

Vol. 19 No. 3 Fall 1996 Published by the American Homebrewers Association

ZYMURGY

FOR THE HOMEBREWER AND BEER LOVER

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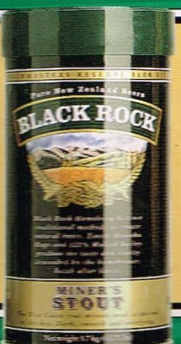
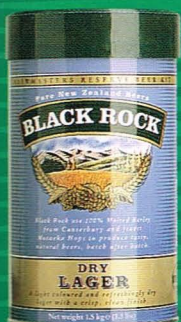
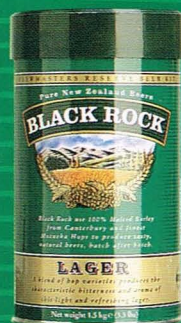
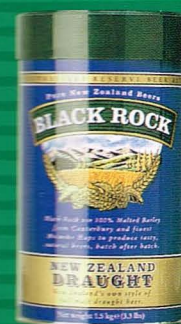
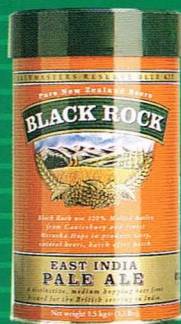
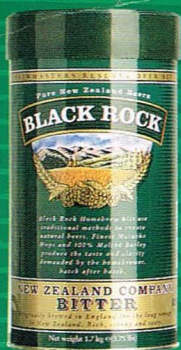


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To promote public awareness and appreciation of the quality and variety of beer through education, research and the collection and dissemination of information; to serve as a forum for the technological and cross-cultural aspects of the art of brewing;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

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Zymurgy welcomes letters, opinions, ideas, article queries and information in general from its readers. Correspondence and advertising inquiries should be directed to *Zymurgy*, PO Box 1679, Boulder, CO 80306-1679, (303) 447-0816, FAX (303) 447-2825, <http://www.aob.org/aob>. Via e-mail contact AHA President Karen Barela at 75250.1350 or karen@aob.org, AHA Administrator James Spence at 70740.1107 or james@aob.org and *Zymurgy* Editor Dena Nishek at 73252.3571 or dena@aob.org. All material ©1996, American Homebrewers Association. No material may be reproduced without written permission from the AHA.

(ISSN 0196-5921)

The opinions and views expressed in articles are not necessarily those of the American Homebrewers Association and its magazine, *Zymurgy*. Printed in the USA by Brown Printing, Waseca, Minn. For newsstand distribution information contact Ingram Periodicals, Inc., 1226 Hell Quaker Blvd., LaVergne, TN 37086.

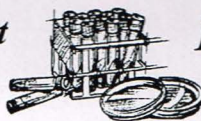
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EDITORIAL



Gear Dreams

I like transitional times, like the time between seasons when it's not quite summer anymore but not yet fall. The long warm days are getting shorter and the nights are beginning to cool. I like that feeling of "a change in the air." It's still too early to put away the patio furniture for the winter, but you know you'll need to do it soon.

It's a transitional time, a good time to gather all of your brewing equipment and take a good look at it. It's a good time to get ready for the fall brewing season. Use this transitional time to determine if you need to update, upgrade, change or add pieces to your setup. Maybe it's time to finally add a wort chiller to your gear, or maybe you just need a bigger funnel with a good screen, or new unscratched hoses with good clamps, or adapters for your kitchen sink to make bottle washing easier.

You know you've been meaning to play with your gear, you've been meaning to make adjustments the last three times you've brewed. Use this transitional time wisely, then. Get all these things done to make your first brewing session of the season a joy.



Transition time gives you an opportunity to think and do some up-front planning so when you wake up on a fall Saturday with an overwhelming urge to brew you'll be ready. You'll have everything in place, with all of your equipment ready to go. Then you can really concentrate on the beer, the recipe and the process.

There's nothing worse than dreaming of malt and hops, waking up with a big brewing urge and then remembering the last time you brewed you promised yourself you'd

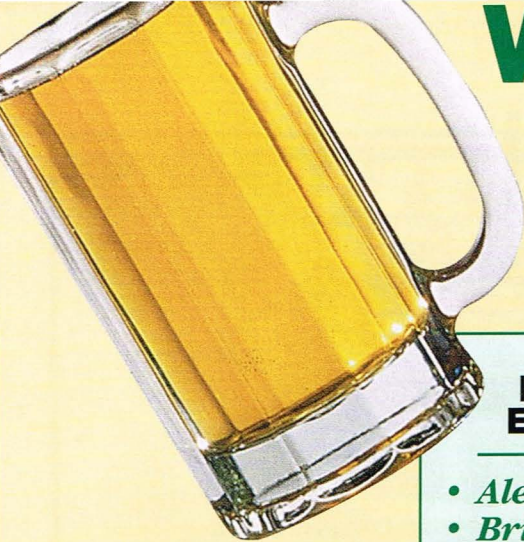
get a bigger brewpot, or another carboy so you can brew two batches in a day, or whatever it is you need, want and dream about to make your homebrewing experience even better. Keep your promises — get your gear in shape.

In the pages of *Zymurgy* we always try to offer you options and we present a lot of information about gadgets, equipment, gear and processes. It's not that we expect you'll try everything — heck no. But I believe you've probably read something in the last few issues that you are dying to incorporate into your homebrew system.

Now's the time. Don't wait any longer. Use the transitional time between summer and fall (or between your last batch and your next batch) to refine your setup.

You'll be thanking yourself soon, when you wake up some Saturday morning with that big, brewing urge and knowing you're ready to go.

Karen Barela, president of the American Homebrewers Association, loves beer. Besides homebrewing it, she drinks it, thinks about it, talks about it, writes about it, lectures on it and most of all enjoys it.



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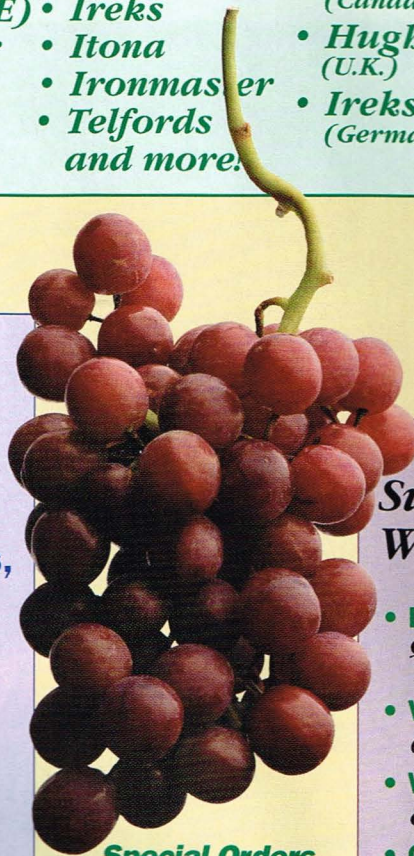
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DEAR ZYMURGY

Our Readers

A Better Gadget

Dear *Zymurgy*,

I read with great interest your article on the Beverage Line Rinser ("Tips & Gadgets," Winter 1995 Vol. 18, No. 5). With an approximate cost of \$17.66 for parts, excluding store time, gas and assembly, I thought you might be interested in a low-cost commercial alternative. The washer design of the Carbonater™ valve coupling does exactly the same thing and retails for between \$10 and \$12.

Thanks to Jay at Great Fermentations for bringing this to my attention.

Sincerely,
John D. Cheek
CEO, Liquid Bread

Kudos and Brickbats

Dear *Zymurgy*,

I have been noticing a number of complaints about the technical level of *Zymurgy* articles in the past few issues. While I realize that different people appreciate varying degrees of technicality, I just want to urge you not to change. There is a wealth of information in your magazine for both the beginner and the more experienced brewer — as it should be! I think you do a more than adequate job of covering the basics. Please do not succumb to these complaints. Keep the details and more technical aspects, they're important.

Sincerely,
Chip Tate
Williamsburg, Virginia

Dear *Zymurgy*,

Just read David Weiss' letter to the editor in *Zymurgy* Spring 1996 (Vol. 19, No. 1). I'm dropping a note to let you know that the content of the journal is great. While I appreciate that David enjoys a very informal brewing style, there are many who have started this way and have evolved, mixing both science and art. I have found *Zymurgy* to be an invaluable resource. I only brew all grain (I started with the typical kit then moved to partial mashes) and have found the quality of my ales has improved dramatically with better understanding of the entire process. I'm even considering entering a brewing contest. *Zymurgy* has allowed me to enjoy a greater appreciation of the various styles of beer and ale, though I'm no Michael Jackson. Keep up the good work. I absolutely look forward to each issue.

Regards,
Wayne Mollohand, D.M.D.
via e-mail

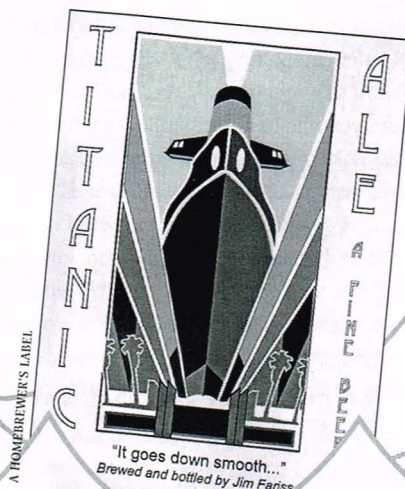
Dear *Zymurgy*,

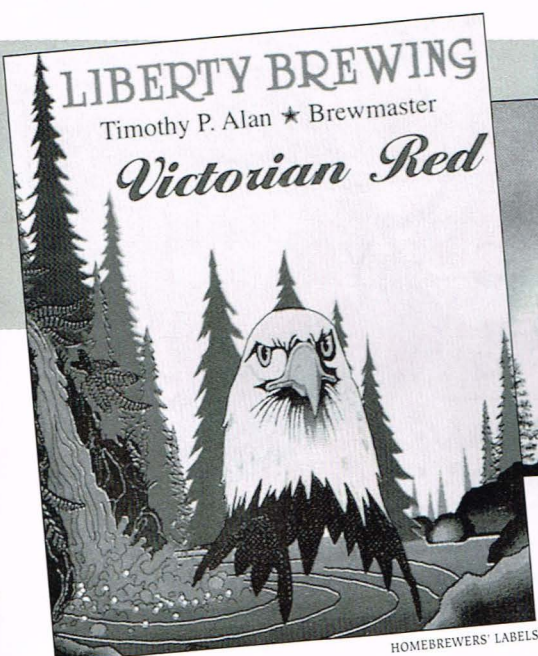
In Spring 1996 (Vol. 19, No. 1), David Weiss writes, "formulas are unnecessary and wasted space. Most extract brewers could care less about all those exacting calculations." Wrong! I couldn't disagree with him more, and I'd bet a quarter that I'm in the majority on this one.

Remember that homebrewers come from all walks of life and enjoy all sorts of other activities. I'm a computer geek — I love working with numbers. I have been programming a brewing calculator in my spare time for more than a year now, just for kicks.

I find it hard to believe that just because someone uses extract to brew they don't care about numbers. What about bitterness of hops? When substituting ingredients such as hops or even different extracts, you need to know the numbers to keep your favorite brew consistent. If consistency is not your bag, you at least want to be sure you don't add 600 IBUs to your ale when substituting because your favorite bittering hop is out of stock. You also need to know how to convert a published recipe from grain to extract or extract to grain.

If you enjoy brewing by the seat of your pants, great. But don't ever think the rest of us have the same lack of interest in what the scientific implications are of doing one thing or another differently. How yeast, water, malt, hops and adjuncts react to one another in various quantities at various temperatures and for varying periods of time is what makes brewing such a mysterious craft. That is what keeps my interest in the hobby. I make a house ale similar to Sierra Nevada Pale Ale. Each time it comes out slightly different. Why? I don't know. But I am working on several theories.

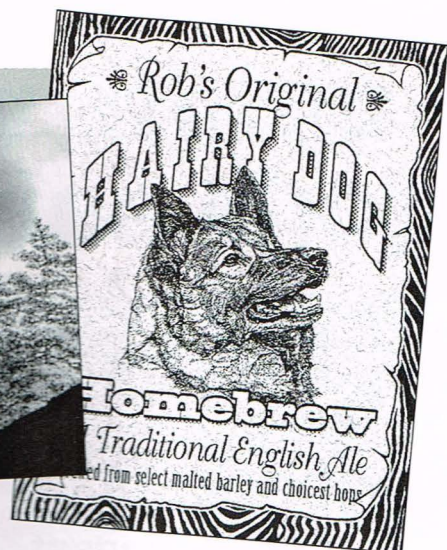




Moonlight Metheglin

From the cellars of

Alex Gorschaw



Recipe Credibility Questioned

It comes down to numbers. If *Zymurgy* dedicated its pages to the "no numbers, whatever-it-comes-out-like" approach there would be very little for us to read.

One of those days!
Jim Hackett
via e-mail

Dear *Zymurgy*,

I like your publication, but I can't agree more with David Weiss' letter in Spring 1996 (Vol. 19, No. 1). I have been brewing haphazardly for 13 years, seriously for the last three years. I think a great deal of the highly technical/all-grain/anal-retentive charts and information is a scam. I've had great luck with a couple of cans of extract, a handful of hops and some specialty grains. I can't say it any better than David, he's right.

Sincerely,
Robert B. Sabean
Member, AHA and Seacoast Homebrewers
Fermenting Minds
via e-mail

Thank you to everyone who wrote in to express an opinion about the content of Zymurgy. Overwhelmingly, you think we are hitting the mark. We appreciated the feedback and hope to share more of the letters in Winter 1996 (Vol. 19, No. 5). — Ed.

Dear *Zymurgy*,

I have a complaint directed to those individual homebrewers who publish the recipes for their prize-winning brews in *Zymurgy*. My complaint boils down to the lack of credibility of many of them. I have seen too many recipes published in *Zymurgy* in which I believe the individual brewer was not totally honest or accurate in the details. The following is just one example.

In *Zymurgy* 1995 Winter (Vol. 18, No. 5) there is a recipe for a prize-winning American-style ale. Taking into consideration the homebrewer's hopping schedule and the reported alpha-acid content of his hops, I calculated the expected bitterness of his brew according to the equation published in *Zymurgy* Special Issue 1990 (Vol. 13, No. 4). Y'know what level of bitterness I calculated for his "American-style" ale? — 55.7 IBUs! Now I want to ask you, don't you think this homebrewer was being less than totally honest about his recipe? I have made pale American ales with bitterness between 30 and 35 IBUs, and those batches have puckered my lips. Drinking an American-style ale of low gravity with a bitterness of 55.7 IBUs would be like drinking a solution of alum! If you read further the judge said his brew "needs more hop bitterness and flavor." That judge's comment is simply not consistent with what I read into his recipe.

I guess I'm not being charitable, but I would say that this brewer falsified his re-

ported recipe, maybe to protect his little secret. Further, I don't think this is an isolated case in *Zymurgy*.

Yours truly,
Jack G. Frost, Ph.D.
Duncan, Oklahoma

Keep in mind that results will vary. We can't be sure how old a brewer's hops were, how old a brew was when it was judged or myriad other factors that make each homebrew a unique creation. We do confirm recipes with the brewers prior to publication in Zymurgy. — Ed.

Desperately Seeking Ingredients

Dear *Zymurgy*,

Greg Kitsock's article on Belgian Strong Ale (Winter 1995 Vol. 18, No. 5) was interesting but omitted what I think was an important fact. Some of us who may be interested in brewing this beer don't have money to spend on expensive overseas telephone bills, nor do we have the resources to obtain a sample of the sweet orange peel used in the beer. Kitsock failed to mention (1) where an ordinary amateur homebrewer could get sweet orange peel and (2) what to use in its place. My assumption would be to use Curaçao orange peel because super-market fruit wouldn't be right, but nowhere in the article did it mention alternatives.

Perhaps you could break out the information about where to obtain ingredients not commonly found in homebrew stores.

It seems even more important when the ingredients used in the beer are so difficult to find that even a shop owner like Charles Olchowski has a hard time.

K. Reilly
via e-mail

Many homebrew supply shops now stock the unique ingredients called for in Belgian ale recipes. This is a change since Jim Busch was looking for ingredients in late 1994. Check the ads in Zymurgy. — Ed.

Meet the Champs

Dear Zymurgy,

Thought you would like to meet Zymurgy's average champion.

I went back 11 editions (through Winter 1993 when I became a member) and calculated the average AHA champion from all your champion recipes from "Winners Circle." Here is what I found. The average AHA champion:

**uses 2.11 pounds of grain
for each gallon of beer**

**mashes at 154 degrees F
(68 degrees C) for 78 minutes**

boils wort for 75 minutes

**primaries ale for 10 days
and secondaries for 11**

**primaries lager for 15 days
and secondaries for 17 and**

**ages beer for 4.9 months before
entering the AHA National
Homebrew Competition.**

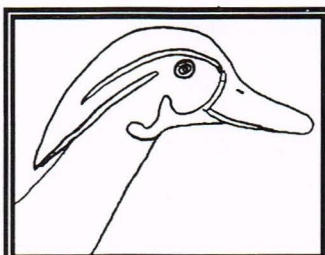
In each category I eliminated the two highest and two lowest entries. For pounds of grain per gallon, mash temperatures and mash times I used only all-grain recipes. For boil minutes and months aged, I included extract recipes. For fermentation I did not include meads, fruit beers, specialty beers, etc.

Thought you'd like to know. Keep up the magnificent magazine.

Sincerely,
Thomas Grady
Highland, Illinois

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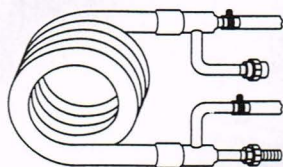
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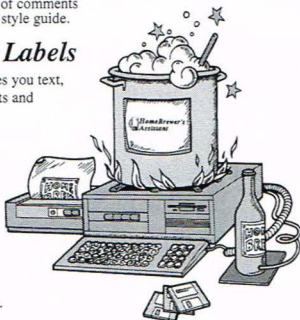
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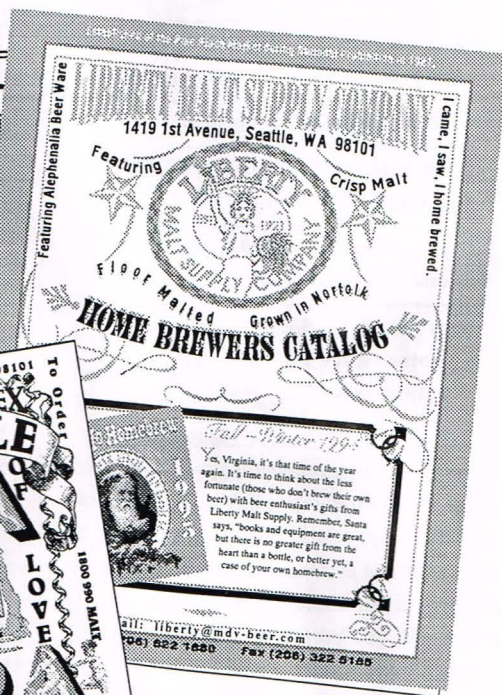
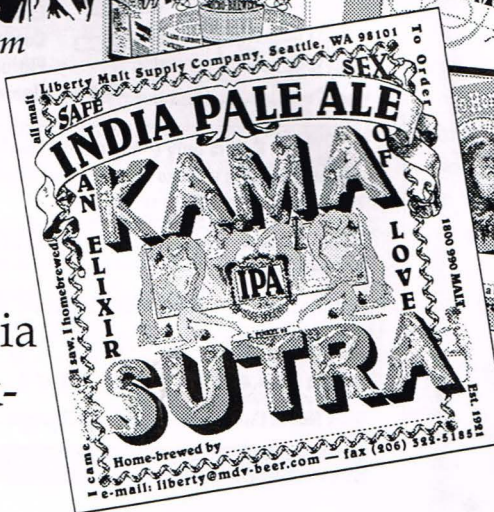
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young woman
whispered.
"Heavens no,"
Thomas
exclaimed.
"He's never
brewed a drop
in his life."



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ASSOCIATION NEWS

← Karen Barela

The Year in Review

In kitchens all around the world, and particularly in North America, the spaghetti pot is boiling away, not with marinara sauce but with wort. The homebrewing industry is on the rise as more and more individuals become interested. The AHA's main goal, to collect and disseminate information about beer and homebrewing, is becoming easier all the time. There are simply more people involved at every level and more avenues available for distributing information. One of our key responsibilities is to track, observe and evaluate the homebrewing industry. Our membership services and programs are strong indicators of this growing hobby. The number of clubs increased by 28 percent in 1995. The number of homebrew supply stores is up and there are now three magazines catering directly to the homebrewer, supplemented by various regional newspapers, all supported by a wide range of advertisers — companies doing business in the homebrewing industry.

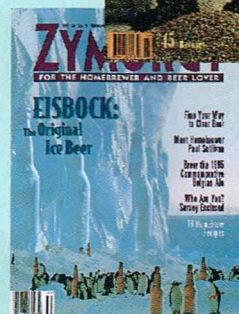
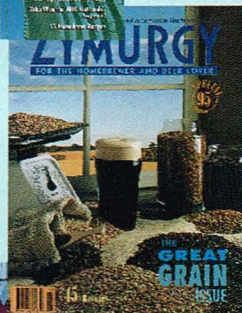
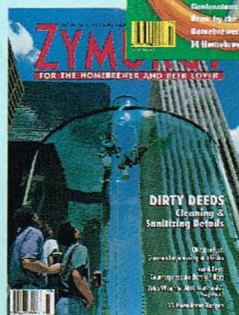
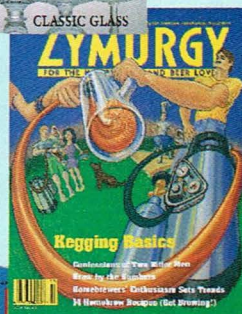
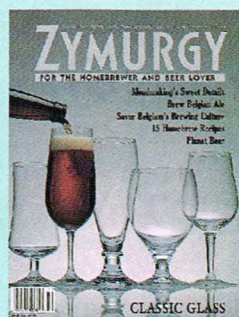
Overall, the AHA had another good year led by a stable team: Karen Barela, president; James Spence, administrator; Caroline Duncker, assistant; and Dena Nishek, *Zymurgy* editor. Total membership at the end of 1995 was 24,649, representing an increase of 9 percent over 1994 (22,608). While we did not meet our 1995 goal of 15 percent growth, we expanded and reorganized a number of our programs to better meet your needs.

The growth in the homebrewing industry can be quickly identified in several areas. In 1995, we had 4,605 inquiries for free AHA information (see the Beer Enthusiast Catalog for details on the free information available) and sent out 13,322 catalogs upon request. Our Calendar of Events listings, updated weekly on the World Wide Web, is now consistently four to five pages long. We've tracked a number of new and expanded

beer and brewing events in our calendar, including beer festivals, homebrew competitions and beer tastings. Combined travel by the AHA staff to various events, representing not only the AHA but the homebrewing industry at large, is equivalent to about one event per month. We're out there, too, right beside you.

In 1995 we put a lot of effort into *Zymurgy*, our most visible membership service. We added new technical editors, new columns, more original research features, exciting new authors and four-color format. We've worked hard to keep the art, layout and presentation exciting, with the goal to always showcase the content. At the forefront of this goal is balancing the editorial content so we present a blend of beginning, intermediate and advanced techniques. From your recent correspondence our editorial content is right on target. We continue to keep our editorial-to-advertising ratio in check — always about 60 percent editorial. We've heard from you, via the survey in *Zymurgy* Winter 1995 (Vol. 18, No. 5) that you consider the ads an important part of each issue, and we've passed this information along to our advertisers. Advertising revenue is a key to expanding and providing more information in each issue. We remain at the forefront of the industry, making us attractive to advertisers who continue to look for growth in our readership.

Zymurgy has always had a magazine distributor for sales to independent bookstores. We tried one new program to increase 1995 readership: By contracting a mainstream bookstore distributor in late 1994, we hoped to expand *Zymurgy's* presence in such bookstores throughout North America. It was our intention to introduce a larger group of people to the homebrewing hobby. Unfortunately, the new distributor did not work out and actually cost \$80,000. This represents a majority of our financial loss in 1995. Obviously, this calculated risk was too expensive to justify the return, and we didn't



like the thought of all those wasted issues of *Zymurgy*. We have discontinued this program and are working with our main distributor, Ingram Periodicals, to expand their efforts with the independent bookstores. Despite the growth in homebrewing it appears we're not quite ready to compete head-to-head with mainstream magazines like *Newsweek* and *Vanity Fair*.

The AHA began to advertise actively in industry publications in 1995 to increase membership, and continues to place ads. The ads promote the quality of homebrewed beer, the ease of homebrewing and the AHA's leadership in providing education and information.

The AHA Registered Clubs Program exploded in 1995 when we registered 134 new clubs, bringing the year-end total to 626. The AHA spent \$13,581 providing clubs with information, sponsoring six Club-Only Competitions, offering free club subscriptions to *Zymurgy* and publishing the Club News section in *Zymurgy*. This program is an investment we are proud to make because local clubs provide a great educational forum for a large number of homebrewers.

Planet Beer, the AHA 1995 National Homebrewers Conference in Baltimore, Md., attracted 463 participants from 37 states. An additional 240 people joined us for the Big Bang, our trade show and festival, bringing the total number of attendees to 703. (See the article in this issue for the scoop on the 1996 Homebrew Bayou Conference in New Orleans, La.) The conference has continued to grow and expand over the years and, in 1995, the AHA invested \$30,000 in the annual event. We are currently redesigning the Conference to make it more accessible to a larger number of our members.

The 1995 National Homebrew Competition met projections with 3,067 entries in 29 categories, entered by more than 1,000 homebrewers. The Competition reached a large number of members, with six sites hosting the first round (expanded to eight in 1996), and each site hosting about 100 participants (judges, volunteers and site directors). The AHA invested \$8,700 in this program.

The AHA Sanctioned Competition Program (SCP) recognized 138 competitions, the largest number yet and an increase of 10 percent from 1994. A total of 28,787 homebrewed beers were evaluated and judged. This program was designed to be an affordable service to competition organizers, to reach a large number of people, to encourage homebrewers to enter com-



Photos from top to bottom: AHA administrator James Spence captured the top two scenes from the Great British Beer Festival. AHA president Karen Barela taught beer evaluation courses to Japanese beer enthusiasts. Visit the Association of Brewers' World Wide Web home page at <http://www.beertown.org/aob>. Judges evaluated the best homebrew at the AHA 1995 National Homebrew Competition second round in Baltimore, Md.



petitions and to provide homebrewers with quality feedback from judges.

Our most controversial change in 1995 was the separation from the Beer Judge Certification Program. We spent the last six months of 1995 developing a new beer evaluation program. The AHA has been teaching beer evaluation courses to Japan Craft

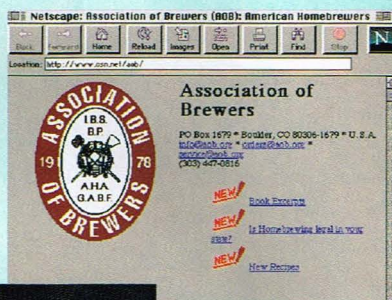
Beer Association members, using the information gleaned and revenue earned to build a strong beer evaluation program in the United States.

One of the most exciting developments in 1995 was the expansion of our World Wide Web page, Beer Town. The WWW allows you to access, among other

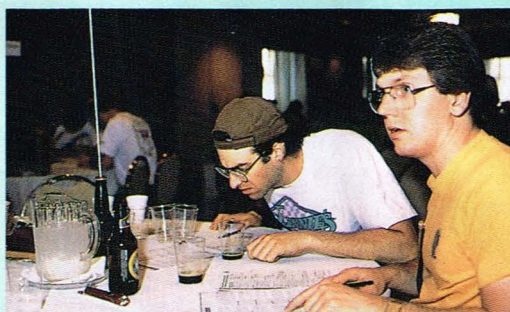
things, timely information in a format that is user friendly and fun. An estimated 150,000 people from more than 60 countries used our page and 416 new members joined the AHA electronically. Expenses associated with the WWW are included under overhead.

Overhead is always the most confusing item on the financial statement because it represents costs that cannot be charged directly to a particular program. These costs include the AHA's portion of rent (office and warehouse), computer systems, telephone systems, office equipment, travel, customer service, marketing, accounting, events management and art/design.

If you have any questions regarding the AHA 1995 financial statement, please put them in writing and send a self-addressed stamped (55 cents) 9x12-inch envelope to the Association of Brewers.

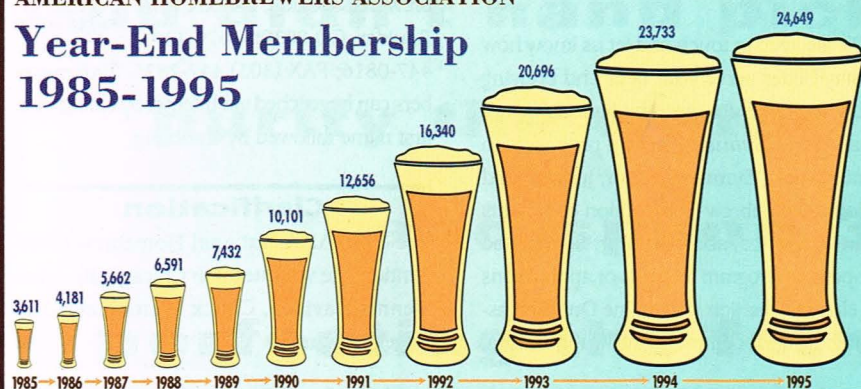


represents costs that cannot be charged directly to a particular program. These costs include the AHA's portion of rent (office and warehouse), computer systems, telephone systems, office equipment, travel, customer service, marketing, accounting, events management and art/design.



AMERICAN HOMEBREWERS ASSOCIATION

Year-End Membership 1985-1995



AMERICAN HOMEBREWERS ASSOCIATION

A Division of the Association of Brewers Inc.

Income and Expense Statement (unaudited) 1995

1995 Revenue

Membership and Sponsorship	\$528,533	45.64%
Zymurgy magazine sales	\$176,812	15.27%
Zymurgy advertisement sales	\$296,074	25.57%
National Homebrewers Conference	\$80,909	6.99%
National Homebrew Competition	\$42,234	3.65%
AHA Registered Club Program	\$1,500	0.13%
Sanctioned Competition Program	\$3,920	0.34%
Beer Judge Certification Program	\$2,775	0.24%
AHA Beer Evaluation Program	\$14,418	1.25%
Miscellaneous	\$6,829	0.59%
Merchandise and Sales (special publications and AHA-related sales)	\$3,931	0.34%
TOTAL	\$1,157,935	100.00%

1995 Expenses

Marketing and Public Relations	\$86,879	6.84%
Zymurgy general	\$556,047	43.79%
Zymurgy advertisement	\$68,729	5.41%
National Homebrewers Conference	\$110,165	8.68%
National Homebrew Competition	\$50,939	4.01%
AHA Registered Club Program	\$13,581	1.07%
Sanctioned Competition Program	\$4,663	0.37%
Beer Judge Certification	\$5,307	0.42%
AHA Beer Evaluation Program	\$12,029	0.95%
Homebrew Legalization Program	\$2,089	0.16%
AHA general	\$110,679	8.72%
CompuServe and Computer Networking	\$7,470	0.59%
Overhead (Includes salaries not attributed to specific programs above, merchandise sales and consumer service, computer information systems, rent, taxes, insurance, utilities, postage, travel, misc.)	\$241,163	18.99%
TOTAL	\$1,269,740	100.0%
Note: AHA liability (deferred membership)	\$493,339	

If you have specific questions regarding this statement, please put them in writing and send a self-addressed stamped (55 cents) 9x12-inch envelope to the Association of Brewers. We will do our best to address your concerns.

GABF Members-Only Tasting



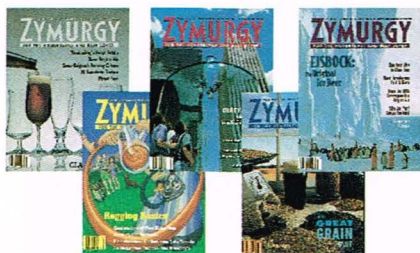
Great American Beer Festival®

We have always received rave reviews from AHA members who have enjoyed this one-of-a-kind event. The Members-Only Tasting is every beer lover's dream come true. It's almost as if you are alone with the best beers in America. Imagine opening your refrigerator and having to choose from more than 1,500 beers! We wholeheartedly invite you to experience the next best thing. The 15th anniversary GABFSM happens Sept. 26-28 in Currigan Hall, located in downtown Denver, Colo. The Members-Only event will be Saturday, Oct. 28, from 12:30 to 4:30 p.m. This event is open to AHA and IBS members only, along with participating GABF brewers. No other festival offers you, a homebrewer and beer enthusiast, the opportunity to enjoy tasting some 1,500 beers from 350 breweries with serious beer fans such as yourself.

Tickets for the Members-Only Tasting are \$15 and are available exclusively through the AOB customer service department. Membership will be verified when tickets are purchased. You must be an AHA or IBS member to attend, and each member can purchase one additional ticket for \$15. With the new price structure, you need not purchase a ticket to one of the public sessions. We are proud to offer you this special membership privilege and look forward to seeing you there. Come and experience the thrill!

The GABF is produced by Brewing Matters, a subsidiary of the Association of Brewers. For details and ticket information contact the AOB, PO Box 1679, Boulder, CO 80306-1679, (303) 477-0126.

Lucky Homebrewer



Congratulations to Todd Relyea of Willet, N.Y., winner of a complete set of *Zymurgy* — 18 years worth of great beer and brewing information. Todd was selected from those who filled out and sent in the AHA survey in *Zymurgy* Winter 1995 (Vol. 18, No. 5). More than 12 percent of our members returned the surveys, offering valuable advice for the future. Thanks to all who took the time to let us know your thoughts. We look forward to fulfilling your wishes. Look for details about the survey results in the "Why We Brew," *Zymurgy* Special Issue 1996 (Vol. 19, No. 4), scheduled to be mailed Sept. 20.

Friends and Members



If you know a homebrewer who keeps borrowing your *Zymurgy*, why not suggest a membership in the AHA? Look for the membership coupon in this issue and give it to a friend. Share the great news, reviews and information offered in *Zymurgy* with someone you know. The AHA is here for you and your homebrewing needs, and remains at the forefront of the homebrewing industry. Tell a friend about us and who knows? Maybe you'll soon be drinking their great homebrew instead of always giving yours away!

Whatever You Need


Please keep in touch and let us know how we may better serve your beer and brewing needs. We're easy to reach by phone, fax and e-mail. Send *Zymurgy* article proposals to Dena Nishek, *Zymurgy* editor; judging and National Homebrew Competition comments to James Spence, administrator; Sanctioned Competition Program requests or applications and club information to Caroline Duncker, assistant; general comments to Karen Barela,

president, at the American Homebrews Association, PO Box 1679, Boulder, CO 80306-1679; (303) 447-0816; FAX (303) 447-2825. Staff members can be reached via Internet by typing their first name followed by @aob.org.




Clarification


The 1996 AHA National Homebrew Competition site volunteers in Chicago, Ill., were Dennis Davison, Chuck Wettergreen and Roger Deschner.




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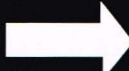
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CALENDAR



JULY

- 16-17** Red River Valley Fair, **AHA SCP**, Fargo, N.D. Entries due July 13. Contact Lori Gamet at (218) 861-6401.
- 17-20** Lunar Rendezbrew, **AHA SCP**, Seabrook, Texas. Entries due July 6. Contact Denise Livingston at (713) 286-7877 or RLivingston@ghgcorp.com.
- 19** Folio Weekly Beer Festival, Jacksonville, Fla. Call (612) 341-4110.
- 19-20** International Beer Festival, Burlington, Vt. Call (802) 388-0727.
- 19-20** Stoudts Great Eastern Micro Festival, Adamstown, Pa. Call (717) 484-4387.
- 20** California Small Brewers' Festival, Mountain View, Calif. Call (800) 965-2337.
- 20** Sierra Brewfest, Nevada City, Calif. Call (800) 218-2188.
- 26-28** Oregon Brewers Festival, Portland, Ore. Call the Oregon Brewers Festival Hotline at (503) 778-5917 or <http://www.jhw.com/~jhw/brewfest>.

AUGUST

- 1** Ohio State Fair Homebrew Competition, **AHA SCP**, Columbus, Ohio. Entries due June 20. Contact Virgil Strickler at (614) 644-4047.
- 2** Lodi Downtown Business Association Beer Fest, Lodi, Calif. Contact Stacey Smith at (209) 368-8261 or smitty37@inreach.com.
- 3** Armanetti Liquors/Heartland Hydroponics Homebrew Competition, **AHA SCP**, Mundelein, Ill. Entries due July 27. Contact Steve Howard at (847) 566-4600 or lbparkdist@aol.com.
- 3-11** Beer and Brewing Tour of England and Belgium. Contact Sean at British Networks (800) 274-8583.
- 6-10** 1996 Great British Beer Festival, London, England. Contact CAMRA at 01727 867201; FAX 01727 867670. 230 Hatfield Rd., St. Albans, AL1 4LW.
- 8** Josephine County Fair Amateur Beers Competition, **AHA SCP**, Grants Pass, Ore. Entries due Aug. 8. Contact Hubert Smith at (503) 597-2142.
- 10** Beer & Sweat, **AHA SCP**, Cincinnati, Ohio. Entries due Aug. 3. Contact Robert Pinkerton at (513) 251-9754 or 102126.3315@compuserve.com.
- 11** Kentucky State Fair, **AHA SCP**, Louisville, Ky. Entries due Aug. 10. Contact Bob Reed at (502) 222-7439 or tobias@iglou.com., <http://www.sitesonthe.net/fossils>.
- 11** Michigan State Fair, **AHA SCP**, Detroit, Mich. Entries due July 26-Aug. 9. Contact Spencer Thomas (313) 994-0072 or spencer@umich.edu.
- 11** San Mateo County Fair Homebrew Competition, **AHA SCP**, San Mateo, Calif. Entries due June 28. Contact Chris Metzcs at (415) 341-0696.
- 14** Steele County Free Fair Home-made Beer, **AHA SCP**, Owatonna, Minn. Entries due Aug. 11-13. Contact Kirk Groeneweg at (507) 455-3423.
- 17** Mead Magic Club-Only Competition, **AHA SCP**, Entries due Aug. 12. Contact James Spence at (303) 447-0816 ext. 121 or james @ aob.org.
- 17** Antelope Valley Fair First Annual Homebrew Competition, **AHA SCP**, Lancaster, Calif. Entries due Aug. 10. Contact Carl Weyl at (805) 943-8302 or dcarlile@aol.com.
- 17** Montgomery County Fair Homebrew Competition, **AHA SCP**, Gaithersburg, Md. Entries due Aug. 15. Contact Bill Lawrence at (301) 963-9314 or lawrencb@gunet.georgetown.edu
- 17-18** Monterey County Fair Homebrew Competition, **AHA SCP**, Monterey, Calif. Entry forms due July 15 and beer samples Aug. 15. Contact Bill Evans at (408) 771-2537.
- 17-18** San José International Beer Festival, San José, Calif. Contact Kevin Lytle at (408) 293-4373.
- 17-24** First Wheatland Charity Homebrew Competition, **AHA SCP**, Scottsville, N.Y. Entries due Aug. 10. Contact Joe Roa at (716) 889-8947.

- 20** Evergreen State Fair, **AHA SCP**, Monroe, Wash. Entries due Aug. 19. Contact Stephanie Hagarty at (360) 668-5660.
- 20** Benton-Franklin County Fair, **AHA SCP**, Kennewick, Wash. Entries due August 20. Contact Michael Hall at (509) 946-5735.
- 23-24** Harpoon Hot Summer in the City, Boston, Mass. Call (617) 574-9551.
- 24** Third Annual Southern Brewers' Festival, Chattanooga, Tenn. Call (615) 267-2739.
- 25** Western Washington Fair Beer Competition, **AHA SCP**, Puyallup, Wash. Entries due August 17. Contact Candace Blancher at (206) 841-5008.
- 28-Sept. 12** Hops and Horses British Beer Tour. Contact Alan Britton at (802) 888-9113.
- 31** Savannah Suds No. 2 Beer Festival, Savannah, Ga. Call (803) 689-3340.

SEPTEMBER

- 6-7** Traverse Brewing Academy Fall Educational Forum, Traverse City, Mich. Contact Matt Sutherland at (616) 933-6042.
- 7-16** Artisan Breweries of Holland and Belgium, European Brewery Adventures. Call the Mir Corporation at (800) 424-7289.
- 8** Second Annual Brewer's Dream Homebrew Competition, **AHA SCP**, Libertyville, Ill. Entries due Sept. 1. Contact Steve Howard at (847) 362-6688 or lbparkdist@aol.com
- 12-21** Fine Beers & Wines of Czech and Hungary, European Brewery Adventures. Call the Mir Corporation at (800) 424-7289.
- 15** Grand Brew Fest '96, **AHA SCP**, Grandview Heights, Ohio. Entries due Sept. 7. Contact Chris Estelle at (614) 486-9922.
- 19** Beers from Germany Beer Tasting, Marina del Rey, Calif. Call the Ritz-Carlton at (310) 823-1700 ext. 5121.
- 20** Special Issue of *Zymurgy* (Vol. 19, No. 4) mails. Please allow four to six weeks for delivery.

- 20** Memphis Flyer Beer Festival, Memphis, Tenn. Call (612) 341-4110.
- 21** Tampa Bay Beers Ultimate Altbier Competition, **AHA SCP**, Tampa, Fla. Entries due Sept. 19. Contact Jeff Gladish at (813) 874-0937.
- 21** First Dayton Beerfest Competition, **AHA SCP**, Dayton, Ohio. Entries due Sept. 9-20. Contact Theodore Holloway at (513) 427-0278.
- 21** Third Annual Micro Expo, Colorado Springs, Colo. Call Downtown Colorado Springs Inc. (719) 632-0553.
- 22** Boeing Employees Wine & Beer Club, **AHA SCP**, Seattle, Wash. Entries due Sept. 12. Contact John Falkowski at (206) 965-3828.
- 22** Mid-South Fair, **AHA SCP**, Memphis, Tenn. Entries due Sept. 19. Contact Dale Hogan at (901) 526-6913.
- 26-28** 15th Anniversary Great American Beer Festival®, Denver, Colo. Call the GABF Hotline (303) 447-0126
- 28** Jazz & Brew Festival 1996, **AHA SCP**, Fort Walton Beach, Fla. Entries due Sept. 25. Contact Lawrence Chessor at (904) 882-7398 ext. 2699.

OCTOBER

- 3-5** The Real Ale Festival, Chicago, Ill. Contact Ray Daniels at (312) 665-1300 or 71261.705@compuserve.com.
- 3-6** Harpoon Oktoberfest VI, Boston, Mass. Call (617) 574-9551.
- 4-11** Brewing Traditions of England and Scotland, European Brewery Adventures. Call the Mir Corporation at (800) 424-7289.
- 5** Third Annual Sin City Sudzzers Homebrew Competition, **AHA SCP**, Sheboygan, Wis. Entries due Oct. 4. Contact Rick Woods at (414) 458-8752.
- 5** Cure For What Ales You (Ale-Only), **AHA SCP**, Cambridge, Md. Entries due Sept. 27. Contact Gary Edsall at (410) 754-9204.
- 5-16** The Great British Pub Crawl, Tour of England. Contact Bill Wright at Taku River Homebrew Supply at (907) 463-4897 or Great Escape Travel at (800)-478-9188.

- 12** Arizona State Fair, **AHA SCP**, Phoenix, Ariz. Entries due Sept. 20-Oct. 7. Contact Sherry Pew at (602) 252-6771.
- 13** Second Annual Great Northwest Homebrew Competition, **AHA SCP**, Seattle, Wash. Entries due Oct. 4. Call Northwest Brewers Supply at (800) 728-2537.
- 18** St. Francis of Assisi Annual Oktoberfest Homebrew Contest, **AHA SCP**, Cordova, Tenn. Entries due Oct. 16. Contact Carol MacIntosh at (901) 754-2282.
- 18** Creative Loafing Beer Festival, Charlotte, N.C. Call (612) 341-4110.
- 18-20** 13th Annual Dixie Cup, **AHA SCP**, Houston, Texas. Entries due Oct. 5. Contact Sean Lamb at (713) 992-5661 or slamb@ghgcorp.com.
- 18-20** Sixth Annual Dukes Great Northwest Homebrew Invitational, Seattle, Wash. Call (206) 232-2982.
- 19** Second Annual Great Northwest Homebrew Competition, **AHA SCP**, Portland, Ore. Entries due Oct. 4. Contact Andrea Gennotti at (800) 728-ALES or brew-dog@wolfenet.com.
- 19** Cape Cod Homebrewers Festival, **AHA SCP**, Buzzards Bay, Mass. Entries due Oct. 4. Contact Mark Duffley at (508) 771-8061 or mduffley@capecod.net.
- 19-29** Great British Pub Tour. Contact Sean at British Networks (800) 274-8583.
- 26** Best of Fest Club-Only Competition, **AHA SCP**. Entries due Oct. 21. Contact James Spence at (303) 447-0816 ext. 121 or james@aob.org.
- 26** Brews by the Bay, San Francisco, Calif. Contact Bill Hudson at (415) 851-3731 or billyhud@aol.com.
- 26** Music City Brew Off, **AHA SCP**, Nashville, Tenn. Entries due Oct. 23. Contact Bryan Gros at (615) 269-0412 or grosbl@ctrvax.vanderbilt.edu.
- NOVEMBER**
- 1-2** The Great Canadian Beer Festival, Victoria, British Columbia, Canada. Contact John Rowling at (604) 595-7729 or jrowling@pacificcoast.net.
- 1-2** Fifth Annual Unfermentables' Homebrew Shootout, **AHA SCP**, Denver, Colo. Entries due Oct. 25. Contact Mark Groshek at (303) 757-8394 or theshek@rmil.com.
- 2** 1996 Capitol District Open, **AHA SCP**, Washington, D.C. Entries due Oct. 29. Contact Fred Hardy at (703) 378-0329 or fcmh@access.digex.net.
- 2** Taste of the Great Lakes, **AHA SCP**, Frankenmuth, Mich. Entries due Oct. 19. Contact Hal Buttermore at (313) 665-1236 or 71672.1766@compuserve.com.
- 2** Brews Brothers Novemberfest, **AHA SCP**, Redmond, Wash. Entries due Oct. 31. Contact Jim Hinken at (206) 483-9324 or jhinken@accessone.com.
- 3-5** International Beer Marketers Symposium, Vancouver, B.C., Canada. Call the AOB at (303) 447-0816.
- 9** Third Annual Rhode Island International Beer Exposition, Providence, R.I. Call (401) 274-3234.
- 20** Winter Issue of *Zymurgy* (Vol. 19, No. 5) mails. Please allow four to six weeks for delivery.
- 23** Salt City Brew Club 11th Annual Competition, **AHA SCP**, Syracuse, N.Y. Entries due Nov. 9. Contact Kieran O'Connor at (315) 449-2844 or koconnor@syr.edu.

DECEMBER

- 7** Belgian Blockbuster Club-Only Competition, **AHA SCP**, Entries due Dec. 2. Contact James Spence at (303) 447-0816 ext. 121 or james@aob.org.
- 7** New England Fall Regional Homemade Beer Competition, **AHA SCP**, Deerfield, Mass. Entries due Dec. 1. Contact Charlie Olchowski at (413) 773-5920.

MARCH

- 21-22** Seventh Annual March Mashfest, **AHA SCP**, Fort Collins, Colo. Entries due March 13. Contact Brian Walter at (970) 493-2586 or walter@lamar.colostate.edu.
- 23** Sixth Annual New York City Spring Regional Homebrew Competition, **AHA SCP**, Staten Island, N.Y. Entries due March 21. Contact John DeGeorge at (718) 667-4459 or kbjohns@escape.com.

AHA SCP = American Homebrewers Association Sanctioned Competition Program

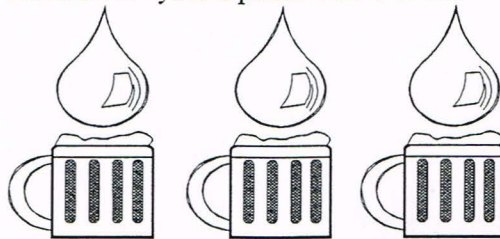
The calendar of events is updated weekly and available from the Association of Brewers: info@aob.org or <http://www.aob.org/aob>.

To list events, send information to *Zymurgy* Calendar of Events. To be listed in *Zymurgy* Winter Issue 1996, information must be received by Oct. 10, 1996. Competition organizers wishing to apply for AHA Sanctioning must do so at least two months before the event. Contact Caroline Duncker at (303) 447-0816, ext. 116; FAX (303) 447-2825; PO Box 1679, Boulder, CO 80306-1679; or Internet caroline@aob.org.

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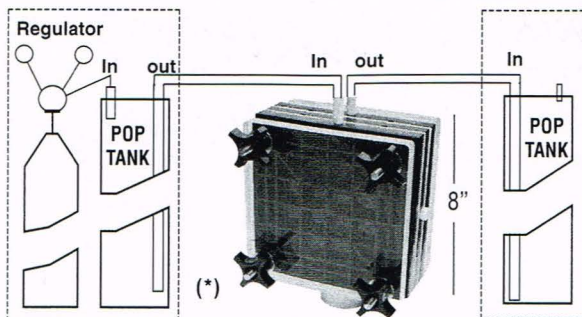
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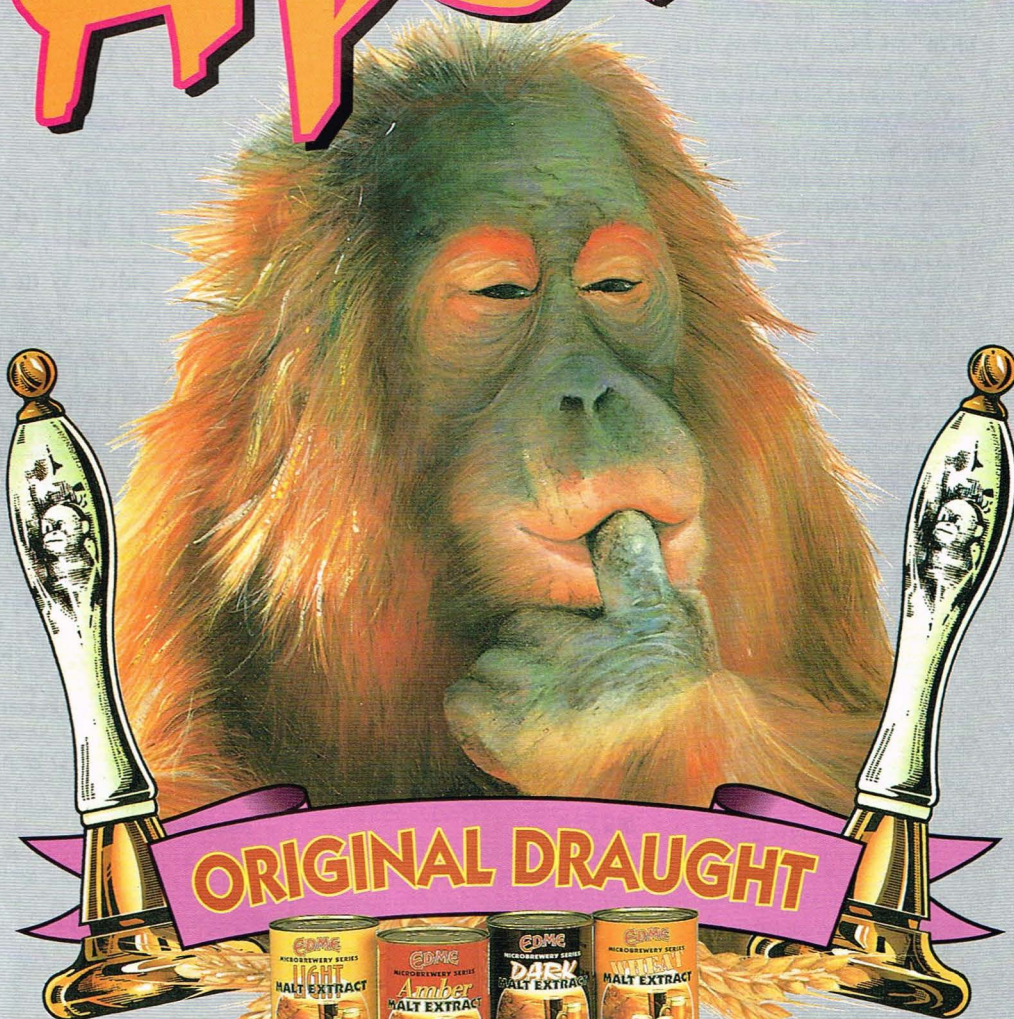
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BREWNEWS

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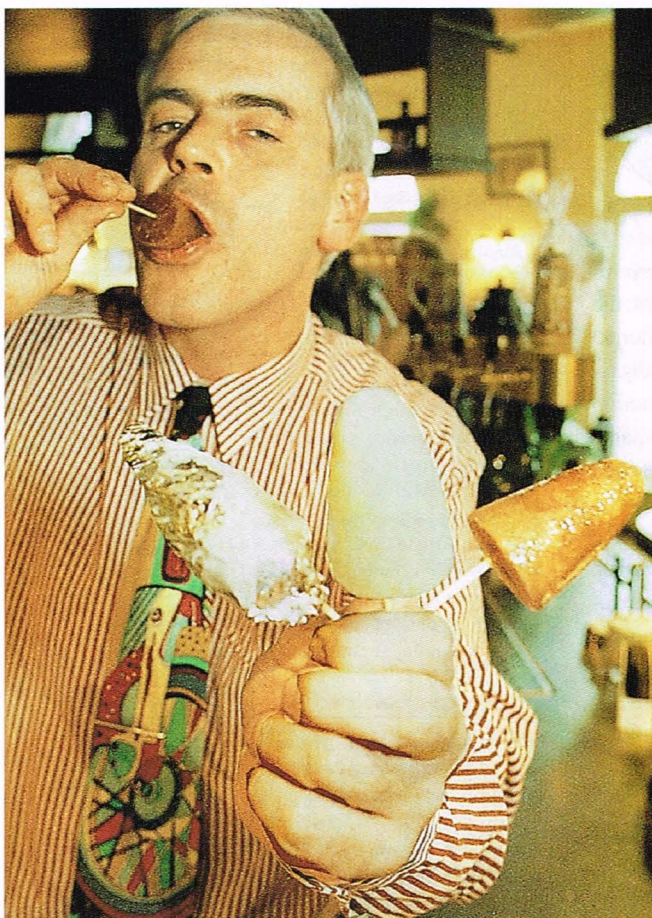
HEADLINES

Beersicles Ultimate Ice Beer

Bernd Helbig of Halle, Germany, has decided the ultimate cold beer is a really cold beer – ice cold. The tavern owner has been selling frozen beer on a stick to his customers for up to \$3.50 a chunk. Helbig wants to patent his product and name it “Rolli,” his late father’s nickname. While looking for a brewery or ice cream company to mass-produce the product, Helbig has been making the beersicles by hand and freezing them at 18 degrees F (-8 degrees C). He has some other ideas too: beer pudding and beer jelly. (*Rocky Mountain News*, Denver, Colo., Jan. 13, 1996)

Coors Converts Waste Beer to Ethanol

Under a new arrangement with Total, a French-owned petroleum company, Adolph Coors Co. will install equipment at Coors’ Golden, Colo., brewery to convert the 22 million gallons of waste beer it produces a year into ethanol. Total will use the ethanol to produce oxygenated gasoline required by law in some states in the fall and winter months.



Bernd Helbig wants to patent frozen beer on a stick.

Oxygenated gasoline burns cleaner and reduces pollution. The ethanol is distilled from a beer condensate containing 6 percent ethanol and 94 percent water. Coors produces 600 million gallons of beer a year. (*Daily Camera*, Boulder, Colo., Jan. 14, 1996)

New Machine “Tastes” Products

A group of researchers at Japan’s Kyushu University has developed a machine that can distinguish between brands of beer, coffee, mineral water and other beverages. The machine operates by translating the data gathered by eight different membranes into an electrical potential pattern. Using multiple linear regression analysis, the pattern is transformed into five basic taste elements. Human tasters rate 36 beers and the machine correlates the human ratings with the sensor patterns on a “taste map.” The machine is accurate enough to distinguish beers made at different breweries by the same manufacturer and can break the taste of a beverage into component parts for synthesis. By combining HCl (sour), glucose (sweet), quinine (bitter), NaCl (salty) and monosodium glutamate (intensity) in proportions

matching the machine’s analysis of a soft drink, researchers were able to produce a concoction that neither human tasters nor the machine could distinguish from the original soft drink. (*Solid State Technology*, February 1996)

THE BIG WORLD OF BEER

Hop Growing in India More Popular



Introduced as a crop in the northern Indian state of Himachal Pradesh in 1975, the region's hop cultivation now accounts for 50 percent of the country's demand. Initially reluctant, farmers have become attracted to growing hops because of the nonperishable nature of the crop. The region is cut off from the rest of the country each year for six months because the transportation route through the Rohtang Pass is blocked by heavy snowfall. Other crops perish if they don't reach the market on time, while hops will survive dependable shipping practices. (*Brewing and Beverage Industry International*, No. 4, 1995)

Wanted: Investors for Chinese Brewing

Beer sales in China have been growing by 5 to 8 percent annually. As a result, China is appealing to international investments to help increase beer production. There are about 40 joint-venture brewing agreements in China, principally with government-owned breweries. China has about 600 breweries, most of which are unable to keep up with consumer demand. (*Brewing and Beverage Industry International*, No. 4, 1995)

NORTH AMERICAN BREWERY LIST

Information provided by the Institute for Brewing Studies, Boulder, Colo. A complete list of breweries and brewpubs is updated quarterly and available from the Association of Brewers for \$5. Check the Association of Brewers World Wide Web page <http://www.aob.org/aob> for more frequent updates.

* Denotes microbrewery/brew-on-premises combination

OPENINGS

(As of March 1, 1996)

UNITED STATES

Regional

Wisconsin: Jacob Leinenkugels, Milwaukee

Microbreweries

California: Elk Grove Brewing Co., Elk Grove; Bear Republic, Healdsburg

Colorado: Back Alley Brewing Co., Colorado Springs

Connecticut: Hammer and Nail Brewers, Oakville; Farmington River Brewing Co., Bloomfield

Florida: Williamsville Brewery, Fernandina Beach; Treasure Coast Brewing Co., Stuart

Idaho: Eagle Brewing Co., Eagle

Massachusetts: Cisco Brewers, Nantucket

Michigan: Traverse Brewing Co., Williamsburg; August Brewing Co., Detroit; Michigan Brewing Co., Williamston

New Mexico: Elephant Butte Brewery and Pizzeria, Elephant Butte

Nevada: Ruby Mountain Brewing Co., Wells

Ohio: All American Brewing Co., Dublin

Oregon: Yamhill Brewing Co., Portland; Blue Mountain Brewing, La Grande

Pennsylvania: Victory Brewing Co., Downingtown

South Carolina: Reedy River Brewing Co., Greenville

Texas: Salado Creek Brewing Co., San Antonio; Main Street Brewing Co., Dallas; Old West Brewing Co., El Paso

Washington: Orchard Street Brewing, Bellingham; Chuckanut Bay Brewing Co., Bellingham*

Brewpubs

Arizona: Tombstone Brewing Co., Tempe*; Copper Canyon Brewing Co., Mesa

California: Pleasanton Main Street Brewing Co., Pleasanton; Parrotts Ferry Brewing Co., Columbia; Del Mar Stuft Pizza and Microbrewery, San Diego; Dino and Luigi's Stuft Pizza, Sports Bar and Microbrewery, San Diego; Westwood Brewing Co., Los Angeles; Baja Brewing Co., San Diego; Glen-castle Brewing Co., Glendale*

Colorado: Glenwood Canyon Brewing Co., Glenwood Springs; Tivoli Brewery/America!, Denver

Connecticut: Brûm at Bar, New Haven
D.C.: Dock Street Brewery and Restaurant (No. 2), Washington

Florida: Hops Grill and Bar in Boynton Beach, Boynton Beach; Hops Grill and Bar in St. Petersburg, St. Petersburg; Thai Orchid Restaurant, Miami; Tortuga's, Jacksonville; Coasters, Melbourne

Georgia: John Harvard's Brewhouse (No. 2), Atlanta

Kansas: Barley's Brewing Co., Topeka

Kentucky: Louisiana Jack's/Silo Brewpub, Louisville

Maine: Stone Coast Brewing Co., Portland; Bray's Brewpub and Eatery, Naples; Bear Brewing Co., Orono

Maryland: Bare Bones Grill and Brewery, Ellicott City

Massachusetts: Main Street Brewing Co., Worcester; Watch City Brewing Co., Waltham

Michigan: Jackson Brewing Co., Jackson; Traverse Brewing Co., Williamsburg

Nevada: Barley's Casino and Brewing Co., Henderson

New Jersey: Harvest Moon Brewery, Redbank

New York: Lake City Brewing Co., Plattsburgh; Breckenridge Brewing Co., (No. 3), Buffalo; Original Saratoga Springs Brewpub, Saratoga Springs; Rohrbach Brewing Co. (No. 2), Rochester

Ohio: Alessis Ristorante/Garretts Mill Brewing Co., Garrettsville

Oregon: John Barleycorn's (McMenamin's) Tigard; Siskyo Brewing Co., Ashland

Pennsylvania: Sly Fox Brewhouse and Eatery, Phoenixville

South Carolina: Vista Brewing Co., Columbia; Market Street Mill, Charleston

Tennessee: Bosco's Nashville Pizza Kitchen, Nashville

Texas: Herman's Hofbrau and Beer Garden, Midland; Humperdinck's, Arlington; Bradley's Restaurant and Brewery, Webster

Washington: La Conner Brewing Co., La Conner

Wisconsin: J.T. Whitney's Brewpub and Eatery, Madison

Vermont: Madison Brewing Co. Pub and Restaurant, Bennington

Virginia: Blue and Gold Brewing Co., Arlington

CANADA

Brewpubs

British Columbia: Bentley's Brewhouse and Restaurant, Richmond Pointe

Nova Scotia: Heather Motel and Brewpub, Stellarton; Paddy's Pub and Brewery, Kentville

Microbreweries

British Columbia: Bayou Brewing Co. Ltd., Richmond

Contract Breweries

Colorado: Cherry Creek Brewing Co., Denver

Nebraska: Barley Boys Brewery, Omaha

Tennessee: Volunteer Brewing Co., Nashville; Eastern Rivers Brewing Co., Chattanooga

Texas: Salado Creek Brewing Co., San Antonio

TECHNOTES

Overview of Traditional Ugandan Alcoholic Beverages

Six traditional alcoholic beverages are produced and consumed in Uganda:

Tonto is made by crushing bananas by treading, extracting the juice with grass filters and fermenting with ground roasted sorghum. An experienced elder declares the fruit ready after two to four days of fermentation. Alcohol content is between 6 and 11 percent by volume.

Ajon is produced from germinated and sun-dried finger millet, milled and mixed with water to make a dough that is fermented and dried. The dried dough can be stored up to a year. For consumption, the dough is mixed with overmodified finger millet and water and fermented for three to four days. Alcohol content is 6 to 8.5 percent alcohol by volume.

Waragi is distilled from a molasses base and contains up to 40 percent alcohol by volume.

Other beverages include *omuramba* from sorghum, *kweete* from maize and germinated millet and *kidongo* from brown sugar and the solid residue of *kweete*. (*Process Biochemistry*, Vol. 30, 1995)

Effects of Serial Repitching on Brewing Yeast

Studies of effects of serial repitching an ale yeast strain (M2) on flocculation and cell viability have found that flocculation of cropped yeast increased from 50 percent to 100 percent through the first seven generations. The flocculation remained at 100 percent through generation 23, at which point flocculation became highly variable – from 0 to 82 percent.

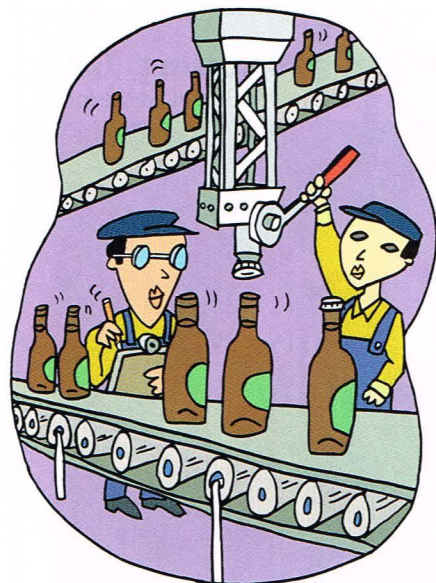
Yeast viability showed similar trends: Viability increased from about 82 percent to greater than 90 percent during the first three generations and remained high through generation 23. After generation 23 yeast viability varied considerably and eventually decreased to 67 percent at generation 32. Reasons for these effects are not well understood. (*Journal of the American Society Brewing Chemists*, 54(1):41-44, 1996)

Ancient Egyptian Beer Archaeology



Research from excavations in Egypt reveal evidence suggesting Egyptian brewing may have been more technologically advanced than previously imagined. Studies on ancient grain morphology and on artifacts using scanning electron microscopy show that grain malting procedures and facilities may have been used, a conclusion in contrast to traditional views that ancient beer was made from bread. In addition, the previous assumption that dates were used to sweeten ancient beer has come into question. The Egyptian word "beener" (bnr) when associated with beer can mean "dates" but can also be translated as "sweet thing," which could refer to some kind of cereal. Also, date pits are not found in large enough quantities in excavations to indicate dates were a standard ingredient in beer. Finally, some malting procedures may have been used requiring the husks of the grain to be removed after fermentation, resulting in bitter flavors in the final product from husk tannins providing bitterness in a beer that did not use hops. (*Journal of the American Society of Brewing Chemists* 54(1):3-12, 1996)

James Spence, AHA administrator, has been homebrewing since 1989.



SAB Stabs into World Beer Market

South African Breweries (SAB), the world's sixth largest beermaker by volume and South Africa's third largest corporation, has been expanding rapidly into the world beer market as a result of the removal of anti-apartheid trade sanctions. SAB has \$8.7 billion in capital and controls 98 percent of the South African beer market. Recent joint ventures with breweries include deals in China, Hungary and Mozambique. When officials in Mozambique refused to turn on water taps, SAB made a deal with the fire department: tires for fire trucks in return for two tankers of water a day. SAB owned Pennsylvania's Rolling Rock until selling the brand in 1988. (Associated Press, Jan. 17, 1996)



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State of Confusion



Where did I sleep last night? In which of the United States? I guess I had already forgotten. Since then there had been two flights, two states, two brewpubs in each. I was now in the third state

of the day, visiting the sixth brewpub in 12 hours. It was late in the evening. My host had set out his beers for me to taste and his wife was ordering some dinner.

On such occasions I try to guard against disorientation, creeping inebriation, hunger, irritability and sheer fatigue. Like a cross-country skier becoming blinded by the snow, I can have difficulty focusing on another four or five beers to taste.

In such a situation, if I do not enjoy the beer I will remember the circumstances, and hold back from being too critical. If I like the beer, I will take the opposite tack: if it tasted good after five brewpubs and perhaps 25 beers, it must be terrific.

This particular occasion was my first visit to the Sherlock's Home brewpub in Minnetonka, a suburb of Minneapolis. Apart from dislike of the punning name and not being crazy about "British pubs" in other countries, I had no idea whether I would enjoy encountering its beers and the sixth brewery owners of the day. I was more con-

cerned with getting the job done, checking into my hotel, putting my notes in a safe place and getting some sleep.

Before any of this could happen, I began to realize that I was enjoying the beer enormously, and that owners Bill and Carol Burdick seemed very likeable people. Out of the disoriented, creepingly inebriated, hungry — but not irritable — late evening brief encounter came one of those events that has

become a fixture in my years. No doubt some will eventually fade, and perhaps others arise, but I do sometimes reflect on the way such matters can be determined by chance.

I still have my notes from that evening in June 1990. Somewhere, if I can find them, I have notes of every brewery visit from the last 20 years. That night I had been picked up at the airport by friends of a friend. They were strangers to me, but solicitous to a fault.

Typical American generosity? The brotherhood of brew? I don't take such gestures for granted but, like Blanche Dubois in "A Streetcar Named Desire," I "rely on the kindness of strangers."

These strangers were Walter and Corinne Romanko, and I regret to say I haven't seen them since. I made a note that their name was Ukrainian. I also scribbled in my book that Mr. Gorbachev was in town. A sign, in Russian, pronounced: "Welcome Mikhail Sergeivich." I remembered the last time I had been in Minneapolis the Everly Brothers had been there.

Walter Romanko was a research scientist specializing in plastics at 3M. At Sherlock's, I made a note that Walter found the bitter "mineral." I wrote that it had "lots of hop taste and a really good belt of bitterness." I also liked the hop and malt balance of the Scottish ale, which over the years has come to be a particular favorite.

I also noted the back bar, in Honduras mahogany, had been copied



William E. Burdick and Carol A. Burdick, owners of Sherlock's Home in Minnesota, are pictured at the beer engines with a ploughman's lunch and a Scotch egg plate.



"Sherlock Holmes," Mickey Walker, Michael Jackson and Vi Walker

from photographs of an 1890s pub destroyed in World War II, that the Queen Anne chairs were made in Edinburgh and that the malt came from Hugh Baird. The cock-a-leekie soup merited a note for the flavor of the chicken stock.

Over the Scottish ale Bill mentioned he had 70 single malts on the back bar. Would I care to finish my evening with a Macallan? Certainly I would. How about returning in the fall to conduct a tutored tasting of single malts? I get such requests every day and, while I am flattered and gratified to be asked, I cannot accept them all. Many of these invitations are not pursued, or not with a seriousness that makes me believe in them. Others clash with an existing commitment, or a period when I really need to be writing. Bill seemed very serious. I told him that I had a very crowded schedule, that he would have to fly me in, put me up and pay me a fee.

Somehow it all happened and I was back at Sherlock's in a few months addressing a packed house on the subject of single malt Scotches. When they heard I was coming, the local homebrewers asked Bill if he would cooperate on an event with them. Each year since, I have taken part in a tasting of single malts on Saturday and a homebrew event on Sunday.

The first year the homebrew event took the form of a tasting in which I sampled one beer from each club in the area and commented on it over a public address system. In the years since this

has grown into the Minnesota Brew Fest and Homebrew Competition.

The Fest is really a show of homebrewing equipment in a large tent in which the final round of the competition is judged in public. The ceremony is moderated by one of the pub's locals, a professional actor who specializes in playing Sherlock Holmes, and who contrives to be far more British than a rootless cosmopolitan such as myself.

Each year I have been joined by two experienced judges to taste the section winners from a field of several hundred. Usually at least one of the judges has been from another Midwestern city. Last year I worked with local judge Jim Ellingson, a mechanical engineer, and Ginger Wotring, who is working on a Ph.D. in neurophysiology. Gin-



Ginger Wotring, Michael Jackson and Jim Ellingson confer during the best-of-show round before selecting a Bohemian Pilsener as the winner.

ger, who came from St. Louis, was wearing a fetching hairslide (barrette) she had made from crown tops of beer bottles: Chimay, Duvel and La Trappe were featured.

We tasted more than a dozen styles, agonizing finally over a sweet peppery eisbock, a huge barley wine, an intensely hoppy IPA and a delicate, beautifully balanced Bohemian Pilsner. Ginger wondered whether the Pilsner was just too hoppy; Jim thought perhaps it was less Bohemian than German. We all finally agreed that it was the winner.

The winning brewers were members of a very lively club called the Prairie Homebrewing Companions: Mickey and Vi Walker of Fargo, N.D. They captured a spectacular cup donated by Rahr Maltings. The Walkers always are among the medalists. Mickey is a pilot with a major airline. "When you fly with us, ask whether I'm in the cockpit," he kindly suggested. Perhaps I should. Maybe I would get a better seat. Or even a glass of homebrew with my pretzels.

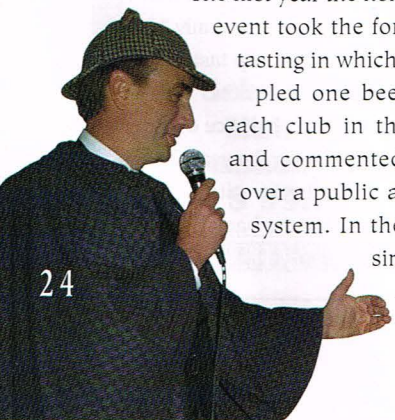
Note: This year's Minnesota Brew Fest is on Sunday, Oct. 6. For information call (612) 931-0203.

This column was prepared especially for Zymurgy.

Michael Jackson is internationally the best known writer on beer. His *Beer Companion* (Running Press, 1993) was awarded the 1994 Glenfiddich Trophy, and the André Simon Award. His articles, books, documentary videos and CD-ROM introduce beer styles to countless drinkers and brewers outside their native lands.



Members of the Prairie Homebrewing Companions pose with Michael Jackson. The group, founded in fall 1990 over a few pints of bitter at Sherlock's Home, now has about 110 members.





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Grant Wood

Jim DeBoer

Richard Dube

Walter Scheurle
David Grinnell

Jim Koch

Jose Ayala
Jim Pericles

William Reed (not present)

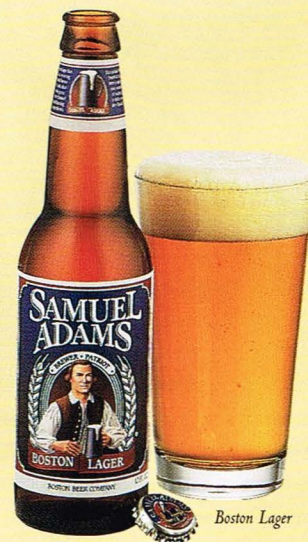
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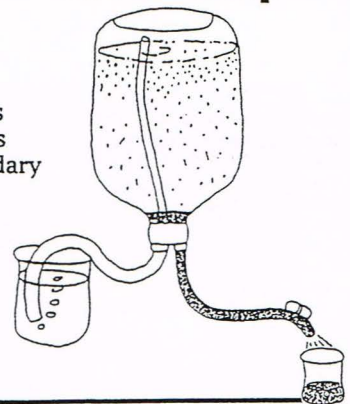
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HOMEBREW COOKING

Brian Glover

Celebrating Creativity in the Kitchen

As you gather family and friends together to enjoy the beginning of a new brewing season, keep in mind that adventures in creativity are not limited to the beers you brew. The food you prepare and serve can be equally exciting if you understand simplicity is a key element. It's not that the same tasks can be used in brewing and cooking, but the notion that simple techniques are required for both. With humble methods you will be able to find freedom and stretch the boundaries.

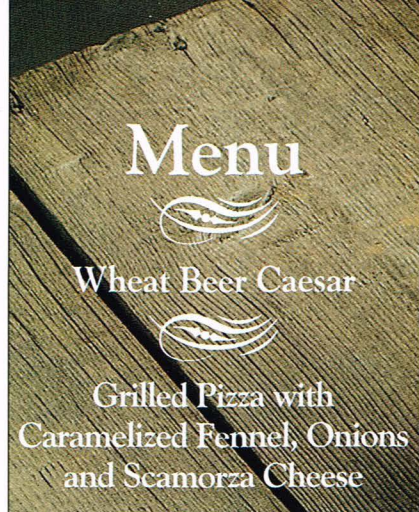
Cooking, as with brewing, is largely instinctive. I believe trusting your instincts is the

most important key to success in cooking, and once you have learned a simple repertoire of techniques your horizons will broaden greatly. With only a few boundaries and limitations guiding your way, you will find a wealth of wonderful possibilities awaiting in the kitchen and homebrewery. Small additions or substitutions are the subtle changes a recipe requires to be transformed into a personal achievement your friends and family can enjoy. The idea is to be flexible and establish your own special flavor combinations during meal preparation.

I believe cooking is a simple formula: 25 percent knowledge, 25 percent heart and 50

percent instinct, and by adding a pinch of imagination you are sure to find success. The following guides (I prefer to call them "guides" rather than recipes because that's truly what they are), give you the freedom to substitute as you see fit, whether for seasonal limitations or personal taste. I have not included measurements, except on items requiring specific methods to be followed, so you may experiment with different flavors and flavor intensities. Take the pizza, for example. If you don't like fennel try something else, like artichokes or apples! Maybe the light lager in the dough doesn't impart the flavor you're looking for, so try a stout.





Trust yourself — you know what you like and don't like better than anyone else.

You aren't going to risk anything by trying something different and, who knows, maybe the next project you attempt will become as popular as French onion soup or spaghetti and meatballs. It's all up to you. And remember, if you don't feel like getting too crazy, these guides work well all by themselves.

Wheat Beer Caesar

Dressing

- 3 anchovy fillets
- 1/4 tsp garlic, crushed (1.2 mL)
- 1 egg, beaten
- 2 1/2 oz German wheat beer (74 mL)
- 2/3 cup canola oil (157.8 mL)
- salt and white pepper, to taste

In a blender combine the anchovies and garlic to create a paste. Add egg and wheat beer and mix until smooth. Slowly add canola oil with the blender on high speed. As the dressing thickens, take care not to add too much oil too fast or you could break the emulsion. Season to taste with salt and pepper, then chill.

Salad

Romaine lettuce, rinsed, dried, chilled and torn into bite-sized pieces
croutons (a good-quality store-bought crouton is fine)
Parmesan cheese, grated

Dress the lettuce, top with croutons and sprinkle with Parmesan cheese. Serve immediately.

Beer pairing:

German or American wheat beer

Grilled Pizza with Caramelized Fennel, Onions and Scamorza Cheese

Beer dough

- 1 cup light lager (237 mL)
- 1 tbsp unsalted butter (14.8 mL)
- 2 tbsps sugar (29.6 mL)
- 2 1/2 cups flour (591 mL)
- 1 tsp salt (4.9 mL)
- 1 tsp baker's yeast (4.9 mL)

Warm the beer to 90 degrees F (32 degrees C), add yeast and stir to dissolve (about two or three minutes). Combine the other ingredients in a mixer with a dough hook. Add the liquid and mix until you have a smooth, soft dough. Cover with plastic wrap and put in a warm place for one hour. Punch the dough down, divide into three or four pieces and allow to rise for another half hour. Roll or pull the dough into the desired shape and let stand on a lightly floured surface while you prepare the topping.

Pizza topping

fennel, thinly sliced
yellow onions, julienned
olive oil
salt and pepper
Scamorza* cheese or high-quality mozzarella, grated

*Scamorza is traditionally an Italian buffalo-cheese available in Italian delis or specialty grocery stores.

In a hot sauté pan, caramelize the fennel and onions with a small amount of olive oil. Season with salt and pepper.

Place rolled-out dough on a medium-hot barbeque grill and cook about 1 1/2 minutes. Rotate one-quarter turn and continue grilling for 1 1/2 more minutes. Flip the dough over and quickly brush with a little olive oil. Top with the caramelized fennel and onion mixture and the grated cheese. Rotate one-quarter turn after 1 1/2 minutes and cook a little longer. Remove and cut into pieces to serve.

Beer pairing:

Alt beer or bock

T-bone Steak with Smoked Beer Marinade

Beer marinade

smoked beer
shallots, minced (smoked or roasted first is optional)
garlic, crushed
canola oil
red wine vinegar
juniper berry, crushed
sage, chopped
salt and pepper, to taste

If you'd like a starting point, try 2 1/2 parts beer, one part oil and one-half part vinegar. Combine ingredients and allow to stand at room temperature for at least one hour to blend the flavors. Place the steaks in the marinade and refrigerate overnight. Grill steak to desired degree of doneness.

Beer pairing:

Pilsener

Fire-Roasted Corn on the Cob

I believe cooking corn in the husk over an open fire releases more of its natural flavors and results in a sweeter, more appetizing piece of corn — try it!

corn, as much as you want,
in the husk

Place the corn on the grill and cook until the kernels are tender, about 15 minutes. The husk will burn completely black and you should turn the cob repeatedly to cook it evenly. Carefully clean the cob of burnt husk and silk (be careful, it will be extremely hot!).

Serve with butter, salt and pepper.



Maple Syrup Brown Ale

Ingredients for 5 gal (19 L)

- 5 1/3 lb pale malt (2.4 kg)
- 11 oz Munich malt (312 g)
- 2 oz 75 °L caramel malt (57 g)
- 6 oz 150 °L caramel malt (170 g)
- 2 oz carapils malt (57 g)
- 3 oz chocolate malt (85 g)
- 2/5 oz Washington Chinook hops, 10.5% alpha acid (11 g) (60 min.)
- 2/5 oz Oregon Fuggles hops (11 g), 5% alpha acid (30 min.)
- 2/5 oz Oregon Fuggles hops (11 g), 5% alpha acid (finish)
- Wyeast American Ale No. 1056 liquid yeast culture
- 7 oz Grade A maple syrup (198 g) (secondary)

- Water hardness (mash and sparge): 100 ppm
- Total boil time: 90 min.
- Original specific gravity: 1.048
- Final specific gravity: 1.012

Mash the grains in 2 gallons (7.6 L) of 150-degree-F (66-degree-C) water and hold temperature for 30 minutes or until conversion. Sparge with 4 1/4 gal (17 L) of 170-degree-F (77-degree-C) water. Boil for 90 minutes adding hops as specified. Cool, pitch ale yeast and ferment at 72 degrees F (22 degrees C). Add maple syrup to the secondary fermenter and continue fermenting at 60 degrees F (16 degrees C). Bottle condition with maple syrup (181 grams per 5 gallons) or force carbonate. Condition for 14 days at 35 degrees F (2 degrees C).

Recipe courtesy of Tim Lenahan, president of Tommyknocker Brewery and Pub in Idaho Springs, Colo.



Rosemary Scotch Ale Potato Wedges

- large Idaho potatoes
- Scotch ale
- canola oil
- fresh rosemary, chopped
- shallots, minced
- salt and pepper, to taste

Cut the potatoes lengthwise into eighths. Toss in a bowl with the other ingredients and marinate (try three parts beer and one part oil) for at least 30 minutes at room temperature. Remove the potatoes and as much of the shallots and rosemary as possible and place on a large piece of aluminum foil. Fold the sides of the foil up to create a bowl. Pour some of the liquid over the potatoes and top with another piece of foil. Crimp the edges together to seal securely. Place on a medium-hot grill and cook one-half hour or until done.

Maple Beer Apple Crisp

- 1 1/2 lb peeled, cored and sliced Granny Smith apples (0.68 kg)
- 1/4 tsp cinnamon (1.2 mL)
- pinch nutmeg
- 1 oz all-purpose flour (28 g)
- 1/4 cup maple beer (I use Tommyknockers from Idaho Springs, Colo, see recipe.)
- 2 oz melted unsalted butter (57 g)

Pour the maple beer over the prepared apples and marinate 10 minutes. Combine the dry ingredients and add to the apples. Add butter and pack the apples into four or five eight-ounce (237-mL) baking cups.

Topping

- 6 oz unsalted butter (177 mL)
- 6 1/2 oz sugar (184 g)
- 4 oz almond paste* (118 mL)
- 1 tsp lemon zest (4.9 mL)
- 7 1/2 oz all-purpose flour (213 g)
- pinch of salt
- 3 1/2 oz rolled oats (99 g)
- 3 oz sliced almonds (85 g)

*Available at specialty markets.

Cream the almond paste and butter together in a mixer. Add sugar and mix until smooth. Add zest, flour, oats and almonds, mixing until crumbly.

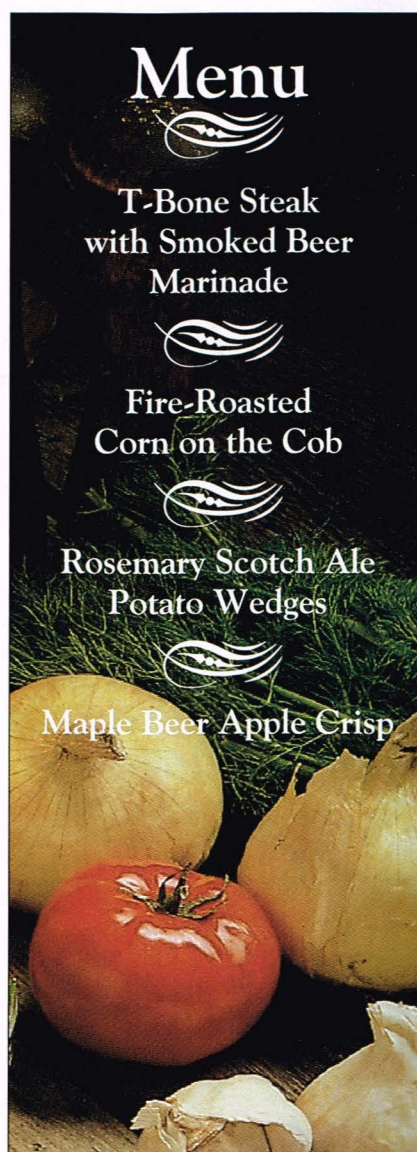
Place topping over the apples and bake for 30 to 40 minutes in a 380-degree-F (193-degree-C) oven. Serve with high-quality vanilla bean ice cream.

Beer pairing:

Extra special bitter, an oatmeal stout or hard cider

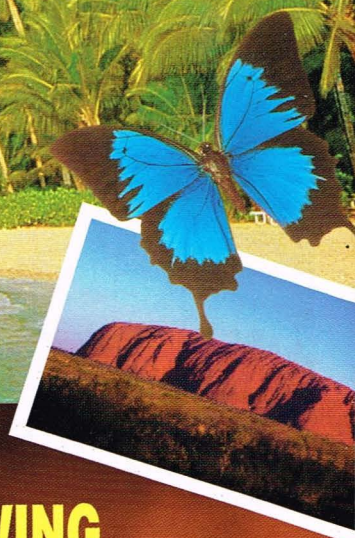
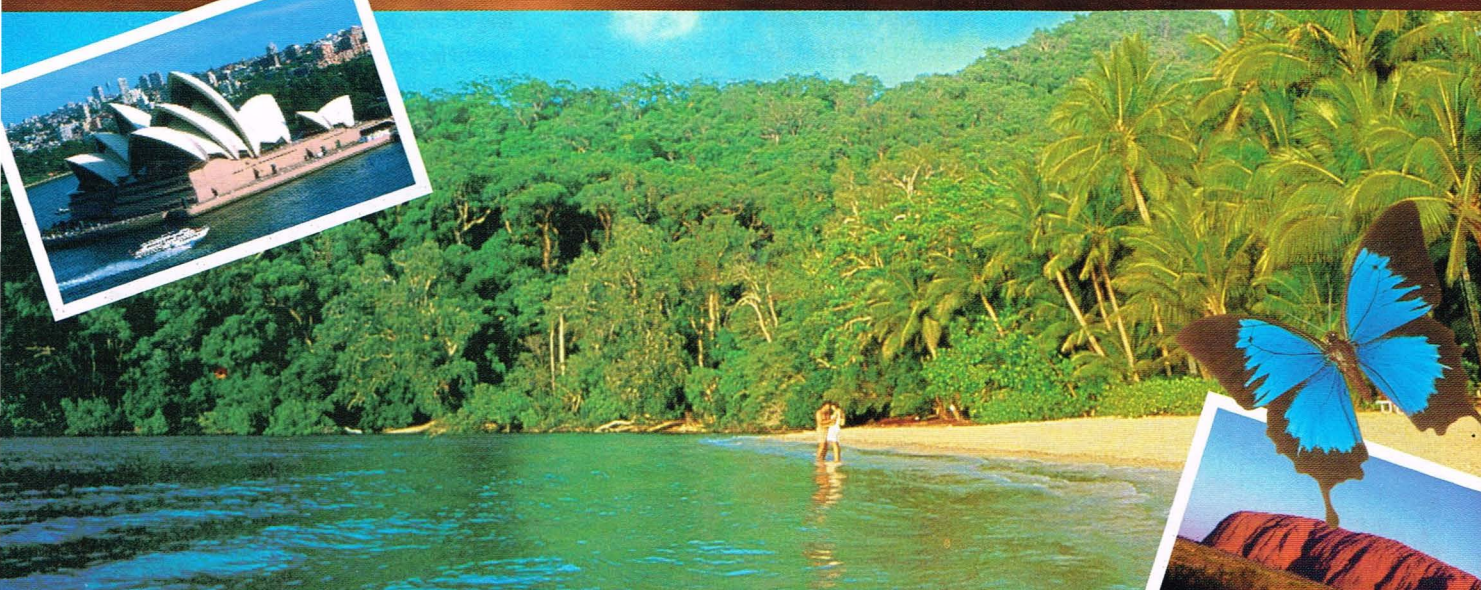
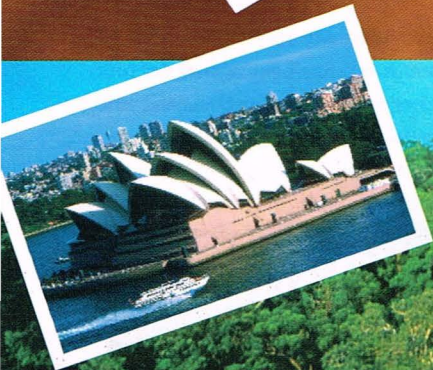
Brian Glover, an avid beer drinker and fledgling homebrewer, has been a chef for four years. He has designed gourmet beer and wine dinners in Boulder, Colo., and Dallas, Texas.

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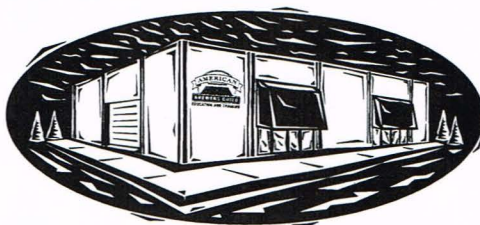
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Avoid Heart/ Carboy Break



The Ann Arbor Brewers Guild has the following suggestions for preventing a dropped glass carboy, which is both dangerous and depressing:

- Get a plastic milk crate for each carboy. Always carry them in the crate.
- Use carboy handles. Some question the safety of carrying a full carboy by the handle, but they certainly provide an easy gripping point to hold it steady.
- Ferment in plastic (buckets or carboys from a bottled water company).
- Ferment in stainless steel (Cornelius kegs, kettles).
- Ferment in Lexan™ (polycarbonate) seven-gallon fermenters.

[Plastic (even Lexan) is not the best choice for lagering because of plastic's oxygen-permeability. — Ed.]

— Spencer Thomas, Ann Arbor Brewers Guild, Ann Arbor, Mich.

Dry Yeast Tips



Pitch two packages of dry yeast instead of one for quicker starts if you didn't make a starter.

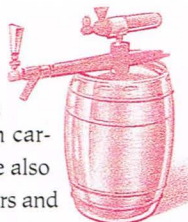
— Bruce Rees, Cheviot, New Zealand

I like to take the dry yeast packets that come with cans of extract and toss them into the last 15 minutes of my wort boil. This kills the yeast, but leaves behind the hulls, which are nutritious for the yeast I pitch later.

— Jim Hackett, Hamden, Conn.

Nitrogen Dispense for Minikegs

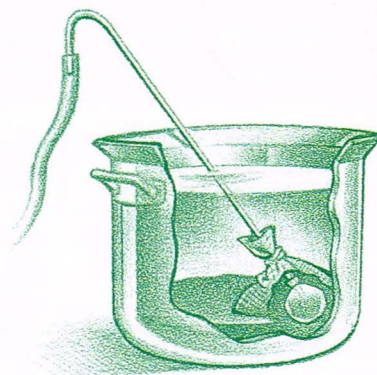
Minikegs use 16-gram and, with an adapter, 8-gram CO₂ cartridges. The 8-gram cartridge is a standard size also used in seltzer dispensers and whipped cream dispensers but



the latter are filled with nitrogen. And, yes, they produce the same dancing, silky head you experience with N₂-dispensed Guinness or beer from widget-equipped cans. I found the N₂ whipped cream chargers next to the CO₂ seltzer chargers on my grocer's shelves. I use two per keg, the same as the CO₂. The N₂ cartridges cost about a dime more than CO₂, but are well worth it for stouts and bitters.

— Robert Mintiero, Seattle, Wash.

Trub Removal



If you want a way to eliminate trub from your boiling kettle, here is a simple method to use. Purchase a hop bag with a drawstring and a small grain bag. Place the grain bag inside the hop bag and the stainless-steel or copper racking cane into the bag and close the drawstring. Now you may siphon beer leaving trub behind.

— Darrell Simon, *Livin' The Brews*, Rowlett, Texas

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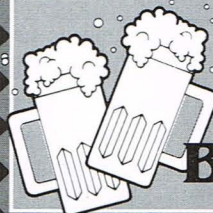
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**GREAT
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"Can it really be any good?" a young woman whispered. "Heavens no," Thomas exclaimed. "He's never brewed a drop in his life."



They Laughed When I Told Them I Was Serving My Own Home Brewed Beer, But When They Tasted My Pale Ale!—

Thomas brought a gift of his latest micro-brew discovery that he wanted everyone to try. I decided that this would be a dramatic moment for me to make my debut. To the amazement of all of my friends, I strode confidently over to my Alephenalia Micro Brewery-Home Brew Kit and began to pull out the professional looking bottles that I had placed there.

"Chuck is up to his old tricks," somebody chuckled. The crowd laughed. They were all certain that I couldn't brew any more than I could make potatoes au gratin.

"Can he really brew?" I heard Thomas' partner whisper. "Heavens, no!" Thomas exclaimed. "He's never brewed a drop in his life. But just you watch him. This is going to be good."

I decided to make the most of the situation. Holding up the wing capper, I explained that I had bottled it just for this occasion. With mock dignity, I drew out a bottle and cradled it in my arms like a great wine. "Is this another of those disappearing ink trips," called a voice from the rear. The crowd rocked with laughter.

Then I began to pour.

Instantly a tense silence fell on the guests. The laughter died on their lips as if by magic. I poured a glass for everyone, even those who exclaimed "I don't like beer." I heard a gasp of amazement. My friends sat breathless, spellbound.

I sampled it myself and for a brief moment I forgot the people around me. I forgot the hour, the place, my fellow imbibers. The little world I lived in seemed to fade—seemed to grow dim—unreal. Only the ale was real. Only the ale and the visions it brought me. Visions as beautiful and as changing as an autumn sunset, with its amber hues, just like my homebrew.

A real Triumph!

As everyone finished tasting, the room resounded with accolades. I found myself surrounded by excited faces. How my friends carried on! Men shook my hand—wildly congratulating me—pounding me on the back in their enthusiasm! Everybody was exclaiming with delight, plying me with rapid questions. Chuck! Why didn't you tell us you could brew like that? Where did you learn? How long have you been brewing?

"I simply followed the complete instructions included with the Alephenalia Homebrew kit," I replied. "And just a short while ago, I didn't know hops from malt."

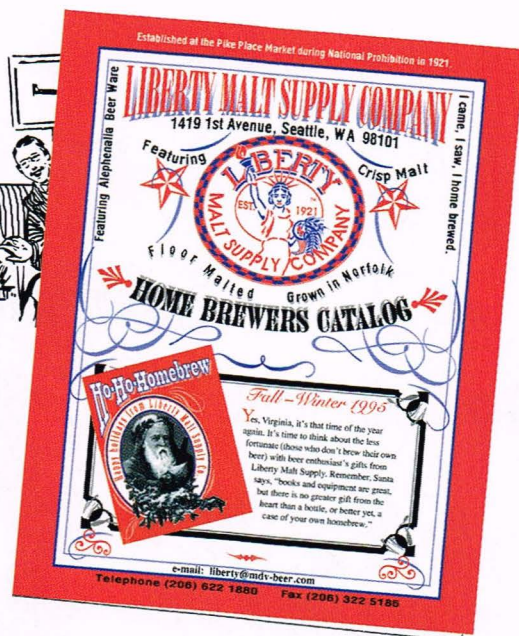
"Quit your kidding," laughed Thomas, a real beer enthusiast. "You've been brewing for years. I can tell."

"Only since Rosie gave me an Alephenalia Microbrewery for my birthday, less than three weeks ago. I decided to keep it a secret so that I could surprise all you folks." Then I told them the whole story. "Ever heard of **Liberty Malt Supply Company**?" A few of my friends nodded. "That's a home brew shop and mail order catalog!" One of the oldest in the entire country!

"Exactly," I replied. "They have a great program for learning how to brew beers like a professional, the Liberty Way."

How I learned to brew without a teacher.

And then I explained how for years I had longed to brew my own beer. I shared that dream with Rosie and when she saw the Alephenalia Microbrewery in the Liberty catalog, she knew it was the perfect gift for me.



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Pointing to the colorful Alephenalia Micro-brewery carton, I explained, "It contains brewing equipment that can be used over and over to brew beers like the professionals." I told them how pleased I was with *The Brewer's Companion*, a real home brewers bible. The Liberty Pack included with the microbrewery contained enough pre-measured, concisely labeled ingredients to brew five gallons of the Pale Ale. I explained that each of the Liberty packs used the highest quality ingredients, exclusive to Liberty Malt and that packs for each of the classic brewing styles are available.

I proudly told them that I have already begun brewing Weekend Weiss, a Bavarian style wheat beer and Liberator Doppelbock, both promptly received by simply dialing Liberty Malt's own toll free number, 1-800-990-MALT (6258).

Favorite brewing styles

"Lets order Liberty's Pals Pils Pack!" Thomas pleaded after seeing the Liberty catalog. He took another sip and said, "Which weekend is that Weiss going to be ready?"

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ILLUSTRATIONS BY PHILIP BLISS

HAVE YOU EVER CLEANED AND DRIED YOUR FAVORITE BEER GLASS, APPROPRIATELY CHILLED YOUR LATEST HOMEBREW, POPPED THE CAP AND POURED THE FRUITS OF YOUR LABOR ONLY TO HAVE THE BEER SMELL LIKE A SKUNK? IF SO, YOUR BEER WAS PROBABLY DESTROYED BY LIGHT IN THE WELL-KNOWN SUNSTRUCK OR LIGHT-STRUCK REACTION. IN THIS REACTION ULTRAVIOLET OR BLUE LIGHT CHEMICALLY TRANSFORMS CERTAIN HOP COMPOUNDS IN BEER GIVING IT A VERY UNPLEASANT SKUNKY ODOR. THIS IS WHY HOMEBREWERS ARE ADVISED TO KEEP THEIR BEER AWAY FROM LIGHT. SOME COMMERCIAL BREWERS HAVE AN ALTERNATIVE APPROACH. THEY USE A MIXTURE OF CHEMICALLY MODIFIED HOP COMPOUNDS THAT ARE STABLE IN LIGHT, ALLOWING THEM TO SELL BEER PACKAGED IN CLEAR BOTTLES.

THE SUNSTRUCK REACTION IS CERTAINLY THE MOST FAMILIAR CHEMICAL REACTION IN BEER THAT IS

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PROMOTED BY LIGHT. HOWEVER, MORE THAN 400 DIFFERENT CHEMICALS HAVE BEEN IDENTIFIED IN BEER IN ADDITION TO WATER AND ETHANOL, SO IT IS LIKELY THAT LIGHT PROMOTES MANY OTHER CHEMICAL REACTIONS WHICH SIMPLY HAVE NOT BEEN IDENTIFIED. IN FACT, BREWERS ACTUALLY CAN USE ULTRAVIOLET RADIATION TO IMPROVE THE UTILIZATION OF HOP BITTER ACIDS AND TO SYNTHESIZE NOVEL BITTERING COMPOUNDS FROM HOPS.

I'LL BEGIN WITH A BASIC BACKGROUND ON HOPS AND THEIR ROLE IN BREWING, THEN DISCUSS THE SUNSTRUCK REACTION, DESCRIBE THE PHOTOCHEMICAL CONVERSION OF ALPHA ACIDS INTO ISOALPHA ACIDS AND THE PHOTOCHEMICAL CONVERSION OF BETA ACIDS INTO ALPHA ACIDS. A MORE COMPLETE UNDERSTANDING OF THE EFFECT OF LIGHT ON BEER

WILL GIVE A BETTER APPRECIATION OF BREWING AND MAY EVEN HELP YOU BREW BETTER BEER.



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HOP ALPHA ACIDS AND BETA ACIDS



The alpha acids and beta acids are two classes of related compounds that occur naturally in hop flowers. Their chemical structures are similar (alpha acids have one five-carbon chain attached to carbon-6 of a carbon ring; beta acids have two five-carbon chains attached to carbon-6 of a carbon ring), but alpha acids make a greater contribution to beer flavor. Alpha acids generally are more abundant than beta acids, but amounts vary according to the variety of the hop plant (Cascade, Saaz, Golding, etc.). The amounts of alpha and beta acids also are affected by the environment in which a hop plant is grown. This is one reason why it is difficult for homebrewers who grow hops to know how much to add to their beer.

Plant biologists refer to alpha and beta acids as secondary compounds because they are not absolutely necessary for survival of the hop plant (unlike DNA, proteins and lipids). Many plant biologists believe evolution has selected plants that make secondary compounds because they give plants a better chance of survival and

reproduction. Many secondary compounds appear to ward off attack by predators, and this is a possible natural function of the alpha acids and beta acids of hops.

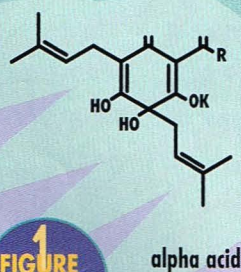
Another reason that hops make alpha and beta acids may be that these secondary compounds, which strongly absorb ultraviolet radiation, act as natural sunscreens for the plant. Because ultraviolet radiation can damage DNA, there are strong selection pressures for plants to reduce such damage. Other plant pigments such as flavonoids have been shown to act as natural sunscreens that prevent DNA damage.

The main types of alpha acids in hops are humulone (35 to 70 percent), cohumulone (20 to 65 percent) and adhumulone (10 to 15 percent). The different alpha acids have similar chemical reactivities because they differ only slightly in chemical structure. The main beta acids are lupulone (30 to 55 percent), colupulone (20 to 55 percent) and adlupulone (10 to 15 percent).

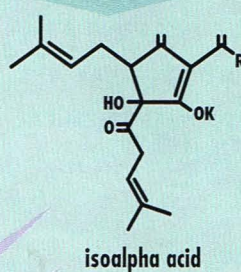
Their chemical reactivities also are similar to one another.

Unisomerized, the three alpha acids have little or no taste, but during the wort boil each type is isomerized (chemically changed) into two different forms of isoalpha acids (cis- and trans- forms). Isoalpha acids give beer its characteristic bitterness, improve head retention and inhibit bacterial growth. Isomerization occurs optimally in mildly alkaline solutions (pH about 10 or 11). Because wort is acidic (pH about 5 or 6) and alpha acids are not very soluble in wort, conversion into isoalpha acids during the wort boil is incomplete, typically between 40 and 50 percent. The concentration of isoalpha acids varies according to beer style, but generally lies between about 10 parts per million (also called IBUs, short for International Bittering Units) for an American light lager and about 60 parts per million for an India pale ale. Many beer styles, because of their ingredients, have other substances that contribute to bitterness, for example, the various chemicals in dark speciality malts.

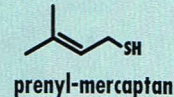
Although alpha acids generally are more abundant and more important in contributing to beer bitterness, beta acids also can contribute. In particular, as hops age, alpha and beta acids become oxidized



wort boil



blue/ultraviolet light



Alpha acids are converted into isoalpha acids during the wort boil, giving beer a hoppy bitterness. In the sun-struck reaction, blue or ultraviolet radiation converts isoalpha acids into prenyl-mercaptan, giving beer a skunky odor.

(chemically combined with oxygen). Oxidized alpha acids cannot be isomerized into isoalpha acids during the wort boil, giving the hops a reduced bittering potential. Oxidized beta acids, however, are themselves bitter-tasting compounds that are soluble in beer and their presence may compensate for the reduction of isoalpha acids. The contribution of beta acids and oxidized beta acids to beer flavor is not well-understood and has received little attention from brewers and hop chemists. Many brewers believe oxidized beta acids have a flavor profile somewhat different from isoalpha acids, and find their presence undesirable. This is one reason homebrewers should always store their hops in containers that do not allow oxygen penetration.

THE SUNSTRUCK REACTION

The sunstruck reaction is a well-known effect that occurs as soon as beer is exposed to light. It can occur at any stage after the formation of isoalpha acids during the wort boil. Thus, homebrewers must keep their fermenters as well as their bottles away from light. The key reaction is photolysis (splitting apart by light) of an isoalpha acid and combination of one fragment with sulfur to form a compound called prenyl-mercaptan. Other foul-smelling chemicals (methanethiol, methional) also may be formed in beer following exposure to light, although their contribution to skunkiness is not as great. Interestingly, the sunstruck reaction does not occur when copper ions are

added to beer. Although the mechanism of this prophylactic effect is unclear, it suggests that using a copper brewing vessel may protect beer from the sunstruck reaction.

Mercaptans have a notorious reputation because, in addition to causing beer skunkiness, they contribute the natural odors of skunks, garlic and onions. In addition, bacteria in our mouths produce mercaptans that contribute to bad breath and mercaptan-producing bacteria in our feces contribute to its characteristic odor. Interestingly, similar sunstruck phenomena occur in wine and milk, even though these beverages do not have any hop compounds.

Unfortunately, the presence of a minuscule amount of prenyl-mercaptan can be disastrous for a bottle of beer. While iso-alpha acids occur at about 10 to 60 parts per million in beer, many people can taste prenyl-mercaptan at a level of about one part per billion. That's like being able to taste one drop in about 12,500 gallons, or 2,500 five-gallon batches of homebrew.

Although isoalpha acids principally absorb radiation in the ultraviolet region of the

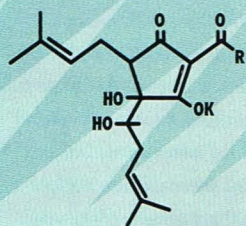
SOME BASIC PHOTOCHEMISTRY

Any molecule in beer that absorbs ultraviolet or visible radiation is a potential trigger for photochemical reactions. Photochemistry begins when a molecule absorbs radiation and is excited to a higher energy level. Sometimes the molecule dissipates this excitation energy as heat or as light of a longer wavelength (fluorescence or phosphorescence). In this case, the energy is said to have been wasted since it did not cause any permanent chemical changes. Under certain conditions, the energy of a light-excited molecule can chemically transform the molecule. In this case, the energy is said to have performed photochemical work. Some examples of photochemical work that can occur in hop compounds include decomposition (see photolysis) and structural rearrangement (see photoisomerization).

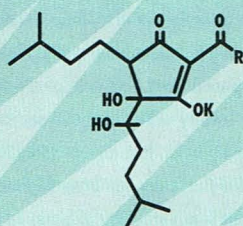
THE CHEMISTRY OF THE SUNSTRUCK REACTION

In the sunstruck reaction, ultraviolet radiation splits off the five-carbon chain attached to carbon-4 of the five-carbon isohumulone ring. This five-carbon chain (3-methyl-2-butenyl radical) then combines with a thiol radical (-SH) to form prenyl-mercaptan (3-methyl-2-butene-1-thiol). The thiol radical presumably comes from a free cysteine (a sulfur-containing amino acid), or from a cysteine attached

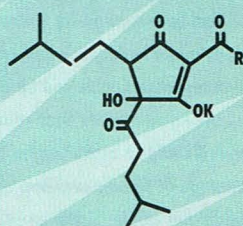
to a polypeptide or protein. Several additional products are formed in this photoreaction (dehydrohumulinic acid and cis-isohumulone). It is believed that flavins, which absorb blue light, pass their excitation energy to isoalpha acids, promoting photolysis. However, the excited state of flavins is significantly lower in energy than the excited state of isoalpha acids, making this reaction energetically unlikely. Clearly, the mechanism of the sunstruck reaction by visible light is not well-understood. Regardless, because yeast cells are full of flavins, the bottle-conditioned beer of homebrewers may be particularly vulnerable to the sunstruck reaction.



Rho-isoalpha acid



Hexa-hydro-isoalpha acid



Tetra-hydro-isoalpha acid



Some hop compounds are less susceptible to the sunstruck reaction and are used by numerous commercial breweries.

Interestingly, ultraviolet radiation also can convert alpha acids into isoalpha acids. For example, irradiation of humulone, under the proper conditions, makes pure trans-isohumulone (a bitter-tasting isoalpha acid). Hop chemists use this photochemical reaction to prepare trans-isohumulone because it is a relatively simple technique for making pure samples. Trans-isohumulone often is used as a chemical standard for bitterness in taste tests.

The yield from the photochemical transformation of humulone into trans-isohumulone is about 90 percent, much higher than the yield of isoalpha acids during the wort boil. Breweries wanting to improve the efficiency of hop utilization may be able to scale up this photochemical reaction by incorporating a "hop photoreactor" within their brewing operation. There is not yet a "hop photoreactor" available for home use, but considering the rapid development of equipment for homebrewers, we may see one in the near future.

Ultraviolet radiation also can convert beta acids into alpha acids. For example, when lupulone, a beta acid, is given ultraviolet radiation under the proper conditions it is converted to 4-deoxy-humulone in a reaction chemists call a "Norris Type II elimination." The 4-deoxy-humulone can be oxidized easily to give humulone, an alpha acid.

Because hop beta acids can be oxidized into compounds that impart a bad taste to beer, breweries could conceivably use a scaled-up version of this photochemical reaction to improve the shelf life of their beers. Furthermore, because alpha acids are precursors of isoalpha acids, a scaled-up application of this photochemical reaction may allow more efficient extraction of bitter acids from hops. The main limitation is that the

yield from this photochemical reaction is rather low, preventing application of this photochemical reaction in breweries and homebreweries at present.

CONCLUSION

Considering the great panoply of photochemical reactions that can occur in beer, it may seem surprising that beer really tastes as good as it does.

However, the flavor of beer is determined as much by the physiology of taste as by the chemistry of the beer. Thus, many of the photochemical reactions that occur in beer form products we simply can't taste. The physiology of taste is extremely complex. While we can only taste a few parts per million of isohumulone, we can taste about one part per billion of prenyl-mercaptan in a sunstruck beer. Nobody really understands how the many different chemicals in beer interact and contribute to overall flavor. This is what makes brewing part art as well as part science.

ACKNOWLEDGEMENTS

The author is grateful to Professor Denis De Keukeleire (University of Ghent, Belgium) for discussing his research on hop bitter acids and his comments on earlier versions of this

manuscript; to Morten Meilgaard (Stroh Brewery), John Paul Maye (Pfizer) and David Hysert (John I. Haas) for discussing photostable hop compounds; and to Rudy Held (Kalsec) for sending literature.

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- Peter Enslinger, an all-grain homebrewer for several years, is an active member of the Salt City Brew Club of Syracuse, N.Y. He has a bachelor's degree in botany from Rutgers University and a Ph.D. in biology from the University of Michigan. He has performed research in different areas of photobiology for 10 years. This article is one of many essays he is writing for "Life Under the Sun," a book about how the sun's radiation influences life on earth.**

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Isoalpha acid — class of isomerized (chemically transformed) hop compounds that impart bitterness to beer

Photochemical reaction — chemical reaction promoted by light

Photoreactor — device designed to facilitate a photochemical reaction

Prenyl-mercaptan — skunky-smelling product of the sunstruck reaction in beer



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By Jeffrey A. Seeley, Ph.D.,
and Todd L. Mansfield, Ph.D.

Nearly everyone interested in homebrewing makes their first forays into this fascinating hobby through the brewing of kit beers. Although many move to the more complex processes of all-grain brewing, thousands of homebrewers are well-satisfied with the ease and quality of their kit-brewing efforts. Certainly it cannot be denied that all-grain brewing is more complicated and time-consuming, and many of us must squeeze our brewing adventures into already overburdened schedules. So, from a time-saving standpoint alone, kit beers are attractive. Hundreds of different homebrewing kits are on the market, enough to keep any weekend homebrewer busy for years. Just glance through the advertisements in this issue of *Zymurgy*, and you will find kit and extract beers designed for brewing nearly every recognized style of beer.

Which kits are the best? Most homebrewers have their own way of evaluating their beer, depending on their likes and dislikes, and perhaps the comments of friends or fellow brewers. We all have made brews we loved, caring little whether the attributes matched some printed requirements (ranges, really) for the beer style we were attempting to recreate. But using these attribute guidelines is also a crucial way of determining the quality of kit beers. Brewing to style is something homebrewers must do well if they intend to enter beers in competitions and have them receive good marks from discerning beer judges. Brewing to style is an interesting challenge that provides another dimension to our hobby even if you don't enter your beer in competitions.

A kit purports to produce, say, a British brown ale. How close to the classic style do beers brewed from this kit come? And are there any quick and simple modifications that a homebrewer could make to improve a kit beer?



The materials and laboratory tests for this original research project were paid for by the AHA.

"... thousands of homebrewers are well-satisfied



Table 1. Commercial Examples

Southern Style: Northern Style:

Mann's Brown Ale	Newcastle Brown Ale
King & Barnes Brown Ale	Samuel Smith's Nut Brown Ale
Theakston Old Peculier*	Vaux Double Maxim Brown Ale
(*Papazian's classification, Jackson calls it an "olde ale")	

Background of Brown

The first step necessary to succeed in brewing to style is to be familiar with the style itself. The brown ale style comes to us from some of the earliest beers brewed in Britain. Until the early 1700s, lighter colored beers could not be produced because controlling temperatures during malt kilning was difficult. As a result of uneven kiln temperatures an appreciable fraction of malt was burned. This varying quantity of darkened malt resulted in beers that were brown, often dark brown. According to Darryl Richman in *Zymurgy* Special Issue 1991 (Vol 14, No. 4), brown ales originally were brewed in regions where the water was high in temporary hardness from calcium carbonate or chalk. Because high levels of chalk emphasize the harsh notes of bittering hops, these beers had an emphasis on malt sweetness rather than on hop flavor or bitterness. A modern brown ale typically will have fewer than 25 IBUs of bitterness. Hopping schedules are simple: a single addition of Kent Goldings or Fuggles early in the boil. Additions of hops for high aroma or flavor are not common among the true British brown ales.

Two distinctly different styles of brown ale are produced in Britain, often referred to as the southern and northern styles, though both are available throughout the United Kingdom. According to Michael Jackson in *The New World Guide to Beer* (Running Press, 1988), the oldest version is the southern style, originally considered to be a London style like the other famous London ale, porter. This version of brown ale is brewed at the lower end of the style's gravity range (1.031 to 1.040) and is

mashed at a higher temperature (around 155 degrees F or 68 degrees C) to achieve a low-alcohol, sweetish brew. The southern style is typically light to dark brown in color (25 to 47 SRM). The flavor should emphasize malty sweetness with some hint of caramel. Little or no hop flavor or aroma should be noticed and bitterness should be in the 15- to 20-IBU range.

The southern brown ale closely resembles another style once extremely popular throughout England, mild ale. Many consider mild to be the draft form of brown ale, or alternatively, they consider brown ale to be the bottled form of mild, though typically the brown ale has a slightly higher alcohol content than the mild, according to *Winners Circle* (Brewers Publications, 1989). Both the southern brown and mild were long considered the drink of the blue-collar worker, because their low alcohol content allowed these beers to be consumed in fairly large quantities. It has also been suggested that because beers were taxed on ingredients, brown and mild brewers produced lower-alcohol brews and used more non-taxable ingredients like maple syrup. Once every pub offered its own brown, but now most simply resort to carrying the one or two made by national breweries. Perhaps it was this image of the mild and brown ale as the drink of the working class that led to its gradual loss in popularity as the younger generation of British beer drinkers sought to distinguish themselves from their elders.

The northern version of brown ale often possesses a nutty character and a light amber brown color (15 to 25 SRM), typically much lighter than the brown ales of the south. The style is decidedly younger than its southern counterpart. In fact, Newcastle Brown Ale was developed in 1927 as an an-

swer to the lighter pale ales being brewed in central Britain. The northern style is typically brewed to the higher end of the gravity range (1.045 to 1.050) and at lower mash temperatures (150 degrees F or 66 degrees C). The aroma should have a balance of caramel and subtle hops. A mild hop bitterness is appropriate (20 to 34 IBU), but should be balanced by maltiness.

Unlike its cousin, the northern brown ale has actually undergone a renaissance among trendy drinkers of the United Kingdom. In fact, Newcastle Brown Ale is the best-selling bottled beer in Britain. "Newky Brown" also is the most widely distributed British brown ale available in the States, with Samuel Smith's Nut Brown Ale being almost as well-known.

The grists of both the northern and southern style are similar with the northern brown containing predominantly pale and crystal malt (essential to achieve the color and residual sugar profile) and the southern brown having a variety of darker malts including chocolate, roasted and black malts for color. Some breweries include small additions of raw brown sugar or molasses. The mash is highly dextrinous, leading to beers with significant unfermentable sugars, having medium to full body and mouthfeel. Both versions of brown are bottled with little dissolved carbon dioxide.

For a list of commercial examples, see Table 1. If you can't find any of the true British brown ales listed above in your favorite tavern or package store you could try an American interpretation of brown ale. Although we did not attempt to brew American brown ales, they are tasty and should be sampled if you can't find the real item. Pete's Wicked Ale from Pete's Brewing Co., Palo Alto, Calif., is perhaps the best known and most widely available brown ale produced in the States. Pete Slosberg admits he was attempting to recreate his favorite British brown ale, Samuel Smith's Nut Brown Ale, and failed. The result, Pete's Wicked Ale, is hop-pier (29 IBU from Cascades) and the aroma is more intense from dry-hopping with Brewers Gold. The strength is higher than its British cousin, having a starting gravity of 1.052.

with the ease and quality of their kit-brewing efforts."

We summarized some of the beer style's attributes (mostly from Michael Jackson's books, see References) and compare color, bitterness and gravity ranges with those published in the *North American Brewers Resource Directory* (BRD), (Brewers Publications, annual) in Table 2.

The differences between the two respected sources and the wide ranges within each indicate there are debates about what attributes are appropriate for a British brown ale. Obviously, numbers say only so much about the quality of a beer. The beers we made for this article have been analyzed for the attributes listed here and several others. From our perspective, if the numerical attribute fell within either the BRD or Jackson's ranges the beer meets stylistic guidelines. We also (perhaps obviously) evaluated the beers based on a sensory attributes. We were looking for a beer that had some body, residual maltiness and little noticeable hop aroma or flavor.

Brewing Technique

Most beginning brewers will purchase a kit from the store and proceed to make it following the directions printed on the can. Most kit manufacturers want to make the beer-making process appear as simple as possible. Whether this does a disservice to potential homebrewers or not is subject to debate. Package directions often instruct the brewer to add the malt extract and corn sugar to cold water, pitch with the sachet of dried yeast and allow the wort to ferment — that's it. This simple approach can lead to fermentation problems and the development of off-flavors. Not boiling the wort may negate the sanitation you worked so hard to achieve. The use of corn sugar could introduce unpleasant cidery-winy aromas and flavors to the finished beer. The long lag times that may result by simply sprinkling dry yeast onto the surface of the wort may allow wild yeast or bacteria to multiply and give medicinal, phenolic or vegetable odors and flavors to the beer.

Although kit instructions do emphasize the need to thoroughly clean and sterilize

homebrewing equipment, complete sterilization is nearly impossible. Sanitation suitable for homebrewing purposes, however, can be achieved. This means you use chemical agents to significantly reduce the number of wild yeast and bacteria that remain viable in and on your equipment. But you will have equipment known to have a small population of unwanted microbes present. Then you are going to add water, inactive dry yeast and a nutrient-rich medium to these vessels. During the time it takes for many dried yeasts to hydrate, acclimate to the wort medium and begin fermentation the wild yeast and bacteria present can begin to multiply and may result in off-flavors and aromas to the beer.

Manufacturers often use the same yeast for all kits they make regardless of style. The problem then is, although the yeast may be perfectly fine for producing a quality dry stout, it simply does not leave sufficient residual sugar to produce a classic brown ale.

More experienced homebrewers recommend a few simple alterations be made to the manufacturers' directions. These techniques are specifically designed to solve the above problems. The extract can be added to warm water, then boiled for 30 minutes

to one hour. This will improve sanitation and promote protein coagulation, thereby making the beer less prone to chill haze later. To reduce cidery flavors add malt extract instead of corn sugar. Some recipes benefit from the addition of aroma hops to the end of the wort boil because hop aroma compounds often are lost during the production of malt syrup and are further reduced during the wort boil. While the brown ale style does not possess a huge hop aroma like its cousins the pale ales, a slight aroma might be appropriate for the northern style.

You can improve the chances significantly for great beer if you pitch a healthy, active brewing yeast population. It also helps if the brewers yeast is in the most active stage of fermentation, right after high krausen, so the cells immediately begin to multiply in the fresh wort and quickly metabolize the sugars that wild yeast and bacteria need before they can introduce fermentation problems. You can improve the viability of dry yeast by hydrating it for 15 to 30 minutes before pitching. Simply boil one-half cup of water, cool to between 90 and 110 degrees F (32 and 43 degrees C), add the dry yeast and allow it to sit. When ready to pitch swirl the yeast mixture to



Table 2. Brown Ale Style Guidelines

	BRD/AHA Guidelines	Jackson
Original gravity	1.040 - 1.050	1.030 - 1.058
Final gravity	1.008 - 1.014	1.005 - 1.022*
Alcohol (wt.)	3.3 - 4.7%	3.5 - 4.4%
Bitterness (IBU)	15 - 25	20 - 34
Color (SRM)	15 - 22	28 - 54

(*estimate based on OG range and alcohol range)

AHA 1996 category description:

"English browns range from deep copper to brown in color. They have a medium body, and a dry to sweet maltiness dominates with very little hop flavor or aroma. Fruity-estery flavors are appropriate. Diacetyl should be very low, if evident. Chill haze is allowable at cold temperatures."



"...brown ale has actually undergone a renaissance..."

suspend the yeast cells and pour into the fermenter. Alternatively, a liquid yeast culture can be purchased and used according to the package instructions. Most homebrewers would agree that the choice of proper yeast makes a big difference between a drinkable brew and a classic beer.

We made two batches of beer from each kit, one following the directions provided and one using the above strategies. During the blind sensory evaluation it was relatively easy to distinguish between the two batches — the modifications really improved the quality of the product. A summary of the ingredients used is presented in Table 3.

Yeast: For all the first batches except for Munton and Fison, the dry yeasts were simply sprinkled onto the cooled wort as specified in the instructions. For the Munton and Fison kit the yeast was hydrated in three ounces (88.7 mL) of 100-degree-F (38-degree-C) boiled water 15 minutes before pitching into the cooled wort, according to instructions. For the second, modified batches, a starter was made of either Wyeast No. 1968 or No. 1098, depending on style. A single three-quart (2.8-L) starter of each strain was made by boiling one gallon (3.8 L) of tap water, removing it from the heat and adding one-half pound of Laaglander light dry malt extract (DME). The DME was stirred into the water to completely dissolve it then the pot was returned to the burner and boiled vigorously for 40 minutes. When boiling was

complete the remaining liquid was poured into a sanitized, heated one-gallon glass bottle. An airlock filled with 100-proof vodka was attached, and the wort was allowed to cool overnight. In the morning the swollen packets of Wyeast were sanitized in a 12.5 ppm solution of iodophor, opened with a pair of sanitized scissors and the contents poured into the respective starter cultures. When the modified beers were ready for pitching, about one quart (0.9 L) of the appropriate starter, at high kraeusen, was poured into the fermenter.

Extra Sugar: Laaglander light DME was substituted for corn sugar in recipes that called for extra sugar. One pound of Laaglander DME adds about 1.040 gravity points per gallon, while corn sugar adds about 1.035 gravity points. For each batch we added an amount of DME that would exactly equal the gravity of corn sugar if added according to the manufacturer's recommendations.

Water: The brewing water was adjusted to the mineral content appropriate for each style ($\pm 20\%$), then boiled for 30 minutes and stored for less than six hours in sealed sanitized carboys prior to brewing. Table 4 lists the average mineral content of Newcastle and London water compared to our water in Cincinnati.

allowed to drip dry for one hour prior to use. For the first batches, made according to manufacturers' directions, the vessels were filled with two gallons (7.6 L) of preboiled brewing water chilled to 45 degrees F (7 degrees C), then the extract and corn sugar were added and stirred in with a sanitized spoon. The only exception was with the Munton and Fison batch, which was boiled in 1 1/2 gallons (5.7 L) of water for five minutes. The hot wort was poured into two gallons (7.6 L) of cold water in the fermenter. Sufficient brewing water was then added to bring the wort to the exact volume specified in the kits' instructions. The worts were then allowed to rest at cellar temperature (68 degrees F or 20 degrees C) for about three hours until they equilibrated at this temperature, then the packaged yeasts were pitched and the fermenting vessels sealed with an airlock.

For the second batches, the contents of the cans and any additional DME were added to 1 1/2 gallons (5.7 L) of hot water and boiled for 30 minutes. The hot wort was poured into two gallons (7.6 L) of cold water in the fermenter. Sufficient brewing water was then added to bring the volume of wort to the exact volume as specified in the kits' instructions. The worts were allowed to rest at cellar temperature (68 degrees F or 20 degrees C) until they all came to this temperature, then about one quart (0.9 L) of the appropriate starter was pitched and the fermenting vessels sealed with an airlock. All 10 batches were allowed to ferment at 68 degrees F (20 degrees C) for 12 days before bottling.

Fermentation

The worts were fermented in glass carboys sanitized using a 12.5 ppm solution of iodophor for 30 minutes of contact time and



Table 3. Ingredients

	Extract	Final vol.	Dextrose	Boil time	Yeast	Modifications		
	lbs.	(US gal.)	added	(minutes)		DME added	Boil time	Yeast
Northern								
Ironmaster	4	6	2 lbs. 3 oz.	—	dry w/kit	1 lb. 12 oz.	30	Wyeast 1968
Munton & Fision	4	6	2 lbs. 3 oz.	—	dry w/kit	1 lb. 12 oz.	30	Wyeast 1968
Southern								
John Bull	4	6	2 lbs. 3 oz	—	dry w/kit	1 lb. 12 oz	30	Wyeast 1098
Edme	4	6	2 lbs. 8 oz.	5	dry w/kit	1 lb.	30	Wyeast 1098
Mountmellick	4	3.6	—	—	dry w/kit	—	30	Wyeast 1098



Table 5: Analytical Evaluation of Brown Ale Kits

	Color (SRM)	Bitterness (IBUs)	OG	TC	Alcohol (% wt.)	Reducing Sugar	pH	Acidity (% lactic)	Diacetyl (ppm)
Beer made per instructions:									
Ironmaster	18	23	1.036	1.004	3.51	0.91	4.44	0.14	0.1
Munton & Fison	35	11	1.034	1.004	3.24	0.93	4.17	0.17	0.01
Edme	45	34	1.038	1.005	3.69	0.92	4.31	0.24	0.05
John Bull	23	12	1.034	1.005	3.25	0.93	4.64	0.11	0.02
Mountmellick	39	24	1.033	1.004	2.61	0.98	4.57	0.18	0.01
Beers made with simple modifications:									
Ironmaster	22	21	1.033	1.015	2.10	1.31	4.71	0.13	0.01
Munton & Fison	44	12.5	1.030	0.016	2.05	1.29	4.49	0.17	0.01
Edme	43	38.5	1.031	1.014	2.17	1.13	4.73	0.16	0.01
John Bull	27	13.5	1.033	1.013	2.48	1.15	4.69	0.13	0.02
Mountmellick	42	21	1.036	1.009	3.29	1.13	4.47	0.18	0.09

(Highlighted values indicate those that fall outside the stylistic range for brown ales.)

Bottle Conditioning

When fermentation was complete the beers were racked from their primary fermenter into a sanitized plastic bucket containing sufficient priming sugar. Each batch was primed by adding one-tenth of a cup of corn sugar per gallon of beer. The corn sugar was dissolved in 1 pint of water and boiled for 15 minutes just prior to bottling. The beer was then bottled in 12-ounce amber longneck bottles and allowed to condition at 70 degrees F (21 degrees C) for one week prior to shipment by express mail to the Siebel Institute of Technology in Chicago, Ill., for analysis. The beers used for the sensory analysis were bottle conditioned for three weeks before tasting.

Beer Evaluation

The earliest observation we made was that the wort original gravities all were significantly lower than what the manufacturers indicated in their instructions. All of the kits suggested the original gravities would be between 1.040 and 1.044. None

of our worts were within this range (see Table 5). We carefully rechecked the volume on our brewing equipment and rechecked our understanding of the instructions. We should note that only the Mountmellick instructions called for a volume of less than five U.S. gallons (19 L). All other kits called for 40 imperial pints (five imperial gallons, or 22.7 L), which corresponds to six U.S. gallons. Homebrewers who do not carefully read the instructions may not realize the British kits are designed for six U.S. gallons (22.7 L) of beer. However, based on our experience, if they brew five gallons of beer from the kits they might actually come closer to the gravity targets suggested on the labels.

The Siebel Institute of Technology performed the analytical testing of the beers. A summary of their analyses is presented in Table 5.

These numerical values indicate that most all of the beers' attributes fall within the ranges specified by the various authorities on style. Where the numerical value lies outside the range the item is highlighted. Quite a few of the beers brewed using dry malt extract did not attenuate to the extent the corn sugar beers did. Therefore

many of the modified beers did not attain the percent alcohol level that is typical of a brown ale. But analytically derived numbers can only say so much about the quality of a beer. To characterize the beers and determine how they might have fared in a homebrewing competition, we performed a sensory evaluation.

A blind tasting was conducted to evaluate the 10 samples of brown ale. Six judges, from apprentice to BJCP National, evaluated the brews and commented in the standard BJCP format. Numerical scores were not assigned, but each beer was given an overall evaluation that corresponds to the numerical ranges found on the AHA Beer Score Sheet. The judges' comments are summarized in Table 6.

Our sensory evaluation shows that, with a few exceptions, the extracts produce ales with color, clarity, bitterness and head retention appropriate for classic brown ales. As a group, these brown ales were low in maltiness and body. This should not be surprising since all were significantly lower in starting gravity than the manufacturers suggested they would be. The judges indicated that only one beer had sufficient body to adequately exemplify the style. The most obvious distinction between the beers was in aromas and flavors. Yeast metabolism and infections seemed to play the most influential role in determining the sensory character of the various beers.

All of the beers made according to the manufacturers' instructions suffered from flaws our judges attributed to a poor choice of yeast. (They were unaware that these

Table 4. Water

Water Source	Calcium	Magnesium	Sodium	Carbonate	Sulfate	Chloride
Newcastle (average*)	26 ppm	9 ppm	6 ppm	39 ppm	21 ppm	11 ppm
London (average*)	64 ppm	24 ppm	132 ppm	168 ppm	121 ppm	98 ppm
Cincinnati (before adjustments)	40 ppm	6 ppm	12 ppm	55 ppm	80 ppm	10 ppm

*From *Treatment of Brewing Water*, A.J. Schoellfeld, 1950.



Table 6: Sensory Evaluation of Brown Ale Kits

	Body	Color	Clarity	Bitterness	Head	Overall impression
Beers made per instructions:						
Ironmaster	thin	copper	clear	low-med.	OK	Fermentation problems, cidery aroma/taste, little malt flavor, drinkable.
Munton & Fison	thin	dark amber	clear	low-med.	low	Fermentation problems, cidery aroma/taste, little malt flavor, drinkable.
Edme	thin	dark copper	clear	low-med.	OK	Infected, intense phenolic aroma, masked all other at tributes, problematic.
John Bull	thin	dark copper	clear	low-med.	OK	Fermentation problems, cidery aroma/taste, little malt flavor, drinkable.
Mountmellick	thin	dark copper	clear	low	OK	Fermentation problems, cidery aroma/taste, little malt flavor, drinkable.
Beers made with simple modifications:						
Ironmaster	thin	copper	clear	low-med.	OK	Clean fermentation, some roasted, caramel flavors, appropriate esters, good.
Munton & Fison	thin	dark amber	clear	low-med.	OK	Clean fermentation, a grainy malt flavor, appropriate esters, good.
Edme	thin	dark copper	clear	low-med.	OK	Clean fermentation, slight taste of chocolate or black malt, good.
John Bull	medium	dark copper	clear	medium	OK	Clean fermentation, good level of residual malt flavor, grainy, appropriate esters, very good.
Mountmellick	thin	dark copper	clear	low-med.	OK	Clean fermentation, slight caramel malt flavor, noticeable diacetyl, good.

beers had been made with dry yeast.) Comments consistently mentioned fermentation problems, which can be explained most easily by the long lag times that these beers experienced. More than 20 hours elapsed before the beers pitched with dry yeast showed signs of a kraeusen. By contrast, the beers pitched with liquid yeast had developed a kraeusen within 12 hours of pitching. The long lag time in the first set of beers may have allowed bacteria that hadn't been eliminated adequately from the fermenters, or which came in with the dried yeasts or the unboiled wort, to produce perceptible levels of off-flavors and aromas. Infection was most prominent in the Edme beer. The phenolic aroma and taste were so severe that we

could not give the beer a rating of drinkable. The Ironmaster and the Mountmellick beers were judged

to be the better of these beers. Neither had more than a slight perceived acidity or any of the cabbagelike or phenolic character noticed in the other three. Only the cidery notes caused by corn sugar and the low residual malt flavor kept these beers from being given a higher overall rating.

The beers pitched with liquid yeast had much cleaner tastes and aromas. None of the judges made comments indicating problems caused by infection. The Mountmellick did have higher levels of perceived diacetyl (verified by the analytical summary). By using vigorous yeast starters for these beers we avoided the introduction of off-aromas and off-flavors that marred the first set. Thus, the malt character of these beers could more easily be recognized, where it had been masked by the products of infection in the first set of beers. All of the extracts possess the sweet, occasionally nutty, toffeelike or mildly roasted character of the British brown ale. Our only complaint with the modified beers was that they still lacked the level of

residual malt character that the style demanded. Again, this is because the original gravities were not what they should have been. Had these beers been brewed using about 20 percent less water (e.g., five U.S. gallons for all but the Mountmellick) or about 20 percent more malt extract, they might have turned out perfectly. Of the modified beers we were most pleased with the John Bull, generally regarded by the judges as one that exemplified the brown ale style quite well. If it had just a pinch more residual malt character we would have packed it up for the first round of the AHA National Homebrew Competition.

Brewing beer is rewarding on many levels. You can brew great beer without paying any attention to how closely it matches a recognized style. But if you choose to enter your beer in sanctioned competitions and if you want to win an award you probably need to familiarize yourself with the various recognized styles. Kits designed to reproduce these classic styles can come very close

"Brewing beer is rewarding on many levels."

to the mark with respect to meeting stylistic guidelines. However, a few simple modifications to the manufacturers' instructions may allow you to turn a drinkable beer in to an award winner. Of the brown ale kits we tried, the Ironmaster and Mountmellick produced the best beers right out of the can. But if you're willing to give a little more to your beer, go with John Bull. It will be well worth the effort.

Acknowledgements

Our thanks to Charlie Olchowski of Frozen Wort, Greenfield, Mass., for providing quality ingredients quickly and for his advice on brewing techniques. Thanks to Homer Selman of Wines and Brews of Cincinnati, Ohio, for providing additional brewing material. Thanks to Ilse Shelton of the Siebel Institute of Technology in Chicago, Ill., for coordinating the chemical analyses performed on the beers. Thanks to our friends from the Cincinnati Malt Infusers and the Blotarian Brewing League of Cincinnati who helped us brew and evaluate the beers. Special thanks to our wives, Elaine Seeley and Michelle Mansfield, for supporting us in our hobby.

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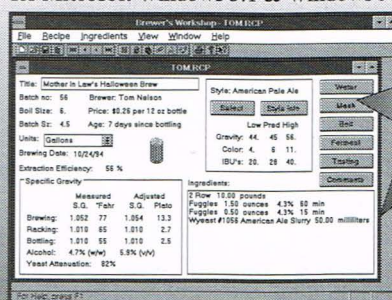
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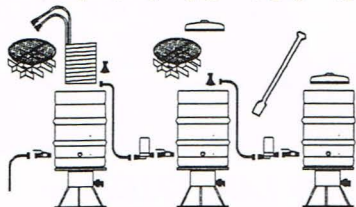
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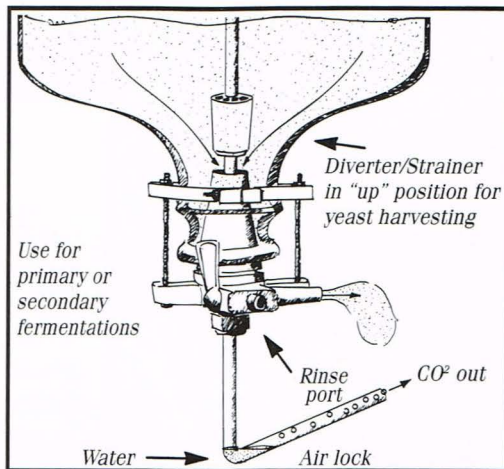
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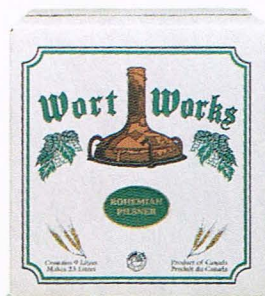
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typically rely on a few simple methods to cool wort: natural cooling, forced cooling (bucket in the bathtub), immersion chillers and counterflow chillers. There are many other methods limited only by the imagination, ingenuity and cash reserves of the brewer. Natural cooling especially and forced cooling methods allow the wort to remain in the critical temperature ranges at which bacteria thrive for an unacceptably long period of time. This increases the risk of infection and may unnecessarily lengthen the brewing session. The use of a wort chiller can provide rapidly cooled wort that results in the formation of a good cold break, reduces the time the wort spends in the critical temperature range and allows one to pitch an active yeast culture sooner.

If you read our previous article, "From Hot to Cold: A Cool Brew Cruise," on wort chillers in *Zymurgy* Spring 1996 (Vol. 19, No. 1), you probably noticed that we limited ourselves to counterflow chillers and left the immersion chillers for this issue. "How logical," you might have thought, "that will keep things clean and simple. Compare apples to apples, and keep the amount of information to a reasonable level. How tactful to neatly sidestep the counterflow vs. immersion debate."

We sheepishly admit, however, that you would be wrong. In reality, when the first round of testing was conducted and the data analyzed, we soon realized that to use our immersion chiller test results for an article in *Zymurgy* would have been grossly irresponsible. The testing of the counterflow chillers

BY DANIEL S. MCCONNELL, PH.D. & KENNETH D. SCHRAMM

PART 1, "FROM HOT TO COLD: A COOL BREW CRUISE," BY DANIEL MCCONNELL AND KENNETH SCHRAMM, APPEARED IN *ZYMURGY* SPRING 1996 (VOL. 19, NO. 1) AND FOCUSED ON COUNTERFLOW WORT CHILLER DESIGNS. IN PART 2, THE RESULTS OF IMMERSION CHILLER TESTS ARE REPORTED HERE. — ED.

I M M E R S I O N



arker Be

For a full

C H I L L E R S



Ken dipping an immersion chiller in a brewpot.

was fairly straightforward: set the things up, run the wort through and accurately record the results. It would seem the same would be true for the immersion chillers, but such was not the case.

During the original testing session, several Ann Arbor Brewers Guild members helped with the testing. The procedure for testing the immersion chillers called for starting the chiller and the clock when the wort reached 210 degrees F (99 degrees C), recording temperatures and stirring at five-minute intervals until the end temperature of 70 degrees F (21 degrees C) was reached, stopping the clock and measuring total out-flow volume. Bad move. With several peo-

ple doing the testing, the procedure was far from uniform. This was no fault of the AABG guys, who were doing their best and donating a Saturday to make hot wort cold and cold wort hot, and wouldn't even get any beer. Some stirred for 10 seconds, some 60. Others agitated the wort by pumping the chiller up and down in the kettle. To summarize, wort treatment was not uniform, the results were unusable and we had wasted a day. Sort of. So we decided not to publish the data. We learned a valuable lesson: Stirring the wort during cooling with an immersion chiller dramatically increases the rate of cooling.

Getting back to the issue at hand, we retested six immersion wort chillers in one session with a uniform procedure, the key feature being that the "wort" was recirculated with a pump during cooling to achieve a maximum cooling rate.

experimental run. The first "wort" (hot water) out of the chiller was collected and used in the subsequent trial. Ambient air temperature was a constant 65 degrees F (18 degrees C).

Chillers were evaluated for completeness (were additional parts of any kind needed); clarity of instructions, safety (was the user at risk of scalding, etc.), ease of use (was the chiller easy to manage, easy to hook up to a cold water source, etc.) and efficiency (the faster the chiller produces cool wort using the least amount of water, the better). We ranked them outstanding (quality or performance well beyond all expectations); excellent, (complete, well-designed, safe and a good value); very good (meets the specified requirements and needs well); good (meets the specified requirements and needs, but no frills); average (meets requirements, but may have some very minor problems); poor (major problems, not recommended) and useless (no redeeming social val-

TABLE 1. FLOW DATA. CHILLERS WERE TESTED FOR THEIR ABILITY TO COOL A STANDARD FIVE-GALLON POT OF BOILING RECIRCULATED WATER TO 70 DEGREES F (21 DEGREES C).

MANUFACTURER	INITIAL TEMP.	FINAL TEMP.	COOLING WATER TEMP.	TIME TO COOL 5 GAL	PUMP FLOW (GAL/MIN.)	COOLING WATER FLOW (GAL/MIN.)	WATER VOLUME (GAL) USED
A BEVERAGE PEOPLE	210	70	41	14:51	0.8	0.7	10
B BREWERS RESOURCE 25'	210	70	41	20:49	0.8	0.7	14
C BREWERS RESOURCE 50'	210	70	41	16:32	0.8	0.7	12
D G.W. KENT	210	70	41	21:29	0.8	0.7	15
E KOCH'S KOOLER	210	70	41	20:32	0.8	0.7	14
F WILLIAM'S BREWING	210	70	41	19:46	0.8	0.7	14

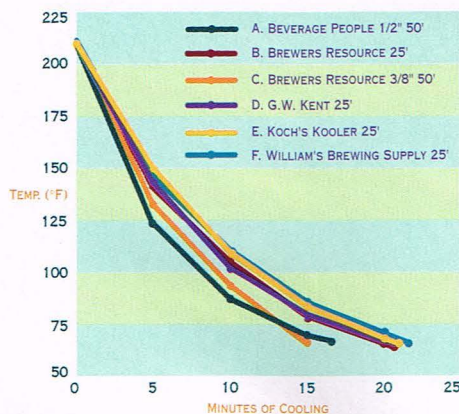


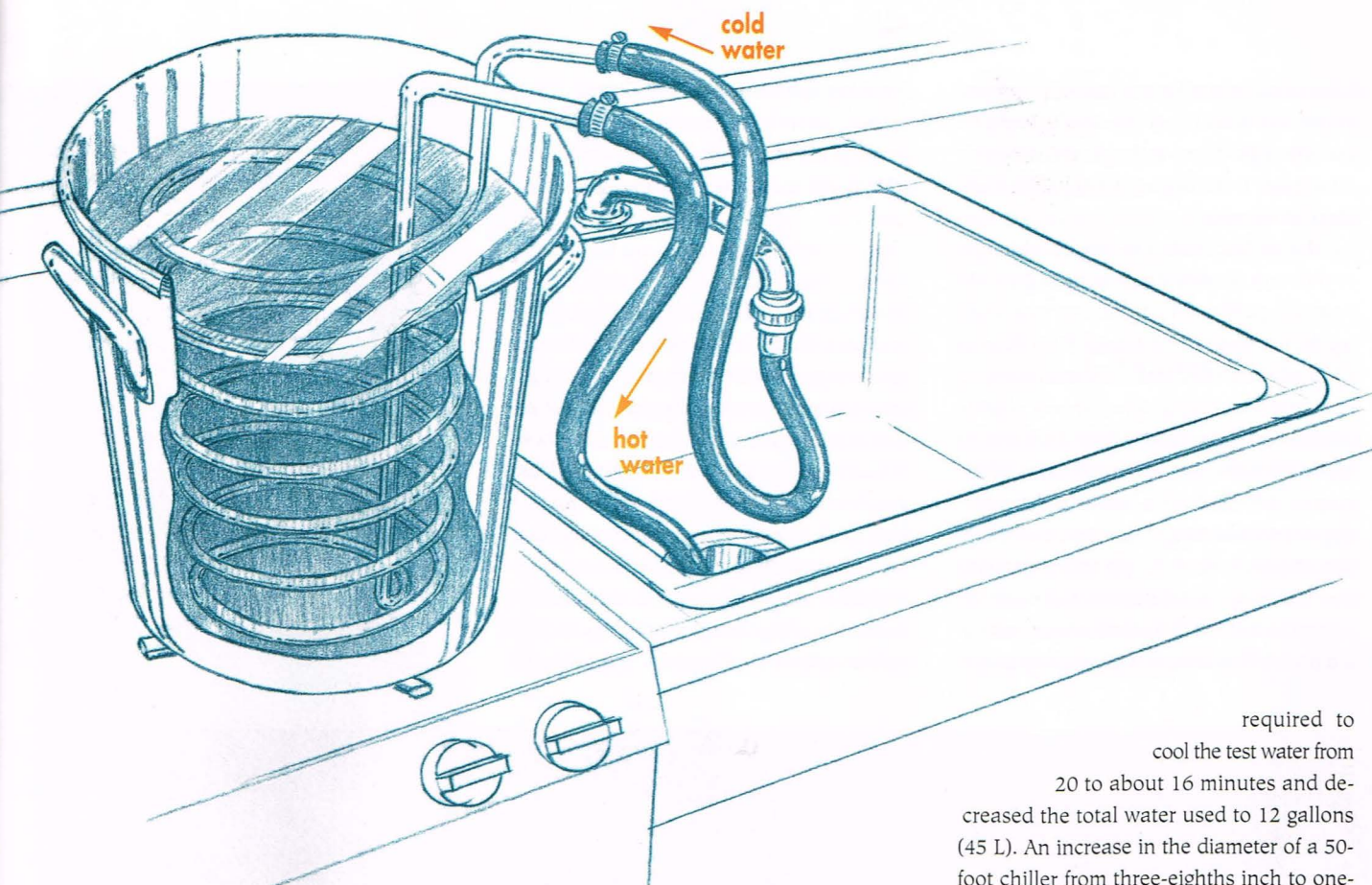
FIGURE 1. Cooling profiles for five gallons of water cooled with the wort chillers. Temperature was recorded at five-minute intervals and cooling was stopped at 70 degrees F (21 degrees C).

Experimental Methods

Each trial consisted of bringing five gallons (19 L) of tap water to a boil in a 10-gallon (38-L) stainless-steel pot containing the chiller to be tested. This "wort" was then cooled with the chiller (using cold tap water as coolant) as the data were gathered. At time (T)=0 we simultaneously extinguished the heat, started the coolant water flow and started the pump to circulate the "wort" as it cooled. This enabled maximum efficiency of the chilling process. Temperatures were taken and coolant flow measured at five-minute intervals. The test was stopped and the time recorded when the cooled "wort" reached 70 degrees F (21 degrees C). Pump flow was measured following each

ue, dangerous and/or a waste of money or time).

For the immersion chillers, we measured cooling water flow rate, initial temperature (210 degrees F or 99 degrees C for all trials), cooling water input temperature (41 degrees F or 5 degrees C for all trials), final temperature, pump flow rate and time to cool five gallons. Water flow was calculated by using a stopwatch to time the filling of a standard two-quart measure, time to fill a five-gallon plastic water jug and back-calculated from the total volume of cooling water used. Temperatures were taken with a Fluke (Model 51 K/J) or Electro-Therm (Model SH66A) digital thermometer calibrated against each other and accurate to within one-tenth of a degree. The pump used was manufactured by March Mfg. Inc., Glenview, Ill. (Model # 809-2).



Results

The experimental results are presented in Table 1. We were careful to maintain a uniform rate of coolant water flow. All three-eighths-inch-diameter 25-foot chillers performed similarly as would be expected, and

the test water to 70 degrees F (21 degrees C) in roughly 20 minutes. At our standard flow rate of 0.6 to 0.7 gallons (2.3 to 2.6 L) of coolant water per minute, this resulted in a water usage that ranged from 14 to 15 total gallons (53 to 57 L). Increasing the length of a three-eighths-inch-diameter chiller from 25 feet to 50 feet decreased the time

required to cool the test water from 20 to about 16 minutes and decreased the total water used to 12 gallons (45 L). An increase in the diameter of a 50-foot chiller from three-eighths inch to one-half inch resulted in a further decrease in time to about 15 minutes and a reduction in water used to 10 gallons (38 L).

We recorded the test water temperature at five-minute intervals throughout the cooling process. These results are presented in Figure 1. It is apparent that the four 25-foot chillers tested (B, D, E and F) performed in

TABLE 2. PHYSICAL DATA FOR THE WORT CHILLERS. ALL CHILLERS ARE CONSTRUCTED OF COPPER AND PLASTIC OR VINYL TUBING. ALL CHILLERS CAME EQUIPPED WITH HOSE CLAMPS TO PREVENT DISCONNECTION OF THE TUBING UPON WARMING AND SOFTENING. THE MANUFACTURERS' STATED LENGTH IS LISTED IN THE TABLE.

MANUFACTURER	MFG. SUGGESTED RETAIL PRICE	COPPER LENGTH	COPPER HEIGHT	COPPER DIAMETER	HOSE LENGTH	INPUT HOSE FITTINGS	OUTPUT HOSE FITTINGS	FITTING TYPE	HOSE TYPE
A BEVERAGE PEOPLE	\$45.00	50'	21"	1/2"	0"	†	MALE HOSE	COMPRESSION	△NONE
B BREWERS RESOURCE 25'	\$28.90	25'	19"	3/8"	*15'	†	‡NONE	CLAMP	CLEAR PLASTIC
C BREWERS RESOURCE 50'	\$49.90	50'	26"	3/8"	0"	†	MALE HOSE	COMPRESSION	△NONE
D G.W. KENT	**	25'	0"	3/8"	3.5, 3.5'	†	‡NONE	CLAMP	CLEAR PLASTIC
E KOCH'S KONCEPTS	\$45.00	25'	16"	3/8"	5.5, 6'	†	‡NONE	CLAMP	CLEAR/GREEN
F WILLIAM'S BREWING	\$28.90	25'	10"	3/8"	*10'	†	‡NONE	CLAMP	CLEAR PLASTIC

† ALL TESTED CHILLERS HAD FEMALE HOSE CONNECTORS ON THE INPUT SIDE.

‡ THESE CHILLERS CAME FULLY EQUIPPED WITH A LENGTH OF TUBING THAT WAS SUFFICIENT TO DIVERT OUTFLOW WATER TO A NEARBY DRAIN.

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△ THE USER MUST SUPPLY A SHORT LENGTH OF BOTH INPUT AND OUTFLOW GARDEN HOSE.

a remarkably similar manner. The cooling curves all fall on top of one another with no real rate differences among them. All reach 70 degrees F (21 degrees C) in a little more than 20 minutes.

The 50-foot chillers (A and C), although of different diameter and mass (10 vs. six pounds), performed similarly as well, cooling the test water to 70 degrees F (21 degrees C) in about 15 minutes. It is interesting to note that the cooling slopes appear slightly different for these two chillers. This is most likely because of the thermal mass of the copper. Chiller A (one-half inch-diameter) appears to take longer to begin cooling, apparently because of the lag time required to cool the mass of hot copper, but once the copper is cold the increased mass results in a more rapid cooling rate when compared to

the three-eighths-inch model. Clearly, much of this is merely suggested by the data and greater testing rigor would be required to unequivocally make these claims.

Discussion

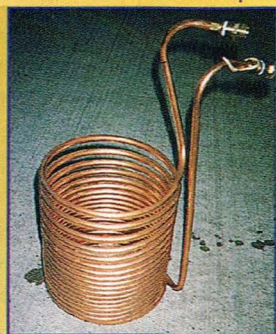
Most of the chillers were well-constructed and built to last many years. All were straightforward units that did not require extensive instructions for operation. All were easy to use. We particularly liked the design of the Koch's Kooler (Koch's Concepts). The solderless copper weave that holds the coils rigid and separate is a unique and well-executed concept. Both of the 50-foot units offer plenty of cooling capacity for five-gallon (19-L) batches. Their size and

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Chiller A (Precision Wort Chiller, 50-foot length, 1/2-inch outside diameter) was the only one-half-inch diameter unit we tested. It had fittings but no hoses and the upright neck design but with shorter necks than chiller C. This resulted in more of the length of copper being used for the coils. Indeed, the top coil on chiller A was not submerged in our test, indicating that it could have cooled at a slightly greater rate. This is a solid unit, with tightly wound coils.

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Chiller B (BrewTek Immersion Wort Chiller, 25-foot length, 3/8-inch outside diameter) was complete with respect to fittings and hoses, with upright inflow and outflow necks, but did not have structural bracing.

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Chiller C (BrewTek 50-foot Immersion Wort Chiller, 50-foot length, 3/8-inch outside diameter) had fittings but no inflow or outflow hoses. The chiller had the desired long upright neck design. It appeared that this and unit A were intended for keg-based or other large brewing systems.

[Just prior to publication Brewers Resource informed us that their 50-foot chiller has been redesigned and now has one-half-inch outside diameter copper tubing and a suggested retail price of \$54.90.—Ed.]

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SAFETY • EXCELLENT
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efficiency suggest they were designed with 10- to 15-gallon batches in mind.

The six chillers were all coiled copper designs, but were not identical. Chillers B, D, E and F were of 25-foot length, A and C were 50 feet. All but chiller A were three-eighths-inch outside diameter, A being one-half inch. Four were complete units by our standards, meaning that they could be used as packaged in most brewing systems near an outside thread spigot and sink. That means that the chiller had a female hose fitting, a short inflow hose and a short outflow hose attached to the unit.

Two of the units (E and D) were complete and required no assembly. Units B and F required minimal assembly, which included cutting the plastic tubing to the desired length, connecting it and securing it

with the provided hose clamps. Units A and C came completely assembled but require the brewer to supply a length of garden hose for both the input and outflow. This is a minor requirement and suggests, once again, that these units are intended for a larger brewing scale and/or outdoor use.

Conclusion

All the tested chillers performed well and were within the stated performance specifications, with more or less additional equipment and effort required from of the user, depending on the unit. It seemed to us that the efficiency of these chillers was governed more by the laws of physics than by the design of the units. Essentially all 25-foot chillers cooled



G.W. KENT

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Chiller D (G.W. Kent, 25-foot length, 3/8-inch outside diameter) came complete with fittings and hoses, but did not have upright inflow and outflow necks; the food-grade clear vinyl inflow and outflow hoses were simply attached to the ends of a spring-like coil. The integrity of the hose clamps could not be confirmed while the unit was in use causing worry that the hose might crimp. It also seemed a bit unwieldy when handled. The design would ostensibly benefit if the full length of the coil could be in contact with the hot wort while in use. A simple modification of the unit where the copper is bent up and out of the wort exposing the copper/plastic junction would be a big improvement.

INSTRUCTIONS • NONE PROVIDED
SAFETY • GOOD
EASE OF USE • EXCELLENT
EFFICIENCY • EXCELLENT

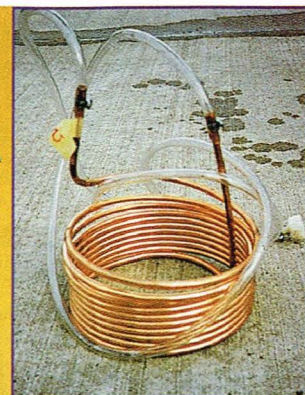


KOCH'S KONCEPTS

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Chiller E (Koch's Kooler, 25-foot length, 3/8-inch outside diameter) was a complete unit. It, like the other 25-foot designs, appeared to be intended for use with stove-top or other small brewing systems. The hoses were clamped to upturned sections of the copper coil. This unit was exceptional in that the copper wiring had been interwoven with the coils to provide structural support. We liked that.

INSTRUCTIONS • GOOD
SAFETY • EXCELLENT
EASE OF USE • EXCELLENT
EFFICIENCY • EXCELLENT



WILLIAM'S BREWING

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Chiller F (William's Wort Chiller, 25-foot length, 3/8-inch outside diameter) had complete fittings and hoses with upright necks, but shorter than the others. In our configuration, the shorter necks meant there was plastic in the hot wort. Again, this caused concern that the integrity of the hose clamps could not be confirmed while the unit was in use.

INSTRUCTIONS • OUTSTANDING
SAFETY • GOOD
EASE OF USE • EXCELLENT
EFFICIENCY • EXCELLENT

at the same rate; the 50-foot chillers differed because the diameter of the copper tubing was different, one was three-eighths-inch and the other one-half-inch. All are a tremendous improvement over slow cooling methods. The only real differences in the units of similar length were the fittings and features. It is tempting to suggest that speed is all that is important in evaluating chillers, but other issues such as water conservation may be significant as well. The merits and faults of the individual chillers need to be weighed against their costs and how well they will integrate into your brewing system. If water use is a concern, the 50-foot chillers, in particular the Beverage People unit, deserve consideration. We also would advise a 50-foot chiller for those whose brew length is in the 10- to 15-gallon (38- to 57-L) range.

We recommend in all cases the brewer use hose clamps on all fittings. As hot water or hot wort enter the plastic tubing it can soften, work loose and result in scalding the user. It is especially important to make sure the hot water outflow is secured. When hot (near boiling) water begins to flow it can

spray and splash around the brewing area and result in scalding the user or observer. We recommend that this water be collected and used for cleanup or, if you brew near a washing machine, for washing clothes.

There are several arguments in favor of immersion chillers rather than counterflow chillers. Immersion chillers are easy to clean and can be sanitized simply by dropping them into the boiling wort for 20 minutes or so. Immersion chillers allow you the opportunity to remove the chilled wort from the brew kettle and leave much or all of the cold break (trub) behind. Finally, by cooling the entire volume of wort simultaneously, you can maintain precise control of your final wort temperature, and can pitch at exactly the desired temperature for your yeast strain.

The real message in all of this is that wort chilling is a very uncomplicated and important part of your effort to brew good beer. We stand no chance of ending the debate over the advantages and disadvantages of counterflow vs. immersion chilling. However you do it, do it. Maybe it's time we take a lesson from our equipment. Chill out, and have a homebrew.

Acknowledgments

We wish to thank the suppliers who donated chillers to this project: Koch's Koncepts, Brewers Resource, G.W. Kent, The Beverage People and William's Brewing. We wish to thank to the following able-bodied gentlemen/scientists (and Ann Arbor Brewers Guild members) who helped run the experiments. Without them this article would not have been possible: Mike O'Brien, Paul Philippon, Jeff Renner and Spencer Thomas.

Dan McConnell is a research scientist at the University of Michigan, technical director of G.W. Kent and president of The Yeast Culture Kit Co., all located in Ann Arbor, Mich. He has been brewing beer and mead for 16 years and wine since he was 14. He wishes he had more time to fish.

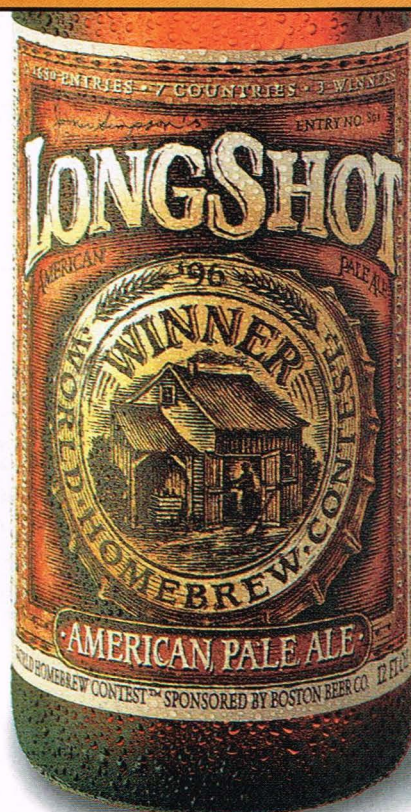
Ken Schramm is the television consultant for the Wayne County Regional Educational Service Agency, competition director of the Mazzer Cup Mead Competition and an avid amateur orchardist, honey enthusiast and fly fisherman. ©1996 Daniel McConnell and Kenneth Schramm

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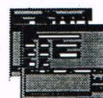
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HOMEBREW BAYOU



BY ED GREENLEE

The city that care forgot" is how New Orleans was described long before Hollywood named it "The Big Easy" in a movie by the same name. Either way, the expressions describe the attitude of the people of New Orleans. It seems fitting that the American Homebrewers Association chose New Orleans as the first city in the South to host its National Homebrewers Conference. Despite Charlie Papazian's story of how he coined the phrase "Relax, don't worry, have a homebrew," he probably first had that thought while lounging on a balcony overlooking Bourbon Street in the French Quarter.

At the 18th annual conference June 5 through 8, more than 400 homebrewers discovered that New Orleans is as diverse as the styles of beer they love to brew. And the attendees were just as diverse, coming from 36 states and Washington, D.C., plus Canada, Australia, United Kingdom, Mexico, Africa and Russia, where homebrewing is becoming a commercial success. Svetlana Lvova, technical director of Teddy Beer in Moscow, attended her first AHA Conference. She said homebrewers there have conferences, but none compared to this one. She was impressed with the quality and quantity of information available. She also enjoyed the friendly atmosphere and helpful attitude of all those in attendance.

Karen Barela, president of the AHA, welcomed everyone to Homebrew Bayou by inviting them to enjoy the experience only a conference such as this could provide.

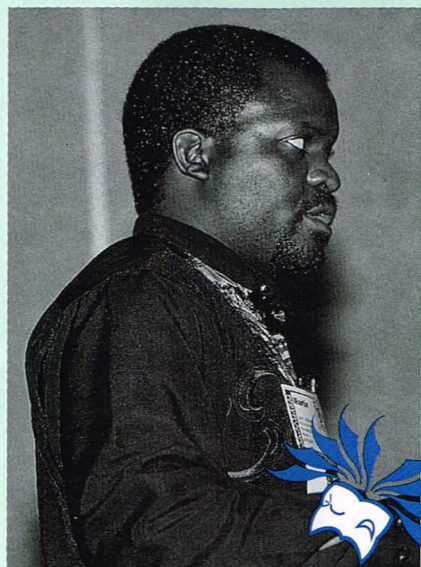


Homebrew Bayou attendees enjoy Larry Bell's exploration of eccentric beers.

The fun began with the second round of judging where 555 beers out of the record-breaking 3,331 entries were chilled, poured and sampled to determine the best three of each category and eventually, the best of show, or Homebrewer of the Year. It was obvious by listening to the judges' comments that the competition was going to be difficult. More than a few judges noticed how the quality of entries improves each year. This fact was made abundantly clear when, after sampling each of the first-place winners, the best-of-show judges narrowed the field to eight beers, each of which could have taken the top honor.

Those who were not judging were given the opportunity to educate their palates in the "Beer School Seminar" by Charlie Papazian, president of the Association of Brewers. Beer samples were used to demonstrate how each of the senses is used to evaluate beer.

Conference attendees had the opportunity to join the Crescent City Homebrewers' monthly meeting at The Deutsches Haus. Visitors were greeted with bratwurst and plenty of beer. Peter Caddoo, CCHB past president and a brewer at Dixie Brewing Co. in New Orleans, provided his amber ale on a beer engine. All visitors noticed was the friendly rowdiness and enthusiasm of the local club.



Martin Makomva of the Chibuku Breweries in Zimbabwe describes the brewing methods of traditional African sorghum beer.



Svetlana Lvona (far right) of Moscow, Russia, explains what homebrewing is like in her country to David Edgar, IBS director; Charlie Papazian, AOB president and Karen Barela, AHA president.

Everyone got back down to business Thursday morning. Martin Makomva, managing director of Chibuku Breweries in Zimbabwe, gave an education on homebrewing — African style. His presentation began with a musical video performed by an African singing star. From the video it was obvious that beer is important to the African culture. Martin explained that traditional South African beer is consumed within three to seven days from preparation. The process involves the whole village, a tradition similar to the Louisiana Cajun practice of making a large pot of gumbo to share with neighbors. Pure traditional African homebrew uses primarily millet as the base grain. Commercial brewers use mostly sorghum.

Whether it is homebrew or commercial brew, the beer is consumed while still "alive," and sometimes actively fermenting. They have had problems with exploding bottles. One innovation, however, is a bottle cap with a slit to allow gas to escape but nothing to enter. This practice of drinking very "live" beer prevented Martin from bringing samples for tasting. Can you imagine freshness dating for Chibuku beer? "Best if consumed by day after tomorrow."

Larry Bell of Kalamazoo Brewing Co. in Michigan was a big hit with his presentation titled, "Eccentric Beer From an Eccentric Brewer." Never one to shy away from strange additives, Larry provided samples of his brews. Fire and Ice Amber with hot peppers and ginger had been placed outside at 7 degrees F. Ice was removed so the final

product was a powerful 15 percent alcohol. Dr. Bell's Medicinal Stout lived up to its name with such eccentric ingredients as five varieties of roots, white oak bark, horehound, prunes and, for the Louisiana touch, gumbo filé. The recipe took two pages to list the ingredients. Larry praised homebrewers saying that craft brewing wouldn't exist without their support.

"Skunk Beer" Who wants it? Scott Bickham, a physicist and award-winning homebrewer, gave a detailed and technical lecture on the effects of light on homebrew. He explained that homebrew is more susceptible to being light struck because it is unfiltered. Higher amounts of dissolved oxygen impede the process, but the adverse effects of oxidation prevent it from becoming an intentional protection measure. The bottom line is to protect your homebrew from light and heat.

Jim Page of James Page Brewing Co. in Minneapolis, Minn., shed some light on how malt extract is made and packaged. He made recommendations for formulating extract-based beers, and stressed the importance of freshness dating on malt extract products.

Pete Slosberg and Bill Manger of Pete's Brewing Co., gave an excellent workshop on brown ales, passing out samples of commercial browns to compare. Noting that brown ale as a style almost disappeared, Pete commented that "beer only becomes a style when someone starts to imitate it." Because the only common aspect of brown ales is their color, the speakers concluded that the style is still evolving.



Sometimes we find out the things we learned from our parents are not always correct. Who would buy fruit that is not the firmest, shiniest and prettiest in the bin? You should if you want to make a good fruit beer according to Dan McConnell of the Yeast Culture Kit Co. and Ken Schramm, Mazer Cup Mead Competition director. Dan and Ken pointed out that grocers are looking for appearance, shelf life and flavor. Instead, we should be interested in flavor and overall quality and ripeness for our beers. When you squeeze that fruit and it gives just a bit, you may want it for your next batch of homebrew.

Club members had an opportunity to meet and discuss topics ranging from how to start a club to how to rejuvenate one where the veteran brewers have lost inter-



Dan Hall of Exeter, N.H., works with the other best-of-show judges to narrow a competitive flight down to one.

est in active participation. Other topics included whether your club should incorporate and how to obtain equipment. There was never a gap in the discussion, a reflection of the interest in both starting and improving clubs and their activities.

Revelers could tour Abita Brewery with a stop at the Abita Brewpub, or go on a New Orleans pub crawl. The choice was difficult. Abita, the first microbrewery in Louisiana, provided some of the beer for the conference. Founder Jim Patton spoke at the opening session along with Wolfram Koehler of Crescent City Brewhouse, Kevin Stewart of Dixie Brewing Co., Doug Lindley of Acadian Brewing Co. and David Edgar, director of the Institute for Brewing Studies.

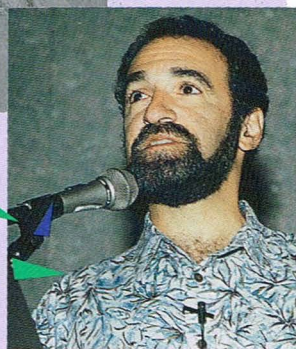
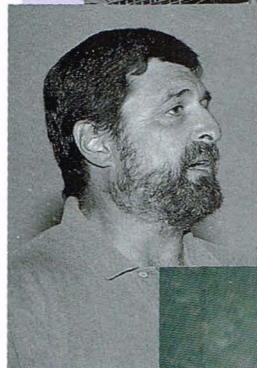
Three buses were needed for the pub crawl to Dixie Brewery's hospitality room, Acadian Brewery, Cooter Brown's, River-shack, Carrollton Station and DiMaggio's. Local television filmed much of the event and interviewed some of the attendees for their newscasts. Needless to say, the pub crawl was a big success. It ended at DiMaggio's, which served complimentary red beans, rice and jambalaya.

Charlie Papazian gave a slide show that took us on a trip through homebrew time, describing his many journeys involving beer. He proved it is not necessary to use fancy equipment to brew and enjoy good homebrew. The most interesting aspect of his presentation was his own realization that you must always be ready to learn.

For the stout lovers, Michael Lewis, director of the Brewing Science Program at the University of California at Davis and author of *Stout* (Brewers Publications, 1996) enlightened attendees about brewing the Irishman's favorite drink. He explained there is not much difference between stout and other beers, stating "give me 10 to 20 percent of the grist and I will turn Budweiser into a stout." Historical information together with American-style stouts were discussed.

Darryl Richman, award-winning homebrewer and author of *Bock* (Brewers Publications, 1994), discussed lager beers, explaining how to brew a lager at home. He discussed American and European lager malts, hops and yeast available for lagers.

For those who enjoy the wild-yeast-fermented lambics, Jim Liddil, 1994 Home-



Homebrew speakers are informative and entertaining. From top to bottom: Dan McConnell and Ken Schramm preface their talk with a little jingle; Pete Slosberg explains brown ale; and Charlie Papazian tells more than a few homebrew stories.

brewer of the Year, gave another hands-on presentation. He served lambic beers to show how to brew the unique style indigenous to Belgium. This style seems to attract a small but dedicated following, and his presentation was no different. This session was peppered with questions from the audience that showed a serious interest in the style.



Jeff Wilson of Birmingham, Ala., soaks up some homebrewing techniques at one of the 16 sessions.



Alberta Rager and John Weerts, first-round organizers of the Kansas site, celebrate a successful National Competition at the Grand Banquet.

Ray Daniels, author of *Designing Great Beers* (Brewers Publications, upcoming), presented a workshop on Oktoberfest, Vienna and Märzen, as a style where the differences often become clouded. Ray used commercial and homebrewed examples to demonstrate the style, and provided historical background, too.

John Palmer, a metallurgical engineer presented "Eclectic Equipment," a session for the tinkerer. There are so many ways to use discarded or inexpensive equipment and improve on what you have that after a course with John you could be the chief engineer on the Starship Enterprise.

Friday was capped with the banquet and awards ceremony that began with a New Orleans-style jazz funeral. Dressed in masks and carrying umbrellas, the mourners led a coffin around the room. Professor Surfeit rose from the dead and the funeral was transformed into a Mardi Gras parade complete with tossing of beads.

For his English bitter, John Fahrner of Omaha, Neb., was crowned 1996 Homebrewer of the Year, an award sponsored by Munton and Fison and the Great American Beer Festival®. The Ninkasi Award, sponsored by Pete's Brewing Co., went to co-brewers Tom Bergman and Chas Peterson of Jefferson, Md. Michael Coen of Kenosha, Wis., was named 1996 Meadmaker of the Year, an award sponsored by American Mead Association. Lyon's Brewery of Dublin, Calif., sponsored the 1996 Cidermaker of the Year award given to Ginger Constantine of Bar Harbor, Maine. The big question was whether the Sonoma Beerocrats would again win Homebrew Club of the Year, as they have each year since 1986.

The Beerocrats had to settle for second place as the Chicago Beer Society unseated them. Many of the Chicago club members swarmed the stage when the Coopers Brewery-sponsored award was presented.

The commemorative conference beer was Paddlewheel Pilsner, brewed by Doug Lindley and friends of the Crescent City Homebrewers. Doug is brewmaster at Acadian Brewing Co. in New Orleans. Ken Schramm and Dan McConnell from Troy and Ann Arbor, Mich., made the conference mead, a still mead from Michigan fruit blossom honey blended with apple cider. Both conference brews received praise from those attending.

Karen presided at the last session of the conference, an open meeting of AHA members. A small but vocal group spoke their minds, and Karen gave a glimpse of the future of the organization. She explained the AHA is not forming a separate judge certification program, but is instead interested in the education of all judges, commercial and homebrew. Another AHA goal is to get all state legislatures to statutorily recognize homebrewing. While not actually outlawing homebrewing, some states do not officially recognize it as legal.

"The Big Easy Homebrew Festival and Trade Show," located on the Mississippi River, wrapped up the conference. Saturday's festival was an enjoyable experience of beer and products of interest to the homebrewer. Equipment manufacturers, suppliers, clubs and myriad other interesting exhibitors were set up for the final event. Also showcased were the 25 Homebrew Bayou Invitational Brewoff beers. Award-winning homebrewers were given ingredients pro-



Ed Bronson, Dena Nishek and Charlie Papazian enjoy some Southern cooking at Di Maggio's to wrap up the New Orleans Pub crawl, organized by the Crescent City Homebrewers.



Dave Miller (center) accepts the 1996 AHA Recognition Award from Karen Barela and AHA board of advisor Ed Busch.

vided by Premier Malt Products and Hop-Union USA to brew a five-gallon batch. Mississippi Queen, an American Pale ale brewed by Doug Kahn of Smithtown, N.Y., won the popular vote. During a seven-hour period, attendees were able to visit the booths and say their goodbyes to those they had met at the conference.

Reminiscing about the entire experience brought comments such as, "Where else can you meet such good brewers in one place?" That seemed to be the underlying feeling. Whether a novice or an experienced brewer, most people said they learned something. Charlie Milan, president of the Redstick Brewmasters, was happy to discuss brewing with Dave Miller, this year's winner of the AHA Recognition Award. Dan Showalter of Niceville, Fla., organizer of a first-round National Homebrew Competition site, expected people to be unapproachable, but instead found everyone friendly.

The conference might best be summed up by an "unofficial" part of the conference. On the sofas outside the meeting rooms where people congregated before and after sessions, you could catch the "lagniappe," the Louisiana term for "something extra." What you may not have understood in the formal sessions was explained to you informally. No pretensions — just friendly camaraderie.

Ed Greenlee is a Certified BJCP judge and lawyer in Baton Rouge, La., who has been brewing for six years and has won two best of shows in addition to numerous other ribbons. He is a free-lance beer writer.

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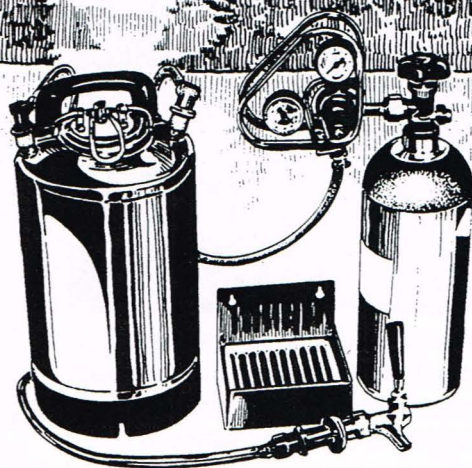
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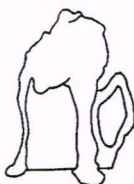
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Tom Bergman and Chas Peterson, Jefferson, Md. Fredrick Original Ale Makers (FOAM)
The winners of the Ninkasi Award and Pete's Brewing Co. product. The winners also receive national publicity for the award, registration at the two week Short Course in Brewing Technology at the Siebel Institute of Technology in Chicago, Ill., (tuition, travel and lodging included), a \$500 gift certificate to a local homebrew store, \$100 gift certificate for Wicked Ware Merchandise and a trip to Pete's Brewing Co.

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Sponsored by Madhava's Mountain Gold
Honey, Lyons, Colo.

Michael Coen, Kenosha, Wis.

CIDERMAKER OF THE YEAR

Sponsored by Lyon's Brewery of Dublin,
Dublin, Calif.

Ginger Constantine, Bar Harbor, Maine

HOMEBREW CLUB OF THE YEAR

Sponsored by Coopers Brewery, Adelaide,
Australia

- 1st: Chicago Beer Society, Ill.
- 2nd: Sonoma Beerocrats, Calif.
- 3rd: The Mash Tongues, Colo.

WINNERS BY CATEGORY

1) Barley Wine — 106 entries

Sponsored by Edme Ltd., Mistleay
Manningtree, England

- Gold: Mike Harper, Oakdale, Calif., "Big Oak Barley Wine"
- Silver: Steve Valley, Shelton, Wash., "Chinook Barley Wine"
- Bronze: David Pappas, Gary Michel, Ocoee, Fla., "Barley Winer"

2) Belgian & French Ale — 195 entries

Sponsored by Manneken-Brussel Imports
Inc., Austin Texas

- Gold: Robert O. Hall, Athens, Ga.
- Silver: Susan Sparks, RJ Sparks, Manchester, N.H.
- Bronze: David Suda, Ashton, Ont., "Munster Solitaire"

3) Belgian-style Lambic — 45 entries

Sponsored by L.D. Carlson Co., Kent, Ohio

- Gold: Ron Raikie, Orlando, Fla., "Lambic"
- Silver: Paul Edwards, Indianapolis, Ind., "Up The Kriek"
- Bronze: Walter Dobrowney, Saskatoon, Sask., "Red Sun"

4) Mild & Brown Ale — 213 entries

Sponsored by Premier Malt Products,
Grosse Pointe, Mich.

- Gold: Michael Sackett, Wichita, Kan., "Back to Back Double Brown Ale"
- Silver: James Weiner, La Jolla, Calif., "Thirty Beer"
- Bronze: Matt Mead, Errol Brown, Dan Riker, Al Mead, Chicago, Ill., "MBA (Matty Brown Ale)"

5) English-style Pale Ale — 196 entries

Sponsored by Wynkoop Brewing Co.,
Denver, Colo.

- Gold: Chris Neikirk, Norfolk, Va., "Slacker IPA"
- Silver: Chuck Jones, Roswell, Ga., "Cattail Ale"
- Bronze: Nate Kowash, Portland, Ore., "Ugly Stepsister Star of the Sun"

6) American-style Ale — 180 entries

Sponsored by Northwestern Extract Co.,
Brookfield, Wis.

- Gold: John C. Allen, Alpharetta, Ga., "IBU Who?"
- Silver: Douglas Phillipsen, Lewisburg, Pa., "Auspicious American Ale"
- Bronze: Walter Dobrowney, Saskatoon, Sask., "Red, White, Blue Ale"

7) English Bitter — 191 entries

Sponsored by Alternative Beverage,
Charlotte, N.C.

- Gold: Homebrewer of the Year John Fahrner, Omaha, Neb., "Muddy Mo Amber Ale"
- Silver: Stephen Rose, Newton, Mass., "Log Splitter Bitter"
- Bronze: Mark E. Hall, Athens, Ga., "Wet Nose in the Ear E.S.B."

8) Scottish Ale — 60 entries

Sponsored by BEERCRAFTERS INC.,
Turnersville, N.J.

- Gold: Wendy Parker-Wood, Bev Nulman, Albuquerque, N.M., "Pay the Piper II No. 23"
- Silver: Thomas J. O'Connor III, M.D., Rockport, Maine, "T. Duck's Scottish Ale"
- Bronze: Darwin Harting, Pekin, Ind.

9) Porter — 179 entries

Sponsored by The Celler Homebrew,
Seattle, Wash.

- Gold: Ross Fredricksen, Loomis, Calif., "Smashing Porter"
- Silver: Wendy Parker-Wood, Bev Nulman, Albuquerque, N.M., "Sarah Teall's No. 33"
- Bronze: John Kessel, Arlington, Texas, "It's Dark, Guess It Must Be Porter"

10) English & Scottish Strong Ale — 106 entries

Sponsored by Wine & Hop Shop,
Denver, Colo.

- Gold: Loren Claypool, Jeff Boggess, Scott Depot, W. Va., "Hiliter Kilter Wee Heavy Scotch Ale"
- Silver: Larry Scharif, Friendswood, Texas,
- Bronze: Alan Moore, Toronto, Ont., "Wee Heavier"

11) Stout — 254 entries

Sponsored by Alternative Garden
Supply D/B/A Brew & Grow,
Streamwood, Ill.

- Gold: Dan Morley, Calgary, Alb., "XXXMas Stout"
- Silver: Randy Johnson, Alton, Ill., "Oatmeal Stout"
- Bronze: Ross Hastings, Edmonton, Alb., "Thameside Thumper"

12) Bock — 127 entries

Sponsored by Washington Hop
Commission, Yakima, Wash.

- Gold: Phil Bernie, Staten Island, N.Y., "Hands offa Mai Bock"
- Silver: Steve Rice, Cudahy, Wis.
- Bronze: David Lloyd, Richard Dobson, Gainesville, Texas

13) German Dark Lager — 62 entries

Sponsored by Crosby & Baker,
Westport, Mass.

- Gold: Tom Bergman, Chas Peterson, Jefferson, Md., "Beaver Creek" Double Raven Lager
- Silver: Keith Weerts, Windsor, Calif., "Lakewood Dunkel"
- Bronze: Bob Waizenegger, Fairfax, Va., "Polar Bear Warmer"

14) German Light Lager — 73 entries

Sponsored by Briess Malting Co.,
Chilton, Wis.

- Gold: Ted Johnston, Phoenixville, Pa., "Emily's Export"
- Silver: Don Bacher, Woodstock, Ont., "Bacher Brew #35"
- Bronze: Mike Hufnagel, Cincinnati, Ohio

15) Classic Pilsener — 154 entries

Sponsored by California Concentrates,
Acampo, Calif.

- Gold: Jim Lopes, Fresno, Calif.
- Silver: Richard Schwartz, Colonial Heights, Va., "Pookie Pilsner"
- Bronze: Alvis Hurd, Wayne Mark, Kevin Mitchell, Jerry Kissich, Mike Sheehan, Tom Luibrand, Kingsport, Tenn.

16) American Lager — 82 entries

Sponsored by Pabst Brewing Co.,
Milwaukee, Wis.

- Gold: David Stone, Farmington Hills, Mich., "Export Not"
- Silver: Patrick Kennedy, Overland Park, Kan., "AWB"
- Bronze: Billy Graham, Pasedena, Md.

17) Vienna/Okttoberfest/Märzen — 115 entries

Sponsored by F.H. Steinbart, Portland, Ore.

- Gold: George DePiro, Nyack, N.Y., "Milo-Märzen #2"
- Silver: Todd Kellenbenz, Houston, Texas, "Märzen"
- Bronze: Dan Ritter, Grangeville, Idaho, "Octoberfest"

18) German-style Ale — 134 entries

Sponsored by Crescent City Brewhouse,
New Orleans, La.

- Gold: Gil Hantzsch, John Bowman, Scott Spevacek, Dave Anderson, Baraboo, Wis., "Kowabunglie"
- Silver: Mark Bayer, St. Charles, Mo., "Koln Ale"
- Bronze: Charles Liedtke Jr., Aurora, Ill., "Liedtkebrau Kolsch"

19) German-style Wheat Beer — 121 entries

Sponsored by Tabernash Brewing Co.,
Denver, Colo.

- Gold: Dennis Davison, Greenfield, Wis.
- Silver: Frank Berry, Hillsboro, Ore.
- Bronze: Kelly Robinson, Ceres, Calif., "Dinkley Dunkely Weisly Weissely Do"

20) Smoked Beer — 59 entries

Sponsored by Jim's Homebrew Supply,
Spokane, Wash.

- Gold: Chris Kaufman, Derby, Kan., "Geschmack Rauch Bier"
- Silver: Carlos Kelley, Fort Worth, Texas, "On Top with Ol' Smokey"
- Bronze: Ross Fredricksen, Loomis, Calif., "Smokey Scotch"

21) Fruit & Vegetable Beer — 132 entries

Sponsored by The Purple Foot,
Milwaukee, Wis.

- Gold: Tom Bergman, Chas Peterson, Jefferson, Md., "Beaver Creek" Strawberry Ale
- Silver: Douglas Faynor, Woodburn, Ore., "Black Kevorkinator"
- Bronze: Suzette Smith, Madison, N.J., "Raspberry Nightmare"

22) Herb & Spice Beer — 106 entries

Sponsored by Marin Brewing Co., Larkspur, Calif.

- Gold: Scott Mills, Loveland, Colo., "Flower Power"
- Silver: Harrison Gibbs, Roland Armstorff, Los Angeles, Calif., "Holiday Ale"
- Bronze: David Archambeau, Jamestown, N.D.

23) Specialty Beer — 156 entries

Sponsored by Homebrew Headquarters,
Dallas, Texas

- Gold: Helen Croy, Phil Roche, Portland, Ore., "Grand Crew"
- Silver: Joel Rosen, Hermosa Beach, Calif., "Mocha Stout"
- Bronze: Gregor Nelson, Palo Alto, Calif., "HoneyWheat Woodruff Lager"

24) California Common Beer — 84 entries

Sponsored by Anchor Brewing Co., San Francisco, Calif.

- Gold: Philip Garvel, Lisle, Ill., "Strapping Steam Beer"
- Silver: Dave Lewis, Sonoma, Calif., "Sonoma Steam"
- Bronze: Steve Rittenhouse, Los Angeles, Calif., "Mort's Steamer"

25) Traditional Mead & Braggot — 53 entries

Sponsored by Mazer Cup Mead Competition and Ann Arbor Brewers Guild, Ann Arbor, Mich.

- Gold: Scott Mills, Loveland, Colo., "Mighty Fine Wine"
- Silver: Byron Burch, Santa Rosa, Calif., "Veruyu"
- Bronze: Ed Wolfe, Carol Liguori, Iowa City, Iowa, "Old Faithful"

26) Fruit & Vegetable Mead — 76 entries

Sponsored by The National Honey Board,
Longmont, Colo.

- Gold: Meadmaker of the Year Michael Coen, Kenosha, Wis., "After Dinner Dessert"
- Silver: John Gehring, Tacoma, Wash., "John's Brewhouse Marion Berry in Heaven Melomel"
- Bronze: John A. Carlson, Jr., Boulder, Colo., "Attack of the Killer Limes"

27) Herb & Spice Mead — 32 entries

Sponsored by American Mead Association,
Grand Junction, Colo.

- Gold: Mike Rivard, Chicago, Ill., "Urban Garden Methaglin"
- Silver: Keith Schwols, Fort Collins, Colo., "Keith to Trot"
- Bronze: Timothy D. Harris, Winston Salem, N.C., "Mystic Mead"

28) Cider — 40 entries

Sponsored by Lyon's Brewery of Dublin,
Dublin, Calif.

- Gold: Cidermaker of the Year Ginger Constantine, Bar Harbor, Maine, "Bog and Orchard Cranberry Cider"
- Silver: Tim Tierney, Pepperell, Mass.
- Bronze: Tim Tierney, Pepperell, Mass.

TOTAL NUMBER OF ENTRIES 3,331



American Homebrewers Association 1996 National Homebrew Competition Second-Round Brewers

Brewer(s) (category/place)

TORONTO, ONT., REGION

Don Bacher (14/1st, 16/3rd)
Bob Daye (07/1st, 08/1st, 11/3rd, 23/1st)
Walter Dobrowney (01/3rd, 03/1st, 04/1st, 06/1st, 15/2nd, 16/2nd, 18/1st, 19/1st, 21/1st, 24/2nd)
John Graham (05/1st)
Michael Grant, Beth Grant, John Grant (25/1st)
Ross Hastings (01/1st, 11/2nd, 27/1st)
Ross Hastings, Laurie Malone (27/1st)
Richard Marzec (14/2nd)
Alan Moore (02/2nd, 10/2nd, 24/1st)
Dan Morley (11/1st)
Peter Mullowney (05/2nd)
Craig Nichols (01/2nd, 10/3rd)
Gerald Peters (07/1st)
Michael Peters (16/1st)
Tim Peters (04/2nd)
David Suda (02/1st, 02/3rd, 15/1st)
P. Bruce Taylor (09/1st)
Harry Wagner (06/2nd, 09/2nd, 10/1st, 22/1st)

CHICAGO, ILL., REGION

Don Alexander (22/2nd)
Brook Anderson (17/1st)
T.A. Boisvert, Eric Briggeman (16/1st)
Chuck Boyce (01/2nd, 11/1st)
Jay Bradshaw (18/2nd)
Michael Brage (23/2nd)
Robert Burko (17/3rd)
George Caras (07/2nd)
Michael Coen (05/3rd, 26/1st)
Rich Colberg (02/3rd)
Jim Connors (24/1st)
Charles Cope (20/2nd)
D.E. Dallmann (05/2nd)
Scott Day, Todd Warren (12/1st)
Rick Deering (26/3rd)
Tom Dimmer, John Brendt (23/1st)
Paul Edwards (03/2nd)
Jay Emerson (06/1st)
Philip Garvel (24/3rd)
Jeff Goyette (24/2nd)
Paul Hale (01/3rd, 13/3rd)
Paul Hale, Phil Kaszuba (15/3rd)
Gil Hantzsich, John Bowman, Scott Spevacek, Dave Anderson (18/3rd)
Gil Hantzsich (26/2nd)
Darwin Harting (08/1st)
Marc Hawley (10/2nd)
Mike Hufnagel (13/2nd, 14/2nd)
Randy Johnson (11/3rd, 25/2nd)
Dennis Kacian (16/3rd)
John J. Kleczewski (19/1st)
Stephen P. Klump (08/2nd, 10/1st, 20/3rd)
Al Korzonas (01/1st, 03/1st, 04/3rd, 07/1st)
Mark Kowal, Mike Frost (11/2nd, 21/3rd)
Charles Liedtke Jr (18/1st)
Bradley A. Maxfield (22/1st)
Matt Mead, Errol Brown, Dan Riker, Al Mead (04/1st)

Robert Pinkerton, Allen Moelman (05/1st)
Paul Quasarano (02/1st, 21/2nd)
Brad Reeg (19/3rd)
Carl Regenfelder (15/1st)
Steve Rice (09/3rd, 12/3rd)
Mike Rivard (20/1st, 22/3rd, 27/1st)
Bill Rust (12/2nd)
Jay Schmid (07/3rd, 25/3rd)
Rob Schutte (06/3rd)
William M. Scruggs (25/1st)
Susan Sparks, RJ Sparks (02/2nd)
John Stevenson (15/2nd)
Thomas L. Stolfi (09/1st, 21/1st)
David Stone (14/1st, 16/2nd)
Scott Taxman (04/2nd)
Mark A. Thompson (03/3rd, 14/3rd)
Chris Verich (23/3rd)
John Wales (08/3rd, 13/1st, 17/2nd)
Tim Wauters (09/2nd)
Thomas Wolak, Dan Visger (10/3rd)
Bert Zelten (06/2nd, 19/2nd)

DENVER, COLO., REGION

Chuck Allen (03/1st)
Eric E. Bancroft (06/1st)
Scott Bartmann (26/1st)
John Bates (24/2nd)
Wesley Bauer (04/1st)
Russ Bee (18/2nd)
Rett Blankenship (21/1st)
Brian Bliss (10/1st)
Joe Bocchino (05/3rd, 20/3rd)
Cory Buening (13/2nd)
Douglas S. Byars (05/1st, 07/3rd)
Micheal R. Caprara (03/2nd, 07/1st)
John A. Carlson, Jr. (26/2nd, 27/1st)
Tim Chilcott (27/2nd)
Carl Colburn (20/1st, 21/2nd)
Richard L. Collins (23/2nd)
Jeff Cybert (01/2nd)
Davy Davis (07/2nd, 18/3rd)
Jim Dowling, Travis Jones (24/1st)
Terry Durant, Gary Durant (16/1st)
Charlie Feder (06/2nd)
Charlie Feder, Bob Hauptert (22/2nd)
George Fix (14/1st)
John Francisco (10/3rd)
Mark Frauenhoff, Mary Frauenhoff (25/3rd)
Mike Hahn (11/1st)
Tim Harper (24/3rd)
Tom Henderson (13/1st)
Dave Hensley (02/1st)
Bill Hobbs (15/2nd)
Ron Hoskinson (19/1st)
William R. Irwin (05/2nd)
Jay A. Johnsrud (01/1st)
David Justice (16/2nd)
Todd Kellenbenz (14/2nd, 17/2nd)
Carlos Kelley (03/3rd, 20/2nd)
John Kessel (09/3rd)
Lee S. Kobylinski (09/2nd)
J.T. Lawler (04/3rd)
Michael Lentz (02/3rd, 23/1st)
Timothy & Dawn McGill (21/3rd)
Scott Mills (22/1st, 25/2nd)
Joe Newcomer (13/3rd)
Richard Nisley (22/3rd)
Steve O'Connor (12/3rd)
Patrick O'Rourke, Brent Miller (08/2nd)
Wendy Parker-Wood, Bev Nulman (08/1st, 09/1st, 26/3rd)
George Schamel (11/2nd)
Larry Scharff (10/2nd)
Frank Schmuck (19/3rd)

Keith Schwols (11/3rd, 17/1st, 25/1st, 27/3rd)
Russ Seideman (14/3rd)
Dave Shaffer (01/3rd, 06/3rd, 15/3rd, 18/1st, 19/2nd)
Richard Spurlock (16/3rd, 17/3rd)
Aida Sulzbach, Larry Sienkiewicz (02/2nd)
Steve Trese (08/3rd)
Bill Vinzant, Dale Vinzant (04/2nd)
Steve Wall (12/1st)
Robert & Mararet Wilber (12/2nd, 15/1st)
David W. Yoskowitz (23/3rd)

FRESNO, CALIF., REGION

Donna Bettencourt (10/1st)
Troy Bommelaere (11/2nd, 18/2nd, 22/3rd)
Michael Bowe (13/1st)
Al Branch (06/3rd)
Byron Burch (25/1st, 27/3rd)
MB & Steve Casselman (12/1st, 13/2nd, 19/2nd)
David Cowie (15/2nd)
Kevin Day, Todd Nelson (05/2nd, 12/3rd, 16/2nd)
Theo Drushell, Dan Dickenson (25/2nd)
Theo Drushell (25/3rd)
Tom Estudillo (21/2nd)
Nick Franke (19/3rd)
Ross Fredricksen (08/2nd, 09/3rd, 14/2nd, 16/3rd, 20/1st)
Greg Gessner, Cathy Boyan, Katie Gessner (04/2nd)
Harrison Gibbs, Roland Armstorff (22/1st)
Mike Harper (01/1st)
James Helmich, Joann Helmich (21/1st, 27/2nd)
Emile Houle (02/2nd)
Richard Humbert (17/1st)
Gunther Jensen (26/2nd)
Kevin Johnson (05/1st)
Jack Kelly (17/3rd, 21/3rd)
Kevin Knox (20/2nd)
William Krouss (18/1st)
Ken Larson, Eileen Tyson (23/2nd, 26/1st)
Frank Leers, Bobby Sparks (12/2nd)
Dave Lewis (01/2nd, 24/3rd)
Steve Lewis (09/1st, 24/1st)
Jim Lopes (01/3rd, 11/1st, 15/3rd)
Gregor Nelson (22/2nd, 23/3rd)
Gavin Ostrom, Eric Greenspan (11/3rd)
George Proper (16/1st, 17/2nd)
Mike Riddle (04/1st, 07/3rd)
Steve Rittenhouse (05/3rd, 24/2nd)
Jeff Robinson (18/3rd)
Kelly Robinson (10/3rd, 19/1st)
Joel Rosen (23/1st)
Brian Sarouhan, Tim Kirk (10/3rd)
Jamie Smith (06/2nd)
Tom Spaulding (02/3rd, 06/1st)
Jeffrey Sternfeld (08/3rd, 20/3rd)
Dan Taylor (10/2nd)
Steven Tefft (23/2nd)
Chad Thistle (09/2nd)
Craig Toms (02/1st)
Kent Townley (07/2nd)
Fred Waltman, Steve LaBrie (03/1st)
Keith Weerts (03/2nd, 13/3rd, 14/1st, 14/3rd, 15/1st)
James Weiner (04/3rd)
D. Ian Wilson (08/1st)
James Wilts, Charles Wilts (07/1st, 27/1st)

KANSAS CITY, KAN., REGION

David Archambeau (15/2nd, 19/2nd, 22/1st)
Jim Ashton (09/3rd, 16/2nd)
Mark Bayer (18/2nd)
Ron Brooks (07/2nd, 13/2nd)
Kenneth Butler (02/2nd)
Dennis Davison (03/1st, 03/3rd, 19/3rd)
Martin Draper, Chris Hadden (03/2nd)
Martin Draper (21/1st)
Carl Eidbo (05/1st, 24/3rd)
Ronald Elshaug (01/3rd, 13/1st, 17/3rd)
John Fahrer (07/1st, 18/3rd)
Dennis Garrett, Barbara Garrett (02/1st, 11/1st)
James Gebhardt, Carl Eidbo, Ray Taylor, Jim Jondahl (26/1st)
Neil Gudmestad, Raymond Taylor (01/2nd, 09/1st, 15/1st)
Mike Hansen (14/1st)
Dave Hedding (24/1st)
Arlin Karger (08/3rd)
Chris Kaufman (10/1st, 20/1st)
Patrick Kennedy (16/1st)
Greg Kern (21/3rd)
David Kieras (23/1st)
David Lloyd, Richard Dobson (12/1st, 20/3rd)
Duane Maki (06/1st, 06/3rd, 16/3rd)
Mark J. Messmer (18/1st)
Jeff Michalski, John Sullivan (08/2nd)
Philip Neel (14/2nd)
Deb Nelson (04/3rd, 22/2nd)
Ted O'Neill (06/2nd, 22/3rd)
Steven Olson, Bill Clark (21/2nd, 23/2nd, 26/3rd)
Steve Platz (01/1st, 10/3rd)
Gene Pribula (05/3rd)
Michael Sackett (04/2nd)
Chuck & Nancy Stiner (09/1st)
Jack Sykes (15/3rd, 17/1st)
Caroline Taber (26/2nd)
Mark Taylor, Todd Taylor (07/3rd)
Ray Taylor, Neil Gudmestad (07/3rd)
Ray Taylor (17/2nd)
Todd Taylor, Mark Taylor (11/3rd)
Wayne Theuer (05/2nd)
Randall Thompson (10/2nd)
Mick Walker, Ray Taylor and Neil Gudmestad (14/3rd)
Mick & Vi Walker (12/2nd)
Gary Westman (12/3rd)
Ed Wolfe, Carol Liguori (02/3rd, 04/1st, 11/2nd, 19/1st, 23/3rd, 24/2nd, 25/1st)

LANCASTER, PA., REGION

Ed Bardsley (09/3rd)
Brian Beckmann (04/1st)
Craig Beifus (17/2nd)
Phil Bernie (12/1st)
Patrick A. Bigelow, Cynthia A. Bigelow (27/2nd)
Shawn Bosch, Scott Bosch, Joseph Bosch (02/2nd, 03/1st, 03/2nd, 03/3rd)
Steven M. Browne (01/2nd, 22/1st)
Doug Buddle (06/1st)
Pat Coppola (12/3rd)
George DePiro (13/2nd, 17/3rd, 23/2nd)
Thomas Flanagan (07/1st)
Peter Garofalo (15/1st)
David Giacheri (04/3rd)
John Grana (09/1st, 19/2nd)
Jon Hazilla (11/1st)
Forrest Hodgkins (22/2nd)

Brad Hutchinson (26/3rd)
 Ed Iczkowski (08/3rd, 14/2nd)
 Ben Jankowski (04/2nd)
 Ben Jankowski, Larry Herzman, Casey Carney (16/2nd, 18/1st)
 Ken Johnsen (02/1st)
 Ted Johnston (07/2nd, 14/1st)
 Robert D. Joseph (26/2nd, 27/1st)
 Doug Kahn (16/1st, 21/3rd)
 Scott Keohane (11/2nd)
 Richard Klug (05/2nd)
 David Moser, Kathleen Moser (18/3rd)
 Thomas J. O'Connor III, M.D. (06/2nd, 08/1st, 10/1st, 20/2nd, 20/3rd, 22/3rd, 24/1st, 25/3rd, 26/1st)
 Douglas Philipson (06/3rd, 25/2nd)
 Jim Post (05/3rd)
 Peter Rega (14/3rd)
 Craig A. Reynolds (19/1st)
 Terry Ripple (18/2nd, 24/3rd)
 Tom Rogers (08/2nd)
 Stephen Rose (07/3rd)
 Marc Schankweiler (02/3rd, 23/3rd)
 David S. Skok (19/3rd)
 John F. Sladky Jr. (15/2nd)
 Suzette Smith (21/1st, 25/1st, 27/3rd)
 Bruce Stott (12/2nd, 13/3rd)
 Paul Sullivan (05/1st, 13/1st, 15/3rd, 16/3rd, 17/1st, 21/2nd, 23/1st, 24/2nd)
 Michael Szwaya (10/2nd)
 Paul D. Veber, Marion R. Veber (11/3rd)
 Greg Walz (20/1st)
 Jeff Weeber (09/2nd)
 Michael Wendt (01/3rd)
 Raymond Willie (01/1st)
 John M. Zelazny (10/3rd)

PENSACOLA, FLA., REGION

Jeffrey A. Aivaz (04/3rd)
 John C. Allen (06/1st)
 Brian Balmes, Patty Balmes (06/3rd)
 Allen Bavy Jr (09/3rd)
 Peter H. Belcey (18/2nd)
 Tom Bergman, Chas Peterson (13/1st, 17/1st, 21/1st)
 Scott Bickham (03/2nd)
 Scott Boeke (26/3rd)
 Jeff Boggess (18/1st)
 Ralph Bucca (26/2nd)
 Bobby Bush (22/1st)
 Joel Carlson (11/2nd)
 Joseph Cione (13/2nd)
 Loren Claypool, Jeff Boggess (10/3rd)
 Dennis C. Cobb, Fred Ogline (01/3rd)
 Sotiris Daskalakis (23/1st)
 Dan Gildea (05/3rd, 16/2nd, 23/3rd)
 Jeff Gladish (20/1st)
 Billy Graham (07/1st, 16/3rd)
 Gregory M. Griffin, G. Janita Griffin (11/3rd)
 Mark E. Hall (07/3rd)
 Robert O. Hall (02/1st, 02/2nd, 03/3rd)
 Fred Hardy (02/3rd, 18/3rd)
 Timothy D. Harris (27/1st)
 Grant Heath (01/2nd)
 Alvis Hurd, Wayne Mark, Kevin Mitchell, Jerry Kissich, Mike Sheehan, Tom Luibrand (15/1st)
 Chuck Jones (05/2nd)
 Paul Kopicki (21/3rd)
 Stephen Kranz (04/2nd, 22/1st)
 Michael Lee (24/1st)
 Kenneth Lefkowitz (09/2nd)
 Rick Lubrant (25/1st)
 George Mika (20/2nd)
 Steve Nance (19/1st, 23/2nd)

Chris Neikirk (05/1st, 09/1st)
 David Pappas, Gary Michel (01/1st)
 Ron Raikie (03/1st, 14/2nd)
 Rhett Rebold (16/1st)
 Clifford A. Rinehart (14/3rd)
 Patrick Rohrbacher (04/1st, 10/1st, 12/3rd)
 Carl L. Saxer (14/1st, 22/3rd, 25/2nd, 26/1st)
 Bryan Schwab (21/2nd)
 Richard Schwartz (15/2nd)
 Kevin R. Stiles (07/2nd)
 John L. Szarek (24/2nd)
 Jeff Vogt (11/1st)
 Bob Waizenegger (13/3rd)
 Warren Wangerin (06/2nd, 20/3rd)
 Robert C. (Bob) Wolff (15/3rd)

PORTLAND, ORE., REGION

Erik Andersen (05/1st, 07/2nd)
 Todd Anderson (21/3rd)
 Mark Antush (23/1st)
 Michael Barr (13/2nd)
 Frank Berry (15/2nd, 19/3rd)
 Noel Blake (22/2nd)
 Greg Cannon (12/2nd, 12/3rd, 15/1st, 17/1st)
 Robert Craig (19/1st)
 Phil Crane (09/1st)
 Helen Croy, Phil Roche (23/2nd)
 Dan Diana (23/3rd)
 James R. Dibble (11/3rd)
 Robert Douglas (20/2nd)
 Jim Dunlap (14/1st)
 Jim Durham (01/1st)
 William Easton (04/2nd)
 Tim Egan (24/2nd)
 Derek Eisner (10/3rd)
 Robert Fawbush (07/1st, 08/3rd, 09/3rd, 16/2nd)
 Douglas Faynor (03/1st, 08/1st, 21/1st)
 Buck Florian (05/3rd)
 John Gehringer (20/1st, 26/1st)
 John Hanley, Charlie Patton (19/2nd)
 Chris Harding (10/2nd)
 K. Charles Harman (25/3rd)
 Steven Harrison (22/3rd)
 Mark Henry (11/1st)
 Charles Holshouser (06/1st, 11/2nd, 18/1st)
 Jim Horan (02/2nd)
 Sally Ilger (06/3rd, 27/1st)
 Doug Jeffs (06/2nd)
 Ray Jeno, Jim Nistler (07/2nd)
 Michael Kiker (10/1st, 16/1st, 18/3rd)
 Julie Kolmos, Kurt Kolmos (15/3rd, 21/2nd)
 Nate Kowash (05/2nd)
 Mathew A. Lafoon (17/3rd)
 Brian McGaughey, Bill McGaughey (14/3rd, 16/3rd)
 Eric Munger (02/1st)
 Lance Patterson (01/3rd, 02/3rd, 03/2nd)
 Dan Ritter (04/3rd, 17/2nd, 18/2nd)
 Dennis D. Roley, Michael W. Knop (08/2nd)
 Rod Romanak (09/2nd, 26/2nd)
 Ingmar Saul (04/1st)
 Byron Schmidt (14/2nd, 24/1st)
 Steve Schmitt (25/1st, 26/3rd)
 Charles I. Smith (22/1st)
 Tony J. Steenkolk, Mark C. Steenkolk (20/3rd)
 Thomas Thompson (02/1st)
 Tom Townsend (03/3rd)
 Steve Valley (01/2nd)
 Tony Wickham (25/2nd)
 Martin Wilde (12/1st)

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FOR THE BEGINNER

Jeff Shurts

SECONDARY IMPORTANCE

Ah, the life of the beginning brewer. As someone who has recently undertaken the homebrewer's craft, you are at a wonderful point in your development as a brewer. The beers you make are quite good and seem to get better with every batch as you gain experience and confidence. You are constantly improving techniques and perhaps using better ingredients with each new effort. It's exciting. You find it hard to let a freshly bottled batch sit long enough to mature before sampling your new creation.

If you're like me, you may grow impatient with your slow and steady progress, wanting your beer to taste just like your favorite microbrew or the fine beers your more experienced friends are making. Relax, don't worry. Enjoy this rewarding period in your development as a brewer. It won't be long before you reach a point where your beers won't improve noticeably with each new batch. You'll come very close to your "Holy Grail Pale Ale," and fine-tuning your recipe and technique to achieve greatness will be even more challenging than the improvements you've made so far. The bottom line: enjoy yourself. Work to improve your beers but stop to appreciate the progress you've already made.

Now, let's deal with the topic at hand. Most beginning brewers start out life with equipment sold as a kit by a local homebrew shop. As labeled, these kits typically come with one fermenter (normally a plastic bucket, but occasionally a glass carboy), and a bottling bucket possibly with a spigot near the bottom for easy bottling. Believing they only

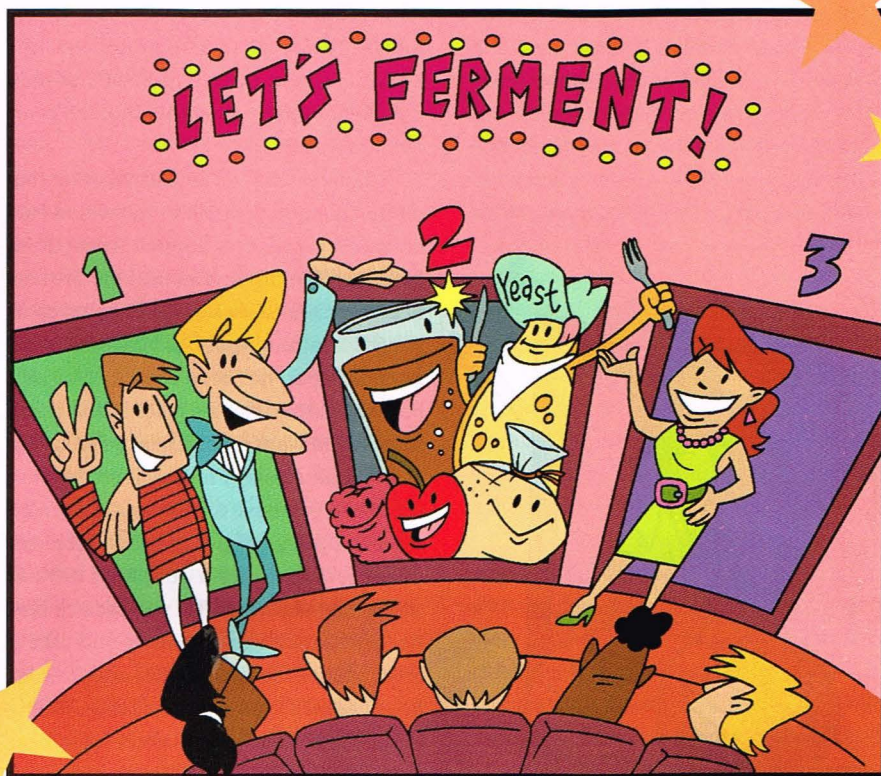
have one fermenter (I'll explain later that they really have two), beginners start their brewing lives using one-stage or single-stage fermentation. In one-stage fermentation, boiled wort is cooled, pitched with yeast and left to ferment in a single fermenter. Then the brew is racked (siphoned) directly into a bottling bucket, primed and bottled.

Secondary fermentation refers to the second stage of the common two-stage fermentation practice employed by most breweries and advanced homebrewers. As I'll explain,

there are many advantages to two-stage fermentation — advantages that are clearly evident in your finished beer. The cost in terms of extra equipment and time is insignificant.

It's Perfectly Clear

Many beginning (and quite a few seasoned) homebrewers don't get too concerned with the physical appearance of their beers. I'll admit I didn't pay much attention until



I felt I was doing OK with what I considered to be the more important qualities of a good beer — aroma and flavor. Once I was satisfied with the way my beers tasted I began to concern myself with haze.

A number of things can contribute to cloudy beer, and some of these are a concern primarily to all-grain brewers. High levels of protein, husk particles and unconverted starches are sources of haze that can plague all-grain brewers. But even for worts made exclusively from malt extract, there are plenty of sources of haze-forming material. Malt extract, in either of its forms (powder or syrup), is essentially the same stuff an all-grain brewer collects after mashing. More sophisticated sparging equipment allows extract producers to filter out more of the suspended particles, but some starches and proteins may remain in the extract.

Many of these compounds will settle to the bottom of your brew kettle as the wort cools following a vigorous boil. However, some will remain in suspension. The natural agitation caused by active fermentation (I like to call it the “lava lamp effect”) tends to keep these solids suspended in your beer. It is only after fermentation begins to wane that these little particles begin to settle out.

If you have ever conducted fermentation in a glass carboy you probably have seen the slow process of clarification in action. After visible activity has stopped, the break material (clumps of coagulated proteins) and yeast begin to slowly settle toward the bottom. After a few days the beer

at the top (probably the top inch or so) will appear very clear. However, as you inspect the beer that sits deeper in the fermenter, it will appear progressively more cloudy. Over time, with slow settling, more of the beer will appear clear. In fact, given enough time (and, perhaps, some finings to help), most of the haze-forming material will settle to the bottom. How much time is enough? It varies with the recipe and yeast. Some yeast strains are more prone to flocculate (clump together and settle out of suspension) than others. As a general rule, most ales will clear within two to three weeks. Lagers present another challenge. I'll get to lagering a bit later.

Avoid Autolysis

So your beer takes a while to clear. Why not just let it sit an extra week or two in the primary fermenter? The problem lies with the yeast — specifically, the yeast lying on the bottom of the fermenter. As it turns out, these simple fungi, like many of nature's wonderful creatures, have a built-in survival mechanism. The problem starts when all the fermentable sugar in your wort has been consumed by the yeast through fermentation. In a process known as autolysis, the yeast secrete proteolytic enzymes (say that three times fast!) as they turn their appetites on one another in an attempt to survive.

Go ahead, marvel at your yeast for this miniature manifestation of the will to survive. Just don't let it happen in anything you intend to drink. You see, the process of autolysis releases some pretty foul compounds into your beer. The odor these compounds impart has been described as rubbery and sulfury, not the hallmarks of a fine beer. If you want to experience the aroma of yeast autolysis (I recommend this, especially if you have aspirations to become a beer judge), just leave the yeast sediment in the fermenter for a couple of days at warm temperatures after you rack or bottle. Then open the fermenter and take a good whiff. Chances are that after this little experiment you'll be more than willing to do whatever it takes to keep your beer from smelling like this.

The good news is preventing the off-flavors of autolysis is not difficult. You simply need to remove the beer from the yeast before autolysis begins by racking the beer to a secondary fermenter. Of course, there will still be yeast in the beer you are siphoning. The yeast still in suspension will continue to fall to the bottom in your secondary fermenter, but the particles will be far fewer in number and any autolysis that occurs will have a very minor effect, if any, on your beer.

We Be Chillin'

During the winter months the homebrewer's fancy turns to lagers. Those who don't have artificial means of cooling can usually find a cold corner of the basement or garage in which to ferment a fine German-style specimen. The process of lagering, or cold-conditioning, is partly responsible for the sparkling clarity and “clean” flavor profile of classic Pilseners and other lagers. During this maturation period, suspended particles slowly but surely settle out. These particles include dormant yeast, hop resins and, if the beer is kept cold enough, proteins responsible for chill haze.

Of course, not all the yeast is dormant yet. During lagering, the notoriously lethargic but doggedly persistent lager yeast continues working. The major benefit of yeast activity during lagering is not alcohol production; that work was largely done by the time high kraeusens subsided. Fortunately, this continued yeast activity finishes the job of converting diacetyl, a buttery-smelling compound produced by the same yeast during their rapid growth phase, into other odorless compounds. Elimination of diacetyl is essential if you want an authentic, clean-tasting lager.

When lagering, patience is a virtue. The beer will continue to improve over time. Many homebrewers lager for as long as three months though I usually bottle after six weeks or so. With the beer sitting around for so long there is more than enough time for autolysis to occur. This makes racking to a secondary fermenter before lagering absolutely essential. The cold temperatures will serve to slow down the process of autolysis, so you need not worry about letting

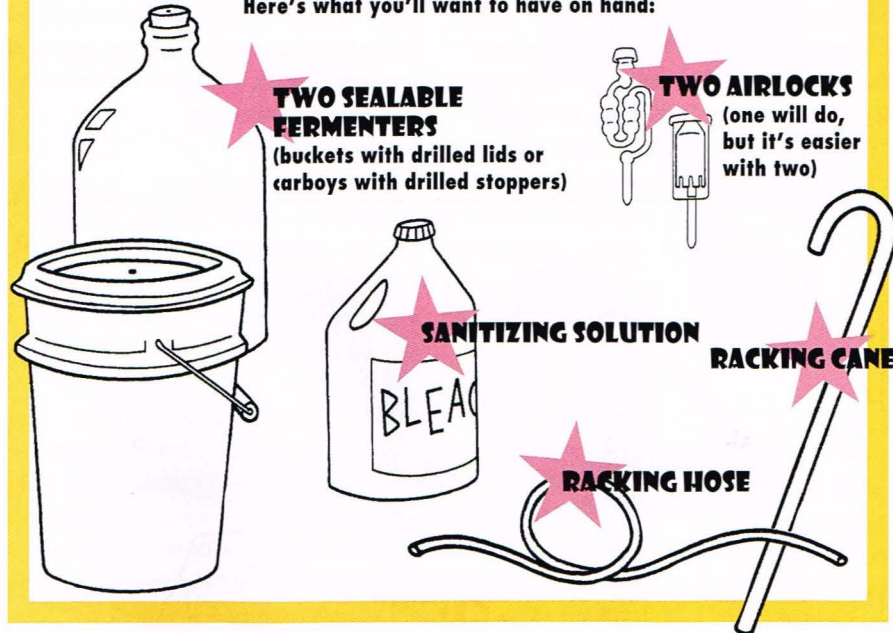


HERE'S WHAT YOU'LL NEED

Secondary fermentation can be done using the equipment you already have.

All you need is a vessel to use as a second fermenter.

Here's what you'll want to have on hand:



the beer sit for a couple of months before bottling — as long as you have first siphoned it from the thick cake of yeast in your primary fermenter.

Fruit Beers: Capturing the Aroma

In case you need further persuasion, there's another good reason to use secondary fermentation — when you are fermenting with fruit. When we make a fruit beer, what are we after? Whether we add raspberries, peaches, mangoes or passion fruit, it's primarily the aroma of the fruit. After all, what good is a raspberry ale that doesn't smell like raspberries?

One of my first batches of homebrew was a raspberry ale. OK, so it wasn't all that bad, but it wasn't the beer I was hoping for. I started with a simple extract ale, went easy on the hops and used plenty of raspberries (following the generally accepted pound-per-gallon guideline). The CO₂ bubbling out of my airlock smelled wonderful, but when

I racked the beer to my bottling bucket the raspberry aroma was not nearly as evident. By the time it had been bottled and conditioned for a few weeks, only a trace of fruit aroma remained.

What happened? I asked a few of my more experienced brewing friends that question. The general consensus? I added the fruit too soon — in the primary fermenter. As it turns out, when fruit or fruit extract is added at the beginning of fermentation, most of the volatile aromatics are purged along with escaping bubbles of CO₂, which explains the wonderful aroma coming out of my primary fermenter. Adding the sugar-laden fruit to your secondary fermenter does induce a second fermentation, but it is less vigorous and shorter lived than primary fermentation. Far less CO₂ is produced and the finished beer smells more like fruit. If you need convincing, just taste one of the beautifully aromatic fruited Belgian beers like Boon Kriek. The Belgians do exactly what I've described — induce a second fermentation by adding the fruit after primary fermentation has subsided.

Tips on Secondary Fermentation

By now I have no doubt you're ready to add secondary fermentation to your brewing process. All you need are a few pointers to get you going. Relax, don't worry. It's simple, quick and painless — read on and see for yourself.

On brew day follow your normal procedures for getting the beer into the fermenter and pitching the yeast. If you have different-sized carboys (five and six gallons, for example), use the larger for primary fermentation. This provides space for foam production in the primary. If you have two plastic buckets and one is fitted with a spigot, you can use the bucket with the spigot for primary fermentation — it will make racking to the secondary fermenter easier later on. Just be sure to take extra care to fully sanitize the spigot (take it apart and soak it, disassembled, in sanitizing solution) and the hose you'll attach to the spigot for transfer.

A day or two before you plan to rack to the secondary fermenter, set your primary fermenter on a table or countertop (you'll need it elevated). Moving it early allows time for any sediment kicked up to settle to the bottom. If siphoning, use a cap or other filtering device on the end of the racking cane to avoid sucking up sediment. Or carefully monitor the level of the racking cane, lowering it gradually as the beer is siphoned. Place the cap on the cane before sanitizing. When it's time to rack the beer, first sanitize your racking cane, hoses and secondary fermenter. If you used a bucket with a spigot for primary fermentation, sanitize the outside of the spigot before attaching the hose. Helpful hint: I usually sanitize my racking cane and hose by siphoning the sanitizing solution out of the fermenter into a sink or a five-gallon (19-L) bucket.

Start racking. If you are equipped with a spigot, it's as simple as opening the tap to start the flow. Racking by siphon is slightly more involved. There are several effective techniques for starting a siphon, and I'll not elaborate on all of them here. I start with the racking cane and hose already attached. Then, from the hose end, I fill my siphoning

apparatus (cane and hose) with cooled boiled water, holding the cane upright and watching to see when it is full. Then I seal off the hose end with my thumb. To prevent sanitation problems, I wear rubber gloves and sanitize them before siphoning. Then it's as simple as inserting the cane into the primary (do this first) and the hose into the secondary. If you don't want the few ounces of water to end up in your beer, simply let it run into a bucket and clamp off the hose when the beer has filled the line. Then insert the hose into your secondary and let 'er rip.

While siphoning, hold the tip of your racking cane well above the sediment for as long as possible to minimize pulling sediment into the secondary. Move the cane down as you go to keep the tip submerged. If you're using a spigot, there's not much you can do to reduce the amount of yeast being carried to the secondary. On most buckets the opening is high enough above the bottom that you shouldn't have to worry. On the downstream end of the action, try to minimize aeration of the wort. Don't let it splash excessively or fan down the side of the fermenter.

As you get to the end remember this: Don't get greedy. It's best not to tip the fermenter to preserve that last bit of brew. Expect to leave a little beer in the primary fermenter. It's better than carrying a lot of yeast sludge into the secondary. Remember, the main reason we're doing this is to leave behind as much of the yeast that has settled to the bottom as possible.

If you are adding fruit or hops, do so now. Use reasonable sanitation measures when introducing these foreign substances to the beer you've worked so hard to keep sanitary. The beer does contain alcohol, so it's a little more tolerant than fresh wort, but it's still possible to pick up an infection at this stage. Chopped fruit can be pasteurized (heated to 140 degrees F or 60 degrees C for 15 minutes) to sanitize. Hops, being an effective preservative, can be added without special sanitation techniques. Just avoid excessive handling before you add them to the fermenter.

Add your airlock and go away. Let an ale stand for two to three weeks, a lager for two to three months, to clarify. The majority of

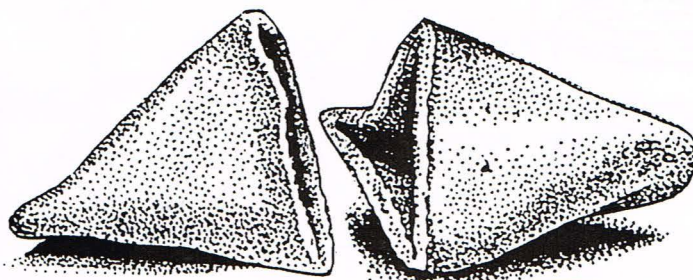
fermentation activity has run its course. Don't expect to see a lot of bubbles escaping from your airlock, or a re-formation of foam atop your beer. The yeast is still working, just working slowly.

If you wish to add finings (Polyclar or gelatin, for example), do it in the secondary fermenter. The timing of this addition is somewhat flexible and depends on the type of fining used (some take longer to settle than others). For information on finings, see *Zymurgy* Winter 1995 (Vol. 18, No. 5), "Fining Your Way to Clear Beer."

All in all, choosing to use a secondary fermenter is an easy way to improve your brewing technique.

During the week, Jeff Shurts is a computer analyst at Illinois Power in Decatur, Ill. Evenings and weekends, he's an avid homebrewer who enjoys reading and writing about beer almost as much as brewing and drinking it. Jeff and brewing partner Terry Banicki have brewed some 30 batches over the course of two years. Jeff is a member of the Central Illinois Brewers Association.

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WINNERS

C I R C L E

James Spence

Here's another fine collection of tasty beers to brew for the coming season. For best results with these recipes always use the highest quality and freshest ingredients you can find. If you can't tell how old an ingredient is from the package, ask your supplier. Knowing you have the best ingredients available will give you confidence in your brewing, and assure you that ingredient selection isn't the culprit if a beer doesn't come out quite the way you expected.

Weighing priming sugar, as opposed to measuring it by volume, is highly recommended. Why? Dextrose (corn sugar) can vary from 133 grams to 193 grams per cup — enough to make a 30 percent variation in final carbonation level at room temperature. Check out Michael Hall's article, "Brew by the Numbers," in *Zymurgy* Summer 1995 (Vol. 18, No. 2) for more reasons why measuring by weight matters.

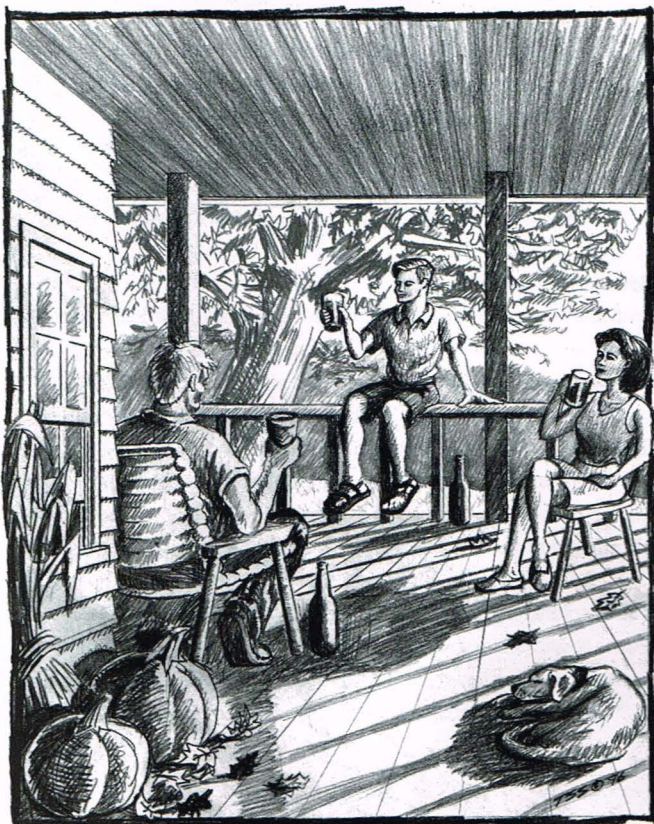


ILLUSTRATION BY TIM SPOSATO

FRUIT BEER



SILVER MEDAL

AHA 1995 NATIONAL HOMEBREW COMPETITION

Kim Moody

Greentop, Missouri

"Dessert Stout"

Classic-Style Fruit Beer

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

- 10 lb two-row malt (4.5 kg)
- 1 1/2 lb 60 °L crystal malt (0.68 kg)
- 1/2 lb chocolate malt (0.23 kg)
- 1/4 lb black patent malt (0.11 kg)
- 2 oz Cascade hops, 4.9% alpha acid (57 g) (60 min.)
- 6 oz Baker's unsweetened chocolate (170 g) (15 min.)
- Wyeast Bavarian Lager No. 2206 liquid yeast culture
- 4 oz raspberry extract (113 g) (secondary)
- 3/4 cup dextrose (177 mL) (to prime)

- Original specific gravity: 1.052
- Final specific gravity: 1.020
- Boiling time: 60 min.
- Primary fermentation: 12 days at 48 degrees F (9 degrees C) in glass
- Secondary fermentation: one month at 48 degrees F (9 degrees C) in glass
- Age when judged (since bottling): seven months

Brewer's specifics

Mash grains at 154 degrees F (68 degrees C) for 90 minutes. Add chocolate 45 minutes into boil. Add raspberry extract to secondary fermentation.

Judges' comments

"Good stout character, could use more raspberry. Well-balanced malt and hops. Good and clean. Perhaps a hair too much chocolate."
 "Smooth malt flavor with hint of fruit. Great taste. May need more fruit."

"Good roasted grain flavor. Can't really taste raspberries. Very good stout beer. Can't taste fruit — kind of keeps the score down lower."

STOUT



BRONZE MEDAL
AHA 1995 NATIONAL HOMEBREW COMPETITION
John J. Gayer and
William Orten Carlton
Athens, Georgia
"The Citizens Impossibly
Opaque Imperial Stout"
Imperial Stout

Ingredients for 3 U.S. gal (11 L)

- 8 1/4 lb Munton and Fison plain dark liquid extract (3.7 kg)
- 6 oz Munton and Fison black malt (170 g)
- 6 oz Munton and Fison chocolate malt (170 g)
- 6 oz Munton and Fison roasted barley (170 g)
- 6 oz Briess toasted malt (170 g)
- 1 oz Eroica hops, 10% alpha acid (28 g) (60 min.)
- 1 oz Centennial hops, 9.9% alpha acid (28 g) (60 min.)
- 1 oz Chinook hops, 11.3% alpha acid (28 g) (60 min.)
- 1 oz Galena hops, 11.8% alpha acid (28 g) (60 min.)
- 1 oz Olympic hops, 10% alpha acid (28 g) (60 min.)
- 1 oz Brewers Gold hops, 7.8% alpha acid (28 g)
(see brewers' specifics)
- 1 oz Bullion hops, 7.2% alpha acid (28 g)
(see brewers' specifics)
- 1 oz Perle hops, 6.2% alpha acid (28 g)
(see brewers' specifics)
- Yeast Lab English Ale A09 liquid yeast culture
- 2 oz Northern Brewer hops, 7.2% alpha acid (57 g) (dry)
- 1/3 lb Munton and Fison plain dark extract syrup (151 g)
(to prime)

- Original specific gravity: 1.089
- Final specific gravity: 1.035
- Boiling time: 60 min.
- Primary fermentation: seven days at 68 degrees F (20 degrees C) in glass
- Secondary fermentation: 14 days at 68 degrees F (20 degrees C) in glass
- Age when judged (since bottling): three months

Brewers' specifics

Steep grains at 155 degrees F (68 degrees C) for 60 minutes. Mix Brewers Gold, Bullion and Perle hops and boil one ounce of mixture for 20 minutes, another ounce for 10 minutes and add the remaining ounce for finish.

Judges' comments

"Fruitiness, followed by hop flavor and malt. Alcohol very evident, but not hot. Hops a bit out of balance. Hop flavor and bitterness are just a tad to high. Good effort!"

"Big brew! Alcohol is right there with roast grain. Could be multi- to balance hops. Very good effort. Shift balance toward malt."

CALIFORNIA COMMON BEER



SILVER MEDAL
AHA 1995 NATIONAL HOMEBREW COMPETITION
John Sullivan and Jeff Michalski
St. Louis, Missouri
"St. Louis Steamer"

Ingredients for 10 U.S. gal (38 L)

- 10 lb Schreier two-row malt (4.5 kg)
- 7 lb DeWolf-Cosyns Pils malt (3.2 kg)
- 4 lb Vienna malt (1.8 kg)
- 2 lb DeWolf-Cosyns wheat malt (0.9 kg)
- 3/4 lb DeWolf-Cosyns aromatic malt (0.34 kg)
- 3/4 lb DeWolf-Cosyns caramel Pils malt (0.34 kg)
- 3/4 lb DeWolf-Cosyns CaraVienne malt (0.34 kg)
- 3/4 lb DeWolf-Cosyns CaraMunich malt (0.34 kg)
- 3/4 lb DeWolf-Cosyns Special "B" malt (0.34 kg)
- 1 1/2 oz Galena hops, 12.8% alpha acid (43 g) (60 min.)
- 1 1/2 oz Northern Brewer hops, 7% alpha acid (43 g) (15 min.)
- 1 1/2 oz Northern Brewer hops, 7% alpha acid (43 g) (two min.)
- 1 oz Northern Brewer hops, 7% alpha acid (28 g)
(dry, two weeks)
- Wyeast California Lager No. 2112 liquid yeast culture
- 3/4 cup dextrose (177 mL) (to prime)

- Original specific gravity: 1.061
- Final specific gravity: 1.012
- Boiling time: 60 min.
- Primary fermentation: seven days at 62 degrees F (17 degrees C) in glass
- Secondary fermentation: 14 days at 62 degrees F (17 degrees C) in glass
- Age when judged (since bottling): 5 1/2 months

Brewers' specifics

Mash grains at 153 degrees F (67 degrees C) for 120 minutes.

Judges' comments

"Light caramel. Toasty malt taste. Medium hop bitterness and flavor. Well-balanced. Very drinkable."

"Well-balanced with the hop-malt blend. Very clear and color is on the money. Very good job."

VIENNA, MÄRZEN, OKTOBERFEST



SILVER MEDAL
AHA 1995 NATIONAL HOMEBREW COMPETITION
John Fahrer
Omaha, Nebraska
"Fahrer Fest-Bier"
Märzen/Oktoberfest

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

- 7 1/2 lb German Pilsener malt (3.4 kg)
- 9/16 lb German dark crystal malt (0.26 kg)
- 1/4 lb 60 °L crystal malt (0.11 kg)
- 1/2 lb toasted Klages malt (0.23 kg)
- 3/4 oz Tettnanger hop pellets, 3.8% alpha acid (21 g) (45 min.)
- 1 oz Styrian Goldings hop plug, 4.5% alpha acid (28 g) (30 min.)
- 1/2 oz Saaz hop pellets, 4.2% alpha acid (14 g) (15 min.)
- Wyeast Bavarian Lager No. 2206 liquid yeast culture
- 44 oz gyle (unfermented wort saved from boil) (1.3 L) (to prime)

- Original specific gravity: 1.054
- Final specific gravity: 1.017
- Boiling time: 90 min.
- Primary fermentation: 23 days at 46 to 54 degrees F (8 to 12 degrees C) in glass
- Secondary fermentation: 30 days at 32 degrees F (0 degrees C) in stainless steel
- Age when judged (since bottling): 14 1/2 months

Brewer's specifics

Toast one-half pound (0.23 kg) Klages malt for 10 minutes at 350 degrees F (177 degrees C). Mash-in grains at 97 degrees F (36 degrees C). Raise temperature to 122 degrees F (50 degrees C) within 10 minutes. Hold for 15 minutes. Raise to 144 degrees F (62 degrees C) within 15 minutes. Hold for 30 minutes. Raise to 156 degrees F (69 degrees C) within 10 minutes until conversion. Raise to 168 degrees F (76 degrees C) within 10 minutes. Hold for 10 minutes. Sparge with 4 gallons (15 L) of 165-degree-F (74-degree-C) water.

Judges' comments

"Lacks maltiness and toastiness. A good Vienna but too thin for an Oktoberfest. Needs more malt sweetness for style."

"Needs more malt toasty sweetness. Almost tastes smoky. Lots of good things going on here but not a perfect balance in the classic sense."

"Notes of toasted malt. Medium hop flavor. Low to medium bitterness. Hop flavor is a touch too forward. Nice beer, needs some tweaking."

BARLEY WINE



BRONZE MEDAL
AHA 1995 NATIONAL HOMEBREW COMPETITION
Michael Knaub
Mt. Wolf, Pennsylvania
"Barley Wine"

Ingredients for 10 U.S. gal (38 L)

- 7 1/2 lb Coopers plain light malt extract syrup (3.4 kg)
- 6 2/3 lb Munton and Fison plain light malt extract syrup (3 kg)
- 9 lb Munton and Fison plain light dry malt extract (4.1 kg)
- 5 lb Dutch plain light dry malt extract (2.3 kg)
- 65 HBU Chinook hops (60 min.)
- 27 HBU Cascade hops (15 min.)
- 7 HBU Cascade hops (five min.)
- Wyeast German Ale No. 1007 liquid yeast culture

- Original specific gravity: 1.094
- Final specific gravity: 1.026
- Boiling time: 60 min.
- Primary fermentation: 13 days at 70 degrees F (21 degrees C) in glass
- Secondary fermentation: 12 days at 70 degrees F (21 degrees C) in glass
- Age when judged (since bottling): 19 months

Brewer's specifics

Boil extract for 60 minutes.

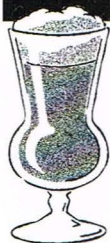
Judges' comments

"A little heavy on hops but I like it. A little sherry in finish. Alcohol is evident. A well-crafted beer. Reduce hops a little or let this age a bit more."

"Big initial malt, lots of hop bitterness to balance. Some astringency in middle. Nice brew. Needs better middle malt-hop balance. Initial hop bite needs to be reduced – drop back bittering hops."

"Sweet and thick with a lingering aftertaste. Also a slight metallic-astringency. Strong warming sensation. The metallic-astringency detracts from the attributes of the beer to cause a lingering taste."





SCOTTISH ALE



BRONZE MEDAL

AHA 1995 NATIONAL HOMEBREW COMPETITION

Steven Ashton

Indian Hills, Colorado

"Gant"

Scottish Export

Ingredients for 15 U.S. gal (57 L)

- 25 lb American two-row malt (11.3 kg)
- 2 lb 80 °L crystal malt (0.9 kg)
- 2 lb dextrin malt (0.9 kg)
- 1/8 lb roast barley (57 g)
- 6 oz Northern Brewer hops, 8.2% alpha acid (170 g) (60 min.)
- 2 oz Fuggles hops, 4% alpha acid (57 g) (30 min.)
- 2 oz Goldings hops, 4.6% alpha acid (57 g) (five min.)
- Wyeast British Ale No. 1098 liquid yeast culture
- 2 oz Goldings hops, 4.6% alpha acid (57 g) (dry, seven days)
- 1 cup malt extract for each 5-gallon keg (237 mL) (to prime)

- Original specific gravity: 1.058
- Final specific gravity: 1.010
- Boiling time: 60 min.
- Primary fermentation: 13 days at 70 degrees F (21 degrees C) in stainless steel
- Secondary fermentation: seven days at 65 degrees F (18 degrees C) in glass
- Age when judged (since bottling): four months

Brewer's specifics

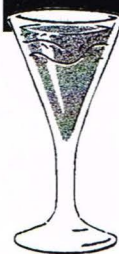
Mash grains at 152 degrees F (67 degrees C) for 90 minutes.

Judges' comments

"Lacks a strong malt component. Carbonation is a bit high so beer isn't smooth and malty. Hops a bit high given the low maltiness. Needs more body and malt character."

"Malt and caramel at start but quickly overtaken by hop bitterness. Finish malty, but with lingering bitterness. A fairly nice beer, but way too hoppy for style. Cut hopping in half."

"Nice clean balance but a bit heavy on hops in flavor and bitterness. Needs more roast and malt for style. Very drinkable. Very clean. Could be more mellow and malty."



CIDER



SILVER MEDAL

AHA 1995 NATIONAL HOMEBREW COMPETITION

Scott Christensen

Minneapolis, Minnesota

"Bumble Bee Cider"

Sparkling Cider

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

- 5 gal Indian Summer brand apple juice (19 L)
- pectic enzyme
- 5 tsp L.D. Carlson yeast nutrient (24.6 mL)
- 2 1/2 tsp potassium sorbate stabilizer (12.3 mL)
- 2 1/2 cups clover honey (591 mL)
- 1 qt apple juice (0.95 L)
- 5 tsp Sparkoloid® (24.6 mL)
- Red Star Pasteur Champagne yeast
- force carbonated in keg

- Original specific gravity: 1.052
- Final specific gravity: 1.019 (after sweetening)
- Boiling time: none
- Primary fermentation: 23 days at 70 degrees F (21 degrees C) in glass
- Age when judged (since bottling): two months

Brewer's specifics

Stabilize cider when it begins to clear. Boil honey, apple juice and Sparkoloid and add to keg to sweeten.

Judges' comments

"Medicinal. Slightly sweet aroma. Needs more fruit/apple in aroma. Very drinkable and refreshing. Needs more apple character."

"Roasted peanut in aroma blows off in time. No apple aroma. Good carbonation, nicely balanced, good body. Sweet with tart finish. Would have scored higher except for lack of apple aroma."





HAIL TO ALE CLUB-ONLY COMPETITION WINNER

Duane Maki
Representing The Honorable
Iowa River Society of
Talented Yeastmasters (THIRSTY)
Cedar Rapids, Iowa
"Clowning Around Ale"
American Pale Ale



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

- 7 lb Briess two-row malt (3.2 kg)
- 1/4 lb 80 °L crystal malt (0.11 kg)
- 1/4 lb six-row CaraPils malt (0.11 kg)
- 3 lb Munich light malt (1.4 kg)
- 1 lb Vienna malt (0.45 kg)
- 1 3/4 oz Cascade hop pellets, 4.9% alpha acid (50 g) (60 min.)
- 1/2 oz Cascade hop pellets, 4.9% alpha acid (14 g) (45 min.)
- 1/2 oz Cascade hop pellets, 4.9% alpha acid (14 g) (30 min.)
- 1 1/2 oz Cascade hop pellets, 4.9% alpha acid (42 g) (15 min.)
- 1 oz East Kent Goldings hop pellets, 4.9% alpha acid (28 g) (15 min.)
- Wyeast American Ale No. 1056 liquid yeast culture
- 1 oz Cascade hop pellets, 4.9% alpha acid (28 g) (dry, four days)
- 1/2 oz East Kent Goldings hop pellets, 4.9% alpha acid (14 g) (dry, four days)
- 2/3 cup dextrose (157.7 mL) (to prime)

- Original specific gravity: 1.050
- Final specific gravity: 1.009
- Boiling time: 90 min.
- Primary fermentation: four days at 68 degrees F (20 degrees C) in plastic
- Secondary fermentation: 13 days at 62 to 68 degrees F (16.5 to 20 degrees C) in plastic
- Age when judged (since bottling): 10 months

Brewer's specifics

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

Judges' comments

"High hop bitterness balances initial sweetness. Hop flavor evident, fruity, diacetyl detectable. A nice beer. Good use of flavor hops."

"Very nice citrusy hop flavor. Nice clean bitterness in the finish. Light malt note in background. Clean, crisp hop flavor and a nice lingering bitterness."

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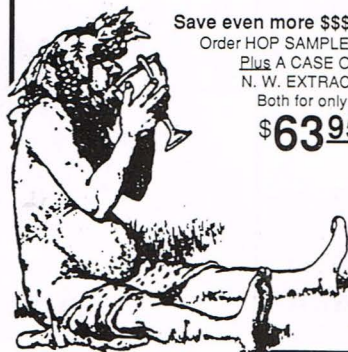
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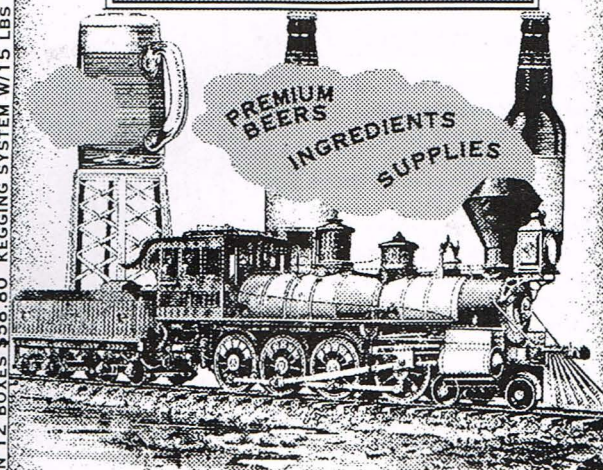
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WORLD OF WORTS

Charlie Papazian

ISLANDIC VELLOSDRICKA

I learned many years ago that the dandelion was brought to America by homesick Swedes. Now I don't doubt this, for there are expansive fields dense with yellow carpets of dandelions blazing against a brisk blue springtime sky on the Island of Gotland. Surrounded by the Baltic Sea, Gotland is a small island about 25 miles wide by 50 long. There, dense stands of birch and pine trees accent flowering trees and red, white, yellow and blue tulips and daffodils. The sea is cold and the winds brisk.

Sixty-four-year-old Vello Noodapera greeted Swedish Homebrewing Society member Jesper Schmidt and me at the airport. We were curious about the legendary beer of Gotland Island. Overwhelmed by the excitement of our arrival, Vello immediately set the record straight, "Do you know what day is today?" Was there something special? I didn't know, and with a thirsty smile asked him to explain. "It is *Folknykterhetens Dag*, which roughly translates to "a day of people's soberness."

My god, I had arrived on a national day of abstinence. I thought to myself, "Get a grip, Charlie. You might get off on smelling the dandelions." But Vello was only catch-

ing his breath and quickly confided with a hearty laugh, "But we'll ignore it."

We were on our way to Vello's farm and later to Sweden's first brewpub, opened officially only two weeks before my arrival, the Virungs Bryggeri. My quest was to discover the mysteries of the island's special beer, Gotlandsdricka.

The 45-minute drive down a scenic winding road was interrupted briefly at a roadside parking lot. It may have been 10 in the

yeast. I knew I was about to have my horizons broadened.

To put it mildly, we had arrived. I had no idea how wonderful this day was about to be. Approaching the farm I noticed an American flag flying high on a pole in the distance. "That is in your honor, Charlie. It flies near my house and homebrewery today." Off on the side wall of a large red barn, a skillfully carved and painted sign proclaimed The Ardre Brygg (Ardre Brewery).

From the room behind that wall emerged the simple mash, lauter and brewing kettles from which Vello proudly brewed his beer. From home-fashioned tubs and adapted pieces of dairy equipment Vello brewed some of the best damn beer I had in all of Europe. What I was particularly interested in was the specialty of the island, Gotlandsdricka, an ale brewed with smoked malt, hops, juniper branches, bread yeast and water.

Now it would be simple to assume that one could learn to brew this unique beer by following a recipe, but I discovered, as with all traditional beers, if one wishes to come close to authenticating a style, it is absolutely imperative to experience it first hand. I did. From this experience I came away with a feeling of



morning, but not too early for a homebrew. At this time of year the sun hardly sets anyway. Up pops the trunk of Vello's Saab and within seconds Jesper, Vello and I are toasting the occasion with a mugful of delicious all-grain ale, brewed with the local bakers

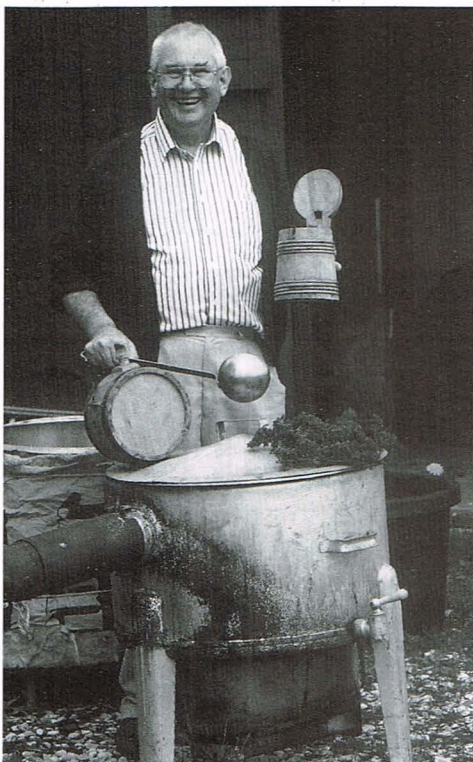
admiration for a beer loved by the people who make it.

Gotlandsdricka is brewed all across the tiny island of Gotland. By some estimates 5,000 hectoliters are homebrewed by the 50,000 residents. That's 10 liters (2.6 gal) for every man, woman and child on the island, which is self-sufficient with its own barley, hops, malt houses and yeast strains.

Dan Andersson, one of Vello's brewing neighbors, soon arrived for this occasion with a recent batch of Gotlandsdricka. I salivated with anticipation, watching amazed as this amber nectar was poured into a magnificently wonderful mug made of juniper wood. The rich, creamy head and the aromatics from the juniper resulted in love at first sip. Wow, was this stuff ever good. A huge pile of birch logs caught my eye and I asked whether the malt was smoked with birch with the bark left on. They confirmed my speculation, "Yes, we leave the bark on the wood when we smoke the malt." No small detail, because birch bark has its own unique qualities. "But everyone makes their own style of Gotlandsdricka," Jesper translated to me from a side conversation going on in Swedish.

Details, details. How did they do it? Freshly cut juniper (note: juniper is not the same as cedar) branches are boiled in water for about two hours to make an aromatic amber broth. The juniper is of the variety that usually is low growing and difficult to handle because of the thorny needles. I recalled seeing these types of bushes/trees growing in the gardens and mountains in my home state, Colorado.

This is the brewing liquor that is added to crushed malted barley. Thirty percent of the grist is malt dried from the heat



Vello proudly displays his Gotlandsdricka brewing equipment and juniper wood mug at his Gotland Island farm.

the kettle local hops are typically used, though the more experienced homebrewers are now making the effort to import German-grown varieties of quality brewing hops.

When the wort is cool, what seems to be an very infinitesimal amount of bakers yeast is added. About one cubic centimeter of yeast cake is used for a 100-liter (about 25-gallon) batch. The beer was snorting and in full fermentation within six hours. I didn't understand the significance of the careful utilization of yeast until after I visited the

and smoke of burning birch logs. The remaining malt is the brewer's preference, consisting mostly of pale lager types. Some of the amber juniper water is reserved for sparging. The bottom screen of the lauter vessel is lined with more freshly cut boughs of juniper. The mash is then poured into the lauter vessel, sparged and the sweet aromatic malt extract drawn off the bottom. In

brewpub in the nearby village. There Gotlandsdricka is made with a mere 25 grams (less than one ounce) of yeast cake in 800 liters (about 200 gallons) of fresh wort. This is the equivalent of using one ounce of dried yeast for a 200-gallon batch of beer! But it worked.

The local brewers told me they had tried using cultured brewing yeasts, but the quality was not the same. When I asked why so little yeast was used, no one seemed to have a scientific explanation, but I now postulate because this yeast is so active using a small amount is desirable to reduce the heat generated during the initial fermentation. With greater amounts of yeast the explosive activity would generate heat that may in turn cause the yeast to produce undesirable flavor compounds, typical of high-temperature fermentations. The relatively cool environment and viability of this yeast produced a balance of flavors the people of Gotland Island learned to love.

At Vello and Dan's homebrewery record keeping was not a habit, but from my senses I surmised they made a beer of about 1.050 (12.5 °B) original gravity. Color was about 14 SRM and the hop character of the Hallertauer contributed about 30 IBUs. Their Gotlandsdricka had a fruity and pleasant juniper taste and a smooth, distinctive smoky flavor. But they were all quick to flame friendly rivalries that existed among Gotland's homebrewers — everyone had their own secret recipe and styles: sweet, bitter, strong, weak, dark, pale, sour, variable amounts of smoke and juniper.

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

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

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

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

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

We finished Vello and Dan's beer and continued our daylong expedition to Virungs Bryggeri, the island's brewery and brewpub in the small village of Romakloster. In fact, the small cottage and barn compound seemed to be all of the village. There we visited Lillis Svård and his family who raise sheep, run a smokehouse, meat house and small malt house, brewery and attached inn. Lillis malts his own barley and is experimenting with growing and malting wheat and spelt.

A lightly smoked (relatively speaking) version of Gotlandsdricka was brewed using 40 percent lightly smoked malt with some Munich malt bought at a commercial malt house. His other beer is called *drog öl*, brewed with pale and Munich malt and honey. Surprise — Lillis was a homebrewer for 10 years who has gone commercial.

I believe as you brew your next batch of beer, whatever your style might be, Lillis and Vello will be tending their most recent batch of Gotlandsdricka. I fell in love with the stuff and was very pleased with how my first batch turned out. I did have a little help, since Lillis gave me about 10 pounds of birch-smoked malt he had made, but you can produce your own style of *dricka* using ingredients locally available. Why? Because you're a homebrewer.

And if you can drink your *dricka* out of a juniper-wood mug, please do. It's simply wonderful. So let's cut the shuck and jive and get on with the recipe.

ARDRE BRYGG

Mash-extract recipe for 5 gal (19 L)

For the brewing water:

- 4 10- to 12-inch boughs or branches of juniper. The ones I used were laden with blue-green berries. Juniper is not cedar. The needles on these branches were very thornlike and difficult to handle without gloves.
- 4 more similar-sized boughs for lautering

For the mash:

- 5 lb crushed smoked malt (2.27 kg)
I used Gotland-made, birch-smoked malt from the Virung

Brewery — sorry, not available in America, but reproducible by smoking two-row over birch.

- 1 1/2 lb Munich malt (0.68 kg)

Add to the mash runoff:

- 2 1/2 lbs extra-light dried malt extract (1.1 kg)

And boil with hops:

- 5 Homebrew Bittering Units.
I used 1/2 oz or 14 g 8.9% alpha acid German Northern Brewer whole hops.
- 4 Homebrew Bittering Units of flavor hops. I used 1 oz or 28 g of 4% alpha acid Hersbrucker Mittelfrüh hop pellets.
- 1/4 tsp Irish moss (1.2 mL) (20 min.)
- 1 cubic centimeter of fresh compressed bakers yeast cake.
Yes, regular bread yeast. Of course, you may use lager or ale yeast, but keep in mind this recipe attempts to be true to style.
- 3/4 cup corn sugar (177 ml) (to prime)

- Original specific gravity: 1.044 to 1.048 (11 to 12 ° B)
- Final specific gravity: 1.012 to 1.016 (3 to 4 ° B)
- IBUs: about 30

Boil four boughs of juniper branches in 6 1/2 gallons (24.6 L) of water for one hour. After removing the "spent" branches, use the water for mashing and sparging.

Mash the grains using a step infusion technique. Add 7 1/2 quarts (7 L) of 132-degree-F (56-degree-C) juniper water to the crushed grain, stir, stabilize and hold the temperature at 122 degrees F (50 degrees C) for 30 minutes. Add 3 1/4 quarts (3.1 L) of boiling water and add heat to bring temperature to 158 degrees F (70 degrees C), hold for about 30 minutes.

After conversion, raise temperature to 167 degrees F (75 degrees C), laut and sparge with 2 1/2 gallons (9.5 L) of 170-degree-F (77-degree-C) juniper water. (Note: This is less than your typical amount of sparge water for this amount of grain, but because a smaller volume for boiling is desired for this mash-extract brew, less sparg-

ing is called for. Your efficiency may be brought down to 70 to 75 percent from a more typical 80 percent.) Collect about 3 to 3 1/2 gallons (11.4 to 13.3 L) of runoff and add the malt extract and bittering hops and bring to a full and vigorous boil.

The total boil time will be 90 minutes. When 20 minutes remain add 4 Homebrew Bittering Units of flavor hops and the Irish moss. After a total wort boil of 90 minutes turn off the heat and strain into a sanitized fermenter to which you've added 1 1/2 gallons (5.7 L) of water. It helps to prechill (to 33 degrees F or 1 degree C) the water added to the fermenter rather than simply adding warmer tap water.

IBUs of about 30 were calculated for this recipe by making the following assumptions: (1) Whole hops were used for the main bittering hop, (2) The wort boil was a concentrated boil with about 2 1/2 pounds (1.1 kg) of extract per gallon (3.8 L) of liquid boiled and (3) 25 to 26 percent utilization was assumed for 90 minutes of boiling and 13 percent utilization was assumed for 20 minutes of boiling. Beginners and intermediate brewers should relax, don't worry and have a homebrew.

Dissolve the compressed yeast in a small amount of boiled and cooled water. Use a sanitized jar and teaspoon to combine the yeast and water. Primary ferment at temperatures between 55 and 65 degrees F (13 and 18 degrees C).

Prime with corn sugar and bottle when fermentation is complete, probably within seven to 10 days. Enjoy when clear. Let stand for a few weeks to minimize some of the bready character you may associate with bakers yeast.

Relax. Don't worry. Have a homebrewed Islandic Vello'sdricka in the spirit of those who do on Gotland Island. And hope you never find yourself smelling the dandelions on *Folknykterhetens Dag*.

Editor's note: For more on Gotlandsdricka see Zymurgy Special Issue 1994 (Vol. 17, No.4), Special Ingredients and Indigenous Beer.

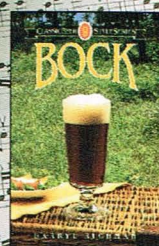
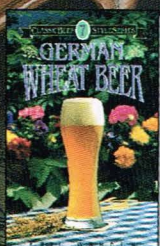
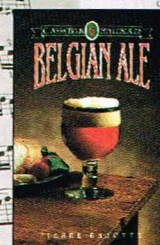
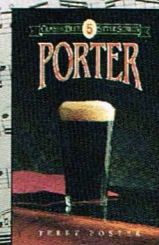
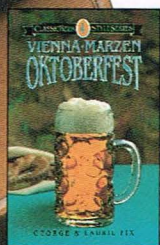
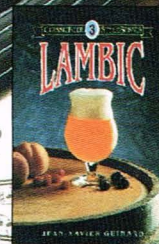
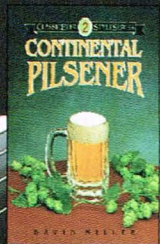
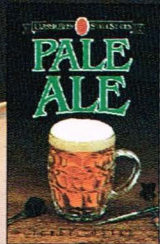
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Professor Surfeit

DEAR

P R O F E S S O R

Correction

As of Aug. 31, 1982, Anchor Brewing Co. holds US Trademark Registration No. 1,206,783 on the image "Steam Beer" in the stylized typeface which appears on Anchor's packaging. The Professor erroneously suggested in *Zymurgy* Summer 1996 (Vol. 19, No. 2) that Anchor's trademark applies to the term "Steam Beer."

Brewing Germany's Best

Dear Professor,

While I was in Germany with the U.S. Army, I came across my favorite beer, Ochsenfurt Bräu. It was Pilsener beer brewed in a little town by the same name located just south-east of Würzburg. They also came out with a Märzen beer in the fall that tasted the same but stronger. It had a spicy aroma and flavor and a good little bite. The spicy flavor and aroma were almost like black pepper.

My question, after three years of trying, is what kind of hops and grains could they have been using that would have produced such a beer? While I was there I sampled many beers, and every one was different, but they all were about the same color. In Germany do they all have their own yeast to make each beer different?

Still brewing,
Scott Hardy
Montpelier, Ohio

Dear Scott,

Beer brewing has so many variables it would be hard to pinpoint what was going on with all those great beers you sampled.

I think I know the character you're trying to describe as spicy and almost like black pepper. The bitterness has a prickly sparkling sensation that is quite refreshing and nearly defines the style. Try brewing with very soft water (0 to 40 ppm hardness) using German-grown Hallertauer or Czech-grown Saaz hops. These hops in a light lager beer brewed with soft water will get you on the way.

Trying to get the right color in your beer? It gets easier these days with homebrew suppliers able to tell you the color rating of various grain malts, color charts and simple calculations to predict color. If you're having difficulties keying in on the color you desire, start out with the palest malt and see how light you can go, then add small amounts of specialty malts to gauge their effect on color. Slow and easy does it. Because you're trying for a Pilsener to begin with you should reach your goal fairly quickly by starting out with just Pilsener malt.

Many brewers have different yeasts and surely that affects the flavor, but the configuration of the brewery, their decoction process, times and temperatures, equipment and materials all factor into the tremendous and wonderful variation of the German beers you experienced.

*Keep at it,
The Professor, Hb.D.*



Treading Lightly

Dear Professor,

I sanitize with chlorine bleach because it's cheap and works great. However, I've been feeling a bit guilty lately because of the chlorophenols I'm producing (the stable and highly nasty gizzos produced from chlorine latching onto organic materials like that brown crud around the top of the car-boy). I'm under the impression that buying and using chlorine bleach is introducing stable carcinogens into the food chain and basically screwing up the cellular structure of things

that are trying to eke out a living on this planet. Is that true? If it is, then what, as a person who lives above a stream with salmon returning to it, should I use instead that will still be cheap and work great?

None of the other agents in the sanitation section of Charlie Papazian's book, *The Complete Joy of Home Brewing* (Avon, 1984) would both clean and sanitize. George Fix's book *Oktoberfest, Vienna, Märzen* (Brewers Publications, 1992) mentions first cleaning with TSP then sanitizing with 1.75 percent iodine, 18.75 percent phosphoric acids or peracetic acid (acetic acid plus hydrogen peroxide). Aren't the iodophors as nasty as chlorine, being just a bit farther down that table? I like the hydrogen peroxide concept best because I know it breaks down clean. Both of the above are advertised as "no rinse required" sanitizers, but I'm concerned about the iodophors because of the iodine. Neither seems to both clean and sanitize, hence the use of TSP, I suppose.

In any event, I don't even know where to get peracetic acid. Is it available? Recommendable? How do I kill the little things without killing the big ones?

Sincerely,
Jim Hansen
Edmonds, Washington

Dear Jim,

Peracetic acid is typically only available to professional brewers. If you acquire some, be sure to wear eye protection and gloves when handling peracetic acid in the concentrated form. Once properly diluted it is OK. Straight-A, One Step and Bio-Clean are cleaners available to homebrewers. All are biodegradable, and One-step is a no-rinse cleanser. Beyond that, I refer you to Zymurgy Fall 1995 (Vol. 18, No. 3). You'll find nearly all the answers to your questions there.

Hands washed,
The Professor, Hb.D.



Waffling on Maple Syrup

Dear Professor,

OK, I tried to make a Bavarian-style maple weizen. Something is not quite as I expected, but that is not all that unusual with my homebrews. (Every batch is a new adventure.) Let's see if you can pin down the problem. I used an extract recipe as follows: Two kilograms of dried wheat malt extract (100 percent wheat, I'm told), 1 1/2 kilograms pale light extract syrup and 1 1/4 pounds Alexander's pale malt extract syrup. About 3 HBUs of Saaz hop pellets (4 percent alpha acid) were used in the boil and no flavor or aroma hops were added. I boiled for 60 minutes and added 20 ounces of real maple syrup in the last 10 minutes. I pitched a starter (3/4 quart) of Wyeast Bavarian wheat beer yeast. Original gravity was 1.066 and final gravity was 1.014. I transferred to secondary after eight days in the primary. Signs of fermentation lasted for two weeks. However, I bottled after two weeks in secondary because bubbling was minimal. The final volume was five imperial gallons (6 U.S. gallons). I primed with seven-eighths cup dextrose boiled in a small amount of water. The problem is, after two months, there is no carbonation, well a little lately. However, I was expecting a good frothy head and effervescence to accompany the malty taste. (Hop bitterness is nonexistent — I'll use more hops next time.) There is very little yeast sediment in the bottles. Any ideas? I seem to recall Eric Warner saying something about shorter fermentation times in his book *German Wheat Beer* (Brewers Publications, 1992). Could weak yeast be the problem? Was I too light on the priming sugar? Niagara Brewing Co. in Ontario has made an outstanding maple wheat beer and I thought I might take a swing at it. Am I doomed to drink this style only when I can find it in my local import shop?

Regards,
Dan Noble
Calgary, Alberta

Dear Dan,

Hum, another case of "no carbonation."

There are all kinds of hypothetical reasons for this, but usually the most common is bottle conditioning at cold temperatures. Get the tem-

perature above 70 degrees F (21 degrees C) for at least a week or two. Another possibility is sanitizer residue left in the bottles or equipment that stuns or kills the yeast. Another reason is cometicus, the planet may have passed through the tail of a comet during bottling. This has happened to me and at times my beers mysteriously don't carbonate or they carbonate at a rate far slower than I'm used to experiencing.

When all seems lost, I simply uncap each bottle and add a few grains of dried yeast. If it's a high gravity beer I'll use Champagne yeast as the saving grace.

I doubt the maple syrup had preservatives, did it? Nah, no way. Probably patience is the best solution along with a little warming.

The Professor, Hb.D.

Flat Beer Blues

Dear Professor Surfeit,

Flat beer! Have you ever heard of corn sugar becoming oxidized over a few years and becoming ineffective as a priming sugar? The only other variable I'm using is pure oxygen through a racking cane into my glass carboy primary fermenter. I hope using oxygen isn't the problem because I get fermentation bubbles after a couple of hours with this method. I bubble the gas into the wort for about 20 to 30 seconds, then add liquid yeast starter and shake the carboy for a good two or three minutes.

Any advice would be appreciated — I've had five batches of flat beer.

Thank you,
Gary Klopfer
Anchorage, Alaska

P.S. Primary fermentation is one week, secondary is one week, then I bottle. Bottles are left on the kitchen table for four days at 68 degrees F (20 degrees C), then conditioned for two weeks at 60 degrees F (16 degrees C).

Dear Gary,

If you're using ale yeast, storage at 60 degrees F (16 degrees C) may inhibit carbonation. Age is not going to reduce the ability of corn sugar to carbonate. Corn sugar could last a century and more. How much corn sugar are you us-

ing? Typically, three-quarters of a cup (177 mL) will provide appropriate carbonation for most styles. Other factors? Possibly sanitizing solution left in the bottles or racking vessels after fermentation has ended, though usually it is caused by cool temperatures. But five batches? Could it be sanitizer killing yeast?

Donut know for sure,
The Professor, Hb.D.

The Hop Debate

Dear Professor,

I have a recipe that calls for 7 HBUs of whole hops. If I use pellets instead, will bitterness be higher because of higher utilization from pellets? Or is bitterness the same providing number of ounces \times alpha acid = 7 HBU regardless of what hop form?

Mike Dwyer
Traverse City, Michigan

Dear Mike,

Your hunch is correct. You can expect about 10 to 15 percent better utilization from the pellets in your wort boil. So if the recipe called for 7 HBUs of whole hops and you used that amount of pellets you'd really get the same effect as having used 8 HBUs of whole hops. Solution? Use 6 HBUs of pellets. The difference in IBUs for a five-gallon (19-L) batch may vary as much as 4 to 5 IBUs when using these amounts of whole hops vs. pellets.

For finesse take care,
The Professor, Hb.D.

Homebrewing Update

Dear Professor,

Recently I have been using Dave Line's book *Brewing Beers Like Those You Buy*, trying to reproduce some of the great beers of the world (or at least something close to them!). However, I have some problems using his recipes:

(1) Line calls for saccharin tablets in a lot of his recipes. I can't find saccharin tablets, so I was wondering if crystal malt or invert sugar could be substituted. If so,

in what amounts should they be substituted (say for five tablets)?

(2) Line uses hop extracts for bitterness in some of his recipes. The problem with this is he calls for ounce equivalents, but my homebrew supplier sells extracts with no equivalents. What would be the proper measurement (liquid) to equal an ounce of hops? Would the hop variety affect this measurement because the alpha acids will differ?

(3) I find Line's hop rates questionable. I believe he is on the extreme upper end of bitterness. Do you agree with this or am I just totally ignorant about bitterness units?

Well that does it for Line's book, but I still have a few more questions, so bear with me.

(4) I am an avid drinker of Guinness and was wondering how to force carbonate my own stout so it would have a nice creamy head like Guinness? I know that it is a nitrogen/CO₂ mixture, but what proportion N₂ to CO₂, what psi would I use to carbonate, how long would I carbonate and at what pressure would I dispense?

(5) I brew both all-extract and partial-mash beers. I was thinking that because Munich malt and Vienna malt both contain enzymes, that if a saccharification rest were done, wouldn't the starch in the malt be converted to sugar even if there is no other barley in the mash pot? This way, extract brewers can still get the malty sweetness and toasty flavors of these malts without having to mash five to ten pounds (2.3 to 4.5 kg) of grain.

(6) Finally, what kind of hops are used to give the skunky character in some European beers, specifically Grolsch?

All questioned out,
Gary Legault
Hamilton, Ontario, Canada

Dear Gary,

Well, let me tackle these one at a time

1) Saccharin! I can't stand the stuff. It leaves a unpleasant taste in my mouth. And that's why I can't help you on this one because I've never been inclined to use it. Using crystal malt will get more mouthfeel, heavier body and more caramellike sweetness, but not the intensity that saccharin will give. If you re-



ally want to go for it, find some artificial sweeteners that do not have any fermentables (read the label) and experiment to taste with some beer you've already brewed. For example, add a drop to a 12-ounce serving of beer or perhaps a quart and see whether it sweetens your fancy.

(2) Hop extract is used in brewing but take care with the type you get. If it has been processed with liquid carbon dioxide then it will be safe to add to your finished beer to taste. If it has been extracted with solvents then you need to boil this extract in your wort to thoroughly drive off any trace amounts of solvent volatiles. How much to add? It should indicate the IBUs so you can figure how many milliliters to add to a given volume of beer. From there you can formulate your own amounts to add desired bitterness. Hop extracts generally are a blend of hops only used for bittering, so the variety, to a certain extent, is irrelevant. At least at this stage of the product's use.

(3) Dave Line was one of the original pioneer homebrewers. Alas, when he was brewing more than 20 years ago the hop quality was dismal and unpredictable, so it's likely he used a lot more hops to compensate for the staling effects of aged and poor-quality hops.

4) This is an often-asked question, and most of these questions have been answered in back issues of *Zymurgy* (see Summer 1994 Vol. 17, No. 2). Generally, if you use a mixture of about 70 percent nitrogen and 30 percent CO₂ you'll get the effect. But how a homebrewer to do that? What I do is charge my keg with about 25 pounds of nitrogen and then dispense at that pressure until the stout is creamy. Then I switch to CO₂ to retain fizziness, or you could charge your keg with 6 to 8 psi CO₂ then dispense with 30 psi N₂. Nitrogen is virtually insoluble in beer.

(5) You're absolutely definapositively right about Munich and Vienna and the small chore to achieve finesse with malt-extract brews.

(6) I thought you'd never ask (the last question). The skunky character is a result of light-struck beer rather than hop selection. Clear and green glass beer bottles allow more light to penetrate and the result is a reaction with the hops, causing the skunky character we've all experienced.

All answered out,
The Professor, Hb.D.

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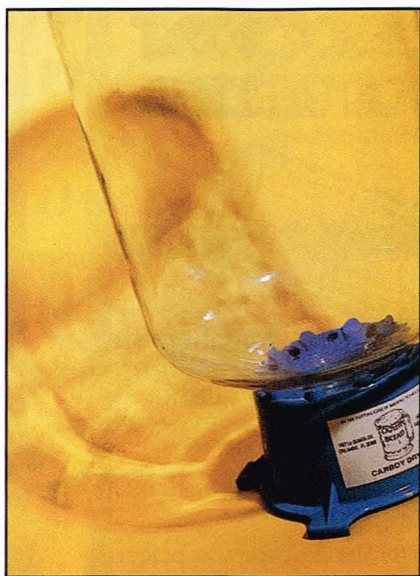
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The manufacturer's suggested retail price is \$29.95 for the PURE-BREW C and \$45.95 for the PURE-BREW SC. For information contact Zymurtech, 3525 Del Mar Heights Rd. #435, San Diego, CA 92130; (800) 255-5653; FAX (619) 291-5293.



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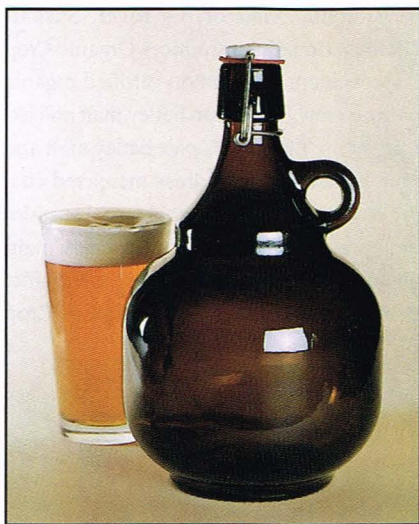
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The manufacturer's suggested retail price for 4.4 pounds of malt extract is \$9.95 (plus shipping/handling) and \$32.95 for 55 pounds of pale malt. For information or orders contact Bioriginal Malt, c/o Natural

Products Research Group, Georges Mill, NH 03751; (800) 447-2249; FAX (603) 763-9159 or in Canada (306) 469-4437; FAX (306) 242-3829; or Powell@net.big-river.sk.ca.

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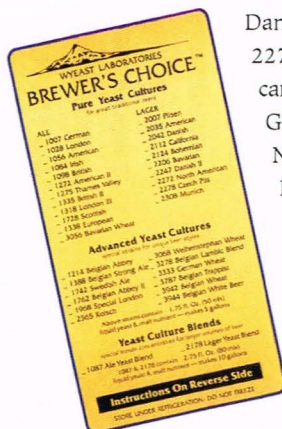


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Wyeast introduces 12 new yeast strains for homebrewers: No. 1335 British Ale II, No. 1318 London Ale III, No. 1272 American Ale II, No. 1275 Thames Valley Ale, No. 1388 Belgian Strong Ale, No. 1742 Swedish Porter, No. 1762 Belgian Abbey II, No. 2247



Danish Lager II, No. 2272 North American Lager, No. 3333 German Wheat, No. 3787 Trappist High Gravity and No. 3942 Belgian Wheat. Shipped fresh and stored cold, these new strains are available

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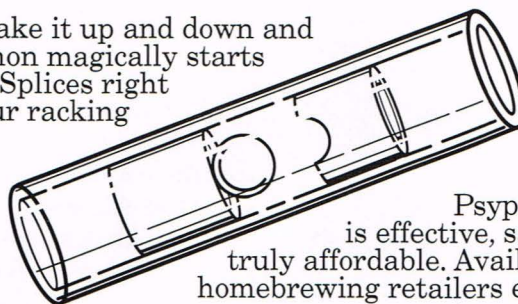
The manufacturer's suggested retail price is \$4.50 per unit. For information or profiles of the new strains contact Wyeast Laboratories, PO Box 425, Mt. Hood, OR 97041; (503) 354-1335; FAX (503) 354-3449.

Compiled by Chris Lowenstein, advertising assistant.

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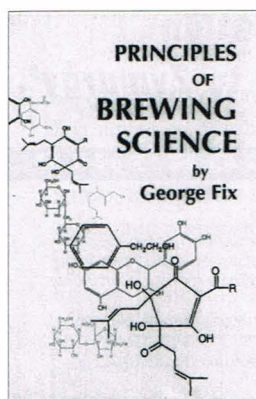
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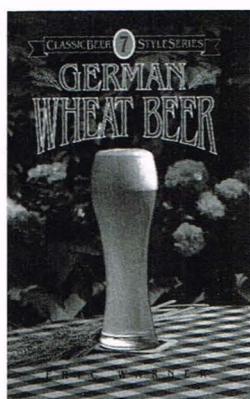


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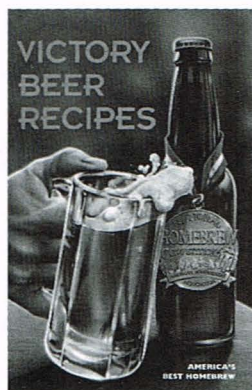


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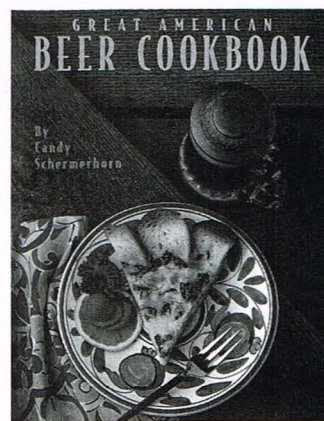


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THE BEST FROM KITS

Dennis Fisher & Joseph Fisher

Descending Into the Bock Underworld



Somewhere in the career of every beer aficionado, we are told the following enduring myth about bock beer. In our case, it happened when we were sharing a musty domestic bock with Basil Bowdoin of Blue Hill, Maine. Mercifully, we no longer remember the brand. We found it in a convenience store in Holderness, looking lost and out of place among the six-packs of Bud and Schlitz.

Finding a strange beer in New Hampshire in those days was the equivalent of discovering Lost Lemuria, so we just had to buy that puppy. As we passed it back and forth, Basil revealed the strange, dark and totally untrue secret of the origin of bock.

Bock, Basil informed us with a foamy grin, is not like other beers. It is made from the murky dregs left in the bottom of fermenting tanks. It's bottled at the end of the season, Basil said wisely, when the tanks are low. The brewmeisters descend into the tanks on long ladders and dip up the thick, oily product in buckets.

Being ignorant in those days, we believed him. Why not? The brew we were drinking tasted weird enough for the urban legend to be true. In fact, we're still not certain it wasn't true, and that somewhere, at this very moment, a brewer isn't pulling on his hip boots for a descent into the bock underworld.

We're older now and wiser than the brewing neophytes we were in those days. Having kicked around substantial parts of the globe looking for strange and wonderful beers, we can tell you truthfully that bock is a tra-

ditional German lager originating in Einbeck in lower Saxony. It is a hardy, malty, seasonal brew, bottom fermented in vast tuns by a rugged species of specially bred goats. This is the true *Reinheitsgoatsbock*.

Seriously, bock beers are quite malty and high in alcohol. Fermenting at cool temperatures and lagering gives these beers a clean taste without fruity esters. Aim for a chocolatey flavor with a small amount of hop bitterness for balance. Bocks typically do not have a hop aroma.

Black Rock

From mountainous New Zealand comes Black Rock which, if nothing else, has the coolest name in the kit world. New Zealand

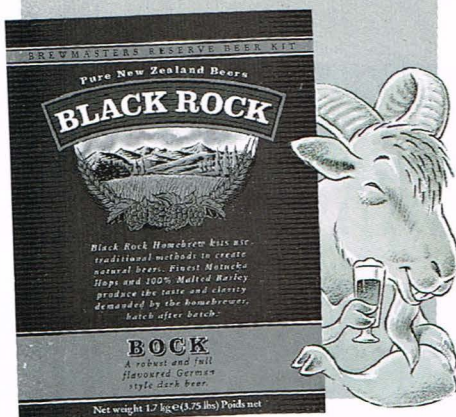
has long been known for boats and sheep, and recently has become a power in beer kit exporting.

We started using Black Rock products because they kept showing up in the discounted bulged/dented bin at our local homebrew store, Stout Billy's of Portsmouth, N.H. Not ones to pass up cheap or free beer ingredients, we grabbed those cans and went to work. Since most of them for some reason were bock kits, we ended up brewing a lot of bock.

After long experience, we think Black Rock is one of the better products on the market. It comes in an interesting variety of styles, and you've got to love those Motueka hops.

Black Rock also gets a star on its forehead for supplying good yeast with the kit. We ordinarily would not recommend using





the yeast packet that comes with any can kit because it can easily be stale or have something else wrong with it. But once when the expensive European liquid yeast we were intending to brew with failed, we fell back on the supplied packet and it worked fine.

Black Rock Bock Ale

Because all the dry yeast that comes with can kits is ale yeast, and we used the yeast packet provided, this brew really is a bock ale. Regardless, it tastes something like a bock is supposed to, and is quick and easy to brew.

Ingredients for 5 gal (19 L)

- 1 can (3 3/4 lb) Black Rock Bock kit (1.7 kg)
- 2 3/4 lb Munton and Fison dry dark malt extract (1.25 kg)
- 1 packet Black Rock dry yeast
- 1/2 cup corn sugar (118 mL) (to prime)

- Original specific gravity: 1.048 (est.)
- Final specific gravity: 1.020

This beer was made following the instructions on the back of the can which, by the way, are quite different from the ones under the lid. The instruction sheet under the lid was interesting and quite odd. It gave directions for primary and secondary fermentation in both English and French, and recommended sanitizing the bottles with sulfite solution, (potassium metabisulfite, sodium metabisulfite or Campden tablets in water, which contrary to popular belief, it is not a sanitizer).

The more sensible directions on the can label gave us the option of adulterating our brew with white sugar, corn sugar or dry malt extract. We decided on the dry malt extract and suggest you do the same.

After reading said instructions, we decided to forgo using the carboy we ordinarily ferment in and go back to our old 6 1/2-gallon (24.6-L) plastic bucket.

We heated the unopened can in warm water for five minutes, at the same time bringing one gallon (3.79 L) of cold water to a boil. Adding the syrup and dry extracts to the 6 1/2-gallon fermenting bucket, we gritted our teeth and boldly poured the water in, stirring and hoping today wouldn't be the day our tried and true sanitation technique failed.

We added cold water to make five gallons (19 L) and, it being winter, set the covered bucket outside in the snow until it cooled. Then we pitched the official Black Rock dry yeast and went away to worry and have a homebrew.

The original gravity was low for a bock (1.066 to 1.074). Another two and half pounds of dry malt extract would have brought the original gravity within the acceptable range. Fermentation was finished after three days at about 65 degrees F (19 degrees C). We moved it into a cold room to clear for five days and then bottled.

The finished beer was surprisingly good, considering it hadn't been boiled. It was fairly bitter to begin with, but became sweeter with age. We have also tried a simple two-can version of this beer, described in *Great Beer from Kits* (Storey Publications, 1996), that we think is a little more interesting.

Procrastinator Doppelbock

This recipe shows just how good the Black Rock kit can become with the addition of a few grains and hops.

Ingredients for 5 gal (19 L)

- 1/2 lb 40 °L German crystal malt
- 1/2 lb Munich malt (0.23 kg)
- 1/2 lb special roast malt (0.23 kg)
- 2 cans (7 1/2 lb) Black Rock Bock kit (3.4 kg)

- 1 oz Hallertauer hop pellets, 5% alpha acid (28 g) (60 min.)
- 1/2 oz Hallertauer hop pellets, 5% alpha acid (14 g) (two min.)
- 1 packet dry European lager yeast
- 1/2 cup corn sugar (118 mL) (to prime)
- Original specific gravity: 1.060 (est.)
- Final specific gravity: 1.018

This was a fairly standard batch of beer so we used all of our usual techniques. We added the crushed grains to 1 1/2 gallons (5.68 L) of cold water and brought it to a boil over 30 minutes, sparged or rinsed the grain with 1/2 gallon (1.89 L) cold water. We added the extract syrup to the extract we had just made and boiled for 60 minutes with the hop additions listed above. We removed the brewpot from the heat and let the wort sit for 15 minutes then we strained the wort into a carboy with 1 1/2 gallons (5.68 L) chilled water, topped up to 5 gallons (19 L) and pitched the yeast when cool.

The batch was left at room temperature until the yeast started, then fermented at lager temperatures (45 to 55 degrees F or 7 to 13 degrees C).

This batch took about six weeks to ferment, even longer than the eisbock (see below). Again, the original gravity was low for a doppelbock. Two pounds of dry malt extract would have boosted the gravity into the acceptable 1.074 to 1.080 range of doppelbocks. The finished beer was a great improvement over the bock ale with better balance, more bitterness for its sweetness and fuller body than the first bock.

Ice Box Eisbock

Real ice beer, as everyone should know by now, is a serious German bräu made more potent by freezing and removing some of the water content. A powerful antifreeze for the human soul, it keeps those Saxons warm and happy, and will do the same for you. For more information on Eisbocks, see Dennis Davison's article in *Zymurgy* Winter 1995 (Vol. 18, No. 5).

"...a hearty, malty, seasonal brew, bottom fermented in vast tuns by a rugged species

In our experiment we froze and removed one gallon (3.79 L) of water from a five-gallon (19-L) batch for a final volume of four gallons (15 L). However, this recipe would make an excellent dopplebock without freezing at all.

Ingredients for 4 gal (19 L)

- 1/4 lb chocolate malt (0.11 kg)
 - 1/2 lb Munich malt (0.23 kg)
 - 1/2 lb Vienna malt (0.23 kg)
 - 1/4 lb Belgian Special "B" malt (0.11 kg)
 - 1/4 lb roasted malt (0.11 kg)
 - 1/4 lb wheat malt (0.11 kg)
 - 2 cans (7 1/2 lb) Black Rock Bock kit (3.4 kg)
 - 3 1/3 lb Northwestern Gold malt extract syrup (1.5 kg)
 - 1 lb dry wheat malt extract (0.45 kg)
 - 1 oz Perle hop pellets, 8% alpha acid (28 g) (60 min.)
 - 1/2 oz Hallertauer hop plug, 5% alpha acid (14 g) (two min.)
 - 1 packet dry European lager yeast
 - 1/2 cup corn sugar (118 mL) (to prime)
- Original specific gravity: 1.080 (est.)
 - Final specific gravity (after freezing): 1.025

We brewed this batch using the same techniques described above for Procrastinator Doppelbock. Our troubles began after we pitched the yeast. We were waiting for it to take off, and it took off all right, and blew the No. 6 1/2 plug and blow-off tube halfway across the room! We should have used a 1 1/4-inch outside diameter blow-off tube.

Even after we transferred the carboy to a cold lagering area the yeast worked up enough steam to blast off and belch out another half gallon (1.9 L) or so of brownish foam. (Be warned: the eisgoat is a wily beast, and will kick down the corral if you don't watch it.)

When fermentation stopped, we racked the beer from the carboy to a sanitized 6 1/2-gallon (24.6-L) bucket with a piece of aluminum foil taped over the airlock hole. After

a night outside in 20-degree-F (-6.7-degree-C) weather failed to freeze the beer, we left it in a chest freezer for several hours. Opening it up, we found that a thick ring of brown slush had formed. We removed a gallon of the slush from the beer using a sanitized slotted spoon.

This recipe should give you about 32 16-ounce (473 mL) bottles of eisbock.

The finished beer started out quite rough but aged nicely into a smooth, powerful brew. Sweetly malty with subtle bitterness and warmingly strong, Ice Box Eisbock


should be stored next to the imperial stout in your beer cellar.

Brothers Dennis and Joe Fisher are authors of *Great Beer From Kits* (Storey Publications, 1996). They have been homebrewing since 1992. Dennis and Joe also wrote and illustrated a book on navigational instruments, and their stories and articles have appeared in *Organic Gardening* magazine, *The Journal of Irreproducible Results* and *Aboriginal SF*. They live and work in Newfields, N.H.

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The homebrewing community is
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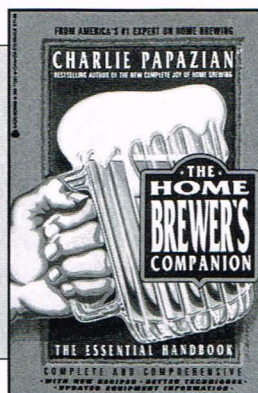


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zym 19

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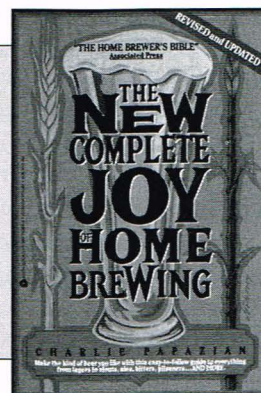
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REVIEWS



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



The Brew Boy Fermenter

For the homebrewer who brews in one location and ferments in another, transporting full five- or six-gallon carboys is fraught with peril. And carboy alternatives always seem to have so many compromises. Plastic buckets are safer, but are susceptible to scratches that hide beer-spoiling bacteria. They also are translucent, making it impossible to monitor fermentation progress.

The Brew Boy fermenter is a food-grade plastic jug with an accordion design that allows it to collapse from five-gallon size to a 2 1/2-gallon size. It has an opening at the top for a No. 11 1/2 rubber stopper and a molded plastic handle on the bottom. Since I brew 11- to 13-gallon batches and secondary in five-

gallon carboys or kegs, I often need an extra fermenter of adjustable size.

The first thing I noticed on reading the instructions was that the Brew Boy is referred to as a secondary fermenter. I suspect the manufacturer realized it would be difficult to clean primary fermentation residues without scratching the folding plastic.

When I smelled the Brew Boy it had a strong plastic odor (not a good smell to transfer to finished beer!), so I filled it with a weak iodophor solution to sanitize. After 20 minutes I smelled both the fermenter and the liquid, but couldn't pick up any plastic odor. To lift the Brew Boy when full was relatively easy — there are two indentations on the bottom for handholds, and when full it was considerably lighter than a glass carboy.

I concluded it was safe to rack my two gallons of "extra" beer into the Brew Boy after

collapsing it to the smallest size. However, when affixing the stopper and airlock assembly I noticed a problem: The opening was not perfectly round even with the stopper fully inserted. There was a small but visible opening on one side of the stopper.

While trying to fix this problem I discovered another drawback to this fermenter. Applying only slight pressure to the top of the vessel collapsed it enough to expel air through the airlock. This was not in itself a problem, but the after effect was when the jug expanded again and sucked in fluid from the airlock. This is definitely a potential problem for those who use nonsterile water in their airlocks.

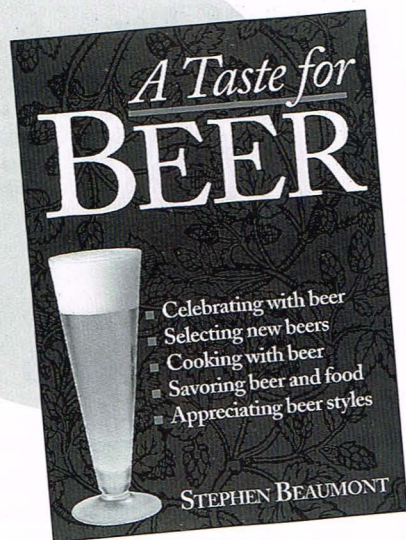
The Brew Boy does have advantages. Although it doesn't have the structural stability of a plastic bucket, it is flexible in size and translucent. Assuming the problem with the misshapen opening is fixed and the user is cautious about applying pressure to anywhere but the bottom of the fermenter, it could be a useful brewery addition, especially for those who lager in a refrigerator.

The Brew Boy is available from Generations Brewing Co., 330 Central Ave., Mountain View, CA 94043. For information call (800) 715-8422. The manufacturer's suggested retail price is \$10.

Reviewed by Paul Sullivan, a homebrewer since 1992 who has won gold medals in AHA National Competitions and was grand winner of the 1995 Planet Beer Invitational Brew-Off.
©1996 Paul Sullivan

Correction

The review of Forty Below's Keg Parka in Summer *Zymurgy* 1996 (Vol. 19, No. 2) should have listed the following: phone (206) 846-2081; FAX (206) 846-7853.



A Taste for Beer

A Taste for Beer is Stephen Beaumont's 181-page guide to enjoying beer. The book starts out with an introductory section on drinking beer for taste, followed by a brief description of how beer is brewed and a description of beer styles. The meat of *A Taste for Beer* is in three parts: "Celebrating the Seasons" (matching beer to different seasons, including specific times within each season); "A Beer at the Table" (matching beer to everything from hors d'oeuvres to desserts); and "Beer in the Kitchen" (recipes using beer and suggestions for beer to consume along with the dishes).

The section I enjoyed most was the last, where Beaumont suggests beers to pair with a variety of foods. He not only suggests food and beer matches, but he goes into detail explaining why a specific beer is a good match for a given food. It is this explanation that makes the section appealing. Beaumont's reasoning is clear, interesting and well thought out. In planning a dinner party I would be certain to read *A Taste for Beer* to see which beers might be appropriate to serve with the menu I had selected. Or maybe I would choose the beer first, then look for recipes that fit.

The book has a number of interesting recipes Beaumont procured from chefs across North America, each including an appropriate beer as one of the key ingre-

dients. In addition, Beaumont takes pains to suggest the appropriate beer to drink with each dish.

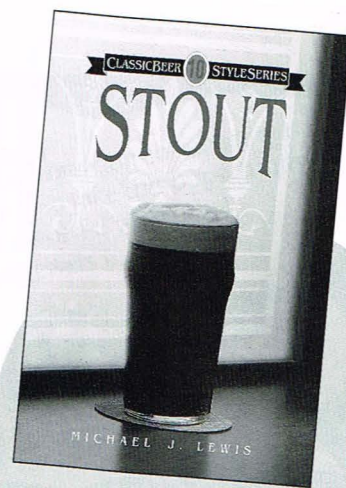
While the above-mentioned sections piqued my interest I was less than impressed with other parts of *A Taste for Beer*. For example, the chapter on "Enjoying Life ... With Beer" is intended to give the reader an overview of strategies for learning more about craft-brewed beers. The writing is chatty and lists very few novel ideas. Although there are a few useful ideas in this chapter (for example, to visit booths at beer festivals in reverse alphabetical order to avoid the crowds following the program in alphabetical order), overall I don't think there is much in this chapter that novice enthusiasts would not come up with on their own.

Beaumont's section on matching beer to times of the year was similarly lacking in novel content. Furthermore, his writing style in this section is so viscous and floral that it was almost painful to find the relevant ideas. A typical section contains seven or so paragraphs, more than half of which have nothing to do with beer! For example, the section "April Showers" has four paragraphs poetically describing Beaumont's feelings about springtime and rain, two paragraphs defining his ideal vision of a pub and, finally, we are treated to two paragraphs about bitter, only one of which has anything to do with why one should drink it on rainy spring days. I would much rather have seen these eight paragraphs dedicated to suggesting two or three (or four) beers that might go well on a spring day.

If you are looking for well thought out food and beer pairings, or would like to try more than 20 interesting recipes with appropriate beer pairings, then *A Taste for Beer* might be for you. In any event, I would caution the would-be purchaser that the author's writing style is chatty at best and in places downright syrupy.

A Taste for Beer by Stephen Beaumont, published by Storey Publishing, 1996, publisher's suggested retail price is \$14.95.

Reviewed by Gary L. Arkoff, a homebrewer since 1993 and winner of a bronze medal at the AHA 1994 National Homebrew Competition.



Stout

After reading Michael J. Lewis' *Stout*, No. 10 in Brewers Publications *Classic Beer Style Series*, I have concluded that he is considerably better qualified than most to write a book, not only on stout but on any beer style. Lewis holds a Ph.D. in microbiology and biochemistry and has taught brewing science for 30 years. Along with his many credentials, he was named fellow of the Institute of Brewing (London), received the award of merit from the Master Brewers Association of the Americas and is a member of the American Society of Brewing Chemists and the Brewers Guild of London. He has published more than 100 technical papers on the science of brewing.

I immediately realized what qualifies him as an author of this publication on stout: he has an obvious passion for the experience of this wonderful elixir. It takes more than just academic credentials or technical understanding to write so eloquently on the subject.

Lewis begins with a brief personal history of his own enthusiasm, then writes with insightful speculation about 17th-century dark ale brewing, following its evolution in detail through the next 300 years.

I found his chapter on commercial brewing of stouts to be the most useful. It included thorough information on water chemistry, raw materials and modern brewing and packaging practices. While discussing the flavor profile of stout, he introduces the subject by saying, "Too often a modern beer is accused of not being true to style. It might be useful to remind ourselves

that the last person to drink such a true product probably died half a century or two ago. So I wonder how the critic can (1) be so sure it's not the same, (2) expect it to be the same and (3) want it to be the same."

As a professional brewer who has never bowed to tradition when formulating recipes, this statement validated my personal brewing strategies. Lewis evaluates stouts by using three methods: consensus profiling, principal component analysis and spiderweb plots, combing them into a system that would be an excellent technique for experimentation, but too time consuming for my professional brewing needs.

The chapter that surveys professional stout brewers includes information on raw materials, water chemistry and specific gravities. This information can be useful to anyone wanting to emulate their favorite commercial brand of black beer.

The chapter, "Brewing Stouts at Home," was written by Ashton Lewis, an accomplished homebrewer who has taught advanced classes on behalf of the American Brewers Guild. Ashton Lewis addresses the art of stout brewing on a small scale using all-grain techniques. This is a good basic description of the process that includes hop utilization formula and grain extract calculations useful for recipe formulation. Also included are a half-dozen recipes covering all the rudimentary styles that could prove useful to the microbrewer as well as the homebrewer.

All in all, I found the book to be informative and fun to read. Lewis' writing style was neither too technical nor too basic. I recommend it to all brewing enthusiasts from the professional wanting a broader understanding of the style to the skilled homebrewer who wishes to take that next step toward truly great stout. In fact, I recommend this book to anyone who might enjoy reading about this wonderful classic beer style.

Stout by Michael J. Lewis, Brewers Publications, 1996, publisher's suggested retail price is \$11.95.

Reviewed by William J. Sherwood, brewmaster at Oasis Brewing, Boulder, Colo., producer of the three-time medal winner Zoser Oatmeal Stout at the Great American Beer Festival®.

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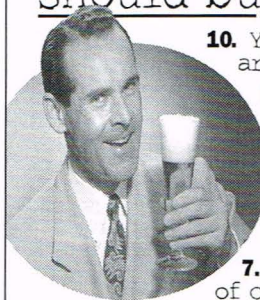


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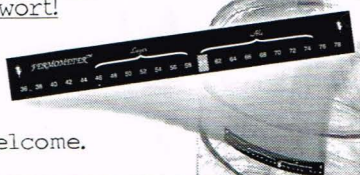


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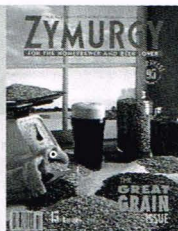
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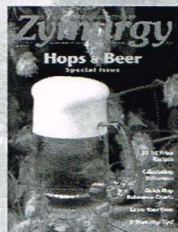
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HOMEBREW CLUBS



Caroline Duncker

The Recipe for a New Homebrew Club



You are at a dinner party and the table is full of fresh foods — salads, casseroles, pastas and bread. The candles are lit and music is on. People are drinking and socializing. You brought some homebrew and offer this best-tasting beer to your friends and acquaintances. People smile and nod appreciatively and say, "Wow, this is good," then finish their sample and walk away.

Does this scenario sound familiar? Do you find yourself craving someone you can talk to about beer — all the aspects of a perfectly crafted beverage, the ingredients, the gadgets, the process and the end product? If so, it's time to start a homebrew club!

Homebrewing has grown in popularity and homebrewers have gained in numbers dramatically in the last few years. There is no question why the hobby is growing: It's a lot of fun to craft your own beer and share it with friends. Still, you may crave the company of fellow homebrewers who appreciate the time and effort required to craft a perfectly balanced homebrew. Homebrew clubs can fulfill this desire and this article takes you through the steps of starting one.

Styles, objectives and personalities of clubs vary drastically, but one fact remains constant — they are sprouting up all across the country, with AHA registered homebrew clubs now numbering more than 600. Some

are small and meet infrequently in a casual setting. Others are large and meet regularly with formal programs. There is plenty of room for your own club to find its identity anywhere in between, but it must meet the needs of the members.

Objective

One of the first things to consider is what you hope to accomplish with the club's formation. Most clubs are founded on any combination of the following: social interaction and activities centered around homebrewing; education about beer, brewing techniques and expanding brewing horizons; and the promotion of the hobby and enjoyment of homebrewing. One important issue to convey to would-be members is that clubs promote the responsible use and enjoyment of beer as an alcohol-containing beverage. Clubs are about quality drinking, not quantity drinking.

Photos left to right: Bock' n' Ale-ians homebrew club, San Antonio, Texas; Bryan Lemley (left) explains homebrewing equipment to interested passersby at the Greater Huntington Homebrewers Association Chilifest, Huntington, W.V.; Certified beer judge Alan Moen conducts a seminar for the Hell's Canyon Homebrewers, Lewiston, Idaho; Hampton Roads Brewing & Tasting Society on tour at Steamship Brewing, Norfolk, Va.; Headhunters Brewing Club, Sugar Grove, Ill.; Hell's Canyon Homebrewers club members Mike Ceske, Mike Busch, Bob Towner and Steve Leonard.

AHA CLUB-ONLY COMPETITION WINNERS

The 1996 Hail to Ale Club-Only Competition received 80 entries for the Feb. 3 judging in Syracuse, N.Y. The Salt City Brew Club organized the event.

- 1st** **DUANE MAKI** of Cedar Rapids, Iowa, representing The Honorable Iowa River Society of Talented Yeastmasters (THIRSTY).
- 2nd** **KEVIN DAY AND TODD NELSON** of Long Beach, Calif., representing the Long Beach Homebrew Club.
- 3rd** **JAMES L. BERDAN** of Sacramento, Calif., representing the Gold Country Brewers Association.

Name Your Club

Choose a fun, creative name for your club. Check the list published in every *Zymurgy* Summer Issue to spark some good ideas. Some clubs conduct a naming contest and award the winner a prize, reduced dues perhaps. Once you have established a name, signed up at least 10 members and picked your objective, contact the American Homebrewers Association to be registered. Registered clubs receive a quarterly mailing from the AHA including

our calendar of events and other important news. In addition, your club will receive *Zymurgy* five times a year at no charge. Club members may join the AHA at a reduced membership rate as well.

Club Members

You may already have some homebrewing friends in mind for your club, but if you need more members or want to add more enthusiasts to the core group, the best place to advertise is at the local homebrew supply shop. The shop may even be able to provide a meeting space when the club is first starting out. You may want to offer a class to get more people interested and involved in the hobby. Once you have established a core group you could have a party to introduce others to your club and invite them to join.

Where to Meet

Now that you've done the basics, it is time to find a "home" for your meetings. Location depends on club size and planned activities. In most cases, clubs start out meeting at members'

houses. Your club may quickly outgrow this arrangement or the meeting site may work for years. Other options for meeting places include the YWCA, YMCA, American Legion halls, church buildings, private schools, fraternal organizations (Elks, etc.). Some hotels may offer a conference room at a reduced rate. Being beer enthusiasts, you won't want to overlook the opportunity to meet at a local brewery or beer bar.

Money

You knew this was coming. A club cannot exist for long without the ability to raise and spend money. Expenses include postage for mailings, stationary for correspondence, rental fees for meeting space, cost of food and commercial beer for tastings. Some clubs have homebrew supply shop sponsors who donate ingredients for homebrew to be made at meetings. Membership dues help offset all of these expenses. Some clubs charge dues on a per-meeting basis, but most clubs charge an annual fee. Your club may choose to charge an additional fee for food at the meetings. At the very least, dues should cover the cost of producing and mailing a monthly newsletter.

NEW AHA REGISTERED HOMEBREW CLUBS

For a complete list of AHA registered homebrew clubs, contact the AHA. If you want to register your homebrew club with the AHA, send a brief letter including the same kind of information you see here and your club roster to AHA administrator James Spence, PO Box 1679, Boulder, CO 80306-1679; (303) 447-0816 ext. 121; FAX (303) 447-2825; CompuServe 70740,1107; Internet james@aob.org.

This list reflects club registrations received through April 18, 1996. Club registrations received after that date will appear in *Zymurgy* Winter 1996 (Vol. 19, No. 5).

CANADA

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

UNITED STATES

ALABAMA

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

ARIZONA

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

CALIFORNIA

Bakersfield Foam
c/o Steven Gibbs
2821 "H" St.
Bakersfield, CA 93301
(805) 634-1144
FAX (805) 327-1923

Old Grog

c/o Kenny
40-D Arch St.
Redwood City, CA 94062
gregor@ndesign.com

CONNECTICUT

Shoreline Sudsers
c/o Jim Leitch
53 Wellsweep Dr.
Madison, CT 06443
(516) 245-4321

INDIANA

Muncie Malt Mashers
c/o Brian Pickerill
3508 W. Johnson Circle
Muncie, IN 47304
(317) 282-6721
00bpickerill@bsu.edu

IOWA

Central Iowa Homebrew Club
c/o Dan A. Morey
4008 Bruce Rd.
Marion, IA 52302-5925
(512) 292-8207

KANSAS

Verdigris Valley Homebrewers Association
c/o Mark Taylor
824 S. 5th
Independence, KS 67301

NEW HAMPSHIRE

Dartmouth College Graduate Brewing Club
c/o Simon Shepard
HB6127 Dartmouth College
Hanover, NH 03755
(603) 646-1394
simon@einstein.dartmouth.edu

NEW JERSEY

Jersey Shore Homebrewers Association
c/o Paul Veber
16 Myrtle Ave. E.
Woodbine, NJ 08270
(609) 861-1421
veber@acy.digex.net

South Jersey Cold Ones

c/o Frank Bossi
1445 Linden Blvd.
Vineland, NJ 08360
(609) 696-7379

PENNSYLVANIA

Wyoming Valley Homebrewers
c/o Chuck Yarmey
224 E. 8th St.
Wyoming, PA 18644
(717) 693-6268

SOUTH CAROLINA

Electric City Homebrewers
c/o Wes Ballard
404 Ballard Rd.
Pelzer, SC 29669
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WASHINGTON

Bainbridge Island Brewers
c/o Fred Pabst
14140 Sunrise Dr. N.E.
Bainbridge Island, WA 98110
(206) 780-0988



MARCH IN MONTREAL

March 25, 1995 — Pierrefonds, Quebec, Canada, 81 entries
Bruce Halstead of Ajax, Ontario, Canada, won best of show.

SIOIS TROPHY 1995

April 8, 1995 — Jona, Switzerland, 18 entries
Jerome Rebetez of Saignelegier, Switzerland, won best of show.

ST. PAUL BREWING CELEBRATION

April 25, 1995 — St. Paul, Minn., 152 entries
Ray Taylor of Fargo, N.D., won the competition.

FOURTH ANNUAL MAZER CUP MEAD COMPETITION

May 26, 1995 — Ann Arbor, Mich., 111 entries
Brian Ehler of Palmyra, Mich., won best of show.

EL DORADO COUNTY FAIR

July 15, 1995 — Placerville, Calif., 54 entries
Daniel Aviles and Jarvis Simme of Long Beach, Calif., won best of show.

DIXIE CUP

Oct. 13, 1995 — Houston, Texas, 544 entries
Darrell Simon of Rowlett, Texas, won best of show.

ARIZONA STATE FAIR

Oct. 14, 1995 — Phoenix, Ariz., 72 entries
Edward Stika of Glendale, Ariz., won best of show.

THIRD ANNUAL FOLSOM TOURNAMENT & RENAISSANCE FAIR HOMEBREW COMPETITION

Oct. 15, 1995 — Carmichael, Calif., 26 entries
Rich Ellis of Woodland, Calif., won best of show.

STEPS OKTOBERFEST & HOMEBREW COMPETITION

Oct. 21, 1995 — Cedar Falls, Iowa, 51 entries
Duane Maki of Cedar Rapids, Iowa, won best of show.

GORDONS CAVE A VIN OKTOBERFEST '95

Oct. 23, 1995 — Pierrefonds, Quebec, Canada,
number of entries unknown
Gordon Saby of St. Bruno, Quebec, Canada, won best of show.

ALL ABOUT ALES

Nov. 4, 1995 — Toronto, Ontario, Canada, 66 entries
Harry Wagner of Edmonton, Alberta, Canada, won best of show.

HOPS-BOPS HOMEBREWERS OF PHILADELPHIA & SUBURBS-BEST OF PHILADELPHIA & SUBURBS

Nov. 12, 1995 — Chalfont, Pa., 182 entries
Joe Mezo of Doylestown, Pa., won best of show.

BIG FISH

Nov. 18, 1995 — Anchorage, Alaska, 32 entries
Ed Kenna of Anchorage, Alaska, won best of show.

NEW ENGLAND FALL

REGIONAL HOMEMADE BEER COMPETITION
Dec. 2, 1995 — Greenfield, Mass., 172 entries
Scott Keohane of Littleton, Mass., won best of show.

HAPPY HOLIDAYS HOMEBREW COMPETITION

Dec. 9, 1995 — St. Louis, Mo., 272 entries
Tom and Joann Fitzpatrick of Aurora, Ill., won best of show.

MASH HOMEBREW COMPETITION

Jan. 20, 1996 — San Rafael, Calif., 75 entries
Steve Rittenhouse of Los Angeles, Calif., won best of show.

Club Bylaws

Early in its development the club will want to write a mission statement and bylaws. Bylaws typically cover name, objective, membership, elections, officer responsibilities and dues. Bylaws are serious in nature, but don't let that scare you off. Once the objectives of the club are established in writing the club may continue to go back to the bylaws for guidance and growth. Bylaws come in handy when applying for nonprofit status or if your club is interested in incor-

porating (see "Club News" *Zymurgy* Spring and Summer 1995, Vol.18, Nos. 1 and 2).

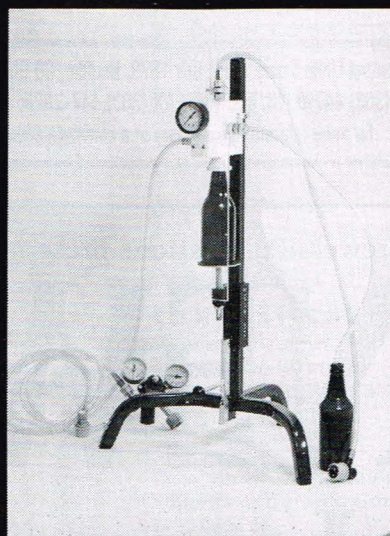
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Most important, start a club for all its wonderful homebrewing aspects — promoting homebrewing education and sharing information with friends. If you need any additional start-up tips, please write or give us a call.

Caroline Duncker, AHA assistant, has been homebrewing since 1992 and is a member of Hop Barley and the Alers in Boulder, Colo. ☺

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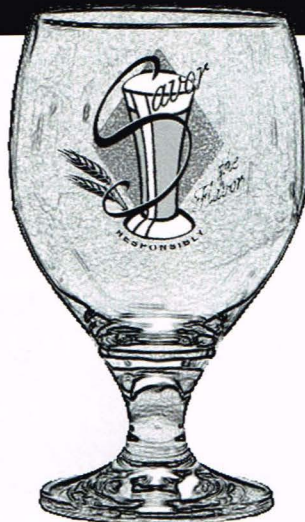
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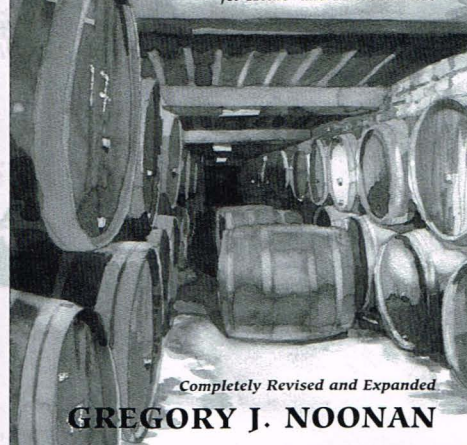


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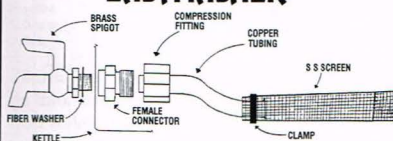


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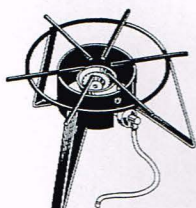
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LAST DROP

Chuck Wettergreen



Every year at Halloween the Chicago Beer Society includes a scariest beer category in their Spooky Brew Review homebrew contest. All submissions for this category have to be potable (potability is proved by the submitter taking a swig of the beer). Bottle decoration also is encouraged in this category.

My Abyss-Mal Ale won in the scariest beer category at the 1995 competition. Abyss-Mal Ale was a Zima bottle stuffed with squid tentacles and filled with beer dyed murky black. All the judges agreed it was the scariest beer ever. I also had a colored label of an old cask at the bot-

tom of the ocean (abyss), that was broken open and had something with tentacles coming out of it.

When it came time to judge it, competition organizer Ray Daniels asked if anyone wanted to try it. Surprisingly, about four judges volunteered. It tasted like the corn beer I'd brewed, and not a hint of squid. Of course I boiled the squid tentacles until they were like rubber, then soaked them in iodophor solution.

I have to say, the scariest part of the whole process was drinking the Zima to get those nice clear bottles.

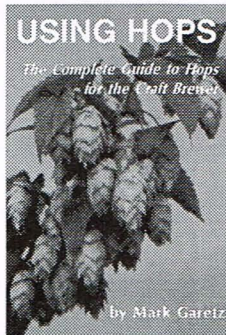
Chuck Wettergreen, a certified public accountant in Geneva, Ill., has been homebrewing for 24 years.



LABEL ART BY CHUCK WETTERGREEN
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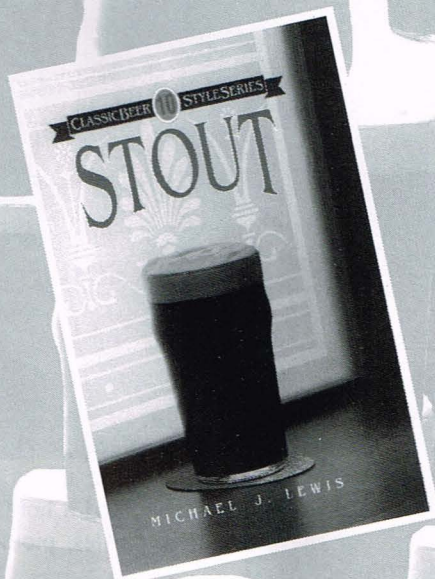
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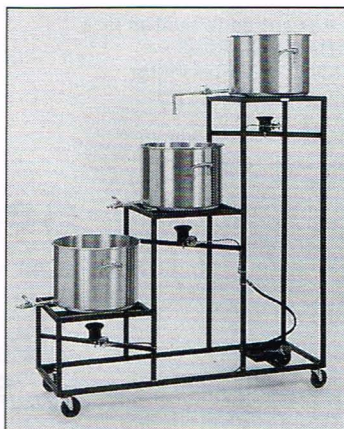
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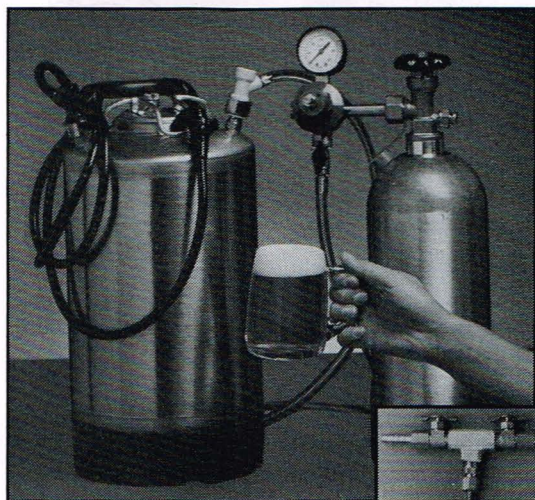


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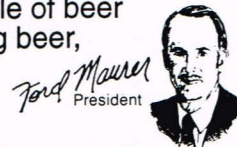
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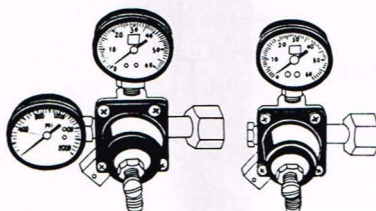
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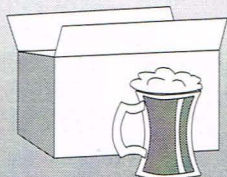


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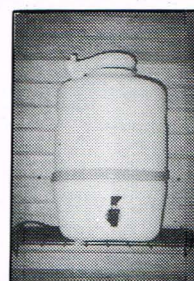
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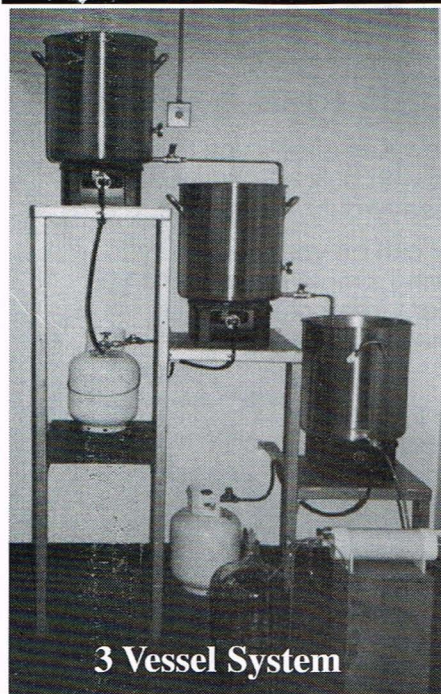
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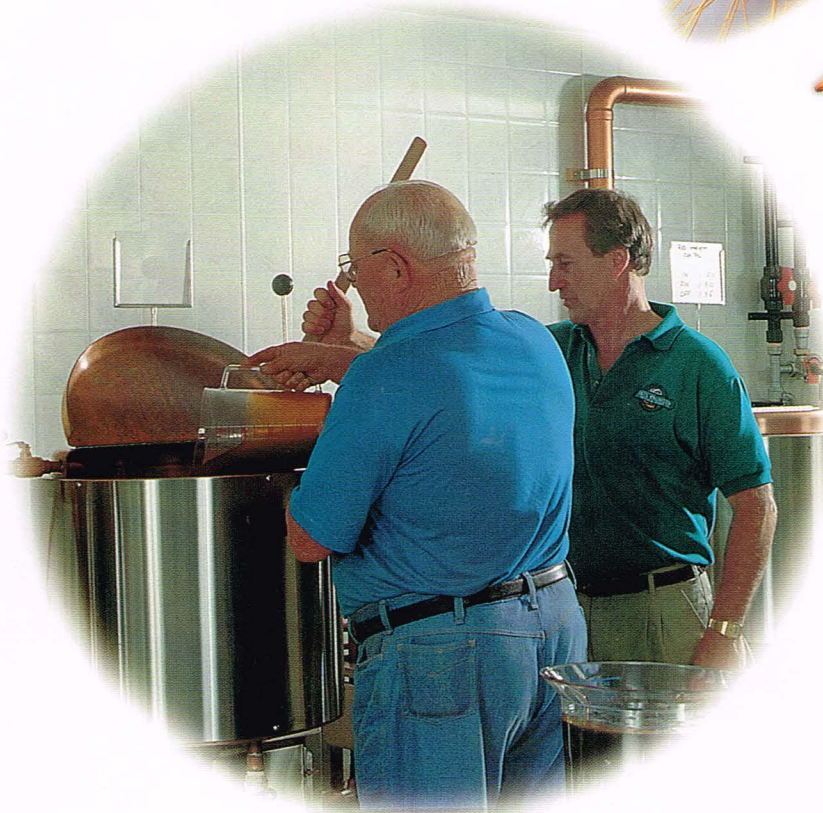
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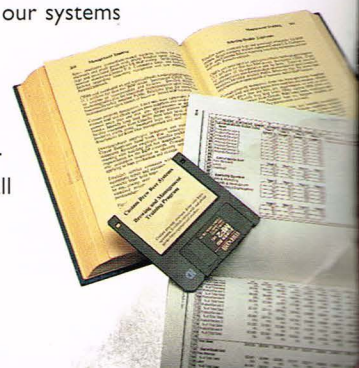
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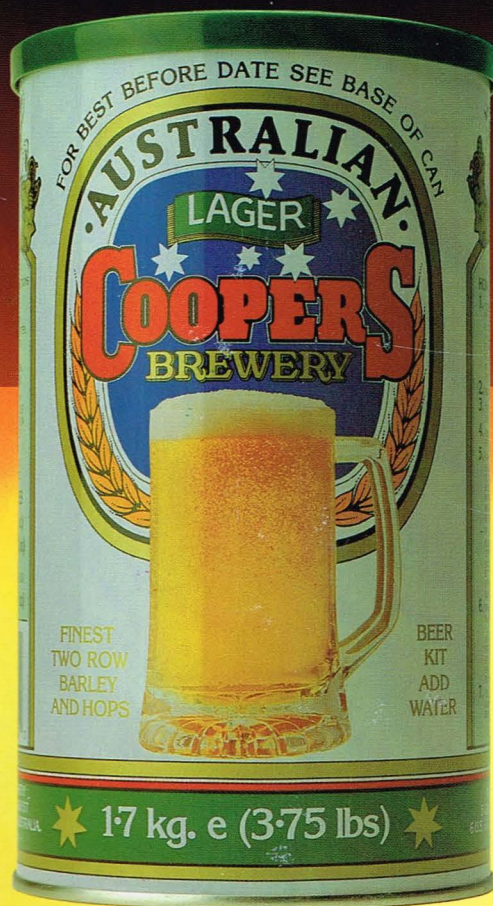
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