

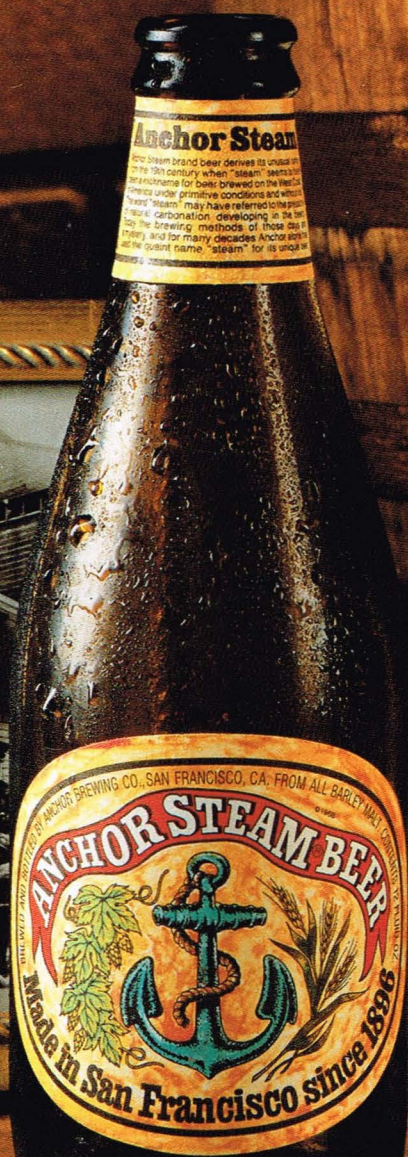
Vol. 22 No. 3 May/June 1999 Published by the American Homebrewers Association

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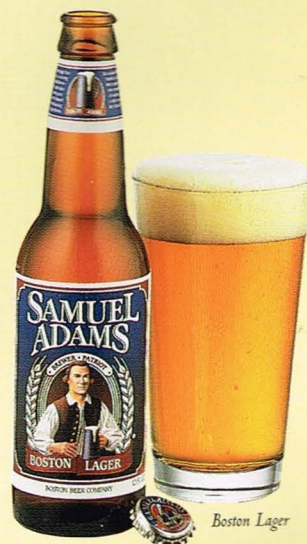
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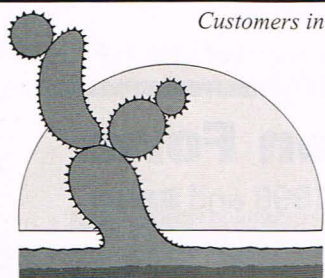
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	Member Rate	Non-Member Rate	Total
Full Conference Registration (includes all conference events)	\$175	\$210	\$ _____
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Prices increase after May 17

Grand Total \$ _____

Reproduce this form for additional registrants. Each member may register one guest at the member rate. Guest registrants should be submitted with the member registration. Send completed form to: AHA, Attn: Conference Registration, PO Box 1679, Boulder, CO 80306-1679 or FAX to (303) 447-2825. Call (303) 447-0816 with questions regarding registration. For hotel reservations at the Holiday Inn in Olathe, KS, call (800) 833-6632 and reference AHA Conference for special room rate.



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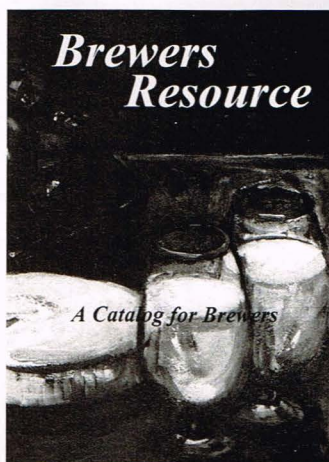
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To promote public awareness and appreciation of the
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and the collection and dissemination of information; to
serve as a forum for the technological and cross-cultural
aspects of the art of brewing; and to encourage responsible
use of beer as an alcohol-containing beverage.

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COLUMNS

IT'S THE BEER TALKING 5
By **Paul Gatz**

HOMEBREW COOKING 8
Harboring Memories by **Dan Rabin**

HOMEBREW CLUBS 11
"Bowling Across Kansas" and other strange tales.

GOD'S OWN BEVERAGE 20
Editor **Bane** takes a brief detour into the world of athletics and beer.

WORLD OF WORTS 46
Charlie Papazian's
The Secrets of Buckfast Abbey

DEPARTMENTS

DEAR ZYMURGY 6

SPONSORS 10

BREW NEWS 13

DEAR PROFESSOR 15

CALENDAR 18

WINNERS CIRCLE 49

HOMEBREW CONNECTION 51

NEW PRODUCTS 61

ADVERTISER INDEX 63

CLASSIFIEDS 63

LAST DROP 64

FEATURES

EXTRACT EFFICIENCY 22
Sometimes, the secret to perfect beer is understanding extract efficiency. **Horst Dornbusch** explains.

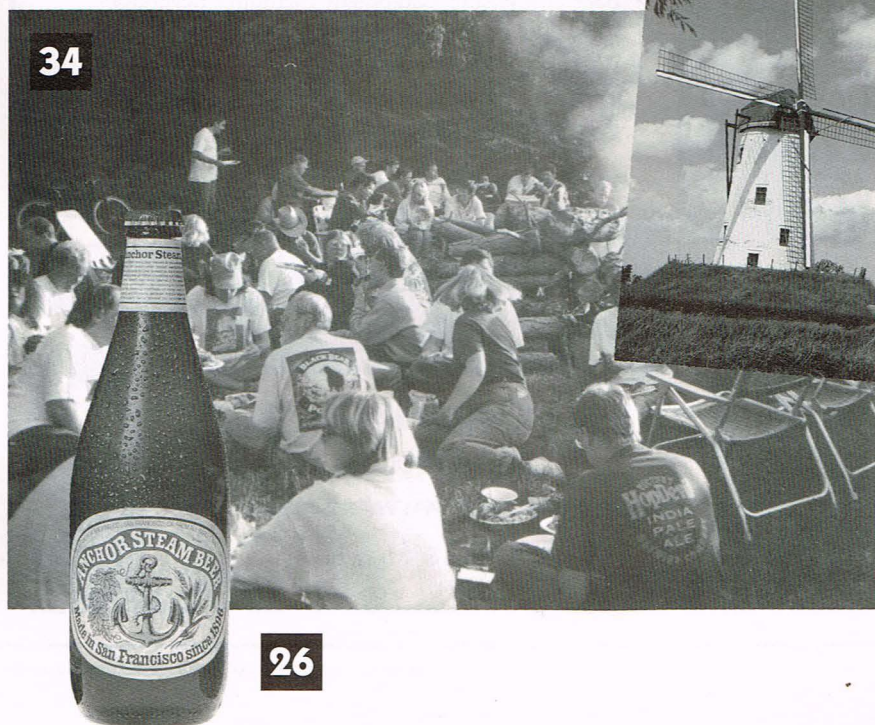
CULT CLASSICS: ANCHOR STEAM 26
Take a trip with author **Greg Kitsock** to the microbrewery that started it all.

SAISON IN STYLE 30
Amahl Turczyn takes a peek into continental farmhouses in search of saison.

BEEN CLUBBIN' LATELY? 34
Want to put more bubbles into your homebrew clubs' activities? **Dan Rabin** tells you how.

HOPS AROUND THE HOUSE 38
Forget those space-wasting rubber plants. **Bill Wood** gives you the lowdown on the perfect houseplant.

THE PALEST ALE 42
Pale ale is a staple in every homebrewer's arsenal.



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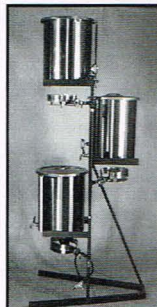
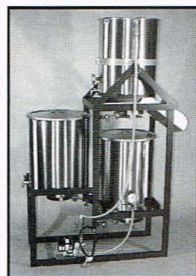
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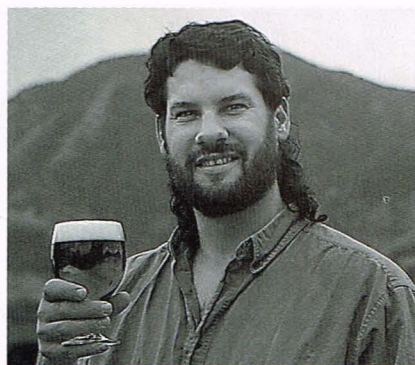
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Come on and join me on the *Zymurgy* bus. Let me just unfold my map here. Okay—we've traveled through Hopsylvania, Barleyville, Yeastburgh. We took that slow but successful road less traveled through Meadville. The map says there is a fork in the road ahead. To one side we can head through the edges of Wineland and Distillia. The other tine leads us through Beertown. Which way would you like to go?

We face a decision at the AHA in general and *Zymurgy* in specific. There are fewer new products being created for homebrewers and a thinning out of homebrew suppliers from the growth of a few years ago. As a result, fewer advertising dollars going toward *Zymurgy* mean a smaller magazine if we continue to focus exclusively on homebrewing. There is nothing wrong if we choose to continue that path. Just as a homebrewer can choose to deviate from a recipe, we have choices about *Zymurgy*. One idea is to have a highly technical article every other month available only on the www.beertown.org Website, so we can save the extra printing and postage costs of additional pages.

What interested most of us in homebrewing at the beginning was a love of beer. If you flip back to the front cover of *Zymurgy* you will notice the subtitle "For the Homebrewer and Beer Lover." We have always been focused on homebrew with some coverage of commercial beers that homebrewers are interested in. Our cult beer series gets the best reviews from reader survey cards of any articles we do. With our minor coverage of unique commercial beers, we are hoping to generate enough advertising to maintain or increase page count. Should we perhaps create a separate beer enthusiast organization to promote the interests of and offer benefits to beer drinkers?

What about wine? Homebrew supply shops are seeing a tremendous growth in



winemaking. One wholesaler reports a 400-percent increase in wine supply sales. For some brewers, wine is a natural progression as another style to ferment. Much of the equipment is the same, with the exception of the corker. It looks like a natural leap for *Zymurgy*, but those same comment cards stated that our past coverage had no business in *Zymurgy*. I am finding this fork to be a rather sticky wicket. One idea an AHA member suggested is to do a wine-only insert paid for by wine product advertisers. That way beermakers would not feel that wine is taking up precious magazine space. What do you think?

Board of Advisers Election

The AHA Board of Advisers amended its bylaws in 1998 to provide for general membership elections to fill board vacancies. The full text of the Board's bylaws is visible at the beertown.org Website. The Board has forwarded five excellent candidates. Candidate statements and the ballot are included in the News and Notes that accompany the Beer Enthusiast Catalog in the polybag that accompanies this *Zymurgy* mailing. Please read the candidate statements, vote for the person you think will do the best job on the Board of Advisers, and mail to the address on the ballot.

Blues, Brews and Barbeque

As you see when you visit the 1999 AHA Conference Website (www.kcbiermeisters.org/BBB99.htm), Blues, Brews and Barbeque is the "Last Great Homebrew Party of the 20th Century." The 1999 AHA Conference, planned, coordinated and run by AHA member-volunteers in the Kansas City area, is scheduled for June 24 to 26 in Olathe, KS. There is a conference registration form on the conference advertisement elsewhere in this issue of *Zymurgy*. Early bird pricing will be in effect through May 17. The speakers list includes Ray Daniels, Charlie Papazian, Paul Farnsworth, Dave Miller and many other homebrewing experts. Social events include a beer luncheon with superchef Dan Turner, the BB&B signature event at Pony Express Brewing Co., and the banquet.

National Homebrew Competition

The first round of the NHC is being held as you read this while enjoying a crisp Pilsener or malty Scottish ale. Your beer may be undergoing evaluation with recommendations on how to improve it from the world's finest homebrew judges. In this way, the NHC helps AHA members brew better beer. For many, learning how to brew better beer is the primary reason to be an AHA member. If you entered this year's NHC, you should be getting your score sheets back by the end of May. If your beer or mead moved to the second round to be judged at the 1999 AHA Conference, consider coming to Kansas City to share in the camaraderie unique among homebrewers. Who knows, we may be awarding you the title of Homebrewer of the Year or naming your club the Homebrew Club of the Year.

Homebrewer and homebrew shop owner Paul Gatz is the Director of the AHA.

License Plates-R-Us

Dear *Zymurgy*,

License plate pix? You want license plate pix? OK—here's one that probably won't be duplicated. It's my brother's Porsche 944 with Connecticut I-BREW plates, parked next to my Porsche 944 with Massachusetts I-BREW plates.

And yes, my closest homebrew shop has closed its doors, but it certainly wasn't my fault! I brew over 30 five-gallon all-grain batches a year and prefer to buy my ingredients and supplies locally. So now I patronize the second-closest homebrew shop. It'll be interesting to see how this all pans out. Keep on plugging!

Very truly yours,
David B. Pratt
Dedham, MA

Cool. I'm waiting for my custom plate, which reads: "GAMERA." Sadly, it is not going on a Porsche.—Ed

Prohibition Fears

Dear *Zymurgy*,

The industry appears to have learned nothing from Prohibition, when it sat back and allowed anti-alcohol forces to destroy the industry using hysteria. If the craftbeer industry allows this present-day form of pseudo-science to classify all beer as carcinogenic because beer is consumed by heavy drinkers who smoke and may get cancer then today's industry deserves the same fate. Consumers do not deserve to again be victimized by Prohibition-2, The Sequel. The press has the power to incite and inform, use it to stop this travesty.

Tom Ciccateri
tciccateri@kcbiermeisters.org

Tom, heaven save us from our run-amok medical "establishment!" I agree 100%. For our



Two guys, two Porsches and two glasses of homebrew.

readers' information, here's the press release in question:

For Immediate Release

Monday, December 21, 1998

Contact: Bill Grigg

(301) 402-3378

Final Comments Sought on Listing Alcoholic Drinks, Second-Hand Smoke in Federal List of Causes of Cancer

The National Toxicology Program today solicited final, written public comments over the next 60 days on the proposed listing of alcoholic beverage consumption and environmental tobacco smoke as "known" causes of human cancer in the federal government's Ninth Report on Carcinogens to be published next year.

The Federal Register notice seeking comment said both exposure circumstances have had three scientific reviews. One by scientists of the National Institute of Environmental Health Sciences, the next by an interagency group of federal scientists and the third by a board largely made up of non-government scientists. All overwhelmingly

agreed the exposure circumstances should be listed as "known human carcinogens."

However, participants in the reviews emphasized that the evidence that alcoholic beverages cause cancer is most clearly established in heavy users and alcoholics, more so than in moderate or occasional users. Studies show the risk of mouth, larynx, pharynx and esophagus cancers is greatest among people who both drink and smoke.

A Slip of the Tongue

Dear *Zymurgy*,

I am not one to be easily offended, but in the latest *Zymurgy* article "Schwarzbier: Fade to Black," (Vol. 22 No.1, Jan/Feb 1999) I had to take exception to the word "Kraut." On page 34 quoting a Mr. Delano Dugarm; "It's a Kraut beer; you have to use Pils malt." If he was discussing Sake would *Zymurgy* print, "It's a Jap wine..." or in discussing a particular Mexican brew, "It's a wet back beer..." or "It's a Pollock..." or "It's a chink beer..." or "It's a wop beer..." Maybe if you do an article on malt liquor you can work the "N" word into the article.

OK Drought Stout

Homebrew
Supply Shop
←

Other than that, keep the good work and I will be watching/reading. Hey maybe I should be editing.

Paul
Paul.Ernst@worldnet.att.net

Point well taken, Paul. Two points, however . . . I remain loathe to change a direct quotation. A person says what he or she says. Perhaps we should have removed the entire quote. Secondly, within the context of the quote, I didn't feel then (and I don't feel now) that there was an ethnic slur intended.—Ed.

Gear Guy

Dear *Zymurgy*,

I have been a long time subscriber to *Zymurgy*, and have enjoyed every issue (which amounts to quite a few by now). I have an idea for a special issue in the future. You have discussed yeast, malt, hops, and special (indigenous) ingredients. That pretty much covers anything that you could put into your beer (aside from water). I think it is time to talk about the equipment. Not necessarily another "Tips and Gadgets" issue, but instead talking about the equipment that most/a lot of us already use. You could talk about the process and equipment at each step of brewing, how it affects the end result, and how you can vary its use. Example: the mash in a stock pot: Does adding heat to raise the mash temperature create a different result than adding boiling water? How? Why? Alternatives?

Do you think there is enough meat there to fill an issue? I don't want to recreate a Papazian book, just give some updated information to *Zymurgy* subscribers from an organization with the logistics to give a diverse viewpoint. Thanks!

Dennis Garrett
ibrubeer@intellisys.net

P.S. I am attaching a copy of my latest beer label to celebrate the Oklahoma Drought of '98.

Probably not an issue, but a pretty good chunk of one! This is a good idea, and we'll get something in the works. Thanks!—Ed

Cylindro-Head

Dear *Zymurgy*,

I would love to see an article test driving and comparing the new cylindro conical fermenters for home brewers that I have seen

advertised in *Zymurgy* as well as the brew cap mechanisms for carboys. I would be more than happy to volunteer my services as the tester!

Kenneth D. Joseph
Santa Fe, NM
Kendeena@aol.com

You know, Ken, we've been trying to do a cylindro conical story for ages . . . I think some of our "test drivers" have been testing too much and driving too little!—Ed

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Harboring Memories

Everyone should live on the coast at some point in their lives. There's something invigorating about awakening to a salty sea breeze. And a dip in the cool breakers is a time-tested cure for numerous ailments, including an evening of overindulgence.

I was fortunate enough to spend my early years along the craggy coastline of New Eng-

land. My playground was the water's edge where my buddies and I romped on the beach and explored the barnacle-encrusted granite outcrops. The beach was always a place of discovery for us. We spent hours watching tiny crabs scurry in the tide pools they shared with starfish, mussels and other exotic creatures. As we grew older and the objects of our curiosity began to change, we made other

important observations at the beach, such as how older girls looked in bathing suits.

Many of my childhood memories involve food, especially seafood. In those days, \$3.50 would buy a tasty lobster roll—a hot-dog bun stuffed with chunks of sweet lobster meat. A steaming bowl of creamy clam chowder would take the chill out of any Canadian cold front passing through.

A home-cooked seafood dinner would always start with a trip to the fish market. We wouldn't think of buying a rubberized, foul-smelling fillet from a big supermarket. New Englanders know their seafood, and can tell you the difference between cod and haddock, quahogs and cherrystones.

About the time I entered junior high school—the term middle school had yet to be invented—my family moved to a house atop a small rise with a harbor view. A path from our backyard led to a small cove where we swam and launched small motorboats and sailboats. Although our house was west-facing, the irregular nature of the coastline afforded us a stunning view of sunsets over the harbor.

One day each summer, our entire neighborhood would gather in a grassy field near the cove for a traditional New England clambake. This festive feast included large pots of boiled lobsters, corn on the cob, a keg of beer and huge quantities of steamed clams—"steamers" in the local vernacular.

Steamers are one of my favorite appetizers, especially when shared communally. Efficiently packaged in a protective shell, they open after a few minutes in a hot steam bath to reveal a morsel of sweet tender meat. After a quick dunk in melted butter, you pop them in your mouth and your taste buds come alive with their succulent, briny essence.

The following recipe will produce a delicious bowl of steamers or steamed mussels.



It also works well for shrimp with a slight adjustment in the cooking method. When you cook clams or mussels, there are a few important rules to follow. First, the shells must be closed prior to cooking. Discard any that are open. Second, the shells must open during cooking. Discard any shells that don't open. With any shellfish be very careful of overcooking, otherwise they become tough and lose their delicate flavor.

Shellfish Steamed in Beer

Makes 2 servings.

Before cooking:

For clams and mussels, thoroughly clean the shells to remove sand and grit. A wire brush works well for this. Discard any open shells. Frozen shrimp should be thawed before cooking. To quickly thaw frozen shrimp, place in a colander under cold running water for five or 10 minutes.

Ingredients:

- 1 12 oz-beer (most pale or amber beers will work well)
- juice of one lemon or lime
- 1 tbsp whole black peppercorns
- .25 tsp salt
- .25 tsp cayenne (optional)
- 3 dozen clams (I like littlenecks or other small varieties) or
- 3 dozen small mussels or
- 1 pound of uncooked, unpeeled, thawed shrimp.

Directions for clams or mussels

In a large pot, combine beer, lemon or lime, peppercorns, salt and, if you like a spicy kick, cayenne. Bring to a boil, add shellfish, cover, and cook for five minutes. Using a slotted spoon, transfer all open shells to a serving bowl. Cook any remaining unopened shells for another two or three minutes. If they remain unopened, discard. Serve with garlic butter.

Garlic Butter

- 2-3 tbsp butter
- 1 clove garlic, minced
- 1 wedge of lemon or lime

Put minced garlic and butter in a small bowl. Heat in microwave until butter is melt-

ed (about 30 seconds). Squeeze lemon or lime juice into melted butter.

Directions for shrimp

In a large pot, combine beer, lemon or lime, peppercorns, salt, and, if you want a spicy kick, cayenne. Bring to a boil, stir in shrimp, cover and remove from heat. Let shrimp sit in the hot liquid until just cooked through. This should take about five minutes, but will vary depending on the size of the shrimp. Serve warm or chilled with cocktail sauce.

Cocktail Sauce

- .25 cup ketchup
- .25 cup chili sauce
- 1 tsp horseradish
- 1 wedge of lemon or lime
- 1 pinch of salt and pepper
- 1 dash of your favorite hot sauce

Combine all ingredients.

Dan Rabin is a regular contributor to *Zymurgy*.

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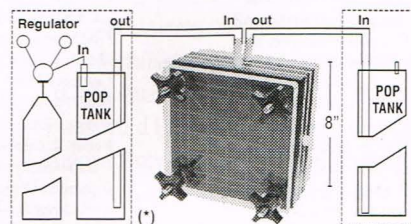
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Club Competitions Create Cool Categories



AHA-registered clubs keep coming up with new ideas and fun events (check out this issue's Clubbin' story). We get much of our information about clubs through club newsletters, so please keep 'em coming and add us to your newsletter list if you like. We prefer electronic format to paul@aob.org or brian@aob.org. A hard copy wrapped around a bottle of homebrew would win points too.

Brian and I recently continued our "AHA Bowling Across Kansas" tour with an overnight stop in Salina. The beer available in the lanes was a choice of Bud, Bud Light and the Silver Bullet. Lanes 10 through 20 were packed with bowlers. For some unknown reason, they put us away from everyone else in Lane 1. Anyway, we were headed to the KC Bier Meisters 16th Annual Regional Homebrew Competition. The competition started with one session on Friday at the Flying Monkey Brewery followed by a beer and cheese pairing designed by Superchef Dan Turner. Saturday started with a breakfast seminar by George Fix. Among other topics, George addressed the technique of frost-brewing at home. I plan on trying it with my upcoming Oktoberfest.

East or West, Beer's the Best

After the two judging sessions Saturday, attendees piled on to two pub crawl buses—an eastern route and a western route. The pub crawl was a great way to



meet new people. I met Greg Kern of the Rum River Wort Hogs and some other great folks from Minnesota who

attend this particular competition each year because of the fun events. The pub crawl allowed the seven-member competition organizing committee to finish the data entry and prepare for the awards dinner later that night. The buses returned to a Texas Round-Up Dinner complete with a swan ice sculpture on the table. Following dinner, the awards were announced, along with door prizes to attendees. With these folks organizing the 1999 AHA Conference (June 24 to 26), a great time is guaranteed. They know how to throw a party!

The event was interesting from a fundraising standpoint. For this competition, the Bier Meisters offered a Beds With Brewers program to encourage out-of-towners to attend by staying with local brewers and avoiding lodging costs. The breakfast charge was \$8 for anyone who was not volunteering as an organizer, judge or steward; the pub crawl cost \$30 and the dinner was a bargain at \$18, with a reduced cost for combining the events into a package. This package attracts distant brewers, which results in an increased number of entries and entry fees.

Super Prizes

Prize Coordinator Alberta Rager compiled the most extensive pile of prizes for winners of special categories and attendees I have ever seen at a competition. She contacted all of the major manufacturers and wholesalers of supplies and filled the table up with steins, yards, shirts and all sorts of other goodies. While ribbons were doled out to the traditional category winners, the best prizes were given out to some untraditional categories: all-grain and extract best of shows, most entries, club quality awards, special awards in the wheat



beer categories and American beer categories, top woman brewer, novice brewer and area brewer. Special categories like these are popping up at competitions all over the place. If your club has a unique category or other fun events at competitions, please forward them to us, and we'll spread the ideas around.

One idea that has worked well on the club level is a first-time entrants category. Let us know if you think we should incorporate this idea into the National Homebrew Competition.

Homebrew Club of the Year Standings

(Through Feb. 1999)

- 6 Points - Hop Barley & the Alers
- 6 - Minnesota Timberworts
- 6 - Mississippi Unquenchable Grail Zymurgists (MUGZ)
- 6 - Quality Ale and Fermentation Fraternity (QUAFF)
- 6 - Weekend Brewers
- 3 - Cary-Apex-Raleigh Brewers of Yore (NC CARBOY)
- 3 - Dukes of Ale
- 1 - Cincinnati Malt Infusers
- 1 - Dead Yeast Society
- 1 - Oregon Brew Crew
- 1 - Pacific Gravity

The Homebrew Club of the Year is given to the club that garners the most competition points on a 6 for first, 3 for second and 1 for third in the 6 AHA Club-Only Competitions (July through May) and the first and second rounds of the AHA National Homebrew Competition. The award will be presented June 26th at the 1999 AHA Conference in Olathe, Kansas. The award is sponsored by Cooper's, the only malt extract made by a brewery.

Beers Without Borders— the Homebrew Club Event of the Year

Thursday night, June 24, is the time and the AHA Conference in Olathe, KS, is the place for Beers Without Borders. Beers Without Borders is the title for a club hospitality night to be held in the ballroom at the Holiday Inn in Olathe. This idea was proposed by AHA Board of Adviser member Ray Daniels and quickly accepted by the AHA Conference Committee. Club Night was the favorite part of old-time AHA

conferences for many attendees. Beers Without Borders will give clubs a chance to set up hospitality stations with food and homebrew around the ballroom. Light hors d'oeuvres and a shrunken pint glass will be available to attendees of Beer Without Borders, and the AHA will make a short presentation of club awards—some serious, some fun. Tables are also available for homebrewers who are not members of a homebrew club. All hospitality tables will be offered free of charge. Entrance to Beer Without Borders is a part of both the full-

conference registration and guest registration packages. Individual event tickets are also available.

"You're Special To Me" Club-Only Competition Winners

The AHA would like to thank Tom Cannon and the members of the Brewers United for Real Potables (BURP) of Northern Virginia and the D.C. area for hosting the 1999 AHA You're Special To Me Club Only Competition. All the entries were in AHA Category 23—Specialty and Experimental Beer. In a category where anything goes, it takes a brave group of judges to agree to host such a competition. We are forever grateful!



In its inaugural year, there were only 20 entries, each from a different homebrew club. But the judges were impressed with all the entries as a group. Thanks to all the participating brewers and homebrew clubs. All your efforts are appreciated.

American Homebrewers Association®

Bockanalia

Grab your goat horns and start brewing! Enter your best spring bock in the "Bockanalia" AHA Club Only Competition. AHA Style Category twelve, three bottles per entry, one entry per club. Entries are due by May 17, 1999. Please use the AHA Sanctioned Competition entry form and include the \$5 entry fee. The host club is Hop Barley and the Aler's.

All AHA registered clubs are eligible and encouraged to participate.

Send entries to:
American Homebrewers Association
736 Pearl Street
Boulder, CO 80302

For more information, visit our web site at www.beertown.org/aha. Or contact Brian Rezac at 1-888-U-CAN-BREW (U.S. and Canada only), (303) 447-0816, ext. 121, or e-mail brian@aob.org.



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Congratulations these, the top 3 brewers!
First Place

Bob Kauffman of Lafayette, CO, representing Hop Barley & the Aler's with his "Rye PA", and India Pale Ale with Rye. (AHA Category 23b)

Second Place

Peter Zien of San Diego, CA, representing the Quality Ale & Fermentation Fraternity (QUAFF), with his Hazelnut Chocolate Rye Ale. (AHA Category 23a)

Third Place

Bruce Thomas of Lafayette, LA, representing the Dead Yeast Society with his Honey Basil Ale. (AHA Category 23a)

Homebrewer and homebrew shop owner Paul Gatz is the Director of the AHA.

Glasses Up for the Beerdrinker of the Year

Once again, against incredible odds, an elite panel of judges has chosen a Beerdrinker of the Year.

Sixty-something James D. Robertson, who occasionally spends time at his home in California, emerged from an outstanding field of fellow *Zymurgy* fans to capture the title, sponsored each year by the Wynkoop Brewing Company in Denver, CO.

"I'm very moved and very proud," said the retired engineer after the grueling selection process ended. "Is there any more of the stout?"

Homebrewer Robertson began his journey in 1976 when, concerned over the then-current practice of large national breweries taking over the smaller regionals, he undertook a book to describe the remaining little guys before they disappeared. His *The Great American Beer Book* tasted and evaluated 570 domestic and imported beers then available.

This launched Robertson on what might be described as the most spectacular binge (not in an offensive way—"To become inebriated on beer is to be unable to enjoy beer," he wisely says) in American beer history. His most recent book, *The Beer Tasters Log*, reviewed and chronicled more than 6,300 beers, of the 8,870 beers he's tasted. He also writes articles on beer, conducts classes on beer appreciation, is regularly interviewed on television and radio and travels around the world in search of those elusive few brews he has missed.

Robertson overcame two other finalists in the judging at the Wynkoop brewery in late January. Jay Van Horn, also a homebrewer, and Steve Pawlowski were close seconds. Although the judges—including AHA Director Paul Gatzka and *Zymurgy* Editor Yours Truly—refused to comment on



Six wise men in judge drag and one really cool bald Beerdrinker of the Year.

the supersecret deliberations, it was no secret that beer contains various substances that can lead to hair loss (in a laboratory setting, of course), and Robertson was the only contestant to be . . . hair-challenged.

Friends Don't Let Friends Karaoke

Home Brew Digest on the Web quotes an Associated Press report that should be a warning to us all. The recent craze for hydrogen beer in Japan is at the heart of a three-way lawsuit between unemployed stockbroker Toshira Otoma, the Tike-Take karaoke bar and the Asaka Beer Corporation. Mr. Otoma is suing the bar and the brewery for selling toxic substances and is claiming damages for grievous bodily harm leading to the loss of his job. The bar is countersuing for defamation and loss of customers.

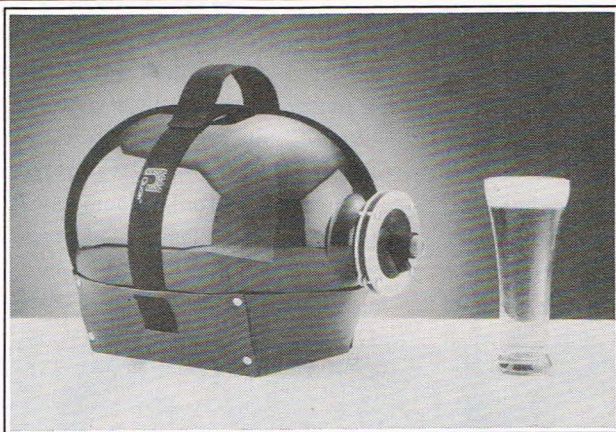
The Asaka Beer Corporation brews "Suiso" brand beer, where the carbon diox-

ide normally used to add fizz has been replaced by the more environmentally friendly hydrogen gas. A side effect of this has made the beer extremely popular at karaoke sing-along bars and discotheques.

Hydrogen, like helium, is a gas lighter than air. Because hydrogen molecules are lighter than air, sound waves are transmitted more rapidly; individuals whose lungs are filled with the nontoxic gas can speak with an uncharacteristically high voice. Exploiting this quirk of physics, chic urbanites can now sing soprano parts on karaoke sing-along machines after consuming a big gulp of Suiso beer.

The flammable nature of hydrogen has also become another selling point, even though Asaka has not acknowledged that this was a deliberate marketing ploy.

It has inspired a new fashion of blowing flames from one's mouth using a cigarette as an ignition source. Many new



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karaoke videos feature singers shooting blue flames in slow motion, while flame contests take place in pubs everywhere.

According to the manager of the bar, Otoma drank 15 bottles of hydrogen beer in order to maximize the size of the flames he could belch during the contest. Despite the fireballs, he failed to snatch first place because his singing skills suffered in inverse proportion to his fire breathing.

Like a monster in a Japanese horror film, Otoma began hurling fireballs at the judges, and was eventually subdued by brave security staffers who hurled themselves on the fire-breathing karaoker.

Of course, that's not what the lawsuit is about. In the fracas, Otoma swallowed his cigarette.

"The Tike-Take bar takes no responsibility for the subsequent internal combustion, rupture of his stomach lining, nor the third degree burns to his esophagus, larynx and sinuses as the exploding gases forced their way out of his body. While we're unable to verify this report, it certainly gives the casual drinker pause.

Frozen Suckers Take a New Twist

Parents and government officials have joined forces in questioning the marketing of a new product being introduced in Australia, the Associated Press reports. The product, ice pops laced with 6% alcohol, debuted in the Land Down Under this year.

The amount of alcohol in the pops is higher than in local full-strength beer, and the pops will be sold in several flavors, including cola, melon, pineapple and orange. A spokesman for the state of Victoria School Parents Club expressed concern that the pops would inevitably show up in the hands of children. Health Minister Michael Wooldridge has asked the producer to reconsider its plan to market the product.

Representatives of the Melbourne-based manufacturer, however, have countered that the pops would be sold in licensed outlets and would have warnings distinguishing them from regular Popsicles™.

This development opens vistas for American microbreweries, who could soon be offering stout, porter and hopsicles!

Michael Bane is the editor of *Zymurgy*. ☺

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Keg Pressure

Dear Professor Surfeit,

To keep bacteria from forming in my kegs, I keep them under CO₂ pressure until needed. Is this a good idea?

John Hewett
Petersburg, PA

Dear John,

I'm taking the liberty to assume we are talking about three- or five-gallon cornelius-type kegs, the type I use and am most familiar with. The type most homebrewers use. Keeping the kegs under pressure isn't a bad idea and it certainly won't hurt. But much more important is to rinse then wash your kegs out with good old elbow grease and a mild abrasive like your household chlorinated cleansers (Ajax, Comet and Bon-Ami). Get the scum out and rinse well with hot water. Unscrew the in and out fixtures and remove the in and out tubes. Give them a good hot water rinse and flushing. Disinfect for 10-20 minutes in a sanitizing solution. Rinse all surfaces with hot-water. Allow to air-dry. Put all the pieces back together again and store with the lid secured. Hopefully at this point you don't have anything in your clean kegs that bacteria will be interested in. Putting them on CO₂ pressure creates a positive pressure but so what if a stray bacteria or two manages to wedge itself some way into your keg? Relax.

Just before kegging, you must resanitize your entire system, though you've already done all of the hard work of cleaning and presanitizing. It's a snap to give the whole deal a quick rinse with sanitizing solution.

I've been using this mentality for 15 years with not one batch going sour because of bad keg sanitation. And believe me, I rotate my

six three-gallon and four five-gallon Cornies a whole lot.

*Positive air,
The Professor, Hb.D.*

Things Are Looking So Bright I Gotta Wear Shades

Dear Professor Surfeit,

Is it a problem to brew beer in the sunlight outside? I am referring to the skunk effect of sunlight on hopped beer. I have recently started brewing all-grain batches and 5.5 gallons of wort won't fit on my stove. I have made a couple of really good batches in my garage, but I would like to brew on my patio, especially in the summertime, cause it gets really hot in the garage with the propane burners flaming. Leaving the cover on the brewpot seems to

lead to foamovers. I tried brewing at night, but fell asleep at the wheel (or kettle). What's a homebrewer to do?

I'm not worried, and I'm having an IPA. Thanks for your help on this.

Pete Swift
Manassas, VI

Dear Swifty,

You've brought up an interesting point. I'd tend to fret and worry myself if I were you, but I have had the fortunate experience of brewing in the great outdoors with lid off for years. I've not noticed any ill effects. Thus I can only speak from my own experience. Now if you start philosophizing or start doing scientific research you might get into trouble.

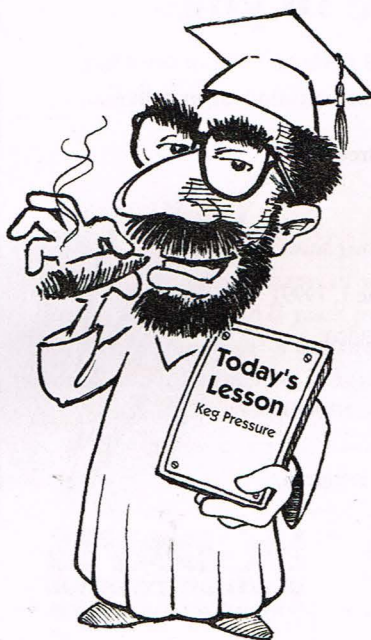
Sure those isomerized alpha acids are getting zapped by those great rays of sunlight that you love to hang out in while brewing beer. I don't blame you and that's my preference too. So maybe theoretically there is factor that we should know about, but practically speaking—relax. Don't worry. Have a homebrew, my man. Just don't brew in glass kettles.

*Enjoying the rays,
The Professor, Hb.D.*

Great Expectations

Dear Professor Surfeit,

One minor problem I have noticed during my brewing is that my specific gravity seems to look consistently low. I have noticed this when duplicating recipes obtained from books, magazines or the WWW. My best guess is that it is related to drawing a sample for reading. I typically aerate the wort after pitching, and then



obtain a sample from my 6.5-gallon glass carboy using a turkey baster with an extension. Maybe I just lead sheltered life, and haven't picked up on a simple trick.

Any words of wisdom?

Ken Gillespie
zymurgyland, U.S.A.

Dear Ken,

I get dozens of the same questions every minute. Here's what to do.

1. Check your hydrometer. Does it indeed read 1.000 for water at 60 degrees F (15.5 degrees C)?

2. Most hydrometers are calibrated for measuring liquids at 60 degrees F (15.5 degrees C). If your wort is warmer you may be inadvertently observing readings that are one to three points lower.

3. Mix, shake, stir, swirl, agitate that newly brewed batch of wort like you would think you should have stopped five minutes ago. Layers of liquids at different temperatures are sometimes very difficult to mix uniformly.

4. *If these all don't ring your bell then perhaps you are expecting too much from your ingredients or your fermenters are not calibrated accurately.*

Don't be too frustrated. I sometimes encounter the same problem. It's always my fault. Always! I've learned not to blame errors on ingredient manufacturers. That's the wimpy way out. Of course, I get almost all my supplies from my local homebrew shop and he makes the effort to get the best quality.

*Underestimated,
The Professor, Hb.D.*

Blow It Out Your Hose!

Dear Professor Surfeit,

I recently received my **Zymurgy** Special Issue (Vol. 21, No. 4, Nov./Dec. 1998) on yeast and was particularly interested in Amahl Turczyn's article on liquid yeast. His advice to use more than two vials of White Labs yeast slurry in a five-gallon batch if the yeast is more than a week old caught my attention. That seemed to me to be a heavy

dose, but I figured he knows a lot more about homebrewing than I do, since I have a mere dozen batches down my gullet and under my belt.

I proceeded to my local, excellent brew supply shop and laid out the extra shekels for three vials of White Labs' finest. Amahl-inspired visions of a rapid starting and progressing primary fermentation danced in my head.

Imagine my chagrin when the fermentation proceeded so actively, violently might be a more appropriate description, that I lost nearly a gallon of the precious elixir through the blowoff tube. The temptation was great to add the blowoff back to the brew when racking off to secondary fermentation, but it had to be dumped to avoid contamination from the definitely unsterile conditions of the spillover container.

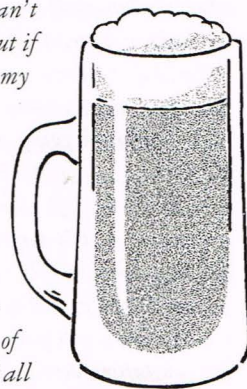
My primary fermentation was definitely quick starting and progressing, but at the agonizing cost of 20% of my planned production. Couple that with the additional cost of the additional yeast and my cost per bottle has risen far beyond that of the most exclusive of commercial microbrews. Definitely not what I had in mind.

I'll chalk this up to experience, which is a big part of the fun of homebrewing in the first place. I hope that my future experiences are far less painful.

Yours in brewing,
Eric Sapir
Littleton, CO

Dear Eric,

Yep, there are a lot of brewing lessons we can all chalk up to experience. This is what makes a great brewer. In fact, experience is the only thing that makes a great brewer. I can't speak for Amahl, but if I ever expect that my yeast is a little tired I simply reculture it with a pint of wort and let 'er rip for one to two days. Then it is certainly up to my standards of success. Never mind all



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the nit-picking yeast counting. If you have clean, good quality and live yeast, it's easy to culture it up in wort. Yes, it's a little extra work, but it works 100% of the time. At least it has for me for the last 16 years.

I'm a little bit of an old fart and sometimes don't take kindly to theory and exactness. I go with what I know works.

*Doing what I brew best,
The Professor, Hb.D.*

Let the Nitrogen Be with You

Dear Professor Surfeit,

I am responding to your reply to Steven Kerver (Frozen and Gassed) in *Zymurgy* Nov./Dec. 1998 (Vol. 21 No. 4), and to his inquiry about carbonating with a carbon dioxide/nitrogen gas mixture. I would like to add my two cents worth.

Nitrogen is very insoluble in water (or beer, for that matter) and I suspect that dissolved nitrogen itself has a very minor effect on the dispense of the stout. According to my Marks Mechanical Engineering Handbook (eighth edition, page 6-7), CO₂ is approximately 93 times more soluble in water than N₂ at 32 degrees F; even O₂ is twice as soluble as N₂.

The main advantage of the nitrogen gas mixture is that it allows a higher pressure dispense without forcing the carbonation level to that pressure; a 75% CO₂/25% N₂ gas mixture allows the beer to be poured at perhaps 16 psi, while the carbonation stays stable at 12 psi (75% of 16 psi). That way you can squirt out the beer at the end of the pour and force the foam to be more dense. The nitrogen in the blend is essentially an inert gas to help push the beer out of the keg. I think force carbonating with the gas mixture is probably pretty inefficient. Save it for tapping.

Gasfully yours,
Roger Beardsley
Roslyn Brewing Company
Roslyn, WA

Dear Roger,

Thanks for the tip of the iceberg. I'm with you 100%.

*You're right on,
The Professor, Hb.D.*



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Iced Mead

Dear Professor Surfeit,

How is life with you? Well, I hope.

All is well up here on the Alaskan ice floes. With one notable exception, I can't get my mead yeast to stop fermenting once I've reached the desired alcohol level. Any ideas? I've used up to four Campden tablets per gallon! Yes, they were fresh tablets. The brand of yeast was Lalvin. I'm now trying other brands known to be weaker, but they are still producing much more alcohol than I care for. Help!!!

Until later,
Angie
Anchorage, Alaska

Dear Angie,

Lalvin is a good wine and mead yeast, no doubt about it. There are many, as you have already discovered. All yeast just keeps on doing its thing until it gets tired. You've discovered the triumph of technology with regard to making mead and using good yeast. But you want a bit less alcohol, don't you?

Well, if you still want a mead that has a bit of residual sweetness while still having completed fermentation, I recommend using some ale yeasts that are known for their success in making eight to ten percent

barleywines. Ale yeasts are highly unlikely to ferment beyond 10 percent alcohol. They simply get tired and overcome with alcohol themselves.

Next time you make mead take your gravity down from 1.134 to 1.000 and add some healthy ale yeast. Strong lager yeast will work too, especially in your neck of the glaciers.

I don't like thinking about using all those Campden tablets (sulfites). They stun the yeast, but don't always do them completely dead. It's unnatural.

What to do with your high-octane mead? Let it clear. Let it finish. Follow winemaking directions for sweetening your mead before bottling. But before you do that add deaerated water (boil water then let it cool—that's deaerated water) to dilute the strength. And like you've already encountered, you'll have to use sulfites in one form or another. It's worth a try if that's where you're at, but the thought of all this unnaturalness makes me quiver. For me, simply pour me a mead, add some water and a teaspoon of honey and I'll be just fine. . . real fine.

*Keeping it natural,
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.

April

23-May 2 Northern Brewer Homebrew Competition, **AHA SCP**, St. Paul, MN. Entries due 4/14/99 thru 4/21/99, Judging: 4/23 thru 4/30, Awards: 5/2/99. Contact Michael Dawson at (651)290-2603 or (651)291-8849, email: dawson@nbrewer.com, <http://www.nbrewer.com/compete.htm>.

24 Brewers East End Revival (B.E.E.R.) Homebrew Competition, **AHA SCP**, Long Island, NY. Entries due by 4/14/99. Contact Chris Pranis at (516)878-2091 (h), Bluepoints@aol.com or mikebeer@aol.com.

26 - 5/8 Upstate New York Homebrewers Association's 21st Annual Competition & 10th Annual Empire State Open, **AHA SCP**, Rochester, NY. Entries due 3/10/99 thru 4/17/99. Contact Turk Thomas at (716)637-9441, e-mail: tbcolin@kodak.com, <http://ggw.org/unya>.

May

1 3rd Annual Western New York Homebrew Competition, **AHA SCP**, Pearl Street Grill & Brewery, Buffalo, NY. Entries due by 4/17/99 with \$7 entry fee for first entry and \$5 each additional. Competition will be followed by Homebrewers Night Out Dinner with beer matched to food. Contact Paul Dyster at (800) 283-4418, email: ntbrew@localnet.com, <http://www.geocities.com/napavalley4031/brewcmp3.htm>.

1 Eighth Annual Green Mountain Homebrew Competition, **AHA SCP**, Burlington, VT. Entries due by 4/16/99 with \$5 entry fee. Contact Dan Marshall at (802)862-7667.

3 Majestic Brewing Cup Series 1999 - Dusseldorf-style Altbier, **AHA SCP**, Louisville, CO. Sponsored by Majestic Brewing Company who will brew and serve the BOS at their brewery. AHA Category 18b only. Entries due 4/26/99 thru 4/30/99 with \$5 entry fee. Contact Chris Munzer, Brewmaster at (303)666-5914.

3-5 JHA National Homebrew Competition, **AHA SCP**, Tokyo, Japan. Sponsored by the Japanese Homebrewers Association. Entries due 4/10/99 through 4/16/99 with \$8 entry fee. Contact Morio Murakami at 043-461-8042 or 043-461-8042, email: homebrewer@cyber.email.ne.jp.

14-16 10th Annual Sunshine Challenge, **AHA SCP**, Orlando, FL. Sponsored by The Central Florida Homebrewers. Contact Steve Vallancourt, email: stevebrau@aol.com.

15 HoPS Second Annual May Fest, **AHA SCP**, Tacoma, WA. Entries due 4/17/99 thru 5/9/99 with \$5 entry fee. Contact Jeff King at (253)843-2817, email: jeffking1958@earthlink.net.

15 Green Bay Rackers 5th Annual Titledown Open Homebrew Competition, **AHA SCP**, Green Bay, WI. Entries due 5/10/99 with \$7.50 for 1st entry and \$5/each additional entry. Contact Mike Conard at (920)388-2728 or (920)388-3747 (fax), email: mconard@itol.com, <http://www.rackers.org>.

15-16 Elizabethan Homebrew Competition, **AHA SCP**, San Bernardino, CA. Entries due 5/1/99 thru 5/4/99 with \$10 entry fee. Contact Laurie Poel at (909)880-6211.

16 Over The Mill Homebrew Competition, **AHA SCP**, Rochester, MI. Sponsored by Rochester Mills Brewing Company and Michigan Beer Guide. Entries due 4/26/99 thru 5/7/99 with \$15 flat entry fee. Contact Rex Halfpenny at (248)628-6584, email: MIBeerguy@aol.com, <http://michiganbeerguide.com>.

21-22 The 17th Annual Oregon Homebrew Festival, **AHA SCP**, Corvallis, OR. Sponsored by Heart of the Valley Homebrewers. Entries due 5/19/99. Entry fee is \$5 ea/\$4 entries 4 and up. Contact Lys Buck at (541)928-3531, e-mail: yoone@ucs.orst.edu, <http://www.mtsw.com/hotv/fest.html>.

22 The 7th Annual Dominion Cup, **AHA SCP**, Richmond, VA. Entries due 4/26/99 thru 5/14/99. Contact Steve Jarrett at (804)745-8091 or (804)530-6313, email: sajarrett@aol.com.

22-23 Spirit of Free Beer - The Washington DC Metropolitan area's largest homebrew competition, **AHA SCP** Sponsored by the Brewers United for Real Potables (BURP). Entries due 4/26/99 through 5/08/99 with \$6/1st entry and \$5/each add'l entries. Contact Andy Anderson at (703) 549-7224, email: andy@burp.org, <http://www.burp.org>.

June

5-6 Celtic Brew-Off, **AHA SCP**, Arlington, Texas. Sponsored by The Knights of the Brown Bottle. Entries due by 5/7/99 with \$5 entry fee. Contact J.B. Flowers at (817)467-0398, email: bpflowers@flash.net, <http://hbd.org/users/kobb/kobb.htm>.

5 Second Annual Firkin Festival, **AHA SCP**, Williamston, MI. Sponsored by The Firkin Home-rackers. Entries due 5/13/99 thru 5/27/99 with \$6 entry fee. Contact Mary Clinton at (517)623-6073 or (734)761-8358, email: mclinton@laceyjones.com.

7-19 San Joaquin County Fair, **AHA SCP**, Stockton, CA. Entries due by 6/5/99 with \$5 entry fee. Awards ceremony is 6/19/99. Contact Rick Stanton at (209)957-2764 or (209)957-4549, email: ruddrick@aol.com.

7 Majestic Brewing Cup Series 1999 - German-style Wheat Beer, **AHA SCP**, Louisville, CO. Sponsored by Majestic Brewing Company who will brew and serve the BOS at their brewery. AHA Category 19 only. Entries due 5/31/99 thru 6/4/99 with \$5 entry fee. Contact Chris Munzer, Brewmaster at (303)666-5914.

12-14 Aurora Brewing Challenge, **AHA SCP**, Edmonton, Alberta, Canada. Sponsored by the Edmonton Homebrewers Guild. Entries due 5/5/99 thru 6/5/99. Contact Ken Nyback at (708)672-1968, email: nursette@telusplanet.net.

26 5th Annual Mill Creek Classic, **AHA SCP**, Salem, OR. Sponsored by the Capitol Brewers. Entries due 6/1/99 thru 6/18/99 with \$5 entry fee. Contact Ron Thomas at (503)873-2520 or (503)873-5181, email: barleyguy@aol.com, www.bus.orst.edu/students/C/CRALC048/website/index.htm.

July

1 Mother Lode Fair, **AHA SCP**, Sonoma, CA. Entries due 6/12/99 thru 7/1/99 with \$5 entry fee. Contact Bill Nielson at (209)533-0360, email: neilson@sonnet.com.

5 Majestic Brewing Cup Series 1999 - Belgian Ale, **AHA SCP**, Louisville, CO. Sponsored by Majestic Brewing Company who will brew and serve the BOS at their brewery. AHA Category 2 only. Entries due 6/28/99 thru 7/2/99 with \$5 entry fee. Contact Chris Munzer, Brewmaster at (303)666-5914.

10 Oregon State Fair Homebrew Competition, **AHA SCP**, Salem, OR. Entries due by 6/25/99 with \$5 entry fee. Contact Sheila Hedlund & Curt Hausam at (503) 373-1765, email: sheila.hedlund@fair.state.or.us, <http://www.fair.state.or.us>.

17 5th Annual Commander Saaz Interplanetary Homebrew Blastoff, **AHA SCP**, Cape Canaveral, FL. Entries due 6/10/99 thru 7/10/99 with \$6 entry fee. Contact Lynn Seelos at (407)633-6605 or (407)861-0656, email: lrselos@aol.com.

August

2 Majestic Brewing Cup Series 1999 - Irish Dry Stout, **AHA SCP**, Louisville, CO. Sponsored by Majestic Brewing Company who will brew and serve the BOS at their brewery. AHA Category 11a only. Entries due 7/26/99 thru 7/30/99 with \$5 entry fee. Contact Chris Munzer, Brewmaster at (303)666-5914.

AHA SCP = American Homebrewers Association Sanctioned Competition Program

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

To list events, send information to **Zymurgy** Calendar of Events. To be listed in the July/August Issue (Vol. 22, No. 4), information must be received by April 23, 1999. Competition organizers wishing to apply for AHA Sanctioning must do so at least two months prior to the event. Contact Brian Rezac at brian@aab.org; (303) 447-0816 ext. 121; FAX (303) 447-2825; PO Box 1679, Boulder, CO 80306-1679.

• KUDOS •

AHA SANCTIONED COMPETITION PROGRAM

• MAY 1998 •

2nd Annual New England Home Brew Competition

Norwalk, Connecticut, 87 entries - Thomas Miklinevich of Monroe, Connecticut won best of show.

• AUGUST 1998 •

Michigan State Fair 1998

Detroit, Michigan, 225 entries - Tom Plunkard of Warren, Michigan won best of show.

• OCTOBER 1998 •

Happy Halloween Challenge

Fargo, North Dakota, 139 entries - Arthur Steinhoff of Burlington, Wisconsin won best of show.

Farmers Fair Homebrew Competition

Perris, California, 35 entries - Craig Westerson of Menifee, California won best of show.

• DECEMBER 1998 •

Humpy's Big Fish Homebrew Competition

Anchorage, Alaska, 75 entries - Tom Wanat of Eagle River, Alaska won best of show.

St. Louis Brews' Happy Holiday Homebrew Competition

St. Louis, Missouri, 350 entries - Kip Innes of Derby, Kansas won best of show.

• JANUARY 1999 •

War of the Worts IV

Lahaska, Pennsylvania, 273 entries - David Houseman of Chester Springs, Pennsylvania won best of show.

• FEBRUARY 1999 •

AHA 1999 You're Special To Me Club-Only Competition

Vienna, Virginia, 20 participating clubs - Bob Kauffman of Lafayette, Colorado, representing Hop Barley & The Ale's, won best of show.



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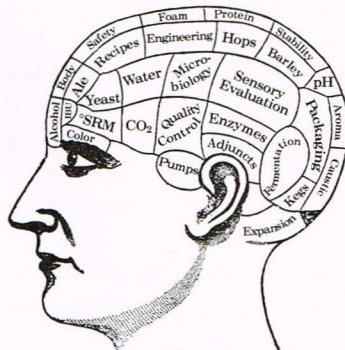
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God's Own Beverage

By Michael Bane

This article by Zymurgy editor Michael Bane appeared in the February 1999 issue of Men's Fitness Magazine, who graciously allowed us to reprint it here.

First, a quick scene:

I'm at dinner at a trendy Atlanta watering hole, maybe ten people around the table. Among them are Pete Slosberg, founder and creator of Pete's Wicked Ale; Charlie Papazian, the world's greatest homebrewer and a host of other professional craft brewers, the brewers America has to offer. There are also, say, 12 pitchers of beer on the table—maybe a few more; things are a little vague here—and I'm getting multiple lectures on malts, hops, degrees of carbonation, bitterness as measured on the ABU scale and other minutiae of craft brewing.

For my part, I'm trying very hard to keep from passing out into my plate of seafood pasta. I am not a full week back from mountain climbing in the Third World, living off tubes of GU and mole sauce; my metabolism is confused.

These guys drink beer like, well, water. Lite water, at that. The best I can hope for is the occasional nod and a thoughtful grunt. I can detect slightly lifted eyebrows, expressions of disdain, as I slip toward unconsciousness. I know what they are thinking: Are you sure he's a Beer Guy?



I am, in fact, a card-carrying Beer Guy. the editor of *Zymurgy*, the foremost magazine devoted to homebrew, and, oddly enough, pretty knowledgeable on the subject of that particular beverage.

As country singer Tom T. Hall once crooned, I like beer. I used to hate the stuff, but then I fell into triathlons. In Florida, where I began racing, all the races seemed to be sponsored by beer companies. And triathletes don't have all that traditional "hale and hearty" baggage that seems to go with bicycle racing and running. Combine that with the heat, and you get a beer truck about five steps from the finish line at each race. Heck, you could cross the finish line, stumble from heat prostration and land next to the beer tap, which someone would obligingly turn on.

After one race, one of the companies brought in a darker beer, something out of the ordinary. I stumbled across the finish timer, took three steps and got in line. That beer was a revelation—it had flavor, depth, complexity, thirst-quenching without being weak. Of course, I'd been flat out for about 2 1/2 hours in 90-degree heat. I would have probably thought swamp water mixed with industrial run-off was tasty.

After that experience, I became a hopeless beer experimenter—warm English ales, mud-brown stouts, obscure Central American beers, Italian beer that tasted suspiciously like old sweat from tour de France riders, beers reeking of cranberries from Belgium, German brews that would strip paint. My training partners came to dread the oblig-

ator post-hammer trip to the bar. When the wait-person would say, "Care for a beer," someone would roll their eyes. "Here he goes again," they'd say. "Just bring him something that leaves a ring around the glass.

Granted, sometimes it gets a little hard to reconcile the fitness lifestyle with the beer lifestyle. I remember doing one Cross Florida bike ride, 170 miles in brain-killing heat, as part of a team of five riders. I was sitting on the curb, trying to remember how to get the cap off the bottle, when one of the other team riders walked over.

"After this healthy, healthy thing you've just done," he said, "how can you rationalize poisoning your body?"

"Good question," I replied, finally succeeding in getting the cap off and taking that first, cold drink.

I think my rationale bears repeating here. It is a question of balance. When I first started triathlons, I lived, ate, slept and breathed triathlons. I raced every other weekend for four months a year, trained like a crazy person, kept a meticulous training log, got plenty of sleep and ate only things that were good for me. The net result was that I was frustrated and angry all the time. The longer I raced, and the more I shifted to other, higher risk sports such as mountaineering and cave diving, the more I came to realize that my focused, Type A lifestyle wasn't causing the problem—it was the problem!

Slowly it dawned on me that if I didn't find some kind of balance in my life, inevitably—on some cold, windswept rock or at the edge of a hard, black abyss—I

would push myself that one extra step too far. And I wouldn't even see it coming.

These days, I can equally appreciate both the latest in carbon fiber bicycle technology and the newest release from any one of Colorado's zillions of microbreweries. A hard day's hammering and savoring a couple of bottles of homebrew aren't mutually exclusive. You can train, and race, and still have a life. Yes, I'm carrying a few extra pounds, but it has been a long time since I spent days agonizing about why my run split time was off.

Plus, I'm now privy to a host of worthless beer trivia. Did you know, for example, there's a school of thought that holds beer responsible for all of civilization? Forget what they taught you in high school: our nomadic hunter-gatherer ancestors didn't give up their wanderings and become farmers to grow grain for bread. They needed that grain for beer. Plus, being a Beer Guy gives me something to think about when I do race. At last year's Escape from Alcatraz triathlon, the only thing that got me through the last two miles of run was visualizing a tall cold glass of Anchor Steam, San Francisco's indigenous beer, waiting for me just a few steps away.

Last week, I finished the Ride the Rockies bicycle tour—five days, 356 miles, 26,600 feet of elevation gain. The ride was co-sponsored by a microbrewery. Every day, as we were grinding up those 10,000 foot mountain passes, the New Belgium Brewery beer truck would pass us, followed by cheers and shouting. After five or six hours on the bicycle, I would find myself in front of the beer truck, along with hundreds of other dusty, thirsty pilgrims, prepared to answer the hardest question of the day:

Golden ale, Belgium-style abbey ale or Tripel?

PS: In case you must know, the best beer in the world—according to Mr. Beer Guy here—is Alaskan Brewery's Smoked Porter, which you've got to go to Alaska (sometimes Seattle) to get. The best beer you're most likely to find is Anchor Porter, followed closely by Sierra Nevada's Mild Bock (which is actually a maibock...but don't get me started). Enjoy, in moderation.

Michael Bane is the editor of *Zymurgy*. ☺

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EXTRACT Efficiency

By Horst D. Dornbusch

Ever had this experience? You found a great new recipe, say, for an ESB. You made the beer. But the result—*your* result!—could not have been what the author of the recipe had in mind. You never reached the target original gravity nor the expected kettle volume, the color was too pale and there was way too much hops in the beer. You thought you bought the correct ingredients, and you followed the recipe instructions to the “T,” but the beer, though drinkable, was just so-so. And it sure didn’t taste anything like a real ESB.

Something went wrong! Either the person who came up with the recipe had no business getting it published, or something was not right at your end. Chances are

the answer lies in a missing but crucial piece of information: the recipe’s implied extract efficiency.

I own a neat little library on brewing. Some books are more theoretical in scope. They deal mostly with the ingredients and processes of beermaking. Other

books take a more practical approach. Usually, they also contain beer recipes. While the pure brewing textbooks generally deal with extract efficiency on

The Secret Variable in All-Grain Recipes

some level, but—except for the strictly academic tomes—rarely comprehensively, the recipe books seem to be conspicuously coy about that subject. I have never understood why there should be such a pervasive disconnect between theory and practice on this

issue, since extract efficiency is one of the key variables that determine the outcome of your brewing efforts.

Barley on the stalk contains about 15% water by weight—a little less in years with lots of sunshine, a little more in years with lots of rain. The rest is made up of “dry” substances—mostly starches, cellulose, proteins, gums and such trace elements as tannins and fats. Using these dry substances as a base (100%), between 70% and 80% of the dry materials are water soluble and susceptible to enzymatic action, that is, they are “extractable” in the brew house. This extract potential differs from one grain type to the next as well as from one growing year to the next. It is also generally lower for darker, more highly kilned grains than for paler, more gently kilned grains. The objective of milling, mashing, lautering and sparging then is to convert and extract as many of the grain’s soluble materials as possible. In an ideal system, of course, we would extract *all* the solubles. In the real world, however, we will always leave a few extractables in the spent grain. The extent to which we are successful in extracting the grain’s solubles into the wort is called our system’s extract efficiency. Thus, when we say that a wort has a gravity of 12 °P (OG 1.048), for instance, we refer to a wort that contains 12% extract and 88% water, by weight (not by volume). This extract is 12% *of the wort* (using the weight of the wort as a base), but it is likely to be between 60% and 75% *of the grains’ dry weight*, depending on the efficiency of our system.

Most of the grains’ natural water content evaporates during the malting and kilning process. By the time we mash-in, brewers grain typically contains as little as 3-6% water by weight. As a practical matter, therefore, brewers calculate the extract efficiency of their system by relating the amount of grain put into the mash tun (by weight, including the little bit of moisture content) to the amount of wort obtained from that grain bill (the net kettle volume at the end of the boil) and to the wort gravity at the end of the boil (the beer’s OG).

Because mashing and lautering are inherently imperfect processes, no system can extract all of the soluble grain materi-

al. Only under laboratory conditions is it possible to achieve an extract yield from pale malts of about 80%. The equivalent value for strongly roasted or crystallized malts is typically only about 70%, because some of the formerly soluble materials become insoluble during the high-temperature kilning of these malts. For malts with intermediate color values, the theoretical extract value is somewhere between the percentages for pale and dark grains. The extract value of a grain bill that is composed of various grains, therefore, is made

**Because mashing and
lautering are inherently
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soluble grain material.**

up of the theoretical extract values of each grain adjusted for its share of the grain bill.

Maltsters always disclose the maximum extract ratings of their grains as *nominal* values, that is, as the laboratory values based on the grain’s *dry* weight, when it is very finely and uniformly ground. But because the grains used by real brewers are never completely dry nor too finely or uniformly ground, the maximum extract figure that is empirically achievable in the best of brew house systems tends to be about five percentage points below the theoretical ideal generated in the laboratory. Commercial brewers obviously aim for this practical optimum for economic reasons, but there are many factors that can drive real-world extract values into the basement.

Extract efficiency in a real brewhouse or in a homebrew kitchen is determined mostly by three broad classes of variables:

- the characteristics of the mash ingredients,
- the efficacy of the mash/lauter process, and
- the construction of the mash/lauter system.

The hidden—and usually false—assumption behind most recipes is that you brew with the same extract efficiency as the recipe author did during the formulation of the beer; that is, that ingredients, processes and physical systems variables are constant and uniform throughout time and space.

Extract Efficiency and Mash Ingredients

The nature and quality of the grains available from your local supplier have a lot to do with the characteristics of the wort you get from them. If you are unsure about your grain specifications, ask questions. If your supplier cannot give you the information you need, consider shopping around until you find one who can.

Ask about the grain’s nominal extract rating, which is partially determined by its diastatic power. Extract ratings for the same grain type can vary by as much as 3% from one harvest to the next. Thus, the gravity of five gallons of wort (after the boil) from the same amount of grain from different years can vary by a corresponding amount.

Likewise, if the recipe calls for the addition of, say, Munich malt, some maltsters kiln their Munich to a color of 8 °Lovibond, while others kiln theirs to a color of 12 °Lovibond. Since darker malts have less diastatic power and more insoluble material, their extract potential is also less, and the wort obtained from darker grains has a lower gravity (for the same grain weight and kettle volume). Even if you purchase grains with the same names as those listed in the recipes, they may not have the same color values and thus may not yield the same amount of extract.

If you store your grains in a humid environment, they may absorb water until their moisture content equals the humidity level of the ambient air. Thus, when you weigh out such grains before milling, you are adding proportionally more water and fewer extractable materials to your grain

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from Boston to New York without refueling.**

bill than you normally would, and your extract efficiency suffers correspondingly.

The pH value of your brewing liquor and the related mash pH have an effect on enzymatic activity. Diastatic enzymes work best at a mash pH of roughly 5.2-5.6. Thus, if your mash is too acidic or too alkaline, you convert fewer starches to sugars and your extract value deteriorates.

Extract Efficiency and Mash/Lauter Processes

Process variables are among those over which the brewer has some control. Review your methods and consider the points listed below. They may help you revise your technique and get more out of your grain.

The efficiency of your brewing efforts is influenced by the fineness of your grind. Though this influence is difficult to quantify in the abstract, theoretically, extraction increases with fineness but, practically, flow-through during lautering and sparging may become inhibited, which may reduce extraction.

The thoroughness with which you mix your mash makes a great difference in the amount of extract you can expect from a given quantity of grain. Dry clumps in the mash tun always reduce extract efficiency.

Your mashing type (single or step infusion, or decoction) also has a bearing on your extract efficiency. Step mashing is often credited with improving extraction, because grain solubles and enzymes are allowed to hydrolyze more completely and

thus perform a better conversion job. Likewise, if you mash-in at a lower temperature of, say, 122 degrees F (50 degrees C), enzymes called beta-glucanase become active. These break down gums in the grain and increase the flow-through of your grain bed. This, too, enhances extract efficiency.

Mash viscosity is a variable that has an indirect impact on extract efficiency. Thicker mashes favor the activity of proteolytic enzymes, which reduce large-molecular proteins to smaller-molecular ones, while thinner mashes favor the activity of diastatic enzymes, which convert starches to sugars. Because about 8-13.5% of the grain's dry weight is protein and 58-65% is starch, you usually get higher extraction values from thinner mashes.

Sugars dissolve faster and more completely as your grain bed approaches the mash-out temperature. Thus you get better extraction if you achieve your mash-out temperature sooner rather than later, that is, *before* rather than *through* sparging.

If you recirculate your wort before running it into the kettle, you send extra flow through the grain bed and thus increase the gravity of your first runnings. This, too, is likely to result in an increase in overall extraction.

Finally, the speed with which you sparge is likely to affect your extraction. If you sparge too fast, your kettle may be full before enough sugars are dissolved in the grain bed. Sugars that remain in the mash instead of being flushed into the wort represent a loss in extract.

Extract Efficiency and System Variables

The physical characteristics of your brewing system can be a limiting factor in your extract efficiency. Of particular importance are the straining ability of your false lauter bottom and the grain bed depth, which is determined by your mash/lauter tun geometry. Highly porous false bottoms and shallower grain beds tend to yield better extraction.

The thermal properties of your mash/lauter tun is a key variable in extract efficiency. If your vessel dissipates very little heat during mash rests—for instance, when it is properly insulated—enzymatic conversions are more efficient, which enhances extraction. If it loses heat rapidly the reverse is true. For instance, if you mash-in at 152 degrees F (67 degrees C) for a single-infusion brew, but your mash tun cools off during the saccharification rest, some enzymatic activity deteriorates, and your extract might contain fewer sugars.

Calculating Your System's Extract Efficiency

While it is relatively easy for brewers to shop for higher quality ingredients and to improve the efficacy of their processes, it is relatively more difficult for them to change the characteristics of their brew systems. Thus, extract efficiency is usually considered mostly a property of a particular brew system—given constant grain-bed characteristics and constant process variables.

The following formula, which relates the weight of a given grain bill to the weight and gravity of the wort derived from it, provides a fairly close mathematical approximation of your system's extract efficiency. It is based on the metric system, in which one liter of water weighs one kilogram.

$$\% \text{ extract efficiency} = \frac{G \times V_{\text{Knet}}}{W}$$

whereby

G = wort gravity in °Plato at the end of the boil

V_{Knet} = net kettle volume of wort in liters at the end of the boil

W = weight of the grain bill in kilograms

To convert this formula into U.S. units, multiply the right part of the equation by a (rounded) constant of 8.345. Therefore, the formula for gallons and pounds is:

$$\% \text{ extract efficiency} = \frac{G \times V_{\text{knet}} \times 8.345}{W}$$

whereby

G = wort gravity in °Plato at the end of the boil

V_{knet} = net kettle volume of wort in gallons, at the end of the boil

W = weight of the grain bill in pounds

Note there is a slight numerical difference between the extract efficiencies calculated with metric and U.S. units for identical brews, because the conversion factor is rounded.

A top-quality commercial brew system may reach an extract efficiency of 75% for pale beers, or 65-70% for dark beers, depending on the amount of darker malt in the grain bill. Some homebrew systems may not exceed 40%. Depending on the extract efficiency of your system, you need different amounts of grain to make the same beer. For example, in a system with an extract efficiency of 73%, you would need about 6.66 pounds of grain to make a five-gallon batch of beer with a starting gravity of 11.7 °P (OG 1.047). You would need about 8.14 pounds of grain to make the same beer in a system with an efficiency of 60%. You would need about 12.2 pounds if your system had a poor 40% efficiency rating.

From the above it follows that, when you brew a beer according to a recipe, you ought to *know* the extract efficiency of both your system and the system for which the recipe was formulated. Without this information, the stated grain quantities are meaningless and your beermaking becomes rather unpredictable.

Brewing from a recipe without knowing the extract efficiency of the system for which it was designed is like putting 15 gallons of gas in a car and trying to drive it from Boston to New York without refueling. Depending on the gas mileage of the car, you'll either make it or run out of gas along the way somewhere in southern Connecticut. The same is true of your brewing. If

someone tells you to take, say, 8.5 pounds of grain to make five gallons of a 12.5 °P (OG 1.050) beer, the author makes the implicit and problematic assumption that your system gets the same "extract mileage" as the one in which the recipe was created.

To calculate the extract efficiency of your homebrew system, therefore, weigh a couple of grain bills (perhaps one for a pale ale, one for a dark ale and one for a blond lager), use your favorite brewing process, measure your net kettle volume and kettle gravity, and then plug these values into the above formula. As long as you do not vary your processes too much or change your ingredients too radically, the formula will give you a ballpark figure for your system's inherent extract efficiency. If your system performs in the 60% range, you should be happy. If it performs in the 70% range, it is of professional quality! If it gives you not much above 40% efficiency, consider changing the width of your mash/lauter tun, the straining ability of your false lauter bottom and your mash/lauter tun insulation.

Next time you try a recipe, take the time to first calculate the implied extract efficiency for which the recipe was designed. Simply plug the published figures for grain weight, beer volume and wort original gravity into the above formula. Then compare the recipe's extract value to the efficiency you know you can expect from your own system (given the ingredients commonly available to you and given your favorite brewing processes), and adjust the amounts of grain listed in the recipe upward or downward accordingly. This may result in a more faithful rendition of the beer the author had in mind and it may take some of the surprise out of your brewing efforts.

Horst D. Dornbusch started homebrewing in 1972. After a career in journalism, editing and publishing, he "turned pro" in 1995 when he started the Dornbusch Brewing Co., Inc., a Massachusetts contract brewing company specializing in German-style microbeers. He is also the author of *PROST, The Story of German Beer* and of *Altbier* (No. 12 of the Classic Beer Style Series). Both books are available through the AHA.



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Anchor Steam

BY GREG KITSOCK

The Anchor Brewing Company in San Francisco is the Jurassic Park of the beer industry. In the 34 years since he bought into the company, owner Fritz Maytag has reintroduced America to such long-extinct styles as a dry-hopped pale ale, a top-fermented porter, a barley wine, a wheat beer, a spiced winter wassail and most recently a small beer brewed from the second runnings of the powerful Old Foghorn.

But long before any of these came to exist, Maytag earned the gratitude of beer lovers by rescuing from oblivion a unique local brew called Anchor Steam.

"Steam" is today a trademark of the Anchor Brewing, zealously guarded lest it lapse into the public domain. The term "California common" has been substituted to describe the type of warm-fermented lager that Anchor Steam typifies. Yet, during the 19th century, "steam" referred to a style of beer—or at least a brewing technique—common to dozens of West Coast breweries.

Steam Beer

The history of steam beer begins with the Great Gold Rush of 1848. Before that date, California was populated mostly by Hispanics who preferred wine. However, the discovery of a few shiny flecks of metal at Sutter's Mill created a stampede of Anglo settlers eager to strike it rich. Hot on their heels followed a swarm of entrepreneurs who figured it was easier to wrest their fortune from the miners than to dig it out of the earth. Among this second group we find lager brewers of German descent.

Lager beer, however, requires lengthy aging at temperatures approaching the freezing point. In the Midwest, where the country's great brewing centers were to develop, harsh winters cause lakes and rivers to freeze to depths of several feet. Before the development of artificial refrigeration, this ice could be harvested and used to line caves and cellars to ensure a proper fermentation temperature during the summer



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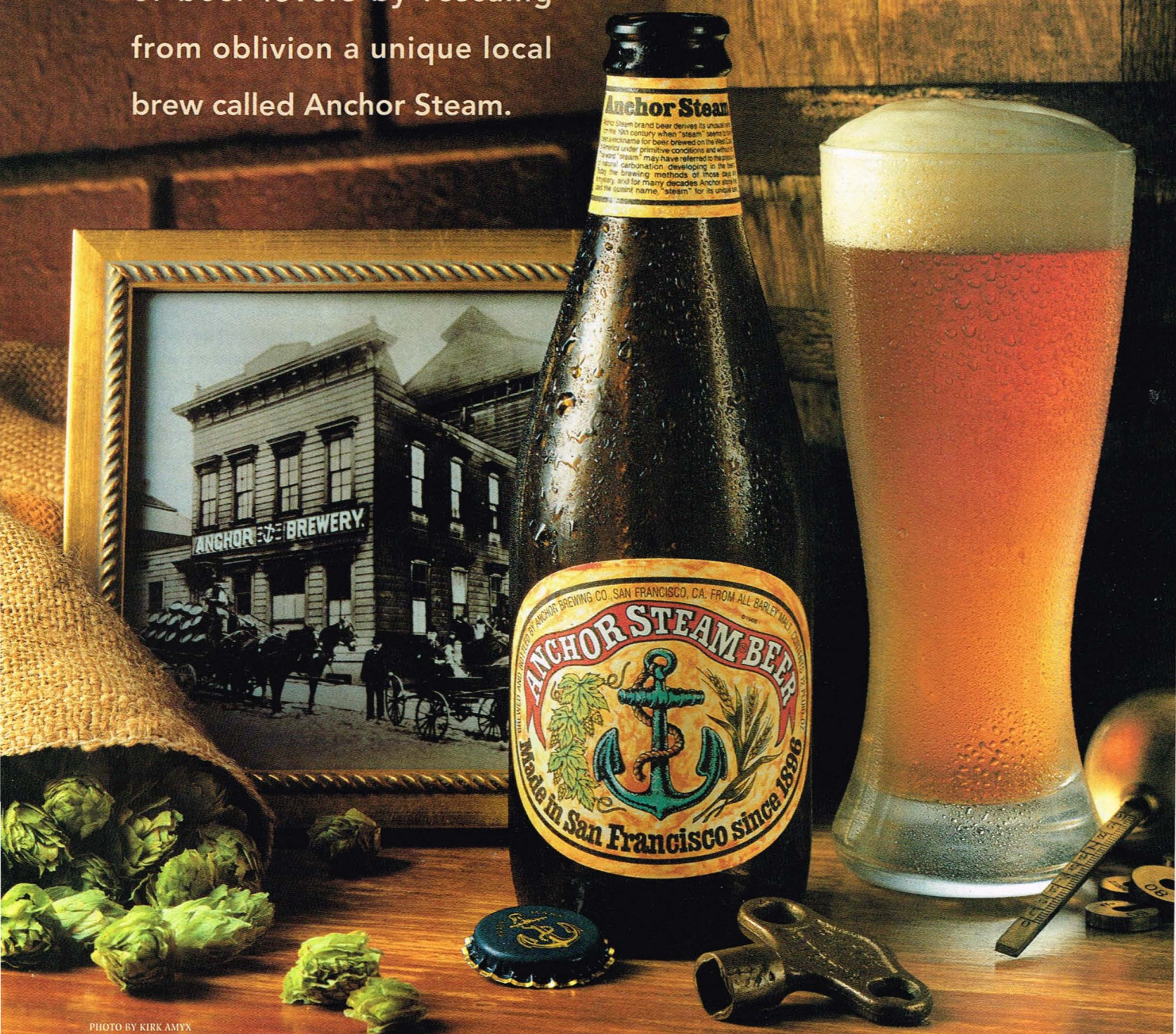


PHOTO BY KIRK AMYX
SPECIAL THANKS TO
ANCHOR BREWING CO.

months. California was, however, too warm for ice harvesting. Even in the cool, moist climate of San Francisco, average January temperatures hover between 42 and 56 degrees Fahrenheit. Bringing the ice to the brewers wasn't feasible. California lay thousand of miles away by land, and the ocean voyage was even longer: before the Panama Canal was built, merchant ships had to hug the coast of South America and round Cape Horn before turning northward to their destination.

Lager brewers had to improvise. The earliest detailed description of steam brewing appeared in the Feb. 15, 1898, issue of *The Western Brewer*, and was reprinted in full in *One Hundred Years of Brewing* (1903). The author, John Buchner of the John Wieland Brewery in San Francisco, describes an all-malt beer that was pitched with a lager yeast and fermented at ambient temperatures of 60-70 degrees F (16-21 degrees C). After high krausen was reached, the beer was

transferred into a four-cornered wooden vessel 12 inches deep. There were two advantages to using such an unusually shallow fermenter. First, it maximized the surface area of the beer, allowing the heat of fermentation to escape readily into the atmosphere. Secondly, it hastened clarification by allowing the yeast to drop out of suspension more quickly.

After two to three days, the beer was racked into sturdy wooden barrels and primed with 15-20% of krausen. Finings also were added. Like modern cask ale, steam beer had to be handled with care. Saloonkeepers allowed newly delivered kegs to settle for a day or two before tapping. In a typical Western bar, kegs would be stored beneath the bar and the beer drawn to the tap via pneumatic pump. The fermentation in the keg produced high levels of pressure, as much as 40-70 psi, and handlers would frequently vent some of the trapped gas before serving the beer. The

sharp hiss of escaping CO₂, when the keg was breached, is often considered the inspiration for the nickname "steam."

The original steam beer could be produced quickly: Buchner cites a figure of "10 to 12 days from the mash tub to glass." Undoubtedly, the short, vigorous fermentation helped prevent infection. There were economic reasons why brewers would want to turn out beer in a hurry. In the early days of the Gold Rush, boomtowns grew by leaps and bounds. Between 1849 and 1856, San Francisco's population, for instance, mushroomed from 2,000 to 56,000. This resulted in a period when goods and services were scarce, and commanded whatever the supplier wanted to charge. Dusty miners were willing to pay 50 cents to have their laundry done—a princely sum back then. A thousand feet of lumber, which fetched \$10 back east, brought \$300 in the Bay Area. Imagine what these old sourdoughs, parched after a hard day's work wielding pick and shovel, were willing to pay for a decent mug of beer!

Yet, there was a narrow window of opportunity for profiteering. If a brewer, for instance, allowed his beer a leisurely lagering period of three to four weeks, a half-dozen competitors might beat him to market. Soon there would be a glut, and the price of beer would dip to the usual nickel a glass. Time meant money for the early entrepreneur.

What did the original steam beers taste like? Ray Daniels, in his book *Designing Great Beers*, suggests that they may have had pronounced buttery, fruity or sulfurous off-flavors. "The elimination of acetaldehyde, diacetyl and sulfur compounds that normally occurs during aging might often have been incomplete in these beers." Alas, our primary source, John Buchner, isn't much help. He writes, "When steam beer is cleanly and properly brewed from good material, it is a pretty fair drink, when the weather is not too warm....At any rate, it tastes better than the raw hopped, bitter and turbid ales." Buchner seems to be damning with faint praise, and revealing his prejudice for lagers.

San Francisco at the end of the 19th century was a prosperous and cosmopolitan city, with over 25 breweries of its own. Also available were out-of-state brands like



The earliest days of the Anchor Brewery, founded in 1894 in San Francisco and dedicated to quenching the thirsts of gold miners.

Budweiser, Pabst and Schlitz, and even imports like Bass Ale and Guinness Extra Stout. San Franciscans would not have tolerated mediocre beer!

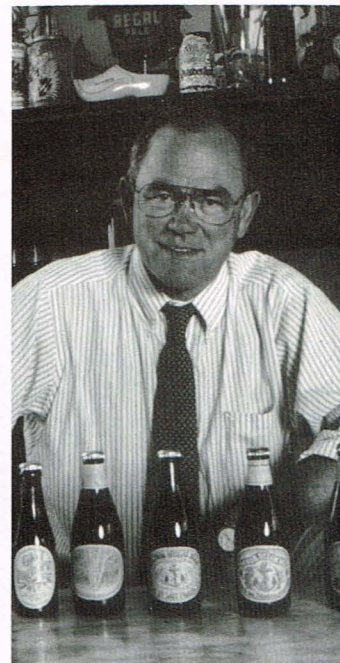
(Indeed, other sources call Buchner's claims into question. R. Wahl and M. Henius, in *The American Handy-Book of the Brewing, Malting and Auxiliary Trades* (published 1908), state that steam beer may contain up to one-third adjuncts like corn grits and sugar. *The Practical Brewer*, a 1946 text published by the Master Brewers Association of the Americas, describes steam beer as top-fermenting. Fritz Maytag also believes that the earliest beers brewed in California were exclusively ales. He contends that the term "steam" came into vogue about 1900 as slang for the older, nonlager beers that were disappearing from the marketplace.

Maytag is loath to use the word as a stylistic designation, asserting that steam beers were made in many different ways using different ingredients. It might also be noted that a number of American breweries—and not just in the West—used "steam" in their names to indicate that they used steam power to run their breweries. Their products were probably ordinary lagers. To confuse matters even further, "steaming" was also an early synonym for pasteurization.)

Anchor Brewing

Based on information contained in *100 Years of Brewing*, Daniels in his book lists 27 steam beer producers operating at the turn of the century. All were located in California, except for two obscure Idaho producers. Only one of these companies, however, would survive Prohibition: Anchor Brewing.

Anchor Brewing was founded in 1894, 1895 or 1896, depending on which source you consult. The reference book *American Breweries II* by Dale Van Weiren lists three separate Anchor Breweries as having operated in the Bay area during the 1890s. Could this be the cause of the confusion? As ancestor of today's Anchor Brewery, *American Breweries II* cites a business originally called the Viking Brewing Co., which opened in 1895 at 18th and Hampshire Streets. Oddly, *One Hundred Years of Brewing* does not mention this brewery at all. Maytag claims he can trace the brewery all the way back to the 1860s—it operated



Anchor's savior, Fritz Maytag, then and now. The "team photo" (left) is from the mid-1970s; obviously, the Summer of Love hadn't yet faded into memory.

under a variety of names, he insists, before adopting its present monicker in 1896. The original structure, near the corner of Larkin and Pacific Streets, burned down in the aftermath of the Great Earthquake of 1906. A new brewery was built on Bryant Street the following year.

About this same time, halfway across the country, an Iowa merchant named Frederick Louis Maytag was struggling to make a living selling farm implements. One of his products, a cornhusker, broke down frequently, and angry farmers were continually dragging Maytag into the fields to repair the contraption. Even when he had branched into washing machines and other home appliances, Maytag never forgot this lesson. Quality control became paramount, symbolized by the Maytag repairman who sits around all day because nothing needs to be fixed. Sixty years later, a great-grandson would apply this same exacting standard to brewing beer.

1965

Let's jump ahead to 1965. The Anchor Brewing Company was still in existence, but like a punch-drunk fighter, it was about to collapse in a heap. Production had declined to 600 barrels a year. Larry Steese, the brewer, had been reduced to using bak-

ers yeast, and produced his dark beer by spiking the flagship brew with caramel syrup. The brewery was operating with a single pump, which was used to transfer the hot wort to a tub on the roof where it was exposed to the air and allowed to cool overnight. Fermentation took place in three steel tanks varnished on the inside. The facilities lacked a bottling line, a lab and refrigeration of any sort.

Enter Frederick Louis Maytag III, nicknamed Fritz, a Stanford University graduate student with a B.A. in American literature and no clear direction in his life. Young Maytag was dining at his favorite haunt, the Old Spaghetti Factory, when the owner told him to enjoy his mug of Steam Beer, as it might be his last. The debt-ridden brewery was finally about to close.

Maytag decided to visit the old brewery before it passed into history, and on a whim offered to bail out the failing plant. By cashing in some shares of the family business, he came up with the \$5,000 needed to acquire a controlling interest in Anchor Brewing Company. "I came in on a Thursday; the power was going to be shut off on Monday," Maytag recalls. Steese, at the time of their first meeting, was so financially strapped he was selling empty wooden barrels for 50 cents (continued on page 54)

Saison in Style

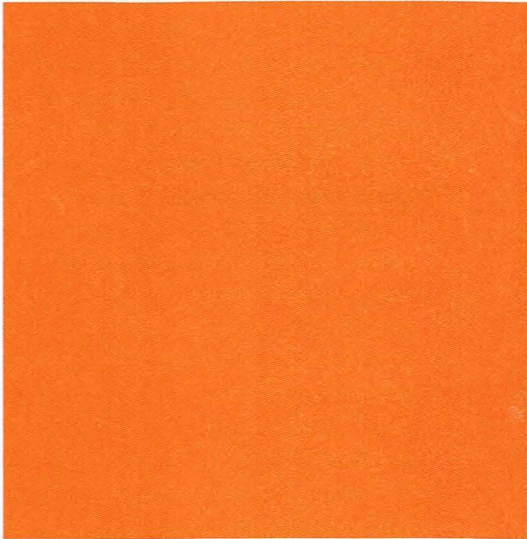
B Y A M A H L T U R C Z Y N

When someone refers to a beer style as “challenging,” I get a little worried. That’s a pretty open-ended euphemism, and generally when I drink beer I want to enjoy it, not fight it. Yet many have described the Belgian family of ales collectively referred to as saison in this way, and for drinkers of most American, German and British ales, I can see why. The most highly recognized and revered commercial examples of saison, namely Dupont, Pipaix from the Brasserie a Vapeur, Silly, 1900 from Lefebvre, and Régal from Du Bocq, all have such a tremendous, overwhelming complexity that for those used to lagers and pale ales, saisons can be quite a slap in the face.

But what wonderful punishment! For a moment, picture yourself sitting at a table next to the window at the far end of the Caves Dupont, the little brick-walled pub across from the brewery of the same name, looking out over the startlingly green pastures of Belgium’s Hainaut province. You order “*un saison, s’il vous plait*,” and are brought a small, heavy, corked bottle, just under cellar temperature, with a fluted glass. You note the Champagnelike pressure as you pull the cork, decanting carefully into the glass, watching with reverence as the

luminous, hazy beer forms a dense, cottony head that expands out and above the rim of the glass, threatening to overflow. All at once you catch a whiff of the aromas: lemon, soap, fennel, pepper, cloves, hops, coriander and an indistinguishable tartness. Your mouth waters. Disregarding the fact that you may be committing a monstrous *faux pas* by plunging your nose into the foamy meringue and not waiting for it to subside, you dive in.

A host of fruity, spicy, perhaps somewhat musty flavors greet your senses, along with the gentle sting of the carbonation, then subside with a dry, hoppy finish and a lingering tartness. You take another sip, trying to distinguish the grassy flavors (lemon grass?), from the spices (nutmeg? caraway?) from the malt sweetness (there if you look for it, but well-hidden) from the slightly oily, sage-and-paper oxidation. A spidery pattern of fine lace develops on the glass. You try again. Allspice this time. Something acetic...pickle juice? No, not quite, but almost. You notice that the date on the bottle recommends drinking the ale before 2003. How will it change in the next four years? The hop dryness from the last sip is peppery, making you thirsty. Suddenly, you realize you’ve failed in your mission to



define the distinguishing characteristics of this beer, because the glass now contains only a dollop of white, aromatic beer foam. Somewhat shaken by the experience, you nonetheless order another.

Other prime examples of saison may not be quite as striking and aggressive as the Vielle Provision Saison Dupont, but can also be distinguished by their complexity and balance of flavors. For example, Du Bocq’s Saison Régal has a blend of aromas that includes sweet orange peel, coriander, malt and, to a lesser degree, almonds and cardamom. Very clean and light for its strength of 6% ABV, you begin to appreciate the style’s *raison d’être*: it was intended as a thirst-quenching brew for fieldworkers



of the region. As such, it was brewed toward the end of the brewing season in the late winter and spring, to be laid down as a provision beer much like the French *bière de garde*, and consumed in the summer. It had to be light enough in body and alcohol to slake one's thirst on a hot day, but also had to have enough hops and alcohol to preserve it for the conditioning period. This might explain why some beer researchers put the range of saison beer strength at a meager 1.044 to 1.054 (11 to 13.5 °Plato), while others agree it can range as high as 1.060 (15 °Plato).

I've often thought that Orval seems very much like a saison; dry, hoppy, complex, refreshing and relatively low in alcohol. I have never heard it referred to as such but, save for the absence of any obvious spice additions, the classic Trappist ale would be perfectly at home with other commercial examples of this style. Unfortunately the bottle-conditioning yeast used by the monks is made up of five strains that are distinct from the primary fermentation strain, so one cannot reculture Orval yeast for brewing a saison. I have tried brewing one with a neutral ale yeast and adding recultured Orval

yeast into the secondary for conditioning, but with unspectacular results.

Jean-Louis Dits, brewer of the famous Saison de Pipaix at his truly authentic, steam-engine-powered Brasserie a Vapeur, pushes the upper limit of the style even further; his product weighs in at 6.5% ABV. Yet again, he very successfully maintains that essential refreshing character that seems at odds with the strength of a provision beer. Like all his products, Saison de Pipaix comes in a heavy, Champagne-style bottle, corked and crown-capped so that it may be laid down for up to 10 years. It has

been criticized for being undercarbonated, almost flat when opened, but I believe Jean-Louis does this intentionally to allow for what the Wallonians refer to as "goût évolutif;" the beer will continue to condition and improve in the bottle, as there is a small amount of live yeast in the bottle, so further carbonation is an eventual certainty.

Dits' recipe, which dates back to 1785, uses Munich and pale malts, Hallertau hops and then a host of dry spices added late in the boil including ginger, pepper, sweet orange peel, coriander, bitter curaçao orange peel and roasted chicory. I sampled a relatively recent vintage, a 1995, I believe. (All of Jean-Louis' beers vary dramatically from one vintage to the next.) Its color is a light orange to copper,

added sweetness fails to leave you with that authentic, hoppy dryness and low finishing gravity that is so pleasant in the best examples. Some brewers also add just a pinch of chocolate malt, mainly for color. These last two ingredients are best used in moderation if high-kilned malts are unavailable.

Some producers of saison use wheat in the grist as well, both malted and unmalted, and I've heard of at least one brewer who uses spelt. There's quite a bit of latitude for experimentation here, which seems to be the unspoken creed for all of Belgian brewing, but you can achieve perfectly good results without any addition of adjunct grains. If you do choose to go with adjuncts, I would recommend using them in amounts of less than 10% of your total grain bill.

adding the honey. This will kill off any bacteria that may have been introduced to it during packaging, but will allow more of the aromatics to come through. Much of those aromatics will be released during fermentation, though, so if you really want honey aroma in your saison you'll have to add it to the secondary fermenter. This will drastically prolong fermentation, and you'll have to heat the honey to 170 degrees F (77 degrees C) prior to using it, but for some it may be worth the extra trouble.

Spices

Orange peel, both bitter and sweet, and coriander seem the most common spices in saison. I've also had good results with black pepper, ginger, bog myrtle (also called sweet gale). Other possibilities are roasted chicory, grains of paradise, cumin seed, fennel seed, white pepper, cardamom and allspice. As with any spice addition, remember the secret is subtlety. Very few Belgian brewers of saison allow you to pick out any one overt flavor or aroma: it is the balance that makes complexity appealing.

Add spices very late in the boil, say within the last 10 minutes, or else in your secondary fermenter. You may want to use slightly less if using the latter method. Pulverizing the spices first will give them greater contact with the beer. Some, like ginger, bog myrtle and cumin, are very strong, so add very small amounts when using for the first time, say, no more than a few grams per five gallons, then build up the amounts with subsequent batches if you can't taste them at first. Conversely, some spices are quite subtle, particularly after the beer has had a chance to age considerably. Coriander is a good example of this: you'll notice that in Saison Régale the coriander is very apparent for the first month or so, but as the beer ages it becomes so subtle that it eventually seems to disappear altogether. That's not to say you should add more, just know that your saison will change over time and appreciate those changes as they occur.

Hops

Few rules exist for what varieties to use in saison, although Kent Goldings hops are used quite extensively in Belgian brewing. You want a fairly assertive hop presence in both bitterness and aroma, but without the

It was intended as a thirst-quenching brew for fieldworkers of the region.

owing to both the long and vigorous boil, and to the use of light Munich malt in the grain bill. Upon tasting the beer the first thing that struck me was the anise in the aroma—not overpowering, but there. Then malt, and a vague fruity aroma. As you drink, the warmth of the ginger overtakes you, and then coriander, pepper and vanilla. Finally, you get a full malt flavor, but are left with a dry finish. This is definitely a beer to savor at no less than cellar temperatures, as you do not want to miss its more subtle complexities.

Brewing Your Own Saison

Malt

Belgian Pils malt would be the obvious choice for the majority of your grain bill, i.e., 70-80% or so. I have had good results with English, German and American two-row pale malts as well, and for a beer of this complexity, I don't see that it would hurt to go with the most affordable good-quality pale malt. High-kilned malts like Munich and Vienna can be used to make up the remainder of the grist if that orange-copper color is desired. I have experimented with light crystal malts for saison, but with too much the

For extract brewers, either light dry malt extract or light syrup would probably put you right on target for color and flavor, though you might end up with slightly more sweetness than desired. Steeping a pound or so of light Munich malt, or doing a partial mash with a pound each of Munich and pale two-row would round out the malt flavors, though your end result could be in the darker range for the style.

Sugars

Brewing sugars like candi are great for this style in that they lighten the body and boost the alcohol slightly for provisioning. Pale or amber candi sugars are appropriate to use in saison and can simply be added to the boil. Cane sugar, when used in amounts of less than 5% of your total grain bill, will also work fine. I tend to prefer honey, especially the lighter varieties with some discernible character like orange blossom. To preserve some of the honey's aromatic quality, I will add the honey after the wort has finished boiling. For brewers using an immersion-type chilling system, you can actually wait until the wort has cooled to around 170 degrees F (77 degrees C) before

aggressive harshness of a high-alpha-acid hop. Pacific Northwestern varieties like Cascade would also be inappropriate. German "noble" varieties like Tettnang and Hallertau work well for late-addition hops and/or dry-hopping in the secondary with your spices.

Water

A variety of water types are used in southern Belgium but, for the most part, if the brewers are near cities the water is always carbon filtered to remove chlorine. If in the country or the mountainous region of the Ardennes, spring or well water are used directly, along with their higher mineral content. This will tend to bring out the dryness and sharpness of the hops, so if you have harder water, you may want to adjust your hops down accordingly.

Yeast

This is the most important aspect of brewing an authentic saison at home. Several commercially available yeast strains are acceptable for brewing a saison. Indeed, brewers from some microbreweries like Boulder, CO's Redfish New Orleans Brewhouse have come up with delicious and refreshing interpretations of the style using fairly clean, generic ale yeast strains, and letting additions of spices define their saisons' characteristic complexity. It is of course, difficult to get some of the more unusual grassy, fruity and tart flavors without more authentic strains but, luckily, yeast producers like Wyeast, White Labs and BrewTek carry acceptably complex Belgian yeast strains in their inventories. WLP400 Belgian wit ale yeast from White Labs, Wyeast 3942 Belgian wheat yeast and Wyeast 3944 Belgian white beer yeast are among the best pure culture strains I've come across. They will also give you some of the subtle, characteristic tartness of some authentic saisons over time. But to get the authentic barrage of aromas and flavors, you really need to steal your yeast from the experts, which is to say reculturing it from the bottle.

I've found that Saison Dupont is the easiest yeast to reculture from the bottle—250 mL of sterile, oxygenated 14 °Plato wort re-introduced to the 750 mL bottle just after it has been opened, flamed around the mouth for sanitation purposes, and carefully decant-

ed all at once until the lees begin to show, seems to be an acceptable practice for making a starter. Then, once an airlock has been fitted, the bottle should be kept fairly warm (70-74 degrees F or 21-23 degrees C) for two to four days until fermentation is evident.

If nothing shows within five days, I generally decide that there were too few live cells for the culture to take and start over with a fresher bottle. If it does take, you can step it up by doubling the volume of starter every two days or so until an acceptable pitching amount is reached, preferably at least a one-liter starter per five gallons, or more if you will be brewing a stronger saison. Unfortunately, without delving into the realm of microscopes, petri dishes and agar slants, reculturing yeast from bottles of commercial beer is risky at best, so make sure you pay close attention to your culture along the way. Without introducing bacteria, sniff and/or taste the yeast culture peri-

odically, and if something smells unpleasant or funky, it probably is. Better to dump a culture than a whole batch!

Once you pitch this yeast you'll have to put up with a few of its quirks. It works quickly and vigorously at a temperature range of 68 to 70 degrees F (20 to 21 degrees C), but then seems to give out after four or five days. And, oddly enough, if one takes a gravity at this point they'll find that the beer has only attenuated 40 to 50%. The rest of the fermentation takes place very slowly over a period of two weeks or more. For a saison with an original gravity of 15 °Plato and a two-week fermentation at 68 degrees F (20 degrees C), I ended up with a finishing gravity of 5 °Plato. The wort was fairly clear after racking, but I gambled on the slow-working nature of the yeast and bottled without priming sugar, figuring the yeast would take it down another point at least. I was right; after three weeks of (continued on page 57)

Recipes

These recipes are from Belgian beer expert Pierre Rajotte, from his Classic Beer Style Series book, *Belgian Ale*.

All-grain

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

- 7.6 lb pale malt (3.4 kg)
- 3 oz crystal malt (85 g)
- .3 oz chocolate malt (10 g)
- .5 lb wheat malt (.23 kg)
- .5 lb sugar (.23 kg)
- 1.5 oz Hallertau (43 g) (7.5 HBU)
- 5% alpha acid
- .3 oz Saaz (10 g), 4% alpha acid
- .5 oz coriander (14g)



Extract

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

- .5 lb pale malt (.23 kg)
- 3 oz crystal malt (85 g)
- .3 oz chocolate malt (10 g)
- .5 lb wheat malt (.23 kg)
- 3.3 lb pale malt syrup (1.5 kg)
- 2.25 lb pale dry extract (1.02 kg)
- .5 lb sugar (.23 kg)
- 1.5 oz Hallertau (43 g) (7.5 HBU)
- 5% alpha acid
- .3 oz Saaz (10 g), 4% alpha acid
- .5 oz coriander (14g)

- Original gravity: 1.054 (13.5 °Plato)
- Final gravity: 1.008 (2 °Plato)
- IBUs 23
- water: soft
- Mash temperature: 149-150 degrees F (65-66 degrees C)

Been Clubbin'

From Anchorage to Auckland, Tallahassee to Taipei, homebrew clubs have initiated a fascinating assortment of activities for members to share their passion for all things beerish. In addition to regular get-togethers, many clubs have established special events and programs to educate, entertain, raise funds and, best of all, strengthen the bonds of the homebrewing community. The uniqueness of some of these homebrew club happenings is truly inspiring. Here are few notable examples.

Going Once, Going Twice

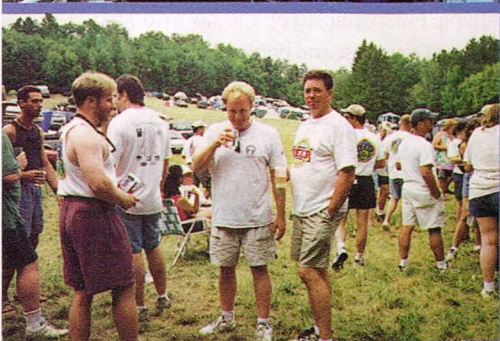
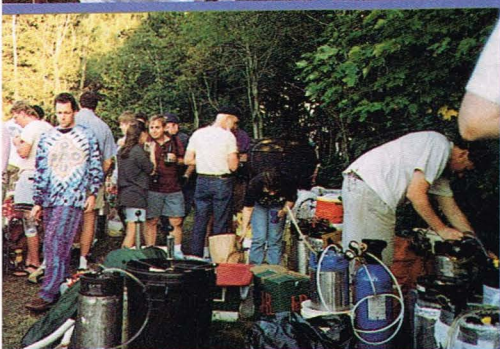
What homebrew club wouldn't benefit from an infusion of cash to help offset expenses and fund activities? Boulder, CO's Hop Barley & the Alers conducts an annual fund-raising auction that, aside from being quite lucrative, is one of the more entertaining club functions of the year.

HBA is a 75-member club that has thrived for over a decade in beer-happy Boulder, home to both the AHA and a disproportionately large number of homebrewers.

In the weeks preceding the auction, club officers and volunteers hit the streets in search of goods and services to put up for bid. Donations come from fellow club members and local businesses including numerous local breweries. Typically, a number of the club's

By Dan Rabin

Hop Barley & the Alers





Oregon Brew Crew

Latently?

advanced brewers offer all-grain brewing sessions at their homes. These brewing sessions—which usually include a home-cooked meal—are usually purchased by less-experienced homebrewers eager to learn the ins and outs of all-grain brewing. The finished beer from these brewing sessions often appears at future club meetings.

Other club members donate professional services. In past years, some of the more popular items have included dental work, legal consultations and massages.

Local breweries have been very generous, donating brewing sessions, gift certificates, T-shirts, hats, glassware and other paraphernalia. Area homebrew shops typically pitch in with bags of grain, hops and other supplies and brewing equipment.

In past auctions, several one-of-a-kind items have generated a considerable buzz. Small groups of lucky bidders have been treated to beer tastings hosted by Charlie Papazian, and mead tastings with AHA director (and long-time HBA member) Paul Gatzka.

Though fine fermentables are seldom in short supply at HBA meetings, the auction seems to bring out the homebrew in both quantity and quality. It's also common for several kegs of commercial beer to appear, courtesy of local breweries. This generous support is not surprising since many former HBA members have moved on to professional brewing careers both locally and nationally.

Because there is a known correlation between beer flow and cash flow, the auction night begins with a social hour during which potential bidders can enjoy a few pints while they inspect items to be auctioned. Once the bidding gets going, the action is fast and furious with HBA member John Carlson acting as auctioneer. A lawyer by trade, John's considerable oratory skills have been known to grease even the stickiest of wallets. The noise and energy level builds steadily, and the atmosphere becomes, well, intoxicating.

Profits from the auction help finance other club events including the annual overnight party held at a ranch in the mountains outside

Boulder each summer. Funds also pay part of the registration costs for the two HBA softball teams—men's and coed—and have been used to pay the entry fees for club members in the AHA National Homebrew Competition.

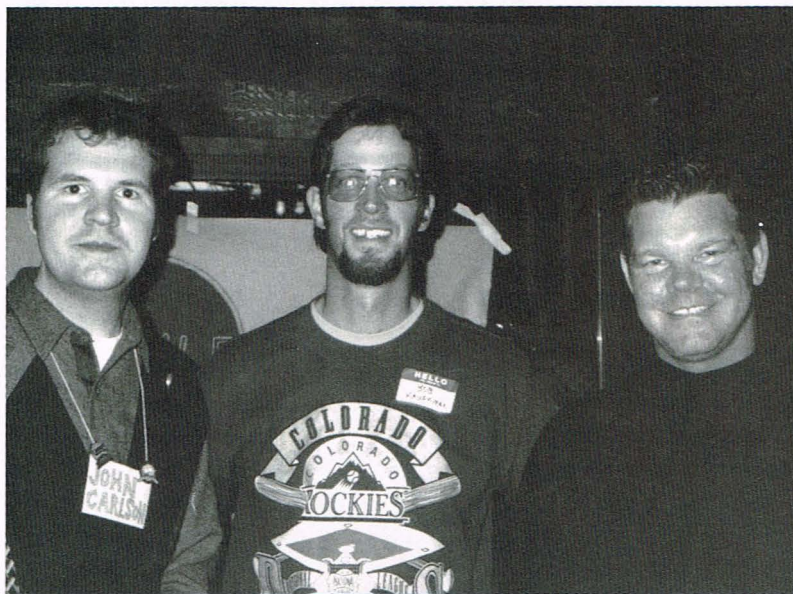
Just how profitable is this event? Once the buying binge has abated, in recent years the club's coffers have been sweetened by an average of \$1,500!

A Collaborative Effort

When brothers and former homebrewers Kurt and Rob Widmer of Portland, OR's Widmer Brewery needed help developing new beer recipes, they knew just where to turn. Kurt and Rob were among the original members of the Oregon Brew Crew homebrew club, and have maintained their association since joining the professional brewing ranks several years back.

The Widmers approached the 150-member OBC—Oregon's oldest and largest homebrew club—with a challenge and an offer. Widmer was eager to explore beer styles that were being underutilized by most commercial breweries. They asked OBC members to submit samples of homebrewed beers in a variety of styles for evaluation and possible commercial production. If they found a homebrewed beer they liked, the homebrewer would be invited to help brew a scaled-up version of their recipe on Widmer's 10-bbl R & D system. Furthermore, if the beer was selected for commercial production, OBC would receive part of the proceeds from each barrel sold.

OBC members, eager to meet Widmer's challenge, submitted an eclectic, and sometimes exotic assortment of beers in styles including imperial stouts, barley wines, dubbels, tripels and many others. The effort, named Collaborator, has been a big success, evidenced by the fact that several of these homebrew recipes are now in commercial production and more are scheduled for release in upcoming months.



Hop Barley & the Alers

Current OBC president Don Rutledge credits the success of the program to the tireless efforts of former OBC president Bob McCracken, who, we are sad to report, passed away not long ago. OBC decided the club's proceeds from the sale of the Collaborator beers would go into a scholarship fund at Oregon State University's fermentation science program. The scholarship is now named the Bob McCracken Scholarship Fund.

The first beer to be produced commercially from the Collaborator program was a sweet stout based on a homebrew recipe submitted by OBC members Jeff Brinlee, Jeff Langley and Ken Bietschek. I was fortunate enough to sample this beer at the 1998 Great American Beer Festival, and I can honestly report that it was one of the standouts of last year's festival.

A Belgian-style dubbel, based on a homebrew recipe created by Noel Blake, Bob McCracken and Rob Radtke, was another outstanding creation selected by Widmer for commercial production. Both the stout and the dubbel are now available in the Portland area and, by the time this gets to print, an English brown ale formulated by Scott Sanders should also be available to the public. According to Don Rutledge, chairman of the OBC's three-person Collaborator committee, a goal of the program is to rotate a new beer into the Collaborator lineup every three months.

Sipping On Top of the World

What could be more enjoyable than spending a summer weekend at a scenic mountaintop retreat with 200 of your closest brew-loving buddies? Each year, a handful of East Coast homebrew clubs converge on a mountain near Cumberland, MD, for a weekend powwow known as MASHOUT.

Though MASHOUT is organized by members of the Rockville-based Brewers United for Real Potables (BURP) homebrew club, committee chair Bill Ridgely is quick to point out that MASHOUT has always been a multiclub event. Invitations go out to homebrew clubs in the neighboring half-dozen states.

With 350 members, BURP is among the largest homebrew clubs anywhere. BURP was formed in 1981, making it one of the granddaddies of the homebrew club scene. BURP members are a loyal bunch, and tend

Need a cash infusion? Try an auction!

to maintain their club affiliation even when they relocate. The club boasts current members living in such distant locales as New Mexico, San Francisco and Rwanda.

In its 11 years of existence, the MASHOUT has been staged at a number of different locations ranging from a backyard in the suburbs to the beach. However, it seems to have found its niche at its current site, the beautiful mountaintop property of Chuck and Helen Popenoe. Chuck, an engineer, inventor and ultralite pilot, has been a BURP member since the club's inception. Though the mountaintop facilities are fairly primitive, the site is near Rocky Gap State Park, which has amenities including hot showers, a swimming beach and boat rentals.


MASHOUT attendees pay a small admission charge that helps cover expenses incurred in this break-even event. In addition, everyone brings a potluck dish to supplement the Saturday evening BBQ feast. And, of course, homebrew arrives by the keg and the case and is readily available at the top of the campground along "keg row."

Music is a big part of the MASHOUT festivities. A live band plays in the barn on Saturday night and acoustic musicians keep folks entertained around the campfire all weekend.

Like any good party, you never know what may appear at MASHOUT. One year, an amateur astronomer showed up towing a huge homemade telescope on a trailer. Evening revelers were treated to close-up views of the rings of Saturn and the moons of Jupiter.

The planets are not the only objects that attract attention to the skies over MASHOUT. The event concludes on Sunday when the host does a flyover in his ultralite, waving goodbye to his guests below.

With the popularity of the event, there is some concern it may become a victim of its own success. In recent years, the crowd, which has grown over the years from about 50 to approximately 200 fun-loving folks, is close to the maximum capacity of the site. Organizers may soon be forced to place a limit on the number of attendees. But for now, the upcoming 12th annual MASHOUT promises to be a homebrew highlight of summer '99.

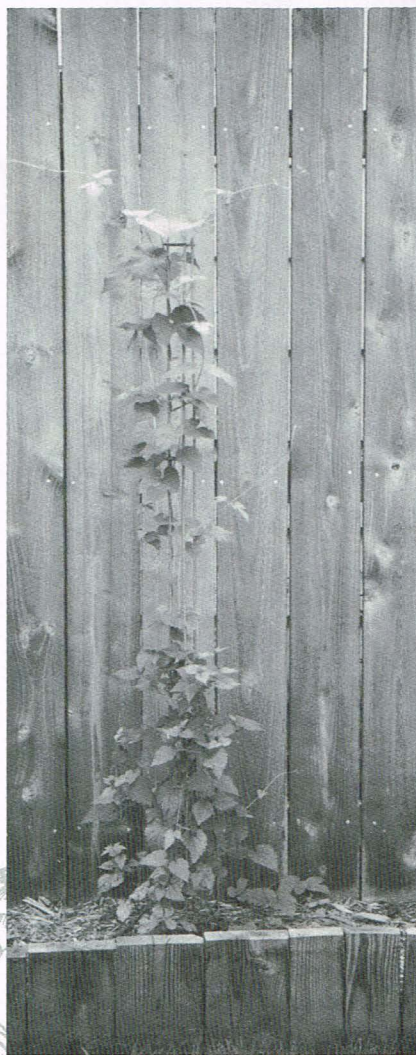
Dan Rabin is a regular contributor to *Zymurgy*. 

Brewers Unite for Real Potables (BURP)



These guys and gals know how to party—the big MASHOUT.

Hops Around



First-year vines just over four feet in July

Ever since our hops special issue a couple of years back, we've been getting requests for "how-tos" on growing hops at home. Well, it's easier than you think.

The hop plant is a remarkable vine that grows from rhizomes in the soil to lengths that can easily exceed 20 feet each season. They can be grown in most areas in the United States and southern Canada. When vines are two or more years old, rhizomes—roots that grow outward in the soil to sprout new vines—can be harvested and planted to create new vines.

Finding hop rhizomes may take a little looking. Some homebrewing suppliers take orders throughout the year, but crops are only available in the spring. The rhizomes are live parts of hop plant root structure and must be kept moist and planted quickly or they will die. Each rhizome looks like a dark stick, only a few inches long. If it has been kept moist it may have some white shoots of new growth.

Planting is very simple and, since hops are a perennial, they will come up year after year with little or no help. There is no need to wait until all danger of frost has passed to place them in the planting bed. Of course, you should not plant if the soil is still frozen, but as long as the soil is well into the spring warm-up phase, it should be satisfactory for planting your rhizomes. If the soil is too cold, the rhizomes will lie

dormant until the soil is warm enough for growth. Be patient; the plant first sends out new roots and begins to gather moisture and nutrients before it sprouts the first vine above the soil line.

First-year vines are typically thin and spindly, and hop flowers will generally not be produced in the first year. I say generally because I harvested over a dozen hop flowers at the end of the first seasons' growth of newly planted rhizomes. I dried the flowers, froze them and used them as additional aroma hops in a Pilsener that winter; it was delightful.

Once the hops are planted, routine maintenance is all that's needed until harvest time. For many, this represents the extent of knowledge needed to grow hops right in the backyard. The remainder of this article deals with planting and cultivating for those homebrewers who also like to garden.

The Gardener Within

My first planting of three rhizomes grew to over 12 feet and produced a dozen usable hop flowers. The vines are related to the hemp plant, used to make rope for centuries, and is basically very sturdy. In the second year the vines shot up to well over 30 feet and produced multitudes of hop flowers that were large and well-shaped. The lesson to be learned is that the patience of two seasons is needed, but is well worth it.

the House

By Bill Wood

Finding Hop Rhizomes

I purchased my first hop rhizomes from a nursery supplier by mail order. Many homebrew supply shops either take orders in the fall for the next spring, or have a limited supply in late March to early April. They sell out quickly, so I strongly recommend speaking with them in the fall and getting your order in at that time. This will provide the fall and early spring for you to prepare a bed. While hops will grow reasonably well in just about any soil, they prefer a rich bed that is well-drained. Preparing the bed in autumn prior to planting the next spring will encourage strong root development in the first year and lead to a greater harvest for many years to come.

Location

Location is a very important consideration. Always remember that these vines will grow in excess of 25 feet each season and need to have plenty of sun. At that height, wind can be a problem so some shelter is good. The vines are not particularly heavy and will wrap themselves around a string leader very well. Each rhizome can produce over 10 vines, but they should be limited to no more than six, so think of enough space between each rhizome for six vines, about 8-15 inches for each vine. One of my locations is on a garage wall that is about 12 feet from ground to eaves. Quite frankly, it is just not tall enough. The second location is between two trees that are 25 feet apart.

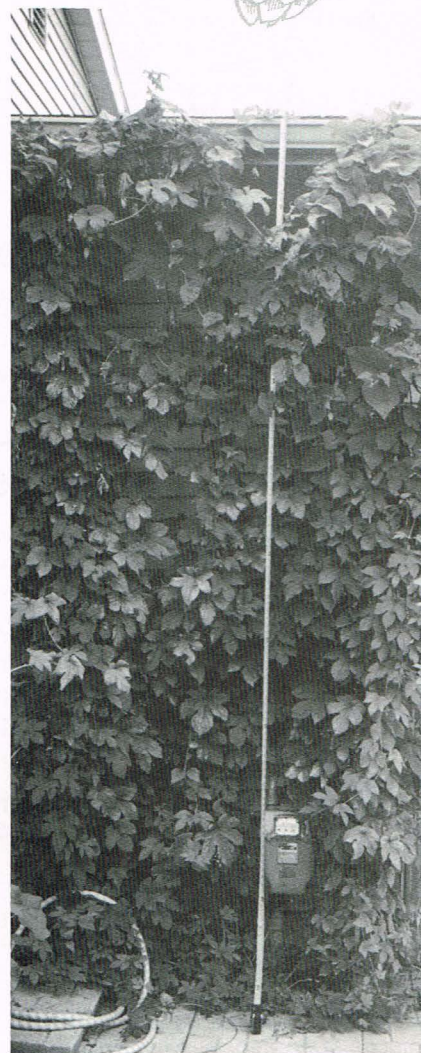
The bed is in the center, away from shade for most of the day.

About 20 feet up each tree I placed an eye hook and stretched a wire between them to form an upper terminal. On the ground, I hammered in stakes and tied garden twine from the stakes to the wire. As the new vines began to emerge I trained them on the twine. Once started in a clockwise spiral, the vines will twist around the twine like magic. When a vine reaches the top and has nowhere else to go, it will begin to sag back toward the ground. This shouldn't be a problem if the top terminus is high enough, 20 to 25 feet. If lower than 15 feet, the vine may reach all the way back to Earth before harvest.

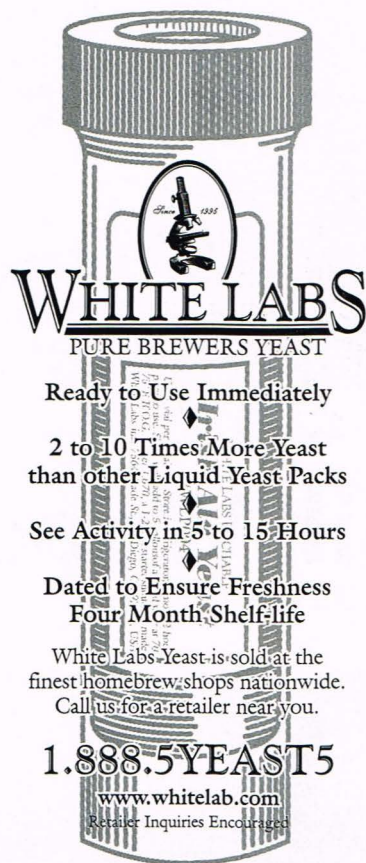
Preparing the Planting Bed

After the location is determined you can start preparing the planting bed. Hops, like almost all plants, like soil that drains well. This simply means that the roots should not be subjected to a soil that retains water as opposed to moisture. A high organic mix is best, but hops will do all right even in clay soil so long as they are fertilized and kept evenly moist. If you have the time, it is always better to improve the soil before planting.

A good organic substance to enrich the soil is the spent grains from your homebrew. The sugars and starches break down easily and provide organic nutrients and the husks provide vital organic matter that helps the soil hold moisture. Shredded leaves and



Second-year views early July—over 12 feet and growing.



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other vegetation and, of course, humus from a good compost will really help improve the planting bed.

My first bed was hardpan clay that I had not planned to use for anything. The rhizomes arrived with inch-long white shoots screaming, "plant me!" In a small bed about three feet by two feet, I loosened the clay and broke the pieces as small as possible. To this I added one 40-pound bag of organic peat and mixed well. I planted my three rhizomes and hoped for the best. In the second planting, I prepared the bed the previous fall by added shredded leaves, spent grain and trub from brewing, and mulch. Both methods have resulted in good growth, with an edge to the latter method.

At the end of each season, trim the vines down to the ground. Don't try to feed the vines into a yard grade leaf shredder or a mulching mower—they will stall it. I ran my 5-horse Briggs & Stratton driven chipper/shredder over the pile of vines and promptly killed it. You can take a few moments to simply cut the vines into short lengths and place in a compost pile or throw them out with other garden waste. Mulch the bed for

the winter. Shredded or whole leaves laid several inches thick provide a nice thermal blanket for the winter. Try not to disturb the bed over the winter.

Planting

Place the rhizomes three to five inches deep in the prepared bed. Space the plantings at least three feet apart to allow for future growth. Cover with soil and keep evenly moist. The plants can be left to grow unattended throughout the first year. In the second year proceed as follows. One rhizome provider recommends a minimum of five feet between plantings of different hop varieties.

Growing and Care

As the soil warms in spring, gently rack the mulch off the top of the soil and wait for the first shoots to appear. Emerging vines will naturally twine around just about anything. Create a top and bottom terminus for some garden twine and watch the growth—it is phenomenal. Two types of pruning should be done regularly.

First, select the hardiest four to six vine shoots and begin training them up the string. Trim all others back to the ground. The rhizomes will continue to send out new shoots to form new vines, but keep the emerging vines trimmed back. Second, once the selected vines are over five feet high, begin trimming the bottom 12 inches of leaves. As the vines continue to grow, trim more leaves until the bottom three to four feet are free of foliage. Maintain the bottom as a foliage-free zone. This allows rain to get into the soil and promotes air circulation that helps prevent moisture-born diseases. Well-drained soil should receive at least one inch of water per week. It is also wise to add a water-soluble general fertilizer every other week.

Hop flowers begin to form on higher vine sections as early as late June in some areas. By mid to late August of the second year, you should have hop flowers in clusters of up to eight flowers every eight to twelve inches of each vine. Flowers will continue to develop until the vines are trimmed back or killed by frost. Good vines will produce flowers at least one inch long, but more likely one and one half to two inches long. The vines are attractive as ornamentals, but positively beautiful to a homebrewer.

Harvesting

Harvesting hops is labor intensive. In 19th century England, poor Londoners would literally move to the hop fields of Kent and live in hovels while they worked the hop harvest. Modern harvesting is done by machine and is a wonder to behold. Harvesting in your backyard is simply a matter of picking the individual hop flowers. The process can be made less tedious by sipping a homebrewed beverage.

Hop flowers should be picked before they become brown and dry. Like many vegetables, picking is a matter of "feeling" that the flowers are ripe. Pick one of the largest flowers and gently pull back on the leaves midway down the flower. Near the base you should see tiny yellow bubbles that actually look like grains. These are the lupulin glands and are what provides the bitter character to your beer. Crush the hop flower in your hand and smell the aroma. Within moments of crushing the flower your hand should begin to feel a bit sticky with the resins. This is a mature hop flower.

Commercially, all hop flowers mature equally. What that really means is that some flowers are past the prime, some have not reached the prime and most are (hopefully) just at the prime. At home, you are in control and can pick hops as they reach the prime over several weeks.

Drying and Storing

Hop flowers must be dried to be stored. If you own a dehydrator, it makes short work of the drying process. Because most of us do not, they can be air-dried or dried in the oven. The more open the rack the speedier the drying time. Do not try to hurry drying by increasing the temperature. Warm, dry air that circulates is best and that is why a dehydrator is so successful. The nature of an oven is to get the oven hot and keep it that way. Because you want to drive off moisture you need to keep a good airflow. Set the oven between 100 and 125 degrees F (38 and 52 degrees C) and place hops, one layer deep on a rack in the oven. Leave the door slightly ajar to aid airflow. Hops should be completely dry in 15-30 minutes. Oven temperature and humidity vary so always check the hops frequently. Open a dried hop and feel the leaves down to the lupulins. If

the leaves feel dry after it has cooled, it is dry enough. If air drying, simply place in a dry location and allow to dry for several days. Do not try to force the drying by exposing the picked flowers to the sun. The sun is an enemy of the hop flower as soon as it is picked.

Storing the flowers is simple. I recommend an airtight glass container but you can use plastic bags. Normal consumer bags available in grocery stores are not impervious to the odors and tastes in your home freezer. If the hops must share cold space with food, opt for glass. I use empty mayonnaise jars with the lid screwed down firmly. A lot of flowers can be squeezed into a quart jar. When needed, I simply pick out flowers and throw them on the scale, then into the wort.

Using Whole Hop Flowers

Hop flowers are a little different than pellets to use. Whole hop flowers can generally be substituted for pellets at the same weight—but use a scale. Because of the volume of air in the open flowers, one ounce of

whole hop flowers can look like several ounces of pellets. Taste is the biggest factor in determining hop volume. If you are an experienced brewer you probably will taste the finished wort before pitching the yeast. A practiced tongue can determine if a tad of additional dry-hopping is needed.

Do not leave whole hops in the fermenter. Use a strainer to transfer the cooled wort to the fermenter and remove the whole hop flowers.

One final note. Hops should be thoroughly dried before storing but fresh hops may be used if you happen to be brewing at harvest time. Fresh hops weigh more than dry hops so add a little extra. In the second year of growing hops I was brewing in mid-August and couldn't wait to try my new hops. I selected mature hop flowers and added about a quarter ounce for flavor and then a couple handfuls at the end for aroma. This was a light lager and the taste was remarkably fresh with good bittering characteristics.

Bill Wood is a plant-loving AHA member from Mansfield, OH.

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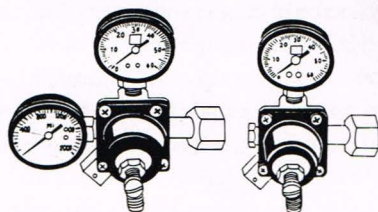
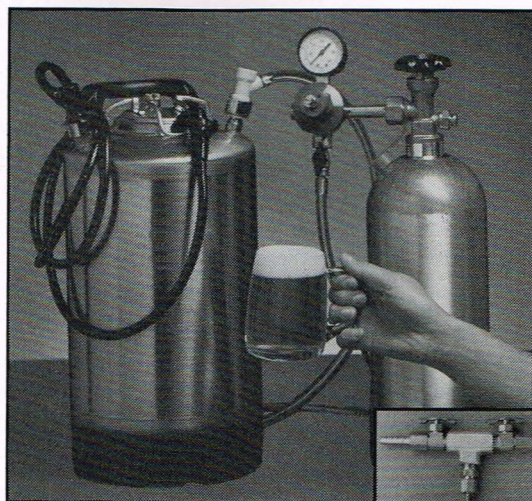
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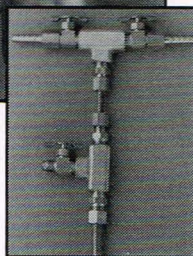
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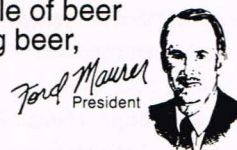
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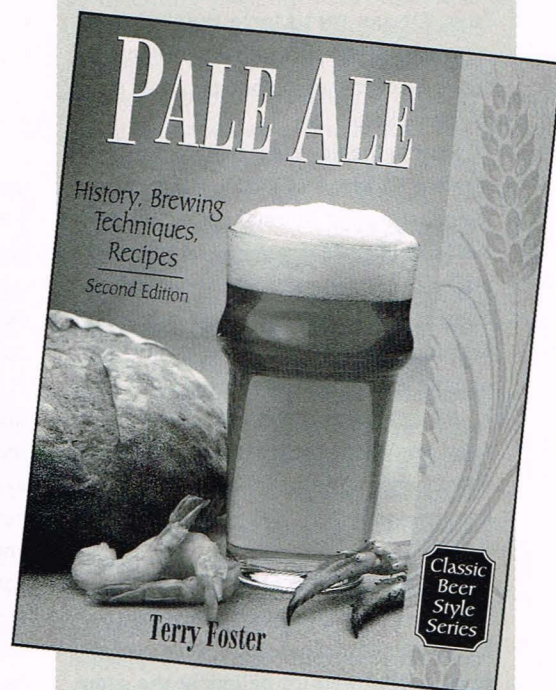
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THE PALEST ALE



by Terry Foster

The traditional basic brewing procedure for pale ales was very simple and was in place before pale ale emerged as a style. It started with two-rowed pale malt, mashed by a single-temperature infusion process. The collected wort was boiled with the bittering hops, perhaps with aroma hops added towards the end of the boil. Top-fermenting yeast was used in open fermenters, at “warm” temperatures. The green beer then was racked into wooden casks, along with an additional few extra hops and perhaps finings. After several months of cool conditioning, the beer was ready to drink.

Two or three hundred years ago, this process could be very much hit or miss. Mash temperatures were very approximate, determined by whether the brewer could see his reflection in the hot liquor before striking the grain. Wort cooling was carried out by holding the hopped wort in long, shallow,

wooden vessels, which were often situated in the roof area of the brew house, exposing the beer to bird droppings and insects as well as bacteria. Fermentation temperatures were not controlled and depended on ambient conditions—this is why brewing was normally not carried out in the summer. Other aspects of the process, such as yeast handling, were also very careless by modern standards.

For many modern English brewers, these procedures have hardly changed, although the introduction of instrumentation and a vastly improved understanding of the whole brewing process has led to much better control of each stage. Other brewers have incorporated nontraditional techniques, such as whirlpool separation of the trub, closed fermentation vessels, filtration, cold storage, pasteurization, forced carbonation, and carbon dioxide or even mixed-gas dispense. Let's look at the basics of pale ale:

Malt Extracts

The dominant flavor aspects of pale ales are hop character and flavor, so pale ales are well suited to brewing with malt extracts. All malt extracts are not equal, as some manufacturers include significant amounts of corn or invert sugar syrup along with the malt. Malt extracts often suffer from low levels of free amino nitrogen (fan) in the wort—this is a common cause of stuck or incomplete fermentation. Using sugar in place of malt only exacerbates this problem and can lead to the production of some strange flavors. The point is that you should be careful in your choice of extract and be prepared to experiment until you find which brands suit your taste.

You should go with extracts designed for pale ale, bitter, or amber ale brewing. I think it is best to use plain extracts—this will give you the greatest amount of room to express your own creativity. In any case, the hopped versions are often inadequately

hopped for this style, so you will have to add hops anyway. Although there is little public information available on manufacturing methods, most manufacturers seem to use a combination of hop extracts and hop oils rather than pellet or flower hops. However, in general, I find that hopping with extracts and oils does not give the clean bitterness and spicy, flowery, aromatic flavors and aromas that can be achieved with pellets and flowers.

Using Malt Extract

Liquid extracts should give a gravity yield of around 1.036 (9.0 °P) for 1 pound made to 1 gallon with water, while dry extracts should yield about 1.045 (11.2 °P) under the same conditions. Nitrogen levels for liquid extracts should be about 0.07% or more, while dry extracts should give at least 0.1% nitrogen. Extracts quoting high-gravity yields coupled with low nitrogen are a sure sign of dilution with sugar of some sort. They should be avoided.

Although hoppiness in all of its aspects is the primary flavor component of such beers, you still want some malt character as well so that the beer's flavor is not completely one-dimensional. Even with high-quality extracts, you will find it necessary to add extra body and flavor by including crystal and/or roasted malts.

It might also be advantageous to use the partial mash approach. This approach involves adding a pound or two of pale malt, mashing it at $\pm 150^{\circ}\text{F}$ (65.6°C), collecting the wort, adding the extract, and then boiling in the usual way. Partial mashing not only adds a little extra flavor, it also helps to ensure adequate levels of FAN in the wort.

Do not be discouraged from using malt extracts in the brewing of pale ales. A good many extract beers of this style have won prizes in competitions. True, you will find it easier to obtain a balanced wort and reproducible fermentations when working with all-grain malt recipes than with extract-based formulations. But the main flavor aspects of pale ales come from the hops and from the fruity flavors delivered by the yeast. With good-quality extract, careful use of hops, and a choice yeast, there is no reason why you cannot brew an excellent pale ale, based on extract alone.

Ordinary Bitters QUARTER SESSION BITTER

Malt	Extract 5 Gal.	All-Grain 5 Gal.	All-Grain 1 Bbl.
Pale malt syrup	4.0 lb. (1.82 kg) (78.8%)	—	—
Pale dry malt extract	0.7 lb. (318 g) (13.8%)	—	—
140 °L crystal malt	0.375 lb. (170 g) (7.4%)	0.375 lb. (170 g) (6%)	2.4 lb. (1.09 kg) (6.9%)
British two-rowed pale malt	—	5.6 lb. (2.54 kg) (90%)	30.4 lb. (13.8 kg) (88%)
Wheat malt	—	0.25 lb. (114 g) (4%)	1.75 lb. (795 g) (5.1%)
Beer color (°SRM)	14	14	14

Hops	Extract 5 Gal.	All-Grain 5 Gal.	All-Grain 1 Bbl.
<i>Bittering Hops</i>			
WGV hop flowers (4.9% AA)	2.5 oz. (71 g)	1.8 oz. (51 g)	9.6 oz. (272 g)
HBU	12.3	8.8	—
IBU	33	33	33

Aroma Hops

WGV hop flowers (end of boil)	0.5 oz. (14 g)	0.5 oz. (14 g)	3.2 oz. (91 g)
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Specifications

Original gravity:	1.037 (9.3 °P)
Final gravity:	1.007–1.009 (1.8–2.3 °P) for extract 5 gal. 1.008–1.010 (2.1–2.6 °P) for all-grain 5 gal. and 1 bbl.
Water treatment:	Calcium 50–100 ppm; sulfate 100–200 ppm; chloride 20 ppm
Mash temperature:	152–154 °F (66.7–67.8 °C)
Yeast:	Wyeast 1028 London Ale
Alcohol v/v:	3.7% approximately
Serve:	Draught only
Priming:	2–3 oz. (56–85 g) cane sugar
CO ₂ v/v:	1.0–1.5

Use of dark crystal malt gives this beer a reddish tint and a nutty flavor. Whitbread Goldings varieties add a nice, slightly lemony, spicy flavor and a little complexity to what is really a simple session beer.

Pale Malt

Pale malt is the foundation stone for pale ale brewing, whether you are mashing or using an extract. For the paler, golden brews, it might be the only source of color and fermentables. So you should use pale malt of the highest quality, that designed for brewing just this type of beer. In the first edition of *Pale Ale*, I stated that this highest-quality malt was British malt, which I referred to only in generic terms. Now, all that has changed. Today, a variety of pale malts are available to both the homebrewer and craftbrewer.

Types of pale malt

There are two basic divisions of pale malt, named after the nature of the barley from which they are produced:

- six-rowed pale malt
- two-rowed pale malt

Six-rowed pale malt is the major malt for the brewing of American factory beers. This is primarily because it is high both in nitrogen and in enzymes, thereby making it ideal for brewing beers that have a high level of adjuncts, as is typical of American mainstream pale lagers. It can be used in pale ale brewing and can even give a halfway decent beer (provided hops and yeast are carefully chosen). Six-rowed pale malt also gives slightly lower extract yield than two-rowed malt. Further, it can give chill haze problems unless extra processing steps are taken, such as enzyme addition, silica-gel treatment, or polyvinylpyrrolidone treatment.

Most brewers also consider that six-rowed malt gives a beer of inferior flavor compared to one produced from two-rowed malt. Unless you want to make a high-adjunct beer, you should work only with two-rowed pale malt. Since I strongly recommend that you work on a malt-only basis if you wish to brew top-quality pale ales, two-rowed pale malt is the only way to go.

In general, two-rowed pale malts are more completely germinated during malting and are kilned at slightly higher temperatures than six-rowed malts. Two-rowed malts usually are higher in color (2–3 °SRM), lower in nitrogen (9–10% as total protein),

and lower in enzymes. They are often called highly modified malts, meaning that a protein degradation step is not necessary in mashing. A one-temperature saccharification rest is all that is required to convert starch to fermentable sugars. Although low in enzyme content, modern two-rowed pale malts are actually high enough in enzyme content to convert up to about 20% starch adjuncts, as well as their own starch content. Properly handled, they will give 1–2% more extract than six-rowed malts, although this small difference will rarely be important to either homebrewers or craftbrewers, either in terms of cost or efficiency.

More important, two-rowed malts give good results with the classic single-temperature infusion mash at $\pm 150^{\circ}\text{F}$ (65.6°C). I say plus or minus (\pm) because the exact temperature depends very much on what you want to achieve. You might wish to go a degree or two lower to ensure good fermentability and high attenuation, a feature of the early Burton IPAs. Or, you might wish to go as much as five degrees higher in order to give the beer more body. This could be particularly desirable in, say, a golden or American pale ale with no added crystal malt. The variety of pale ales now on the market in Britain and America encompasses a range of fermentabilities and permits you to choose the same.

The single-temperature approach has the great benefits of being easy to operate and requiring relatively simple equipment. The homebrewer armed only with a spoon and a pot on a stove will find it a lot easier to run at only one temperature, than to go through several rests, for what might be only a small advantage in yield and flavor. A further point is that these highly modified malts are easier to grind and crush. They also are much less likely to cause the dreaded “stuck mash,” where wort cannot filter through the grain bed.

In the first version of Pale Ale, I simply recommended the use of British pale malt, but to do the same here would trivialize the current situation, both for homebrewers and craftbrewers. Now we have a whole variety of pale malts available from both England and America. These include, in addition to the more standard pneumatic malts, blended malts from several barleys and malts from single barleys, such as Maris Otter, Halcyon, and Klages. Also included are American malts specifically designed for pale ale brewing and even traditional English floor-malted products.

Notice that I make no recommendation as to which is the best pale malt. There are a limited number of maltsters in Britain and America, and they all produce high-quality malt. Regardless of which you choose, you are unlikely to get anything that is poorly modified and difficult to handle. And for American pale ales, IPAs, and amber ales, you are committed to American malts, if you want to stay true to style. The converse that

Best Bitters DOUBLE PRIDE BITTER

Malt	Extract 5 Gal.	All-Grain 5 Gal.	All-Grain 1 Bbl.
Pale malt syrup	5.0 lb. (2.27 kg) (83.2%)	—	—
Pale dry malt extract	0.7 lb. (318 g) (11.6%)	—	—
60 °L crystal malt	5.0 oz. (142 g) (5.2%)	5.0 oz. (142 g) (4.2%)	2.0 lb. (908 g) (4.9%)
British two-rowed pale malt	—	7.1 lb. (3.2 kg) (95.8%)	38.8 lb. (17.6 kg) (95.1%)
Beer color (°SRM)	8.0	8.0	8.0

Hops	Extract 5 Gal.	All-Grain 5 Gal.	All-Grain 1 Bbl.
<i>Bittering Hops</i>			
WGV hop flowers (4.9% AA)	2.25 oz. (64 g)	1.6 oz. (45 g)	8.7 oz. (247 g)
HBU	11.0	7.8	—
IBU	30	30	30

<i>Aroma Hops</i>			
WGV hop flowers (20 min.)	0.5 oz. (14 g)	0.5 oz. (14 g)	3.0 oz. (85 g)
Goldings (end of boil)	0.5 oz. (14 g)	0.5 oz. (14 g)	3.0 oz. (85 g)

Specifications

Original gravity:	1.044 (11 °P)
Final gravity:	1.008–1.011 (2.1–2.6 °P) for extract 5 gal. 1.009–1.011 (2.3–2.8 °P) for all-grain 5 gal. and 1 bbl.
Water treatment:	Calcium 50–100 ppm; sulfate 100–200 ppm; chloride 20 ppm
Mash temperature:	152 °F (66.7 °C)
Yeast:	Wyeast 1028 London Ale
Alcohol v/v:	4.5% approximately
Serve:	Draught only
Priming:	2.2–3.2 oz. (62–91 g) cane sugar
CO ₂ v/v:	1.2–1.7

This beer is quite malty, although it is still very bitter and hoppy, with more late hopping than in previous recipes. It has a simple malt bill, so the beer is quite pale but still has some caramel undertones. The name is a play on Fuller's London Pride and the fact that a London soccer team, Arsenal, completed the “double” of both English Premier League Championship and the Football Association Cup in the 1997–1998 season.

bitters and English pale ales should be made from British malts also holds true but is less definitive.

Caramel and Crystal Malts

Caramel and crystal malts are widely used in pale ale brewing, especially for American amber ales and English bitters. They are very useful for lower-gravity beers because they add some color, mainly a reddish hue, as well as a nutty, caramel flavor and body, or mouthfeel.

Caramel malt

Caramel malt is produced from fully modified green malt that is taken before kilning so that it still contains a considerable amount of moisture. It is then stewed at temperatures of up to 160 °F (71 °C) in a closed vessel so that virtually no moisture escapes. Under these conditions, which are like those of mashing, the malt starch is broken down into sugars. A certain amount of caramelization and coloring occurs (through Maillard browning reactions) as this mixture is further heated, up to as high as 240 °F (116 °C) for the darker grades.

Many years ago, when I started brewing, it was possible to obtain only one grade of caramel malt, very dark in color. Now it is possible, even for the amateur, to obtain a whole range of such malts, varying in color 10–150 °SRM and with a corresponding increasing intensity of flavor. While many of these do come from Britain, there is also a wide range manufactured in America. The latter include the so-called carastan or dextrin malts, which are very low in color (2–3 °SRM) and designed to give a beer body and mouthfeel, with little effect on color. The latter are really meant for lager brewing and are probably not appropriate for bitters and amber ales, in which the brewer is looking for the extra flavor provided by a crystal malt. However, they might be worth looking at for very pale or golden pale ale types.

Crystal malts

Crystal malts are used at rates of up to 10% of the total grist (or about 0.5 pound in 5 U.S. gallons) for a 1.048 (12 °P) pale ale. However, 5% is probably the maximum amount of the darkest grades. Otherwise, the beer's flavor will be too coarse for this

style. Crystal malts are generally added to the mash in all-grain brewing, although they contain no enzymes. All of the sugars and flavors are fully water-soluble and can be extracted by a simple steeping procedure, so these malts are quite suitable for extract brewing. In general, these yield slightly lower amounts of extract than pale malts. They also can be somewhat variable in their yield. However, since only a small amount is used, this variation should have little effect on the final gravity of the beer.

An important contribution of crystal malt to pale ale is color. Crystal malt adds a reddish hue, depending upon the degree of roasting and on the amount added to the mash. However, if you are looking at crystal malt solely for its color effect, and desire reproducible results, choosing the type and amount of crystal malt is not a simple matter. Beer color depends on a number of factors other than that contributed directly by the malt bill. The only real way to determine the color is by measurement, for which there are relatively simple methods available, as described by Ray Daniels in *Designing Great Beers*. However, you can make approximate calculations as to the color to be expected from a given malt bill. Simply multiply the weight of each malt by its color rating, add the products, and divide by the volume in gallons. While only an approximation, this easy calculation does enable you to predict how different recipes with very similar processing steps might compare. Be aware, however, that

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there are often significant batch-to-batch differences in the color of crystal malts. A variation of 10 °SRM for the lighter-colored grades is common, while the very dark grades might vary by as much as 30 °SRM. Most of these malts are proprietary products and might even give different flavors for the same color rating, depending on the manufacturer. (continued on page 58)



A view of the exterior of the Cheriton brew house in Hampshire. A simple but functional building where they turn out some of the hoppiest bitters you can find.

The Secrets of Buckfast Abbey

The first of two stories and encounters with legends of mead

I enjoy tasting all of life's small and big flavors. Some beckon, some flirt, while others all but try to escape. Not all reveal themselves, but the ones that do recall themselves as a memorial. It has been six years, but I recall so vividly the summer of 1993 when I found myself sharing dinner with 40 Benedictine monks.

The arched ceilings and the evening light filtering through the narrow windows to the west created a mood of reverence and awe. Prayers had been read, but only the busy clatter of knives and forks broke the silence in this centuries-old dining hall adorned with simple wooden tables and chairs. I tasted, savored and dwelled on the moments. A background odor of furniture polish and the mustiness of old stones crept into my soul. Dining with monks became an all-pervading experience that took my imagination back to the past in this ancient monastery.

The meal was accompanied by a stoneware jug of amber liquid. I poured myself a glass. It was ale, English ale. It was almost flat, served at room temperature and ciderlike. I wondered if it had been homebrewed at the abbey, but knowing its origins seemed irrelevant. The recipe was nothing I'd ever pursue. I never asked, though I recall that its quality was enhanced by its mere presence. I continued to taste and savor the moments. They were everywhere.

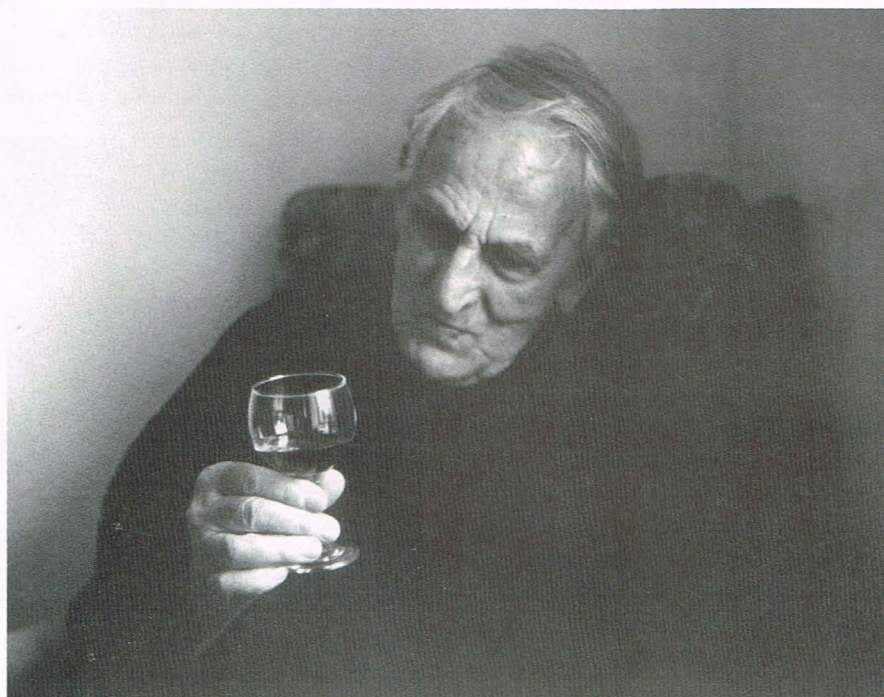
I spent the night in the monastery. Robed, hooded and slippered monks quietly walked the dark halls of the cloister, but at 9:15 curfew the doors would be bolted shut from the inside. The thought of being locked out discouraged the likes of me from the temptation of late evening pints at one of the quiet town pubs down the road. Fearless, I managed to make the most of the twilight hour, enjoying a few

pints and rushing back to the stone abbey, returning in time to hear the bolts slam shut throughout the abbey five minutes later. The halls were dark. My footsteps echoed off the hard stone floors and walls as I groped my way back to my room. All was still as I retired, the single high, small window promising morning's first light and the sound of bells at 5 A.M.

I had not come to the monastery for spiritual reasons, or so I thought. Why then had I found myself at Buckfast Abbey, asleep inside a small, spartan room? I had traveled all this way from the U.S. to the Devon countryside in the southwest of England to see a man whom I had admired from afar for many years. I must admit that the admiration was not one that seemed to me a profound calling. But for a reason that always seems mysterious to me I appointed myself seven years

earlier to make a pilgrimage to this place across the Atlantic to meet and be in the presence of Brother Adam. Why? Because Brother Adam and I shared a rare interest in making and appreciating honey mead, a fermented "wine" of honey and water. Mead enjoys a tradition preceding beer and wine. There are very few people who know mead's secrets. For years I have been slowly trying to unravel them.

Born in 1898, Brother Adam by the time of my visit had retired from a life of devotion at Buckfast Abbey; a life that began upon entering the monastery at the age of 12 after emigrating from Germany to England. His interests led him to study and breed honey-bees for over 75 years, traveling hundreds of thousands of miles throughout the world to crossbreed his very personal collection of bees. The hybrid Buckfast Bee is known throughout the



world for its favorable characters and resistance to disease and parasites.

In his own small but magnificently significant way Brother Adam has helped assure fruit, vegetable and nut harvests throughout the world by developing bees that survive to pollinate flowers and assure crops.

Brother Adam's meadmaking began as a pleasant "byproduct" of bee breeding in 1940, and in 1993 was still a tradition at Buckfast Abbey, reserved for moderate enjoyment by monks at the abbey. For over 50 years he had found the challenge of making a traditional mead a side interest of his. Much as I have found brewing beer and mead a side interest of mine and one of the many intriguing and beguiling flavors of life.

Far more than being just a meadmaker, Brother Adam provided for me an insight into devotion. A man of 95 years, his spirited walk and generous hospitality were mere reflections of a long and meaningful life. His memorable voice, though somewhat unclear with age, was a reflection of unfathomable knowledge, patience and feeling of things only devoted persons possess.

I spent all of my morning poring over Brother Adam's file on meadmaking—short articles on the subject, references, recipes, experiments and formulations recorded for the past 30 years or so. They all fit into a small hatbox. The formulations were rather simple. Experimentation was indeed part of the progression over the years, yet there were no copious stacks of recipes nor piles of research papers. His procedures were as modest as any modern-day homebrewer or meadmaker, although he "brewed" mead in 60-gallon batches and fermented in large oak barrels. Wine yeasts were used, but often were difficult to get in England during the early days of meadmaking at the abbey. Nutrients were essential and his experimentation with small amounts of cream of tartar, ammonium phosphate and citric acid provided the fermentation with vitamins essential for complete and dependable fermentation.

Light clover honey was found best for dry and/or sparkling meads, while darker honeys such as the abundant heather honey found throughout Britain was more suitable for sweeter sherry-type meads. He

found soft water to be essential, along with a brief two- or three-minute simmering boil and a skimming of the coagulated protein rising to the surface.

The fermentations were long and complete. And if the strength or gravity of mead was lacking during the initial stages of fermentation, more honey was judiciously added.

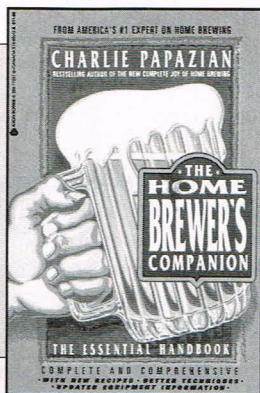
After lunch with the brothers of the abbey I returned to Brother Adam's office, now brightly lit as the afternoon sun

accented the blues and greens of the world outside. Inside, the golden walls were trimmed with natural wood. Not far outside his office door, very large vats of honey provided comfort. But not as much comfort as his storied conversation accompanied by a bottle of his 10-year-old heather honey sherry mead and four-year-old sparkling clover mead.

Brother Adam spoke of his life, of which I had known very little. For two hours we talked. There were frequent pauses of

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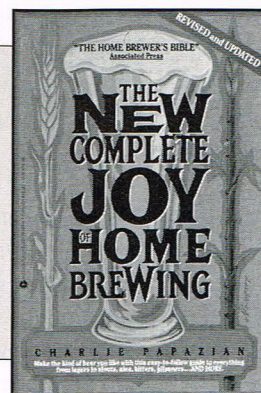


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silence as he attempted to recall memories of the past 83 years at the abbey. Brother Adam apologized for his frequent yawning. When one reaches the age of 95 weariness comes more often.

We spoke of mead, but I soon realized that this was only a very small part of his story; a morsel, a little flavor, but one that no doubt inspires someone as myself to explore the reasons why for reasons why.

We both paused often to contemplate and savor the ambrosia in our glasses. Saturated with antiquity, the mead refracted sunlight as a deep amber. Its aroma was very big, floral and honeylike. Closing my eyes I perceived an earthy aroma. An infusion of alcohol titillated my nostrils. The flavor began unusually soft and gently sweet, then flirted with a fruitlike acidity, finally retreating to a wonderful sherrylike aftertaste, nutty but not overbearing nor overly sweet. The green grass outside in the courtyard sparkled in the sunlight. I began to hear bees buzzing. They were on the other side of the window seeking our glasses of mead. Smart bees.

Brother Adam recounted his first batch of mead. That was in 1940, when there was an abundance of heather honey. What to do with it? Heather honey being of somewhat of a gelatinous nature was not as suitable for sale as other types of honey. The first batch of mead was made with very little knowledge of the process. I couldn't help reflect that 53 years later the mysteries of meadmaking remain enveloped in antiquity, waiting discovery by individual meadmakers.

I am not the monastic type. I only spent 24 hours in Buckfast Abbey, but I came away wondering how seven years ago my small whimsical notion could lead to such an inspiring experience.

Short glimpses, small tastes, brief digressions. With no real agenda I had wandered onto the grounds of Buckfast Abbey, somewhat purposefully, but not expectantly. An immersion into the sights, sounds, feelings, aroma and flavors of this place slowly impressed upon me the value of seeing with your eyes closed, tasting with your mouth empty, smelling with only your mind, feeling without touching and hearing through sound barriers.

I bid farewell to Brother Adam late in the morning. I happened to find him walking the halls of the cloister carrying an electric typewriter. I thanked him for offering me some of his time. He hoped I had found his conversation and information of interest. They were.

Was it a whim I had had six years earlier? Perhaps. Perhaps it was something else. Something that meadmakers understand. A yearning for a simple small taste had led me to something much more intriguing. The unexpected always surpasses the expectations of original desire.

Little tastes, little flavors, notions, whims, fancies and small gestures. This time they've complemented a journey I have not forgotten. This seems always the story of mead and its mysteries.

I learned that one year after my visit Brother Adam passed away. His passion surely has left an indelible mark on these lives we still live.

If all this has inspired you as it has me, then here is recipe for a traditional style of

sweet sherrylike mead. The honey, fermentation and the aging process lend complexity to this mead. The recipe is unpretentiously simple.

St. Bartholemew is the patron saint of mead. His day, and ours, is August 24. Celebrate it as I would like to every day.

In the next *Zymurgy* we'll continue this journey through the U.K., visiting Lt. Col. Robert Gayre (author of *Brewing Mead*, 1949 and *Brewers Publications* 1986), rediscover more secrets of ancient meadmaking and sample a 50-year-old bottle of sack mead from the cellars of his Scottish castle.

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 books are *Home Brewers Gold* (Avon, 1997), a collection of prize-winning recipes from the 1996 World Beer Cup Competition, and *The Best of Zymurgy* (Avon, 1998) a collection of the best articles and advice from 20 years of *Zymurgy*.

St. Bartholemew's Mead

Ingredients for 4 U.S. gal (15 L)

- | | |
|------|---|
| 15 | lb light honey (clover, alfalfa, orange blossom, among others) (6.8 kg) |
| .125 | tsp Irish moss finely powdered (.6 mL) |
| .25 | tsp yeast extract (1.2 mL) as a nutrient, or nutrients available and recommended by your local homebrew/winemaking shop |
| 3 | tbsp dried wine yeast (44.4 mL) (Prise de Mousse or other Champagne yeast are excellent choices) |

Add honey to one gallon of water, stir, dissolve and bring to a boil. Add Irish moss and boil for 10 minutes. Skim off coagulated meringuelike protein and discard during the boil.

After 10 minutes add boiled water and honey to two gallons of cold water in sanitized fermenter. Add yeast extract-nutrient and top off fermenter to yield a total of four gallons. Mix extremely well, introducing as much air/oxygen into the mixture as possible.

Rehydrate yeast by adding dry yeast to approximately two cups preboiled and cooled (to 100-degrees-F or 37-degrees-C) water in a covered sanitized glass container. Let stand for two minutes before adding to honey and water mixture.

When temperature of honey and water mix is between 72 and 80 degrees F (22- 26.5 degrees C) add rehydrated wine yeast and ferment at temperatures above 70 degrees F (21 degrees C).

Original gravity will be between 1.130 and 1.145 depending on the qualities of the honey used. The final strength will be about 14.5% alcohol by volume, but will only reach a final gravity of about 1.025 to 1.045.

Ferment in a closed primary fermenter until fermentation appears to have stopped and mead begins to clear. Then carefully transfer (introduce as little oxygen as possible) by siphon to a closed secondary fermenter and let sit for up to one year or until the mead has become crystal clear and there are no signs of fermentation. The mead is now ready to drink or bottle.

With careful bottling techniques, minimizing the introduction of air and oxygen, this mead will age well for several decades, especially if properly corked.

Summer is upon us again and with it the inspiration for some of the spicier, more exotic styles of homebrew. The warmer temperatures are perfect for many Belgian ales, for example. Ed Bloom's powerful but delicately balanced tripel is a perfect beer for summer brewing. Or for those few intrepid (and very patient) souls who take on the challenge of imitating the distinctive lambic styles of Belgium's Payottenland, Tony DeMarse's framboise is an excellent interpretation.

Cleaner, less complex wheat beers are also popular for the summer months in many countries, and Dan Morely's American-style wheat is perfect for those who want to drink, not contemplate.

Spiced ales are often enjoyed around the winter holidays, so now is a great time to get started with a good, warming one like Deb and Frank Nelson's "Silent Night Spice"—brew it now and cellar it away for the winter months. Finally, summer is a fine time to ferment for the meadmaker, especially armed with a good, simple traditional mead recipe like Robert Ring's. Enjoy.

American Style Ale



SILVER MEDAL

AHA 1998 NATIONAL HOMEBREW COMPETITION

Dan Morley, Calgary, AB

"Weiss Ass Ale"

American Style Wheat

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

- 6 lb pale malt (2.7 kg)
- 3.5 lb wheat malt (1.6 kg)
- 1 oz Tettnanger whole hops, 4.7% alpha acid (28 g) (60 min.)
- .5 oz Tettnanger whole hops, 4.7% alpha acid (14 g) (15 min.)
- .5 oz Tettnanger whole hops, 4.7% alpha acid (14 g) (2 min.)
- Wyeast No. 2112 California lager yeast
- .75 cup corn sugar (177 mL) (to prime)

- Original specific gravity: 1.046
- Final specific gravity: 1.012
- Boiling time: 75 min.
- Primary fermentation: 7 days at 62 degrees F (17 degrees C) in glass
- Secondary fermentation: 21 days at 62 degrees F (17 degrees C) in glass

Brewer's Specifics

Mash grains at 133 degrees F (56 degrees C) for 20 minutes. Raise temperature to 153 degrees F (67 degrees C) and hold for 75 minutes.

Judges' Comments

"Good example of the style. Obviously made from a good recipe."

"Clean tasting. This is a nice beer. Maybe just a tad bit of Munich malt and just a hint of hop flavor would enhance it."

Traditional Mead



SILVER MEDAL

AHA 1998 NATIONAL HOMEBREW COMPETITION

Robert Ring, Caldwell, ID

"Traditional Mead"

Still Traditional Mead

Ingredients for 3 U.S. gal (11.3 L)

- 8.5 lb almond blossom honey (3.8 kg)
- 1.5 tsp gypsum (7.4 mL)
- 2 tsp acid blend (9.9 mL)
- 2 tsp phosphate-urea (9.9 mL)
- 1 tsp biotin (4.9 mL)
- Wyeast No. 3632 mead yeast

- Original specific gravity: 1.108
- Final specific gravity: 1.015
- Boiling time: 15 min.
- Primary fermentation: 40 days at 70 degrees F (21 degrees C) in glass
- Secondary fermentation: 30 days at 70 degrees F (21 degrees C) in glass

Brewer's Specifics

Boil must for 15 minutes.

Judges' Comments

"Nice sweetness, well-balanced. Good honey expression, interesting character."

"Well-made. Subtle almond gives it a nice character."



Every gold-medal winning recipe from the AHA 1998 National Homebrew Competition was printed in the 1998 Nov/Dec Zymurgy (Vol. 21, No. 4) "Winners Circle."

Belgian and French-style Ale



BRONZE MEDAL

AHA 1998 NATIONAL HOMEBREW COMPETITION

Ed Bloom, Gibsonsia, PA

"Blabby-Ale"

Tripel

Ingredients for 10 U.S. gal (37.8 L)

- 21 lb English lager malt (9.5 kg)
- 4 lb pale malt (1.8 kg)
- 3 lb 0 °L candi sugar (1.36 kg)
- 1 oz Northern Brewer whole hops, 7.5% alpha acid (28 g) (60 min.)
- 1 oz Willamette whole hops, 4.1% alpha acid (28 g) (60 min.)
- 1.25 oz Northern Brewer whole hops, 7.5% alpha acid (35 g) (30 min.)
- 1.25 oz Willamette whole hops, 4.1% alpha acid (35 g) (30 min.)
- .5 oz Northern Brewer whole hops, 7.5% alpha acid (14 g) (15 min.)
- .5 oz Willamette whole hops, 4.1% alpha acid (14 g) (15 min.)
- Wyeast No. 3787 Belgian Trappist ale yeast
- 1.75 cup corn sugar (414 mL) (to prime)

- Original specific gravity: 1.086
- Final specific gravity: 1.023
- Boiling time: 1 hr. 45 min.
- Primary fermentation: four days at 64 degrees F (18 degrees C) in steel
- Secondary fermentation: six weeks at 64 degrees F (18 degrees C) in glass
- Tertiary fermentation: 2 weeks at 64 degrees F (18 degrees C) in glass

Brewer's Specifics

Mash grains at 150 degrees F (66 degrees C) for one hour. Add sugar to the boil.

Judges' Comments

"Extremely well-balanced between malt, hops and alcohol. Interesting, complex beer."

"Fruity, winery and spicy. Subtly complex and warming."

Belgian-style Lambic



SILVER MEDAL

AHA 1998 NATIONAL HOMEBREW COMPETITION

Tony DeMarse, Greeley, CO

"Marlee Wine"

Fruit Lambic (Framboise)

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

- 6 lb Belgian pale malt (2.7 kg)
- 3.5 lb unmalted wheat (1.6 kg)
- .5 lb 20 °L crystal malt (.23 kg)
- 13.5 lb raspberries
- .5 oz Tettnanger whole hops, 4.5% alpha acid (14 g) (60 min.)
- Wyeast No. 3278 Belgian lambic blend
- 1.25 cup honey (296 mL) (to prime)

- Original specific gravity: 1.060
- Final specific gravity: 1.002
- Boiling time: 90 min.
- Primary fermentation: 12 days at 70 degrees F (21 degrees C) in glass
- Secondary fermentation: 24 days at 70 degrees F (21 degrees C) in glass
- Tertiary fermentation: 15 months at 70 degrees F (21 degrees C) in glass

Brewer's Specifics

Boil and mash the unmalted wheat before adding to malted grains. Mash at 155 degrees F (68 degrees C) for one hour. Add .5 lb malted barley (.23 kg), drop temperature to 135 degrees F (57 degrees C) and allow mash to sour overnight.

Sanitize frozen red raspberries by heating them to 180 degrees F (82 degrees C) and holding above 160 degrees F (71 degrees C) for 30 minutes. Add 10.5 pounds raspberries to secondary fermenter and another three pounds to tertiary fermenter.

Judges' Comments

"Very nice lambic. With a little more acetic acid and more raspberry aroma this could be a great framboise."

"Great beer. Could use more age and more acid. Great raspberry flavors—wonderful."

Herb and Spice Beer



BRONZE MEDAL

AHA 1998 NATIONAL HOMEBREW COMPETITION

Deb and Frank Nelson, Apple Valley, MN

"Silent Night Spice"

Spice Beer

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

- 6 lb light dry malt extract (2.7 kg)
- 1 lb amber malt extract (.45 kg)
- 1 lb wheat malt extract (.45 kg)
- 1 lb light honey (.45 kg)
- 1 lb English crystal malt (.45 kg)
- .25 lb chocolate malt (.11 kg)
- 1 oz Cascade pellet hops, 4.2% alpha acid (28 g) (60 min.)
- .5 oz Cascade pellet hops, 4.2% alpha acid (14 g) (30 min.)
- .25 oz coriander (7 g)
- .25 oz orange peel (7 g)
- .5 oz grated ginger (14 g)
- 6 inch cinnamon stick
- 1 inch vanilla bean, split
- 1 pinch mace
- 1 pinch nutmeg
- British Ale A04 yeast
- 1.25 cup dry malt extract (296 mL) (to prime)

- Original specific gravity: 1.076
- Final specific gravity: 1.021
- Boiling time: 60 min.
- Primary fermentation: five days at 70 degrees F (21 degrees C) in plastic
- Secondary fermentation: 14 days at 70 degrees F (21 degrees C) in glass

Brewers' Specifics

Steep chocolate and crystal malts at 160 degrees F (71 degrees C) for 30 minutes.

Judges' Comments

"Nicely balanced between spices, malt, alcohol and sweetness."

"A good effort. I like the spice combination. The finish was crisp but not too dry. Great beer for the winter."

Amahl Turczyn is a 1998 GABF Gold Medal-winning professional brewer and the former AHA Project Coordinator.

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California Gold

AHA 1998 NATIONAL HOMEBREW COMPETITION
GOLD MEDAL WINNER

Bob Thompson
Murrieta, California

Bob Thompson, a plumber by profession, says he started homebrewing "years ago when everyone used Pabst Blue Ribbon malt extract and bread yeast." He grows his own hops (eight different varieties). "I always liked Anchor Steam because of its bitterness and the malt flavor," notes Thompson. "I think my beer is pretty close."

Ingredients for 12 U.S. gal (45.42 L)

- 16.5 lb Klages two-row malt (7.6 kg)
- 1.5 lb 60 °L crystal malt (.68 kg)
- 1 lb Vienna malt (.45 kg)
- 1 lb Cara-Pils malt (.45 kg)
- 1 oz chocolate malt (28 g)
- 4 oz Northern Brewer whole hops (113 g)
- White Labs San Francisco lager yeast

- Original specific gravity: 1.050
- Final specific gravity: 1.014
- Boiling time: 90 min.
- Primary fermentation: 3 weeks
- Secondary fermentation: 6 weeks

Brewer's Specifics

Mash at 150-151 degrees F (66 degrees C) for 1.5 hours. Add 1.5 oz (43 g) of Northern Brewer hops 30 minutes into the boil, 1.25 oz (35 g) at 60 minutes into the boil, and 1.25 oz (35 g) at 80 minutes into the boil. Ferment at 60 degrees F (16 degrees C). Cold-condition in refrigerator (temperature: 40 degrees F; 4 degrees C) for six weeks. Artificially carbonate with 2.5-2.75 volumes of CO₂.

Carpetbagger Common

AHA 1998 NATIONAL HOMEBREW COMPETITION
SILVER MEDAL WINNER

Tom Ierardi
Skaneateles, NY

A computer analyst by trade, Tom Ierardi is an avid homebrewer who, by his own count, has brewed 22 batches during the past year in 17 different styles. "I was shooting for Anchor Steam," he admits, "but I ended up with a beer that has very little similarity." He describes his brew as lighter in color, a little less bitter, with a "drier, crisper finish." Ierardi named his prize-winning beer after his brother, who moved to a small town in Oregon. "Carpetbagger is a non-fond nickname they have for Californians who move up there."

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

- 6.5 lb light dry malt extract (2.95 kg)
- .5 lb pale malt (.23 kg)
- 2.5 oz Cascade hops (71 g)
- Wyeast No. 2112 California common yeast

- Original specific gravity: 1.055
- Final specific gravity: 1.015
- Boiling time: 80 min.
- Primary fermentation: 5 days
- Secondary fermentation: 24 days

Brewer's Specifics

Add 1.5 oz (43 g) of hops at beginning of the boil, .5 oz (14 g) ten minutes into the boil, and .5 oz (14 g) just before the end of the boil. Maintain a temperature of 68-70 degrees F (20-12 degrees C) for both the primary and secondary fermentations.

California Steamin'

AHA 1998 NATIONAL HOMEBREW COMPETITION
BRONZE MEDAL WINNER

Brian Cole
Black Mountain, NC

Brian Cole, a biologist with the U.S. Fish and Wildlife Service, has been homebrewing for just over three years and is president of the Mountain Ale and Lager Tasters. "This is a pretty good facsimile of Anchor Steam," he says of his award-winning beer. "I remember being pleased with the comparison. The word is that Anchor uses Northern Brewer hops exclusively, and I used them mostly in this recipe."

Ingredients for 6.5 U.S. gal (24.6 L)

- 6 lb light dry malt extract (2.72 kg)
- 1 lb 120 °L crystal malt (.45 kg)
- 2 cups Victory malt (473 mL)
- 2 cups German wheat malt (473 mL)
- 1 cup Klages 2-row malt (237 mL)
- 2.5 oz Northern Brewer whole hops (71 g)
- .75 oz Chinook hops (21 g)
- Wyeast 2112 California common yeast

- Original specific gravity: 1.051
- Final specific gravity: 1.012
- Boiling time: 70 min.
- Primary fermentation: 6 days at 65 degrees F (18 degrees C)
- Secondary fermentation: 8 days at 60 degrees F (16 degrees C)

Brewer's Specifics

Boil for 70 minutes. Add 1 oz (28 g) of Northern Brewer and .25 oz Chinook (7 g) at the beginning of boil. Add another 1 oz (28 g) of Northern Brewer and .5 oz (14 g) of Chinook with one minute to go in the boil. Dry hop with .5 oz (14 g) of Northern Brewer in the secondary. Maintain fermentation temperature of 65 degrees F (18 degrees C) for the primary, 60 degrees F (16 degrees C) for the secondary. Prime in the bottle.

Anchor Steam (from page 29)

apiece so he could pay the toll on the Golden Gate Bridge to get home after work.

Maytag switched to an all-malt recipe and began borrowing lager yeast from other California breweries. But he soon found that Anchor Steam was a hard sell. When he went calling on area bars, their owners were incredulous that the brewery still existed. Maytag recalled one particularly trying experience. "I visited an account in Berkeley that hadn't paid its bill for months. The bartender said, 'You don't want Anchor Steam, it isn't any good.' I took my jackknife, cut the line to the keg and tossed it across the bar, removed the tap marker and left."

While driving around, Maytag carried a brick of compressed hops wrapped up in green paper. Secretly, he was hoping he might get pulled over and arrested on suspicion of carrying a controlled substance. The headlines might have drummed up some publicity for the struggling brewery. "But it was hard to get arrested in Haight-Ashbury in those days," he recalls.

Maytag wound up sinking more money into the brewery than he would have dreamed at the outset. In 1969 he purchased Anchor Brewing outright, having concluded that this was an all-or-nothing project. In 1971 he bought a 55-barrel German-manufactured copper brew kettle. That same year he began bottling Anchor Steam, using a bottling line he'd bought in 1966 from the defunct Sieben's Brewery of Chicago. In 1979 Maytag moved the brewery to its present location: the former Chase & Sanborn coffee plant at 1705 Mariposa St.

Maytag and his employees are tight-lipped about their recipes, but a fairly detailed description of Anchor Steam Beer can be obtained from Daniels' *Designing Great Beers* and Michael Jackson's *Beer Companion*. Anchor Steam (OG 12-13 Plato, 5% ABV) is brewed from a blend of pale and crystal malts and is hopped exclusively with American-grown Northern Brewer—three separate additions during the boil for a bitterness level of 30-35 IBUs. Fermentation takes place in shallow open fermenters measuring 12 by 30 feet, filled to a depth of about 16 inches. Although a lager yeast is used, the beer is fermented at a more ale-

like temperature of 60-72 degrees F (16-22 degrees C). The brewery today is capable of regulating the temperature, but San Francisco's climate is so consistent that most of the time this isn't necessary, notes Maytag. However, the air is filtered to eliminate harmful bacteria. Anchor Steam then undergoes three weeks of warm conditioning, during which time it's kraeusened with partially fermented wort. This kraeusening is the sole source of carbonation. In one important respect, Anchor Steam is quite different from its earliest antecedents. Both

the kegged and bottled versions are flash-pasteurized. There is no continuing fermentation in the final package.

The result is a lively, amber-colored brew that combines the roundness and crisp, dry finish of a good lager with the fruity overtones of an ale. Jackson characterizes Anchor Steam as "the definitive beer over which to socialize and develop an appetite."

California Common

Several microbreweries have attempted their own versions of what's now called the

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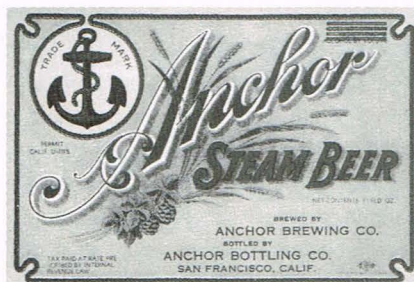
California common style. Noteworthy examples include Atlantic Amber from the New England Brewing Company of Norwalk, CT, Tabernash Amber from Tabernash Brewing Company of Longmont, CO, and Old Scratch Lager from Denver's Broadway Brewing Company.

The "red" beer from the Boiler Room Brewpub in Laughlin, NV, which won the gold medal in the bock category at the 1998 Great American Beer Festival, also is described as a California common-style beer in the brewpub's promotional literature. All these beers are warm-fermented lagers, but none of these breweries use the distinctive, pan-like fermenters that Anchor Brewing uses. "Absolutely!" answers Maytag, when asked if the use of these vessels makes a difference, but is unable to be more specific. "I don't want to know!" is his only answer when queried on how Anchor Steam might turn out if a more traditional closed fermenter were used.

Occasionally, modern breweries have appropriated the name "steam," drawing threats of legal action. "You cannot believe the number of legal battles we've had over it," states Maytag. Examples include the California Steam Beer Brewing Company, a short-lived microbrewery (1978-1980) in San Rafael, CA, and Korr's Steam Beer, a product from a now defunct regional brewery in Frankenmuth, MI (Maytag says he never heard of the latter, but Coors apparently did, and put a quick end to it.) Tabernash Amber also received a cease-and-desist letter from Anchor's lawyers because of language on the label describing the product as "brewed in the style of American steam beers."

Unable to finance a prolonged legal battle, Tabernash gave in, but not before one of its employees published findings that called into question Anchor's exclusive right to the term "steam." According to Doug Render, Anchor Brewing received U.S. Trademark Registration No. 1,206,783 for "STEAM BEER and design" on Aug. 31, 1982. However, when Anchor later attempted to register the mark "STEAM BEER" by itself, the U.S. Patent and Trademark Office turned down the request, and the brewery abandoned the application as of May 25, 1990.

Anchor spokesman Phil Rogers has argued that the registration process is a



Another "then and now"—the upper label is from the 1970s, while the lower is Anchor's current label.

mere formality. In his view, Anchor already has squatter's rights to the name "steam" as a result of being the only brewery to market a steam beer for the last six decades. (Indeed, the company was renamed Steam Beer Brewing Company for a brief time during the 1960s.) This claim has rankled some brewers, who have found ways to tweak Maytag's nose. Six-pack holders of Old Scratch Lager, for instance, state that the beer is "brewed in the tradition of the first indigenous U.S. breed of beer (we'd call it by style name, but a particular California brewery would get steamed at us)." One East Coast brewpub has even marketed a beer called Eamstay Ager-lay.

In Maytag's defense, however, "steam beer" would not be the first instance of a generic term becoming attached to a particular product. Budweiser, after all, once referred to any beer from the village of Budweis in central Europe. In spite of this fact, numerous court decisions have upheld Anheuser-Busch's exclusive right to the designation (at least within the United States). Shouldn't Fritz Maytag enjoy the same protection as August Busch?

Today Anchor Brewing is an island of stability in the turbulent world of craft brewing. Growth has been slow and steady, with

output hovering just over 100,000 barrels for the last three years. Maytag is the last person in the industry you'd suspect of planning a buyout or merger or public offering. "If you own all the stock, no one can take you over except your wife," he advised a crowd in Atlanta last year.

It's now been 34 years since Maytag rescued a dilapidated property and transformed it into what he proudly calls "one of the most modern small breweries in the world." He continues to seek new challenges, such as establishing a small distillery and producing a rye whiskey and gin. But he hasn't forgotten the brand that put him where he is. "When I see a bottle of Anchor Steam in a restaurant, my heart skips a beat. I'm still thrilled."

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- Greg Kitsock is a regular contributor to Zymurgy.**

Saison in Style (from page 33)


conditioning at 60 to 65 degrees F (16 to 18 degrees C) the carbonation was perfect, voluminous and as close to authentic as I could have hoped for. If I had decided to prime I would have had some very wet grenades going off in my cellar. Note: Something about this yeast affects head retention. I simply cannot achieve that meringuelike, lacy head with my other Belgian beers, but I always get it using this bottle-cultured Dupont yeast.

The only problems I've had is with yeast longevity. A few of the strains in this culture apparently become dominant after only a few generations, so unfortunately you have to start over with a new bottle culture if you want to get consistent results. The beer becomes more tart and bland with each successive generation. If you do have access to lab equipment, agar slants might be one way to guarantee fresh, clean colonies for reculturing, but there may be dozens of strains that would need to be isolated, each with its own invaluable character signature.

Packaging

If you can get heavy-gauge Champagne-type bottles and have corking equipment, it's worth it for this style to go to the extra trouble. Popping open a big 750-mL bottle of your own hugely carbonated, complex saison and watching it fill a goblet is an immensely satisfying experience. But if you don't want to go to the trouble, regular bottles or kegging are perfectly acceptable packaging alternatives. Actually most of the saison served in Belgium is on draft these days anyway. Just make sure that if you use thinner glass bottles you adjust your priming accordingly or they may not handle the higher pressures.

Saison is a style that may deserve the dubious designation of "challenging" or "advanced," but remember that Belgians were drinking this beer long before our states were ever a nation. They represent a piece of brewing history. Our own forefathers and foremothers were drinking light, thirst-quenching summer beers that would, some 200 years later, become the dominant styles of our brewing nation. So don't be frightened off by the vast array of flavors this style has to offer. Sophistication is a good thing.

Amañ Turczyn is a world traveler and regular contributor to *Zymurgy*. 



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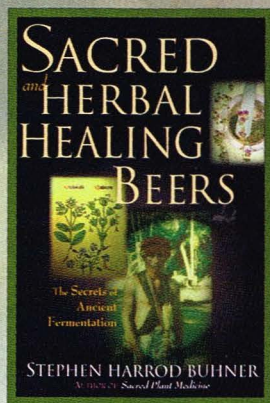
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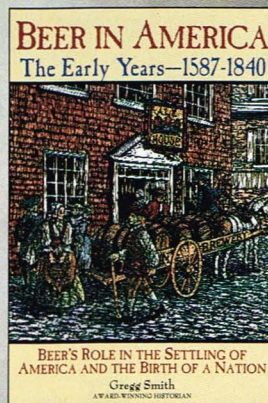
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Selecting Hops

Hops are the heart and soul of any pale ale. A definite hop bitterness is essential to the pale ale style in all of its forms. Hop flavor and character are by no means present in every example of the style. Further, there seems to be a trend to reduce these in English brewing, especially by the larger brewers. But when dealing with high levels of bitterness, it is easy to make a very one-dimensional beer, especially if it is brewed at a gravity below 1.040 (10.0 °P). Hop aroma and flavor give these beers greater complexity and interest—the better examples of

the style usually have these attributes. Indeed, by definition, they should be present in American pale ales and IPAs.

If the hop is so important in pale ale brewing, how do you decide which is best suited for it? First, you select the variety you want for bitterness. That should be easy, shouldn't it, since you know that alpha acid is the determining factor in bitterness. So all you need is the hop with the highest level of alpha acid, right?

Not quite. The first point is that hops have a quality of bitterness—some hops give a harsher, less clean bitter flavor than others, even when bittering levels are identical. Second, there is some indication that

the choice of bittering hops also affects hop flavor and aroma, even though these characteristics come from the hop essential oils. In theory, these oils should be lost during the boil, since bittering hops are added as boiling commences. But the chemistry of hop oils is complicated. It is possible that some volatile constituents could be converted into other compounds that might remain in the beer and affect its flavor.

That there appears to be qualitative differences in bitterness is very important. This is because bitterness levels are high in this style of beer, and any harsh flavors will be exaggerated, compared to many other styles. The drive toward the production of high alpha acid hop varieties has come from the major brewers of America and England. And these are the ones that tend to use quite low bittering levels, where qualitative differences in bitterness are unlikely to be noticeable.

In practice, it comes down to following the line on what has been traditionally found suitable for this type of beer. For example, Goldings and Fuggles, the so-called English noble hops, would be a first choice for an English bitter or IPA. First choice for an American pale ale, however, would undoubtedly be Cascades.

You can, of course, use several different hop varieties in a single brew, and that is common commercial and amateur practice. It permits the use of high alpha acid hops for bittering and low alpha acid aroma hops for late hopping. Commercially, this makes sense, as it is the most economical use of the more expensive aroma hops. The savings are not significant to the homebrewer, however, and even the craftbrewer must balance such savings against the need to produce a beer of character and complexity.

My own approach for this type of beer is generally to use the low alpha acid aroma types for both bittering and aroma. Even the high alpha acid ones listed in table 6, such as Chinook, Centennial, and Northern Brewer, are considered by some brewers to give a somewhat unpleasant hop flavor. Others, such as Challenger, are high in alpha acid, yet they can also make a good aroma hop. Much of this choice is a matter of taste; for instance, I have one acquaintance who just cannot stand any beer brewed with Cascades.

Best Bitters I COULD'VE BEEN A CONTENDER BITTER

Malt	Extract 5 Gal.	All-Grain 5 Gal.	All-Grain 1 Bbl.
Pale malt syrup	6.0 lb. (2.72 kg) (88.1%)	—	—
Pale dry malt extract	6.0 oz. (170 g) (5.5%)	—	—
British two-rowed pale malt	—	7.6 lb. (3.45 kg) (94.6%)	42.0 lb. (19.1 kg) (93.7%)
80 °L crystal malt	6.0 oz. (170 g) (5.5%)	6.0 oz. (170 g) (4.7%)	2.4 lb. (1.1 kg) (5.4%)
Black malt	1.0 oz. (28 g) (0.9%)	1.0 oz. (28 g) (0.8%)	0.4 lb. (182 g) (0.9%)
Beer color (°SRM)	17	17	16

Hops	Extract 5 Gal.	All-Grain 5 Gal.	All-Grain 1 Bbl.
Bittering Hops			
Challenger hop			
flowers (8.6% AA)	1.7 oz. (48 g)	1.2 oz. (34 g)	6.6 oz. (187 g)
HBV	14.6	10.3	—
IBU	40	40	40
Aroma Hop			
Challenger hop			
flowers (end of boil)	1.0 oz. (28 g)	1.0 oz. (28 g)	5.0 oz. (142 g)

Specifications

Original gravity:	1.048 (11.9 °P)
Final gravity:	1.010–1.012 (2.6–3.1 °P)
Water treatment:	Calcium 50–100 ppm; sulfate 100–200 ppm; chloride 20 ppm
Mash temperature:	152 °F (66.7 °C)
Yeast:	Ringwood
Alcohol v/v:	4.9% approximately
Serve:	Draught only
Priming:	3.0 oz. (85 g) cane sugar
CO ₂ v/v:	1.5

This is a fruity “premium” bitter, with some deep red tints from black malt and plenty of hop character and bitterness. This is a beer to drink a little more reflectively than one might session brews. Full flavor permits carbonation toward the high end of the range for draught beers. The name comes from the liberal use of Challenger hops, what you might call a “pun”-ch!

One other interesting trend has developed in craftbrewing in America: the use of a single hop variety for all aspects of hop flavor. It started in English commercial brewing; even one of the big brewers, Whitbread, has come out with its Fuggles Imperial IPA that has even made its way to America. I recommend this approach for all brewers, particularly those that want to learn to distinguish between different varieties. I have done it for many years with my own pale ales and IPAs, initially by way of experimentation, but I have stuck to it because I like the results.

My own choice for English bitters, and especially IPAs, is still the traditional Goldings and Fuggles. Both give a beautiful smooth bitterness and a definite citrus and delicate flowery character to these beers. In recent years, it seems that some of my best beers are those brewed with Fuggles. I have also had delightful results with Whitbread Goldings variety, which is why I included it in table 6, even though it is quite difficult to find in America. And I do like Cascades for my American-style pale ales, even though it can be somewhat overpowering!

Producing Hop Character in Pale Ales

Next, I address aroma and flavor hops. You can add these whenever and wherever you like in all pale ales. As I mentioned previously, at least some of the hop flavor comes from the bittering hops. An old German technique called first wort hopping has re-emerged recently. This technique calls for the aroma hops (usually noble hops) to be added to the wort before boiling. The result is reported as a pleasing, if unobtrusive, aroma to the beer. I am not sure that this would be appropriate for a heavily hopped American pale ale, but I would be interested to hear from anyone trying it.

For more hop character, you can use the usual technique of a late addition with good quality aroma hops. This might mean adding hops 15 to 20 minutes before the end of the boil, just at the end of the boil, or into the hop back. The hop back, sometimes also called a "jack," is a device for straining off spent hops. It is a very old-style piece of equipment but is still used by a number of English traditional brewers and by some

American craftbrewers. The homebrewer can construct a similar device by using a fairly coarse mesh strainer, such as a sanitized piece of nylon window screen. Add the aroma hops to the screen, and then run the hot wort through it before cooling. Take care to avoid splashing the wort, or the aeration this causes might result in oxidation problems in the beer. This technique is suitable only if you are using whole hop flow-ers. It clearly will not work well with pellets and is not for craftbrewers who use a whirlpool in place of a hop back.

Achieving hop aroma in a beer by late hopping is not easy for the homebrewer. This is because the surface area to volume ratio is several orders of magnitude higher for a 5-gallon brew than it is for a 5-barrel volume. As a result, the volatile hop oils are much more readily lost on the smaller scale. You might have to use at least two or three times as much aroma hops as the professional brewer in order to get similar results. Often this might mean that, on the basis of weight, you need to add more aroma hops than bittering hops.


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Since you are going to conduct a relatively warm fermentation, the combination of temperature and foaming results in the loss of much of the hop aroma added by late hopping methods. To get more aroma into the beer, you might have to resort to dry hopping. In traditional English practice, this means adding some hops in flower form to the cask right after the beer is racked. As the beer conditions in the cask, it adsorbs the flavor of the hops. The beer is cool compared to hot wort, so the flavoring components of the hops are taken up virtually unchanged. This gives the beer an aromatic character unobtainable by more normal late hopping methods. Dry hopping is still done by English brewers, although usually only with cask-conditioned beers, not with pasteurized, artificially carbonated beers. Dry hopping can also be accomplished during conditioning, prior to filtration.

Dry hopping in the fermenter is sometimes practiced in America. Some brewers use it in the primary, but this can cause problems, particularly if you use a blow-off type of system, where blockage of the blow-off tube can occur. It is probably better to do this in the secondary, which more closely approaches dry hopping of cask-conditioned beer. But simply adding hops to the fermenter, whether flower or pellets, might make racking difficult. The best approach is to use a hop bag that is weighted down to prevent it from floating (the weight, of course, must be carefully sanitized before use).

The form of late or dry hops is a matter of choice, as in bittering hop selection. Flower hops can cause processing difficulties. This is because they are a challenge to separate from the beer. They also will readily block any sort of tube, such as a racking cane, or the outlet of the type of stainless steel soda keg, which is often used for draught beer by the homebrewer. Pellets present less difficulty in this respect but might not give the same aromatic character as flower hops because of how they are processed.

Clearly, you have to use top-quality hops, regardless of how or when you add them. You can use some of the high alpha acid hops, but these often contribute very harsh flavors. In general, it is better to stick

to the classic aroma hop types, such as Goldings and Fuggles and their derivatives, the noble hops Saaz, Hallertauer and its relatives, and so on. These might be more expensive, but you really do not want to spoil the beer by worrying about cost at this stage of the proceedings.

Yeast

In the fermentation of pale ales, warm temperatures are used, normally 65–70 °F (18.3–21.1 °C). A good deal of heat is generated during fermentation. Commercial brewers control this temperature by cooling (attenuation) by using either cold water coils in the vessel or a cooling jacket. If the temperature rises much above 70 °F (21.1 °C), the yeast will produce more esters, as well as fusel oils. Although esters might be an important part of the pale ale flavor spectrum, you can have too much of a good thing.

Unfortunately, maintaining the temperature of fermentation in this temperature region is not always easy for the amateur, especially in summer. However, it might not be so difficult as it at first seems. A 5-gallon brew has a significantly higher surface-to-volume ratio than does a vessel taking several barrels or more, so it will dissipate heat much more readily than is the case on a commercial scale. As long as the ambient temperature is about right, you should have no problems with the heat generated in fermentation. However, note that fermenting in glass does not help, since glass is a fairly good insulator. If outside temperatures are much higher than 70 °F (21.1 °C), you either have to abandon brewing or find some way to cool the fermenter. This can be done by either immersing it in cold water, covering it with wet towels, or whatever.

Choosing a Yeast Strain

The choice of yeast is of paramount importance, and the availability of yeast varieties is something that has changed dramatically since my first book on pale ale. There is now a very wide range of yeasts available to both the amateur and the professional. They come in three basic forms—dry, liquid, and slant—and from a number of suppliers. For a complete listing of all yeast strains, consult the “Yeast Directory” in the *Brewers Market Guide* (published

annually by New Wine Press), which quotes over 80 strains for English ale styles alone. Although this guide is very comprehensive, it does not list the strains in the English National Yeast Culture Collection (held at the Food Research Institute, Colony Lane, Norwich, England NR4 7UA).

The quality of dried yeast has improved immeasurably in recent years. Today, a relatively small number of brewery strains are available. For example, the Whitbread strain from G. W. Kent's yeast lab has given me excellent results in the past, with good attenuation and rapid flocculation resulting in a dry, slightly fruity beer. However, I have read that this strain might no longer attenuate as well as it once did. Other dried yeasts that I have had good results with include Lallemand's Nottingham and London strains. My favorite is not available in America—it is the dried brewing yeast sold by Boot's, an English pharmacist. It is an excellent fast starter, gives high attenuation (78–80%) and moderate esters, but settles out rather slowly, unless fined with isinglass, a substance used to flocculate yeast in cask-conditioned beer. If any retailer is looking to expand his range of dried yeasts, I recommend this one.

The major advance for the homebrewer and craftbrewer is the wide range of strains available as liquids or culture slants. These are a little more difficult to use, as they must be built up as a starter. Begin with, say, one-quarter of a pint of wort, and add this to a pint when it is at full kraeusen. Then increase the wort to 1 quart, and even to a full half-gallon, before pitching to your 5 gallons of wort. The difficulty here is that you must observe maximum cleanliness in doing this step-up so that you do not add an infected starter to your beer. This sounds like quite a bit of effort, and it does require some planning and preparation. But this process makes such a wide range of yeasts and different flavors available to you that it is well worth trying.

Can I recommend any good cultures for beers in the pale ale style? I am reluctant to do this because so many of the strains available are proprietary and so many exist that I have been unable to try them all.

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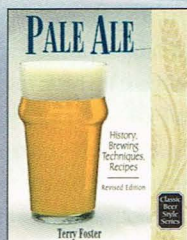
Bookie Parlor

Regular *Zymurgy* contributor Al Korzonas has penned a book that no home-owner should be without. *Homebrewing Volume 1: Beginner Basics to Creating Your Own Award-Winning Recipes* is a virtual encyclopedia of homebrewing (some of which has been excerpted in *Zymurgy*).

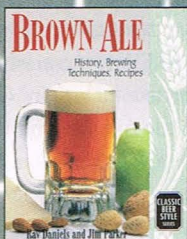
It does take a person from the very basics to advanced intermediate homebrewing, plus provides an excellent reference section. Our copy is in constant use here at the *Zymurgy* offices. Buy two—one for you and one for a interested friend.

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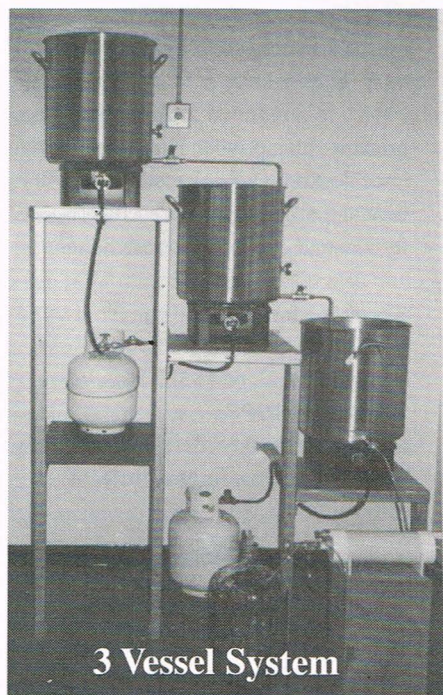
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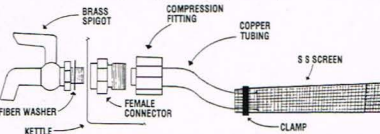
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The Absolutely Positively Last Story on Bottle Openers

Barbara Petsch doesn't remember exactly when it happened, but she tends to blame her mother for it. After all, it was this Parental Unit who took her to her first flea market. And if she'd never gone to that first flea market, then she'd never have returned one day to buy...a bottle opener.

"It was brass," she says wistfully. "And only \$1. I bought it for my husband."

Her husband didn't like brass bottle openers, being a church key sort of guy. But, somehow, Barbara couldn't bring herself to get rid of it.

"I thought it was really cool," she says today. "So I kept it."

The second was, of course, easier than the first. The third easier still. The fourth...well, enough said. Initially, she was able to keep herself focused on brass... "then it just kept on going...and going..."

Twenty...

Thirty...

Forty...

"Okay! Maybe 50 bottle openers... maybe a few more...one or two more..." she admits sadly.

And, in the age-old progression charted by addiction specialists the world over, seemingly innocent bottle openers led to the "harder stuff"—corkscrews ("With different kinds of horns on top, you know... grapevines...that sort of thing..."). Corkscrews, in their turn along the path to perdition, led to "those little carved guys cork things that go on the top of wine or beer bottles."

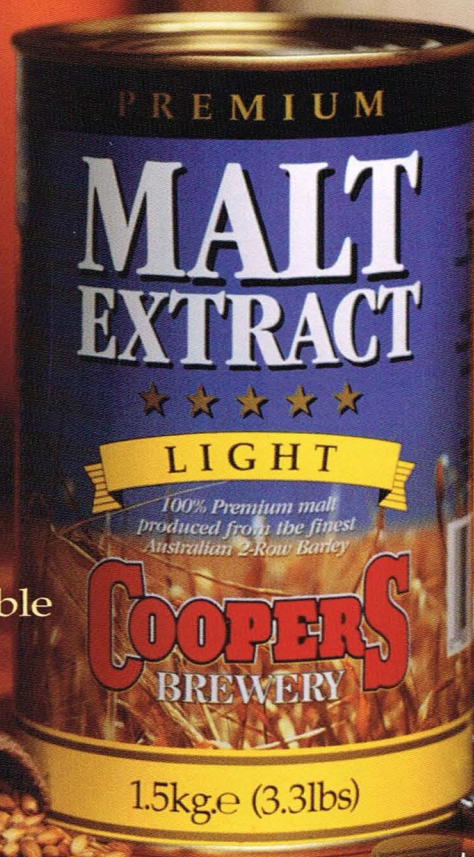
Have you, I ask, considered a 12-Step Program?

"No," Barbara says, breathing a little faster, "but have you seen eBay, the internet auction site?"



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A close-up photograph of a hand holding a glass jar. Inside the jar, a person's face is visible, looking out from within the liquid. The lighting is warm and orange-toned.

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