 34275
(912) 876-0556

Bradenton Brewski's

c/o Chet Kedzierski
PO Box 51
Bradenton, FL 34206
(813) 747-2437

Bull Brewing Company

2225 E. 131st Ave., #3102
Tampa, FL 33612
ccampbel@sunflash.eng.usf.edu

Caloosa Hop Heads

c/o Gary Coucher
7316 Manatee Ave. W., #283
Bradenton, FL 34209-3441

Central Florida Home Brewers

c/o Steve Vallancourt
PO Box 547063
Orlando, FL 32804
(407) 293-5094; Stevebrau@aol.com
<http://www.creol.ucf.edu/~cfhb/>

Escambia Bay Brewers

c/o Ron Gray
8319 Wilde Lake
Pensacola, FL 32526
(904) 944-1450
nmxz71a@prodigy.com

Florida Suncoast ThunderBrewers
c/o Mike Gyarmathy
4534-33rd Ave. N.
St. Petersburg, FL 33713
(813) 526-2781
gyarmathy_m@prodigy.net

Ft. Lauderdale Area Brewers (FLAB)
c/o David Cass
9209 Arborwood Cir.
Davie, FL 33328
(954) 424-3668
DCASS96990@aol.com

Greater Daytona Brewcrafters
c/o Roger Olson
2066 S. Peninsula Dr.
Daytona Beach, FL 32118
(904) 253-8429

HomeBrewers Underground (HBU)
c/o Gary Essex
PO Box 21
Valparaiso, FL 32580
(850) 879-0165
brewer@beachlife.net

Hogtowne Brewers
c/o Ray Badowski
21 S.W. 2nd St.
Gainesville, FL 32601-6237
(904) 375-7949

**Malt Aficianados Society
of Hernando (MASH)**
c/o Joe Johnston
416 S. Broad St.
Brooksville, FL 34601
(904) 799-3004

MeisterBros
c/o Tom Patterson
1524 Croftwood
Melbourne, FL 32935
(407) 726-6715; miesterbro@aol.com

**Miami Area
Society of Homebrewers**
c/o Richard Pushaw
2220 SW 27th Ln.
Miami, FL 33133
(305) 854-0505; rwp@miami@aol.com

North Florida Brewers League
c/o Sarah Bridegroom
PO Box 3325
Tallahassee, FL 32315-3325
(904) 386-3480

**Northeast Florida Society
of Brewers**
c/o Bob Davis
7 Park Terrace Dr.
St. Augustine, FL 32084
(904) 824-5252

Nude Brewers
c/o The Hogtown Brewer
21 S.W. 2nd St.
Gainesville, FL 32601
(904) 375-3772

Palm Beach Draughtsmen
c/o Stephan Vernet
4734 Okeechobee Blvd., #F5
W. Palm Bch, FL 33417-4626
(407) 686-4019

River City Brewers of Jacksonville
c/o Jason Hosch
7703 Indian Ave., Ste. 129
Jacksonville, FL 32211
(904) 766-1802
http://www.hoschnet.com/brewshop

S.O.B.S. (Society Of Brewing Suds)
c/o Perry Bonds
New Smyrna Beach, FL
wongaman@aol.com

South Florida Homebrewers
c/o Lauren or Bryan Hemedinger
441 S. State Rd. 7
Margate, FL 33068-1934
(305) 968-3709

**Spacecoast Associates for the
Advancement of Zymurgy (SAAZ)**
c/o Lynn Seelos
4025 Scotland St.
Cocoa, FL 32927
(407) 633-6605
LRSEELoS@aol.com

**Tampa Bay BEERS (Beer
Enthusiasts Enjoying Real Suds)**
c/o Mark Stober
PO Box 24691
Tampa, FL 33623-4691
(813) 977-0141; marksto@aol.com
http://www.citicom.com/~tbeers

Treasure Coast Brewmasters
c/o Ron Polzin
4446 S.E. Federal Hwy.
Stuart, FL 34997-5746
(407) 546-9108

GEORGIA
Ale Atlanta
c/o Coby Glass
1852 Aaron Ct.
Powder Springs, GA 30073
(404) 943-5583

Brew-52's
c/o John J. Gayer
140 Best Dr.
Athens, GA 30606
(706) 354-4466

Chicken City Ale Raisers
6252 Brookfield Dr.
Murrayville, GA 30564

**Clergy of Zymurgy of the
Golden Isles**
c/o Steve Pechin
800 Howe St.
Brunswick, GA 31520-7340
(912) 267-6911

Covert Hops Society
c/o Peter Keihm
3401 King Arthur Dr.
Marietta, GA 30068

Hoochee Brewskis
c/o John Szymanski
3709 Gentian, #4
Columbus, GA 31907
(706) 568-7772

Knives of Grain
c/o Dennis Walker
Warner Robins, GA
(912) 929-3963; ansel@hom.net

Lagerheads von Atlanta (LAVA)
c/o Dan Cheney
4845 Hwy. 78
Lilburn, GA 30247
(770) 985-5655

The Rolling Pils of Georgia
c/o Jack McKeen
512 Russell Pkwy.
Warner Robins, GA 31088
(912) 923-8777

Savannah Brewers' League
c/o Klugh Kennedy
105 Lagoon View Crossing
Savannah, GA 31410
(912) 897-3619

**South Atlanta Association
of Zymurgists (SAAZ)**
c/o Sue Bergh
103 Rainbow Way
Fayetteville, GA 30214
(770) 719-0222
cfbergh@mindspring.com

HAWAII
Haleakala Homebrew Hui
c/o John Andrews
108 Mikaele Pl.
Kula, HI 96790
(808) 878-6516

Hawaiian Homebrewers Association
41-610 Nonokio St.
Waimanalo, HI 96795
(808) 259-6884
brew@lava.net
http://www.lava.net/~brew

Orchid Isle Alers
c/o Earl Nakashima
45 Ualehua St.
Hilo, HI 96720
(808) 935-3529
earl@hgea.org

IDAHO
Hell's Canyon Homebrewers
PO Box 931
Lewiston, ID 83501
(208) 743-7691

High Desert Brewers Assoc.
c/o Carrie Getty
2845 Holly Pl.
Idaho Falls, ID 83402-4631
(208) 524-0970

**Ida-Quaffer
Homebrewers Association**
3894 W. State St.
Boise, ID 83703
(208) 344-5141

Magic Valley Brew Crüe (MVBC)
c/o Quay Marshall
PO Box 128
Buhl, ID 83316
(208) 734-6667
Ardy95@aol.com

Panhandle U Brew Society (PUBS)
c/o Linda Hetrick
2116 James Crowe Dr.
Coeur d'Alene, ID 83814
(208) 772-7019

ILLINOIS
**Association of Bloomington/Nor-
mal Brewers (ABNORMAL)**
c/o Tony McCauley
RR 9, Box 42
Normal, IL 61761
(309) 452-1084
dbee@ilstu.edu

Beer Nuts
c/o Eric Dallman
4516 Stonewall Ave.
Downers Grove, IL 60515
(708) 271-0843
ericd@prairienet.org

**Boneyard Union
of Zymurgical Zealots (BUZZ)**
c/o Joe Formanek
512 Dogwood
Champaign, IL 61821
(217) 328-6858
plutchak@uiuc.edu
http://starfire.ne.uiuc.edu/buzz/
home.html

Brew Rats
c/o Scott Braker-Abene
1130 S. Euclid
Oak Park, IL 60404
(708) 383-8439
skotrat@vva.com

**Brewers of South Suburbia
(BOSS)**
c/o Jamie Wika
8348 S. Lawler
Burbank, IL 60459
(708) 424-6056
jwika@concentric.net
http://www.concentric.net/~jwika

Brewers On the Bluff
c/o Lake Bluff Park Dist./Steve
Howard
PO Box 73
Lake Bluff, IL 60044-0073
(847) 615-0605
RECMESS@AOL.COM

**Central Illinois
Brewer's Association**
c/o Mark Kellums
335 N. Main
Mt. Zion, IL 62549
(217) 864-4216
Kellums1@aol.com
http://www.webmart.net/~banick/
cibahome.htm

Chicago Beer Society
PO Box 1057
La Grange Park, IL 60526
(847) 692-BEER
cbsbeer@aol.com
http://www.mcs.com/~shamburg/cbs/
cbshome.html

Club Wort
c/o Roger Santagato
1929 Victoria
Mundelein, IL 60060
(630) 252-3052
santa@anl.gov

Egyptian Zymotic (EZ) Brewers
c/o Doug Diggle
514 S. Illinois Ave.
Carbondale, IL 62901
(618) 457-3513

Fermenters at Large
c/o Mike Hennessy
1359 Portsmouth Ct.
Carol Stream, IL 60188
(708) 830-1210

Forest City Brewers
c/o Ken Schulz
305 Echo Dr.
Rockton, IL 61072
(815) 624-7324
kenbrews@sprynet.com

Headhunters Brewing Club
c/o Greg Lawrence
4 S. 245 Wiltshire Ln.
Sugar Grove, IL 60554
(708) 557-2523

Home Beers Racketeers

c/o Gary Burns
PO Box 203
Kansas, IL 61933
(217) 948-5365

**Homebrewers' Pride
of the Southside (HOPS)**

c/o Jim Kube
2953 S. Emerald Ave.
Chicago, IL 60616
(312) 842-2337
ZQMP47A@prodigy.com

Kankakee Area Beiraucrats

c/o Steve Bell
4 Old Farm S. Ct.
Bradley, IL 60915
(815) 937-0974

Lagerhead Brew Club

c/o Chuck Aleshire
102 Yale Ct.
Shorewood, IL 60436
(815) 729-2295

Macomb Homebrewers Assoc.

c/o Gravity Home Brew & Audio
1402 W. Jackson, #1
Macomb, IL 61455
(309) 837-2535
gravity@macomb.com

The Midnight Carboys

c/o Jim Brady
220 S. Cross Trail
McHenry, IL 60050
(847) 937-9758
robtseto@mc.net

**Mississippi Unquenchable
Grail Zymurgists ()**

c/o Jeff Grillo
3704 14th Ave.
Rock Island, IL 61201
(309) 788-3108
72064.1256@compuserve.com

Northern Illinois Better Brewers

c/o Jon Huettel
2316 Oak St.
Northbrook, IL 60062-5220
(708) 498-6154

**Northwest Amateur
Wine and Beermakers Guild**

c/o Roy J. Horton
1419 Redwood Dr.
Mt. Prospect, IL 60056
(708) 439-4525

**Ordinary Average Brewers
(O.A.B.)**

c/o Steve "Zemo" Holat
122 S. Jefferson
Batavia, IL 60510
(630) 879-2705
zemo@ameritech.net

Prairie Schooners

c/o Shawn Andrews,
Grape and Grain
800 E. Stanford Ave.
Springfield, IL 62703
(217) 522-1906
sabrewer@fgi.net

Quincy Braumeisters

c/o Paul Kurjanski
11 E. Country Club Dr.
Quincy, IL 62301
kurjan@bcl.net

Silverado Homebrew Club

c/o Terry Richardson
405 S. 12th Ave.
St. Charles, IL 60174
(630) 584-8254

Urban Knaves of Grain (UKG)

c/o Chris Campanelli
ON545 Willow Rd.
Wheaton, IL 60187
(630) 668-8081
darrell_j._proksa@em.fcncd.com

Weinkeller Beer Enthusiasts

c/o Bob Ward
9114 W. 140th St. N.E., Ste. 3
Orland Park, IL 60462
(708) 403-6666

The Weisse Guys

c/o Samantha Lynn's
117 W. Washington St.
Washington, IL 60450
(815) 941-0366

Wort-Mongers of Eastern Illinois

c/o Ken Knoop/
The Grape N Grain Gourmet
623 Monroe St.
Charleston, IL 61920
(217) 348-8077

INDIANA**Bull and Stump Brew Club**

c/o Rob Reed
1420 W. 350 North
Kokomo, IN 46901
(317) 452-6371

Duneland Homebrewers Association;

The Retentive Head Society
c/o Alonso Villarreal
430 E. U.S. Hwy. 6
Valparaiso, IN 46383
(219) 947-7802

**Fermenters Of Special Southern
Indiana Libations Society**

(FOSSILS)
c/o Roger Baylor
PO Box 6880
New Albany, IN 47151-6880
(812) 923-2804
<http://www.sitesonthe.net/fossils/>

Foam Blowers of Indiana (FBI)

c/o Paul Edwards
1310 E. Kessler Blvd.
Indianapolis, IN 46220-2745
(317) 253-7821
pedwards@iquest.net

**Lafayette Brewing
Bovinophiles**

c/o Russel H. Stvalley
512 Main St.
Lafayette, IN 47901
(317) 742-2696

Muncie Malt Mashers

c/o Brian Pickerill
3508 W. Johnson Cir.
Muncie, IN 47304
(317) 282-6721
00bkpickeril@bsu.edu

**St. Gambrinus
Benevolence Society**

c/o Marvin Keenan
3241 W. Lanam Ridge Rd.
Nashville, IN 47448
(812) 988-0384

St. Joe Valley Brewers

c/o Jim Herter
122 N. Saint Peter St., Apt. 2
South Bend, IN 46617
(219) 287-4599
sjvbrew@raptor.lmc.cc.mi.us

Strange Brewers

c/o Jim Kirk
3848 S. Sherman Dr.
Indianapolis, IN 46237
(317) 786-0464
captain@iquest.net

Tippecanoe Homebrewers Circle

c/o Bill Friday
103 E. Oak St.
West Lafayette, IN 47906-2733
(765) 743-0634
mpoling@mdn.com

**Wabash Valley Vintners'
& Homebrewers' Club**

c/o Neil Flatter
913 7th Ave.
Terre Haute, IN 47807-1109
(812) 235-2682

**Wells County Homebrewers Club
(WELCOME)**

c/o Jim Craig
1121 Honeysuckle
Bluffton, IN 46714
(219) 824-0387

IOWA**Brew Bobs**

c/o Scott Lage
414 S. Moore St.
Algona, IA 50511
(515) 295-7392

**Cedar Rapids Association
of Zymurgy, Yeastology,
and Homebrewers**

(CRAZY Homebrewers)
c/o Mike Snyder
PO Box 5922
Cedar Rapids, IA 52406-5922
(319) 393-1219
spsbeer@netins.net
<http://www.beerstuff.com/crazy>

Central Iowa Homebrew Club

c/o Dan A. Morey
4008 Bruce Rd.
Marion, IA 52302-5925

Heartland Homebrew Club

c/o Gary Porter
RR 4, Box 112
Grinnell, IA 50112-9143
(515) 236-7487

**The Honorable Iowa River
Society of Talented Yeastmasters
(THIRSTY)**

c/o Mike Hansen
1748 Park Ridge Dr.
Coralville, IA 52241
(319) 351-3049
micahel-d-hansen@uiowa.edu
<http://www.cs.uiowa.edu/~phenning/thirsty>

North Iowa Wine Club

c/o Laurence Fredricksen
24 Bayside Ave.
Rte. 1, Box 174E
Clear Lake, IA 50428
(515) 357-2290

Raccoon River Brewers Association

c/o Mark Opsal
400 Jordan Dr.
West Des Moines, IA 50265

**Rowdy Articulate Sioux
City Ale & Lager Society
(RASCALS)**

c/o Kip Lennon,
Hopski's Homebrew Supply
W. 19th & Center St.
Sioux City, IA 51103
(712) 258-0691
aussm@mcleodusa.net

KANSAS**Derby Brew Club**

c/o Robert Wikstrom
PO Box 643
Derby, KS 67037-0643
(316) 788-4058
brw9952@unixmail.ks.boeing.com

Greater Topeka Hall of Foamers

c/o Kevin Foga
6411 S.W. 29th St.
Topeka, KS 66614-4337

Kansas City Bier Meisters

c/o Alberta Rager
8206 Bell Rd.
Lenexa, KS 66219-1631
(913) 894-9131

Krausen Boys

c/o Patrick Kennedy
9117 W. 116th St.
Overland Park, KS 66210
(913) 441-0353

Lawrence Brewers Guild

c/o Dwight Burnham
1051 Wellington Rd.
Lawrence, KS 66049
(913) 843-4341

Little Apple Brew Crew

c/o Brent L. Benkelman
3202 Willowpond Ln.
Manhattan, KS 66502
(913) 539-4762

Rapscallions of Wichita

c/o Michael A. Romine
548 Redbarn
Wichita, KS 67212
(316) 729-5882

S.E. Kansas**Homebrewers Association**

c/o Ben Fox
611 N. Mulberry
Eureka, KS 67045
(316) 583-7256

**Salina Original Tasting
Society Homebrew Club**

c/o Jim Huskey
319 Russell Ave.
Salina, KS 67401

**Verdigris Valley
Homebrewers Association**

c/o Mark Taylor
824 S. 5th
Independence, KS 67301

Weiss Squad**Homebrew of Liberal**

c/o Jim Ashton
2441 Lilac Dr.
Liberal, KS 67901
jashton@brightok.net

KENTUCKY

Brewers of Central Kentucky (BOCK)

c/o Neal Frazier
182 Saint Ann Dr.
Lexington, KY 40502-1112
(606) 268-0920
nealf@uky.campus.mci.net

LAGERS, Ltd.

PO Box 5384
Louisville, KY 40255-0384

Lone Wolf Brewers

c/o Michael Berheide
120 Delwood Ave.
Berea, KY 40403
(606) 986-2647

LOUISIANA

Baton Rouge Enzyme Wrights (BREW)

c/o Jim Waits
1818 Wooddale Blvd., #18
Baton Rouge, LA 70806
(504) 926-BEER

Crescent City Homebrewers

c/o Ernie Spreen
3405 Lake Trail Dr.
Metairie, LA 70003
MarshallW@ibm.net

Dead Yeast Society

c/o Jim Boudreaux
204 Montrose Ave.
Lafayette, LA 70503-3822
(318) 981-4072
jimboud@bellsouth.net
<http://home.att.net/~patrickeo/>

Mystic Krewe of Brew

c/o Larry Hartzog
210 Spruce St.
Mandeville, LA 70471
(504) 845-8250
jazzbrew@wild.net
<http://www.neosoft.com/~dosequis/homepage.html>

No name nO Blame homebrew Society (No B.S.)

c/o Karl Menzer
402 W. 3rd St.
Thibodaux, LA 70301-3014
(504) 446-6774

Redstick Brewmasters

c/o Erick Swenson
628 Centenary St.
Baton Rouge, LA 70808
(504) 769-2177
coeswe@lsuvmvsncc.lsu.edu
<http://www.greenlee.net/redstick.html>

Shreveport Urban

Diastatic Spargers (SUDS)

c/o Bob Carbone
3956 Fire Tower Rd.
Grand Cane, LA 71032
(318) 858-2219

MAINE

BrewSpeak

c/o Stephen Hodgdon
297 Rte. 236
Berwick, ME 03901
(207) 384-3278

The Down Yeasters

c/o Dr. John B. Macauley
600 Main St.
Bar Harbor, ME 04609
(207) 288-3371 x1523
jbm@aretha.jax.org

Maine Ale & Lager Tasters (MALT)

c/o Ron Bouffard
PO Box 464
Topsham, ME 04086-0464
(207) 666-8888

Raymond Ale Taster's Society (RATS)

c/o Craig Stephenson, Raymond
Homebrew and Zymurgy Shop
22 Haven St.
Windham, ME 04062-4315
(207) 655-3719

Worthog Homebrewing Club

c/o Greg Blanchette
Box 4255
Dresden, ME 04342
(207) 737-8174

MARYLAND

The Aleing Sailors

Homebrew Club
c/o Eric Christensen
1309 Seabright Dr.
Annapolis, MD 21401
(410) 349-0560
epcbrewer@aol.com

Bay Country Brewers

c/o Reid Woolford
243 Bynum Ridge Rd.
Forest Hill, MD 21050
(410) 485-4854

Brewers United for Real Potables (BURP)

c/o Bill Ridgely
704 Woodburn Rd.
Rockville, MD 20851
(301) 762-6523
ridgely@burb.org
<http://www.burp.org>

Brewers Utilizing Refreshments

Normally Toxic (BURNT)

c/o Tracy Rohe
6 Queens Bridge Ct., Apt. C
Cockeysville, MD 21030
(410) 628-2314

Chesapeake Real Ale Brewers (CRABS)

c/o David Nesbitt
5408 White Mane
Columbia, MD 21045
(410) 997-3454

Cross Street Irregulars

c/o Tom Sallase
36 E. Cross St.
Baltimore, MD 21230
(410) 426-3019
tomkhpc@postoffice.worldnet.att.net
<http://home.att.net/~tomkhpc>

Frederick Original Ale Makers (FOAM)

c/o Bob Frank
111 S. Carrol St.
Frederick, MD 21701
(301) 663-4491
newtradbc@aol.com

Gaithersburg Area Brewing Society (GABS)

c/o Bill Lawrence
762 Tiffany Dr.
Gaithersburg, MD 20878
<http://www.echo-sol.com/oths/gabs>

The Killer Ales of Maryland

c/o Alfred May
329 N. Beaumont Ave.
Catonsville, MD 21228
(410) 719-7968; maya@grc.nia.nih.gov

Libation Association of Northern Maryland

c/o Ed Yoakum
230 E. Susquehanna Ave.
Baltimore, MD 21286
(410) 893-7851
ed_yoakum@email.msn.com

Maryland Ale and Lager Technicians, Inc. (MALT)

c/o Steve Barbour
5908 Old Croom Station Rd.
Upper Marlboro, MD 20772-9509
(410) 721-7462
sbarbour@email.usps.gov

Midnight Homebrewers' League

c/o Stephen M. Kranz
741 Windsor Dr.
Westminster, MD 21158
(410) 840-9244; midnight@qjs.net
<http://members.aol.com/SMKRANZ/index.html>

Northern Arundel Beer Brewers (NABBs)

c/o Paul Coffelt
1142 Annis Squam Harbour
Pasadena, MD 21122
(410) 360-9478
blj2x08@bell-atl.com

People's Ale and Lager Society (PALS)

c/o Ben Schwalb
1609 Manning Rd.
Glen Burnie, MD 21061
benbrew@erols.com

Southern Maryland Association of Superior Homebrewers (SMASH)

c/o Gerald Elder
47 Airport View Dr.
Hollywood, MD 20636-9760

Summer Hill Brewers

c/o Bert Belote
222 Little New York Rd.
Rising Sun, MD 21911
(410) 658-2865

Wort Dogs

c/o Brent Talbot
3305 Pinefield Ln.
Waldorf, MD 20601

The Yeastern Shore Brewers of Delmarva

c/o Stephen L. Pratt
27834 Chesterfield Ln.
Salisbury, MD 21801
(410) 341-0787

MASSACHUSETTS

Ana-Lagers

c/o Steve Robinson
89 Bruin Hill Rd.
N. Andover, MA 01845
(508) 691-5238
steve.robinson@analog.com

Attleboro Suds Suckers

c/o Tony Iannarelli
493 Central Ave.
Seekonk, MA 02771
(508) 761-6615

Barleyhoppers Brewing Club

c/o Mark Larrow
154 King St.
Northampton, MA 01060
(413) 586-0150

Berkshire Headhunters

c/o Daniel Stansfield
49 Davenport St.
North Adams, MA 01247
(413) 663-8988

Boston Brew-Ins

c/o George Curran
16 Cutter Ave., #3
Somerville, MA 02144

Boston Wort Processors

c/o John Dittman
PO Box 397198
Cambridge, MA 02139-7198
(617) 547-5113 x900
jason@world.std.com
<http://www.rsi.com/wort/>

Cape Cod Lager and Ale Makers (CCLAM)

c/o Carl Laman
11 Pleasant Park Rd.
Harwich, MA 02645
(508) 432-9524
clayman@capecod.net

Colonial Brewers

c/o Bill Lytle
Box 229
Brookfield, MA 01506

Fitchburg Order of Ale Makers (FOAM)

c/o Joe Zadrozny
PO Box 829
Ashburnham, MA 01430
(508) 534-9681
joez@net1plus.com

Gambrinus Society

c/o Herbert Holmes
92 Marsh Rd.
Barre, MA 01005
(508) 355-2753

Hampshire Brewing Collective

c/o Rob Young
Hampshire College, PO Box 1527
Amherst, MA 01002
(413) 549-7604

IBIS

c/o Wade Krull
32A Cherry Hill Dr.
Danvers, MA 01923
(508) 777-4247

Merrimack Valley Brewers

c/o Fred Lomas
42 Boston Rd.
Lowell, MA 01852
fred@mediamilldesign.com
<http://www.millicitybrew.com/myvb.html>

Missile Mashers

c/o Edward Bardsley
38 Hillside Ave.
Lawrence, MA 01841
(508) 681-9064

North Shore Brewers

c/o Robert B. Murphy
9 1/2 Bisson St.
Beverly, MA 01915
(508) 921-7352

South Shore Brew Club

c/o Randy Reed
32 Copperwood Dr.
Stoughton, MA 02072
(617) 341-8170
rreed@foxboro.com

Spinal Taps

c/o Dr. Michael Biblyk
252 Auburndale Ave.
Auburndale, MA 02166-1619
(617) 527-4255

Trubadours

c/o James N. Athearn
229 Burlingame Rd.
Palmer, MA 01069

Valley Fermenters

c/o Charlie Olchowski
PO Box 988
Greenfield, MA 01302-0988
(413) 773-5920
martyntogether.net

**Worcester Incorporated
Zymurgists Advancing Real
Draughts (WIZARDS)**

c/o Phil Tatro
16 Potter Hill Rd.
Grafton, MA 01519-1116
(508) 839-2320; WizBrew@aol.com
http://members.aol.com/WizBrew/
index.html

Worry Worts

c/o Glen Habel
80 Jones Rd.
Hopedale, MA 01747
greg_habel@dg.com
http://www.zipnet.net/users/rich/
worry-worts.html

MICHIGAN**Ann Arbor Brewers Guild**

c/o Rolf Wucherer
1942 Steere Pl.
Ann Arbor, MI 48104
(734) 662-8476
wucherer@isd.wash.k12.mi.us
http://realbeer.com/spencer/AABG/

Beernutz

c/o Brew & Grow—Bonnie Day
33523 W 8 Mile, #F5
Livonia, MI 48152
(313) 442-7939

Brew Monkees

c/o Paul May
904 Adams Rd.
Franfort, MI 49635
(616) 352-5210

Brewers on the Lake

c/o Bob Schneider
6382 127th Ave.
Fennville, MI 49408
(616) 857-1283

**Brewers Union of Zealous
Zymurgists Homebrewing Over
Pints Supreme (BUZZHOPS)**

c/o Jane Laatsh, Arcadia Brewing Co.
103 W. Michigan
Battle Creek, MI 49017
gadebrin@am.pnu.com

Capital City Brew Crew

c/o Jim Booth
412 Everett Dr.
Lansing, MI 48915
(517) 371-1754

Cass River Home Brewers Club

c/o John Jackson
14098 Landings Way
Fenton, MI 48430
(810) 629-4804

CDRT Beer club

c/o Don Kleist
49355 Marquette Ct.
Shelby Township, MI 48315
(810) 247-8178; kleist@tir.com

Choir Boys

c/o David G. Reneaud
219 N. Saginaw St.
Byron, MI 48418-9119
(810) 266-6166
dreneaud@juno.com

**Clinton River Association of
Fermenting Trendsetters (CRAFT)**

c/o Ken Schmidt
26111 Fairwood Dr.
Chesterfield, MI 48051
(810) 949-5382

The Commission

c/o The Cornmaster
1127 Rosewood
Ferndale, MI 48220
(810) 399-4172

**Computerized Homebrew Avocation
and Obsession Society (CHAOS)**

c/o Pat Babcock
2478 Cabot St.
Canton Township, MI 48188-1825
(313) 397-9758
pbabcock@oeonline.com

Crash Test Brewers

c/o Scott Clark
26100 Bryan
Roseville, MI 48066
(810) 848-2784; Scott_Clark@asl-tk.com

Detroit Car Boys

c/o Ed Marsh
PO Box 92418
Warren, MI 48092-0418
(810) 399-4186

Downriver Brewers Guild

c/o The Brew-It Yourself Center
13262 Northline Rd.
Southgate, MI 48195

**Fermental Order of Renaissance
Draughtsmen (F.O.R.D.)**

c/o Rich Byrnes
30972 Cousino
Warren, MI 48092-1916
(810) 558-9844
75113.411@compuserve.com
http://oeonline.com/~pbabcock/ford.html

Firkin Homerackers Guild

c/o Fred Clinton
100 E. Grand River
Williamston, MI 48895
(517) 655-6701
thingsbeer@voyager.net

Gitche Gumees South Shore Brewers

c/o Grant Ian Lyke
757 Elliott St.
Ishpeming, MI 49849
(906) 486-8324

**Great Lakes Brewers,
Michigan Chapter No. 1**

c/o Joe Gedmen
34632 Hivley
Westland, MI 48185
(313) 721-6288

Hogshead Brewers

c/o D.J. Downs
1994 A Woodward Ave., #215
Bloomfield, MI 48304
(313) 362-4466

Kalamazoo Libation**Organization of Brewers**

(KLOB)
1608 Jefferson Ave.
Kalamazoo, MI 49006-3136
(616) 381-3266
tomf775202@aol.com

**Keweenaw Real Ale Enthusiasts
United for Serious Experimentation
in Naturally-Effervescent
Refreshment Science
(KRAEUSENERS)**

c/o Daniel Butler-Ehle
Rte. 1, Box 27
Calumet, MI 49913
(906) 337-3525

Michiana Omnifarious**Nomadic Kraeuseners & Spargers
(MONKS)**

c/o Todd Keller
1350 Ferry St.
Niles, MI 49120
(616) 683-9162

Mid-Michigan Brewers Union

c/o Martin Woods
1404 Westerrace Dr.
Flint, MI 48532
(810) 733-1870

No Restraints Brew Club

c/o Ronald Rucins
54218 Folklore Dr.
Shelby Twp., MI 48316

**Northern Michigan
Brewer's Guild**

Christopher Wormell
9541 Pickerel Lake Rd.
Petoskey, MI 49770
(616) 347-6424
cworm@sunny.ncmc.cc.mi.us

Pontiac Brewing Tribe

c/o Craig Spicer
5620 Hillsboro Rd.
Davisburg, MI 48350
(810) 625-6093
kegg@usa.pipeline.com

Port Elizabeth Brewers Guild

c/o Mike Kelly
PO Box 1452
Caseville, MI 48725

Prime Time Brewers

c/o Charlie Cope
419 Michigan St., N.E.
Grand Rapids, MI 49503
crcode@i2k.com

The Prison City Brewers

c/o Phil Wilcox
603 W. High St.
Jackson, MI 49203
(517) 796-0569
TheTHP@aol.com

**Upper Peninsula
Brewer's Guild
(UPBG)**

c/o Brian Murphy
6099 Saline-Ann Arbor Rd.
Saline, MI 48176
(906) 482-4708
brmurphy@mtu.edu

MINNESOTA**Boreal Bottlers**

c/o Jerry Bourbonnais
Rte. 6, Box 236
Bemidji, MN 56601
(218) 586-2488

Cloudy Town Brewers

c/o Bruce LeBlanc
1190 Flamewood Dr.
Sauk Rapids, MN 56379
(612) 251-0229

Grin and Brew It

c/o Mark Olson
502 6th St. S.W.
Willmar, MN 56201
(612) 235-3345

Headwaters Homebrew Club

c/o Randall Thompson
3648 37th Ave. S.
Minneapolis, MN 55406
(612) 624-0906
thomp013@maroon.tc.umn.edu

**Minnesota homebrewers
Association (MhBA)**

c/o Michael Valentiner
17735 2nd Ave. N.
Minneapolis, MN 55447
mvalentiner@winternet.com
http://www.winternet.com/~mpv/

Minnesota Mashers

c/o Rex Houserman
14912 Summit Oaks Cir.
Burnsville, MN 55337

Minnesota Timberworts

c/o Ron Elshaug
904 Glacier Ln. N.E.
Rochester, MN 55906
(507) 285-0048
worf@vnet.ibm.com

Mobius Microbrewers

c/o Mark W. Peery
400 Wilshire Dr. S.
Minnetonka, MN 55305-1060
(612) 591-1602

**Northern Ale Stars
Homebrewers Guild**

c/o Bill Clark
417 N. 23rd Ave. E.
Duluth, MN 55812
(218) 729-6302

Northern Lagers

c/o Dan Meyer
2670 Scenic River Dr. S.
Baxter, MN 56425
dan@fed.k12.mn.us

**The Redwing Homebrew
Club—Northern Lights
and Stouts**

c/o Art McLeran
1622 W. 5th St.
Redwing, MN 55066
(612) 388-4984

Rum River Wort Hogs
c/o John F. Rosnow
490 McKinley St.
Anoka, MN 55303-1174
(612) 531-2971
john.rosnow@damark.com

South Metro Wort Mongers
c/o Deb Nelson
14386 Embury Ct.
Apple Valley, MN 55124
(612) 893-6502

We Are: Men of Our Wort
c/o Dave Ziegler
RR1, Box 118
Kasson, MN 55944

Yeasty Boy Homebrew Club
c/o Yeasty Boy Homebrew
3912 Sibley Memorial Hwy.
Eagan, MN 55122
(612) 687-0121

MISSISSIPPI

**Culinary Liquid Arts
and Science Society (CLASS)**
c/o Charles Gutberlet, III
1761 Warrenton Rd.
Vicksburg, MS 39180
(601) 638-2144

Gulf Coast Brews Brothers
c/o Steve Phillips
PO Box 35
Long Beach, MS 39560
(228) 868-8314
swp@datasync.com
<http://www.datasync.com/~swp>

MISSOURI

**Brew Your Own
Beer Club of Central Mo. (BYOB)**
c/o Chris Koetting
1613 Honeysuckle Rd.
Sedalia, MO 65301
(816) 827-1083

K. C. Cú Mheadha
c/o David L. Strange
4311 Charlotte
Kansas City, MO 64110
(816) 531-7240

**Missouri Association
of Serious Homebrewers (MASH)**
c/o Micheal Muller
1316 Eastwood
Rolla, MO 65401
(314) 364-6422

Missouri Winemaking Society
c/o Paul Hendricks
2018 Norma Ln.
St. Louis, MO 63138

St. Louis Brews
c/o Jerry S. Dahl
9 Adams Ln.
Kirkwood, MO 63122
(314) 822-8039
staffoba@maritz.com
<http://stlbrews.org>

ZZ Hops
c/o Ken Sessa
6500 Lee Summit Rd.
Kansas City, MO 64136-1243
(816) 478-1873
kenneth.sessa@fema.gov

MONTANA

**Big Sky Basement Brewers
and Blues Revival Society**
c/o Jim Hunter
614 S. Cottage
Miles City, MT 59301
(406) 232-4378

**Bozeman's Official
Zymurgy Organization (BOZO)**
c/o Hellroaring Homebrew
517 E. Aspen St.
Bozeman, MT 59715
(406) 585-0090
hellroar@aol.com

Carboy Junkies
c/o Alan Stine
13 Placer Ave.
Helena, MT 59601
(406) 406 449-7276
olympus@mat.net

Exalted Brewers of Great Falls
c/o Caroline Carter
1124 4th Ave. N.
Great Falls, MT 59401
(406) 454-3514

Flat Heads Brew Society
c/o Pat Cross
1220 3rd Ave. E.
Kalispell, MT 59901
(406) 756-8195

Hopping Anarchists
c/o Kirk Astroth
7359 Raven Dr.
Belgrade, MT 59714
(406) 388-1232

MT Bocks Society
c/o Craig Seiffert
1916 3rd Ave. N.
Billings, MT 59101
(406) 256-0261

**Pour Bastards of
Northeast Montana**
c/o Paul Pence
PO Box 281
Fort Peck, MT 59223
(406) 526-3636

Zoo City Zymurgists
c/o James Pelland
108 Northview Dr.
Missoula, MT 59803

NEBRASKA

Barley Pops and Alewives
c/o Marilyn Kielniarz
1402 S. 52 St.
Omaha, NE 68106

The Columbus Home Brewing Co.
c/o John Michaels
PO Box 99
Columbus, NE 68602-0099
(402) 564-0598
jmichae@megavision.com

Cops & Hops
c/o Doug Phillips
13630 Guildford
Waverly, NE 68462

Kearney Area Brewers
c/o Jerry Schram
PO Box 784
Kearney, NE 68847-0784
(308) 236-8268
harlan_e_nilsen@kfn.org

Lincoln Lagers
c/o Dave Barnes
330 N. Coddington Ave.
Lincoln, NE 68528
(402) 477-5382

OmaHOPS
c/o Dale Andersen
8101 Boyd St.
Omaha, NE 68134-4219
(402) 571-4506 h
dandersen@barleyboys.com

Las Vegas Brewers Guild
c/o Kyle Carrell
6010 W Cheyenne, #15-227
Las Vegas, NV 89108
(702) 395-4496
kylcarrell@aol.com

NEVADA

**Southern Nevada Ale
Fermenters Union (SNAFU)**
c/o Steve MacMillan
589 Grimsby Ave.
Henderson, NV 89014
(702) 736-8504
GAJoe@AOL.com

Washoe Zephyr Zymurgists
c/o Eric McClary
6185 Franktown Rd.
Carson City, NV 89704
(702) 883-7187

Amoskeag Brewers Club
c/o John Avar
264 Rockland Ave.
Manchester, NH 03102
(603) 625-4019; jandar@aol.com

NEW HAMPSHIRE

Brew Free or Die
c/o Dan Hall
PO Box 1274
Merrimack, NH 03054-1274
(603) 778-1231
bfd@bfd.org
<http://www.bfd.org/index.shtml>

**Dartmouth College
Graduate Brewing Club**
c/o Simon Shepard
HB6127 Dartmouth College
Hanover, NH 03755
(603) 646-1394
simon@einstein.dartmouth.edu

Fermenting Minds
c/o Bill Toothaker
150 Portland St.
Rochester, NH 03867
(603) 335-7012

Lakes Region Homebrewers
c/o Jon Scanlon
RFD1, Box 388B
Northfield, NH 03276
(603) 286-8149
brewmaster@cyberportal.net

New Hampshire Biernuts
c/o Dave Weisberg
PO Box 624
Peterborough, NH 03458
(603) 827-3502

Northern Brewers
c/o The Wine Cellar
650 Amherst St.
Nashua, NH 03063
(603) 883-4114

Postal Brewers Club

c/o Robert Zeigler
934 Lake Shore Rd.
Manchester, NH 03109-5709
(603) 623-8438
rzeigler@juno.com

Seacoast Homebrewers Club
c/o Scott Kaplan
909-D State St.
Portsmouth, NH 03801-4332
(603) 431-9984
grtscott@nh.ultranet.com
www.nh.ultranet.com/~grtscott/homebrew.html

Seacoast Union of Maltsters
c/o Bill Rucker
3 Jessica Ct.
Somersworth, NH 03878-2300
(603) 692-3609

Slaves of Hathor
c/o David Page
10 N. Main St., PO Box 1118
Ashland, NH 03217

Stagger Inn Brewers
c/o Scott Dean
219 N. River Rd.
Epping, NH 03042
(603) 679-1045

Twin State Brewers
c/o Paul White
RR1, Box 106A
Orford, NH 03777
(603) 353-4564

Basking Ridge Brewers Association
c/o Doug Jones
35 Lincroft Dr.
Basking Ridge, NJ 07920
(201) 581-3146; djones@cp.lucent.com

NEW JERSEY

BEERS-R-US (BRU)
c/o Matt Mehalick
974 Linwood Pl.
N. Brunswick, NJ 08902
BeersRUs29@aol.com

Bell Hops
c/o Dave Ballard
599 Putnam Ave.
Piscataway, NJ 08854
(908) 752-7347

Blackwater Brewers
c/o Frank Bossi
1445 Linden Blvd.
Vineland, NJ 08360
(609) 696-7379
JJJacobsJr@aol.com

Brewers Against Bad Beer
c/o Cherry Hill Homebrew Supply
1845 Route 70 East
Cherry Hill, NJ 08003
g.daczkowski@telescience.com
<http://www.hollywoodray.com/babb>

Brunswick Brew Club
c/o Brian Conger
4302 Hana Rd.
Edison, NJ 08817-2569
(908) 248-1559

Gloucester County Homebrewers
c/o Chuck WiNe
137 Pitman Downer St.
Sewell, NJ 08080
(609) 2BREWIT

Hanson House Hoppers/3-H Club
c/o Phil Yuhas
7 Roselle Ave.
Cranford, NJ 07016
(908) 271-5371

Hophedz
c/o Kerry Bendel
38 Kirschner Ave.
Lincoln Park, NJ 07035
(201) 633-7679

Homebrewers of Philadelphia and Suburbs (HOPS)
c/o Steve Seymour
307 Carleton Ln.
Mt. Laurel, NJ 08054
(609) 778-7688; k2222222@aol.com
<http://www.netaxs.com/~shady/hops>

Jersey Shore Homebrewers
c/o Mike Kilkenny
607 Larkspur Ln.
Jackson, NJ 08527
(908) 842-7507

Jersey Shore Homebrewers Association
c/o Paul Veber
16 Myrtle Ave. E.
Woodbine, NJ 08270
(609) 861-1421
veber@acy.digex.net

Millburn Ale & Lager Testing Society (MALTS)
c/o U-Brew Corp.
319 1/2 Millburn Ave.
Millburn, NJ 07041
(201) 376-0973
djbrew@aol.com; www.kzed.com/ubrew

Morristown Mashers
c/o Hop & Vine
11 DeHart St.
Morristown, NJ 07960
(201) 993-3191
julianne@openix.com

Pine Barrens Brewers
c/o Eric G. Cummings
7 First St.
Barnegat, NJ 08005
ecumming@injersey.com

Princeton And Local Environs Ale and Lager Enjoyment Society (PALE ALES)
c/o Joe Bair
82 Nassau St.
Princeton, NJ 08542
(609) 252-1800; schd@pluto.njcc.com
<http://www.angelfire.com/biz/paleales>

South Jersey Fermenters
c/o Mark Delay
39 Englewood Blvd.
Trenton, NJ 08610
(609) 581-0289

Virtual Village Homebrew Society
c/o Stephen Gale
533 Main St.
Landing, NJ 07850
(973) 347-7479
73234.2261@compuserve.com
<http://www.cmg.net/belgium/clubhub>

NEW MEXICO
Block 50 Brewers
c/o Raybon Phillips
1713 Corte Alegre
Alamogordo, NM 88310

Bock To Best
c/o Dave Porter
615 Hwy. 544
Aztec, NM 87410
(505) 334-8622

Borderline Brewers
c/o Glen Schultz
PO Box 1725
Santa Teresa, NM 88008
(505) 589-3087
petro@huntel.com

Desert Quenchers
c/o Larry Kindrick
5210 Calle Del Rancho
Las Cruces, NM 88011
(505) 382-0207
KLAR@zianet.com
<http://www.zianet.com/desertquenchers>

Dukes of Ale
c/o Guy Ruth
11524 Manitoba N.E.
Albuquerque, NM 87111
(505) 294-0302
guyruth@abq-ros.com

The Grainful Heads
c/o Alewife Homebrew Supply
1314 Rufina Cir., Ste. A6
Santa Fe, NM 87505
(505) 474-8046

Homebrew SIG (MENSA)
c/o Ross Goeres
719 Carlisle S.E.
Albuquerque, NM 87106

The Los Alamos Atom Mashers
c/o Michael Hall
1325 43rd St.
Los Alamos, NM 87544
(505) 662-2130
am_president@galt.c3.lanl.gov
<http://www.alpha.rollanet.org/~tamhc/>

Silver City Beer Brewing Guild
c/o Desert Bloom Herbs
506 N. Bullard
Silver City, NM 88061
(505) 388-3542

NEW YORK
Adirondack Homebrewers
c/o Stuart Baird
11 Oneida Ave.
Lake Placid, NY 12946
(518) 523-4621
adkbrewski@aol.com

Albany Barley Converters
c/o Keith Looney
24 Henderson Rd.
Glenmont, NY 12077
(518) 462-9293
looney@moonbrew.com

The ALERS (Allegany Libation Education and Recreation Society)
c/o Jim Lee
146 N. 9th St.
Olean, NY 14753
(716) 373-0927
b800cc@juno.com

Borderline Yeast Infectors
c/o Gary (Doc) Dougherty
449 Court St.
Binghamton, NY 13904
(607) 722-2476

Brewbonic Plague
c/o Vance Conway
PO Box 632
Buffalo, NY 14207-0632
(716) 884-8099

Brewers Alligned to Keep Everyone Drinking (BAKED)
c/o Patrick Higgins
271 E. 10th St., #10
New York, NY 10009
(212) 995-BEER; maurapat@aol.com

Brewers East End Revival (B.E.E.R.)
c/o Mike Deinhardt
PO Box 291
Middle Island, NY 11953-9998
(516) 737-2178
mikeBEER@aol.com

Brewers in Endicott Region (BIER)
c/o John Therriault
1221 Chesnut Ridge
Apalachin, NY 13732
(607) 751-5872
johntherr@aol.com

Brewers United for Real Pilsner (BURP)
c/o Robert Decker
RD#1, Box 354
Livingston Manor, NY 12758
(914) 439-4367

Broome County Fermenters Association
c/o Brice Feal
2601 Grandview Pl.
Endicott, NY 13760
(607) 757-0634

Catskill Mountain Homebrewers Club
c/o Bill & Sue Norotny
RR 3, Box 14B
Hudson, NY 12534-9535

Corning Brew Crew
c/o David Tennent
4748 Clawson Dr.
Campbell, NY 14821
(607) 974-3417
tennent_dl@corning.com

Finger Lakes Fermentors
c/o Molly Evans
23 Chedell Pl., #8
Auburn, NY 13021
(315) 258-8730

Greene's Ale House Society of Homebrewers
c/o Robert Perry
104 W. Bridge St.
Oswego, NY 13126
(315) 592-2424
Malibu@reddragon.com

Homebrewers of Staten Island
c/o Ken Johnsen
124 Jacques Ave.
Staten Island, NY 10306
(718) 667-6659
kbjohns@escape.com
<http://www.wp.com/hosi/>

The Honourable Company of Fermenters of The Barony of Concordia of the Snows
c/o Ari Fisher
64 S. Pine Ave.
Albany, NY 12208
(518) 482-3118

Hudson Valley Homebrewers
c/o Ray Sykes
PO Box 285
Hyde Park, NY 12538
stonewheel.aol.com
<http://alpha.rollanet.org/~hvhb>

Keuka Brewers Association
c/o Michael Cook
8319 Pleasant Valley Rd.
Hammondport, NY 14840
(607) 569-2451

Last of the Brewhicans
c/o Dave Jasnau
51 Hamilton Rd.
Corinth, NY 12822
(518) 654-6378

Libatious Anarchistic Mashers of Buffalo's Inner City (LAMBIC)
c/o David M. Heftka
25 Mercer Ave.
Buffalo, NY 14214
(716) 832-0605; nigott@localnet.com

Long Island Brewers Association
c/o Mark Burford
20 Bell Ave.
Blue Point, NY 11715
(516) 363-2713

Long Islanders for Fermentation Enjoyment (LIFE)
c/o Marc Arkind
PO Box 712
Hicksville, NY 11802-0712
(516) 932-1090 x201
alpine82@ix.netcom.com

Malted Barley Appreciation Society
c/o James Simpson
58-07 Metropolitan Ave.
Ridgewood, NY 11385
(718) 821-6022
maltydog@aol.com
www.nycbeer.org/mbas/index.html

Mohawk Valley Friends of Beer
c/o Scott Barrett
PO Box 220
Leonardsville, NY 13364-0220
(315) 855-4403
scott@partech.com

Mutually United Grain & Grape Zymurgists (MUGGZ)
c/o John Diana
1675 Helderberg Ave.
Schenectady, NY 12306
(518) 356-2310
dknight@vixvax.net

New Jersey Worthogs
c/o Bill Luchkiw
49 Windmill Ln.
New City, NY 10956

New York City Homebrewers Guild
c/o Claus H. Holten
25-06 30th Dr., Apt. 4B
Astoria, NY 11102
(718) 278-3271
102140.1531@compuserve.com

New York Notorious Brewers—Dutchess/Orange Chapter
c/o Chuck Lutz
PO Box 10591
Newburgh, NY 12550
(914) 457-5827

**New York Notorious Brewers—
Ulster Chapter**

c/o John Adam
342 Hurley Ave., 7-9
Kingston, NY 12401
(914) 339-7804

Niagara Association of Homebrewers

c/o Ed D'Anna
1020 Creekside Dr.
Niagara Falls, NY 14304
(716) 283-2118; UnledEd2@aol.com

North Chautauqua Homebrewers

c/o Victor Szewczuk
119 E. Hazeltine Ave.
Kenmore, NY 14217
(716) 873-6080

**North Yeast Fellowship
Of Ale and Mead (NY FOAM)**

c/o Joe Burke, McGonigles
9 W. Main St.
Washingtonville, NY 10992
(914) 496-8112

North Yeast Homebrew Club

c/o Michael J. Bauer
120 Fairmont Ave.
Watertown, NY 13601

**Northern Westchester
Home Brewers Association**

c/o Jeffrey Martocci
42 Upper Croton Ave.
Ossining, NY 10562
(914) 923-0968

Salt City Brew Club

c/o Kieran O'Connor
PO Box 1935
Syracuse, NY 13201
(315) 449-2844; koconnor@syr.edu

Saratoga Thoroughbreds

c/o Rich Rucigay
133 Sandhill Rd.
Greenfield Center, NY 12833
(518) 583-4394
rucigari@pssch.ps.ge.com

Seven Valley Brew Club

c/o John Buterbaugh
4770 Kinney Gulf Rd.
Cortland, NY 13045

Sultans of Swig

c/o Timothy Herzog
412 Lamarck Dr.
Buffalo, NY 14225
(716) 837-7658

**Upstate New York
Homebrewers Association**

c/o Mike Kidulich
PO Box 23541
Rochester, NY 14692
(716) 242-9626; crd@mdsroc.com
<http://www.frontiernet.net/~pnystrom/unyha.htm>

Wort Ever Ales You

c/o Andrew Schmidt
307 Quaker Rd.
Chappaqua, NY 10514
(914) 238-4549

NORTH CAROLINA

Cape Fear Homebrewers Association

c/o David Holesovsky
918 Bashlot Pl.
Fayetteville, NC 28303
(910) 868-8267
dholesovsk@earthlink.net

Carolina Brewmasters

c/o John Mitchell
2358-H Pineview Ln.
Gastonia, NC 28054
(704) 864-3450
jlmitch@charlotte.infi.net
<http://www.wp.com/your.service/cbn/brewmast.html>

**Cary-Apex-Raleigh
Brewer's of Yore (CARBOY)**

c/o Larry M. Matthews
5412 Dutchman Dr.
Raleigh, NC 27606-9794
(919) 362-9407
lmatt@ipass.net
www.ipass.net/~carboy

Green Beret Homebrew Club

c/o Jon Mapley-Brittle
624 Northampton Rd.
Fayetteville, NC 28303
(910) 860-8962
GBBrewClub@aol.com
<http://members.aol.com/gbbrewclub/gbbrew.htm>

Greenville Homebrewing Club

c/o Rick Theiner
302 C Horseshoe
Greenville, NC 27834
(919) 353-7176
73261.132@compuserve.com

**Outer Banks Grain and
Yeast Necromancers (OBGYN)**

c/o Susan O'Brien
PO Box 37
Corolla, NC 27927

**Piedmont Institute
of Sud Sippers (PISS)**

c/o Mike Irwin
5810 Watercrest Dr.
Greensboro, NC 27407
(910) 454-8502

**Triangle Unabashed
Homebrewers (TRUB)**

c/o Gary Clayton
5132 Kenwood Rd.
Durham, NC 27712
(919) 471-4996
garyclayton@mindspring.com

Winston-Salem Wort Hawgs

c/o Ed Pearson
1416 Claxton Ridge Rd.
Kernersville, NC 27284
epearson@nr.infi.net

Yeast Coasters

c/o Robert Suddith
110 Trombay Dr.
Wilmington, NC 28412-2040
bobsudrk@wilmington.net

NORTH DAKOTA

**Aurora Breweralis/
Northern Lights Brew Club**

c/o Steve Augustine
PO Box 5995
Grand Forks, ND 58206-5995
(701) 775-5430
sreeves@prairie.nodak.edu

Buffalo Brewers

c/o Curt Saylor
220 11th Ave. N.E.
Jamestown, ND 58401-3734
(701) 252-4358

Prairie Homebrewing Companions

c/o Dick Nilles
1257 8th St. N.
Fargo, ND 58102
(701) 237-5192
rnilles@fm-net.com

Society of Brewing Scientists (SOBS)

c/o James MacArthur
1814 Ryan Dr.
Bismarck, ND 58501
(701) 222-0991

OHIO

Bloatarian Brewing League

c/o Larry Gray
7012 Mt. Vernon Ave.
Cincinnati, OH 45227
(513) 271-2672
http://ourworld.compuserve.com/homepages/Robert_Pinkerton/bloat.htm

Cincinnati Malt Infusers

c/o Jeff Seeley
1025 Maycliffe Pl.
Cincinnati, OH 45230
(513) 231-6062

Columbus Homebrewers

Understand Good Stout (C.H.U.G.S.)

c/o Walter den Haan
6600 Dublin Rd.
Delaware, OH 43015

Dayton Regional Amateur

Fermentation Technologists (DRAFT)

c/o Gordon Strong
1689 Deerbrook Trail
Beavercreek, OH 45434
(937) 429-2953
strongg@earthlink.net
<http://hbd.org/users/draft>

DLB Home Brewers Club

c/o Tom Jarvis
6006 Rosebelle Ave.
N. Ridgeville, OH 44039
(216) 327-3057

King Cookers

c/o Tom Wolak
5874 Buckeye Ln.
Mentor, OH 44060
(216) 257-8955
tjwo@lubrizol.com

Lima Homebrew Club

c/o John Rezahek
Lima, OH
(419) 226-2338
rezabeks@alpha.wcoil.com

Mount Vernon Brewers Association

c/o Darren Collins
120 Cassil St.
Mount Vernon, OH 43050-1602
(740) 397-7269
durwood@ecr.net

Salacious Homebrewers In Toledo

c/o Robert Morris
9413 Stitt Rd.
Whitehouse, OH 43571-9762
bkatpond@primenet.com
<http://www.ablinks.com/salacious>

**Scioto, Olentangy,
and Darby Zymurgists (SODZ)**

c/o Jonathan Woodman
1823 Hobbes Dr.
Columbus, OH 43026
(614) 876-5999
woodmanj@aol.com

**Society of Akron Area Zymurgists
(SAAZ)**

c/o Art Beall
1524 Carriage Hill Dr.
Hudson, OH 44236
(330) 655-5603
bealla@bellhow.com

**Society of Northeast Ohio Brewers
(SNOBs)**

c/o John Majetic
PO Box 771432
Cleveland, OH 44107-0058
(440) 899-6721
mashtun@en.com
<http://www.en.com/users/mashtun/>

**Youngstown Area Homebrewers
Organization of Ohio
(YAHOO)**

c/o Bob Bero
528 Pasadena Ave.
Youngstown, OH 44502-2248
(216) 533-1035

OKLAHOMA

**Fellowship of Oklahoma
Ale Makers (FOAM)**

c/o Tony Brown
326 S. 8th St.
Broken Arrow, OK 74120

High Plains Draughters

c/o Joe Bocock, King
1129 Robin Hood Ln.
Norman, OK 73072
(405) 329-4517
nagode@draughters.com
<http://www.draughters.com>

Just Brew It!

c/o Fred Wenzel
PO Box 3082
Bartlesville, OK 74006
(918) 335-2740
fwenzel@aaiok.mhs.compuserve.com

**Southwest Oklahoma
Brewing Society**

c/o Peter Gallie
22 Ketch Creek Dr.
Lawton, OK 73501
(405) 529-5250

OREGON

Capitol Brewers

c/o Alan Priest
PO Box 2312
Salem, OR 97308
(503) 375-9980
swarren393@aol.com

Cascade Brewers Society

c/o Scott Weech
26654 Pickens Rd.
Eugene, OR 97402
(541) 935-7074
s_weech@efn.org

**GEnie Users Zymurgy Lodge
(GUZL)**

c/o Stephen Quarterman
2359 N.W. Hoyt
Portland, OR 97210
(503) 241-1856
GEnie page 1152;1

Good Heathens

c/o Randy Reid
1285 Criteser Loop
Toledo, OR 97391
(503) 336-2458

Grateful Deaf Homebrew Society
c/o Scott Martin
2637 S.W. Patton Ct.
Portland, OR 97201
(503) 224-0337

Heart of the Valley Homebrewers
c/o Jerry Marshall
2151 Windsor Pl. N.W.
Corvallis, OR 97330-3173
taratoot@peak.org
www.peak.org/~taratoot/hotv.html

Helles Canyon Quaffers
c/o Ken Hohmann
69796 Jintown Rd.
Wallowa, OR 97885
(503) 886-3501

Hopheads Anonymous
c/o Founder 2
1757 S.E. Kane St.
Roseburg, OR 97470
(541) 672-3185

Mary's Peak Lagers
c/o Dean Bautz
995 N.W. Garfield Ave.
Corvallis, OR 97330-2115
(541) 745-5865

MOHOPS, Newport Brew Club
c/o Duane Cooke
PO Box 129
Newport, OR 97365
(941) 336-4317

Oregon Brew Crew
c/o Bob McCracken
4239 N.E. Flanders
Portland, OR 97213
(503) 235-8732
72714.3316@compuserve.com

Saccharomyces First!
c/o David L. Murray
73 Pine St., #5
Klamath Falls, OR 97601
(503) 883-3070

**Society for Upgrading
Drinkable Spirits (SUDS)**
c/o Kerry Carpenter
PO Box 921
Baker City, OR 97814

Southern Oregon Beer Farmers
c/o Ross Litton
5204 Dobrot Way
Central Point, OR 97502-1612

Southern Oregon Brewers Society
c/o Larry Cosby
4501 Azalea Dr.
Grants Pass, OR 97526
(503) 479-3243

**Stout-hearted
Brewers of the Umpqua Valley**
c/o Paul Moon
PO Box 503
Glide, OR 97443
(503) 496-0119

Strange Brew
c/o Cliff Rice
606 Vermillion
Newberg, OR 97132
(503) 538-6072

Tillamook Brewer's Guild
c/o Quackenbush Homebrew Supply
2002 3rd St.
Tillamook, OR 97141
(503) 842-5331

**Western Oregon Regional
Tasters Society (WORTS)**
c/o Tom Rhodes
2459 S.E. Tualatin Valley., Hwy. #167
Hillsboro, OR 97123

PENNSYLVANIA
**Beer Unlimited Zany Zymurgists
(BUZZ)**
c/o Jim McHale
81 Lancaster Ave. Store 35
Malvern, PA 19355
(215) 889-0905

Berks United Zymurgists (B.U.Z.)
c/o Terry Ripple
1010 Lancaster Ave.
Reading, PA 19607
(215) 777-5520

Boys from Brew Ha Ha
Rte. 222, RD2, Box 2519-1
Fleetwood, PA 19522
(610) 944-0500

**Brewing Excellence
in the Erie Region (BEER)**
c/o Sharryn & Bill Campbell
1631 N. Pearl St.
North East, PA 16428
(814) 725-5964

**Carlisle Regional Association
of ZYmurgists (C.R.A.Z.Y.)**
c/o Steven Browne
15 Mimosa Dr.
Mechanicsburg, PA 17055-5558
(717) 691-0226; jschally@epix.net

**Danville Area Malt Nuts United
for Tastier Suds (DAMNUTS)**
c/o Pete Cera
303 Water St.
Danville, PA 17821
(717) 275-1282

Delaware Valley Draughtsmen
c/o Creative Flair
9730 Easton Rd.
Kintnersville, PA 18930
(908) 996-6008

Happy Valley Happy Hoppers
c/o Russ Meyers
630 Stoneledge Rd.
State College, PA 16803
(814) 234-3785
rvn@icf.hrb.com

**Harrisburg Area
Homebrewers Assoc. (HAHA)**
c/o Tom Scotzin
65 N. 5th St., #C
Lemoyne, PA 17043-1611
(717) 737-0483

Indiana Homebrewers Association
c/o Jim Pallone
1128 Philadelphia St.
Indiana, PA 15701-1678
(412) 463-1899
welchc@mail.microserve.net

Keystone HOPS
c/o Jason Harris
Montgomery Farmer's Market, Rte. 63
Montgomeryville, PA 18936
(215) 641-HOPS

Keystone Keggers
c/o Andrew Kovalchick
124 N. 12th St.
Allentown, PA 18102
(215) 821-4808

Lancaster County Brewers
c/o Bo Meier
1143 Hermosa Ave.
Lancaster, PA 17601
bng@redrose.net

**Lewistown United Society
of Homebrewers (LUSH)**
c/o Kurt D. Dubendorf
PO Box 14
McVeytown, PA 17051
(717) 242-8744

**The MALTS
(Meadow Avenue Loves The Suds)**
c/o Karen Megela, Brewers Corner
316 Rear Meadow Ave.
Scranton, PA 18505
(717) 963-5801
rcse32a@prodigy.com

**Northeast Pennswoods
Homebrewers Guild
a.k.a. The Ales Angels**
c/o Mike Reigle
RR2, Box 81
Weatherly, PA 18255
(717) 427-8748; rsm169@psu.edu
http://www.epix.net/~snash/alesangels/

**Pittsburgh Independent
League of Zymurgists**
c/o Charles Selby
327 S. Evaline St.
Pittsburgh, PA 15224
(412) 441-2911
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**South Central Pennsylvania
Homebrewers Association**
c/o Steve Stoppard
4342 N. George St.
Manchester, PA 17345
(717) 266-5954
brewmutt@aol.com

**State College Underground
Maltsters (SCUM)**
c/o Curt Speaker
309 Mary Elizabeth St.
Boalsburg, PA 16827
speaker@ehs.psu.edu

**Three Rivers Alliance of
Serious Homebrewers (TRASH)**
c/o Nathaniel Lansing
PO Box 203
Coraopolis, PA 15108
(412) 434-8333
rcolaizzi@worldnet.att.net
http://ralph.pair.com/trash.html

Wyoming Valley Homebrewer's Club
c/o Ben Roper
58 Payne Ave.
Kingston, PA 18704
(717) 283-8244
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**York Area Homebrewers
Association (YAHA)**
c/o Mike Knaub, Starview Brew
51 Codorus Furnace Rd.
Mt. Wolf, PA 17347-9723
(717) 266-5091

RHODE ISLAND
Rhody Bloviates
c/o Leon Dudley
199 Mesa Dr.
North Kingstown, RI 02852
(401) 884-1349

SOUTH CAROLINA
Electric City Homebrewers
c/o Wes Ballard
404 Ballard Rd.
Pelzer, SC 29669
(864) 947-6776

Hopportunity of Clemson
c/o Brad Purinton
597 Lakeside Dr.
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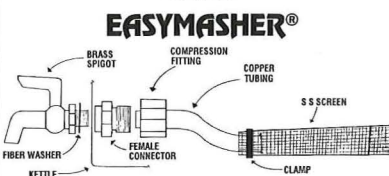
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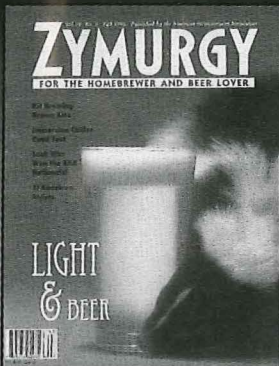
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Shade of Ale (from page 23)

Spices

Witbiers should emphasize spices over hops, which are used primarily to balance sweetness. Some late hopping is OK, but hop flavor and aroma should be spicy rather than floral, hence the preference for noble varieties over New World hops.

Coriander and Curaçao are the mainstays, but brewers add any or all of a host of spices and flavorings. (See sidebar.) Peroulas and Juliano tossed a pinch of cardamom into a recent batch. "We just kind of experimented.

It was lying around the kitchen," says Peroulas. "Cardamom is a sister of coriander in Middle East cooking." Noting cardamom's powerful flavor, the two brewers cracked the pods just enough to open them without breaking the seeds.

The Boston Beer Co. uses a blend of nine spices, including grains of paradise, Curaçao, lemon zest, rose hips and plum, in Samuel Adams White Ale. "If I told you all nine, I'd have to shoot you," quips president Jim Koch. Working with a spice company, Boston Beer's brewers went through a half-dozen blends before they were satisfied.

A Witbier Brewer's Spice Cabinet

Curaçao and coriander are just about universal in white beers, but brewers employ a variety of other spices.

Coriander originally was grown in southern Europe and the Middle East, and is raised today in southern Europe, Asia and North Africa. The seed is called coriander and the leaf is known as cilantro. Coriander is sweet and aromatic and tastes vaguely like orange peel. Northern Europeans use it in gin and pickling spices.

Curaçao orange is an aromatic green fruit named for the island of Curaçao, in the Caribbean north of Venezuela. Curaçao orange is grown in Spain, Italy and North Africa. Beer writer Bill Metzger believes the Dutch may have introduced Curaçao to the Belgians while occupying part of the country in the 1800s. Some brewers use sweet orange peel in addition to Curaçao.

Cardamom traveled from the Middle East to Europe over caravan routes. Today it's grown in many tropical countries. Cardamom's flavor is similar to eucalyptus. A member of the ginger family, it's used in liqueurs, mulled wines and Bedouin coffee. Some 50 related species are sold as cardamom. Once powdered, the seeds soon lose their aromatic properties.

Grains of paradise are also known as Melegueta peppers, Guinea grains or aromatic peppers. They are used in Blanche de Bruges and Samuel Adams White Ale, as well as Boon Faro Pertotale and Samuel Adams Summer Ale. Grains of paradise have a hot, peppery flavor and an aroma similar to cardamom. They are indigenous to tropical West Africa, with most currently originating in Ghana.

Anise is related to dill, fennel, caraway and cumin. Grown in southern Russia, Turkey, India and some areas of Europe, this sweet-flavored spice is native to the Middle East. Star anise has essentially the same sensory qualities.

The bittersweet flavor of licorice root is showcased in the Italian liqueur, Sambuca. Licorice root is infused in hot water to make a soothing tisane.

Originally from the East, cumin is now grown in warm climates around the world. Its warm flavor is common in both Indian and Mexican dishes.

Accounting for one-fourth of the world's spice consumption, pepper is grown in India, Indonesia, Malaysia and Brazil.

Chamomile flowers have a pungent, grassy flavor. Native to Europe, the plant is a member of the daisy family. The fresh plant has a distinct scent of apples, prompting the ancient Greeks to name it "ground-apple"—kamai (on the ground) and melon (an apple), giving rise to the name chamomile.

Rose hips are the false fruits of the dog rose (*R. canina*). They contain malic and citric acids, sugar and traces of tannin, resin, wax, malates, citrates and other salts. Long used for medicinal purposes, rose hips can contribute a hint of astringency.



Nitwit

Belgian White Beer

Allen Bavry, Jr.
Sarasota, FL

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

- 6 lb DeWolf-Cosyns Pilsener malt (2.7 kg)
- 6 lb unmalted wheat (2.7 kg)
- 1 oz whole Cascade hops, 5% alpha acid (28 g) (60 min.)
- 0.5 oz Curaçao orange peel (14 gr) (20 min.)
- 1 oz crushed coriander (28 gr) (5 min.)
- 1 oz whole Cascade hops, 5% alpha acid (28 g) (30 min.)
- BrewTek CL-980 American white ale liquid yeast culture in a 1-quart (0.95-L) starter

- Original specific gravity: 1.046
- Final specific gravity: 1.010
- Boiling time: 60 min.
- Primary fermentation: 7 days at 68 degrees F (20 degrees C) in glass
- Secondary fermentation: 14 days at 68 degrees F (20 degrees C) in glass

Brewer's Specifics

Protein rest: 30 minutes at 122 degrees F (50 degrees C). Raise temperature to 154 degrees F (68 degrees C). Hold for 90 minutes or until negative iodine test.

Prime with .75 cup dextrose (177 mL) and bottle.

Add spices 10 to 30 minutes before the end of the boil to give their aromas the opportunity to emerge but not enough time to volatilize. And don't forget to toss in the secret spice when no one is looking.

Yeast

Villa likes a yeast that ferments cleanly so the spice, malt, oat and wheat character come through. "Look for a good attenuator, a low-flavor yeast. You don't want a cidery or vinous character," he says. "Some look for a slight phenolic character, but I don't agree."

A white beer yeast shouldn't flocculate too well, lest one end up with clear beer.

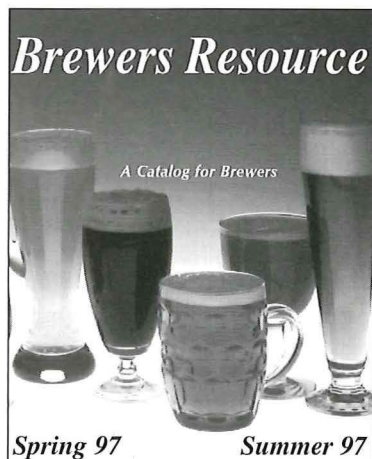
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Steer clear of standards like Chico yeast, which drops extremely clear. Bavvy uses BrewTek American white ale No. CL-980 and has had good results using Wyeast No. 3944 Belgian white beer yeast.

Sourness

White beer often exhibits a slight sourness if made from raw wheat. More intense sourness comes from lactic acid, a byproduct of lactic fermentation, sour mashing or

the addition of food-grade lactic acid.

Villa suggests a sour mash—about three days at 95-104 degrees F (35-40 degrees C)—to lower the pH of the finished beer to around 3.8, but Lodahl cites unpredictable results.

Take care with lactic acid. "If it's added late, it tastes pretty bad," says Villa. Added early, lactic acid can aid in mashing, and it will develop an acceptable flavor after going through boiling, fermentation and aging. The Schaumburgs add lactic acid to adjust their mash pH to 5.3, then use a second addition to drop it to 4.9 before the boil.

Of course, the time-honored souring method is through lactic fermentation. "I don't think it's a big danger," says Vantiegheem, "but you have to practice the highest degree of sanitation."

Subtlety & Balance

Successful witbier brewers strive for subtlety and balance. Peroulas says, "Subtlety is really important with this brew," and he believes American homebrew judges don't always grasp the paramount importance of subtlety in many Belgian brews. "I was surprised how many judges said our beer wasn't strong enough," he says.

Balance is especially critical in a delicate style like witbier. "A white beer is very unforgiving," says Vantiegheem. "Every single little thing will show up. You don't want any one component to take over. Any component overdone will mask other flavors."

"The main purpose of a Belgian brewer is a perfect balance of malt, hops, herbs and spices," says Camps. "To find the balance, that I believe is the art."

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- Jim Dorsch contributes frequently to *Zymurgy* and *The New Brewer*. He is co-chair of the North American Guild of Beer Writers.



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History (from page 31)

1784—John Richardson of Hull constructs the first saccharometer, a hydrometer specially calibrated to measure the sugar concentration of a solution.

1784—James Watt and Matthew Boulton, pioneers in the harnessing of steam power, install steam engines at two London porter breweries, Goodwyn and Whitbread. The devices are initially used to grind malt and pump wort, but will eventually be adapted for every task that formerly required manual labor.

Circa 1790—George Hodgson of the Bow Brewery in East London formulates a beer that will survive the five-to-six month sea journey to India. He brews a pale ale with a high original gravity, hops it at twice the normal rate, then adds a healthy dose of priming sugar to keep the yeast in a feeding frenzy. Thus is born the style India pale ale.

1798—Dr. R. Shannon of England patents a new type of mash tun outfitted with a steam jacket for steadier, more even heating.

18th-19th century—The frugal Scots perfect the process of sparging: spraying the spent grains with hot water to extract the last bit of fermentable sugar. The adaptation of this practice will end the practice of brewing a small beer from the second or third runoff of the mash.

1815—Joseph Coppinger, an English immigrant to America, pens *The American Practical Brewer and Tanner*, possibly the first major tome on brewing to be published in the New World. Among Coppinger's innovations is a new method of keeping the grain pest-free: "...place four or five lobsters on your heap of malt, the smell of which will soon compel the weevils to quit the malt, and take refuge in the walls, from which they can be swept with a broom."

1817—Daniel Wheeler introduces a new method for preparing dark malt, utilizing an iron cylindrical drum similar to that used for roasting coffee. The resulting chocolate and black patent malts make possible the dark porters and stouts we know today.

1819—The Francis Perot brewery on Vine Street in Philadelphia becomes the first American brewery to install a steam engine.

1825-26—Glass vessels, which formerly had to be hand-molded, can now be produced rapidly and cheaply as a result of the invention of the pressing machine in America. Widespread use of glass and a preference for paler, brighter beers will unfold hand-in-hand.

1838—Knetzing and Turpin set forth the theory that brewer's yeast is a living organism and that fermentation is caused by its metabolic processes. Their theory is much ridiculed until Pasteur's time.

1840—John Wagner brews the first lager beer in America in his cottage brewery at 455 St. John (now American) Street in Philadelphia.

1842—Felix Groll, a Bavarian brewmaster from Vilshofen working for the newly built Burghers' Brewery in Pilsen, creates the first clear, golden lager beer. The new Pilsner style, crafted from pale malt, Bohemian hops and soft water, will take the world by storm.

1843—Bohemian scientist Carl Joseph Napoleon Balling devises his own saccharometer and creates his own system for measuring the density of wort. In Balling's system, gravity is expressed as the amount of sucrose per 100 grams of solution, calculated at 17.5 degrees Centigrade.

1857—French scientist Louis Pasteur publishes his landmark work *Memoire sur la fermentation appelee lactique*. In it he shows that different microorganisms cause different types of fermentation, both desirable and undesirable. These organisms, argues Pasteur, can be identified and separated from one another. Pasteur also disproves spontaneous generation, the belief that living organisms are generated from non-living matter. The upshot is that if you destroy all the harmful microbes in a closed container, you should theoretically be able to prevent the beer or wine from spoiling.

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1860—The invention of artificial refrigeration finally frees brewers from seasonal constraints. The Carre ice machine, patented on October 2, is based on the principle that some gases can be liquefied under pressure and that by releasing the pressure, the rapid expansion and evaporation of the gases will produce extreme cold. Carre uses ammonia in his apparatus. A similar machine, using ether, is installed that same year in the Glasgow & Thunder Brewery of Bendigo, Victoria, Australia. Over the next several decades, many inventors (some of whom, like Robert Portner of Alexandria, VA, are brewers themselves) will devise their own refrigeration machines.

1869—George Merz of New Orleans becomes the first American brewer to install an artificial refrigeration device. Rather than the Carre patent, Merz uses a machine designed by Frenchman Charles Tellier, which uses methylic ether as a refrigerant. The experiment is not a successful one: the device continually breaks down and is unable to lower the temperature in the aging

cellar by more than two degrees. The following year, S. Liebmann's Sons' Brewing Company in Brooklyn (soon to become renowned for its flagship brand Rheingold) successfully uses a Carre machine to cool beer and manufacture ice.

1860-1870—American brewers develop the art of adjunct brewing, supplementing the barley malt with up to one-third corn or rice. To improve the extraction rate, brewers learn to boil these adjuncts in a wooden or sheet-iron tub, popularly called a cereal cooker, before admitting them to the mash tun. There are several advantages to adjunct brewing: 1) corn and rice add no protein to the brew, resulting in a more stable product; 2) corn and rice mitigate the harshness of the six-row barley commonly used in America, and 3) corn and rice are more abundant and cheaper than barley. The lighter-bodied, paler lagers gain great popularity.

1873—Anheuser-Busch becomes the first American brewery to bottle beer on a wide scale and adapt the new preservation method called pasteurization. Early pasteurizers consist of "steaming tanks" into which trays or baskets filled with beer bottles are lowered. The tanks are quickly heated via steam injectors, then cooled through the addition of fresh water. By the 1890s, breweries will be using conveyor belts to move bottles in and out of the steam bath.

References

If you're interested in reading more about the strange and wonderful history of brewing, author Kitsock suggests these five books:


100 Years of Brewing, H.S. Rich & Co., 1903; reprinted by Arno Press, NYC, 1974.

Baron, Stanley, *Brewed In America*, Little, Brown, Boston, 1962.

Protz, Roger, *The Ale Trail*, Eric Dobby Publishing, 1995.

Jackson, Michael, *The New World Guide To Beer*, Running Press, 1988.

Dornbusch, Hans, *Prost! The Story of German Beer*, Brewers Publications, 1997.

Greg Kitsock's last story for *Zymurgy* was exploring the depths of Guinness. 

122° Fahrenheit (from page 37) More importantly, amino acid levels are certain to rise above what is required for yeast nutrition. These excess amino acids may also have a negative effect on beer flavor and color.

Some suggest that haze is best addressed with a protein rest at 131 degrees F (55 degrees C) rather than 122 degrees F (50 degrees C). This higher temperature favors peptidase, the enzyme that chops proteins into amino acids. Thus the increased temperature would not change the results in this scenario.

Finally, we must remember that haze formation involves a number of different factors. Brewers' haze concerns can be addressed in other ways during brewing (full starch conversion, good hot and cold break separation, etc.) and also during finishing through the use of filtration or finings.

When it comes to head formation and retention, it seems clear that use of a protein rest is ill-advised when highly modified malts are being used. Time spent in the range from 113 to 131 degrees F (45 to 55 degrees C) will result in an overall reduction in the large soluble proteins that contribute to foam, as numerous sources agree. In addition, beta-glucanase activity will reduce the beneficial foam effects that accrue from beta-glucans.

Reduction of large proteins and beta-glucans may also have a negative effect on the body and mouthfeel of the beer. These compounds contribute to richer, thicker mouthfeel, so their reduction will result in a somewhat thinner beer that may not be in keeping with the brewer's goals.

Proper mash and wort pH levels are generally achieved through manipulation of water chemistry and through various acidification techniques. Although phytase activity at protein rest temperatures can aid in pH reduction, this is a minor contribution that can be safely ignored.

Soluble protein does contribute somewhat to the total extract yield of your malt, but the effect—especially with well-modified grains—is quite small. Large brewers find that they can increase total extract by 0.3% to 0.5% using the protein rest. Given the millions they spend on malt each year, this small improvement can result in significant savings for big brewers. However,

home and craft brewers generally have very low extract yields anyway, and the cost reduction afforded by the protein rest would be insignificant if, in fact, even detectable.

In light of all these issues, it seems clear that a protein rest is not necessary—and may be detrimental—when using well-modified two-row malts in an all-grain mash. Furthermore, the viability of brewing without a protein rest can certainly be demonstrated by the hundreds of brewpubs and microbreweries around the U.S. whose systems do not allow programmed mashing. Despite this limitation, they produce many good beers and sell millions of barrels each year.

EXCEPTIONS PROVE THE RULE

Of course we cannot leave this topic with an unambiguous conclusion. There are times when brewers may be well advised to implement a protein rest. Special circumstances and special formulations may make it advisable to include a stop at 122 degrees F (50 degrees C).

The main one involves nongrain additions to your recipe. Malt extracts are notorious for low amino acid levels. Likewise, sugar, honey, corn or rice in your beer will dilute amino acids. Thus, when these items are used to supplement a mash and they account for more than about 20 percent of the total gravity, a protein rest can be used to increase amino acid levels and ensure proper yeast nutrition.

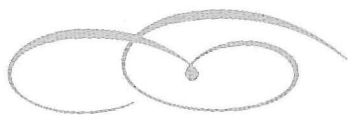
Finally, we have the exception for the malt itself. If the product you are using comes from Germany, and it is distinctly tough and chewy compared to American or British malts, then you may have good reason for a protein rest. If it is a malt you use a lot, you might even do an experiment to compare a batch mashed without the protein rest to one mashed with it. If you can't tell the difference, you can save yourself a lot of time and trouble on brew days by skipping the protein rest.

So like I said, forget the protein rest. Completely. Unless you are working with under-modified malts or sizable adjunct additions. Just forget it. Your beer will be fine.

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Ray Daniels is an internationally known expert on beer and brewing who frequently writes and lectures about beer. He is the author of *Designing Great Beers* and the soon to be released *101 Ideas for Homebrew Fun*.



Dear Professor (from page 58)
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Beyond 1.020,
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Fear of Idophor

Dear Professor Surfeit,

I have two things to discuss, presented in order of importance to me.

(1) I recently began using idophor instead of bleach, to avoid rinsing. I have become concerned with possible idophor buildup. Carboy #1 receives the chilled wort, to settle for a few hours. Carboy #2 (primary fermenter) has the clear wort

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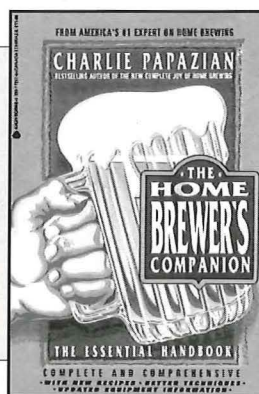
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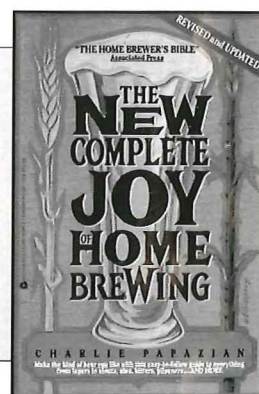


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siphoned off the trub and into it. Carboy #3 is used for secondary/dry hop. And, finally, the keg is also treated with idophor. That is a total of two ounces (57 g) of unrinsed idophor for five gallons (18.9 L) of beer. Should I be concerned?

(2) Finally I want to thank all of you at **Zymurgy**. I had almost given up brewing. Last year I made only four batches of beer

(a definite low) and only one of the four made me proud, two more were drinkable, and the last, sadly, is still in the keg, I will throw it out soon. **Zymurgy** inspired me to brew on. I reread some old issues, some favorite articles, and just vowed to learn and brew better. I dusted off some three year old barley wine that I was sure was fairly good, and returned to my local brewclub after a

six month hiatus. Some suggested beer that good cannot be bought for any price. I am resolved to treat failures as lessons to be learned from and to brew for greatness.

Yours,
Chris
Bloomington, IN

Dear Chris,

I see what you're saying. The drippings from the iodophor rinse add up. It shouldn't be a concern if you are using the proper diluted concentration of this sanitizer. The correct concentration is 12 1/2 parts per million (titratable iodine). Greater concentrations will endanger the flavor or your beer. Don't overdo the concentration.

Thanks for the testimonial. I only hope Zymurgy is reaching more people who may have been discouraged about brewing beer. There's no reason to make unsatisfactory beer. It's too easy to make excellent beer. Unfortunately, if you don't know a few of the simple things it can be easy to make bad beer too.

Keep on brewin' my friend,
The Professor, Hb.D.

Tapped Out On Tap Water

Dear Professor,

I brew with ordinary local tap water, but recently have been getting poor results (strange tastes and odors in my finished brew). Upon inquiring at my local water district I am told that chloramines are now being used in conjunction with chlorine in the water supply. It seems that chloramines have superior residual properties. My questions are: does chloramine boil off like chlorine does? Could it be the cause of my problem? If so, will an activated carbon filter remove it?

Parker Bower
Encinitas, CA

Dear Parker,

You've asked a simple question. I got simple answers. No, chloramines do not boil

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off. It could very likely be your problem: smell and taste kind of medicinal-plastic and a bit chlorine like? Yes, an activated carbon filter should remove chlorine compounds. Do it.

Simply put,
The Professor, Hb.D.

Humpty Dumpty Sat on a Wall...

Dear Professor Surfeit,

We're in something of a quandary regarding diametrically opposite opinions (? statements) regarding the diastase activity of wheat malt.

First, in Eric Werner's *German Wheat Beer*, Classic Beer Style Series, Brewer's Publications, on page 65 he states "... a decoction mash is also necessary to break down ... wheat malt to the point that starch conversion is complete so that the beer will not be plagued by starch haze." Page 60 also describes this.

Second, Gudmeslad and Taylor in *Zymurgy* (Vol. 18, No. 4, Special Issue, 1995) in their malt article on page 9 states, "Diastatic enzyme power is higher than that of barley malt," when speaking of wheat malt.

Sitting here waiting 90 minutes for a weiss beer twice decocted to finish the last starch rest, we're beginning to form an opinion ourselves.

Can those two rather opposite points of view be resolved? We're very familiar with discrepancies not only in daily life but also in the science and hobby of beermaking and are not upset at the variance of opinion, and will relax and have a homebrew.

Can you enlighten us?
Lee C. Shine
Lexington, KY

Dear Lee,

There's this egg I once read about and he said something like, "When I use a word I intend it to mean exactly as what I intend it to mean..." or something like that. Well the dude egg ended up losing his balance and falling off some wall and these other

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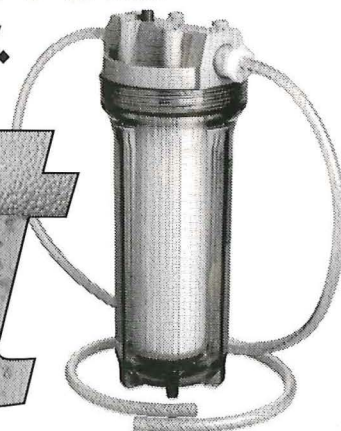
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dudes (they weren't eggs) tried to put him back together again.

The way I figure it is that I've been brewing with wheat malt for years with step infusions and don't get any starch haze problems, but then again I'm usually brewing with a lot less than 50% wheat malt, so my two cents of reality ain't going to help me answer this question.

Yes, wheat malt can be very diastatic. And take it from Eric Warner, he's an expert at what he does, you will need a decoction mash to completely convert. Me? I'd try to get away with a step infusion as a homebrewer and not worry about the few percentages that would not completely convert. I'd take care of my beer during the whole process from mashing to my glass. Yep, there may be a bit of a starch haze, but what's a little starch haze when you're serving up a wheat beer with yeast. Yes, the starch will give rise to the risk of undesirable flavor variation in your brew. But how do you know you don't enjoy this variation unless you've tried it.

Now you've got to take into consideration I don't generally decoction mash. It's a great and loving process but, you know, I just ain't into the extra time and processing at this point in my brewing life.

I'd give the step infusion a whirl and take Eric at his words.

Small percentages don't count—sometimes, The Professor, Hb.D.

Fretting About Fermentation

Dear Professor Surfeit,

I have been brewing for over 15 years now, and very much enjoy reading your column. I normally brew extract recipes with adjunct malts and exclusively use a two-stage fermentation process, the primary in a six gallon plastic bucket and the secondary in a five gallon carboy. To date, I have brewed 179 different (5 gallon) batches, and have won my share of ribbons and medals.

So what's the problem?

Not too long ago, I read an article about

removing the cold trub from the wort about four to six hours after pitching the yeast.

Although I'm familiar with the saying, "If it ain't broke, don't fix it," I decided to try something new. For the past year, after cooling the wort with a immersion wort chiller (which I proudly constructed myself) I pitch the yeast and allow the wort to settle for about four hours in the six gallon bucket. Then I transfer to a six and one half gallon carboy for primary fermentation. Once the primary fermentation is completed (26 days) I transfer to a five gallon carboy for secondary fermentation for the remainder of a month, after which I bottle in 12-ounce bottles.

A great byproduct of the new system is I get to watch the primary fermentation, which was always hidden from view in the bucket before.

So what's the problem? It seems that fermentation in my bottles is becoming uncertain, often stuck. When this happens I move the bottles to a warmer location for a week, shaking occasionally (the bottles, not me). This seems to do the trick.

Please advise, oh, omniscient one.

Thanks,
George O. Proper
Albany, CA

Dear George,

The first thing that comes to mind is that by removing the cold trub you are also removing some of the nutrients essential for healthy yeast growth. This may be the problem you are encountering. While the yeast appears to successfully get through initial fermentations, it may be "pooping out" due to a lack of essential nutrients required for sustenance in old age. If you do remove the cold trub, it's best to really take care to superoxygenate your wort. This can compensate for the absence of cold trub nutrients.

But it does sound like you're getting by, but you know you can do better.

*Fix it when it's broke,
The Professor, Hb.D.*

Send your homebrewing questions to "Dear Professor," PO Box 1679, Boulder, CO 80306-1679; FAX (303) 447-2825 or professor@aob.org via e-mail.

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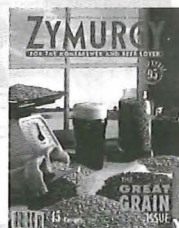
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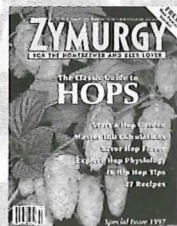
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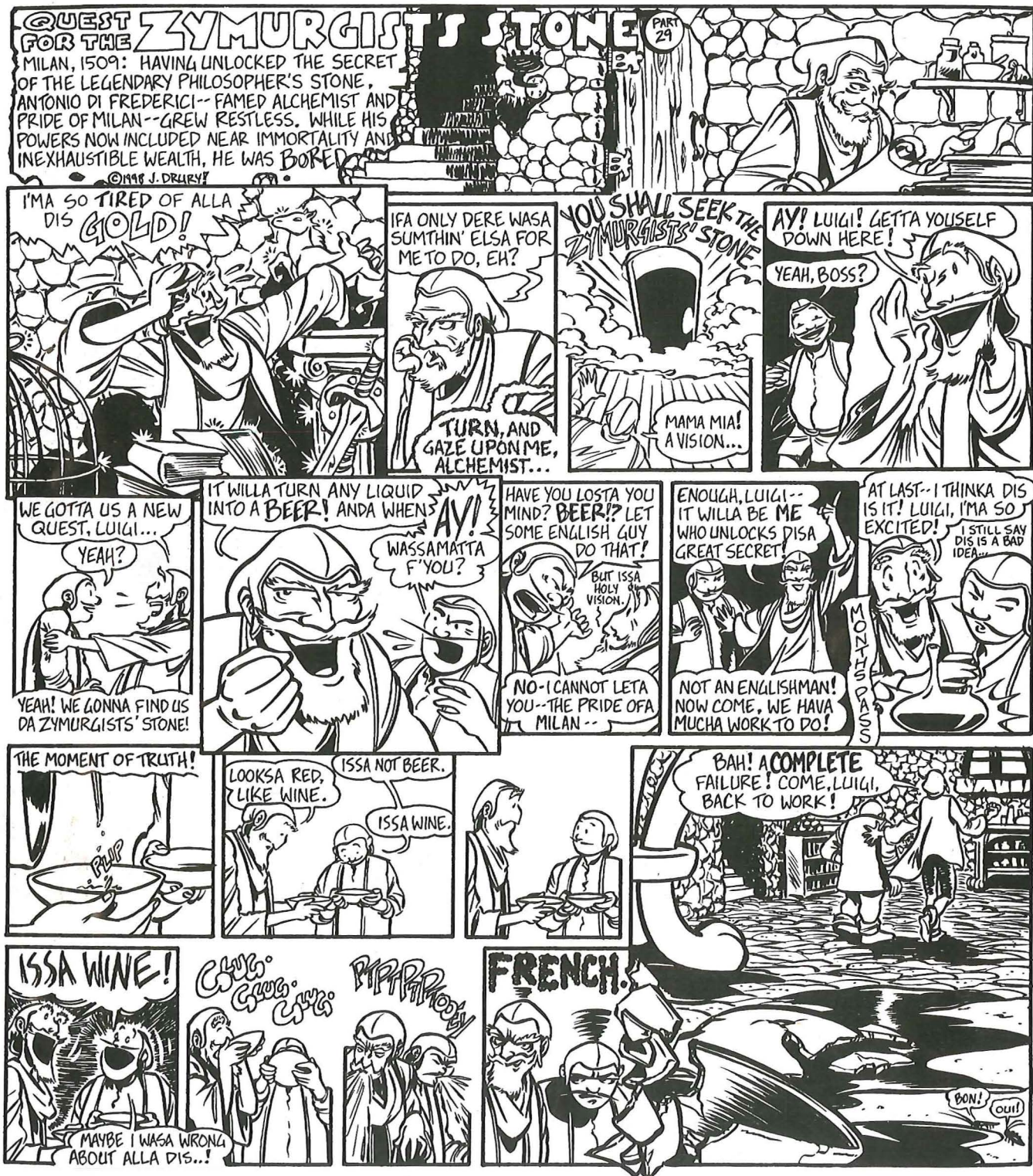
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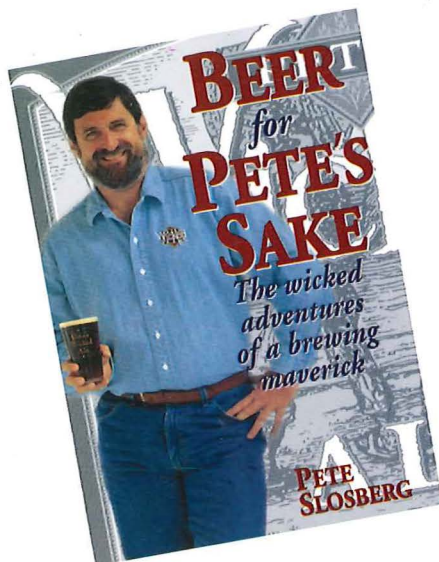
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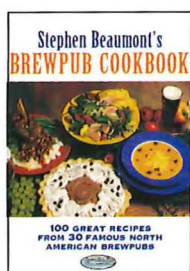
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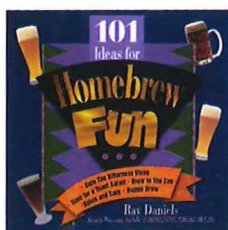
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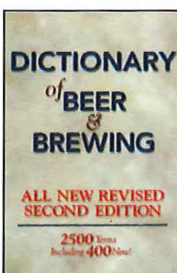


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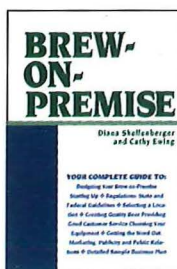
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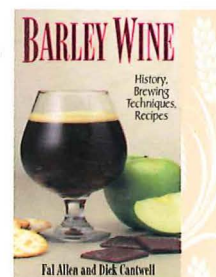
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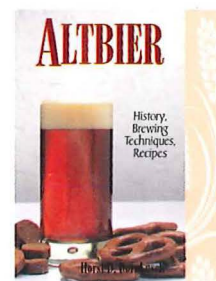


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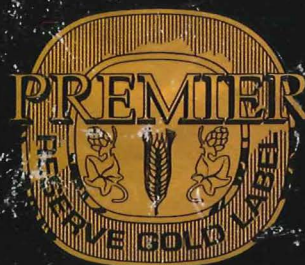
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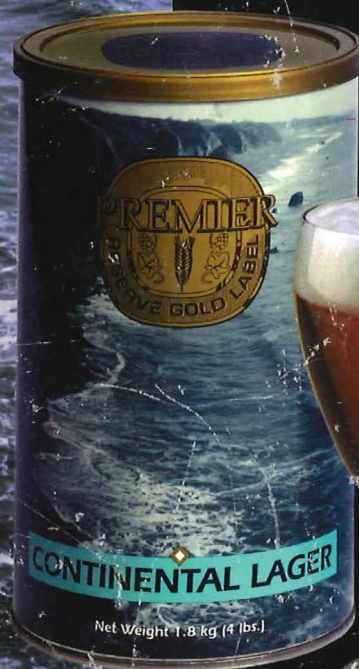
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