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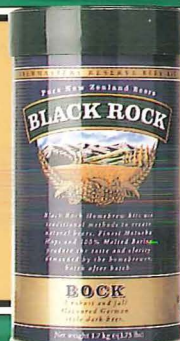
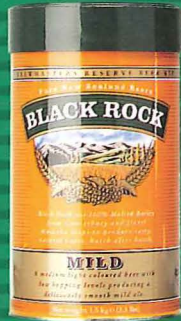
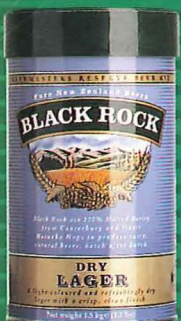
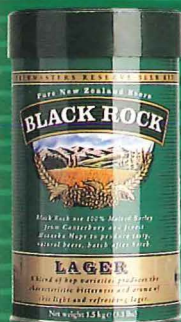
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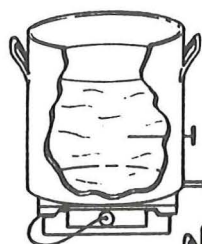


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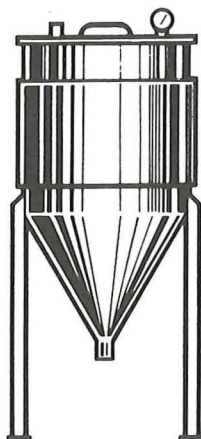
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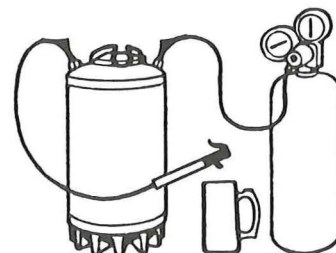
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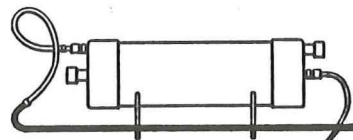
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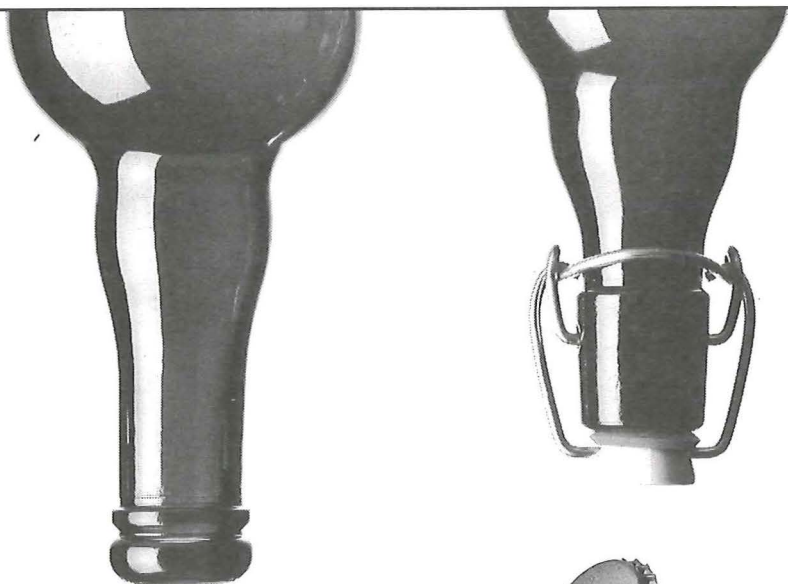
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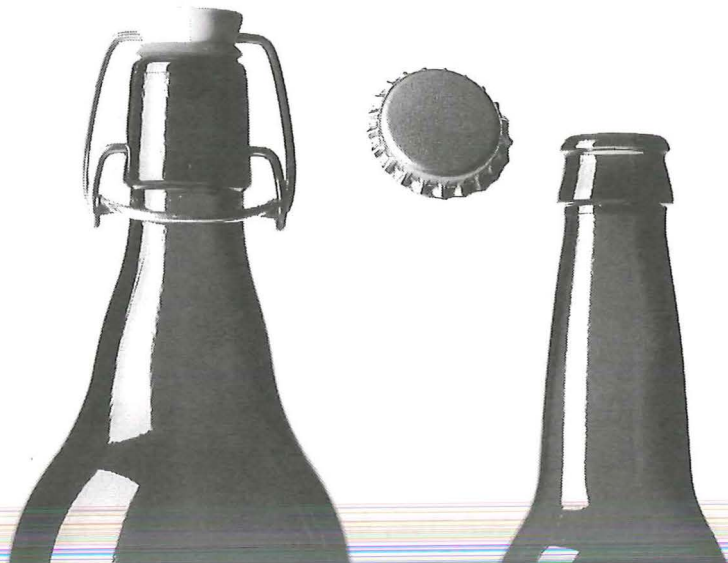
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To promote public awareness and appreciation of the quality and variety of beer through education, research and the collection and dissemination of information; to serve as a forum for the technological and cross-cultural aspects of the art of brewing;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

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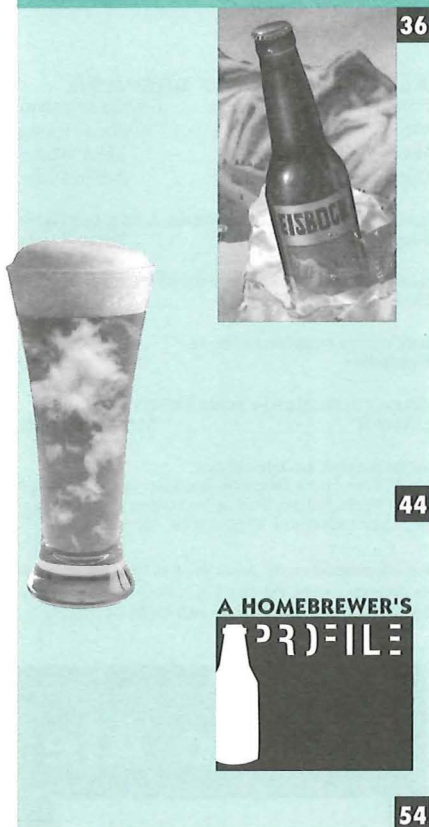
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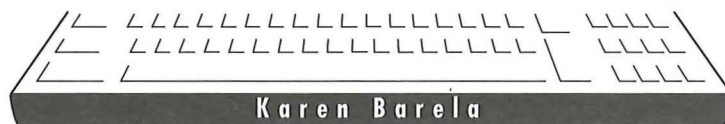


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Zym 18

CLUB-ONLY COMPETITION

EDITORIAL



Who Are You

Beer Guru? Techno Geek? Relaxed Wannabe? Something in Between?

All homebrewers are not created equal, and that's fine. I don't know why some people seem so eager to stuff this great hobby into some phony homogeneous straight-jacket, as if we were all alike — male, bearded, pocket-protected, potbellied, belching “beer drinkers”; or male, science-minded chemists/computer geeks with an unnatural panache for tinkering with stuff; or even male, Armenian, bearded, black curly-haired relaxed writers all living life with a similar identity.

It just isn't true. Some of us are women. Some of us are clean-shaven and some of us are thin. Some of us are into art, not science.

The phony homogeneous types also try to throw us into the same category for wanting to brew. As if we all brewed for the same reasons. This isn't true either. Some homebrewers brew for fun. Some for science. Others for the end results. There are homebrewers who hate to use hydrometers and would rather quit brewing than measure gravity. Some brewers are content to chill their wort in an ice bath rather than wrangle a wort chiller. Some homebrewers dislike extract, others hate crushing grain.

Some homebrewers drink as they brew. Others wouldn't dream of it. (It's true!) Some homebrewers acquire so much stuff it looks

like they inhabit a junkyard. Others homebrew in their spaghetti pot — no frills. Some hate kegging. Others live for it. Some homebrewers love brewing with gadgets. Some don't. Some keep extensive brewing logs. Some homebrew out of their heads. Some homebrew alone. Some homebrew with friends.

Whatever! You are who you are, you aren't how you brew. The fact that you choose to brew makes you unique among beer lovers, but it doesn't lump you all into one category.

You homebrew because ... I'd like to know. I want to learn a little bit more about you and your thoughts. We haven't taken a good look inside your heads for a while. Would it be correct to say that the *only* thing on your mind is beer? OK, maybe once in awhile that answer is yes, but I'm realistic enough to know that you love beer and homebrewing, but that your head also is filled with plenty of other, non-brewing thoughts. In this issue we've inserted a means to tap your cranium to see how and what you ferment. We're looking for the distinct, the common, the unusual and for whatever geek species (with utmost respect) of homebrewers might exist. We are conducting the largest survey of homebrewers ever and searching for questions as well as answers.

We ask you to reveal your opinions, tell us the facts and give us answers in our “Who Are You?” survey.

We've been hearing informally that you want more extract recipes and that our pages are too technical. We've also been hearing that you want more all-grain recipes and our pages are not technical enough. This is why we do a balancing act for each issue and want to be sure we're tipping the scale correctly. Well, here's your opportunity to really be heard. Fill out the survey and help us help you. We'll be printing who you are, what you want and where you hope to go in an upcoming issue. We know you are a diverse bunch of people who share at least one similar goal — to brew and enjoy your own beer. But what else about you attracts you to this hobby?

This hobby isn't about dividing us into categories, and neither is our survey. They're both about recognizing that differences exist and making the most of them. Diversity is good. It's something to celebrate. It makes the airlock bubble. We all love to brew our own beer, but this doesn't mean we all have to enjoy it in the same way. The homebrewing experience is as personal and multidimensional as life itself. Let's enjoy that.



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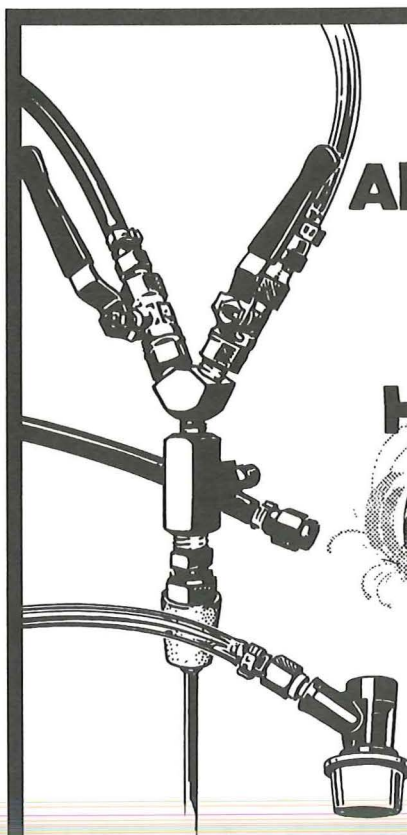
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Z Y M U R G Y

Our Readers

Munton & Fison Speaks

Dear *Zymurgy*,

Thank you for reviewing one of our Docklands Porter beer kits in your "Best From Kits" column in *Zymurgy* Spring 1995 (Vol. 18, No. 1).

It is obviously very useful to have our kits reviewed in the "Best from Kits" section, helping to bring to the attention of your readers our new products. We feel, however, that some of the comments made in your article were a little unfair and perhaps misleading.

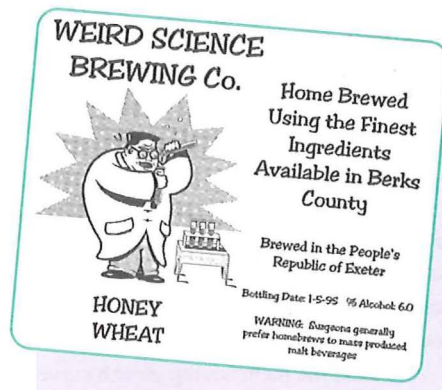
May I stress we have no objections to our beer kits being used as the base for more interesting recipes. Hence, we are the only manufacturer to state the analysis of our product on our pack for this purpose. However, the kits themselves are designed to brew beers that are true to the original style of beer shown on the package — as long as the instructions are followed to the letter.

Our concerns revolve around the lack of attention given to the brewing of beer from our recipe. First, our kit is designed to make 5 U.K. gallons (23 liters) not 5 U.S. gallons (19 liters). This resulted in the higher starting gravity and obviously the higher terminal gravity. We must stress that our yeast was not at fault for the higher than usual terminal gravity as implied in the article. Second, our kit does not ask for the wort to be boiled for 15 minutes. The article does point this out but unfortunately the tester boiled our kit and did not follow our instructions. During our manufacturing process our malt extracts have already been boiled. Boiling again has been shown by our laboratory to occasionally cause haze

problems. We are one of the few manufacturers in the world using hops during our manufacturing process rather than isomerised hop extract.

Our final concern is that the beer brewed from our kit is not compared with true porters but with high-strength "assertively flavored" porters. I am sure if your writer researched the origins of porters as we have, he would find that they were basically a mixture of a variety of beer styles, always including stout, resulting in a dark-colored, easy-drinking beer.

May I reiterate that we are always pleased to see reviews undertaken of our products and will continue to send kits for review. Please take our comments as constructive criticisms rather than in any destructive form. We are anxious that your



A HOMEBREWER'S LABEL

readers have the opportunity to choose whether they follow the recipe we provide or adapt the recipe. It is important, therefore, that they have accurate information that correctly describes the beer made by the kit's original instructions. As mentioned previously, we welcome adaptations and improvements to beer kit recipes but are very

Correction

On page 95 of the 1995 Special Issue (Vol. 18, No. 4), in rows 2 through 5 of the "Homebrew Hardware Store," the company names do not correspond to the mash products and price ranges. The corrected rows appear below. We regret any inconvenience this may have caused.

THE BEVERAGE PEOPLE 840 Piner Road, #14 Santa Rosa, CA 95403 (800) 544-1867	10-gal., three-tier gravity system (Includes three modified stainless-steel kegs with spigots and mash screens, sparge nozzle, three-level stand with built-in burners.)	\$850 (full system)
BREWCO PO Box 1063 Boone, NC 28607 (704) 297-7837	7-gal. HDPE bucket with 2,750 watt, 12.5 amp., 220V 240 volt element	\$60
BREWCRAFT LTD. PO Box 112205 Carrollton, TX 75011 (214) 446-3406	RIMS power, temperature and speed controllers; RIMS inline heaters; temperature probes	\$99.95 - \$149.95 (controllers) \$79.95 (heaters) \$9.95 (probes)
BREWERS WAREHOUSE 4520 Union Bay Pl. N.E. Seattle, WA 98105 (206) 527-5047	10-, 15-, and 20-gal. systems custom vessel/system fabrication mash screens, wort chillers temperature probes, sight glasses	\$426 (full-mash kettle) \$1461 (3-kettle system) \$60 (mash screen) \$45 (blank SS screen 17" x 18")

conscious of the fact that many homebrewers like to produce good beer simply and may therefore wish to follow the original recipe.

Yours sincerely,

Andy J. Janes

Sales Manager, Munton & Fison
Stowmarket, Suffolk, England

100% Participation

Dear *Zymurgy*,

When I received *Zymurgy* Summer 1995 (Vol. 18, No. 2), I was astounded by the phenomenal growth of the AHA over the past 10 years. As one of the 7,849 new members who joined in 1994, I am proud to have contributed to the success of your past year. Although it was your greatest to date, I can assure you the future of the AHA is even brighter.

Consider the membership growth curve shown on page 13. By fitting a power curve to the data, it is easy to show the AHA membership has grown steadily at an average rate of about 23 percent per year. If we look at the U.S. census data for the same period (available at <http://www.census.gov/>), we find that the entire population has grown at a rate of only 1 percent per year. By doing a little more math, we can predict that by the year 2039, every adult over 21 in the United States will be an AHA member! Imagine — in less than 50 years we'll be able to find a carboy in every home and a never ending variety of excellent handcrafted brews. I can hardly wait!

Best regards,

A. J. Aranyosi

Cambridge, Massachusetts
aja@mit.edu

The Search is Over

Dear *Zymurgy*,

No doubt you have received many calls on where to get Belgian-style ingredients for brewing in the wake of your excellent articles on Belgian-style beer in *Zymurgy* Spring 1995 (Vol. 18, No. 1). Michael Jackson, speaking at a dinner in Portland, Ore.,



said our town is unrivaled in the world for number of brewpubs and diversity of beer styles produced. Keeping with this tradition, our wholesale facility and retail shop across town has strived to carry the most unique and up-to-date items for the discriminating homebrewer, including Belgian candi sugar, sweet gale, bitter and regular orange peel, Belgian specialty grains and natural fruit flavor extracts. They are available for shops at our wholesale facility or to the general public at our retail store. The direct dial number for the retail store is (503) 232-8793. Prices available on request.

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Frederick Czuba

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A Perfect Pilsener

Dear *Zymurgy*,

I enjoyed Mark Anderson's article on beer glasses in *Zymurgy* Spring 1995 (Vol. 18, No. 1). Several years ago, my father gave me three Pilsener-style German beer glasses from the World War II era. The logos on the glasses are Hackerbrau (Munich), Salvator Bier (Munich) and Freiherr Tucher Braufrei (Nuremberg). The glasses are beautiful in their simplicity of design and function. They hold about 14 ounces. That is just the right size for pouring a standard 12-ounce homebrew with an inch of head and yet filling it to the top.

Too often I feel like Goldilocks looking for that perfect beer glass. Too many are too small. (Why do so many glass manufacturers make tumblers for 11.75 ounces? They must be related to the same people who



bring you the wrong number of hot dog buns in a package.) And several are just too big. (I do my workouts on Nautilus before having a homebrew in the evening. Who wants to move on to free weights?) But these three Pilseners are just right.

Therein lies the problem — I only have three. Any suggestions on where to find beer glasses? Many of the homebrew suppliers that advertise in *Zymurgy* do not carry glassware.

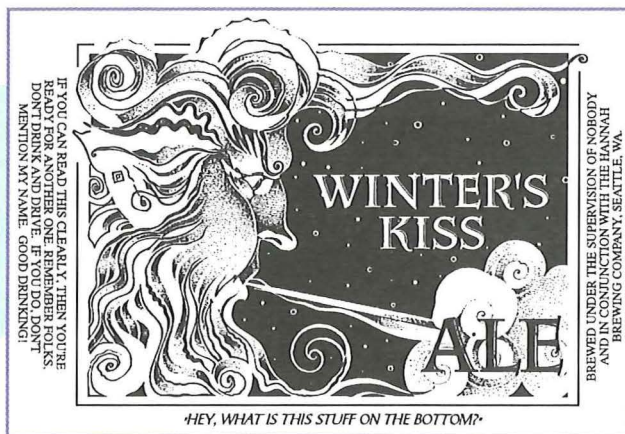
Keep publishing *Zymurgy* at its current high quality. There are not many magazines I read faithfully from cover to cover.

Tom Mess

Cincinnati, Ohio

Thanks for writing. We're glad you are enjoying *Zymurgy*. Here are a few ideas on who to contact for glasses. Some of these companies do not sell directly to consumers, but they should be able to direct you to the nearest retailer.

Rastal GmbH & Co. KG, Rudiger Otterpohl, Dir. Export, Linderstraese 12-18, Postfach 1354, Hohr-Grenzhausen, D-5410, Germany, 02624/16-295; **Wordenglass & Electricity Inc.**, Tim Demmon, Nat'l Acct. Mgr., 5600 Collingwood Dr., Kalamazoo, MI 49004, (616) 345-5005, FAX (616) 345-9670; **German Glass and Gift Imports Inc.**, PO Box 663/W200 N10290 Lannon Rd., Germantown, WI 53022, (414) 253-0226, FAX (414) 253-0155; **California Glass Co.**, 155 98th Ave., Oakland, CA 94603, (510) 635-7700; **Merchant Du Vin**, 140 Lakeside Ave., Suite 300, Seattle, WA 98122-6538, (206) 322-5022, FAX (206) 322-5185; **Phoenix Imports**, 2925 Montclair Dr., Ellicott City, Baltimore, MD 21043, (410) 465-1155, (800) 700-4253, FAX (410) 465-1197; **Riedel Crystal of America Inc.**, 24 Aero Rd., Bohemia, NY



HOMEBREWERS' LABELS

11716, (516) 567-7575, (800) 642-1859, FAX (516) 567-7039; **American Breweriana Association**, PO Box 11157, Pueblo, CO 81001, (719) 544-9267. — Ed.

Glass Reaction

Dear *Zymurgy*,

Mark R. Anderson's article about glassware and beer in *Zymurgy* Spring 1995 (Vol. 18, No. 1) is interesting reading. However, he does not really examine what ought to be the most important aspect of a beer glass — its ability to deliver aroma and flavor.

Anderson makes the understatement of the century when he says, "It could well be that different shapes can enhance a given style." As I pointed out in my research on this subject (*Brewing Techniques*, March/April 1995), our panel of beer judges investigated this very subject, albeit in a single tasting, and came to the conclusion that beer, like wine, really does taste different from different glasses.

Of Anderson's report on the proper glass for "high-end dining," I find the opinions of his "experts" irrelevant. The beer lover should have one primary concern: taste, not social appropriateness. In the world of wine, a parallel situation exists where many fine restaurants abuse wine by serving it in sensorily inferior glasses. Thankfully, through the efforts of better consumer education, this situation is now changing. Hopefully, customer demand will create changes in the serving glasses of pubs and breweries as well.

Anderson is right to conclude that the most important thing with any beer glass is to enhance the experience of enjoyment when drinking beer. I'll raise a toast to that! However, it is my conviction that an inferior glass

can seriously diminish the enjoyment of beer drinking. To paraphrase the writer Stephen Greenleaf, "Bad beer glasses are like bad art; if you endure enough of them, eventually you forget the alternatives."

Alan Moen
Cashmere, Washington

Kudos

Dear *Zymurgy*,

Just thought I'd enclose a quick note with my information order. I wanted to say:

■ *Zymurgy* is looking beautiful.

■ Job well done to Karen Barela! You have my admiration.

■ What happened to the yearly questionnaire? I liked filling it out! I felt like a part of the association! I want to give input — no, I want to be asked formally to give input! I want to see the statistics — who are we?

■ I'd like to see an indigenous beer category in next year's competition. I'd brew a very tasty *kvaas* — made with sour rye bread, honey, raisins and mint. Good 'n' weird.

Thanks for everything,
Sally Ilger (#16846)
Kellogg, Idaho

Thanks for the note. You'll find a reader survey in this issue. We're looking forward to hearing from all AHA members. An indigenous beer category, hmmm, readers? — Ed.

Personal Testimony

Dear *Zymurgy*,

I believe you have done your readers a disservice by choosing Al Korzonas to re-

view *Using Hops* (Hop Tech, 1994) by Mark Garetz (*Zymurgy*, Spring 1995, Vol. 18, No. 1). It disturbs me to think that Mr. Korzonas's petty hatchet piece of a review might actually dissuade someone from reading this truly remarkable book.

Rather than criticize the critic, though, or count the errors in his review, I'll simply offer my personal testimony: The information and advice in *Using Hops* have greatly increased my understanding of hops, and my beer has improved correspondingly. *Using Hops* occupies a proud position among my brewing reference books, and I shall continue to recommend it highly to anyone who'll listen (homebrew's on me).

Sincerely,
Scott Parr
Walnut Creek, California

Opinions expressed by reviewers are their own and do not necessarily represent the opinions of the AHA or Zymurgy. —Ed.

The Beer Source

Dear *Zymurgy*,

I recently received my first issue of *Zymurgy*, Spring 1995 (Vol. 18, No. 1), and the "Brew News" section made me aware of recent brewpub and microbrew openings. This information proved to be invaluable during my recent business trip to Houston. Because of *Zymurgy* I knew that Houston Brewery and Rock Bottom Brewery No. 3 brewpubs had recently opened. Luckily, I was only a few miles from both of them (they are both located on Richmond Avenue west of downtown), and I was able to enjoy them both during my short visit. They are unique and provide a great selection of hand-crafted beer. Not only was the trip a professional success, but thanks to *Zymurgy* it was also a personal success.

Sincerely,
Tom Lease
Huntsville, Alabama

A complete state-by-state list of breweries and brewpubs in North America is updated quarterly and available from the Association of Brewers for \$5. —Ed.

Another Bitter Fan

Dear *Zymurgy*,

We were pleasantly surprised to see "Confessions of Two Bitter Men" in *Zymurgy* Summer 1995 (Vol. 18, No. 2), as we are just introducing Thomas Hardy Country Bitter, a bottle-conditioned premium English bitter, from the renowned brewers of Thomas Hardy's Ale.

Bitter is indeed "a wonderful social beverage," and Tony Babinec's and Steve Hamburg's "confessions" will help people become aware of that.

Sincerely

George Saxon

President, Phoenix Imports

Baltimore, Maryland

Encouraging Words

Dear *Zymurgy*,

The extract article by Rob Nelson, "Savor a Wide Range of Wheat Beers" in *Zymurgy* Summer 1995 (Vol. 18, No. 2) was an excellent piece of work. He had a goal in mind and crafted a brew in that fashion. Many of the extract articles are just making a beer from the can, not crafting a brew. For those with limited time, extract brewing is our only avenue to good beer. Rob's insights help broaden our knowledge and will contribute to a much better brew. I would encourage all who write for this section to follow the example set by Rob.

Sincerely

Jay Seigfreid

Holdrege, Nebraska

A Custom Fit

Dear *Zymurgy*,

It's amazing that, on occasion, the *Zymurgy* that arrives in my mailbox seems custom-written just for me. Summer 1995 (Vol. 18, No. 2) is one of those editions.

I recently salvaged two stainless-steel soda kegs and have been reading everything and anything on the subject of kegging. And since I made the leap to all-grain brewing earlier this year, I have been searching for recipes that will yield the perfect pint of bitter.

I always enjoy *Zymurgy* and usually read it cover to cover. This edition I am enjoying even more than usual.

Sal Emma

via CompuServe

Kegging Bliss

Dear *Zymurgy*,

My appreciation goes out to Ed Westemeier for an excellent article and Randy Mosher for the detailed illustrations on kegging in *Zymurgy* Summer 1995 (Vol. 18,

No. 2). Finally, a long overdue article that answers almost any question about kegging. I have been kegging for about seven years and had to refer to several different articles and books to answer my questions. It would have been even better if Ed had gone ahead and discussed counterpressure bottling and filtration to make this an all-in-one article. I sure could have used it several years ago (I still can).

Best I've seen, Ed.

Randall Rickerson

Corpus Christi, Texas

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A S S O C I A T I O N NEWS

← Karen Barela →

Beer Evaluation Program

In our continuing effort to structure our international beer evaluation program, we mailed a letter in August to all judges in our data base explaining the mission of the program, a time line of action steps and opportunities to participate in the process. Briefly, the mission of the new international beer evaluation program is to educate beer drinkers about evaluating beer. This involves knowledge of beer styles and history, the process of brewing beer and how that process affects the final beverage, the flavors, colors, textures and aromas of beer and using our senses to detect appropriate and inappropriate flavors and aromas. Beer evaluators must also learn to effectively communicate their evaluations to the brewer.

Forming the new program has three facets:

- Develop and publish materials designed for self-study applications.
- Develop and produce educational courses and seminars at regularly scheduled times and locations, with standardized syllabi and study materials.
- Develop and provide internationally accepted credentials to beer evaluators who have proven their skills in tasting, communicating and educating about beer evaluation.

In addition, we believe the development of the three facets should always reflect and address the following:

- The act of tasting beer and how it's done within our physical abilities.
- The knowledge of beer styles.
- The understanding of flavor terminology and the ability to effectively communicate what we taste.
- The standardization of beer evaluation and evaluation education.
- The understanding of basic processes of brewing and how the process affects the beer profile.

We are excited to bring you a new opportunity for expanding your hobby of enjoying fine beers. We look forward to fine-tuning this program to best suit your needs and provide unparalleled service to you, our members. For a copy of our August letter send a self-addressed stamped envelope. For additional information or to pass on comments, questions or concerns contact James Spence, AHA administrator (303) 447-0816 ext. 121; FAX (303) 447-2825; CompuServe 70740,1107; Internet james@aob.org.



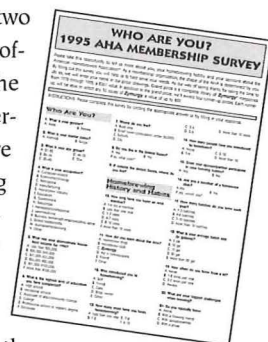
PHOTO BY MICHAEL LICHTER PHOTOGRAPHY

The Way We Are

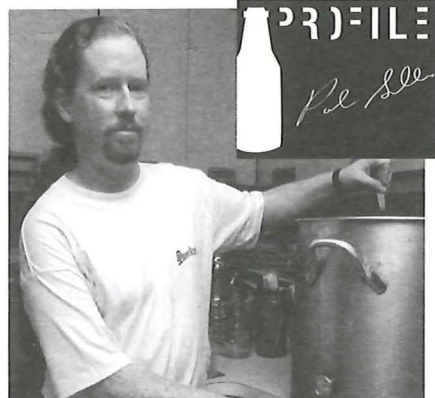
It's been about two years since we last officially surveyed the entire AHA membership. Although we've conducted ongoing surveys of homebrewers who enter the AHA National Homebrew Competition, attend the

AHA National Homebrewers Conference and are active beer judges, we also want to hear from you, the majority of our membership. Enclosed in this issue is your opportunity to tell us who you are and what you want and need from the AHA.

In 1993, you told us you were mostly male (95 percent), married (69 percent), professional (73 percent), had household incomes from \$26,000 to \$40,000 (21 percent), \$41,000 to \$55,000 (23 percent), \$56,000 to \$80,000 (34 percent), college graduates (52 percent), completed graduate school (27 percent). You lived in suburbs (36 percent), small towns (27 percent) and big cities (24 percent). You also told us how you brew: extract and kits (14 percent), mash and extract (22 percent), extracts and specialty grains (38 percent) and exclusively mash (23 percent). Please take the opportunity to fill out the survey and return it. Your answers will help us to shape the future of the AHA and *Zymurgy*. We will print the results of the survey in an upcoming issue of *Zymurgy*. For questions or comments about the survey contact Sheri Winter, marketing director, PO Box 1679, Boulder, CO 80306-1679; (303) 447-0816 ext. 106, FAX (303) 447-2825 or Internet sheri@aob.org.



New Zymurgy Feature Debuts



Regardless of what the answers to our survey tell us, we know that you are all unique individuals with custom homebrewing systems designed to fit your brewing needs and your home. Debuting in this issue is a profile of one of our members, Paul Sullivan, and his homebrewing setup. We chose Paul because we happen to know that he homebrews often and has been successful making wonderful beers on his system, his way. We think there are a few lessons to learn from observing other homebrewers' systems and it's about time we showed you some. If you have a unique design, unusual setup, strange apparatus or just want to share with **Zymurgy** readers how you brew what you do, please contact us. No, don't whip out the silver polish, paint can or cleaning supplies. We want to see it as is. Send us a brief description (100 words or less) of your homebrew system and several photographs. We are interested in very simple systems as well as technical systems. We don't care if you spent 50 cents or \$5,000. We especially want to encourage members who have never contacted us before to do so now. At the very least, let us know if you like the article and format and if you have any suggestions for future profiles. Contact **Zymurgy** Editor Dena Nishek, PO Box 1679, Boulder, CO 80306-1679 or Internet dena@aob.org.

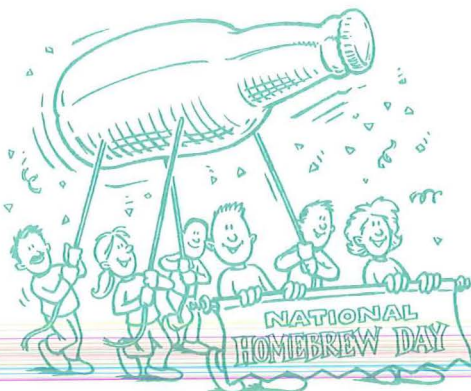
In the Business? Brewsiana is for You!

We're looking for a few good retailers, wholesalers and manufacturers. If you have a product or service for homebrewing, then

we've got the audience for you. It's the AHA's Big Easy trade show and festival. If you haven't been to an AHA National Homebrewers Conference recently, you need to see what you've been missing. We've been building and expanding this interactive homebrewers trade show and festival for the past several years and offer the best opportunity available for you to showcase products and services directly to the world's No. 1 homebrewing audience. It's a golden opportunity to see what your peers are up to, what's new in the industry, who has the neatest stuff and to interact face-to-face with other players in the homebrewing field. We've set aside six hours devoted exclusively to fun, tasting, shopping and playing with all things homebrew. The Conference from June 5 through June 8 in New Orleans, La. will feature the Big Easy on Saturday, June 8. Booth space is limited and is expected to sell out. For details and information contact Special Events Coordinator Nancy Johnson, PO Box 1679, Boulder, CO 80306-1679; (303) 447-0816 ext. 131; FAX (303) 447-2825; Internet nancy@aob.org.

National Homebrew Day

Every year the American Homebrewers Association designates the first Saturday in May as National Homebrew Day. Once again, we've contacted Chase's Calendar of Events to mark Saturday, May 4, 1996, as a holiday to celebrate the wonderful art and science of homebrewing. The idea is simple: If you're a homebrewer, introduce a friend to homebrewing. There are many ways to do this, of course, and we encourage participation from all levels of beer enthusiasts. You can partic-



ipate in organized events put on by your local homebrew supply shops, local brewpub, microbrewery, tavern or homebrew club. Or you can simply invite your neighbors to brew a batch of beer, take a bottle of your homebrew to a social event and share it with "non-believers," or brew a batch of homebrew for yourself. The AHA has several resources for contacting your local media to publicize whatever it is you do to celebrate. Please contact us for details. Around here and maybe at your home, too, we don't need much excuse to celebrate homebrewing — it's always a good day for a homebrew. Contact Sheri Winter, marketing director, (303) 447-0816 ext. 106 or Internet sheri@aob.org.

Check Out the AOB Web Site <http://www.aob.org/aob>

The Association of Brewers (AOB) maintains a World Wide Web site filled with all kinds of information from the AHA as well as from the three other AOB divisions. You can get current information from our Web site including the North American Brewery List updated quarterly and published by the Institute for Brewing Studies, a list of all AHA registered homebrew clubs, the AOB calendar of events and AHA free information pieces. You can also get ticket information for the Great American Beer Festival® and the Members-Only Tasting, a list of GABFSM winners, catalog information regarding several Brewers Publications books, the AHA National Homebrew Competition Style Guidelines and much more. We'd love to have you take a peek. As always, your feedback is important so let us know what you think of our home page and any suggestions of things you'd like us to add. We also have similar information on the Internet where we can be reached at info@aob.org. Questions, comments, ideas? Contact Shawn Steele, PO Box 1679, Boulder, CO 80306-1679; (303) 447-0816 ext. 118; FAX (303) 447-2825; Internet shawn@aob.org.

New Membership Rates

Just a reminder that the new AHA membership rates go into effect soon. Beginning

March 1, 1996, membership rates will increase from \$29 to \$33 per year (domestic rate, U.S. dollars). It has been 32 months since our last increase on June 1, 1993. Special renewal offers will be mailed after the first of the year. In the meantime, you may use any of the forms in this issue to renew your membership now at the current rate, or contact the circulation department directly at (303) 447-0816 ext. 103 or 104 or Internet orders@aob.org. Anyone wishing to extend their membership at the current rate must do so before March 1, 1996. Your membership expiration date is on your *Zymurgy* mailing label and you can always check your expiration date via Internet through expire@aob.org.

Stay Active, Be Involved

We always put this paragraph at the end of "Association News" just to remind you that we're here for you and to give you a handy reference spot where you know you can always get our contact information. We appreciate all the letters and correspondence that we receive and hope you'll continue to stay in touch. We are still collecting names of photographers and illustrators for *Zymurgy* and are always interested in talking about article ideas. We love it when you send us copies of homebrew- and craft-beer-related media reports. Send article ideas to *Zymurgy* Editor Dena Nishek, (author guidelines are available upon request); beer evaluation and National Homebrew Competition comments to AHA Administrator James Spence; AHA Sanctioned Competition requests or applications to AHA Assistant Caroline Duncker; Circulation questions to Circulation Director Casey Koehler; and general comments to AHA President Karen Barela. American Homebrewers Association, PO Box 1679, Boulder, CO 80306-1679, (303) 447-0816; FAX (303) 447-2825. Staff members can be reached via Internet by entering their first name followed by @aob.org. Additional information is available by entering info@aob.org; expire@aob.org; orders@aob.org; gabforders@aob.org; or service@aob.org.



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CALENDAR



1995

DECEMBER

- 2** New England Fall Regional Home-made Beer Competition, **AHA SCP**, South Deerfield, Mass. Entries due Nov. 26. Contact Charlie Olchowski at (413) 773-5920.
- 2** BJCP Exam, Dayton, Ohio. Contact Mark Schmitt at (513) 236-4857.
- 2-3** Advanced Homebrewers Weekend Series, American Brewers Guild, Washington, D.C. Call (800) 636-1331.
- 9** Happy Holidays, **AHA SCP**, St. Louis, Mo. Entries due Nov. 29. Contact Ginger Wotring at (314) 773-7867; wotring@sluvca.slu.edu.
- 9** Renowned Brown Club-Only Competition, **AHA SCP**, Fargo, N.D. Entries due Dec. 4. Contact James Spence at (303) 447-0816 ext. 121.

1996

JANUARY

- 14** BJCP Exam, Cranford, N.J. Contact Dave Hoffman at (908) 709-9295.
- 20** BJCP Exam, Raleigh, N.C. Contact Mike Lelivelt at (919) 408-0451.
- 20** Keystone Hops War of the Worts, **AHA SCP**, Montgomeryville, Pa. Entries due Jan. 13. Contact Joe Mezo at (215) 230-4198.
- 20** Mash Homebrew Competition, **AHA SCP**, San Rafael, Calif. Entries due Jan. 6. Contact Mike Riddle at (415) 472-3390.
- 20-21** Sales, Marketing & Distribution of Microbrewed Beer, American Brewers Guild Education and Training, Woodland, Calif. Call (800) 636-1331.
- 27** BJCP Exam, West Lebanon, N.H. Contact Tom Ayres at (802) 434-2939.
- 27** Hail to Ale Club-Only Competition, **AHA SCP**. Entries due Jan. 22. Contact James Spence at (303) 447-0816 ext. 121.
- 27-28** Advanced Homebrewers Weekend Series, American Brewers Guild, Woodland, Calif. Call (800) 636-1331.

FEBRUARY

- 3** Paumanok Homebrew Competition, **AHA SCP**, Long Island, N.Y. Entries due Jan. 27. Contact Marc Arkind at (516) 942-3283.
- 9** Las Vegas Winterfest, **AHA SCP**, Las Vegas, Nev. Entries due Jan. 14. Contact Stephen MacMillan at (702) 454-9949.
- 10** Spring Issue of *Zymurgy* (Vol. 19, No. 1) mails. Please allow four to six weeks for delivery.
- 16-17** Kansas City Bier Meisters' 13th Annual Homebrew Competition, **AHA SCP**, Olathe, Kan. Entries due Feb. 3. Contact Alberta Rager at (913) 894-9131.
- 17** Commander Saaz's Interplanetary Homebrew Fly By, **AHA SCP**, Cape Canaveral, Fla. Entries due Feb. 10. Contact Carl Saxer at (407) 649-6717.
- 17** The Belgian Beer Contest, **AHA SCP**, Brooklyn, N.Y. Entries due Feb. 1. Contact Marie at (718) 821-6022 or warrenb@nycpipeline.com.

MARCH

- 2** Knickerbocker Battle of the Brews '96, **AHA SCP**, Troy, N.Y. Entries due Feb. 23. Contact Francois Espourteille at (518) 782-9057.
- 10** Third Annual Queen of Beer Women's Only Homebrew Competition, **AHA SCP**, Placerville, Calif. Entries due Feb. 6 to March 2. Contact Elizabeth Zangari at (916) 626-7733.
- 16** Winter Carnival Brewers Assay II, **AHA SCP**, Fairbanks, Alaska. Entries due March 15. Contact Roger Penrod at (907) 479-8795.
- 16** Shamrock Open, **AHA SCP**, Raleigh, N.C. Entries due March 14. Contact Bill MacKenzie (919) 846-8329.
- 22-23** Sixth Annual March Mashfest, **AHA SCP**, Fort Collins, Colo. Entries due March 9. Contact Brian Walter at (970) 493-2586; walter@larar.colostate.edu; <http://www.fortnet.org/~smills/masht.html>.
- 23** Ultimate Alt Club-Only Competition, **AHA SCP**. Entries due March 18. Contact James Spence at (303) 447-0816 ext. 121.
- 23** Palm Beach Draughtsmen Hurricane Blow Off, **AHA SCP**, West Palm Beach, Fla. Entries due March 8. Contact Jeff Miller at (407) 391-1813.

- 24** Fifth Annual Southern New York Spring Regional Competition, **AHA SCP**, Staten Island, N.Y. Entries due March 21. Contact Frank Salt at (718) 667-4459; kbjohns@escape.com.
- 23-30** 10th Annual Bluebonnet Brew Off, **AHA SCP**, Irving, Texas. Entries due March 9. Contact Rob Stenson at (817) 377-4488.
- 30-31** Advanced Homebrewers Weekend Series, American Brewers Guild, Atlanta, Ga. Call (800) 636-1331.

APRIL

- 1-12** AHA 1996 National Homebrew Competition first-round entries due. Call the AHA at (303) 447-0816.
- 12** Third Annual Greater Wichita Homebrew Competition, **AHA SCP**, Wichita, Kan. Entries due April 7. Contact Chris Kaufman at (316) 789-0415.
- 18** Summer Issue of *Zymurgy* (Vol. 19, No. 2) mails. Please allow four to six weeks for delivery.
- 19-20** James Page Open, **AHA SCP**, Minneapolis, Minn. Entries due April 13. Contact Harvie Holmes at (612) 331-2833.
- 19-20** Dukes of Ale Spring Thing, **AHA SCP**, Albuquerque, N.M. Entries due on April 13. Contact Guy Ruth at (505) 294-0302.
- 20-21** AHA First Round National Homebrew Competition in selected cities. Call the AHA at (303) 447-0816.
- 26-27** Quality Assurance for the Micro or Pub Brewery, American Brewers Guild Education and Training, Boston, Mass. Call (800) 636-1331.
- 26-27** Sales, Marketing & Distribution of Microbrewed Beer, American Brewers Guild Education and Training, Boston, Mass. Call (800) 636-1331.
- 27** Greater Topeka Hall of Foamers Third Annual Heartland Homebrew Competition, **AHA SCP**, Topeka, Kan. Entries due April 20. Contact Chris Hedquist at (913) 235-6561.
- 27** Maltose Falcon's Mayfaire, **AHA SCP**, Manhattan Beach, Calif. Entries due April 6. Contact Russell Reece at (310) 379-2921; RustyReece@aol.com.
- 27-28** AHA First Round National Homebrew Competition in selected cities. Call the AHA at (303) 447-0816.

27-30 Institute for Brewing Studies 1996 National Craft-brewers Conference and Trade Show. Hynes Convention Center, Boston, Mass. Call the IBS at (303) 447-0816.

MAY

4 **National Homebrew Day.** Call the American Homebrewers Association at (303) 447-0816.

4-5 Sunshine Challenge, **AHA SCP**, Orlando, Fla. Entries due April 30. Contact Tom Moench at (407) 888-3533.

10 Fifth Annual Mazer Cup Mead Competition, **AHA SCP**, Ann Arbor, Mich. Entries due April 22-May 3. Contact Ken Schramm at (810) 816-1592; schramk@wcres.klz.mi.us.

11 14th Annual Oregon Homebrew Competition, **AHA SCP**, Albany, Ore. Entries due May 10. Contact Lee Smith at (541) 926-2286.

18 Bock is Best Club-Only Competition, **AHA SCP**. Entries due May 13. Contact James Spence at (303) 447-0816 ext. 121.

18 Fifth Annual Moon Madness Competition, **AHA SCP**, Douglassville, Pa. Entries due May 1-12. Contact Randy Martin at (610) 944-0500.

18-19 Advanced Homebrewers Weekend Series, American Brewers Guild, Kansas City, Mo. Call (800) 636-1331.

JUNE

5-8 **AHA 1996 National Homebrewers Conference**, Radisson Hotel (for reservations call (800) 824-3359) New Orleans, La. Contact the AHA at (303) 447-0816.

12-16 Beer Mundial '96, Old Port of Montreal, Quebec, Canada. Contact Jeanne Marois at (514) 722-9640; Marois@login.net.

15 Third Annual Wichita Festival of Beers, Wichita, Kan. Contact Beverly Moore at (316) 838-7707.

JULY

9 Fall Issue of *Zymurgy* (Vol. 19, No. 3) mails. Please allow four to six weeks for delivery.

AUGUST

8 Josephine County Fair Amateur Beers Competition, **AHA SCP**, Grants Pass, Ore. Entries due Aug. 8. Contact Hubert Smith at (503) 597-2142.

14 Steele County Free Fair Homemade 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.

26-28 Great American Beer Festival™, Denver, Colo. Call the Association of Brewers at (303) 447-0816.

SEPTEMBER

17 Special Issue of *Zymurgy* (Vol. 19, No. 4) mails. Please allow four to six weeks for delivery.

OCTOBER

26 Best of Fest Club-Only Competition, **AHA SCP**. Entries due Oct. 21. Contact James Spence at (303) 447-0816 ext. 121.

NOVEMBER

20 Winter Issue of *Zymurgy* (Vol. 19, No. 5) mails. Please allow four to six weeks for delivery.

DECEMBER

7 Belgian Blockbuster Club-Only Competition, **AHA SCP**. Entries due Dec. 2. Contact James Spence at (303) 447-0816 ext. 121.

AHA SCP= American Homebrewers Association Sanctioned Competition Program

To list events, send information to *Zymurgy* Calendar of Events. To be listed in *Zymurgy* Spring 1996, information must be received by Jan. 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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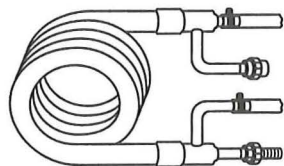
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BREW NEWS

James Spence

HEADLINES



Beer Gardens Open to 11 p.m.

Noisy beer gardens forced a Munich court to close Bavarian beer gardens at 9 p.m. during the summer. The May decision sparked protest from traditionalists who viewed the ruling as an assault on the 400-year-old beer-garden tradition of quenching summertime thirst outdoors under chestnut trees. The Bavarian cabinet, however, overturned the decision, allowing the beer gardens to close at 11 p.m. with no music after 10 p.m. and last call at 10:30. The new ordinance provides an exception for beer gardens, but street cafés and garden restaurants are excluded.

Modern Brewery Age, June 1995.

Supreme Court Legalizes Labeling

With a unanimous vote of 9 to 0, the U.S. Supreme Court removed a 60-year-old ban on brewers listing the alcohol content

on their beers. Coors Brewing Co. launched suit nearly eight years ago, saying the ban violated brewers' rights to commercial free speech and was unfair to brewers because winemakers and distillers are required by the same law to list alcohol content. The Bureau of Alcohol, Tobacco and Firearms opposed overturning the ban, fearing brewers would attempt to market high-strength beers inappropriately.

In his opinion, Justice Clarence Thomas said that the ban had been applied inconsistently — federal laws did not prohibit labeling if state laws allowed it, and the law allowed other terms such as "malt liquor" and "lite" to connote beer strength.

Brewers are concerned that the new labeling will be made mandatory by the BATF, which might introduce regulations for enforcing the labeling. In addition, if the law remains permissive, individual states could not allow alcohol labeling, making it necessary for brewers to produce different labels for each state

in which they distribute. Overall, however, brewers are pleased with the new ruling. *Celebrator Beer News*, June/July 1995, *The Brewers Bulletin*, Vol. 88, No. 18, May 9, 1995.

Missouri, Arkansas Legalize Homebrewing

After a Missouri liquor inspector ended Alan Ebersold's group brewing session in Union Star, Alan called state Rep. Dan Hegeman who contacted Sen. Sam Graves, who introduced Senate Bill 468 on the final day of bill introduction in the legislative session. The bill passed the Missouri Senate and House of Representatives with minor opposition and was signed by Gov. Mel Carnahan on May 18, allowing homebrewing in accordance with federal guidelines. Homebrew clubs and AHA members including Karl Lutzen, author of *Homebrew Favorites* (Storey Communications, 1994), were involved in the process.



From left to right, Alan Ebersold, Logan Ebersold, Karl Lutzen and Fifth District Rep. Dan Hegeman watch Missouri Gov. Mel Carnahan sign Senate Bill 468.

With the April 10 signature of Gov. Jim Guy Tucker, homebrewing became legal in the state of Arkansas. Senate Bill 636 cleared the Senate after approval of House amendments and became Act 1051(1995). The new status of homebrewing in Arkansas became effective July 28.

The bill was introduced by Sen. David Malone and strongly supported by Fayetteville Lovers of Pure Suds (FLOPS), Arkansas Home Wine and Beer Makers Association and Hell on the Border Homebrewers, all AHA registered homebrew clubs that aided in drafting and lobbying for the bill. The new law allows homebrew of not more than 5 percent alcohol by weight (6.4 percent by volume) to be brewed in quantities of 200 gallons for a household of two or more adults, 100 gallons for a household of one adult.

For more information on homebrew legal issues, contact AHA President Karen Barela.

Haunold Develops Ultra Hop

Specialty brewers in the United States require a wider choice of American-grown aromatic hops for economy and beer quality. Alfred Haunold of the U.S. Department of Agriculture, developer of several hop varieties, has introduced Ultra, a high aroma, low alpha-acid hop. Ultra is expected to allow U.S. brewers affordable access to hop aromas that many European brews possess.

Whitbread Wins with Widget

Banking on the increasing popularity of bottled beers among 18- to 30-year-olds in the United Kingdom, Whitbread introduced a "widgeted" bottle version of Murphy's Irish Stout in May. A "widget" is a device that squirts inert gas into a beer when opened, causing it to develop a creamy head. Previously widgets were attached to the inside bottom of cans. In the bottled version, however, the widget floats. It took engineers a year to develop a device that did not need to be attached at the bottom of the bottle and would fit through the mouth of the bottle.

Brewing and Distilling International, April 1995.

MICROBREWERIES, BREWPUBS AND CONTRACT BREWERIES

Information provided by the Institute for Brewing Studies, Boulder, Colo. A complete state-by-state list of breweries and brewpubs in North America is updated quarterly and available from the Association of Brewers for \$5.

OPENINGS

(As of Aug. 28, 1995)

UNITED STATES Microbreweries

Arizona: Four Peaks Brewing Co., Tempe
California: Yuba River Brewing Co., Nevada City
Florida: The Key West Overseas Brewery, Key West; Miami Brewing Co., Miami
Hawaii: The Great Hawaiian Brewing Co., Honolulu
Illinois: Slopeside Brewing Co., Chicago
Louisiana: Acadian Brewing Co., New Orleans
New Mexico: Elephant Butte Brewery, Elephant Butte
Michigan: Boyne River Brewing Co., Boyne City
Texas: Basin Brewing Ltd., Midland
Virginia: Williamsville Brewery, Hanover

Brewpubs

Alabama: Montgomery Brewing Co., Montgomery; Poplar Head Mule Co. Brew Pub & Grill, Dothan
Alaska: Northern Lights Brewing Co., Anchorage
California: Ale House Rock Brewery & Boller, Huntington Beach; Burlingame Station Brewing Co., Burlingame; Brewski's Brewing Co., Hermosa Beach
Colorado: Fleetside Pub & Brewing, Greeley
Connecticut: Bar, New Haven
Delaware: Brandywine Brewing Co. & Restaurant, Wilmington
Florida: Blue Anchor Pub, Jacksonville; South Pointe Seafood House & Brewing Co., Miami Beach; Thai Orchid II, Miami
Georgia: Athens Brewing Co., Athens; Atlanta Beer Garten, Atlanta
Indiana: Alcatraz Brewing Co., Indianapolis
Kentucky: Lexington City Brewery, Lexington
Maine: Gritty McDuff's No. 2, Freeport
Massachusetts: Mainstreet Brewing, Worcester
Michigan: Arbour Brewing Co., Ypsilanti; Blue Coyote Brewing, Lansing; Great Baraboo Brewing Co., Clinton Township; Hereford and Hops, Escanaba

Missouri: The Bucket Shop, St. Joseph; Trailhead Brewing Co., St. Charles
New York: Atlantic Brewing Co., Long Island; Bootlegger's Pub and Brewery, Plattsburg; Carnegie Hill Brewing Co., New York; Ellicottville Brewing Co., Ellicottville; Heartland Brewing Co., New York
Ohio: Wallaby Bob's, Westlake
Oklahoma: Belle Isle Brewing Co., Oklahoma City
Oregon: Field's Brewpub, Eugene; Wild Duck Brewery, Eugene
Pennsylvania: Barley Creek Brewing Co., Henryville; Buckingham Mountain Brewing Co., Lahaska; Queen City Brewing Co., Allentown
Rhode Island: Coddington Brewery, Middletown
South Carolina: Vista Brewing, Columbia
Texas: The Bank Draft Brewing Co., Houston; Copper Tank Brewing Co., Dallas; Hierman's Hoffbrau, Midland; Mason Brewing, Midland; Silk's Brewing Co., Amarillo
Wisconsin: Rail House Brewing Co., Marinette
Virginia: Virginia Brewing Co., Alexandria
Washington: Engine House No. 9, Tacoma; The Power Station, Puyallup; West Seattle Brewing Co., Seattle

CANADA Brewpubs

Alberta: Brewster's Brew Pub and Brasserie No. 6, Edmonton
Saskatchewan: Brewster's Brew Pub and Brasserie No. 5, Regina

CLOSINGS

UNITED STATES Microbreweries

California: Bay Brewing Co./Devil Mountain Brewery, Benicia Brewpubs
Texas: Bryan Brewing Co., Bryan

CANADA Microbreweries

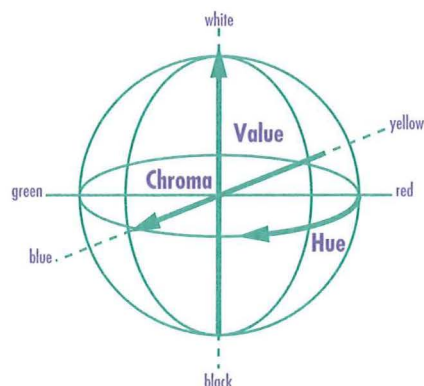
Ontario: Canada's Finest Beers Ltd., Wheatley

TECHNOTES

Measuring Beer Color

Scientists using a tristimulus method of measuring colors of beers found that panels asked to differentiate the different-colored beer in three sample beers could do so at a high confidence level, even when EBC and Lovibond values for pairs of beers were the same. Two glasses containing the same beer, and a third with matching EBC and Lovibond values were viewed. Using measurements derived from the tristimulus CIELAB color space, however, scientists were able to measure beer colors with significantly more accuracy.

Journal of the Institute of Brewing, May/June 1995.



A representation of the CIELAB color space, showing the relationship between value, hue and chroma.

Mathematical Modeling of Beer Foam

Using mathematical modeling, scientists found that 89 percent of the variations in foam collapse could be explained by four factors: IBU, pH, real extract and high molecular weight protein (HMWP). Measurements of 49 beers resulted in the following conclusions when the results were used in mathematical models. Increasing IBU levels and decreasing pH will result in longer foam collapse times regardless of real extract. Foam collapse times increase in the presence of high amounts of HMWP. The higher the real extract, the better the foam retention. The models can be used to troubleshoot brewers' products or develop new products.

Master Brewers Association of the Americas Technical Quarterly, Vol. 32, 1995.



Detecting Insect Entry

On occasions when insects are found in pasteurized beer, scientists are able to determine whether entry was during packaging or afterwards by measuring the catalase activity of the insect. This test fails for non-pasteurized beer. By measuring the cholinesterase and acetyl cholinesterase activity of insects soaked in beer, scientists found that the activity decreased over time. The length of time the insect had been soaking is therefore measurable by the residual activity of the enzymes.

American Society of Brewing Chemists Newsletter, Spring 1995.

Yeast Pitching Rates

A 1.064 original gravity wort from one production brew was split between four 10-barrel fermenters and pitched with 12.8, 30.3, 53.8 and 74.9×10^6 viable cells per milliliter, respectively. This is equivalent to about one-half to four times the normal amounts used in brewing high-gravity lager beers. Fermentation rates were about two hours faster per additional million cells per

milliliter pitched. Increasing pitching rates resulted in lower IBU levels and lower free amino nitrogen (FAN) utilization. Higher ester levels resulted from lower pitching rates. Higher alcohol yield was found in higher pitch rates, including an increase in fusel alcohol. Panels found higher hop aroma and hop intensities in low pitch rates.

From "Effects of Yeast Pitch Rates on Fermentation Performance and Beer Quality" by Cindy Edelen presented at the MBAA Conference, Sept. 1994.

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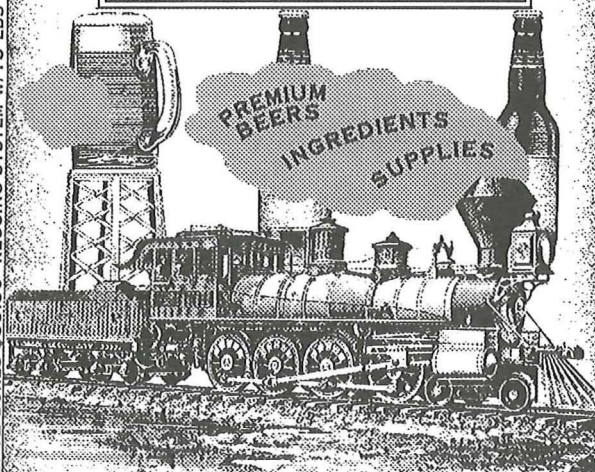
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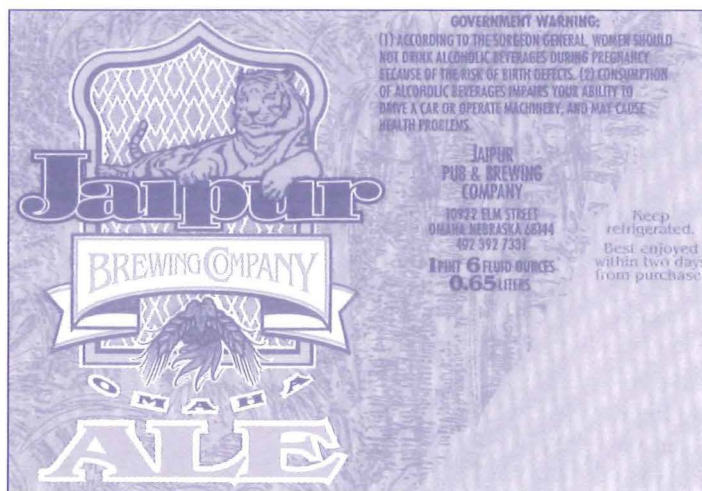
It is a truth universally recognized that a few pints in the pub cause an overwhelming desire for a curry, but where is it possible to continue drinking decent ale while eating *aloo sag* (an Indian dish made from potatoes and spinach cooked in spices)?

I once suggested to my favorite restaurateur from the subcontinent that he stock an India pale ale instead of the ubiquitous, undistinguished lager, but I was met with puzzlement.

Then I heard that I might find such an arrangement if I headed, perhaps by way of Chicago, to Omaha, Neb., in the Midwest of the United States. I needed no further prompting.

Omaha, on the Missouri River, a gateway to the prairies, began to grow when it was chosen by Gen. Granville Dodge as a railhead for the Union Pacific line. It is a shipment point for grain, cattle and meat, and its cautious farmers have made it a center for the insurance business.

By the time I arrived I was thirsty. In the warehouse district near the railroad, I made a preliminary call at the Jones Street Brewery and Café. This is in a handsome redbrick building of 1889 that once housed the Bolt, Nut and Screw Co. Since October 1992, it has been a brewpub.



It has a white-painted brick interior, a long island bar, a function room lined with law books (partner Greg Jahn is a lawyer, general counsel to Creighton Jesuit University). Blues and jazz play downstairs.

I tasted a tart, refreshing wheat beer; a honeyish golden ale; a fruity pale ale dry-hopped with East Kent Goldings; an intensely hoppy India pale ale; a toasty, malty amber ale; a soft, flavorsome mild; a slightly syrupy brown ale; a roasty, long porter; and a chocolatey stout called Ryan's.

"I named that last one after my uncle, Bob Ryan, a consummate Irishman," I was told by brewer Dean Dobmeier.

"I have fond memories of going to his cabin in northern Minnesota on fishing trips. As a kid, you don't fully appreciate such kindnesses. My stout is a tribute."

Dean slipped into reverie: "There is something very Zen about brewing ..."

We headed off to visit the curry restaurant with the India pale ale. This, too, was in a shopping center in west Omaha. (Being on the prairies, Omaha is a sprawling place.)

It is called Jaipur, and it is at 10922 Elm St., in the Rock Brook Shopping Center. There I met accountant Gary Herse, an American of distantly German origin, who spent some time in Britain a

few years ago. During this period, he developed an enthusiasm for Indian food and British beer.

The latter interest was enhanced by his location: he lived in St. Albans, home of CAMRA (Campaign for Real Ale). Gary and his brother Mark became homebrewers.

Then Mark's wife, a lawyer, began to represent the company that owns the Jaipur restaurant. That is how the Herse brothers came to build a two-barrel brewery in the kitchen of the curry house.

They were helped in this by brewery consultant Pierre Rajotte. The eclectic Rajotte from Montreal, Canada, is author of *Belgian Ale* (Brewers Publications, 1992) and *First Steps in Yeast Culture* (Alliage Éditeur, 1994). The Jaipur brewery is now so busy that a third beermaker, Al Lunn, has been hired. Al-

though he is of Bohemian origin, he came to brewing through home winemaking.

I was taken through the Jaipur's range by Al Lunn and Raj Bhandari, they being the chef and a partner in the business. Raj is a great enthusiast for the Jaipur's beers.

The Jaipur Gold is a lightly malty, dry-ish ale. The India pale ale is well balanced, but with lots of appetizing hoppy flavors. It reminded me of a very hoppy best bitter in Britain. Al told me he had used three additions of hops, all American.

The nut brown ale is very malty and probably the most food friendly. The porter I found slightly medicinal, a cherry wheat beer crisp and lightly fruity and a jalapeño ale splendidly peppery.

Then came the big moment. "A pint of India pale ale with your dinner?" suggested Raj.

"Onion *kulcha*, fish *tikka*, gobi *masala*, sarson *sag*?" The last, was a purée of creamed spinach and mustard greens, flavored with ginger and tomato and served with rice.

I began to salivate, and reached for a *chapati*.

"Michael!" It was Dean. This time it was his turn to awaken me from a reverie. "Your palate!"

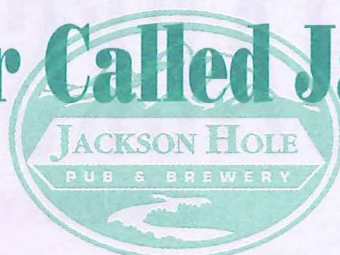
I could not stay to experience the impact of IPA and all those spices. I had more beer-tasting to do. I felt cheated out of the *chapati*. I shall have to return another day. It is a long way, but it will be worth it.

Meanwhile, we had to drive for another hour to the city of Lincoln, Neb., to sample the spritzly ales made at Lazlo's Brewery and Grill and the Zlate Pivo made by Kristina Tiebel and Linda Vescio at the Crane River Brewpub and Café.

Reprinted with permission from What's Brewing, newspaper of the Campaign for Real Ale.

Michael Jackson is internationally the best known writer on beer. His *Beer Companion* (Running Press, 1994) was awarded the 1994 Glen Fiddish Trophy, an honor never before bestowed to a book on beer. His articles, books and documentary videos and now a CD-ROM introduce beer styles to countless drinkers and brewers outside their native lands.

A Beer Called Jackson



The drive westward was inexorable. At the airport, the desk clerk was amused at my name, but not for the usual reason.

"Jackson! And that's where you're going!" It was the first time for me, but surely not for him.

The plane flies into Jackson Hole, a dip in the mountains between the Gros Ventre and Teton ranges. The names were conferred by French fur traders who came to trap beaver on the Snake River. During the gold fever of the 1860s, there was panning and digging in the area, and the miners soon had two breweries.

The last closed as recently as the 1950s, and in 1988 Charlie Otto started a new brewery in the hamlet of Wilson (population 300), seven miles west of the town of Jackson. Otto fell in love with beer during a bicycle tour of the Pacific Northwest, the microbrewing heart of the United States.

He constructed his own tiny brewhouse building from pine and cedar on the mountain-side. He brews from both extract and grain in a seven-barrel kettle. His Teton Ale has an attractive, reddish amber color, with suggestions of dark malt yielding to a robust hop balance.

The Moose Juice Stout is smooth, coffeeish and eminently drinkable. In summer there is a Huckleberry Wheat Beer. Brother Ernie helps sell the beer in the free trade. The brewery is known as Otto Brothers.

Jackson itself is tricked out as a cowboy town, but the number of superrich who have bought ranches in the area have won it the sobriquet, "The Beverly Hills of Wyoming."

In Jackson, a former Budweiser distributor has, with his wife and daughter, built a \$2 million brewpub called the Jackson Hole Pub and Brewery in an airy barnlike building.

I enjoyed, among others, Jackson's ESB (spritzly and malty, with a big hop finish) and Zonker Stout (dry, coffeeish, rounded). I was also entertained by the owner's litany: "No smoking, no fried foods, no skins of dead animals to decorate the walls."

At the airport, the snackbar announced: "No smoking. No pets. No shirt. No shoes. No service." Never mind, I was off to check out a brewery in Las Vegas, Nev.

That's how I found myself in Holy Cow! The exclamation mark is a part of the name, which owes something to owner Tom Wiesner's origins in the dairy state of Wisconsin. On the other hand, Wiesner was a professional athlete (a gridiron footballer) before going into the bar business, and one famous sports (baseball) commentator has the habit of greeting every home run with the exclamation: Holy Cow!

In Vegas every bar, restaurant and hotel also has a casino and Holy Cow! is no exception. On the ground floor Holy Cow! has more than 100 one-arm bandits. You can eat and drink at the slot machines if you wish.

I am not sure that many patrons realize they are being served beer made upstairs, but there I was on The Strip drinking an outstanding Bavarian-style wheat beer; a dry appetizing pale ale called Amber Gambler (winner of a gold medal in the Classic English Pale Ale category at the 1993 Great American Beer Festival®); a well-rounded red ale; and a very smooth, rich Irish-style stout.

I forgot to gamble. Just as well perhaps. "Where are you headed?" asked the cab driver.

"Phoenix," I replied.

"Good idea," he countered.

"Why?" I foolishly inquired.

"Hey, anywhere's a good idea if it means you get out of Vegas. I lost all my money 10 years ago, and I'm still here."

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HOMEBREW COOKING

Martin Manning

Can't Live By Beer Alone? Try *Pain au Levain*!



Levain is French for leaven, as in to raise bread. *Pain au levain* (say pahn oh luh-vahn) refers to a rustic French country-style sourdough bread. Sourdoughs, like lambic beers, rely on wild yeast and bacteria for fermentation. In bread, this method lends unique flavors, texture and enhanced keeping properties. Most people are familiar with sourdough rye (made with wheat and rye flours) and San Francisco-style sourdough (made with white wheat flour). The classic French version is a bit different because it is made with a partially refined wheat flour, or a combination of white and whole-wheat flours. This once-humble crusty loaf now enjoys a renewed interest, and in some circles is considered chic.

The revival of traditional methods and products in baking is strikingly similar to the recent microbrewery revolution, and why not? The variety and character of breads have diminished from what they once were, and the mass-market varieties are the equivalent of light beers. Like beer, bread has its four basic ingredients: wheat flour, water, salt and yeast. French bakers even have their own *Reinheitsgebot*. "French bread," by law, may not contain anything except the four basic ingredients, plus 2 percent or less of rye and fava bean flours, and minute amounts of ascorbic acid (vitamin C) and yeast nutrient.

Bread baking also has its adjuncts, which bakers call enrichments: flour made from other types of grain, milk, eggs, sugar, honey, to name a few. Regional variations in these and in baking techniques have produced hundreds of styles of bread. While

they haven't been given much notice yet, small bakeries (microbakeries?) reviving traditional methods and producing traditional products have been appearing in the United States since the mid-1970s. Beer has often been called liquid bread and, according to celebrated French baker Lionel Poilâne, bread is simply solid beer!

Much of the impetus for homebrewing applies equally to home bread baking, and I find that a good many amateur brewers are also interested in bread. The connection between my pain au levain and beer is doubly reinforced because I used the sediment from a bottle of unfiltered lambic to make the *chef*, or starter, more interesting. What better place to obtain a culturally diverse collection of European wild yeast and microbes?

I learned the method and basic recipe for levain from *Bread Alone*, by Daniel Leader and Judith Blahnik. The recipe reproduced here, "My Personal Favorite Pain au Levain," is for a single very impressive 3 1/2-pound (1.6 kg) round free-form loaf (called a *boule*), but you could divide it and make two smaller ones. Leader suggests that the 20 percent bran flour (80 percent of the bran has been removed) specified in the recipe be duplicated by mixing three parts of unbleached white flour (preferably with germ) to one part whole-wheat flour.

You will need about three pounds (1.3 kg) of flour to make the starter, mix the dough and then restore the starter for future use. Another 10 ounces (0.3 kg) or so may be required for kneading, proofing and baking, so prepare about 3 1/2 pounds (1.6 kg) of the mixture.

A cup of flour weighs about 5 ounces (142 g), but weighing out the ingredients is

recommend because it will produce more repeatable results. Be sure to use flours made from hard wheat. Its higher protein content will help develop a more robust dough than soft wheat or all-purpose flours. Natural food stores are good places to look for these, and they may be labeled "hard spring wheat flour," or simply "bread flour."

A levain starter is made in two stages. The first is called the *chef levain* (chief leavening agent) and the second simply the *levain*. Once it is ripened, a measured quantity of the levain is used to mix the final dough. To make the chef, mix four ounces (113 g) of flour with four fluid ounces (118 mL) of water in a two-quart (1.9-L) plastic container. Stir well, scrape the sides down with a rubber spatula, cover tightly and let stand at room temperature for 24 hours. (Note: Some people have reported sluggish fermentations in sourdoughs using chlorinated water. To be on the safe side, use bottled spring water or charcoal-filtered tap water.) Repeat the sequence of adding the same amounts of flour and water two more times to the existing chef to produce a fully ripened chef. During each 24-hour period, the chef will become more active. After the third addition of flour and water, the chef should nearly double in volume before it collapses.

Leader recommends adding a pinch (less than one-sixteenth teaspoon) of baker's yeast to the first mixture to augment the wild yeast and souring bacteria brought in with the flour. I did this, and used the last ounce or so of liquid and sediment from the lambic to make up the first four fluid ounces (118 mL) of water. To gauge the effect of the lambic culture, I initially made

two chefs. Each received bakers yeast, while the lambic culture was added only to one. After the first day, the lambic chef was fermenting much more vigorously and had interesting aromas reminiscent of the lambic beer.

Regardless of what you put in the starter at the beginning, it will evolve to its own balance of yeast and souring bacteria. With luck, the unique and desirable elements will survive. Each use and refreshment of the chef, however, means a huge inoculum of microbes from the flour, and a few from the local environs. The character of the chef will change somewhat with different types or brands of flour, from one harvest to the next for any one brand, and with the geographical area in which it is used.

To make the levain, add six ounces (170 g) of flour to the ripened chef (in its plastic container), stir well, scrape down the sides and cover it tightly. Let this stand for eight to 10 hours (but no longer) at room temperature. It should double in volume and become very bubbly and elastic.

To mix the final dough, assemble the following ingredients:

- 18 oz levain (from above) (510 g)**
- 24 oz 20 percent bran hard wheat flour (680 g)**
- 1 tbs salt (14.8 mL)**
- 18 fl oz water, at room temperature (530 mL)**

Mix the levain and water together in a five-quart (4.7-L) bowl, and stir until the levain is well broken up. Stir in a cup or two of the flour, then add the salt. Continue to add and stir in portions of the remaining flour until the dough becomes stiff. Turn it out onto a floured surface and begin kneading. Add flour as necessary to work the dough, but avoid making it too dry. At first, the dough will be very soft, sticky and difficult to work. When finished, it may still be somewhat sticky, but otherwise smooth and elastic. Kneading by hand will take about 15 minutes of hard work. Shape the dough into a ball by tucking the edges underneath and toward the center, then place it in a lightly oiled or buttered bowl, turning it once so the exposed surface is coated. Cover the bowl with plastic wrap or a clean, damp towel and let it ferment at about 70 degrees F

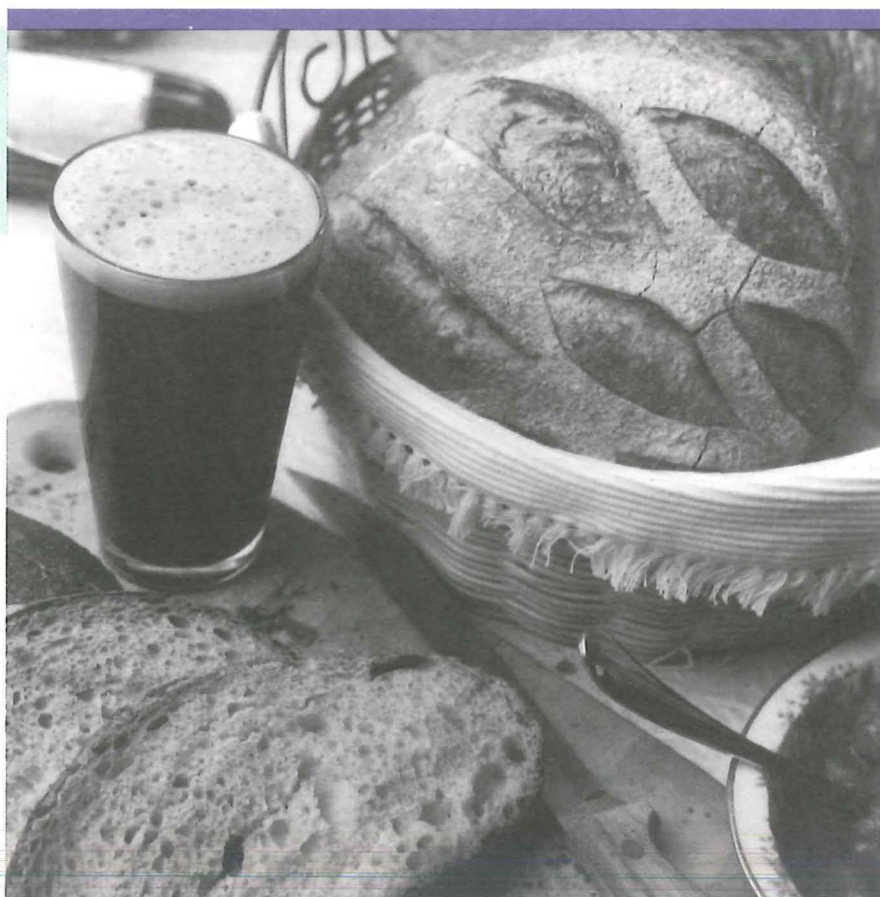
(21 degrees C) for two hours. It should increase in bulk by 25 to 40 percent.

After you measure out the 18 ounces (510 g) of levain needed for the recipe, you will have some left over. You can restore it to a chef by adding seven fluid ounces (210 mL) of water and 4 1/2 ounces (130 g) of flour. This will thin it to its original batterlike consistency and restore its original weight of 24 1/2 ounces (695 g). With a fresh addition of flour, the chef can be stored in the refrigerator for up to seven days. If you don't bake within that time, maintain the chef by first stirring it up (it probably will have separated), then remove and discard 8 1/4 ounces (230 g). To the remainder, add four fluid ounces (118 mL) of water and four ounces (113 g) of flour. Stir it well, scrape down the sides and place it back in the refrigerator for up to seven more days.

After the first two-hour rise, punch the dough down and knead it briefly, then shape it into a ball again and place it seam-side down on a lightly floured surface. Cover and let it rest for 30 minutes. Next, for the final shaping of the loaf, flatten the ball of dough until it is about eight or nine inches in diameter, then tuck the

edges underneath until a tight ball is formed. This time, pinch the seams together firmly to seal them. Place the dough seam-side up in a shallow (11 inches in diameter and 3 1/2 inches deep) bowl or basket that has been lined with a well-floured, smooth (not terry cloth) kitchen towel. Rub flour into the fabric so the dough doesn't stick to it. Cover and proof the loaf (let it rise) until it doubles in bulk. This will take three to four hours at 70 degrees F (21 degrees C), half that time at 80 degrees F (27 degrees C). The bowl will provide support for the soft dough and help give the loaf more height. Some of the flour from the fabric will stick to the surface of the dough, giving the finished loaf a dusty appearance.

About an hour before the bread will be baked, preheat the oven and a large baking stone to 450 degrees F (232 degrees C). Baking stones, also called pizza stones, are sold in kitchen specialty stores and are used to simulate the effect of a masonry-deck oven. It will give the bottom of the loaf a firm crust, and the large amount of heat stored in it will help the loaf expand fully as it is baked. The stone should be placed on the middle rack



and, for a loaf of this size, be at least 14 inches across.

The upper crust will be thinner and crisper, and the loaf can expand more before the crust "sets" if it is baked with moist heat for the first 10 minutes or so. You can improvise a steam generator for your oven using an old eight-inch cast-iron skillet and a soup can with a one-sixteenths-inch hole drilled in the bottom. Place the skillet on the bottom rack beneath the baking stone so that the can, when filled with water and placed beside the stone on the middle rack, will drain slowly into it. Preheat the skillet and stone, then add a cup of hot water to the can and position it when the loaf is put into the oven.

When the loaf has risen to about double in bulk, dust the top with flour and invert it onto a floured peel or flat rimless cookie sheet. At this point a pattern is slashed into the top surface (one quarter to one-half inch deep) with a razor blade or sharp knife. This ensures that the loaf will burst in a predictable manner when it expands in the oven. Crosshatching, a tic-tac-toe pattern or a single large square are traditional designs.


Slide the loaf from the peel or baking sheet onto the baking stone, add to your steam generator and bake for 20 minutes. Reduce the heat to 400 degrees F (204 degrees C), and bake another 15 to 20 minutes until the crust has become a deep golden color. To test for doneness, remove the loaf from the oven and rap the bottom with your fingers. When done, it will make a hollow sound. Cool the bread completely on a wire rack before storing in a paper bag. If the bread is stored in a plastic bag, the crust will become soft. Sourdough bread keeps very well, and this loaf could last nearly a week.

Pain au levain is flavorful enough to be eaten plain and paired with any type of beer. However, there was a time in Belgium when all the beer was lambic and all the bread was levain, and these two could not be more natural companions. Belgians make a light summer meal of bread topped with soft white cheese and sprinkled with pepper. This is accompanied by sliced radishes and lambic

beer. An herbed cheese spread also is an excellent choice with levain, as are any of the blue cheeses like Roquefort or Stilton. The idea of using bread and beer in concert with a third food item can be carried through any season. For example, a robust, crusty bread such as levain goes famously with a hearty soup or stew, and serving these with a similarly robust beer, such as bière de garde or stout, will make a wonderful winter meal.

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Chelminski, R. "Hello Sourdough, Bye-Bye Baguette, vive Poilâne!" *Smithsonian*, 25(10), (1995).
Leader, D. and Blahnik, J. *Bread Alone*, Morrow, 1994.
Ortiz, J. *The Village Baker*, Ten Speed Press, 1993.

Martin Manning, an engineer with GE Aircraft Engines in Cincinnati, Ohio, has been an amateur brewer and member of the Bloatarian Brewing League since 1989. 

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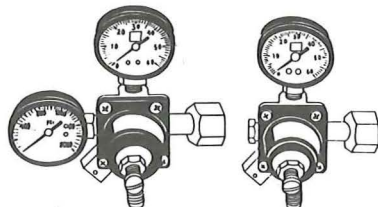
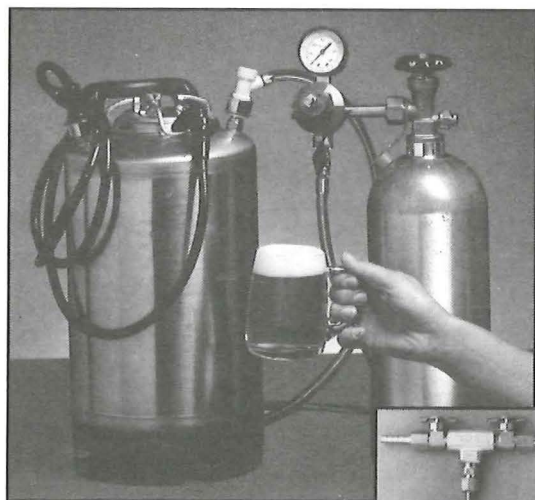
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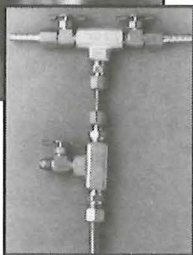
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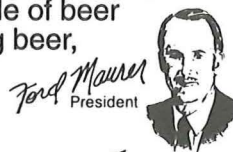
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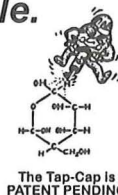
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TIPS & GADGETS

Dan Hall

HOMEBREWERY IMPROVEMENTS: BEVERAGE LINE RINSER

Soda kegs are very convenient, but I always dreaded having to clean the picnic tap after drawing one or two pints. I never felt comfortable leaving the beverage line on the keg full of beer, and I quickly grew tired of partially dismantling it to rinse it out, so I designed this gadget to make my life easier.

Prices and catalog numbers for items 2 through 5 are from Foxx Beverage Corp. Summer 1995 catalog. Items 1a and b can be found in most home improvement stores and are often sold as a set.

The snap nipple (item 1a) screws onto your sink faucet and stays there. The washing machine (or dishwasher) quick-disconnect (item 1b) snaps on and off the snap nipple in the same manner as a ball-lock soda disconnect. Two types of these are available. One has a small-diameter snap nipple and a smooth white plastic disconnect ring. The other type has a larger diameter snap nipple and a white disconnect ring with ridges on it. This second type of disconnect incorporates an aerator. If

you are installing a snap nipple to your faucet and you have to remove an aerator from the faucet to do so, continued domestic bliss dictates that you use the second type.

Item 2, the thread adapter, adapts the quick-disconnect's three-quarter-inch male hose threads to the reducer (item 3). The reducer is a means of connecting the thread adapter to the ball-lock adapter (item 4). Apply the O-ring (item 4a) to the ball-lock adapter before threading it onto the reducer. The liquid tank plug assembly (item 5) then threads onto the ball-lock adapter.

To adapt this gadget to pin-lock disconnects, assemble items from Table 2.

Thread the pipe coupling (item 4) onto the reducer. Apply the O-ring (item 5a) to the pin-lock adapter (item 5) and then thread the pin-lock adapter into the coupling. Finally, thread the liquid tank plug assembly (item 6) onto the pin-lock adapter.

I keep this gadget in a kitchen drawer where it's handy. After I've drawn a pint

snap nipple

washing machine
quick-disconnect

thread adapter

reducer

ball-lock adapter

O-ring

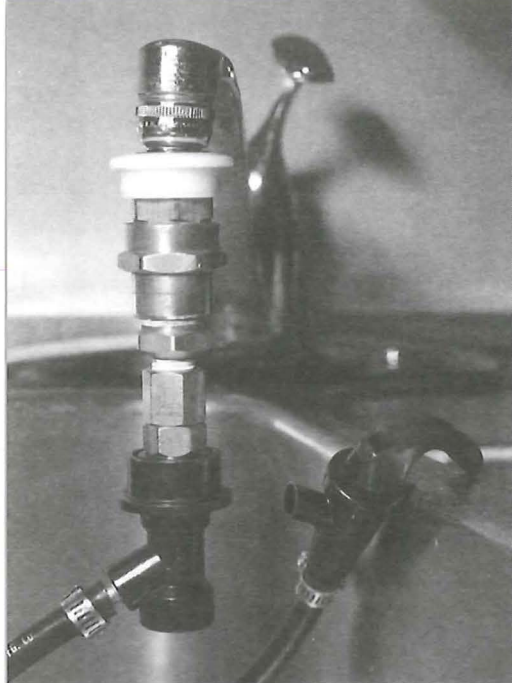
liquid tank plug
assembly

quick-
disconnect

ITEM	CAT. #	DESCRIPTION	QTY.	PRICE
1a		snap nipple	1	≈2.00
1b		washing machine quick-disconnect	1	≈5.00
2	05B01-296	3/4" female hose thread by 1/2" female pipe thread adapter	1	1.34
3	05B01-160	male pipe reducer 1/2" male pipe thread by 1/4" male pipe thread	1	0.97
4	15E04-456	ball lock adapter 1/4" female pipe thread by 5/8" diameter, 18 m threads per inch (male)	1	4.63
4a	07E04-383	O-ring	1	0.29
5	15E04-305	liquid tank plug assembly, Cornelius ball	1	3.43

ILLUSTRATION BY RANDY MOSHER

ZYMURGY Winter 1995



This gadget makes rinsing beverage lines easy and convenient.

from a keg, I remove the picnic tap, line and disconnect and take them to the kitchen sink. I attach the keg disconnect to the gadget, attach the gadget to the faucet, turn on the faucet and run water through the picnic tap and line to rinse it out. I know it isn't sanitized, but at least it's clean.

I use quick-disconnects in many places in my brewery. My jet bottle washer has one attached and snaps right onto my kitchen faucet for quick use, then snaps off. My wort chiller has a snap nipple on it, and I attach it to the faucet with a washing machine hose with quick-disconnects on each end. I have a hose sprayer with a snap nipple on it and, using the chiller's washing machine hose, I attach the sprayer to the hose and the hose to the kitchen faucet to facilitate cleaning out kegs and spraying the cat.

Dan Hall has been a homebrewer since 1989 and is a Master BJCP judge. He is a founding member of Brew Free or Die, New Hampshire's first homebrew club. Dan is also a member of the Seacoast Homebrewers and the Boston Wort Processors. Employed by Digital Equipment Corp. and residing in Exeter, N.H., he can be reached on the Internet at hall@buffa.enet.dec.com.

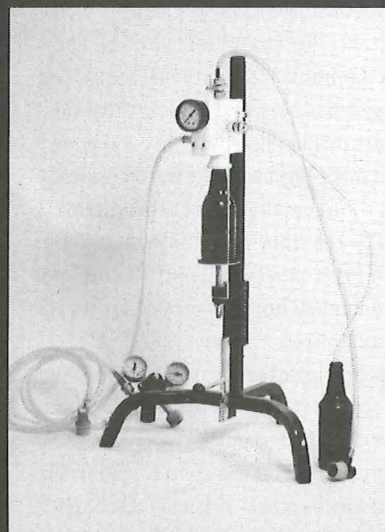
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3	05B01-160	male pipe reducer 1/2" male pipe thread by 1/4" male pipe thread	1	0.97
4	05B01-127	pipe coupling 1/4"	1	0.38
5	04E04-123	pin-lock adapter 1/4" male pipe thread by 9/16" diameter 18 m threads per inch (male)	1	4.03
5a	07E04-383	O-ring	1	0.29
6	15E04-204	liquid tank plug assembly, pin	1	3.70

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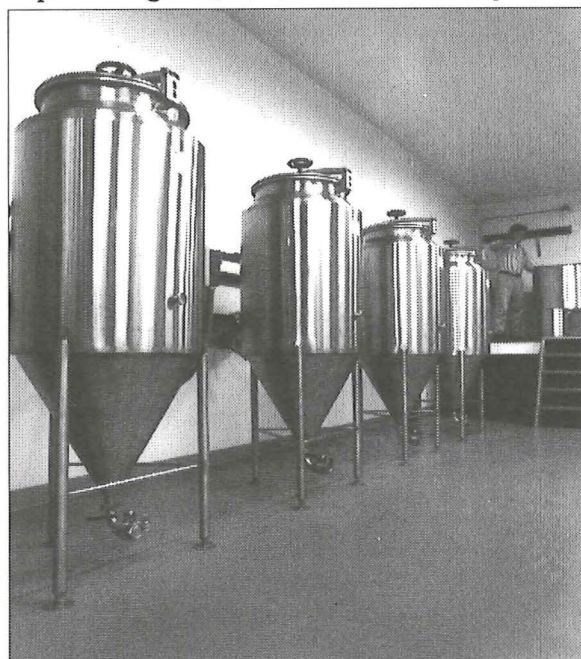


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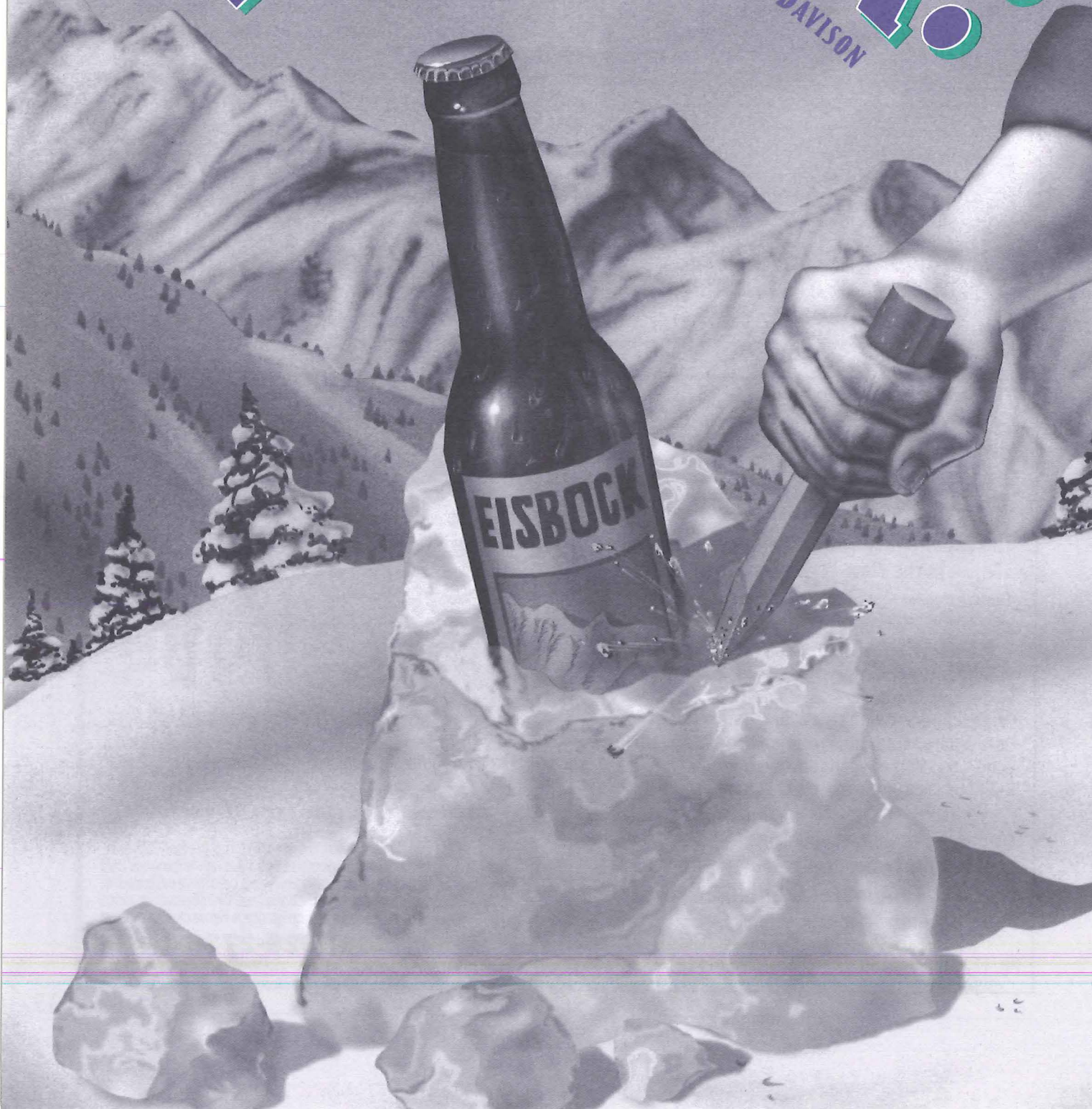
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EISBOCK.

BY DENNIS DAVISON





The Original Ice Beer



EISBOCK IS THE BIGGEST OF ALL CURRENT BEER STYLES, the pièce de résistance of lager beers. Before examining eisbocks we must first examine one of its siblings, doppelbock. Monks from the order of St. Francis of Paula arrived in Munich in the 16th century to help preserve Catholicism during Martin Luther's revolt against the Catholic church. The monks would fast twice a year, during which time only liquid nourishment was allowed. For nourishment the Paulaner monks strived to produce the most nutritious beer possible.

This beer, through years of evolution, is now known as Paulaner Salvator. The brewery became secularized by 1810, and the nutritious nature of a beer intended for fasting led the way to it becoming a beer for luxury.

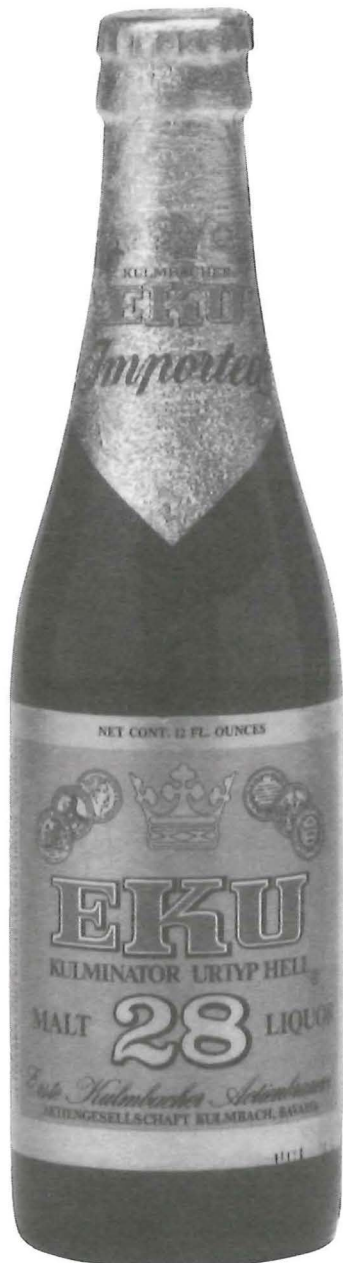
Eisbocks originated innocently enough, you might even say by accident. It is said an apprentice left casks of a doppelbock outside where it was partially frozen. The unfrozen part of the beer was even higher in alcohol and had a greatly enhanced malt character. The brewery was Reichelbräu of Kulmbacher. Today it is one of a handful of German breweries that continues to produce eisbock under the name Eisbock Bayerisch G'forns (Ice Bock Bavarian Frozen), a beer with an adjusted original gravity of 1.096. This beer has recently become available in the United States through the importers B. United International, and can be found in all areas of the country that allow beer with greater than 10 percent alcohol by volume (7.9 percent by weight).

TODAY'S ICE BEERS

The latest trend in ice beers, produced by virtually all of the megabreweries, is a name more than anything else. One "ice brewing" process used is to brew a normal strength beer, chill it until ice crystals form, remove the ice and then add water back to the beer at bottling or kegging time. With this process they return the same volume of water that was removed so the beer is no stronger than when it was brewed.

COMMERCIAL EXAMPLES

Commercial examples of eisbock have original specific gravities starting in the range of traditional bocks (1.066 to 1.074), and can go as high as 1.110. Kulmbacher Reichelbräu G'forns Eisbock is frozen for 11 to 14 days, then the beer is removed, leaving behind 5 to 7 percent of the original volume as ice. It is then aged in old oak barrels for eight weeks. The adjusted original gravity is 1.096, 24 °Plato, with a final gravity of 1.019, giving it slightly more than 10 percent alcohol by volume (7.9 percent by weight).



EKU 28 can be considered a "pseudo-helles eisbock."

EKU Kulminator 28 is often mistaken for an eisbock. Granted, the gravity starts at about 1.116, but freezing is used only to settle the yeast and other proteins. Ice is not removed. The *Saccharomyces uvarum* yeast EKU uses attenuates well, leaving a final gravity of around 1.022, giving an alcohol content of 12.3 percent by volume (9.7 percent by weight). In this article, EKU 28, because it is readily available and the flavor characteristics closely fit the style, will be considered a "pseudo-helles eisbock."

I know of only one commercially brewed eisbock in North America. Niagara Falls Brewing in Niagara Falls, Ontario, Canada,

produces an eisbock, with an adjusted original gravity around 1.064. Even though this starting gravity is more common for a traditional bock, it still has a very full mouthfeel because of the large amounts Canadian carastan malts used. The malt character helps offset the initial low ending gravity of 1.012, leaving this beer at 8 percent alcohol by volume (6.3 percent by weight). Niagara concentrates their beer by one-third of the initial volume through the removal of ice.

AROMA, COLOR, FLAVOR

Your first impression of an eisbock should be of alcohol. While it should not be overpowering, it should definitely be present. Next, you should sense malt. Overall, the malt and alcohol should be in perfect harmony. There should be no hop aroma or fruity esters. Be careful not to confuse the alcohol aroma for fruity esters. As in all bocks, dimethyl sulfide levels can be elevated. A slight, but not overpowering, vegetable-type aroma is acceptable.

The color can range from as low as 10 SRM for helles to as high as 40 SRM. Kulmbacher Eisbock is about 25 SRM. Head retention ranges from some to none. Even though this is a standard carbonated lager, the alcohol in this beer prevents much head retention. Eisbock should produce a head when poured, provided it is served at 45 degrees F (7 degrees C) or cooler, but the head will dissipate rather quickly.

The best way to describe the flavor is a sweet maltness that coats the mouth, then a drying sensation from the alcohol and finishing with a lighter malt sweetness and alcohol. Hop bittering should not exceed 30 IBUs. Because of the alcohol and malt characteristics of this beer, your first taste experience probably will not detect hop character at all. Subsequent tastings will show a mild bittering from "noble-type" hops such as Tettnanger and Hallertauer. EKU 28 has

these proper flavor characteristics, and is a good jumping off point into Eisbocks.

If you have an EKU 28 close at hand, open it and give it a try. Malt and alcohol should dominate. Remember, it is the balance that's important. A sticky, syrupy, sweet malt character is not appropriate. Finishing specific gravity should be between 1.018 and 1.026. Unless balanced with alcohol, higher finishing gravities tend to be syrupy sweet. Lower final gravities will reduce the malt character, thus reducing the full malt mouthfeel. Even with reduced alcohol levels, these drier versions more closely resemble doppelbocks than eisbocks. Traditionally, the malt flavor should have a moderate level of dark malt character, slightly chocolatey, as is expressed in G'forns Eisbock. Though not essential, some dark malt character is preferable. These darker malts should be well-rounded, with no sharp bitterness apparent. Some of this roundness will come from extended aging. As with its doppelbock sibling, aging nine months to one year drastically improves the overall flavor characteristics of an eisbock.

INGREDIENTS

As in all other beer styles, water, malt, hops and yeast make beer. Water, because it is the largest part of beer and the brewing process, should resemble that of the Bavarian region of Germany for eisbocks (see Table 1). As noted in the chart, this water is moderately high in sulfates. Water analyses can be obtained from your local water works. Most communities in the United States will have levels even higher than these. Don't be alarmed, you can still use your water, but reduce the amounts of hops and darker malts used. High sulfate water accentuates the hops and brings out the harsher flavors of the darker malts, which you want to avoid in eisbocks.

High-quality two-row Pilsener, Munich and Cara malts are essential for brewing almost any German-style lager. German malts

TABLE 1. Bavarian Region Water Profile

CALCIUM (Ca ⁺⁺)	SULFATES (SO ₄ ⁻)	MAGNESIUM (Mg ⁺⁺)	SODIUM (Na ⁺)	CHLORIDE (Cl ⁻)	CARBONATE (CO ₃ ⁻)
70-80 ppm	5-10 ppm	18-19 ppm	< 10 ppm	1-2 ppm	152 ppm
Based on Munich water.					

are readily available in this country and should be your first choice for brewing an authentic eisbock because these are the same malts used by the German breweries. Belgian malts also will make excellent versions of eisbocks, as you'll see in the following recipes. The key to a successful beer is fresh ingredients. Sample the grains before you brew. If they taste stale, avoid using them. Your malts should have a clean, crisp flavor.

Hop selection is limited to the "noble-type" hops or their American counterparts. German Hallertauer or Tettnanger should be the first choices. American Perle, Hallertauer or Crystal also are good options. You want only bitterness from these hops. Hop flavor is not essential unless it is used to help balance the malt. No hop aroma characteristics should be discernible. As with the malt, fresh hops are mandatory. The hops you purchase should be in purged oxygen-barrier bags to ensure freshness.

With the quality of liquid yeast cultures and slants available today, the homebrewer has access to more than two dozen lager yeast varieties. You will want a lager strain (*Saccharomyces uvarum*), that produces little to no diacetyl (butter or butterscotch flavors and aromas). Wyeast Munich Lager No. 2308, for example, unless fermented with a strict regimen of temperature control, produces excessive amounts of diacetyl for this beer style. If you haven't brewed with this strain previously and mastered the diacetyl rests, I suggest using Wyeast Bavarian No. 2206 or Bohemian No. 2124. Yeast Lab L32 Bavarian or L31 Pilsener are equivalent to the Wyeast strains. These yeasts are more forgiving than the Munich lager strain.

There are two problems that brewers (actually their yeast) may face when fermenting high gravity beers: (1) high sugar concentration, which can be as high as 30 to 40 percent (weight per volume); and (2) high alcohol (ethanol) concentration, which can end up as high as 10 to 20 percent (volume per volume) after fermentation.

The high sugar concentration results in a wort with high osmotic pressure. Because of the process of osmosis, water will move from a lower sugar concentration in the yeast cell to the higher sugar concentration in the wort. The wort will literally suck the water out of your yeast. Remember your high school bi-

ology teacher telling you to pay attention because the information did not go in by osmosis. Because the water is coming out of the yeast, it is difficult to get things to go in, such as essential nutrients like nitrogen. This results in nutrient deprivation, shock and then your yeast does not grow. You end up with no fermentation, and alas, no beer.

On the other hand, high alcohol concentration can result in a stuck fermentation. This occurs after some fermentation produces inhibitory amounts of alcohol. Alcohol inhibits yeast and other microorganism growth by causing an influx of protons into the cell. The protons lower the intracellular pH and cause an untimely death.

How to Brew an Eisbock

Brewing eisbocks starts with brewing a high-gravity doppelbock, fermenting as you would any lager-style beer, with primary temperatures about 50 degrees F (10 degrees C) for upwards of two weeks then lagering for 12 weeks at 32 degrees F (0 degrees C). The next step is freezing and removing ice crystals.

Darryl Richman in his Classic Beer Style Series book, *Bock* (Brewers Publications, 1994), proposes lots of Munich malt and decoction mashes for all bock-style beers. Munich malt and decoction mashes add the color and flavor characteristics required in eisbocks. Homebrewers can make wonderful bocks without doing decoction mashes, but the inclusion of Munich malt is essential. Excellent extract and grain bocks can be produced, but use high-quality extract. Quality extracts are produced using lower saccharification temperatures, which result in less dextrinous material and more fermentables in the wort. Some of the dextrins found in other, lower quality extracts produce a high finishing gravity that is unnecessary for eisbocks.

Higher Math

The freezing point of beer can be calculated with the following formula:

$$-(0.42 \times \text{alcohol by weight}) + (0.04 \times \text{°Plato of original wort}) + 0.2 = \text{degrees Celsius.}$$

A 24 °Plato beer (1.098) with alcohol by weight of 8.5 would look like this:

$$-(0.42 \times 8.5) + (0.04 \times 24) + 0.2 = -2.41 \text{ degrees C or } 27.7 \text{ degrees F.}$$

Brewers can recalculate starting gravities based on the amount of water that was removed during the freezing process. The easiest way to calculate your revised starting gravity is to use the concentration method:

$$\text{starting volume} \div \text{finished volume} = \text{concentration.}$$

Let's say you started with five gallons (19 L) and removed one-half gallon (1.89 L) of ice. The concentration would therefore be $5 \div 4.5$ or 1.1111. Assuming the starting gravity was 1.090, subtract 1 from this to get 0.090. Now multiply by the concentration factor: $0.090 \times 1.111 = 0.09999$. Add the 1 back to get 1.09999. Rounded off this gives you an adjusted gravity of 1.100 after concentration for an increase of 0.010 in specific gravity.



All Big Beers Are Not EISBOCKS

Though not a bock, another beer that falls into this high-alcohol range is produced by Switzerland's Hurliman. Samiclaus was the world's highest alcohol beer until Samuel Adams™ produced the Triple Bock™. Samiclaus is not frozen and is more like a fine Scotch whiskey than a beer. Hurliman's *Saccharomyces uvarum* yeast culture is one of the world's best attenuators.

Even with original gravities of 1.122, finishing gravities reach as low as 1.000, thus leaving a very dry beer that is lagered for 11 months before bottling. Eisbock characteristics require a strong malt aroma, as well as malt sweetness and a full body, obtained partly from the concentration of the finished product. Samiclaus lacks these eisbock characteristics.

Is it Legal?

Are homebrewers "distilling" or "freeze distilling," and thereby breaking the law, if they make an eisbock in the traditional manner by freezing beer and removing ice to increase the alcohol content and enhance the flavors? According to Bureau of Alcohol, Tobacco and Firearms officials, the process of freezing beer and removing ice is called concentrating. A brewer may not employ any process of concentration that separates alcohol spirits from any fermented beverage, and since ice is being removed from beer, this concentration procedure is legal.

By definition, because homebrew is not produced at a bonded brewery and is not sold, it is exempt from the Federal Alcohol Administration Acts of 1935 and 1956 with regard to relabeling. Homebrewers, therefore, can call their beer anything they want.

We have chosen to refer to the freezing and ice removal process (fractional crystallization) as concentration to avoid any semantic problems with the term distilling.

The final gravity of the beer will not decrease as one might guess. The proportion of alcohol increases when the entire volume of beer is reduced with the removal of water; however, proportions of dextrin and residual sugar concentrations increase as the water is removed. Depending on the amount of water removed, finishing gravities will increase slightly, generally by no more than 4 specific gravity points.

Calculations for alcohol content require the new adjusted starting gravity and the new final gravity that you read after concentration. The approximate formula is:

$(\text{starting gravity} - \text{ending gravity}) \times 105 = \text{alcohol by weight.}$

To convert the alcohol by weight to alcohol by volume multiply alcohol by weight by 1.25. To convert alcohol by volume back to alcohol by weight multiply alcohol by volume by 0.785. For example: $1.100 (\text{new starting gravity}) - 1.022 (\text{new finishing gravity}) \times 105 = 0.078 \times 105 = 8.19 \text{ percent alcohol by weight.}$ And $8.19 \text{ percent alcohol by weight} \times 1.25 = 10.24 \text{ percent alcohol by volume.}$

THE DEEP FREEZE

I have heard some horror stories of how brewers have frozen beers. Most have frozen their beer in a carboy, then used a hot metal poker to break through the ice so they could siphon the liquid from the bottom. The problem with this method is the glass of a carboy is relatively thin and if the neck freezes solid the expanding ice will crack the carboy. An easier and safer approach is to use kegs and transfer under CO_2 pressure. This method reduces the risk of contamination and glass breakage. After lagering, rack the beer into a Cornelius keg. Place the keg in a freezer at the appropriate temperature. After a few hours check for ice by shaking the keg. You should hear the ice crystals rattling against the side.

Rack the beer into another keg under pressure, just as you would to filter or counterpressure bottle a beer: Purge and pressurize your clean keg with 5 psi of CO_2 . Connect the CO_2 to gas-in of the frozen keg. Now connect the liquid-out connector of the frozen keg to the liquid-out connector of the clean keg. Vent the clean keg slowly, allowing the liquid to transfer. You are now counterpressure kegging. After you have finished the transfer, open the keg you transferred beer from. You'll see nice, slightly off-white ice crystals. Let the ice melt and record the volume of water. Repeat the process until the desired amount of water has been removed. Because the transferred beer is now closer to its freezing point it will require less time in the freezer to extract the same volume of ice crystals.

EISBOCKS WITHOUT ICE

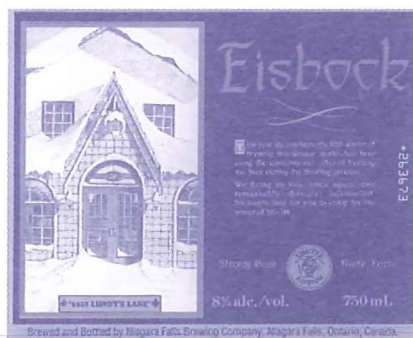
Homebrewers can also produce "eisbocks" without freezing. One of the simplest methods is by fortifying your beer. This can be done by adding 180-proof (90 percent alcohol by volume) vodka. For every 1 1/2 ounces of 180-proof vodka added to one gallon of beer, the alcohol content will rise about 1 percent by volume. These high-alcohol vodkas are almost pure ethanol and will not impart any unwanted flavor compounds to the finished product. To raise five gallons (19 L) of 8 percent alcohol by volume beer to 10 percent alcohol by volume you will need $5 (\text{volume to raise}) \times 2 (\text{alcohol \% to raise}) \times 1.5 \text{ ounces} = 15 \text{ ounces.}$

Another alternative is to produce a higher original gravity beer. By using more malt, a lower saccharification temperature (148 degrees F or 64 degrees C) and a good-quality liquid yeast culture, alcohol levels of 11 percent by volume (8.6 percent by weight) can be achieved. These lower saccharification temperatures will increase your fermentable sugars. Either of these methods offers the homebrewer an easy alternative to freezing. The beer, while lacking some of the flavor effects of concentration, will be an excellent, satisfying beverage.

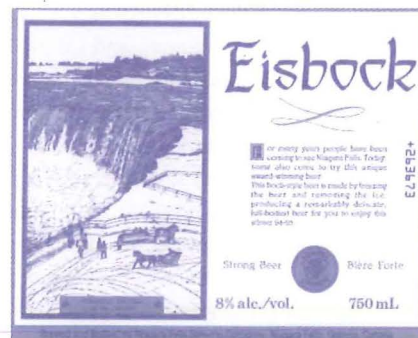
BOTTLING AND CARBONATION

Bottling poses a problem with eisbocks. Because each strain of *Saccharomyces uvarum* has a different alcohol tolerance, and eisbocks approach these levels, bottle conditioning eisbocks can be a frustrating hit-and-miss affair.

• 1993 - 1994 •



• 1994 - 1995 •



Each year Niagara Falls Brewing produces a commemorative label for their Eisbock.

I have never attempted to bottle condition an eisbock because of the elevated alcohol levels. Because the freezing process aids in settling yeast, I recommend introducing a new, clean yeast culture similar to what was pitched for primary fermentation. Prime with no more than one cup (237 mL) corn sugar or dry malt extract. Do not use a Champagne yeast (*Saccharomyces bayanus*). Despite its high alcohol tolerance it produces negative flavor characteristics including fruity esters in beers, and eisbocks require a clean, crisp lager character.

If you don't have a kegging system yet, maybe it's time you got one, especially if you would like to brew and carbonate an eisbock. Eisbocks require 2.6 to 2.8 volumes of CO₂, slightly higher levels than most of their European lager counterparts. Higher levels of CO₂ aid in masking some of the heavier malt sweetness, so if your beer seems like it has enough alcohol but still seems sweet, increase the dissolved CO₂ volume slightly. For more information on kegging and artificially carbonating see *Zymurgy* Summer 1995 (Vol. 18 No. 2) "A Bottler's Guide to Kegging" by Ed Westemeier.

RECIPES

All recipes are for standard homebrew batches of five gallons (19 L) of finished beer. You will need to ferment close to 5 1/2 gallons (20.8 L) in the primary.

HELLES HAS NO FURY

Ingredients for 5 gal (19 L)

- 10 lbs light dry malt extract (4.54 kg)
- 4 lbs Munich malt (1.81 kg)
- 1 1/2 lbs 80 °L crystal malt (0.68 kg)
- 1 oz German Tettnanger hops, 4.2% alpha acid (28 g) (60 min.)
- 1/2 oz Hallertauer Hersbrucker hops, 3.2% alpha acid (14 g) (40 min.)
- Yeast Lab Bavarian lager yeast in a 1-quart (0.95-L) starter

- Original specific gravity: 1.090
- Final specific gravity: 1.022
- Adjusted original specific gravity: 1.113
- New final gravity: 1.025

Steep grains in 150-degree-F (66-degree-C) water for 60 minutes. Sparge and add 10 pounds of dry malt extract to this liquid. Boil for two hours. Ferment at 50 degrees F (10 degrees C) for two weeks. Reduce temperature to 32 degrees F (0 degrees C) by dropping the temperature two degrees per day. Lager for three months before freezing. Remove one gallon (3.79 L) of water via freezing procedure.

I brewed Helles Has No Fury, my first eisbock, in November 1992. It took best of show at the St. Louis Brews Happy Holiday's Competition in December 1993, when it was just more than a year old. It resembled ECU 28 and scored a 48 with the only negative comment being "color too light for style." It was rich and malty with a nice alcohol balance.

DENICLAUS

Ingredients for 5 gal (19 L)

- 6 lbs two-row Pilsener malt (2.72 kg)
- 12 lbs Munich malt (5.44 kg)
- 1 lb 80 °L crystal malt
- 4 oz chocolate malt (113 g)
- 1 oz Hallertauer Hersbrucker hops, 3.4% alpha acid (28 g) (60 min.)
- 1 oz Hallertauer Hersbrucker hops, 3.4% alpha acid (28 g) (35 min.)
- Yeast Lab Bavarian lager yeast in a 1-quart (0.95-L) starter

- Original specific gravity: 1.090
- Final specific gravity: 1.020
- Adjusted original specific gravity: 1.113
- New final specific gravity: 1.023

Use a multitemperature infusion or decoction mash with a protein rest at 120 degrees F (49 degrees C) for 30 minutes, a saccharification rest at 154 degrees F (68 degrees C) for 40 minutes and a final temperature rest at 162 degrees F (72 degrees C) for 20 minutes. Boil for two hours. Ferment at 50 degrees F (10 degrees C) for one week, raise the temperature to 60 degrees F (16 degrees C) for two days for a diacetyl rest and then return to 50 degrees F (10 degrees C) for another five days. Diacetyl (butter or butterscotch flavor) is generally acquired through



low fermentation temperatures and various yeast strains. A short period of increased temperatures during fermentation of lagers will reduce the amount of diacetyl present in the finished product. Rack to secondary and gradually lower the temperature in 2-degree increments per day to 32 degrees F (0 degrees C) and hold there for 12 weeks. Freeze and remove one gallon of water. Alcohol by volume is 11.8 percent (9.3 volume by weight). Age six months before serving.

Brewed in June 1993, Deniclaus was never entered in competition, but was shared at the 1994 Blessing of the Bock in Milwaukee on St. Joseph's day. At the time it was too young and required another couple of months to age and round out some flavors. Overall, a rich, creamy and alcoholic brew.

PSYCHO-PSEUDO EISBOCK

Ingredients for 5 gal (19 L)

- 14 lbs light dry malt extract (6.4 kg)
- 1 lb 220 °L DeWolf-Cosyns Belgian Special "B" malt (0.45 kg)

- 1 lb 80 °L crystal malt (0.45 kg)
 - 2 lb Munich malt (0.91 kg)
 - 1/2 oz Perle hops, 7.8% alpha acid (14 g) (60 min.)
 - 1 oz Hallertauer Hersbrucker hops, 3.8% alpha acid (28 g) (40 min.)
- Wyeast Pilsener and Yeast Lab Pilsener yeast in a 1/2-gallon (1.9-L) starter.

- Original specific gravity: 1.110
- Final specific gravity: 1.024

Steep grains for 30 minutes in 160-degree-F (71-degree-C) water, then remove grains and add extract. Boil, cool then ferment at 50 degrees F (10 degrees C) for five days. Raise temperature to 60 degrees F (16 degrees C) for a two-day diacetyl rest, then reduce temperature to 50 degrees F (10 degrees C) again for another seven days. Lager at 32 degrees F (0 degrees C) for three months. This beer is 11.2 percent alcohol by volume (8.8 percent by weight). The malt character may be a bit too sweet for the alcohol content, so fortify with no more than 15 ounces (443.6 mL) of 180-proof vodka in 5 gallons (19 L). Excessive alcohol will detract from the malt flavors, so be careful in the amount of alcohol you add. Initial alcohol content was 11.2 percent by volume (8.8 percent by weight), after fortification 13.3 percent (10.4 percent by weight).

This beer was brewed in August 1994 and consumed that winter. It had a nice rich character, but a strong alcohol bite that mellowed with time. Almost as good as the frozen example above, but too much alcohol for the proper balance. I would adjust the recipe and use only 7 1/2 ounces (222 mL) of alcohol to fortify this beer.

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Letter from Hans Aikema, "Dear Professor" *Zymurgy* Winter 1993 (Vol. 16, No. 5).

Dennis Davison (ddavison@earth.execpc.com) is a Certified BJCP judge, who has been homebrewing four years and judging for three. He is a member of the Chicago Beer Society and the Beer Barons of Milwaukee. He has won numerous awards for his eisbocks including a gold medal in the AHA 1995 National Homebrew Competition. Dennis also manufactures The Homebrew Color Guide and works part time for The Purple Foot Homebrew store in the Milwaukee area.

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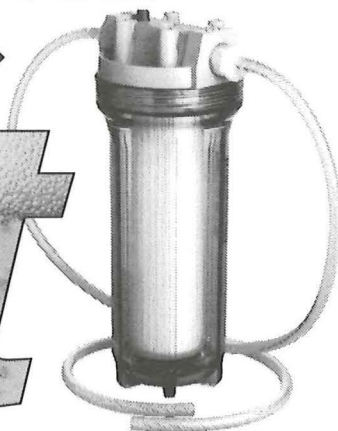
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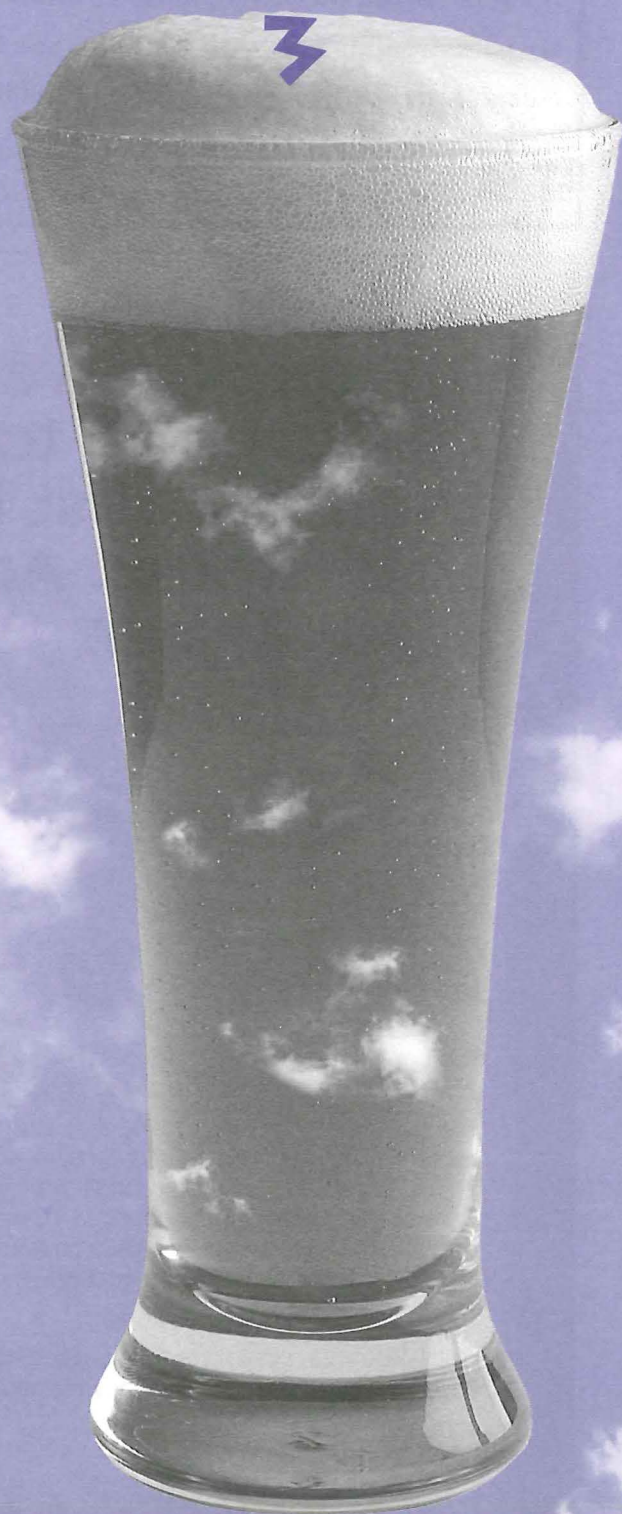
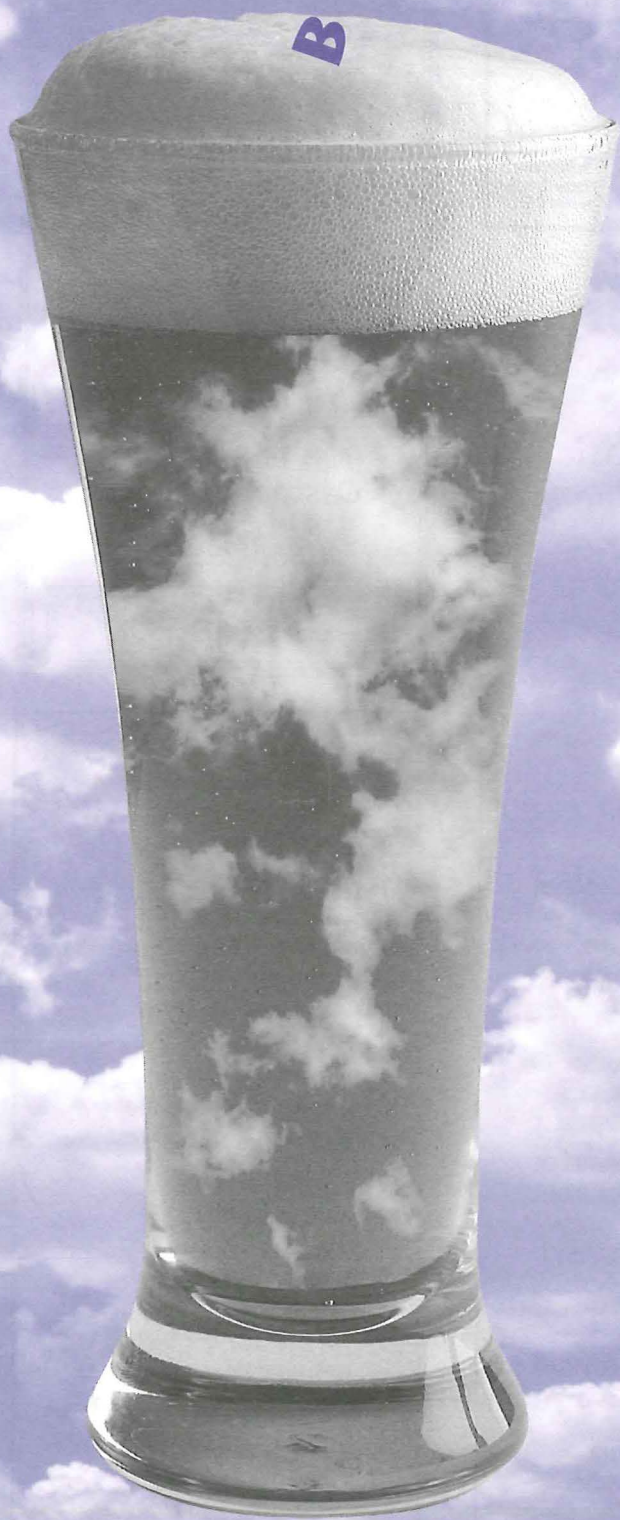
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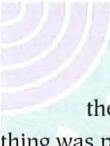
**Complete Selection
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BY JEFF

MELLE



THE HAZE MAZE FINE



Here is a familiar scenario almost every homebrewer can relate to: A friend who claims to be a beer aficionado is interested in trying one of the finest beers you've made. Even though everything was perfect when you gave it to him you now have to explain, with some embarrassment, why the beer was so hazy and cloudy when poured.

Why beer becomes hazy after it has been chilled is a problem faced by almost every homebrewer, regardless of brewing experience. In researching this article I was amazed at how little hard, factual or complete information is available on the subject of finings. Some of the better books on homebrewing have procedures, advice and remedies, but most, with the exception of Dave Miller's *The Complete Handbook of Home Brewing* (Garden Way Publishing, 1988), simply state what a clarifier is supposed to do and they often cover various products in different parts of the book, leaving the brewer to fill in the blanks.

Finings are typically an afterthought, much like yeast selection in homebrews of the past. A brewer would meticulously design a recipe then, almost as an afterthought, pick a generic package of dried ale or lager yeast without realizing how that single ingredient could make or break the quality of the beer. Let's face it, homebrew is of an incredible caliber and its quality is astonishing. But the nagging problems of a hazy, cloudy beer can be a real distraction to even the best-tasting brews. Any experienced chef will tell you that proper visual presentation is 80 percent of the task of well-served food. And so it is with a quality beer. While some brews like unfiltered wheat beers should be hazy, brilliant clarity adds the glowing gold tones to a crisp, quenching Pilsener, the brassy-copper highlights seem to add depth and appreciability to a handcrafted pale ale and the deep reddish shade of a bitter Dölschdorf-style alt adds dimension to its overall appeal.

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So what do you do about the nagging chill haze that seems to invade every batch you make? In the back of your mind you know there is a way to eliminate most, if not all, of that annoying cloudiness and haze. You've heard the names of several clarifiers, but they seem difficult or impossible to use. Well, I'm here to tell you that your beer should look as good as it tastes. With the addition of one or two simple procedures to your normal brewing routine, products such as isinglass, Irish moss, gelatin, papain enzyme, silica gel, bentonite or Polyclar® can make your beer cleaner, clearer and more enjoyable.

Before we get into the use of clarifiers and finings as beer additives (products that are removed before packaging are not considered additives), the natural process of wort clarification should be taken into account. First, if you are mashing, haze-causing proteins are degraded by proteolytic enzymes during the protein rest between 113 and 140 degrees F (45 and 60 degrees C) and some are rendered insoluble by complexing with polyphenols in the mash. Second, a strong, rolling boil of at least 45 minutes will promote a wort capable of clearing much more readily than a shorter or gentler boil. This article is concerned specifically with the coagulation of proteins and their interaction with simple polyphenolic (tannin) and carbohydrate-based constituents that form the trub, or hot break material. The basic mechanical process of a rolling boil causes these unstable proteins and gums to collide and form clumps (hot break) that are large enough to naturally flocculate out of solution, clarifying the wort. Rapid chilling of the wort will further precipitate lower molecular weight proteins and tannin coagulum resulting in further sediment (cold break) in the fermenter, or better yet, a settling tank.

Careful removal of both the hot and cold break can eliminate almost half of the haze-forming material in wort. If your water is soft, correcting the low calcium problem will result in calcium-protein complexes precipitating out of solution easier. Add enough of a calcium salt to bring your calcium concentra-

CLEAR BEER

tion up to 50 ppm. This could be done with calcium chloride, calcium carbonate or gypsum, depending on the composition of your brewing water and the beer style you are making. Finally, haze-causing proteins will settle naturally after prolonged cold storage of fermented beer. These proteins are at their limit of solubility at room temperature and come out of solution as the temperature is lowered. They coagulate when chilled, and bond forming particulate large enough to settle naturally out of solution. The magic numbers seem to be refrigeration at about 46 degrees F (8 degrees C) or colder for 2 1/2 to three weeks.

CLEARING THE HAZE

Like most brewers perhaps you've tried your hand at using some clarifiers, but how do you know when and how they should be used, not to mention ways to maximize their effectiveness? Let's quickly review how they work. Haze-causing particles stay in solution for two basic reasons: They are so light that they cannot drop out by normal gravitational forces or they have the same charge, positive or negative, causing them to repel one another so they don't form large enough particles to settle out. For instance, by themselves, most finings are heavy enough to settle out of solution within a few hours or days. This by itself is unremarkable, but what makes these finings effective is the natural, electrical charges they carry. Gelatin has a positive ionic charge while polyphenols (tannins extracted from grain husks and hops) as well as yeast

cells have a natural negative charge. When introduced in the same liquid, negatively charged colloidal (protein and polyphenol) material is electrically attracted to the settling gelatin particles, much the way the opposite ends of magnets attract. This neutralizing effect ties these particles together in large enough "floc" to settle them out of suspension. This is fine until another culprit, haze-causing proteins, come into play. Proteins have a natural positive charge, and obviously gelatin won't drop these out. Luckily, negatively charged bentonite can be used 48 hours before the gelatin to attract material of the opposite charge for total clarification.

The second major aspect of clarification is adsorption, (not to be confused with absorption) where, while no electrical charge is at work, reactions take place at the molecular level to create surface tension, be it solids, liquids or gasses, causing molecules to attract one another. Ideally, a clarifier (which in this discussion removes haze-causing proteins) or fining (which drops solid particulate, such as yeast, out of solution) will employ at least two of these characteristics simultaneously.

THE GOODS

Enough of theory, let's get to the clarifiers and finings and how they work.

Irish moss: Without a doubt, Irish moss is the clarifier most commonly used by home and professional brewers. The dried red-brown marine seaweed (*Chondrus crispus*) is harvested by hand in the northeastern United States by "mossers" using special

manganese-bronze rakes attached to long aluminum or wooden handles. The green moss is raked from submerged rocks two hours before and after low tide. After repeated waterings and exposure to sunlight, Irish moss is dehydrated to bring it to a uniform moisture content. Proper dehydration is important because it weakens the cell wall, increases surface area and allows for easier handling of the product. For years Irish moss was sun-dried, but today it is dried in a dehydrator for better quality control. Dried moss is then machined into flakes and packaged.

Irish moss is used in food and other industries as well as in brewing for its carrageen. It is used in the food industry as a thickening agent in such common products as chocolate milk, toothpaste and ice cream. Carrageen is useful to brewers because it is a negatively charged polymer that attracts positively charged protein-tannin complexes during the boil. This action is aided by the clumping of proteins in the boiling process. Irish moss settles to the bottom of the brew kettle with spent hops and hot break material at the end of the boil.

Professional brewers use quantities in the order of six to 10 grams per hectoliter or one-third ounce per barrel, which translates to about four-tenths of a teaspoon per five gallons, coinciding with the quantity used by homebrewers, or an average of one-half teaspoon per five gallons (2.5 mL per 19 L) of wort. Maximum effectiveness of Irish moss is achieved by adding it during the last 20 minutes of the boil. Overboiling Irish moss can degrade it and make it ineffective. Experiment for best results by increasing the amount of



Bentonite



Irish Moss



Gelatin

Irish moss used in high-protein worts (those with high six-row or wheat content) or rehydrate the flakes in one-quarter cup of warm water for 30 minutes before use to soften the moss.

Treated Irish moss: Used mostly by professional breweries, treated Irish moss works the same way as regular Irish moss, except it is mixed with sodium bicarbonate and ground to a fine powder for better solubility. Known advantages of treated Irish moss are better settling of both hot and cold break material leading to cleaner fermentations and, in test batches, improved settling of yeast in the fermenter.

For five gallons (19 L) of beer, mix one gram (about one-quarter teaspoon) in four ounces (118 mL) of cold water. Stir or shake well and add 20 minutes before the end of boil.

Bentonite: This mineral-rich, prehistoric volcanic ash is mined in Wyoming from veins of a claylike substance. Bentonite is used as a fining agent to clarify beer by removing colloidal material from solution. Because of the large amount of deposit left behind, bentonite should be used toward the end of secondary fermentation or lagering and the beer should be racked one or more times before bottling or kegging. Bentonite selectively removes undesirable compounds such as phenols, haze-causing proteins and tannins. The negatively charged bentonite draws out the positively charged proteins and color-altering tannin complexes through adsorption and coagulation. Bentonite is used more in the wine and juice industries, often in conjunction with gelatin (to remove excess tannins) or kieselsohl (a silica fining agent discussed later) than in brewing these days. It is a very effective clarifier for homebrewers, particularly because

of its ability to remove select haze-causing proteins. In case you are wondering, the reason bentonite is no longer used by most breweries is the large, inconvenient amount of sediment it produces.

The industry identifies maximum effectiveness of bentonite by testing a 5 percent (5 grams per 100 milliliters) solution, adding it to the brewer's wort or vintner's must, then incubating at 140 degrees F (60 degrees C) for 24 hours to check for wort turbidity. A chart is used to determine the most effective concentration of bentonite (somewhere between 0.1 and 0.5 parts-per-thousand). To save you the drudgery, I have found the following to be best: bring one cup (237 mL) of water to a boil and add to a blender or small food processor. Blend at high speed (you always knew that frappé setting was good for something) and sprinkle in one teaspoon (4.9 mL) of bentonite. After two to three minutes turn the blender off, let stand for 60 minutes, then mix for five minutes to form a smooth consistency. Use two tablespoons (29.6 mL) of this slurry per five gallons (19 L) of beer in the secondary fermenter and stir to thoroughly cloud the beer (without splashing or oxidizing, of course). It is important to note that simply pouring in bentonite can cause it to clump and fall directly to the bottom. Seal the remaining slurry and in a small sterile jar with minimal air space and refrigerate. This volume will be enough to clear about eight five-gallon (19-L) batches of beer. Bentonite will work quickly, within 24 hours in most cases, but needs two or three days to compact at the bottom of the fermenter before racking.

Papain: Quick, what miracle product tenderizes meat, aids in digestion and chemical-

ly reduces haze-causing proteins in beer? Papain enzyme of course. Papain is a proteolytic or protein-degrading enzyme obtained from the skin of the papaya fruit and used during the secondary fermentation or lagering stage.

Through the miracle of hydrolysis, papain has the ability to break down high-molecular-weight proteins into simpler, soluble proteins that do not affect beer clarity, yet are essential to foam stability and other desirable flavor characteristics. Excessive amounts, however, can lead to the breakdown of medium weight proteins and can affect head retention if allowed to pass into the bottle or keg unpasteurized. The use of papain is falling out of favor in the brewing industry as more effective clarifiers take its place. To use, stir papain in at bottling or kegging. The enzyme will have done its work within the two to four weeks your beer needs to naturally condition.

I'll admit I have never used papain enzyme, so I encourage you to follow the dosage recommended on the label of the product you purchase. Charlie Papazian recommends papain be used sparingly, about one-half gram per five gallons (19 L). The enzyme is active at temperatures below 122 degrees F (50 degrees C) and is deactivated with boiling. It is best to add papain to the secondary fermenter or during maturation.

Isinglass: No clarifier I have researched has as long a history as does isinglass. In fact, its story is a good history lesson on the evolution of the use of finings. Long before the techniques of producing good earthenware were discovered, fermented beverages were stored and transported in various types of animal skins and, probably, the air bladder



Isinglass



Treated Irish Moss



Polyclar

ders of large fish. It is hypothesized that these acidic beverages, many microbially spoiled, would hydrolyze the free collagen from the walls of these containers and, in doing so, automatically clarify themselves. Isinglass as an alcoholic clarifier, in fact, was known in Biblical times and understood by the Mayans in the Western Hemisphere.

Contemporary isinglass is mechanically reduced to a powder or a coarser material known as shred from the dried swim bladders of fleshy fish such as catfish, sturgeon, thread fins, etc. The swim bladders are removed at capture, washed and sun-dried. In this form they are traded on the world market as isinglass leaf. Isinglass contains collagen in an insoluble form, yet it is bound loosely enough to the air bladder material to be dissolved easily in properly acidified water, thus binding very tightly to insoluble material in unfiltered beer (cold break material, hop or grain tannins and yeast cells). Collagen has a positive electrical charge and its inherently long, complex molecular structure gives it a strong attraction to yeast cells and the ability to reduce haze-causing proteins. Isinglass settles much of the natural particulate in beer in a dense, compact layer in the bottom of the storage vessel, resulting in a bright beer with little waste. Another benefit of isinglass finings is that some polyphenol and lipid material also is removed, thus improving beer foam, flavor and

stability. Isinglass is commonly available in three forms: flocked, powdered or shredded.

Proper use of isinglass involves making a properly acidified solution. To do this, use citric, malic or tartaric acid to acidify water to a pH of 2.4 to 3.0. Because the collagen produces a thick, viscous liquid, a solution of 0.5 percent by weight (isinglass to water) should be made. For five gallons (19 L) of homemade beer this would equal 0.04 ounce (one-half teaspoon) isinglass per cup of water (0.07 grams per 237 milliliters). Slowly mix the finings into the total amount of sterile acidified water (at 40 to 60 degrees F or 4 to 16 degrees C) by stirring vigorously with a sanitized spoon or small whisk (warmer temperatures will degrade the isinglass mixture, rendering it ineffective). Mix occasionally for one-half hour, then cover and let the solution stand overnight at about 60 degrees F (16 degrees C) or cooler. Optimum solubility of the collagen will take about 24 hours. Stir once the following day. The mixture should have turned into a thick, opalescent, viscous solution. Mix this solution into one pint (0.47 L) of the fermented beer to be treated, then thoroughly stir this solution in at kegging or into the priming vessel when bottling. Isinglass should drop the beer bright within two to five days. Serve undisturbed, or rack to a bright tank (a second keg) for carbonation or serving.

If you purchase premixed isinglass in liquid form, make sure it has been refrigerat-

ed and is still viscous. Premixed isinglass can be spoiled by heat. Instant, or prehydrolyzed isinglass is also available as a product called Drifine®, which can be used at the same ratio as regular isinglass. Simply blend at high speed for two to three minutes, then let stand for 20 minutes at 60 degrees F (16 degrees C) before use. A final note: While eight ounces (237 mL) of water gives the same dilution as that recommended for professional use, four ounces (118 mL) of water seemed to work well in my test batches, especially when fining lighter beers that could be affected by the high acidity used in preparation of isinglass.

Gelatin: One of the original homebrew clarifiers, gelatin is a positively charged protein derived from pork or beef skin and bones. While results are not overwhelmingly successful when it is used alone, gelatin reduces polyphenolic compounds (astringent or bitter husk and hop tannins) by attracting these negatively charged compounds, along with yeast cells, and drawing them to the bottom of the bottle or fermenter. To remove positively charged haze-causing proteins, commercial brewers and vintners often use gelatin in conjunction with negatively charged silicon dioxide. Together they form a dense coagulum, resulting in rapid clarification.

Optimum use of gelatin is a 1.5 percent solution (1.5 grams in 98.5 mL water, or one teaspoon of gelatin in six ounces of water).

PRODUCT	AVERAGE DOSE PER 5 GAL (19 L)	HOW TO USE/ PREPARE	WHEN TO ADD	ACTIVE INGREDIENT	HOW IT WORKS
Irish moss	1/2-1 tsp. (2.5 - 5 mL)	Add dry or rehydrate in 1/4 cup (59 mL) warm water	20 minutes before knockout	Carrageen	Ionic bond
Treated Irish moss	1/4 tsp. (1.2 mL)	Add dry or rehydrate in 1/4 cup (59 mL) warm water	20 minutes before knockout	Carrageen	Ionic bond
Bentonite	1 tsp. (5 mL)	Blend in 1 cup (237 mL) boiling water	End of secondary fermentation	Sodium montmorillonite	Adsorption
Papain enzyme	1/8 tsp. (0.5 g)	Stir powder directly in beer. Keep temperatures below 122 degrees F (50 degrees C)	In secondary fermenter or at bottling	Protein degrading enzyme	Protein degradation
Isinglass	1/2 tsp. (2.5 mL)	Mix in acidified water 24 hours before use	In secondary fermenter or at bottling	Solubilized collagen	Ionic bond
Gelatin	1 tsp. (5 mL)	Dissolve in 6 oz. (177 mL) hot water just prior to use	In secondary fermenter or at bottling	Denatured collagen	Ionic bond
Polyclar®	2 tbsp. (29.6 mL)	Rehydrate with 6 oz. (177 mL) sterile water	In secondary fermenter or at bottling	Polyvinylpolypyrrolidone (PVPP)	Adsorption
Silica gel	1/2 tsp. (2.5 mL)	Follow package directions	End of secondary fermentation	Silicon dioxide	Adsorption

Add gelatin to room-temperature water and stir thoroughly to allow all gelatin granules to “bloom” for a few minutes. Heat gently while stirring to make sure the gelatin is completely dissolved until the water temperature reaches 140 degrees F (60 degrees C). Let cool to room temperature and add at racking or bottling, allowing three to six days for proper clarification. Note: As previously mentioned, it is not uncommon in the beer industry for some clarifiers to be used in conjunction with others. For instance, bentonite can be used 48 hours prior to gelatin fining to remove excess haze-causing proteins.

Polyclar: Had Mary Poppins been a fining specialist, perhaps she would have sung a happy song called polyvinylpyrrolidone. PVPP, better known as Polyclar, is a white powdered substance and a very useful fining for homebrewers. PVPP (not to be mistaken with PVP, which is a slightly different product) is manufactured through a process in which N-vinyl-2-pyrrolidone is polymerized, leading to the cross-linking of homopolymer chains. Two types of Polyclar are used in the brewing industry. Polyclar SB100 (formerly known as Polyclar AT) for general use and rapid settling; and Polyclar 10, a finer powder than SB100 that has more surface area per dose and greater adsorptivity, but slower settling times. Polyclar not only is used as a clarifier but is considered a stabilizer or antioxidant in the beer industry.

Polyclar offers such advantages as high efficiency, reduction of wort darkening and off-flavors from oxidation (higher quantities will actually reduce hop bitterness and lighten the color of beer), removal of excessive harsh-tasting phenols and, best of all, it's easy to use. A real advantage to Polyclar is that it not only reduces adverse effects of oxidation in beer, but PVPP selectively removes haze-causing polyphenols, but not the proteins important to foam stability and mouthfeel. On the other hand, excessive use of Polyclar can accelerate beer deterioration through exaggerated removal of polyphenols and cause poor carbonation of bottled beer because of its ability to aggressively drop suspended yeast cells prior to conditioning. Because Polyclar is insoluble, it is recommended that the bright beer be racked off its sediment if used in secondary fermentation. No side effects are likely if

Polyclar is ingested — it is nontoxic and used in the pharmaceutical and food industries. Still, it's a good idea to carefully decant beer from a bottle, or discard the first glass or two drawn from a keg.

To use, make a 5-percent slurry (5 grams per 100 milliliters) or, for a five-gallon (19-L) batch, mix two tablespoons (29.6 mL) Polyclar per six ounces (177 mL) of sterile water. Mix gently, yet thoroughly in the priming vessel and bottle. If kegging, gently stir in after racking, evenly distributing the Polyclar mixture throughout the beer for best results. The manufacturer recommends constant mixing of the Polyclar in the beer tank for one hour after addition. You can try gently inverting your keg or bottles a few times to see if this helps.

Colloidal silicon dioxide: Sometimes called by its German name, kieselsol, silica sol (not to be confused with silica gel, which is the powdered form of this substance) is probably the most potent clarifier available. Modern manufacturing has made it possible to produce a colloid of silicon dioxide that can selectively remove haze-causing proteins. This translates into a product designed to adsorb only those proteins responsible for chill haze formation, leaving foam retention and mouthfeel unaltered. Silica sol is convenient to use because it usually comes in liquid form.

Silica sol is best used in secondary fermentation, adding one-half ounce (one teaspoon or 4.9 mL) per five gallons (19 L) of beer. Add slowly and uniformly with thorough mixing, allowing two to four days for the beer to clear. Rack to a keg or bottle with appropriate priming solution and fresh yeast. Note: One problem with using silica sol as a fining is that its use in unfiltered beer has not been approved by the FDA. In fact, the FDA has a mandatory warning stating that beer treated with silica sol must be decanted before drinking. The manufacturers also warn against contact with eyes, prolonged contact with skin and tell you not to take silica sol internally.

Sparkolloid®: Used mostly by wineries, Sparkolloid is a polysaccharide mixed in a diatomaceous earth carrier. Sparkolloid has a strong positive charge making it a powerful clarifier, dropping out yeast cells and tannin complex materials.

For five gallons (19 L) of beer or must, use at the rate of 0.15 ounce (3 g) per eight ounces

(237 mL) of boiling water. Maintain this mixture at a simmer for 15 minutes until the tiny clumps of clarifier have dissolved into a smooth mixture. Stir the hot solution into the secondary fermenter or lagering vessel and mix thoroughly, allowing 36 to 48 hours to settle.

Sparkolloid is preferred by many wineries because it doesn't strip wine of subtle flavors, like some clarifiers can. Because it does not remove haze-causing proteins it is often used in conjunction with bentonite. Mead-makers take note: Sparkolloid probably is the single best product for rapid and thorough clarification of meads.

Other goodies: Other clarifiers have been used in the past or present by brewers and winemakers. Some items, like egg whites and wood chips, seem to be right out of the X-files. I'm listing these items to round out the article. Who knows, maybe one of these clarifiers is just what you need to perfect your beer.

Egg whites: Eggs in beer? No, this isn't a breakfast beer or the next craze of the megabrewers. Egg whites have been used in the past as a kettle coagulant to settle hot break trub. I know from experience that cooks use egg whites to clear beef stock for consommé, in which clarity comes second only to flavor. The magic ingredient in egg whites (note that yolks are not used) is albumin, a water-soluble protein that coagulates when heated. I was not able to find any hard facts on the exact use of egg whites in brewing (but plenty of theories), so I suspect the method of clarification is adsorption.

When clarifying beef stock, the egg whites (three to four per gallon) are thoroughly mixed in cold broth. Heat is slowly applied and as a gentle simmer begins, the egg whites form a membrane on the surface and stick to the edges of the stockpot. About one hour or so after a gentle boil breaks through the surface, the clear broth is carefully ladled off or removed through a spigot at the bottom of the pot.

Clearfine™: This fining reduces the amount of undesirable proteins, protein complexes, yeast and other suspended and insoluble material in unfiltered beer much the way isinglass does. Used after fermentation, Clearfine is a gel that can be mixed and used almost immediately as needed.

Tannic acid: Used at 20 to 30 parts per million as a preventer of chill haze. Tannins are added to encourage the formation and

sedimentation of protein-tannin complexes while the beer is in cold storage. This method has mostly fallen out of favor with brewers because exact amounts are hard to determine and improper use can cause more problems than it solves.

Filtration: Ah, genuinely cold-filtered bottled draft beer. Actually this is more than a marketing gimmick. Beer must be very cold when filtered, about 34 degrees F (1 degree C), which is its maximum liquid density, because soluble haze precursors can pass through a filter only to become soluble again (i.e., chill haze) if the beer is refrigerated to a temperature lower than that at which it was filtered. Keep in mind that many of the clarifiers discussed in this article are used in professional breweries and wineries to make filtration of their products easier, with less waste and lower expenses because of the decrease in time and filtration media needed. One caveat: filtration can remove not only haze-causing proteins, but proteins associated with foam stability, color and mouthfeel as well. Still, filtration is certainly a viable option for the homebrewer. Cartridge porosities of 0.5 micron (polish filtration) to 2 micron (coarse filtration) can render your beer crystal clear in a matter of minutes rather than days. Keep in mind that you will have to be able to artificially carbonate your beer in kegs and counterpressure fill if bottling because the yeast will be removed by filtration. If, however, you are seriously bothered by anything less than crystal clear beer, I recommend you consider filtration.

SEEING CLEARLY

Many of the quantities listed for use with the finings are based on what professional breweries are using, then adjusted to the amounts that seem to work best for the average five-gallon batch. Because of the different dynamics of smaller batches (five, 10 or 15 gallons) made by homebrewers, exact conversions do not always work and are not entirely linear. I recommend you start with the amounts advised in this article. Because of many possible variables you may find it necessary to increase or decrease the amounts suggested to get optimum results. If you make larger amounts of clarifier solu-

tions and store the leftovers, be sure to eliminate or minimize the headspace during storage because the solution can absorb oxygen over time and oxidize your beer when it is added to the secondary fermenter or bottle.

Keep in mind that with most clarifiers less is often more, and excessive quantities of certain clarifiers can actually decrease their effectiveness or strip the beer of necessary components or flavor characteristics. For example, overdosing can cause some clarifiers to actually attach to suspended particles and do nothing more than change their charge value, restabilizing them and leaving even more suspended material in solution, worsening your haze problems! Another interesting fact is that if too much yeast is present, fining action will be quite poor. Always fine at bottling, in the secondary fermenter or no less than four days after high krausen has subsided.

Experiment with different clarifiers, particularly the ones that address what you perceive to be the most annoying kind of clarity problem in your beer. You will soon "fine" your way to clear beer.

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Jeff Mellem, owner of Brewers Resource, was formally trained as a chef. While visiting relatives in England he discovered the miracle of real ale. Armed with a bitter kit from a local chemist, some rudimentary brewing equipment and a homebrewing book older than himself, he vowed to learn how to brew beer properly.

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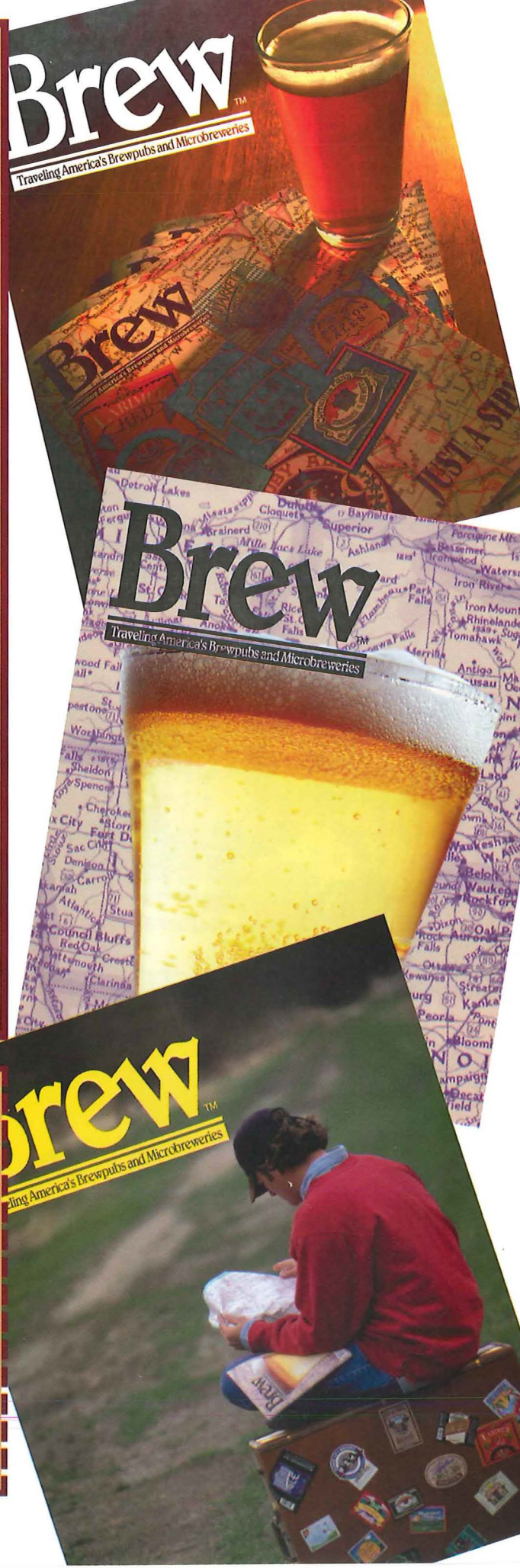
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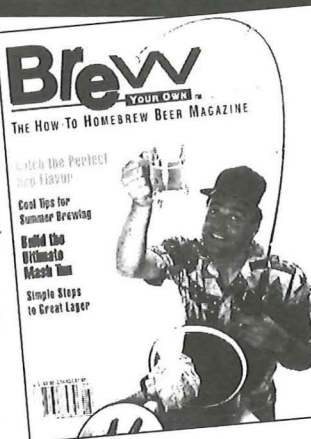
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By
Bill Wald

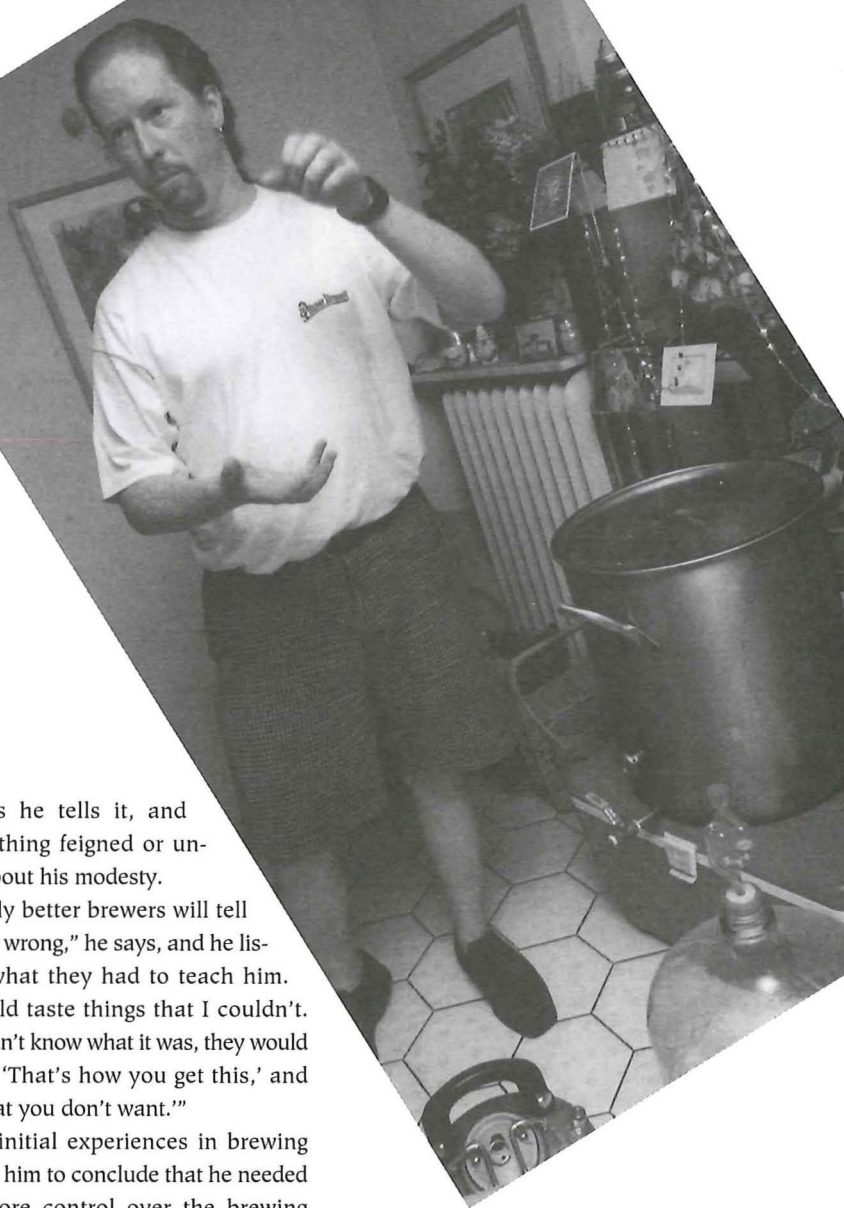
Truly good musicians know the value of practice and disciplined technique, but to make music with soul, you need to know when to break the rules, improvise and play a few of your own licks.

This tension between strict discipline and playful improvisation defines the personality of Paul Sullivan, a homebrewer who, appropriately, is a professional guitarist living in Brooklyn, N.Y. When he's not playing gigs somewhere in the New York area or giving music lessons, he finds the time to pull out the propane burner and brewpot.

The ethic of combining hard work and fun in music defines the way he approaches his brewing. When it comes to mastering a particular beer style, Paul turns traditionalist, following the textbook and dutifully practicing his scales and études. When a level of mastery is reached, however, he begins to experiment, and occasionally tries for the odd note that doesn't at first sound like it belongs in the chord.

That combination of dedication and adventurous spirit has served him well. In only three and one-half years since starting down the brewing path, Paul counts two gold medals in the AHA National Homebrew Competition to his credit. This 37-year-old

PROFILE OF HOMEBREWER



musician who grew up in upstate New York and Connecticut is now dedicating some serious time to brewing as well as to his music.

Most of his hard-working attitude is for serious moments, when honing his craft. "It's good to be a little irreverent," he says before taking another sip of pale ale. It's a relaxed attitude that seems more befitting a man whose professional life revolves mainly around the friendly atmosphere of people out on the town, enjoying an evening with friends. The seeming split in Paul's personality, it turns out, is more like that of a jazz or rhythm and blues musician with a respect for classical: Know the rules and why they came about, but also know when to break the rules for effect.

Initiation to Brewing

"My wife Eileen gave me a kit for Christmas of '91," Paul says about his beginnings as a homebrewer. "After that I brewed extract for about a year."

He's been a member of the New York City Homebrewers Guild pretty much since the beginning of his brewing days. The club gets credit for much of his progress as a

brewer, as he tells it, and there's nothing feigned or un-genuine about his modesty.

"Usually better brewers will tell you what's wrong," he says, and he listened to what they had to teach him. "They could taste things that I couldn't. When I didn't know what it was, they would point out: 'That's how you get this,' and 'That's what you don't want.'"

Paul's initial experiences in brewing quickly led him to conclude that he needed to gain more control over the brewing process. In a way, he was already headed toward all-grain brewing because of his inherent perfectionism.

"The first two beers I made using extract came out way too sweet," he confesses. "I tried everything from alpha-amylase to rousing the yeast — all the things you're supposed to do. The homebrew supply store later said there were problems with [the brand of] ex-

tract. It was very frustrating, but right away I realized you don't know what you're getting: Is it all malt or how much sugar is in there? What temperature was it mashed at? They are all things you don't know with extract."

Paul absorbed all he could from the more experienced brewers in his club, who convinced him to start brewing with grain. "A couple of people in the club were brewing all grain," he says.

PAUL SULLIVAN



Professional brewers in the tight-knit beer community of the Northeast also made an impression. "Ron Page [of New Haven Brewery] and Phil Markowski [of New Hampshire Brewing] were especially big influences," he continues. "They were a big part of my learning and showing me what really good beers could be. Every two or three weeks, we were getting together to taste homebrews and commercial beers. And tasting their all-grain beers would make me go 'wow.' I could really taste the difference."

"In the beginning, I was saying, 'Well, I would never do all grain; it's just too much work.' But you can't deny how it tastes, so after a few of those evenings I was saying, 'Well, maybe I really should.'"

A local brewpub also had its hand in Paul's learning experience. "At Zip City [in Manhattan] all their brewers have been really nice to me. One of their first brewers was a homebrewer and used to be in the New York club. Since then, they went through a few different brewers and I managed to make friends with most of them."

Those friendships in the local brewing scene even helped encourage Paul as he be-



BLOND DOPPELBOCK

Ingredients for 11 gal (41.6 L)

- 30 lb Briess two-row malt (13.6 kg)
- 1 lb CaraPils malt (0.45 kg)
- 1 oz Perle hop pellets, 8.1 HBUs (28 g) (90 min.)
- 1/2 oz Tettnanger hops 1.9 HBUs (14 g) (50 min.)
- 2 oz Saaz hop pellets 2 HBUs (57 g) (30 min.)
- 1 pint Wyeast No. 2278 Czech Pils yeast slurry in starter

- Original specific gravity: 1.080
- Final specific gravity: 1.022

Heat 4 gallons (15 L) water to 130 degrees F (54 degrees C), mash in and add 1 quart (0.95 L) boiling water to thin and bring temperature to between 125 and 126 degrees F (52 degrees C) for a 30-minute protein rest. Add 4 1/2 to 5 gallons (17 to 19 L) boiling water then heat and recirculate wort until temperature reaches 154 to 155 degrees F (68 degrees C), hold for 90 minutes. Sparge with 7 gallons (26.5 L) 168-degree-F (76-degree-C) water.



gan entering competitions. The brewpubs provided yeast slurry with which to experiment, and the brewers themselves were always willing to critique his many attempts to recreate specific styles. "It's like skiing with someone who's a lot better than you. It makes you get better quicker," he says respectfully.

A Spartan Brewery

It's astounding to hear how he brews, especially considering the success he has had in competitions. The setup sounds cumbersome, and he admits as much.

"I'm not doing it the easiest way because I mash, laut and boil all in the same pot. When I sparge, I have to collect all the runoff in plastic buckets, then wait until it's all done, then I clean all the grain out, wash the pot then put the runnings back in. It's incredibly labor intensive."

His dedication to brewing must be at least as strong as his devotion to music. Each brewing session requires him to get all the pieces from the basement and set them up in the kitchen. The whole process can last up to nine or 10 hours. "It's a long day for me. Then I'm taking stuff down and fermenting in the cellar so I'm walking up and down stairs a lot."

Asked about his attempts to streamline his setup, he chuckles. "There are easier ways to do it, I've heard. On the other hand, the results work. So if it works, don't fix it." He admits also that the space restricts him in many ways. "I could probably work it out a lot better, but I can't really brew in the cellar because it has a low ceiling."

A trip to the basement confirms his assertion. It's where Paul keeps most of his equipment, but the space serves primarily as the laundry for the household. Clothes drying on the line share the cellar with some bottles of homebrew and Cornelius kegs filling a modified chest freezer.

Despite less than ideal conditions, Paul says he feels fortunate because his living space allows room for brewing without having to design the most efficient system. "I'm a lot better off than some people in the city, because at least I have a basement to store stuff."

This bare-bones approach to brewing determined an acquire-as-needed strategy for equipment. "I'm not really a big techno guy;

I don't really invent a lot of gadgets," he explains. "It was just this gradual acceleration." Having no equipment fetish spares him from the trap of running out to buy every new widget coming onto the market.

Is he happy to continue with a setup that requires such hard work? That can change, he acknowledges. "Everything I'm doing is so labor intensive that I'm thinking about other ways." Then, after some thought, "It's a hobby so spending a little money is really not that bad."

The most involved piece of equipment is a modified 15-gallon brewpot from East Coast Brewing Supply. It has a bottom drain, a built-in thermometer and a false bottom screen to allow mashing in the pot. The modifications, and a counterflow wort chiller, make things a lot easier, he says.

A Taste for Lager

Recalling a trip to Germany, Paul reveals just how much he prefers the malty style of lagers. A visit to Andechs, a celebrated Bavarian brewery in a monastery north of Munich, was a particularly memorable highlight. "To me that was it. We hiked up [to the brewery]; it was a crisp November day; it was beautiful; we walked for about an hour and were rewarded with some of the best beer I've ever had. I didn't want to leave."

Despite the fond memories of scenery and atmosphere, the real reason for the trip was beer. "And talk about malt! They were just so malty, with this huge malt

Handwritten notes on a piece of paper:
 6/17
 7.4 crystal
 9 oz chocolate malt
 3 oz black patent malt
 3 lb Munton and Fison dark dry malt extract
 1 1/2 lb Munton and Fison amber dry malt extract
 3 1/3 lb can Munton and Fison amber malt extract syrup
 1 oz Northern Brewer hop pellets, 6.5 HBUs (28 g) (60 min.)
 1 oz Hallertauer hop pellets, 3 HBUs (28 g) (60 min.)
 1/2 oz Tettnanger hop pellets, 2 HBUs (14 g) (60 min.)
 1/2 oz Mt. Hood hop pellets, 1.8 HBUs (14 g) (30 min.)
 1/2 oz Tettnanger hop pellets, 1.75 HBUs (14 g) (30 min.)
 1/2 oz Hallertauer hops, 2.2 HBUs (14 g) (15 min.)
 1/2 oz Tettnanger hops, 2.2 HBUs (14 g) (15 min.)
 1 pint Zip City yeast slurry in starter (0.5 L). Other yeast options include Wyeast No. 2206 Bavarian lager or Wyeast No. 2278 Czech Pils.
 Original specific gravity: 1.050 to 1.052
 Final specific gravity: 1.015
 Steep grains in 3 gallons (11.4 L) of water and remove when water temperature reaches 180 degrees F (82 degrees C). Add malt extract and boil one hour. Add 2 1/2 gallons filtered cold water to primary fermenter.

SCHWARZBIER

This extract recipe represents one of Paul's earliest tries from his first year as a brewer. It served as a prototype for the all-grain recipe that won a gold medal at the AHA 1995 National Homebrew Competition.

Ingredients for 6 gal (22.7 L)

- 3/4 lb crystal malt (0.34 kg)
- 9 oz chocolate malt (255 g)
- 3 oz black patent malt (85 g)
- 3 lb Munton and Fison dark dry malt extract (1.36 kg)
- 1 1/2 lb Munton and Fison amber dry malt extract (0.68 kg)
- 3 1/3 lb can Munton and Fison amber malt extract syrup (1.5 kg)
- 1 oz Northern Brewer hop pellets, 6.5 HBUs (28 g) (60 min.)
- 1 oz Hallertauer hop pellets, 3 HBUs (28 g) (60 min.)
- 1/2 oz Tettnanger hop pellets, 2 HBUs (14 g) (60 min.)
- 1/2 oz Mt. Hood hop pellets, 1.8 HBUs (14 g) (30 min.)
- 1/2 oz Tettnanger hop pellets, 1.75 HBUs (14 g) (30 min.)
- 1/2 oz Hallertauer hops, 2.2 HBUs (14 g) (15 min.)
- 1/2 oz Tettnanger hops, 2.2 HBUs (14 g) (15 min.)
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Steep grains in 3 gallons (11.4 L) of water and remove when water temperature reaches 180 degrees F (82 degrees C). Add malt extract and boil one hour. Add 2 1/2 gallons filtered cold water to primary fermenter.

nose," he says, practically swooning as he recalls the Andechs Helles and Doppelbock.

Paul's travels also helped him get a clear idea of the traditional styles. "I read all the books I could get my hands on, and that's a big part of it. But traveling and tasting the indigenous beers where they are made and going home with that idea is like: 'OK, now I know; now I'm really trying to get that taste.' It takes a long time, but at least you know what you're trying for."

Paul has developed a relatively recent appreciation for ales as well, but the malty German styles are clearly his passion. The preference for lagers may have aided his fairly quick progress in brewing. Ales often present fewer problems for beginners, but because that really wasn't his interest, he concentrated on controlling the more difficult process of brewing lager beers.

Judging and Competitions

In 1994, he couldn't attend the AHA National Homebrewers Conference, but watched the competition winners scroll across a computer screen during the live CompuServe connection to the award ceremony. Someone asked which of his beers might win in the three categories where his entries had made it to the final round. Paul thought the raspberry porter would be the one that wouldn't win.

"Well, that's because something similar had won the year before, and it's a very subjective category," he explains. "Some people liked it, and for others, it just offended some sensibilities." The chocolate and raspberry combination, though a classic in the culinary world, apparently meets with some disapproval in the world of beer.

"At least I try to keep an open mind until I taste it," he continues. "And if I like it, I like it; if I don't, I don't. But some people kind of shut it down before it gets to that point."

Some of Paul's mild cynicism regarding homebrew competitions is understandable. In this country of vanguard brewing, it seems incongruous to find judges and beer fanatics who adhere to restrictive notions of style, but it does happen. "You just have to realize it's a crap shoot sometimes and don't go into it expecting to win. It's nice

when you do, but don't let it bother you when it doesn't happen."

In this case, his cynicism was misplaced. The Chocolate Raspberry Porter recipe won him his first gold medal in a national competition. He repeated the feat this year with a Bavarian Schwarzbier, except this year he had the thrill of attending the award ceremony and accepting the prize. He was gratified to win with a lager recipe, his favored beer category. "It was nice that I won this year for a lager. That makes me feel good because that was harder to make right."

Future Plans

Is there anything Paul plans for his brewing future? The question brings out a tentative response. He and his wife have talked about their own restaurant or brewpub, but he is reluctant to change his life drastically. "I'm a musician. I play with a few bands, there are students I teach and I do some recording. And I still like doing that. So I'm not quite ready to chuck all that and go spend the whole day doing nothing but beer. But if I got in the right situation, where I could have somebody helping me, it's definitely possible."

Paul did have the chance to engage in small-scale commercial brewing once, when two brewpubs in New York asked him to formulate recipes. "Brewing [my altbier recipe] with Jack Streich at Zip City was a nice introduction to that whole world. And at Park Slope [in Brooklyn], I supplied a pumpkin ale recipe, which turned out to be one of their most popular beers."

But for the short term, homebrewing is likely to offer enough challenges for such a perfectionist. "I still haven't done a really great doppelbock. That's a challenge. I'd love to be able to do that, because that's the toughest beer to make really, really clean, balanced and malty enough but not too sweet, not too alcoholic. It's got low hop flavor and bitterness so it's just a real challenge to make that happen right."

That would be one of his great goals as a brewer. "OK, here's a dream: To get a lager with that incredible malt nose you get from German beers. You can get a fairly malty taste, but to get that intense, dry malt smell is just the hardest thing."

Despite the earnest quest for the perfect lager, Sullivan reminds you that, at heart, he enjoys improvisation. Besides the thrill of winning a gold medal this year at Planet Beer in Baltimore, Md., and having his passion fruit ale chosen No. 1 in the Planet Beer Invitational Brew Off, his most stirring memory of the AHA National Conference was a talk by Randy Mosher on the Science of the Art of Beer.

"That was one of the talks I enjoyed the most. There were some good technical ones also, but it's kind of like the way I think:

'Yeah, be creative, try things, think about it.' I'm definitely more into the creative aspect than the scientific aspect. I try to do things the right way, but part of what I like is to improvise, and try to make something happen — and going on instinct."

Bill Wald is a free-lance writer based in the New York area specializing in beer and brewing. A BJCP Recognized judge, he is trying to re-establish his own homebrewery, if he can find enough time away from writing assignments.



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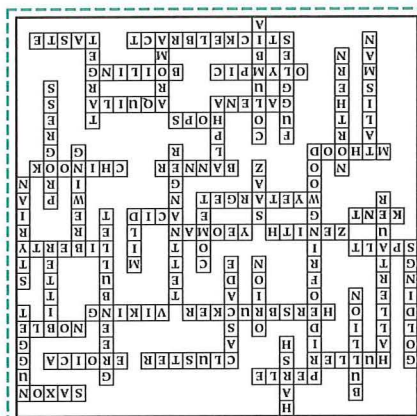
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The Spirit of Homebrewing



“It looks like you’re safe,” says Jim Busch as he opens the door to his suburban Maryland home. The resident watchdog, a Labrador named Dunkels, has been left in the custody of Jim’s mother for the evening. As a result, I can roam unmolested about the basement bar, fermentation cellar and the backyard brewhouse where Jim crafted Esprit de Boire, the commemorative beer for the 1995 American Homebrewers Association conference in Baltimore last June.

Esprit de Boire means “Spirit of Drink” in French. The label, drawn freehand by professional brewer Bill Covaleski then refined and produced by the Association of Brewers production department, is a visual pun on the word “spirit.” It depicts five ghostly entities, one of which is emanating from a tulip glass. The name was suggested by a friend, Phil Seitz, who three years ago accompanied Jim to Belgium on “one of the most beer-sodden trips I’ve ever taken,” Jim says. According to Phil, “BOIRE” is an acronym for a secret Belgian-American beer drinking society about which he declines to divulge additional information. BOIRE also appears on Phil’s Virginia vanity license plate.

Jim describes Esprit de Boire as a Belgian strong spiced ale, a variety relatively unknown in this country. Although many amateur and professional brewers have experimented with wit beers, this style is brewed to a considerably higher gravity, contains no wheat and is spiced with sweet orange peel rather than the bitter Curaçao variety. Jim’s brew was inspired by La Chouffe, a brand from the revivalist Brasserie d’Achouffe in the Ardennes, that he first tried during a 1991 trip to Europe and which is now imported to the United States on a limited basis.

Jim recalls that he was tapped for the job in September 1994, during a Washington, D.C., beer festival organized by the Mid-Atlantic Association of Small Brewers. Baltimore had already been chosen as the site of the 1995 AHA conference, and AHA President Karen Barela was searching



1995 Commemorative Belgian Strong Ale

Esprit de Boire during fermentation.

for a local homebrewer whose work she could showcase. In conversations with members of Brewers United for Real Potables (BURP), the D.C.-area homebrew club, Karen heard the name Jim Busch mentioned repeatedly. "I got set up by my fellow BURPers," says Jim.

First consideration: Jim is undoubtedly a talented brewer. He began homebrewing in 1988 after receiving a True Brew American Dark kit as a Christmas present. Within six months he began all-grain brewing. The first year, Jim recalls, he did 40 five-gallon batches. He's now up to batch number 158, and keeps a logbook with detailed records on every effort. "Definitely keep notes," he advises novice brewers. "You can't remember everything."

The basement wall is decorated with 10 ribbons won in BURP's monthly style competitions. At the January 1995 meeting, his India pale ales took first and second prize. An earlier version of his Esprit de Boire, only two weeks in the bottle, came in first in the Belgian ale category at the 1994 Spirit of Free Beer competition.

A second consideration was that Jim had the facilities for brewing the 50 gallons necessary to fill almost 600 souvenir bottles for conference attendees. In 1992, Jim had a custom-fabricated one-barrel brewhouse installed in a shed in his backyard. His vessels consist of two 38-gallon (144-L) stainless-steel tanks. The first is suspended on an angle-iron stand, and does double duty as a mash tun and brew kettle. The vessel is directly fired by a 24-jet slotted cap propane-fueled burner. An almost identical tank serves as lautur tun and fermenter, perched atop a roller cart so it can be moved easily. A 12-foot counterflow chiller feeds into a 50-foot underground pipeline, which leads to the cellar where fermentation takes place.

"I tend to get really, really into my hobbies," says Jim.

Jim insisted that his beer be brewed entirely from the types of raw materials available to small Belgian breweries. Schreier contributed more than 150 pounds of DeWolf-Cosyns Pilsener and specialty malts. HopUnion donated Styrian and East Kent Golding hops. BURP officers Polly Goldman and Bruce Feist carried seven kilograms of candi sugar (sucre candi) — a form of crystalline sucrose that

**BY GREG
KITSOCK**



JIM

BUSCH



resembles rock candy — back from a visit to Belgium. The coriander was purchased fresh from It's a Beautiful Day, a health-food store in College Park, Md.

The sweet orange peel, although a minor ingredient in the recipe, was the most difficult to obtain. The little-used condiment is processed from special varieties of Mediterranean oranges. Jim warns against substituting American supermarket fruit, unless you want your beer to reek of Sunkist. Charles Olchowski, AHA Board of Advisers member and proprietor of the Frozen Wort homebrew supply mail-order business, ran up about \$50 in long distance bills trying to locate the elusive spice. "Most of the suppliers are from the Flemish part of Belgium and don't know English. And they want to sell you a 55-pound (25-kg) minimum order." (In fact, *Esprit de Boire* required about 200 grams — less than half a pound.) Charles finally obtained a sample bag from one of his brewery contacts.

Jim made his first batch on April 2 using an upward step infusion mash. The candi sugar was added 30 minutes before end of the boil. The coriander, crushed only seconds before in a coffee grinder, was added at the end of the boil. Half of the orange peel was added 30 minutes before the end of the boil, half 10 minutes from the end.

Jim used the La Chouffe yeast for fermentation. He prepared a slant and Rob Mullen, brewer at the Old Dominion Brewing Co. in Ashburn, Va., used this to grow a 15-gallon (56.78-L) starter. The beer was fermented at 65 to 70 degrees F (18 to 21

degrees C). In order to pitch the entire amount of the slurry, Jim divided the wort among his one-barrel fermenter and two half-barrel stockpots.

Three days later Jim brewed his second barrel of *Esprit de Boire*, tweaking the recipe by omitting some of the specialty malts. (The first batch had an original gravity of 1.088, a little higher than he intended; batch number two clocked in at 1.080.)

Jim used the second batch to top off each of the three fermenters, the contents of which were then in high kraeusen.

The grunt work of bottling is the least-loved part of creating an AHA commemorative brew. This was especially true for Jim, who primarily kegs his beers. His basement is littered with Cornelius kegs and he uses a Homark beer engine from Dorset, England, to draw perfect half-pints of New American Ale, the "house brand" he brews regularly. Jim admits that he tried, unsuccessfully, to convince Karen to let him do a commemorative draft beer.

On April 20, nine of Jim's homebrewer friends converged on his home with bench cappers and bottling buckets, and managed to fill 576 six-ounce bottles and 93 Champagne bottles in only two-and-a-half hours. To spark the secondary fermentation in the bottles, Jim used a fresh supply of yeast he had cultivated in a carboy, and cane sugar (one-half cup per five gallons). The two batches yielded 62 gallons of beer, about 12

ESPRIT DE BOIRE (SPIRIT OF DRINK)

Recipe for 5 gal (19 L)

- 11 1/4 lbs DeWolf-Cosyns Pils malt (5.10 kg)
- 4/5 lb DeWolf-Cosyns Munich malt (0.4 kg)
- 1/3 lb DeWolf-Cosyns aromatic malt (0.1 kg)
- 1/3 lb DeWolf-Cosyns CaraVienne malt (0.1 kg)
- 1/10 lb DeWolf-Cosyns CaraMunich malt (45.4 g)
- OR (for an extract batch)
- 8 1/2 lbs light dry malt extract (3.86 kg) or 10 1/2 lbs pale unhoppled extract syrup (4.76 kg)
- 1/2 lb DeWolf-Cosyns Caravienne malt (0.23 kg)
- 1 1/2 oz DeWolf-Cosyns CaraMunich malt (43 g)
- 3/5 oz Styrian Golding hops, 5% alpha acid (17 g) (60 min.)
- 3/10 oz Styrian Golding hops, 5% alpha acid (9.5 g) (30 min.)
- 7/10 oz East Kent Golding hops, 5% alpha acid (19 g) (finish)
- 7/10 oz whole coriander, finely crushed (19 g) (finish)
- 1/4 oz sweet orange peel (30 min.) Soaking the peels will help loosen them. Do not use supermarket oranges!
- 1/4 oz sweet orange peel (10 min.)
- 1 1/5 lbs candi sugar (0.68 kg) (30 min.) Substitute table sugar or corn sugar if necessary.
- 1 to 2 qt starter of cultured La Chouffe yeast (0.95 to 1.89 L). Allow to completely ferment, decant the fluid and pitch only the yeast slurry. Wyeast Wit No. 3944 is another good yeast choice.

- Original specific gravity: 1.080 to 1.088
- Final specific gravity: 1.025 to 1.016

Dough-in with 16 1/2 quarts (15.6 L) of 140-degree-F (60-degree-C) water and malt. Rest at 131 degrees F (55 degrees C) for 20 minutes, raise to 152 degrees F (67 degrees C) and hold for 60 minutes, raise to 170 degrees F (77 degrees C). Lauter with 170-degree-F (77-degree-C) water to collect 5 1/2 to 6 gallons (21 to 22.5 L) of sweet wort. Bring to boil, boil 90 minutes. For the extract version, boil malt extract in 5 gallons (19 L) water for 60 minutes making hop and spice additions. Aerate the wort well before pitching yeast.

Ferment to completion, rack to secondary if possible to help settle the yeast. When transferring to bottling bucket, leave the slurry behind and pitch fresh bottling yeast.

Be sure to referment this strong ale in the bottle. To do this, build up a one-pint starter of yeast. Add the new yeast slurry to the still beer along with the priming sugar. Generally, a slurry from one pint (0.5 L) of wort will provide enough yeast to bottle-condition 5 gallons (19 L) of wort. Add 1/2 cup (118 mL) cane sugar per 5 gallons (19 L) and about one ounce (30 mL) of liquid slurry to prime. Final carbonation in the bottle should be between 2.5 and 3 volumes of CO₂.

When young, this is a beer that will have an evident orange character that fades with aging and hits its prime between six and 12 months from bottling.

— Jim Busch



Jim Busch (left) and Keith Harper (right) adding hops and coriander to the kettle.

more than needed for the AHA conference. Jim bottled the excess in Grolsch swing-tops (and any other container available) and kept it for his personal stock or gave it away in gratitude to his bottling brigade.

The task was finished none too soon. On April 21 Jim was scheduled to embark on a month-long trip to Europe. His biggest fear, he recalled, was of bombs in the basement, that the refermentation would proceed too vigorously and explode the bottles. Fortunately, his worries proved groundless.

Jim originally intended to brew in February and bottle in March. Delays in obtaining the ingredients threw off his schedule, and he admits that the samples distributed at the conference were a little green. "I thought it was very good, but a bit too much of the orange peel came through," commented Bill Covaleski. "It was a little on the young side. It needs to have some of the edges removed."

Nevertheless, Jim received mostly favorable evaluations. Charlie Papazian, he recalls, praised the caramel malt character, and other attendees inquired how he was able to make the ale so strong (8 percent alcohol by volume, 6.3 by weight) and yet so smooth. Jim attributed the smoothness primarily to the Belgian malts, but also noted that there was some caramelization in the kettle from the direct firing.

Esprit de Boire will be at its peak between six and 12 months after bottling, estimates Jim, but will probably keep for years if stored properly. He pours me a glass of the 1994 version of his spiced strong ale. There are some almond and sherry notes that indicate oxidation, but the beer is still complex and very drinkable.

Despite his success as a homebrewer, Jim has no plans to quit his day job. The 32-year-old electrical engineer works for Computer Sciences Corp. developing firmware for NASA at the Goddard Space Flight Center in Greenbelt, Md. More precisely, he helps develop communication systems that receive signals from the Hubble Telescope, the Gamma Ray Observatory and other satellites and process it into raw data that scientists can interpret. "We're the AT&T of NASA," he notes. Despite recent cutbacks in NASA's budget, Jim believes his current job is more secure and lucrative than embarking on a career as a brewer.

Nevertheless, he is toeing the waters. Jim is an investor and a board member of Victory Brewing Co., a microbrewery and pub set to open in an abandoned Pepperidge Farm cookie factory in the Philadelphia suburbs. Bill, former head brewer at Baltimore Brewing Co., and brewer Ron Barchet of Old Dominion are the principals behind this operation. Jim has offered the use of his brewery as a pilot plant for testing new recipes.

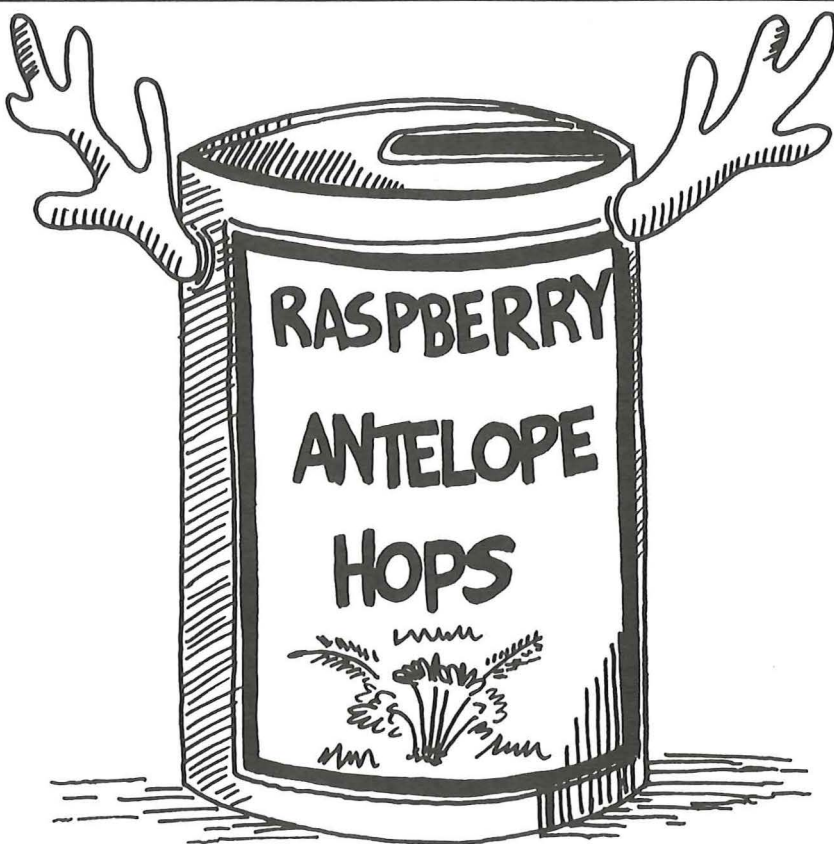
Victory Brewing is projected to start selling beer by the end of the year, and will pro-

duce a Dortmunder/export, a Märzen, an India pale ale and various specialties.

Any chance, I ask Jim, that you'll be brewing Belgian ales at Victory?

"You can guarantee it," he answers.

Greg Kitsock is the associate editor of *BarleyCORN*, a brewspaper based in Frederick, Md., and a regular contributor to several other beer publications. A resident of Washington, D.C., since 1973, he is researching a book on the drinking habits of U.S. presidents.



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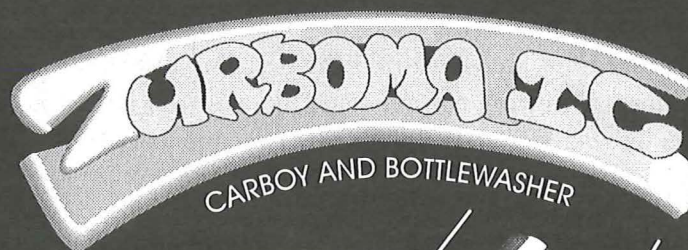
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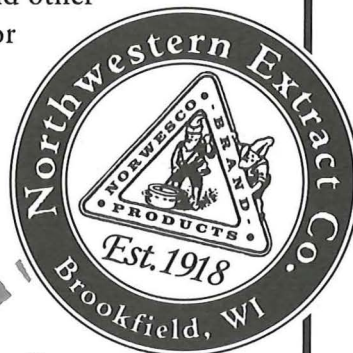
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AMERICAN BROWN ALE

GOLD: Golden Gate Original Ale, Golden Pacific Brewing, Emeryville, Calif.
SILVER: Oregon Trail Brown Ale, Oregon Trail Brewery, Corvallis, Ore.
BRONZE: Pete's Wicked Ale, Pete's Brewing Co., Palo Alto, Calif.
HONORABLE MENTION: Naughty Monkey Brown Ale, Seabright Brewery Pub and Restaurant, Santa Cruz, Calif.

AMERICAN PALE ALE

GOLD: Sierra Nevada Pale Ale, Sierra Nevada Brewing Co., Chico, Calif.
SILVER: Snake River Pale Ale, Snake River Brewing Co., Jackson, Wyo.
BRONZE: Post Road Pale Ale, Old Marlborough Brewing Co., Framingham, Mass.

BARLEY WINE

GOLD: Bigfoot Barleywine Style Ale, Sierra Nevada Brewing Co., Chico, Calif.
BRONZE: Old Foghorn Barleywine, Anchor Brewing Co., San Francisco, Calif.

BELGIAN-STYLE ALES

GOLD: Belgian Triple, Pacific Coast Brewing Co., Oakland, Calif.
SILVER: Celis Grand Cru, Celis Brewery, Austin, Texas
BRONZE: Abbey Trappist Style Ale, New Belgium Brewing Co., Fort Collins, Colo.

BELGIAN-STYLE SPECIALTY ALES

GOLD: Celis White, Celis Brewery, Austin, Texas
SILVER: Thomas Kemper White, Thomas Kemper Lagers, Seattle, Wash.
BRONZE: Belgian Amber Framboise, Cottonwood Grille and Brewery, Boone, N.C.

BLONDE ALE

GOLD: Kölsch, Stoddard's Brewhouse and Eatery, Sunnyvale, Calif.
SILVER: Oregon Honey Beer, Portland Brewing Co., Portland, Ore.
BRONZE: Brewers Golden, Sioux Falls Brewing Co., Sioux Falls, S.D.

CLASSIC ENGLISH-STYLE PALE ALE

BRONZE: Saranac Pale Ale, Saranac-Matt Brewing Co., Utica, N.Y.
HONORABLE MENTION: Pullman Pale Ale, Riverside Brewing Co., Riverside, Calif.

DRY STOUTS

GOLD: Snake River Zonker Stout, Snake River Brewing Co., Jackson, Wyo.
SILVER: Founder's Stout, Mishawaka Brewing Co., Mishawaka, Ind.
BRONZE: Irish Stout, Butterfield Brewing Co., Fresno, Calif.

GERMAN-STYLE BROWN ALE/ DÜSSELDORF-STYLE ALTBIER

GOLD: Duesseldorfer Altbier, McNeill's Brewery, Brattleboro, Vt.
SILVER: Hornet Tail Ale, Carolina Mill, Bakery & Brewery, Charlotte, N.C.
BRONZE: Wild Horse Ale, Great Basin Brewing Co., Sparks, Nev.

ENGLISH-STYLE BROWN ALE

GOLD: Finn Mac/Soul Red, Irish Times Pub and Brewery, Palm Beach Gardens, Fla.
SILVER: Irish Red, Crooked River Brewing Co., Cleveland, Ohio
HONORABLE MENTION: Red Mountain Red Ale, Birmingham Brewing Co., Birmingham, Ala.

GERMAN-STYLE WHEAT ALE

GOLD: Heavenly Hefeweizen, Heavenly Daze Brewery, Steamboat Springs, Colo.
SILVER: Wild Pitch Hefeweizen, SandLot Brewery at Coors Field, Denver, Colo.
BRONZE: Empire Hefeweizen, Empire Brewing Co., Syracuse, N.Y.

INDIA PALE ALE

GOLD: Big D's "Vail Pale Ale," Hubcap Brewery and Kitchen Dallas, Dallas, Texas
SILVER: Columbus IPA, Pacific Coast Brewing Co., Oakland, Calif.
BRONZE: Wet Mountain India Pale Ale, Il Vicino, Salida, Colo.

ROBUST PORTER

GOLD: Black Jack Porter, Left Hand Brewing Co., Longmont, Colo.
SILVER: Black Silk, Liberty Street Brewing Co., Akron, Ohio
BRONZE: Point Reyes Porter, Marin Brewing Co., Larkspur, Calif.
HONORABLE MENTION: Pullman's Porter, McNeill's Brewery, Brattleboro, Vt.

BROWN PORTER

SILVER: Porter, Stoddard's Brewhouse and Eatery, Sunnyvale, Calif.
BRONZE: Black Butte Porter, Deschutes Brewery Inc., Bend, Ore.

SCOTTISH-STYLE ALES

BRONZE: Rightfield Red Ale, SandLot Brewery at Coors Field, Denver, Colo.

SPECIALTY STOUTS

GOLD: Seabright Oatmeal Stout, Seabright Brewery Pub and Restaurant, Santa Cruz, Calif.
SILVER: Steamboat Stout, Main Street Brewery, Cincinnati, Ohio
BRONZE: Farmer Jon's Oatmeal Stout, Heartland Brewery, New York, N.Y.
HONORABLE MENTION: Kinnikinnick Old Scout Stout, 20 Tank Brewery, San Francisco, Calif.

STRONG ALE

GOLD: Dog Spit Stout, O'Ryan's Tavern and Brewery, Las Cruces, N.M.
SILVER: Bell's Expedition Stout, Kalamazoo Brewing Co., Kalamazoo, Mich.
HONORABLE MENTION: Bourbon County Stout, Goose Island, Chicago, Ill.
HONORABLE MENTION: Hubbscotch Ale, Hubcap Brewery and Kitchen, Vail, Colo.

TRADITIONAL ENGLISH-STYLE BITTER

GOLD: Belk's Extra Special Bitter Ale, Anderson Valley Brewing Co., Boonville, Calif.
BRONZE: Wild River ESB, Wild River Brewing, Grants Pass, Ore.

LAGER

AMERICAN LAGER

GOLD: Red Dog, Miller Brewing Co., Milwaukee, Wis.
SILVER: Old Style Lager, G. Heileman Brewing Co., La Crosse, Wis.
BRONZE: Original Coors, Coors Brewing Co., Golden, Colo.

AMERICAN LIGHT LAGER

GOLD: Pabst Genuine Draft Light, Pabst Brewing Co., Milwaukee, Wis.
SILVER: Bud Light, Anheuser-Busch Inc., St. Louis, Mo.
BRONZE: Lone Star Light, Lone Star Brewing Co., San Antonio, Texas

AMERICAN MALT LIQUOR

GOLD: Olde English 800, Pabst Brewing Co., Milwaukee, Wis.
SILVER: Schlitz Malt Liquor, Jos. Schlitz Brewing Co., Detroit, Mich.
BRONZE: Laser, Specialty Brewing Co., Milwaukee, Wis.

AMERICAN PREMIUM LAGER

GOLD: Budweiser, Anheuser-Busch Inc., St. Louis, Mo.
SILVER: Point Special, Stevens Point Brewery, Stevens Point, Wis.
BRONZE: Pearl Premium Lager, Pearl Brewing Co., San Antonio, Texas

AMERICAN SPECIALTY LAGER

GOLD: Olympia Dry, Pabst Brewing Co., Milwaukee, Wis.
SILVER: Rainier Ice, Rainier Brewing Co., Seattle, Wash.
BRONZE: Colt Ice, Carling National Brewing, Baltimore, Md.

VIENNA LAGER

GOLD: Red Bone Red Lager, Specialty Brewing Co., Milwaukee, Wis.
SILVER: Samuel Houston's Austin Lager, Waterloo Brewing Co., Austin, Texas
BRONZE: Michael Shea's Irish Amber, HighFalls Brewing Co., Rochester, N.Y.

BOCK

GOLD: DeGroen's Doppelbock, Baltimore Brewing Co., Baltimore, Md.
SILVER: Blue Ridge Subliminator Doppelbock, Frederick Brewing Co., Frederick, Md.
BRONZE: Garten Brau Doppelbock, Capital Brewery, Middleton, Wis.
HONORABLE MENTION: Stoudt's Honey Double Mai-Bock, Stoudt Brewery, Adamstown, Pa.

DARK LAGER

GOLD: Red Wolf, Anheuser-Busch Inc., St. Louis, Mo.
SILVER: Dixie Blackened Voodoo Lager, Dixie Brewing Co., New Orleans, La.
BRONZE: Pigs Eye Red Amber Ale, Minnesota Brewing Co., St. Paul, Minn.

EUROPEAN-STYLE PILSENER

GOLD: Hübsch Pilsner, Sudwerk Privatbrauerei Hübsch, Davis, Calif.
SILVER: Peerless Pilsner, Great Lakes Brewing Co., Cleveland, Ohio
BRONZE: Stoudt's Pils, Stoudt Brewery, Adamstown, Pa.

MUNCHENER HELLES AND EXPORT

GOLD: Hellcat, Liberty Street Brewing Co., Akron, Ohio
SILVER: Berghoff Original Lager Beer, Joseph Huber Brewing Co., Inc., Monroe, Wis.
BRONZE: Zeppelin, Liberty Street Brewing Co., Akron, Ohio

MÄRZEN/OKTOBERFEST

GOLD: Three Finger Jack Amber, Saxer Brewing, Lake Oswego, Ore.
SILVER: Oktoberfest, Capital Brewery, Middleton, Wis.
BRONZE: Samuel Adams Oktoberfest, Boston Beer Co., Boston, Mass.

MIXED STYLES

AMERICAN LAGER/ALE OR CREAM ALE

GOLD: Liebotschaner Cream Ale, Lion Brewing Co., Wilkes-Barre, Pa.
Silver: Yellow Rose Cream Ale, Hoffbrau Steaks Brewery, Dallas, Texas
BRONZE: Genesee Cream Ale, Genesee Brewing Co., Rochester, N.Y.

AMERICAN WHEAT ALE OR LAGER

GOLD: Mountain Wheat, Breckenridge Brewery, Denver, Colo.
SILVER: Saranac Golden, Saranac-Matt Brewing Co., Utica, N.Y.
BRONZE: Hefeweizen-American, Thomas Kemper Lagers, Seattle, Wash.

FRUIT BEERS

GOLD: Raspberry Rage, Newport Beach Brewing Co., Newport Beach, Calif.
SILVER: Razz Wheat, Oaken Barrel Brewing, Greenwood, Ind.
BRONZE: Royal Raspberry Ale, 75th Street Brewery, Kansas City, Mo.

HERB/SPICE BEERS

GOLD: Arctic Wheat, Mountain Sun Pub and Brewery, Boulder, Colo.
SILVER: Oliver's Christmas Ale, The Wharf Rat Camden Yards, Baltimore, Md.
BRONZE: Amber Wit, Spring Street Brewing Co., St. Paul, Minn.

NON-ALCOHOLIC MALT BEVERAGES

GOLD: Kingsbury Red NA, G. Heileman Brewing Co., La Crosse, Wis.
SILVER: O'Doul's, Anheuser-Busch Inc., St. Louis, Mo.
BRONZE: Old Milwaukee NA, Jos. Schlitz Brewing Co., Detroit, Mich.

SMOKE-FLAVORED BEERS

GOLD: Alaskan Smoked Porter, Alaskan Brewing & Bottling Co., Juneau, Alaska
SILVER: Smoked Chocolate Porter, Rhino Chasers, Culver City, Calif.
BRONZE: Zebulon's Peated Porter, Phantom Canyon Brewing Co., Colorado Springs, Colo.

SPECIALTY

GOLD: Hummingbird Ale, Mountain Sun Pub and Brewery, Boulder, Colo.
SILVER: Harvest Rye, Steelhead Brewery and Cafe, Eugene, Ore.
BRONZE: Titanium Wheat, Steelhead Brewery Irvine, Irvine, Calif.

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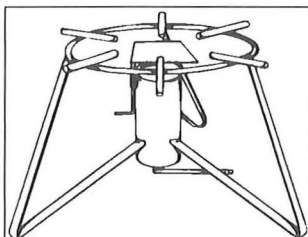
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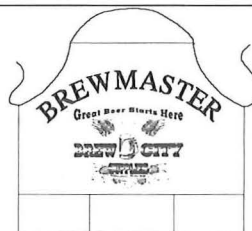
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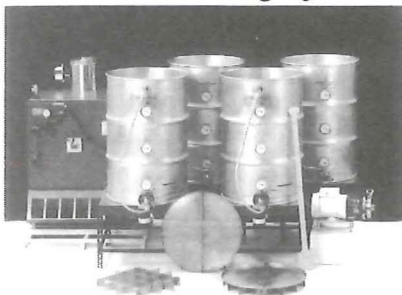


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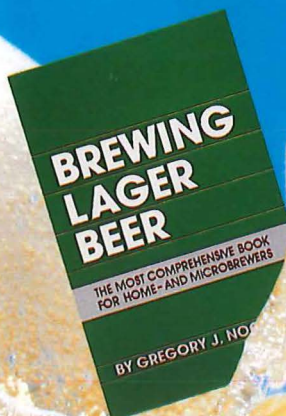
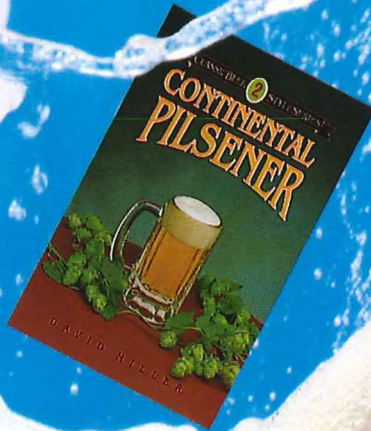
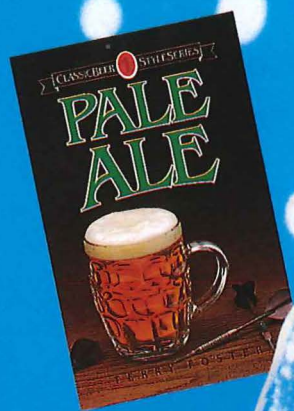
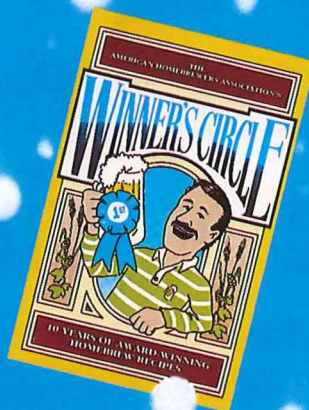
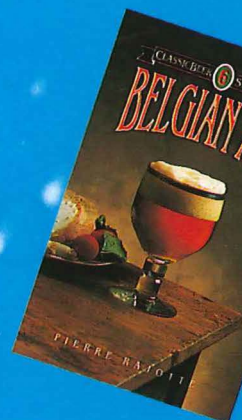
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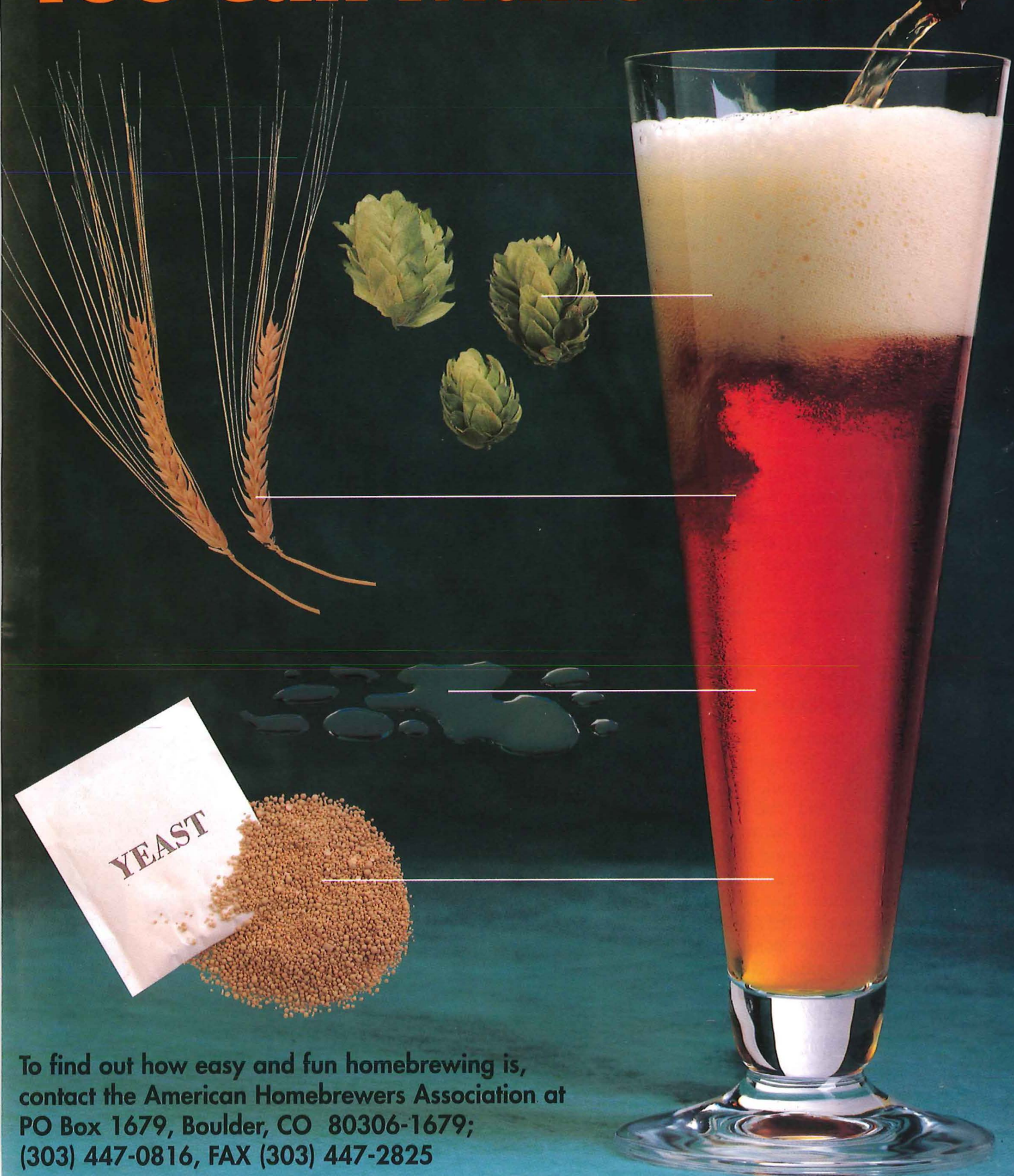
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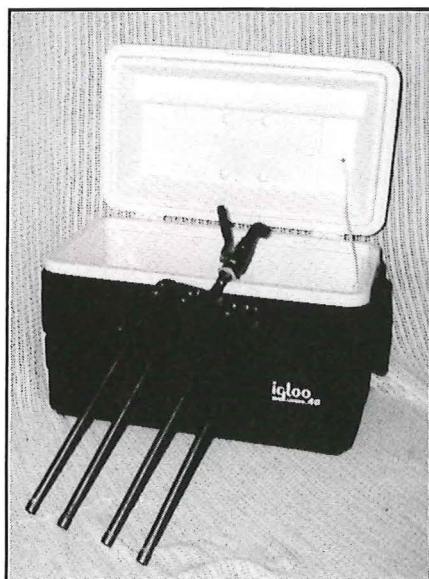
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1996 National Homebrew Competition Rules and Regulations

Produced by the American Homebrewers Association®

Welcome to the largest homebrew competition in the world!

In 1995, 3,067 homebrewed beverages were evaluated by nearly 400 judges. We expect more than 3,500 entries to compete in the American Homebrewers Association 1996 National Homebrew Competition. The Competition is an enormous undertaking, and we'd like to thank all of the sponsors and volunteers whose determination and enthusiasm for homebrewing has made the Competition a success over the years. A total of 19,875 homebrews have been judged in the 17 years of competition.

If you have entered the Competition before, welcome back! We're glad the experience was worthwhile for you, and we thank you for your continued support. If this is your first time entering, don't panic – this isn't rocket science – just read these rules and regulations carefully, and if you have any questions, give us a call.

We'd like to emphasize that the style guidelines listed in this brochure are just that – guidelines. Judges do not see your recipe form. We have provided the guidelines so you can decide the category in which your brew will perform best because judges will use these guidelines when evaluating your entry. You will not be disqualified if your beer falls somewhat outside of the category guidelines listed.

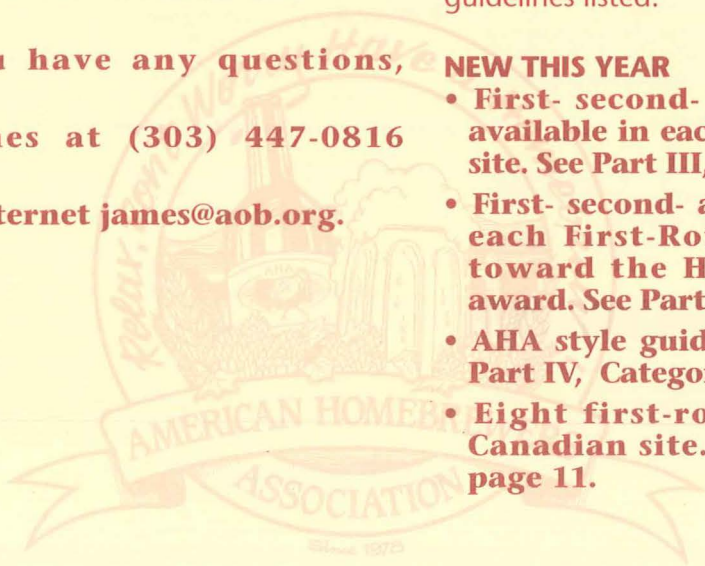
NEW THIS YEAR

- **First- second- and third-place awards are available in each category at each First-Round site. See Part III, Section B.**
- **First- second- and third-place brewers from each First-Round site contribute points toward the Homebrew Club of the Year award. See Part III, Section B.**
- **AHA style guidelines have been adjusted. See Part IV, Category Descriptions.**
- **Eight first-round beer sites including a Canadian site. See the site locator map on page 11.**



All photos are courtesy of Association of Brewers photo files

Good luck in the American Homebrewers Association 1996 National Homebrew Competition. Please follow all the instructions carefully. If you have any questions, contact James at (303) 447-0816 ext. 121, or Internet james@aob.org.





1996 Beer Score Sheet

American Homebrewers Association 1996 National Homebrew Competition

DESCRIPTOR DEFINITIONS

✓ Check whenever appropriate

- ☐ **Acetaldehyde** — Green applelike aroma; byproduct of fermentation.
- ☐ **Alcoholic** — The general effect of ethanol and higher alcohols. Tastes warming.
- ☐ **Astringent** — Drying, puckering (like chewing on a grape skin) feeling often associated with sourness. Tannin. Most often derived from boiling of grains, long mashes, oversparging or sparging with hard water.
- ☐ **Bitter** — Basic taste associated with hops; braun-hefe or malt husks. Sensation experienced on back of tongue.
- ☐ **Chill haze** — Haze caused by precipitation of protein-tannin compound at cold temperatures. Does not affect flavor. Reduction of proteins or tannins in brewing or fermenting will reduce haze.
- ☐ **Chlorophenolic** — Caused by chemical combination of chlorine and organics. Detectable in parts per billion. Aroma is unique but similar to plasticlike phenolic. Avoid using chlorinated water.
- ☐ **Cooked Vegetable/Cabbagelike** — Aroma and flavor often due to long lag times and wort spoilage bacteria that later are killed by alcohol produced in fermentation.
- ☐ **Diacytyl/Buttery** — Described as buttery, butterscotchlike. Sometimes caused by abbreviated fermentation or bacteria.
- ☐ **DMS** (dimethyl sulfide) — A sweet, cornlike aroma/flavor. Can be attributed to malt, short or non-vigorous boiling of wort, slow wort chilling or, in extreme cases, bacterial infection.
- ☐ **Fruity/Estery** — Similar to banana, raspberry, pear, apple or strawberry flavor; may include other fruity/estery flavors. Often accentuated with higher temperature fermentations and certain yeast strains.
- ☐ **Grainy** — Raw grain flavor. Cereallike. Some amounts are appropriate in some beer styles.
- ☐ **Hoppy** — Characteristic odor of the essential oil of hops. Does not include hop bitterness.
- ☐ **Husky** — See, Astringent.
- ☐ **Light-struck** — Having the characteristic smell of a skunk, caused by exposure to light. Some hops can have a very similar character.
- ☐ **Metallic** — Caused by exposure to metal. Also described as tinny, coinlike, bloodlike. Check your brewpot and caps.
- ☐ **Oxidized/Stale** — Develops in the presence of oxygen as beer ages or is exposed to high temperatures; winy, wet cardboardlike, papery, rotten vegetablelike/pineapplelike, sherrylike, baby diaperslike. Often coupled with an increase in sourness, harshness and bitterness. The more aeration in bottling/siphoning or air in headspace, the more quickly a beer will oxidize. Warm temperatures dramatically accelerate oxidation.
- ☐ **Phenolic** — Can be any one or combination of a medicinal, plasticlike, electrical firelike, listerinelike, band-aidlike, smoky, clovelike aroma or flavor. Most often caused by wild strains of yeast or bacteria. Can be extracted from grains (see "Astringent"). Sanitizing residues left in equipment can contribute.
- ☐ **Salty** — Flavor associated with table salt. Sensation experienced on sides of tongue. Can be caused by presence of too much sodium chloride, calcium chloride or magnesium sulfate (Epsom salts); brewing salts.
- ☐ **Solventlike** — Flavor and aromatic character of certain alcohols, often due to high fermentation temperatures. Like acetone, lacquer thinner.
- ☐ **Sour/Acidic** — Pungent aroma, sharpness of taste. Basic taste like vinegar or lemon; tart. Typically associated with lactic or acetic acid. Can be the result of bacterial infection through contamination or the use of citric acid. Sensation experienced on sides of tongue.
- ☐ **Sweet** — Basic taste associated with sugar. Sensation experienced on front tip of tongue.
- ☐ **Sulfurlike** (H₂S; hydrogen sulfide) — Rotten eggs, burning matches. Is a byproduct with certain strains of yeast. Fermentation temperature can be a factor of intensity. Diminishes with age. Most evident with bottle-conditioned beer.
- ☐ **Yeasty** — Yeastlike flavor. Often due to strains of yeast in suspension or beer sitting on sediment too long.

Round No. _____ Entry No. _____

Category No. _____

Subcategory (spell out) _____

Judged by (please print) _____

Judge Qualifications (check one):

Experienced ☐ Apprentice or Novice ☐ Other ☐

Bottle Inspection Comments _____

Maximum Score

Bouquet/Aroma (as appropriate for style) _____ **10**

Malt (3), Hops (3), Other Aromatic Characteristics (4)

Comments _____

Appearance (as appropriate for style) _____ **6**

Color (2), Clarity (2), Head Retention (2)

Comments _____

Flavor (as appropriate for style) _____ **19**

Malt (3), Hops (3), Conditioning (2), Aftertaste (3), Balance (4), Other Flavor

Characteristics (4)

Comments _____

Body (full or thin as appropriate for style) _____ **5**

Comments _____

Drinkability and Overall Impression _____ **10**

Comments _____

TOTAL (50 possible points) _____

Scoring Guide

Excellent (40 to 50): Exceptionally exemplifies style, requires little or no attention.

Very Good (30 to 39): Exemplifies style well, requires some attention.

Good (25 to 29): Exemplifies style satisfactorily, but requires attention.

Drinkable (20 to 24): Does not exemplify style, requires attention.

Problem (less than 20): Problematic, requires much attention.

Please use other side for additional comments.

1996 Rules and Regulations



American Homebrewers Association 1996 National Homebrew Competition

PART I

How to Enter This Competition

1. What kind of bottles are required?

Every bottle must be 10 to 14 ounces in volume, brown or green glass, and be free of raised-glass or inked brand-name lettering and paper labels. Raised 'No Deposit' or bottle manufacturing codes (i.e. "p m 00 H 4328") are acceptable. Obliterate any lettering or graphics on the cap with a permanent black marker. Bottles with Grolsch-type swing tops are not allowed. Corked bottles meeting the above restrictions are acceptable; however, you must crimp a crown cap over the cork. **Bottles not meeting these requirements will be disqualified.**

2. How many bottles do I need?

Send one (1) bottle for each BEER and MEAD entry competing in the first round. You should reserve a total of four (4) bottles of each of your entries – one (1) for the first round of the Competition and three (3) for competing in the second round of the Competition should your beer or mead advance. For CIDER, send three (3) bottles for each entry, all at once, by the first-round deadline.

3. What are the entry fees?

AHA members: \$9 per entry. Four (4) or more entries, \$8 per entry. Eleven (11) or more entries, \$7 per entry. Non-members: \$12 per entry. Make checks payable to American Homebrewers Association and include your membership number (if applicable) on the check.

4. When are the entry deadlines?

First-round entries must be **received** at the appropriate site between Monday, April 1, and 5 p.m. on Friday, April 12, 1996. Second-round entries must be **received** at the appropriate site between Tuesday, May 28, and 5 p.m. on Friday, May 31, 1996. Notification will be mailed by May 10 with additional instructions if your entry is advancing to the second round.

5. How do I enter?

- For each entry, fill out an entry/recipe form (last page of this brochure) in its entirety. For complete instructions on filling out the entry/recipe form, see Part II. Judges do not see your entry form.
- Fold your check or money order with one of your entry forms. On your check write the number of entries the check or money order is paying for and the names of the entrants if they are not all the same.
- Fold and rubber band each entry/recipe form to each bottle. **Your entry will be disqualified if you use glue or tape to secure the form to the bottle.**
- Pack your bottles carefully. (See Part III, Section I.)
- Ship your box to the appropriate address given on the Site Locator Map on page 11 of this brochure. **Sites cannot acknowledge receipt of entries** – arrange for a return receipt with your shipping company if you wish to confirm delivery of your package. Packages with postage due or C.O.D. charges will be returned to sender.

6. Which category do I enter?

It is entirely your decision. You should try to enter your brew in the category and subcategory in which you feel it will perform best. Judges do not see your entry form. Your beer will not be classified or reclassified by organizers or judges. Your entry will not be disqualified if it falls outside of a category's parameters – the descriptions are simply guidelines to help you enter your beer. Judges use the guidelines to guide them while judging your beer.

7. Are there entry limitations?

- You may not submit more than one entry per subcategory.
- Your homebrew must not have been brewed at any place that brews beverages for any commercial purpose, whether for commercial research, production or any other purpose, including brew-on-premises establishments.
- You must give the names of all brewers who helped in the brewing.

PART II

Instructions for Completing the Entry/Recipe Form

Entry/Recipe Form Section A: Brewers Information

Please print clearly or type. In Item 1 fill in the name of the brewer who will be responsible for receiving mailings and results. In Item 2 fill in the full names of all other brewers who participated in brewing the entry. In Items 3 through 5 write the address where mailings and results should be sent. Fill in Items 6 through 9 as applicable.

Entry/Recipe Form Section B: Entry Information

In Item 10 write out the full names of the category and subcategory you are entering. In Items 11 and 12, write the category number and subcategory letter you are entering. Your entry will not be classified or reclassified by directors, judges or registrars under any circumstances. For item 14, circle the appropriate item for your mead or cider entry.

Important Information for Item 15: If you have entered in 3c, 20b, 20c, 21, 22, 23, 25, 26, 27, 28c, 28d please follow the instructions below very carefully to give information for Item 15. **LEAVE ITEM 15 BLANK IF YOU HAVE NOT ENTERED THE ABOVE CATEGORIES.** This information is necessary for accurate judging of entries in these categories. In all cases do not give brand names, geographic names or any other proper names of special ingredients indicating the origin or identity of the brewer. For example, if you used Premier Malt Extract, Briess pale malt, Washington apples, or Idaho clover honey you should only enter malt extract, pale malt, apples or clover honey, respectively. **Judges use this information for evaluating entries in these categories.**

Entries in 3c: Give the type of fruit you used.

Entries in 20b and 20c: If you are entering 20b, give the classic style you have emulated and the type of smoking wood or liquid smoke used. For example: birch-smoked porter, apple-smoked Scottish ale, etc. If you are entering 20c, give the special ingredients you used and the type of smoking wood or liquid smoke used.

Entries in 21: If you are entering 21a, list the fruit(s)/vegetables(s) you used. If you are entering 21b, list the fruit(s) you used and give the classic style you have emulated. For example: raspberry stout, blueberry pilsener, plum India pale ale. If you have used any other special ingredient in addition to the fruit, enter your beer in category 23: Specialty Beer.

Entries in 22: If you are entering 22a, list the herb(s) you used. If you are entering 22b, list the herb(s) you used and give the classic style you have emulated. For example: nutmeg stout, chili Pilsener, coriander India pale ale. If you have used any other special ingredients in addition to the herbs, enter your beer in category 23: Specialty Beer.

Entries in 23: If you are entering 23a, write the special technique or ingredients you used. If you have used both fruit and herbs, list them. If you are entering 23b, give the classic style you have emulated. For example: honey Pilsener, cinnamon maple stout or lambic barley wine.

Entries in 25: Give the type of honey you used.

Entries in 26: Give the fruit(s) or vegetables and the type of honey you used.

Entries in 27: Give the herb(s) or spice(s) and the type of honey you used.

Entries in 28c and 28d: In 28c indicate whether your entry is still or sparkling New England-style cider. In 28d give the special ingredients and/or special yeast you used.

Ingredients and Procedures Entry/Recipe Form Section C:

Be as detailed as possible in this section. If you need more room, write on a separate piece of paper. If you are entering a mead or a cider, list fermentable ingredients in the malt section and any other ingredients in the hops section. If your brew wins first, second or third in the AHA National Homebrew Competition, this information will be used if your recipe is published in **Zymurgy**®. Judges do not see the information in Section C.



1996 Rules and Regulations

American Homebrewers Association 1996 National Homebrew Competition

PART III

The Fine Print

A. General

This Competition is open to all homebrewers, AHA members and non-members. Contestants will be considered an individual entrant based on the name(s) appearing on the registration form. No employee of the Association of Brewers may enter. Persons under contract and/or persons volunteering their services to the Association of Brewers are eligible. First-round registrars, site directors and judge directors who enter must enter at a site other than the one they are hosting. Judges may not judge a category they have entered. Applicable entry fees and limitations shall apply.

It is the sole responsibility of the entrant to complete all registration and recipe forms, enclose the proper entry fee and designate the category and subcategory in which he/she wishes his/her entry to be judged. Under no circumstances will registrars, judges or directors categorize entries.

Beer, mead and cider will be judged only in terms of the categories and subcategories listed on pages 5 through 9. Entries must be referred to by category NUMBER and subcategory LETTER. Dry, medium, sweet or very sweet must be designated for all mead and cider entries.

If a category does not have at least 20 entries in 1996, it will not be included in the Competition in 1997. Please note that saké received only five entries in the 1995 National Homebrew Competition therefore it is not included in the 1996 Competition.

B. First Round Awards and Prizes

- (1) First, second, and third place will be awarded in each category at each First-Round site. These winners will also contribute points for their respective clubs. Six points will be awarded for a first place, three for a second place and one point for a third place. These club points will be included in determining the Homebrew Club of the Year award. See Part III Section C (6).
- (2) Certificates will be awarded to first-round brewers whose achievements are outstanding based on judges' scoring and the following standards: Gold Certificate: scores of 40 to 50, Silver Certificate: scores of 30 to 39, Bronze Certificate: scores of 25 to 29.
- (3) At the discretion of Competition organizers and/or judges, awards may not be given if the quality of an entry is not deemed deserving an award.

C. Second Round Awards and Prizes

- (1) Prizes will be awarded after second-round judging. First-, second- and third-place winners in each category receive a gold, silver or bronze medal and commemorative stein.
- (2) First-place winners of each beer category will compete in a best-of-show judging. The winner will be awarded Homebrewer of the Year sponsored by Munton & Fison of England and the Great American Beer Festival®.
- (3) First-place winners of each mead category will compete in a best-of-show judging. The winner will be awarded Meadmaker of the Year sponsored by American Mead Association, Grand Junction, Colo.
- (4) The first-place winner of the cider category will be awarded Cidermaker of the Year sponsored by Lyon's Brewery of Dublin, Dublin, Calif.
- (5) The Ninkasi Award will be given to the High-Point Homebrewer(s), the brewer(s) who accumulate(s) the most points in the 24 beer categories in this Competition. Six points are awarded for a first place, three points for a second place and one point for a third place. Individual members of a group of brewers do not earn points on an individual basis. For example, if Brewer A and Brewer B enter individually, they earn points individually, but if they enter as a team, they earn points as a team. Entry forms must list each member of the team of brewers to count toward the point total. There will be only one Ninkasi winner. In case of a tie, the AHA will use a tie-breaking system. The Ninkasi award is sponsored by Pete's Brewing Co., Palo Alto, Calif.
- (6) The Homebrew Club of the Year award will be awarded to the club that accumulates the most points in all categories of beer, mead and cider. Six points are awarded for a first place, three points for a second place and one point for a third place. The same point scale will be used and points will be awarded for the six annual AHA Club-Only Competitions (Weiss is Nice 1995, Best of Fest 1995, Renowned Brown 1995, Hail to Ale 1996, Ultimate Ale 1996 and Bock is Best 1996) and added into the tally. In addition, points are earned under the same 6,3,1 system from First-Round award winners. For your club to receive credit you must have the club listed on the entry form AND the club must be registered with the AHA by April 1, 1996. These points will be counted toward the Homebrew Club of the Year Award. The Homebrew Club of the Year award is sponsored by Coopers Brewery, Adelaide, Australia.
- (7) At the discretion of Competition organizers and/or judges, awards may not be given if the quality of an entry is not deemed deserving of an award.

D. Judging

- (1) First-round judging of all beer and mead entries will be done in closed sessions at the AHA National Homebrew Competition First Round sites April 20 through April 28, 1996.
- (2) Second-round judging of qualifying beer and mead entries will be done at the AHA National Homebrewers Conference in New Orleans, La., June 5 through 8, 1996.

- (3) Best-of-show judging of qualifying beer and mead entries will be done at the AHA National Homebrewers Conference in New Orleans, La., June 5 through 8, 1996.
- (4) All rounds of judging for cider entries will be completed at the appropriate National Homebrew Competition site April 20 through April 28, 1996.
- (5) Judges and stewards are needed for first and second rounds. Qualified and interested individuals are encouraged to contact the AHA after March 1, 1996.
- (6) All decisions by Competition organizers are final.

E. AHA Membership

Non-members may receive membership status by enclosing the \$33 annual membership fee with Competition entry fees. If you are becoming a member of the AHA, circle "Yes" in Item 8 of the entry form. Send separate checks for your membership and your entries. All checks should be made payable to the American Homebrewers Association.

F. Recipe Requirement

A recipe must be submitted with each entry. Upon entering this Competition entrants agree to allow (at no cost) publication of their recipe by the Association of Brewers or any of its divisions in any publication. Entrant will receive all due credit.

G. Information and Fees Requirement

All entry fees, names of competitors, address, phone number, category and subcategory entered and recipes must accompany entries when submitted. No entries will be returned whether received late or otherwise. All entries become property of the AHA.

H. Disqualifications

At the discretion of the AHA and volunteer Competition organizers, entries will be disqualified for eligibility or entry requirement infractions. These entries may still be judged, but will be ineligible for awards or prizes.

I. Results and Qualifying for Second Round

All entrants will receive the score sheets with judges' comments for his/her entries. Results will be mailed via first-class mail on May 10, 1996. The first-, second- and third-place winners in each category from each First-Round site will advance to the second round of the Competition. If your beer or mead qualifies for the Second-Round judging you will be notified by first-class mail between May 10 and May 17, 1996. You will be instructed on how, when and where to send three (3) additional bottles for judging, to be received in the New Orleans area between Tuesday, May 28, and 5 p.m. Friday, May 31, 1996. Contestants are advised to refrigerate potential second-round entries to minimize changes in character.

J. Packing and Shipping Hints

Carefully pack your entries in a sturdy box. Line the inside of your carton with a plastic trash bag. Partition and pack each bottle with adequate packaging material. Do not overpack! Write clearly: "Fragile, Glass. This Side Up" on the package. Your package should weigh less than 25 pounds.

Every reasonable effort will be made to contact entrants whose bottles have broken to make arrangements for sending replacement bottles. We strongly recommend that you use reusable shipping containers or the kind of shipping containers used by beer-of-the-month clubs. These containers help ensure your beer will arrive safely and will significantly reduce the amount of packaging waste. Please refrain from using packing "peanuts" if possible. Use bubble wrap or newspaper instead. Sites make efforts to recycle packaging material whenever possible.

Refer to the article on "How to Pack Your Beer," in *Zymurgy* Spring 1991 (Vol. 14, No. 1) for excellent advice on how to save time, money and avoid broken bottles. A product review in *Zymurgy* Spring 1993 (Vol. 16, No. 1) of reusable containers specially designed for shipping homebrew is also available. Copies of these articles are available for free upon request if accompanied with a self-addressed stamped envelope or call the AHA, (303) 447-0816.

It is not against any Bureau of Alcohol, Tobacco and Firearms regulations or federal laws to ship your entries via a privately owned shipping company for analytical purposes. However it is illegal to ship alcoholic beverages via the U.S. Postal Service. Private shipping companies may refuse your shipment if they are informed that the package contains alcoholic beverages. Be aware that entries mailed from foreign countries are often required by Customs to have proper documentation. These entries might be opened and/or returned to the shipper by Customs officials at their discretion. It is solely the entrant's responsibility to follow all applicable laws and regulations.

1996 Category Descriptions



American Homebrewers Association 1996 National Homebrew Competition

PART IV

Category Descriptions

Please note that AHA style guidelines have been adjusted to meet industry standards. Carefully read each style description before selecting a specific category for your entry. Category numbers have been changed in some cases.

There are 24 categories of lager, ale or mixed-style beers, three categories of mead and one category of cider. All have subcategories that use small-letter designations. If a beer is entered, for example, as "10b) Strong Scotch Ale" it will be judged as a Strong Scotch Ale against the other entries in the "English and Scottish Strong Ale" category. Except for some categories where special ingredients are used (See page 3 Part II), judges do not see your recipe information. They do, however, use these guidelines when evaluating your entry. The following section gives more detailed information about each category and subcategory. You should use this information to decide how to enter your homebrew. Please note that when a style characteristic is designated "OK" this means it does not have to be apparent but it is permissible in amounts indicated. When the term "noble-type" hops is used it refers to European continental-type hops such as Saaz, Hallertauer, Tettnanger and Spalt, to name a few.

Categories are designated by numbers. Subcategories are designated by letters. Please note the Style Guidelines Chart on page 10, and the instructions for entering on pages 3 and 4.

ALES

Ales are distinguished by the use of top-fermenting *Saccharomyces cerevisiae* yeast strains. These strains perform at warmer temperatures, the ferments are faster and fermentation byproducts are generally more evident. Ales tend to have a very pronounced palate where esters and fruity qualities are part of the character.

1. Barley Wine

Category award sponsored by Edme Ltd., Mistley, Manningtree, England.

- a) *Barley Wine* – Tawny copper to dark brown in color with a full body and high residual malty sweetness. Complexity of alcohols and fruity-ester characters are often high and counter-balanced by the perception of low to assertive bitterness and extraordinary alcohol content. Hop aroma and flavor may be minimal to very high. Diacetyl should be very low. A caramel and vinous aroma and flavor is part of the character. Chill haze is allowable at cold temperatures.

2. Belgian and French Ale

Category award sponsored by Manneken-Brussel Imports Inc., Austin, Texas.

- a) *Flanders Brown/Oud Bruin* – A light- to medium-bodied deep copper to brown ale characterized by a slight vinegar or lactic sourness and spiciness. A fruity-estery character is apparent with no hop flavor or aroma. Flanders brown ales have low to medium bitterness. Very small quantities of diacetyl are acceptable. Roasted malt character in aroma and flavor is acceptable at low levels.
- b) *Dubbel* – This medium- to full-bodied, dark amber- to brown-colored ale has a malty sweetness and nutty, chocolate, roast malt aroma. A faint hop aroma is acceptable. Dubbels also are characterized by low bitterness and no hop flavor. Very small quantities of diacetyl are acceptable. Fruity esters (especially banana) are appropriate at low levels. Head retention is dense and mousselike.
- c) *Tripel* – Tripels often are characterized by a spicy, phenolic-clove flavor. A banana fruity ester also is common. These pale/light-colored ales usually finish sweet. The beer is characteristically medium to full-bodied with a neutral hop and malt balance. Low hop flavor is OK. Alcohol strength and flavor should be perceived as evident.
- d) *Belgian-style Pale Ale* – Belgian-style pale ales are characterized by low, but noticeable, hop bitterness, flavor and aroma. Light to medium body and low malt aroma are typical. They are golden to deep amber in color. Noble-type hops are commonly used. Low to medium fruity esters are evident in aroma and flavor. Low caramel

or toasted malt flavor is OK. Diacetyl should not be perceived. Chill haze is allowable at cold temperatures.

- e) *Belgian Strong Ale* – Belgian strong ales often are vinous, with darker styles typically colored with dark candi sugar. The perception of hop bitterness can vary from low to high while hop aroma and flavor are very low. These beers are highly attenuated and have a highly alcoholic character — being medium-bodied rather than full-bodied. Very little or no diacetyl is perceived. Chill haze is allowable at cold temperatures.
- f) *White (or Wit)* – Belgian white ales are brewed using unmalted and/or malted wheat and malted barley and can be spiced with coriander and orange peel. These very pale beers are typically cloudy. The style is further characterized by the use of noble-type hops to achieve a low to medium bitterness and hop flavor. This dry beer has low to medium body, no diacetyl and a low fruity-ester content.
- g) *Bière de Garde* – Deep golden to deep copper/light brown. Medium to high malt flavor. Light to medium body. Medium hop bitterness. Light to medium hop flavor and aroma. May have light to medium fruitiness, esteriness. Lager yeast may be used. Earthy, cellarlike, musty aromas OK. Traditionally, a French-style beer that improves with some aging.

3. Belgian-style Lambic

Category award sponsored by L.D. Carlson Co., Kent, Ohio.

- a) *Belgian-style Lambic* – Unblended natural fermented lambic is intensely estery, sour and acetic flavored. Low in carbonation, these hazy beers are brewed with unmalted wheat and malted barley. They are very low in hop bitterness. Cloudiness is acceptable. These beers are quite dry and light-bodied.
- b) *Belgian-style Gueuze Lambic* – These unflavored blended and secondary fermented lambic beers may be very dry or mildly sweet and are characterized by intensely fruity-estery, sour and acidic flavors. These pale beers are brewed with unmalted wheat, malted barley, and stale, aged hops. They are very low in hop bitterness. Cloudiness is acceptable. These beers are quite dry and light-bodied.
- c) *Belgian-style Fruit Lambic* – These beers, also known by the names Framboise, Kriek, Pêche, etc., are characterized by fruit flavors and aromas. The intense color reflects the choice of fruit. Sourness predominates the flavor profile. These flavored Belgian-style lambic beers may be very dry or mildly sweet.

4. Mild and Brown Ale

Category award sponsored by Premier Malt Products, Grosse Pointe, Mich.

- a) *English Light Mild* – Range from light amber to light brown in color. Malty sweet tones dominate the flavor profile with little hop bitterness or flavor. Hop aroma can be light. Very low diacetyl flavors may be appropriate in this low-alcohol beer. Fruity ester level is very low. Chill haze is allowable at cold temperatures.
- b) *English Dark Mild* – English dark milds range from deep copper to dark brown (often with a red tint) in color. Malty sweet, caramel, licorice and roast malt tones dominate the flavor and aroma profile with very little hop flavor or aroma. Very low diacetyl flavors may be appropriate in this low-alcohol beer. Fruity-ester level is very low.
- c) *English Brown* – 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-ester flavors are appropriate. Diacetyl should be very low, if evident. Chill haze is allowable at cold temperatures.
- d) *American Brown* – Range from deep copper to brown in color. Evident hop aroma and increased bitterness. They have medium body, estery and fruity-ester characters should be subdued and diacetyl should not be perceived. Chill haze is allowable at cold temperatures.



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5. English-style Pale Ale

Category award sponsored by Wynkoop Brewing Co., Denver, Colo.

- a) *Classic English Pale Ale* – Golden to copper colored and display English-variety hop character. High hop bitterness, flavor and aroma should be evident. This medium-bodied pale ale has low to medium maltiness. Low caramel is allowable. Fruity-ester flavors and aromas are moderate to strong. Chill haze is allowable at cold temperatures. Diacetyl (butter-scotch character) should be at very low levels or not perceived.
- b) *India Pale Ale* – Characterized by intense hop bitterness with a high alcohol content. A high hopping rate and the use of water with high mineral content results in a crisp, dry beer. This golden- to deep-copper-colored ale has a full, flowery hop aroma and may have a strong hop flavor (in addition to the hop bitterness). India pale ales possess medium maltiness and body. Fruity-ester flavors and aromas are moderate to very strong. Chill haze is allowable at cold temperatures.

6. American-style Ale

Category award sponsored by Northwestern Extract Co., Brookfield, Wis.

- a) *American Pale Ale* – Range from golden to light copper color. The style is characterized by American-variety hops used to produce high hop bitterness, flavor and aroma. American pale ales have medium body and low to medium maltiness. Low caramel character is allowable. Fruity-ester flavor and aroma should be moderate to strong. Diacetyl should be absent or present at very low levels. Chill haze is allowable at cold temperatures.
- b) *American Wheat* – This beer can be made using either an ale or lager yeast. Brewed with 30 to 50 percent wheat, hop rates are higher and carbonation is lower than German-style wheat beers. A fruity-estery aroma and flavor is typical but at low levels; however, phenolic, clovelike characteristics should not be perceived. Color is usually golden to light amber, and the body should be light to medium in character. Diacetyl should be at very low levels.

7. English Bitter

Category award sponsored by Alternative Beverage, Charlotte, N.C.

English Bitters range from golden to copper in color and are well-attenuated. Good hop character and mild carbonation traditionally characterize draft-cask versions, but in bottled versions a slight increase in carbon dioxide content is acceptable for all three subcategories. Fruity-ester character and very low diacetyl (butterscotch) character are acceptable in aroma and flavor. Chill haze is allowable at cold temperatures.

- a) *English Ordinary Bitter* – Gold to copper colored with medium bitterness, light to medium body and low to medium residual malt sweetness. Diacetyl and fruity-ester properties should be minimized in this form of bitter.
- b) *English Best (Special) Bitter* – More robust than ordinary bitter. It has medium body and medium residual sweetness. In addition, the special bitter has more hop character than ordinary bitter.
- c) *English Strong (Extra Special) Bitter* – Medium to strong hop qualities in aroma, flavor and bitterness. The residual malt sweetness of this richly flavored, full-bodied bitter is more pronounced than in other bitters.

8. Scottish Ale

Category award sponsored by BEERCRAFTERS INC. Turnersville, N.J.

Characterized by a rounded flavor profile, Scottish ales are malty, caramellike, soft and chewy. Hop rates are low. Yeast characters such as diacetyl (butterscotch) and sulfuriness are acceptable at very low levels. Scottish ales range from golden-amber to deep brown in color and may possess a faint smoky character. Bottled versions of this traditional draft beer may contain higher amounts of carbon dioxide than is typical for draft versions. Chill haze is acceptable at low temperatures.

- a) *Scottish Light Ale* – Scottish light represents the mildest form of this ale. Little bitterness is perceived. Scottish light ales are light-bodied. Very low hop bitterness is acceptable, and hop flavor or aroma should not be perceived. Chill haze is acceptable at low temperatures.

- b) *Scottish Heavy Ale* – Scottish heavy ale is moderate in strength and dominated by a smooth, sweet maltiness balanced with low, but perceptible, hop bitterness. It has medium body, and fruity esters are very low, if evident. Chill haze is acceptable at low temperatures.
- c) *Scottish Export Ale* – Scottish export ale is sweet, caramellike and malty. Its bitterness is perceived as low to medium. It has medium body. Fruity-ester character may be apparent. Chill haze is acceptable at low temperatures.

9. Porter

Category award sponsored by The Cellar Homebrew, Seattle, Wash.

- a) *Porter* – Porters are medium to dark brown (may have red tint) in color. Porters range in flavor from bitter to sweet. The dark color comes from the use of black or roasted malt rather than the roasted barley featured in stouts. The roast malt flavor and aroma character should be evident and can vary from an assertively strong (but not astringent) character to suggestively mild. This is a medium-bodied beer. Fruity esters should be evident and in proportional balance with roast malt and hop bitterness character. Hop flavor and aroma may vary from being negligible to medium in character.

10. English and Scottish Strong Ale

Category award sponsored by Wine & Hop Shop, Denver, Colo.

- a) *English Old Ale / English Strong Ale* – Amber to copper to medium in color, English strong ales are medium- to full-bodied with a malty sweetness. Fruity-ester flavor and aroma, should contribute to the character of this ale. Bitterness should be evident and balanced with malt and/or caramel sweetness. Alcohol types can be varied and complex. Chill haze is acceptable at low temperatures.
- b) *Strong Scotch Ale* – Scotch ales are overwhelmingly malty and full-bodied. Perception of hop bitterness is very low. Hop flavor and aroma is very low or nonexistent. Color ranges from deep copper to brown. The clean alcohol flavor balances the rich and dominant sweet maltiness in flavor and aroma. A caramel character is often a part of the profile. Fruity esters are generally at medium aromatic and flavor levels. A peaty/smoky character may be evident at low levels. Low diacetyl levels are acceptable. Chill haze is allowable at cold temperatures.

11. Stout

Category award sponsored by Alternative Garden Supply D/B/A Brew & Grow, Streamwood, Ill.

- a) *Classic Irish-style Dry Stout* – Dry stouts have an initial malt and caramel flavor profile with a distinctive dry-roasted bitterness in the finish. Dry Stouts achieve a dry-roasted character through the use of roasted barley. Some slight acidity may be perceived but is not necessary. Hop aroma and flavor should not be perceived. Dry stouts have medium body. Fruity esters are minimal and overshadowed by malt, hop bitterness and roasted barley character. Diacetyl (butter-scotch) should be very low or not perceived. Head retention and rich character should be part of its visual character.
- b) *Foreign-style Stout* – Foreign-style stouts have an initial malt sweetness and caramel flavor with a distinctive dry-roasted bitterness in the finish. Some slight acidity is permissible and a medium- to full-bodied mouthfeel is appropriate. Hop aroma and flavor should not be perceived. The perception of fruity esters is low. Diacetyl (butterscotch) should be negligible or not perceived. Head retention is excellent.
- c) *Sweet Stout* – Sweet stouts, also referred to as cream stouts, have less roasted bitter flavor and more full-bodied mouthfeel than dry stouts. The style can be given more body with milk sugar (lactose) before bottling. Malt sweetness, chocolate and caramel flavor should dominate the flavor profile. Hops should balance sweetness without contributing apparent flavor or aroma.
- d) *Oatmeal Stout* – Oatmeal stouts typically include oatmeal in their grist, resulting in a pleasant, full flavor and smooth profile that is rich without being grainy. Roasted malt character of caramel and chocolate should be evident, smooth and not bitter. Bitterness is

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moderate — not high. Hop flavor and aroma are optional but should not overpower the overall balance. This is a medium- to full-bodied beer, with minimal fruity esters.

- e) *Imperial Stout* — Dark copper to very black, imperial stouts typically have alcohol contents exceeding 8 percent. The extremely rich malty flavor and aroma is balanced with assertive hopping and fruity-ester characteristics. Perceived bitterness can be moderate, balanced with malt character, to very high in the darker versions. Roasted malt astringency and bitterness can be perceived moderately but should not overwhelm the overall character. Hop aroma can be subtle to overwhelmingly floral. Diacetyl (butterscotch) levels should be very low.

LAGER

Lagers are produced with bottom-fermenting *Saccharomyces uvarum* (a.k.a. *S. carlsbergensis*) strains of yeast at colder fermentation temperatures than ales. This cooler environment inhibits the natural production of esters and other fermentation byproducts, creating a “cleaner-tasting” product.

12. Bock

Category award sponsored by Washington Hop Commission, Yakima, Wash.

- a) *Traditional Bock* — Traditional bocks are made with all malt and are strong, malty, medium- to full-bodied, bottom-fermented beers with moderate hop bitterness that should increase proportionately with the starting gravity. Hop flavor should be low and hop aroma should be very low. Bocks can range in color from deep copper to dark brown. Fruity esters may be perceived at low levels.
- b) *German-style Helles Bock / Maibock* — The German word “helles” means light colored, and, as such, a helles bock is light in color. Maibocks also are light-colored bocks. The malty character should come through in the aroma and flavor. Body is medium to full. Hop bitterness should be low while noble hop aroma and flavor may be at low to medium levels. Bitterness increases with gravity. Fruity esters should be minimal. Diacetyl levels should be very low. Chill haze should not be perceived.
- c) *Doppelbock* — Maltiness is dominant but should not be cloying. Doppelbocks are full-bodied and deep amber to dark brown color. Astringency from roast malts is absent. Alcoholic strength is high and hop rates increase with gravity. Hop bitterness and flavor should be and hop aroma absent. Fruity esters are commonly perceived but at low to moderate levels.
- d) *Eisbock* — Deep copper to black. Very alcoholic. Aroma and flavor profile is similar to doppelbock. Traditionally brewed by freezing a doppelbock and removing the resulting ice to concentrate the beer and increase the alcohol content.

13. German Dark Lager

Category award sponsored by Crosby & Baker, Westport, Mass.

- a) *Munich Dunkel* — These beers have a pronounced malty aroma and flavor that dominates over the clean, crisp moderate hop bitterness. A classic Münchner dunkel should have a chocolatelike, roast malt, breadlike aroma that comes from the use of Munich dark malt. Chocolate or roast malts can be used, but the percentage should be minimal. Noble-type hop flavor and aroma should be low but perceptible. Diacetyl is acceptable at very low levels. Fruity esters and chill haze should not be perceived.
- b) *Schwarzbier* — Dark brown to black. Medium body. Roasted malt evident. Low sweetness in aroma and flavor. Low to medium bitterness. Low bitterness from roast malt. Hop flavor and aroma, “noble-type” OK. No fruitiness, esters. Low diacetyl OK.

14. German Light Lager

Category award sponsored by Briess Malting Co., Chilton, Wis.

- a) *Münchner-style Helles* — This beer has a relatively low bitterness. It is a medium-bodied malt-emphasized beer; however, certain versions can approach a balance of hop character and maltiness. There

should not be any caramel character. Color is light straw to golden. Fruity esters and diacetyl should not be perceived.

- b) *Dortmunder/European-style Export* — Both starting gravity and medium bitterness are somewhat higher than a Münchner helles. Hop flavor and aroma are perceptible but low. The color of this style may be slightly darker and the body will be more full but still medium bodied. Fruity esters, chill haze and diacetyl should not be perceived.

15. Classic Pilsener

Category award sponsored by California Concentrates, Acampo, Calif.

- a) *German Pilsener* — A classic German Pilsener is very light straw/golden color and well hopped. Hop bitterness is high. Hop aroma and flavor are moderate and quite obvious. It is a well-attenuated and medium-bodied beer but a malty accent can be perceived. Fruity esters and diacetyl should not be perceived. There should be no chill haze. The head should be dense and rich.
- b) *Bohemian Pilsener* — Pilseners in this subcategory are similar to German Pilseners; however, they are slightly more full bodied and can be as dark as light amber. This style balances moderate bitterness and noble hop aroma and flavor with a malty, slightly sweet medium body. Diacetyl may be perceived in very low amounts. There should be no chill haze. The head should be dense and rich.

16. American Lager

Category award sponsored by Pabst Brewing Co., Milwaukee, Wis.

- a) *American Lager* — Very light in body and color, American lagers are very clean and crisp and aggressively carbonated. Malt sweetness is absent. Corn, rice or other grain or sugar adjuncts often are used. Hop aroma is absent. Hop bitterness is slight and hop flavor is mild or negligible. Chill haze, fruity esters and diacetyl should be absent.
- b) *American-style Light Lager* — According to Food and Drug Administration regulations, when used in reference to caloric content, “light” beers must have at least 25 percent fewer calories than the “regular” version of that beer. These beers are extremely light colored, light in body and high in carbonation. Flavor is mild and bitterness is very low. Chill haze, fruity esters and diacetyl should be absent.
- c) *American Lager/Ale or Cream Ale* — A mild, pale, light-bodied ale, made using a warm fermentation (top or bottom) and cold lagering or by blending top- and bottom-fermented beers. Hop bitterness and flavor are very low. Hop aroma often is absent. Sometimes referred to as cream ales, these beers are crisp and refreshing. A fruity or estery aroma may be perceived. Diacetyl and chill haze should not be perceived.
- d) *American-style Premium Lager* — Similar to the American lager, this style is a more flavorful, medium-bodied beer and may contain few or no adjuncts at all. Color may be deeper than the American lager, and alcohol content and bitterness may be greater. Hop aroma and flavor are low or negligible. Chill haze, fruity esters and diacetyl should be absent.
- e) *Dry Lager* — This straw-colored lager lacks sweetness and is reminiscent of an American-style light lager. However, its starting gravity and alcoholic strength are greater. Hop rates are low and carbonation is high. Chill haze, fruity esters and diacetyl should be absent.
- f) *American Dark Lager* — This beer’s maltiness is less pronounced and its body light. Non-malt adjuncts often are used and hop rates are low. Hop bitterness flavor and aroma are low. Carbonation is high and more typical of an American-style light lager than a European dark lager. Fruity esters, diacetyl and chill haze should not be perceived.

17. Vienna/Märzen/Oktoberfest

Category award sponsored by F.H. Steinbart, Portland, Ore.

- a) *Vienna* — Beers in this category are reddish-brown or copper colored. They are light to medium in body. The beer is characterized by malty aroma, slight malt sweetness and clean hop bitterness. Noble-type hop aromas and flavors should be low to medium. Fruity esters, diacetyl and chill haze should not be perceived.



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- b) *Märzen/Okttoberfest* – Märzens are characterized by a medium body and broad range of color. Oktoberfests can range from golden to reddish-brown. Sweet maltiness should dominate slightly over a clean, hop bitterness. Malt character should be toasted rather than strongly caramel. Hop aroma and flavor should be low but notable. Fruity esters are minimal, if perceived at all. Diacetyl and chill haze should not be perceived.

HYBRID/MIXED STYLES

The following beers are fermented or aged with mixed traditions, could be brewed as an ale or lager, include unusual ingredients, or are made using unusual techniques or procedures.

18. German-style Ale

Category award sponsored by Crescent City Brewhouse, New Orleans, La.

- a) *Kölsch* – Kölsch is warm-fermented and aged at cold temperatures (German ale or alt-style beer). Kölsch is characterized by a golden color and a slightly dry, winy and subtly sweet palate. Caramel character should not be evident. The body is light. This beer has low hop flavor and aroma with medium bitterness. Wheat can be used in brewing this beer which is fermented using ale or lager yeasts. Fruity esters should be minimally perceived, if at all. Chill haze should be absent or minimal.
- b) *Düsseldorf-style Altbier* – Copper to brown in color, this German ale may be highly hopped (though the 25 to 35 IBU range is more normal for the majority of altbiers from Düsseldorf) and has a medium body and malty flavor. A variety of malts, including wheat, may be used. Hop character may be evident in the flavor. The overall impression is clean, crisp and flavorful. Fruity esters should be low. No diacetyl or chill haze should be perceived.

19. German-style Wheat Beer

Category award sponsored by Tabernash Brewing Co., Denver, Colo.

- a) *Berliner Weisse* – This is the lightest of all the German wheat beers. The unique combination of a yeast and lactic acid bacteria fermentation yields a beer that is acidic, highly attenuated and very light-bodied. The carbonation of a Berliner weisse is high and hop rates are very low. Hop character should not be perceived. Fruity esters will be evident. No diacetyl should be perceived.
- b) *Weizen/Weissbier* – The aroma and flavor of a weissbier is decidedly fruity and phenolic. The phenolic characteristics often are described as clove or nutmeg and can be smoky or even vanillalike. These beers are made with at least 50 percent malted wheat and hop rates are quite low. Weissbier is well-attenuated and very highly carbonated, yet its relatively high starting gravity and alcohol content make it a medium to full-bodied beer. Bananalike esters often are present. If yeast is present the beer will appropriately have yeast flavor and a characteristically fuller mouthfeel. No diacetyl should be perceived.
- c) *Dunkelweizen* – This beer style is characterized by a distinct sweet maltiness, and roasted malt and chocolatelike character, but the estery and phenolic elements of a pale weissbier still prevail. Color can range from copper-brown to dark brown. Carbonation and hop bitterness are similar to a pale south-German-style weissbier. Usually dark barley malts are used in conjunction with dark cara or color malts, and the percentage of wheat malt is at least 50 percent. No diacetyl should be perceived.
- d) *Weizenbock* – This style can be either pale or dark and, like a bottom-fermented bock, has a high starting gravity and alcohol content. The malty sweetness of a weizenbock is balanced with a clovelike phenolic and fruity-estery banana element to produce a well-rounded aroma and flavor. As is true with all German wheat beers, hop rates are low and carbonation is high. It has a medium to full body. If dark, a mild roast malt character should emerge in flavor and, to a lesser degree, in the aroma. No diacetyl should be perceived.

20. Smoked Beer

Category award sponsored by Jim's Homebrew Supply, Spokane, Wash.

- a) *Bamberg-style Rauchbier* – Rauchbier should have smoky characters prevalent in the aroma and flavor. The beer is generally toasted malty sweet and full bodied with low to medium hop bitterness. Noble-type hop flavor is low but perceptible. Low noble-type hop aroma is optional. The aroma should strike a balance between malt, hop and smoke. Fruity esters, diacetyl and chill haze should not be perceived.
- b) *Classic-style Smoked Beer* – Any classic style of beer can be smoked; the goal is to reach a balance between the style's character and the smoky properties.
- c) *Other Smoked Beer* – Any beer to which smoke flavors have been added.

21. Fruit and Vegetable Beer

Category award sponsored by The Purple Foot, Milwaukee, Wis.

- a) *Fruit and Vegetable Beer* – Any beers using fruits or vegetables as an adjunct in either primary or secondary fermentation, providing obvious, yet harmonious, fruit and vegetable qualities. Fruit and vegetable qualities should not be overpowered by hop character. If a fruit or vegetable (such as juniper berry or chili pepper) has an herbal or spice quality, it is more appropriate to enter it in the Herb and Spice Beer category.
- b) *Classic style Fruit and Vegetable Beer* – Any classic-style beer using fruits or vegetables as part of the flavor profile and providing obvious, yet harmonious, fruit and vegetable qualities.

22. Herb and Spice Beer

Category award sponsored by Marin Brewing Co., Larkspur, Calif.

- a) *Herb and Spice Beer* – Use of herbs or spices (derived from roots, seeds, fruits, vegetables, flowers, etc.) other than hops to create a distinct character. Under-hopping allows the spice or herb to contribute to the flavor profile.
- b) *Classic-style Herb and Spice Beer* – Any classic-style beer using herbs or spices as part of the flavor profile and providing obvious, yet harmonious herb and spice flavor.

23. Specialty Beer

Category award sponsored by Homebrew Headquarters, Dallas, Texas.

- Any ale or lager brewed using unusual techniques and/or ingredients other than (or in addition to) malted barley as a unique contribution to the overall character of the beer. Examples of specialty beers include (but are not limited to) beers brewed with honey, maple sap or syrup; worts heated with white-hot stones (Steinbier); and low- or non-alcoholic beers. Examples do not include the use of fruit or herbs, although they can be used to add to the character of other ingredients.
- a) *Specialty Beer* – Any non-classic style fitting the above description.
- b) *Classic-style Specialty Beer* – Any classic ale or lager to which special ingredients have been added or a special process has been used, e.g., honey Pilsener, maple porter, sorghum stout, pumpkin pale ale. Brewer to specify classic style.

24. California Common Beer

Category award sponsored by Anchor Brewing Co., San Francisco, Calif.

- a) *California Common Beer* – Light amber to copper. Medium body. Toasted or caramellike maltiness in aroma and flavor. Medium to high hop bitterness. Hop flavor medium to high. Aroma medium. Fruitiness and esters low. Low diacetyl OK. Uses lager yeast. Fermented at warm temperatures but aged at cold temperatures.

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MEAD

Meads are produced by the fermentation of honey, water, yeast and optional ingredients such as fruit, herbs and/or spices. Their final gravity roughly determines whether they are: Dry — 0.996 to 1.009; Medium — 1.010 to 1.019; Sweet — 1.020 to 1.029; or Very Sweet — 1.030 and higher. Wine, Champagne, sherry, mead, ale or lager yeasts may be used.

25. Traditional Mead and Braggot

Category award sponsored by Mazer Cup Mead Competition and Ann Arbor Brewers Guild, Ann Arbor, Mich.

- a) *Sparkling Traditional Mead* – Effervescent. Dry, medium or sweet (designate on entry form). Light to medium body. No flavors other than honey. Honey character in aroma and flavor. Low to medium fruity acidity. Color depends on honey type. Absence of harsh and/or stale character.
- b) *Still Traditional Mead* – Not effervescent. Dry, medium sweet or very sweet (designate on entry form). Light to full body. Honey character in aroma and flavor. Low to medium fruity acidity. Color depends on honey type. Absence of harsh and/or stale character.
- c) *Sparkling Braggot* – Effervescent. Made with malt. Dry, medium or sweet (designate on entry form). Light to medium body. Honey flavors predominate.
- d) *Still Braggot* – Not effervescent. Made with malt. Dry, medium or sweet (designate on entry form). Light to medium body. Honey flavors predominate.

26. Fruit and Vegetable Mead

Category award sponsored by The National Honey Board, Longmont, Colo.

Melomel is made with any fruit. Cyser is made with apples and/or apple juice; pyment is made with grapes. Ingredients should be expressed in aroma and flavor. Color should represent ingredients. Honey character apparent in aroma and flavor. Absence of harsh and/or stale character.

- a) *Sparkling Melomel* – Effervescent. Light to medium body. Dry, medium or sweet (designate on entry form).
- b) *Still Melomel* – Not effervescent. Light to full body. Dry, medium, sweet or very sweet (designate on entry form).
- c) *Sparkling Cyser* – Effervescent. Light to medium body. Dry, medium or sweet (designate on entry form).
- d) *Still Cyser* – Not effervescent. Light to full body. Dry, medium, sweet or very sweet (designate on entry form).
- e) *Sparkling Pyment* – Effervescent. Light to medium body. Dry, medium or sweet (designate on entry form).
- f) *Still Pyment* – Not effervescent. Light to full body. Dry, medium, sweet or very sweet (designate on entry form).

27. Herb and Spice Mead

Category award sponsored by Zymurgy, Boulder, CO

Metheglin is made with any herbs or spices. Hippocras is made with spices and grapes (spiced pyment). Ingredients should be expressed in aroma and flavor. Color should represent ingredients. Honey character must be apparent in aroma and flavor. Absence of harsh and/or stale character.

- a) *Sparkling Metheglin* – Effervescent. Light to medium body. Dry, medium or sweet (designate on entry form).
- b) *Still Metheglin* – Not effervescent. Light to full body. Dry, medium, sweet or very sweet (designate on entry form).
- c) *Sparkling Hippocras* – Effervescent. Light to medium body. Dry, medium or sweet (designate on entry form).
- d) *Still Hippocras* – Not effervescent. Light to full body. Dry, medium, sweet or very sweet (designate on entry form).

CIDER

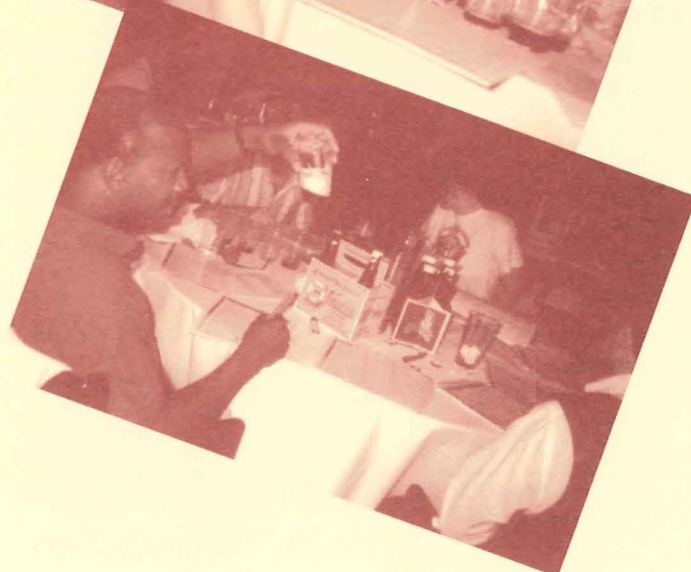
Ciders are produced by the fermentation of apple juices and optional ingredients such as fruits and spices. Wine, Champagne, ale, lager or wild yeasts may be used.

28. Cider

Category award sponsored by Lyon's Brewery of Dublin, Dublin, Calif.

Cider made with honey as an adjunct (cyser) should be entered in category 26 for melomel, cyser and pyment.

- a) *Still* – Not effervescent. Less than 5.5 percent alcohol by weight (7 percent by volume). Can be dry or sweet. Pale yellow color, must be clear or brilliant. Apple aroma. Light-bodied and crisp apple flavor. Sugar adjuncts may be used.
- b) *Sparkling* – Effervescent but not foamy. May be force carbonated. No head. Less than 6.3 percent alcohol by weight (8 percent by volume). Dry or sweet. Pale yellow color, must be clear and brilliant. Light to medium body, crisp apple taste. Sugar adjuncts may be used.
- c) *New England-style* – Still or sparkling dry cider. Carbonation must be natural. Between 6.3 and 11 percent alcohol by weight (8 and 14 percent by volume). Pale to medium yellow color. Pronounced apple aroma. Medium to full body. Balanced by drying tannins, but never hot because of excess alcohol. Adjuncts include white and brown sugars, molasses or raisins. Wild or wine yeasts only.
- d) *Specialty Cider* – Any and all adjuncts and yeasts may be used. Alcohol content must be below 11 percent alcohol by weight (14 percent by volume). At least 75 percent apple juice must be used in the must.

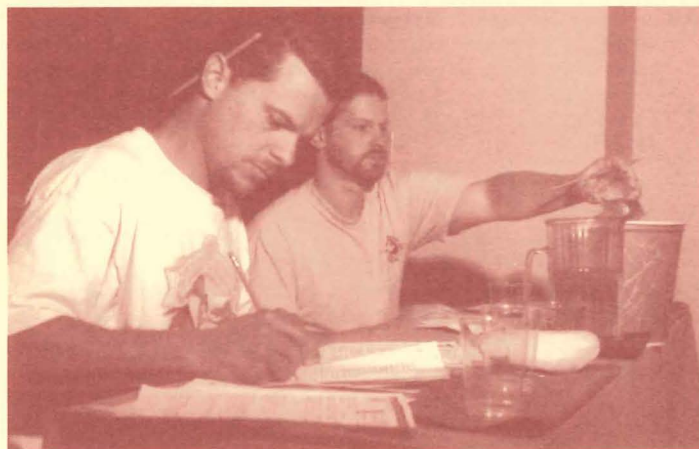


1996 Style Guidelines Chart



American Homebrewers Association 1996 National Homebrew Competition

ALE						MIXED STYLE (LAGER-ALE)					
	Original Gravity (Balling/Plato)	Final Gravity (Balling/Plato)	Percent alc./wtg. (alc./vol.)	Int'l Bittering Units	Color SRM (EBC)		Original Gravity (Balling/Plato)	Final Gravity (Balling/Plato)	Percent alc./wtg. (alc./vol.)	Int'l Bittering Units	Color SRM (EBC)
1. Barley Wine						18. German-Style Ale					
a) Barley Wine	1.090-120 (22.5-30.0)	1.024-32 (6-8)	6.7-9.6 (8.4-12)	50-100	14-22 (35-90)	a) Kölsch	1.042-46 (10.5-11.5)	1.006-10 (1.5-2.5)	3.8-4.1 (4.4-5)	20-30	3.5-5 (8-14)
2. Belgian and French Ale						b) Düsseldorf-style Altbier	1.044-48 (11-12)	1.008-14 (2-3.5)	3.6-4 (4.3-5)	25-48	11-19 (25-65)
a) Flanders Brown/Oud Bruin	1.044-56 (11-14)	1.008-16 (2-4)	3.8-4.1 (4.8-5.2)	15-25	12-18 (30-70)	19. German-style Wheat Beer					
b) Dubbel	1.050-70 (12.5-17.5)	1.012-16 (3-4)	4.7-5.9 (6-7.5)	18-25	10-14 (20-35)	a) Berliner Weisse	1.028-32 (7-8)	1.004-06 (1-1.5)	2.2-2.7 (2.8-3.4)	3-6	2-4 (5-10)
c) Tripel	1.060-96 (17.5-24)	1.016-24 (4-6)	5.5-7.9 (7-10)	20-25	3.5-5.5 (7-14)	b) Weizen/Weissbier	1.046-56 (11.5-14)	1.008-16 (2-4)	3.9-4.4 (4.9-5.5)	10-15	3-9 (8-16)
d) Belgian Pale Ale	1.044-54 (11-13.5)	1.008-14 (2-3.5)	3.2-4.9 (4-6.2)	20-30	3.5-12 (7-30)	c) Dunkelweizen	1.048-56 (12-14)	1.008-16 (2-4)	3.8-4.3 (4.8-5.4)	10-15	16-23 (35-95)
e) Belgian Strong Ale	1.064-96 (16-24)	1.012-24 (3-6)	5.5-8.6 (7-11)	20-50	3.5-20 (7-80)	d) Weizenbock	1.066-80 (16-20)	1.0016-28 (4-7)	5.5-7.5 (6.9-9.3)	10-15	5-30 (14-120)
f) White (Wit)	1.044-50 (11-12.5)	1.006-10 (1.5-2.5)	3.8-4.1 (4.8-5.2)	15-25	2-4 (5-10)	20. Smoked Beer					
g) Bière de Garde	1.060-80 (15-20)	1.006-10 (1.5-2.5)	3.5-6.3 (4.5-8)	25-30	8-12 (16-30)	a) Bamberg-style Rauchbier Lager	1.048-52 (12-13)	1.012-16 (3-4)	6-4 (4.3-4.8)	20-30	10-20 (20-80)
3. Belgian-style Lambic						b) Classic-style Smoked Beer	refer to individual classic styles				
a) Belgian-style Lambic	1.044-56 (11-14)	1.000-10 (0-2.5)	4-5 (5-6)	11-23	6-13 (15-33)	c) Other Smoked Beer	varies widely				
b) Belgian-style Gueuze Lambic	1.044-56 (11-14)	1.000-10 (0-2.5)	4.0-5.0 (5.0-6.0)	11-23	6-13 (15-33)	21. Fruit and Vegetable Beer					
c) Belgian-style Fruit Lambic	1.040-72 (10-17.5)	1.008-16 (2-4)	4.0-5.5 (5.0-7.0)	15-21	8-12 (16-30) <small>(true of fruit color)</small>	a) Fruit and Vegetable Beer	1.030-110 (7.5-27.5)	1.006-30 (1.5-7.5)	2-9.5 (2.5-12)	5-70	5-50 (14-200)
4. Mild and Brown Ale						b) Classic-style Fruit and Vegetable Beer	refer to individual classic styles				
a) English Light Mild	1.030-38 (7.5-9.5)	1.004-08 (1-2)	2.7-3.2 (3.2-4.0)	10-24	8-17 (16-40)	22. Herb and Spice Beer					
b) English Dark Mild	1.030-38 (7.5-9.5)	1.004-08 (1-2)	2.7-3.2 (3.2-4.0)	10-24	17-34 (40-135)	a) Herb and Spice Beers	1.030-110 (7.5-27.5)	1.006-30 (1.5-7.5)	2-9.5 (2.5-12)	5-70	5-50 (14-200)
c) English Brown	1.040-50 (10-12.5)	1.008-14 (2-3.5)	3.3-4.7 (4-5.5)	15-25	15-22 (35-90)	b) Classic-style Herb and Spice Beer	refer to individual classic styles				
d) American Brown	1.040-55 (10-14)	1.010-18 (2.5-4.5)	3.3-4.7 (4-5.9)	25-60	15-22 (35-90)	23. Specialty Beer					
5. English-style Pale Ale						a) Specialty	1.030-110 (7.5-27.5)	1.006-30 (1.5-7.5)	2-9.5 (2.5-12)	0-100	1-100 (3-400)
a) Classic English Pale Ale	1.044-56 (11-14)	1.008-16 (2-4)	3.5-4.2 (4.5-5.5)	20-40	4-11 (10-25)	b) Classic-style Specialty Beer	refer to individual classic styles				
b) India Pale Ale	1.050-70 (12.5-17.5)	1.012-18 (3-4.5)	4-6 (5-7.5)	40-60	8-14 (16-35)	24. California Common Beer					
6. American-style Ale						a) California Common Beer	1.040-55 (10-14)	1.012-18 (3-4.5)	2.8-3.9 (3.6-5)	35-45	8-17 (16-40)
a) American Pale Ale	1.044-56 (11-14)	1.008-16 (2-4)	3.5-4.3 (4.5-5.5)	20-40	4-11 (10-25)	25. Traditional Mead and Braggot					
b) American Wheat	1.030-50 (9.5-12.5)	1.004-18 (1-4.5)	2.8-3.6 (3.5-4.5)	5-17	2-8 (4-16)	a) Sparkling Traditional Mead	1.050-90 (12.5-22.5)	—	3.9-8.6 (5-11)	0	0-4
7. English Bitter						b) Still Traditional Mead	1.090-140 (22.5-35)	—	8.6-11.8 (11-15)	0	0-5
a) English Ordinary Bitter	1.033-38 (8-9.5)	1.006-12 (1.5-3)	2.4-3.0 (3-3.7)	20-35	8-12 (16-30)	c) Sparkling Braggot	1.050-90 (12.5-22.5)	—	3.9-8.6 (5-11)	0	0-4
b) English Best (Special) Bitter	1.038-45 (9.5-11)	1.006-12 (1.5-3)	3.3-3.8 (4.1-4.8)	28-46	12-14 (30-35)	d) Still Braggot	1.090-140 (22.5-35)	—	8.6-11.8 (11-15)	0	0-5
c) English Strong (Extra Special) Bitter	1.046-60 (11.5-15)	1.010-16 (2.5-4)	3.8-4.6 (4.8-5.8)	30-55	12-14 (30-35)	26. Fruit and Vegetable Mead					
8. Scottish Ale						a) Sparkling Melomel	1.050-90 (12.5-22.5)	—	3.9-8.6 (5-11)	0-15	—
a) Scottish Light Ale	1.030-35 (7.5-9)	1.006-12 (1.5-3)	2.2-2.8 (2.83-5)	9-20	8-17 (16-40)	b) Still Melomel	1.090-140 (22.5-35)	—	8.6-11.8 (11-15)	0-20	—
b) Scottish Heavy Ale	1.035-40 (9-10)	1.0010-14 (2.5-3.5)	2.8-3.2 (3.5-4)	12-20	10-19 (20-75)	c) Sparkling Cyser	1.050-90 (12.5-22.5)	—	3.9-8.6 (5-11)	0-15	—
c) Scottish Export Ale	1.040-50 (10-12.5)	1.010-18 (2.5-4.5)	3.2-3.6 (4.0-4.5)	15-25	10-19 (20-75)	d) Still Cyser	1.090-140 (22.5-35)	—	8.6-11.8 (11-15)	0-20	—
9. Porter						e) Sparkling Pymment	1.050-90 (12.5-22.5)	—	3.9-8.6 (5-11)	0-15	—
a) Porter	1.045-60 (11-15)	1.008-16 (2-4)	4.0-5.2 (5.0-6.5)	20-40	20-35+ (80+)	f) Still Pymment	1.090-140 (22.5-35)	—	8.6-11.8 (11-15)	0-20	—
10. English and Scottish Strong Ale						27. Herb and Spice Mead					
a) English Old Ale/English Strong Ale	1.055-75 (14-19)	1.008-20 (2-5)	4.8-6.4 (6.0-8.0)	30-40	10-16 (20-35)	a) Sparkling Methglin	1.050-90 (12.5-22.5)	—	3.9-8.6 (5-11)	0-15	—
b) Strong Scotch Ale	1.072-85 (18-21)	1.016-28 (4-7)	5.2-6.7 (6.2-8)	25-35	10-25 (20-100)	b) Still Methglin	1.090-140 (22.5-35)	—	8.6-11.8 (11-15)	0-20	—
11. Stout						c) Sparkling Hippocras	1.050-90 (12.5-22.5)	—	3.9-8.6 (5-11)	0-15	—
a) Classic Irish-style Dry Stout	1.038-48 (9.5-12)	1.008-14 (2-3.5)	3.2-4.2 (3.8-5)	30-40	40+ (150+)	d) Still Hippocras	1.090-140 (22.5-35)	—	8.6-11.8 (11-15)	0-20	—
b) Foreign-style Stout	1.052-72 (13-18)	1.008-20 (2-5)	4.8-6 (6-7.5)	30-60	40+ (150+)	28. Cider					
c) Sweet Stout	1.045-56 (11-14)	1.012-20 (3-5)	2.5-5 (3-6)	15-25	40+ (150+)	a) Still	1.045-53 (11.3-13.3)	—	5.5 (7)	—	—
d) Oatmeal Stout	1.038-56 (9.5-14)	1.008-20 (2-5)	3.0-4.8 (3.8-6)	20-40	20+ (80+)	b) Sparkling	1.045-61 (11.3-15.3)	—	6.3 (8)	—	—
e) Imperial Stout	1.075-90 (19-22.5)	1.020-30 (4-7.5)	5.5-7 (7-9)	50-80	20+ (80+)	c) New England-style	1.061-105 (15.3-26.3)	—	6.3-11 (8-14)	—	—
LAGER						d) Specialty Cider	1.045-105 (11.3-26.3)	—	4.6-11 (5.8-14)	—	—
12. Bock						29. Specialty Beer					
a) Traditional Bock	1.066-74 (16.5-18.5)	1.018-24 (4.5-6)	5-6 (6-7.5)	20-30	20-30 (80-120)	a) Specialty	1.030-110 (7.5-27.5)	1.006-30 (1.5-7.5)	2-9.5 (2.5-12)	0-100	1-100 (3-400)
b) German-style Helles Bock/Malbock	1.066-68 (16.5-17)	1.012-20 (3-5)	5-6 (6-7.5)	20-35	4-10 (10-20)	b) Classic-style Specialty Beer	refer to individual classic styles				
c) Doppelbock	1.074-80 (18.5-20)	1.020-28 (5-7)	5.2-6.2 (6.5-8)	17-27	12-30 (30-120)	30. Specialty Beer					
d) Eisbock	1.092-116 (23-29)	n/a	6.8-11.3 (8.6-14.4)	26-33	18-50 (42-200)	a) Specialty	1.030-110 (7.5-27.5)	1.006-30 (1.5-7.5)	2-9.5 (2.5-12)	0-100	1-100 (3-400)
13. German Dark Lager						b) Classic-style Specialty Beer	refer to individual classic styles				
a) Munich Dunkel	1.052-56 (13-14)	1.014-18 (3.5-4.5)	3.8-4.2 (4.5-5)	16-25	17-20 (40-80)	31. Specialty Beer					
b) Schwarzbier	1.044-52 (11-13)	1.012-16 (3-4)	3.3-3.9 (3.8-5)	22-30	25-30 (100-120)	a) Specialty	1.030-110 (7.5-27.5)	1.006-30 (1.5-7.5)	2-9.5 (2.5-12)	0-100	1-100 (3-400)
14. German Light Lager						b) Classic-style Specialty Beer	refer to individual classic styles				
a) Münchener-style Helles	1.044-50 (11-13)	1.008-12 (2-3)	3.8-4.4 (4.5-5.5)	18-25	3-5 (7-14)	32. Specialty Beer					
b) Dortmunder/European-style Export	1.048-56 (12-14)	1.010-14 (2.5-3.5)	4.4-8 (5-6)	23-29	3-5 (8-13)	a) Specialty	1.030-110 (7.5-27.5)	1.006-30 (1.5-7.5)	2-9.5 (2.5-12)	0-100	1-100 (3-400)
15. Classic Pilsener						b) Classic-style Specialty Beer	refer to individual classic styles				
a) German Pilsener	1.044-50 (11-12.5)	1.006-12 (1.5-3)	3.6-4.2 (4-5)	30-40	3-4 (7-10)	33. Specialty Beer					
b) Bohemian Pilsener	1.044-56 (11-14)	1.014-20 (3.5-5)	3.2-4 (4-5)	35-45	3-5 (7-14)	a) Specialty	1.030-110 (7.5-27.5)	1.006-30 (1.5-7.5)	2-9.5 (2.5-12)	0-100	1-100 (3-400)
16. American Lager						b) Classic-style Specialty Beer	refer to individual classic styles				
a) American Lager	1.040-46 (10-11.5)	1.006-10 (1.5-2.5)	3.2-3.8 (3.8-4.5)	5-17	2-4 (5-10)	34. Specialty Beer					
b) American-style Light Lager	1.024-40 (6-10)	1.002-08 (1-2)	2.8-3.5 (3.5-4.4)	8-15	2-4 (5-10)	a) Specialty	1.030-110 (7.5-27.5)	1.006-30 (1.5-7.5)	2-9.5 (2.5-12)	0-100	1-100 (3-400)
c) American Lager/Ale or Cream Ale	1.044-56 (11-14)	1.004-10 (1-2.5)	3.4-4.5 (4.2-5.6)	10-22	2-5 (4-14)	b) Classic-style Specialty Beer	refer to individual classic styles				
d) American-style Premium Lager	1.046-50 (11.5-12.5)	1.010-14 (2.5-3.5)	3.6-4 (4.3-5)	13-23	2-8 (5-16)	35. Specialty Beer					
e) Dry Lager	1.040-50 (10-12.5)	1.004-08 (1-2)	3.6-4.5 (4.3-5.5)	15-23	2-4 (5-10)	a) Specialty	1.030-110 (7.5-27.5)	1.006-30 (1.5-7.5)	2-9.5 (2.5-12)	0-100	1-100 (3-400)
f) American Dark Lager	1.040-50 (10-12.5)	1.008-12 (2-3)	3.2-4.4 (4-5.5)	14-20	10-20 (20-80)	b) Classic-style Specialty Beer	refer to individual classic styles				
17. Vienna/Märzen/Okttoberfest						36. Specialty Beer					
a) Vienna	1.048-56 (12-14)	1.012-18 (3-4.5)	3.8-4.3 (4.8-5.4)	22-28	8-12 (16-30)	a) Specialty	1.030-110 (7.5-27.5)	1.006-30 (1.5-7.5)	2-9.5 (2.5-12)	0-100	1-100 (3-400)
b) Märzen/Okttoberfest	1.050-56 (12.5-14)	1.012-120 (3-5)	4-4.7 (5.3-5.9)	18-25	4-15 (10-35)	b) Classic-style Specialty Beer	refer to individual classic styles				



1996 Sponsors



American Homebrewers Association 1996 National Homebrew Competition

The companies below support homebrewing and homebrewers by donating resources to the AHA National Homebrew Competition. Many of these sponsors have been with us for several years. We are grateful for their support because their dedication is integral to the success of the world's largest homebrew competition. Should you have an opportunity to patronize these companies, we hope you'll do so.

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Dominion Brewing, Toronto, Ontario, Canada

F.H. Steinbart Co., Portland, Ore.

1996 Site Locator Map

First-Round Entries must be received between Monday, April 1, and 5 p.m. Friday, April 12, 1996.

Send your beer and mead entries to the National Homebrew Competition site that has the same shading as the state or province in which you live.

All cider entries should be sent to Boston regardless of where you live:
NHC 96 CIDER,
Boston Beer Works
61 Brookline Ave.
Boston, MA 02215

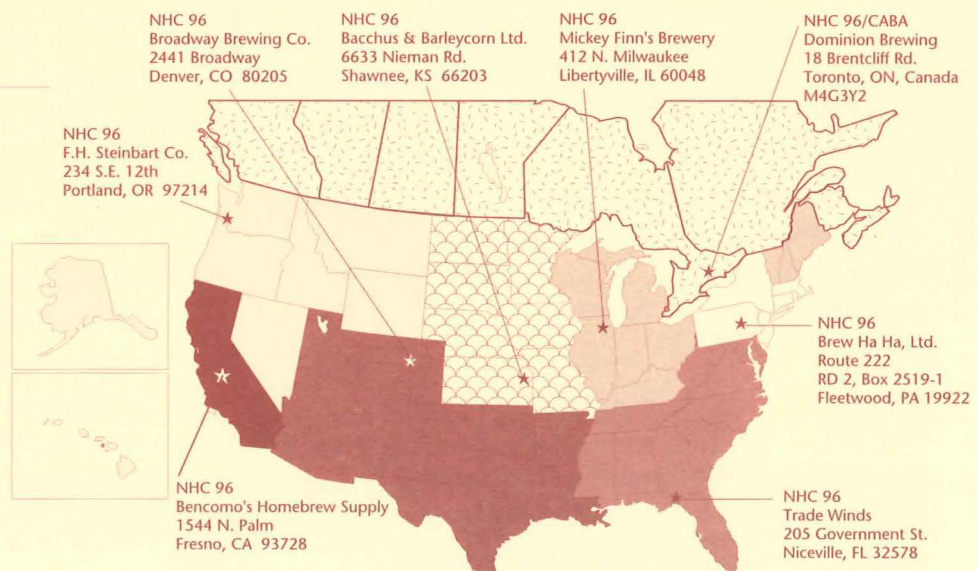
Do not send beer or mead entries to Boston.

All Canadian entries should be sent to Toronto, Ontario.

Please send international entries other than Canadian entries to Denver.

Questions?

Contact Caroline at (303) 447-0816 ext.116 or Internet caroline@aob.org.



Entry/Recipe Form

Please Read the Instructions on page 3-4 of the Rules and Regulations Brochure.

Section A: Brewers' Information

1. Name _____
2. Additional Brewer(s) _____
3. Address _____
4. City _____ State/Province _____ Zip/Postal Code _____
5. Country _____ Phone (H) (_____) (W) (_____)
6. Are you a member of an AHA Registered Homebrew Club? ☐ Yes ☐ No
If "yes" what is the name? (Please spell out full name. Do not abbreviate.) _____
7. AHA Membership Number _____
8. New Member ☐ Yes (separate \$33 check enclosed) ☐ Non-Member
9. This is the _____ time I have entered the AHA National Homebrew Competition

Section B: Entry Information

10. Category/Subcategory (print full names) _____
11. Category (1-28) _____ 12. Subcategory (a-g) _____
13. Name of Brew (optional) _____
14. For Mead and Cider (circle one): Dry Medium Sweet Very Sweet
15. SPECIAL INGREDIENTS:
If you have entered in categories 3c, 20b, 20c 21, 22, 23, 25, 26, 27, 28c, 28d refer to page 3 of the Rules and Regulations for instructions on filling out this table.
This important information will be used by the judges for evaluating entries in these categories. Leave this table blank if you have not entered the above categories.

Classic style (if applicable) _____

Special ingredient	Amount	Use/Procedure

Section C: Ingredients and Procedures

Ingredients for _____ U.S. gallons.

HOPS:

Variety	Pellets or whole	amount oz.	% a. acid	Use (boil, dry, etc.)	Time	Mfg./Type/Color	amount lbs.	Use (steep/mash)	Time	Temp.

MALT (grain, extracts and other fermentable ingredients):

WATER TREATMENT: type(s) and amount(s) _____

YEAST CULTURE: Mfg. _____ No. _____ Name _____

YEAST NUTRIENTS: type _____ brand _____ amount _____

CARBONATION: (designate amount and type of sugar and/or use of kegs) _____

BOILING TIME: _____ **SPECIFIC GRAVITIES:** Original _____ Final _____

FERMENTATION: Duration _____ Temperature _____ Type of fermenter (glass, plastic, etc.) _____

Primary _____

Secondary _____

Other _____

Date this brew was bottled/kegged: _____

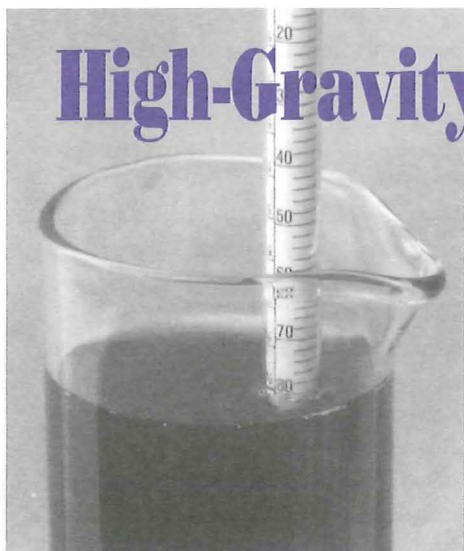
IMPORTANT: Please copy this form and elaborate on a separate of piece paper, if necessary, the details of your brewing procedure that you feel are important to know. If you have entered an all-grain beer, please indicate time and temperature of mashing and sparging techniques.

FOLD AND ATTACH COMPLETED FORM TO ENTRY.

Questions? Call or write James at the American Homebrewers Association, PO Box 1679, Boulder, CO 80306-1679 USA (303) 447-0816 ext. 121; FAX (303) 447-2825; james@aob.org or CompuServe 70740,1107.

FOR THE BEGINNER

Ray Ballard



High-Gravity Brewing: Homebrew 1.101

Let's Get Gravity

To start any high-gravity beer you need a wort, which brings us to the subject of malt. Using malt extract to make a high-gravity wort is no different from using any other malted barley — you pour it in and boil it — you just use larger quantities. It does help to calculate how much extract you will need to reach your target gravity. On average, one pound (0.45 kg) of liquid malt extract will give one gallon (0.95 L) of water an original gravity of 1.033 to 1.038. In a five-gallon (19-L) wort, that translates into 6.6 to 7.6 gravity points per pound. It is necessary to show the additional digit in the gravity figures in this case because the six at the end really adds up when you're talking about 10 pounds (4.5 kg) or more of extract (six full points of gravity). With dry malt ex-

tract, one pound (0.45 kg) will give one gallon (0.95 L) of water an original gravity of 1.044 to 1.048. In a five-gallon (19-L) wort, that translates into 8.8 to 9.6 gravity points per pound.

Malted barley, like malt extract, is no different in making a high-gravity wort, you just use more. On average, one pound (0.45 kg) of malted barley will give one gallon (0.95-L) of water an original gravity of 1.025 to 1.035. In a five-gallon (19-L) wort, that translates into 5 to 7 gravity points per pound. This is where the all-grain brewer can be in for a real chore. Unless you have a large mash tun, or brew small (two- or three-gallon or 7.6- to 11.3-L) batches, the all-grain brewer will need to do two separate mashes. Worse yet, if you have only one mash tun, you have to completely finish one mash before you begin the second. A good way around the two-mash day is to do one full mash and add extract

High-gravity brews differ from normal and low-gravity brews in many respects. From day one, or I should say brew one, my interest has been in higher-gravity beers. It doesn't take a brain surgeon to brew a tasty "big beer," but a few guidelines will make it easier to accurately produce the high-gravity style you seek.

What is High Gravity?

Ask 10 people where normal gravity ends and high gravity begins and you'll probably get 11 different answers. A light beer lover might tell you 1.045, while a barley wine connoisseur will swear anything less than 1.100 is water. I believe anything with an original gravity of 1.055 to 1.065 would be classified as medium high, and anything greater than 1.065 is definitely high gravity. All information here will pertain to gravities greater than 1.065, unless otherwise noted.



at the beginning of the boil to reach your target gravity.

When you buy ingredients for big beers, buy in volume. If you buy grain by the 50-pound (22.7-kg) bag and malt extract syrup by the 55-pound (25-kg) bucket, you can get them for about half what it costs to buy by the pound. Believe me, when you start using 20 pounds (9 kg) of barley or 15 pounds (6.8 kg) of extract syrup in one batch of beer, you'll either be glad you bought in bulk or wish you had!

Sugars are another way to pump up the gravity and are necessary in many instances if you want to emulate a certain style. Cane and beet sugar, basically white table sugar, are almost pure sucrose and very fermentable. Corn sugar, also known as dextrose or glucose, is very fermentable and probably the sugar most commonly used by homebrewers. Lactose is a non-fermentable sugar used mainly to add sweetness and body to a beer, like a sweet stout. Light and dark brown sugars are simply cane sugar with molasses added. Sugars are a good option when a lighter bodied, high-gravity beer is desired. Sugar should not add up to more than 20 to 25 percent of the total fermentables. Any more can result in a dry, cidery flavor. One pound (0.45 kg) of sugar contributes about 8 to 9 gravity points in five gallons (19 L).

Honey is another highly fermentable adjunct that high-gravity brewers should consider. In addition to boosting gravity, it also imparts positive flavor characteristics. Use no more than 30 percent of the total fermentables to contribute a dry crispness and lighter body as well as a higher alcohol content. To minimize strong honey flavor contribution use lighter honeys such as clover or alfalfa.

Rice is another adjunct in your brewing arsenal. The best form of rice to use is a powder, not unlike dry malt extract, called rice syrup solid. Rice extract syrup is another good option. Rice gives you gravity, about 7 to 8 points per pound in five gallons (19 L), while lightening the body.

Hops

The most important point to keep in mind with hops and high-gravity beer is that hop utilization decreases as wort gravity increases. This is something that extract brewers need to

know because they commonly boil a two- or three-gallon (7.6- to 11.3-L) wort and add cold water at the end. That concentrated wort boil is quicker and easier, but it decreases hop efficiency. Concerning boiling times and hop utilization, it takes a vigorous 60-minute boil to get the maximum bitterness extraction from your hops. Hops added at 30 or 45 minutes before the end of the boil still will contribute nicely, but their percentage of utilization is lower. Hops added 30 minutes before the end of the boil contribute about half the bitterness of hops added at 60 minutes. Jackie Rager wrote an article on calculating hop bitterness in the *Zymurgy* Special Issue 1990 (Vol. 13, No. 4) complete with all the math equations needed to easily and accurately hop your beer.

To give an idea of how hop bitterness varies from one style to the next, Table 1 shows guidelines of bittering units for some popular high-gravity styles.

Yeast

Yeast selection is a critical component in brewing the high-gravity style of your choice. When selecting yeast you need to consider the flavor profile and characteristics of the style you are brewing. Better yet, if you are creating a style of your own, you need to determine the flavor profile and characteristics you would like in your new style. Let's take a look at a couple of popular high-gravity styles and see what yeast characteristics are necessary to achieve the desired results.

When brewed in a monastery by monks, Belgian strong ale or Trappist ale is a light- to medium-bodied beer that uses a substantial amount of sugar (usually one to two pounds in five gallons or 0.45 to 0.9 kg in 19 L) to obtain the higher original gravity without being too sweet and malty. Hop flavor and aromas are kept low to match the low residual malt sweetness. Esters created from a warm (70

degrees F or greater) and vigorous fermentation are the principal aromatic components. An attenuative, ethanol-tolerant yeast strain is required to obtain the low final gravity associated with big Belgian ales. In other words, you'll need a yeast strain that can stay hungry and keep on working in the face of a high-alcohol environment in order to finish the job.

Strong Scotch ale is a full-bodied beer with an aggressive malt sweetness. Hop flavor and aromas are minimal to absent. Malt sweetness is balanced by clean alcohol flavor. Scotch ales get this clean flavor by using a non-attenuative yeast strain at low fermentation temperatures (50 to 62 degrees F) to keep esters as out-of-the-picture as possible. Not only does this yeast strain need to be a low ester producer, it also needs to be ethanol tolerant.

Zymurgy Summer 1994 (Vol. 17, No. 2) has a nice table of available liquid and dry yeasts to point you in the right direction and has some solid information on making starters. My experience with dry yeast has been good in the 1.055 to 1.065 range. However, I just can't say enough about liquid cultures, especially if you prepare a starter a couple of days before brewing.

Refermentation is the process of adding fresh yeast along with your primings (corn sugar or unfermented wort) at bottling. This can be a good option with high-gravity ales. Pierre Rajotte supports this in his book, *Belgian Ale* (Brewers Publications, 1992). Pierre elaborates on the condition of yeast after fermenting a high-gravity wort. "The yeast that is still present in the aged matured beer is in a pretty bad state. It has been deprived of nutrients for at least a few weeks and is slowly beginning to autolyze or disintegrate its own cell walls. Basically, it is in a poor state of health." A dose of yeast at bottling will give you some fresh, healthy cells to ensure adequate carbonation.

TABLE 1. Bittering Units for Beer Styles

Style	Bitterness	Aroma	IBUs
Barley wine	low-high	low-high	50-100
Belgian strong ale	low-high	low	20-50
India pale ale	high	med-high	40-60
Strong Scotch ale	low	low-nil	25-35
Imperial stout	med-high	med-high	50-80

And last but not least, don't underestimate the importance of thoroughly aerating the cool wort. Yeast needs sufficient oxygen to begin its work, and a high-gravity wort means the yeast has even more work to do. When you transfer beer into the primary fermenter, use a funnel and a strainer. Even if you have nothing to strain out of it, the strainer will serve as an aerator. Then it's time to seal and shake your fermenter, but remember, shake it, don't break it!

Aging

Contrary to average-gravity brews that are in their prime shortly after bottling, high-gravity brews improve tremendously with age. Generally speaking, the higher the gravity, the longer it takes for the beer to reach its prime. The most difficult part is having the patience to quarantine your brew until it has matured sufficiently. The wise thing to do is to bottle at least a moderate portion of your beer in small bottles. That way you can sample and monitor its maturation while saving most of it for after it reaches its prime. And, if you've created a megamonster, you probably won't need much more than a small bottle to keep you occupied for a while!

Here is a prime example of the effects of extended aging and how harsh or strong flavors can mellow. I brewed a honey spruce porter with an original gravity of 1.072. I used less than one ounce of spruce essence. To make a long story short, the beer tasted like tree sap. Even after seven months only Ewell Gibbons could enjoy drinking it. (Ever drink a pine tree?) At this point, I left the rest of the batch in a far corner of the cellar, assuming I would pour it down the drain as the need for bottles arose. Then my brother flew into town as this beer reached nine months of age. Being forewarned, he was offered a glass of my pine sap. To my pleasant surprise, he liked it and sipped it again. After tasting it myself, I was really happy to find that my once abusively piny brew had matured into a well-balanced honey spruce porter. So remember, you have nothing to lose by aging an unbalanced batch. If it turns out OK, it's an unexpected bonus.

Commercial Examples

There are some fine commercially available high-gravity brews on the market. Depending on the legal alcohol content limits of the state where you live, your options will vary.

The highest gravity beer, and present Guinness Book of World Records holder for the strongest beer, is Samuel Adams™ Triple Bock™. The new heavyweight champion of the world weighs in at 17 to 18 percent alcohol by volume (13.3 to 14.1 percent by weight).

The first runner-up and former Guinness record holder is Samichlaus Dark Bier, brewed by Brauerei Hürlimann in Switzerland. Brewed only on December 6 each year and aged for a full 11 months before bottling, this beer has an alcohol content of 14.7 percent by volume (11.5 percent by weight).

Chimay's Grande Reserve is an example of Belgian strong ale. It is corked and vintage dated like a bottle of wine. A fresh dose of yeast is added at bottling for a refermentation in the bottle, a common strategy among Belgian brewers. Grande Reserve is said to be at its best at two to three years of age.

Recipes

I must give credit where credit is due: Vance Hiler at American Home Brewing Supply in San Diego, Calif., helped me develop the first recipe, but the second is one of my originals.

Joey Bitchin's Cherry-mania Stout

Ingredients for 5 gal (19 L)

- 6 lb dark malt extract syrup (2.72 kg)
- 3 lb pale malt extract syrup (1.36 kg)
- 1 lb 60 °L crystal malt (0.45 kg)
- 1/8 lb chocolate malt (57 g)
- 1/2 lb roasted barley (0.2 kg)
- 1/2 lb black patent malt (0.2 kg)
- 2 oz Northern Brewer hops, 6.5% alpha acid (57 g) (45 min.)
- 1 oz Willamette hops, 4.9% alpha acid (28 g) (finish)

Wyeast No. 1084 Irish ale yeast in a 1-pint (0.5-L) starter

- 4 oz cherry wine flavoring (118 ml) (at bottling)
- 3/4 cup corn sugar (177 mL) (to prime)
- Original specific gravity: 1.064
- Final specific gravity: 1.019
- Boiling time: 45 min.
- Primary fermentation: seven days at 68 degrees F (20 degrees C) in glass
- Secondary fermentation: 14 days at 68 degrees F (66 degrees C) in glass

Place grains in water and heat to 150 degrees F (66 degrees C), turn off heat and steep 30 minutes. Turn heat back on and remove grains when wort begins to boil. Add malt extract, return to a boil and add bittering hops. Boil for 45 minutes, turn off heat and add aroma hops. Add wine flavoring with priming sugar at bottling.

This beer is smooth as silk after three months in the bottle. If you want a little variety out of this batch, bottle the first half without the cherry flavoring and add 2 ounces (59 mL) to the second half.

The next recipe took me over the 1.100 mark for the first time. If you wanted to identify the style of this brew I guess it would be a "Chocolate Coffee Honey Imperial Stout."

Joey Bitchin's Brew from the Crypt

Ingredients for 5 gal (19 L)

- 18 lb Briess two-row malt (8.2 kg)
- 1 lb 40 °L crystal malt (0.45 kg)
- 3/4 lb chocolate malt (0.34 kg)
- 1/4 lb roasted barley (0.11 kg)
- 4 lb honey (1.81 kg)
- 1 1/2 oz Tettnanger hops, 5.2% alpha acid (43 g) (60 min.)
- 1/2 oz Northern Brewer hops, 6.5% alpha acid (14 g) (60 min.)
- 3 oz Hershey's or Baker's chocolate powder (85 g) (60 min.)
- 1/2 oz Kent Goldings hops, 5.7% alpha acid (14 g) (finish)
- 1/3 lb French roast coffee (0.2 kg) (finish)

Wyeast No. 1084 Irish ale yeast
in 1-quart starter

- 1 packet (5 grams) Red Star Pasteur
Champagne yeast, rehydrated
(add after 8 days in the primary
fermenter)

3/4 cup corn sugar (177 mL) (to prime)

- Original specific gravity: 1.101
- Final specific gravity: 1.022
- Boiling time: 120 min.
- Primary fermentation: eight days
at 66 degrees F (19 degrees C)
in glass
- Secondary fermentation: 56 days
at 58 to 62 degrees F (14 to 17
degrees C) in glass

Two separate mashes were conducted, each with 10 pounds of grain. Mash grains at 150 to 157 degrees F (66 to 69 degrees C) for two hours. Mash-out at 168 degrees F (76 degrees C) and sparge with 5 1/2 gallons (20.8 L) of 169-degree-F (76-degrees-C). Collect first 4 gallons (15 L) of each mash. Collect the last runnings for a "two penny" brew if desired.

For an extract recipe substitute 13 1/2 pounds of extract syrup for the 18 pounds of two-row malt. I tried this beer for the first and only time at four months of age. The heat of the alcohol is very evident, but the aftertaste and head retention are fine. I don't expect this beer to mellow until it is at least a year old.

There you have it — a look at the heavier end of brewing. If you enjoyed reading this as much as I enjoyed writing it, then we all had a blast! Now get out there, grab yourself a thick wort and brew your brains out!

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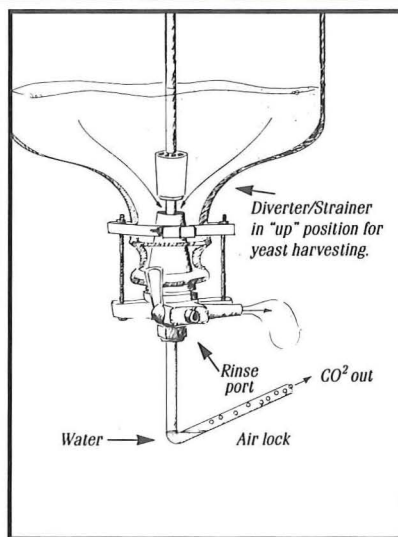
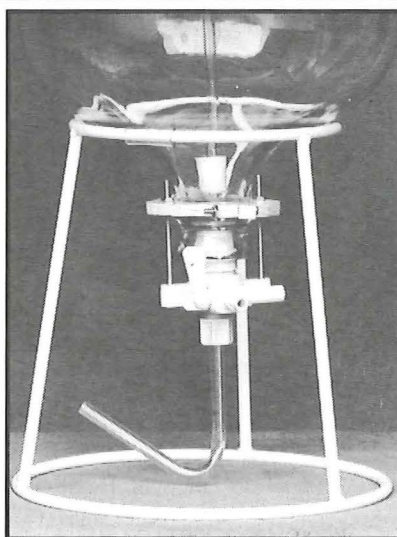
Various conversations with Angelo Signorino from Barleys Brewing Co. and The Winemaker's Shop, Columbus, Ohio.

Ray Ballard is a rock n' roll musician, dedicated high-gravity homebrewer and free-lance desktop publisher. His brewing stage name is Joey Bitchin' and his homebrewery is the More Bitchn'er Brewery. His musical credits include a self-produced European record deal.



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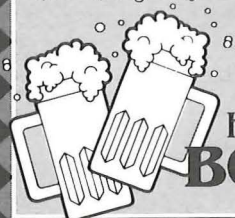
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WINNERS

C I R C L E

James Spence

The new brewing season is upon us once again. We hope you enjoy the most recent award-winning homebrew recipes available. Winter is a great time to brew in most areas of the United States — temperatures stay cool indoors and outdoors.

All of these recipes won a silver or bronze medal in the AHA 1995 National Homebrew Competition, or won first place in the most recent AHA Club-Only Competitions.

As we always say, try not to brew these recipes verbatim. Brewers have completely different techniques and equipment, and sometimes even brew something they didn't intend to. Your results may vary.

HERB MEAD



BRONZE MEDAL

AHA 1995 NATIONAL HOMEBREW COMPETITION

Ross I. Hastings

Edmonton, Alberta

"Freja's Tears"

Sparkling Metheglin

Ingredients for 4 gal (15 L)

- 16 lb British Columbian clover honey (7.3 kg)
- 10 apple cinnamon tea bags
- 1 1/5 oz tartaric acid (40 g)
- 1/10 oz tannic acid (4 g)
- 1 oz malic acid (28 g)
- Wyeast London ale liquid yeast culture
- force carbonate in keg

- Original specific gravity: 1.080
- Final specific gravity: 1.040
- Boiling time: 15 min.
- Primary fermentation: 30 days at 70 degrees F (21 degrees C) in glass
- Secondary fermentation: 20 days at 70 degrees F (21 degrees C) in glass
- Age when judged (since bottling): seven months

Brewer's specifics

Make two cups (473 mL) tea from tea bags and add to secondary fermenter.

Judges' comments

"Tart acid, followed by sweet. This is more medium than sweet. Apple cinnamon flavor cleanly showing. Not much alcohol. I'd like more honey expression in aroma and flavor. Needs complexity and strength. Seems a bit focused on the cinnamon-apple flavor."

"Honey is very clear in the flavor here, providing a nice counterpoint to the spiced tea aromas. Slight acidity, noticeable mostly in the aftertaste."

"Low honey flavor. Good acid-sweetness balance. Tastes like apple pie. Honey is hidden. Good mead."

GERMAN-STYLE WHEAT BEER



SILVER MEDAL
AHA 1995 NATIONAL HOMEBREW COMPETITION
Ed Wolfe and Carol Liguori
Iowa City, Iowa
"Toasted Wheat"
Dunkelweizen

Ingredients for 7 gal (26.5 L)

- 6 lb wheat malt (2.72 kg)
 - 6 lb Munich malt (2.72 kg)
 - 1/4 lb chocolate malt (0.11 kg)
 - 1 1/2 oz Saaz hops, 3.1% alpha acid (43 g) (75 min.)
 - 1/4 oz Saaz hops, 3.1% alpha acid (7 g) (15 min.)
 - Wyeast No. 3068 liquid yeast culture
 - 3/4 cup corn sugar (177 mL) (to prime)
- Original specific gravity: 1.056
 - Final specific gravity: 1.014
 - Boiling time: 75 min.
 - Primary fermentation: 10 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): eight months

Brewers' specifics

Use a double decoction mashing schedule for grains.

Judges' comments

"Very clean, caramel flavor. No astringency. Very good dunkelweizen."

"Nice malt and hops balance. Very clean finish. Makes me want to drink more! Really nice, well-made beer. Tastes like German examples I've had."

"Color is right on."

AMERICAN LAGER



BRONZE MEDAL
AHA 1995 NATIONAL HOMEBREW COMPETITION
Kevin Stayer
Warminster, Pennsylvania
"Kevweiser"
American Premium

Ingredients for 12 gal (45.4 L)

- 18 lb Schreier two-row malt (8.2 g)
 - 1 lb Briess 10 °L Munich malt (0.5 kg)
 - 1 lb flaked maize (0.5 kg)
 - 1 1/5 oz Cluster hops, 7.7% alpha acid (34 g) (60 min.)
 - Wyeast No. 2278 liquid yeast culture
 - force carbonate in keg
- Original specific gravity: 1.047
 - Final specific gravity: 1.012
 - Boiling time: 90 min.
 - Primary fermentation: 18 days at 55 degrees F (13 degrees C) in glass
 - Secondary fermentation: 21 days at 55 degrees F (13 degrees C) in glass
 - Age when judged (since bottling): 2 1/2 months

Brewer's specifics

Mash grains at 121 to 123 degrees F (49 to 50 degrees C) for 30 minutes. Raise to between 148 and 150 degrees F (64 and 66 degrees C) for 30 minutes. Raise to between 150 and 152 degrees F (66 and 67 degrees C) for 30 minutes. Mash-out at 168 degrees F (76 degrees C). Sparge with 12 1/2 gallons 168-degree-F (76-degree-C) water adjusted to 5.7 pH.

Judges' comments

"Phenolic noticeable in flavor. A little too sweet. The phenolic aroma and taste usually come from lack of sanitation. A minor issue in this beer. It could be yeast."

"Cornlike flavor OK. Good malt and hop balance. Slightly grainy. Low hop aftertaste. Sweet cereal flavor. Good effort. Clean beer with minor problems."

"Malty, not hoppy. Sweet melonlike flavor. Very astringent. A good beer."

BAVARIAN DARK



SILVER MEDAL

AHA 1995 NATIONAL HOMEBREW COMPETITION

Mike Rivard

Chicago, Illinois

"Deep Freeze Dunkel"

Munich Dunkel

Ingredients for 5 gal (19 L)

- 5 lb Durst Munich malt (2.27 kg)
- 5 lb Klages two-row malt (2.27 kg)
- 2 lb Durst dark crystal malt (0.91 kg)
- 1/4 lb chocolate malt
- 2 oz Saaz hops, 3.1% alpha acid (57 g) (60 min.)
- 1/4 oz Saaz hops, 3.1% alpha acid (7 g) (45 min.)
- 1/4 oz Saaz hops, 3.1% alpha acid (7 g) (30 min.)
- 1/2 oz Saaz hops, 3.1% alpha acid (14 g) (15 min.)
- Wyeast No. 2206 Bavarian lager liquid yeast culture
force carbonate in keg

- Original specific gravity: 1.059
- Final specific gravity: 1.020
- Boiling time: 90 minutes
- Primary fermentation: 14 days at 55 degrees F (13 degrees C) in glass
- Secondary fermentation: 32 days at 32 degrees F (0 degrees C) in stainless steel
- Age when judged (since bottling): three months

Brewer's specifics

Mash grains at 153 degrees F for 90 minutes.

Judges' comments

"Crisp. Could have a more chocolatey character. Pleasant. Good Munich dunkel. You have a good recipe. Great beer."

"Rich malty flavor. Slight oxidized character in aftertaste. Bit of harshness. Kettle hop flavor is OK. Spicy. Good chocolate notes. Oxidation is main flaw. Some prune notes."

"Roastiness present. Sweet but balanced finish. Hop bitterness comes through as flavor lingers. Solvent character comes through as do plum and fig flavors. Interesting balance of sweet middle with bitterness at end."

PORTER



SILVER MEDAL

AHA 1995 NATIONAL HOMEBREW COMPETITION

Rick Larson and Norman Dickenson

Santa Rosa, California

"Name of Brew"

Robust Porter

Ingredients for 10 gal (37.8 L)

- 17 lb two-row Klages malt (7.7 kg)
- 1 lb 90 °L crystal malt (0.5 kg)
- 2 lb 60 °L crystal malt (0.9 kg)
- 1 1/2 lb chocolate malt (0.7 kg)
- 1 lb black barley (0.5 kg)
- 1 lb Victory malt (0.5 kg)
- 1 oz Chinook hops, 11.3% alpha acid (28 g) (60 min.)
- 2 oz Cascade hops, 6.5% alpha acid (57 g) (30 min.)
- 1 1/2 oz Cascade hops, 6.5% alpha acid (43 g) (5 min.)
- Wyeast No. 1968 Special London ale liquid yeast culture
force carbonate in keg

- Original specific gravity: 1.062
- Final specific gravity: 1.025
- Boiling time: 65 minutes
- Primary fermentation: seven days at 68 degrees F (20 degrees C) in glass
- Secondary fermentation: seven days at 68 degrees F (20 degrees C) in glass
- Age when judged (since bottling): 2 1/2 months

Brewers' specifics

Mash grains at 155 degrees F (68 degrees C) for 60 minutes.

Judges' comments

"Good malty sweet, roasty flavor. Light hops in background. Good finish and balance. Slight astringent harshness in finish. I like this one."

"Very nice complex malt flavor. Finish carries a slight grainy taste. Very good porter. Nice job."

"Some oxidized or stale flavor comes through. Lingering bitterness. Unique hop flavor. A 'big beer.' On the upper end for robust porter."

AMERICAN-STYLE ALE



BRONZE MEDAL
AHA 1995 NATIONAL HOMEBREW COMPETITION
Doug Kahn
Smithtown, New York
"American Dream"
American Pale Ale

Ingredients for 5 gal (19 L)

- 3 lb light dry malt extract (1.4 kg)
- 3 lb amber dry malt extract (1.4 kg)
- 1/8 lb crystal malt (57 g)
- 1/2 lb wheat malt (0.2 kg)
- 3/4 oz Galena hop pellets, 13.8% alpha acid (21 g) (45 min.)
- 1/4 oz Galena hop pellets, 13.8% alpha acid (7 g) (20 min.)
- 1/2 oz Mt. Hood hop pellets, 4.3% alpha acid (14 g) (15 min.)
- 1/2 oz Cascade hop pellets, 4.9% alpha acid (14 g) (15 min.)
- 1/2 oz Mt. Hood hop pellets, 4.3% alpha acid (14 g) (5 min.)
- 1/2 oz Cascade hop pellets, 4.9% alpha acid (14 g) (5 min.)
- 1 oz Cascade hop plugs, 6.4% alpha acid (dry 1 week)
- Wyeast No. 1056 American ale liquid yeast culture
- 2/3 cup corn sugar (177 mL) (to prime)

- Original specific gravity: 1.038
- Final specific gravity: 1.008
- Boiling time: 45 minutes
- Primary fermentation: six days at 70 degrees F (21 degrees C) in plastic
- Secondary fermentation: seven days at 60 degrees F (16 degrees C) in glass
- Age when judged (since bottling): three months

Brewer's specifics

Steep grains for 30 minutes at 160 degrees F (71 degrees C).

Judges' comments

"Caramel malt sweetness. Needs more hop bitterness and flavor. Hops define this style."

"Nice hop hit at first taste. Well-balanced with clean malt flavor. Slightly overcarbonated. No off-flavors. To improve this beer, increase flavor hops, cut down on caramel malt and watch carbonation."

BELGIAN-STYLE LAMBIC



BRONZE MEDAL
AHA 1995 NATIONAL HOMEBREW COMPETITION
John Isenhour
Urbana, Illinois
"Kriekin"
Cherry Lambic

Ingredients for 5 gal (19 L)

- 6 lb Briess dry malt extract (2.7 kg)
- 25 lb fresh home-grown cherries (11.3 kg)
- 1 1/2 oz old mixed variety hops (43 g) (85 min.)
- yeast culture from Boon

- Original specific gravity: unknown
- Final specific gravity: unknown
- Boiling time: 85 minutes
- Primary fermentation: three months between 60 and 75 degrees F (16 and 24 degrees C) in glass
- Secondary fermentation: three weeks between 60 and 75 degrees F (16 and 24 degrees C) in plastic
- Age when judged (since bottling): two months

Brewer's specifics

Remove stems and add cherries to secondary fermenter.

Judges' comments

"Strong up-front sourness. Lactic and acetic. Conditioning could be higher — more moussy. No identifiable fruit flavor. Decent gueuze."

"Husky tannic quality. Good acidity. Excessive tannic quality detracts."

"Aggressively sour. Lots of *Brettanomyces* here, too. I'd like to see more of the base lambic's esters. The floral notes carry well — almost soapy. Make fruit more distinct next time."

Every gold-medal-winning recipe from the AHA 1995 National Homebrew Competition was printed in *Zymurgy* Special Issue 1995 (Vol. 18, No. 4) "Winners Circle."



BOCK IS BEST CLUB-ONLY COMPETITION WINNER



Dr. Timothy J. Dalton
The Boston Wort Processors
North Reading, Mass.
"The Debilitator"
Doppelbock

Ingredients for 5 gal (19 L)

- 10 1/2 lb Munich malt (4.76 kg)
- 2 lb CaraVienne malt (0.91 kg)
- 1 lb CaraMunich malt (0.45 kg)
- 1 lb aromatic malt (0.45 kg)
- 1/2 lb CaraPils malt (0.23 kg)
- 1/4 lb wheat malt (0.11 kg)
- 2 oz Hallertauer Hersbrucker hops, 2.3% alpha acid (57 g) (60 min.)
- 1 oz Saaz hops, 2.4% alpha acid (28 g) (60 min.)
- Wyeast No. 2206 Bavarian liquid yeast in 1/2-gallon (1.8-L) starter
- 3/4 cup corn sugar (177 mL) (to prime)

- Original specific gravity: 1.077
- Final specific gravity: 1.026
- Boiling time: 120 minutes
- Primary fermentation: four weeks at 43 degrees F (6 degrees C) in glass
- Secondary fermentation: one week at 50 degrees F (10 degrees C) in glass
- Age when judged (since bottling): 1 1/2 months

Brewer's specifics

Mash grains with 16 quarts (15 L) 146-degree-F (63-degree-C) water. Hold mash at 133 degrees F (56 degrees C) for 30 minutes. Remove 7 quarts (6.6 L) of thick mash and heat to boiling over 15 minutes. Boil for 30 minutes then return to main mash to raise the temperature to 160 degrees F (71 degrees C). Hold temperature for 30 minutes. Add boiling water to raise the temperature to 168 degrees F (76 degrees C) and hold the temperature for 10 minutes. Sparge with 5 gallons (19 L) of 167-degree-F (75-degree-C) water and collect 7 1/2 gallons (28.4 L) wort.

"Roasted malt flavor. Good malt flavor, well-balanced with hops. Alcoholic warmth evident. Very good beer. Could use fuller body."

"Full round malty sweetness. Subdued hops. Slight bitter finish. Controlled alcohol. Could use some more malt and less hop bitterness."

"Lots of alcohol. Nice balance. Could use a bit more malt."

"Clean doppel. Overall very nice though roasty flavor is not totally to style."

RAUCHBIER ROUNDUP CLUB-ONLY COMPETITION WINNER



Mark O. Taylor
Verdigris Valley
Homebrewers Association
Independence, Kansas
"Verdigris Valley Foreign-style Stout"
Smoked Foreign-style Stout

Ingredients for 10 gal (37.8 L)

- 16 lb two-row malt (7.3 kg)
- 3 lb roasted barley (1.4 kg)
- 1 lb 90 °L crystal malt (0.5 kg)
- 1/2 lb chocolate malt (0.2 kg)
- 1/2 lb black malt (0.2 kg)
- 1/2 lb wheat malt (0.2 kg)
- 1 1/2 oz Galena hops, 12.4% alpha acid (43 g) (60 min.)
- 1 oz Perle hops, 7.5% alpha acid (28 g) (60 min.)
- 3/4 oz Centennial hops, 9.9% alpha acid (21 g) (60 min.)
- Wyeast No. 1084 Irish ale liquid yeast culture
- force carbonate in keg, counterpressure fill bottles
- 3 drops Wright's Natural Hickory Seasoning per 12-ounce bottle (0.25 mL per 355 mL) (at bottling)

- Original specific gravity: 1.076
- Final specific gravity: 1.030
- Boiling time: 90 minutes
- Primary fermentation: 14 days at 68 degrees F (20 degrees C) in glass
- Secondary fermentation: one month at 65 degrees F (18 degrees C) in stainless steel
- Age when judged (since bottling): one month

Brewer's specifics

Mash two-row malt and roasted barley at 156 degrees F (69 degrees C) for 60 minutes. Steep remaining grain until boil.

Judges' comments

"Slightly acidic with some malt sweetness evident. Alcohol in the finish. The smoke seems to get lost. This is a very well-made beer."

"Nice smokiness. Creamy, sweet and malty. Could use more smoke because it fades quickly."

"Malty, with slight sourness. Roasted barley character is evident with subtle smoke in background. Smoke flavor is subtle and complimentary."

"Smoke more noticeable in taste than aroma. Malts also very noticeable. Clean, well-made beer but very light on the smoke for a smoked beer."

"This is a very nice beer, but the smokiness is too subdued with the other molasses, malt and roast barley flavors. In other words, it's a nice foreign stout, but the smoke part is difficult to rate with the myriad other flavors."

WORLD OF WORTS

Charlie Papazian

Switch and Toggles Preposterous Poorter

I'm not sure what really attracted me to this beer, but it has left me pondering the true meaning of the brewer's art. It isn't that spectacularly different or unusual. No strange spices or heavy-handed doses of spicy hops. No accentuated malt or fermentation character. It was smooth and kind of just "all one beer." My first reaction when tasting this beer was, "Wow, how does one duplicate this?"

The beer I'm referring to is a dark ale brewed by a microbrewery in the north of Belgium called the Sterken Brewery. The beer is Poorter, which is somewhat of a misleading name because this beer is not to be confused with the porter style of ale now commonly brewed in the United States and sometimes in the United Kingdom.

Sterken's Poorter has a smooth "round" nutty malt character without any caramel or crystal malt flavor you'd normally anticipate in an amber or brown ale. Furthermore, despite its coppery color, there is virtually no roast-malt astringency. There was a slight touch of banana character in the flavor, but not pronounced or anywhere near the level of many of the dark abbey-style ales of Belgium. Alcohol character was not evident in flavor, aroma or mouthfeel.

The word "sublime" comes to mind. Honestly, I drank this beer scratching my head, truly wondering how this possibly could have been brewed. My 25 years of brewing experience didn't help. What impressed me was the notion that as a brewer I still could find excitement in learning about and brewing something new.



After a brief consultation with the importer I was given the direction, "It's the malt." I later learned on a trip to Belgium how special Belgian malts can be. I also learned to discern the character of Golding hops and the important role they play in many Belgian specialties. Then off I went.

But before I cut the shuck and jive we must appreciate the role Switch and Toggles play in the concoction of this pretty damn nice version of Sterken's Poorter. Christopher and Nathan, my two nephews, were visiting this past summer. Aged 11 and 13, they had somewhat of an interest in how all this beer equipment lurking in my basement closets worked. So a batch was born and, for reasons of preposterous inquisitiveness, Nathan and Chris became, respectively,

Switch and Toggles. Buttons, switches and toggles — how do they work and what do they turn on? Sterken's Poorter — how'd they do it and why does it taste so sublime?

So now, let's cut the shuck and jive and get on with the recipe:

Mash-extract recipe for 5 gal (19 L)

- 3 lb crushed DeWolf-Cosyns Belgian amber malt (1.36 kg)
- 2 lb crushed German Pils malt (0.9 kg)
- 1/2 lb crushed Belgian aromatic malt (0.23 kg)
- 1/2 lb crushed Belgian biscuit malt (0.23 kg)
- 1/4 lb crushed Belgian Special "B" malt (113 g)
- 1/4 lb crushed Belgian chocolate malt (113 g)

Add to the mash runoff

- 3 1/3 lbs extra light dried malt extract (1.5 kg)

And boil with hops:

- 5 Homebrew Bittering Units (I used 1 oz or 28 g of 5% alpha acid Styrian Golding whole hops) for bittering
- 2 Homebrew Bittering Units of flavor hops (I used a tad less than a 1/2 oz or 14 g of 4.7% alpha acid Kent Golding hops for flavor (20 min.))
- 1 oz Kent Golding hops (28 g) for aroma (finish)

- 1/4 tsp Irish moss (1.2 mL) (20 min.)
- 3/4 cup corn sugar for bottling (177 mL)
- ale yeast is recommended

- Original specific gravity: 1.056 to 1.060 (14 to 15 °B)
- Final specific gravity: 1.016 to 1.020 (4 to 5 °B)
- IBUs: about 25

For an infusion mash, add 6 1/2 quarts (6.2 L) of 170-degree-F (77-degree-C) water to the crushed grain, stir, stabilize and hold the temperature at 155 degrees F (68 degrees C) for 60 minutes.

After conversion, raise temperature to 167 degrees F (75 degrees C), laut and sparge with 3 gallons (11.4 L) of 170-degree-F (77-degree-C) water. Collect about 3 to 3 1/2 gallons (11.4 to 13.3 L) of runoff and add the malt extract, bittering hops and bring to a full and vigorous boil.

Boil for 90 minutes to evaporate down to about 2 1/2 gallons (9.46 L) of concentrated wort. When 20 minutes remain add 2 Homebrew Bittering Units of flavor hops and Irish moss. After a total wort boil of 90 minutes turn off the heat and add aroma hops. Then strain the wort into a sanitized fermenter to which you've added 2 gallons (7.57 L) of water. It helps to prechill (33 degrees F or 1 degrees C) the water added to the fermenter rather than simply adding warmer tap water. Rinse the hops in the strainer with water if you wish.

IBUs of about 25 were calculated for this recipe by making the following assumptions: (1) Whole hops were used, (2) The wort boil was a concentrated boil with about 2 1/2 to 3 pounds (1.1 to 1.4 kg) of extract per gallon (3.8 L) of liquid boiled, (3) 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.

Ferment at temperatures between 50 and 75 degrees F (10 and 24 degrees C) with ale yeast. When fermentation is complete prime with sugar and bottle. Let Switch and Toggles age and then serve. ☺

Bittering Units

Homebrew Bittering Units are an indication of the amount of alpha acid called for in a recipe, which helps you calculate how much bitterness could end up in your 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:

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

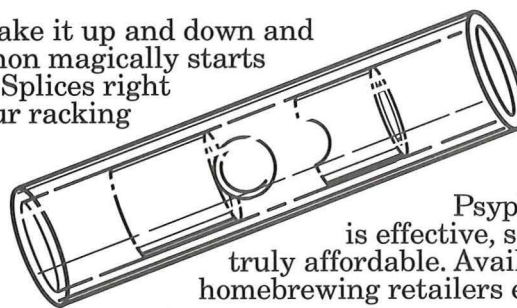
Percent utilization varies because of wort gravity, boiling time, wort volume and other factors. Homebrewers get about 25 percent utilization for a full one-hour boil, about 15 percent for a 30-minute boil and about 5 percent for a 15-minute boil. As an example 1 ounce of 6 percent alpha acid hops in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

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

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DEAR

P R O F E S S O R

Plastic
Bucket Brigade

Dear Professor,

I have been homebrewing for more than a year and have just attempted my first partial grain batch. My wife assisted in the sparging process and we used a plastic colander to catch the grain. However, the colander did not hold all of the grain, so rinsing to extract as much wort as possible was an awkward and repetitious process.

I have a large plastic bucket that originally contained laundry powder. I would like to drill small holes in the bottom of the bucket and rest it, rather than a colander, over the bucket I use to collect the wort. I believe it would hold all of the grain and would make for a more thorough extraction.

If the container itself does not indicate that it is food-grade plastic, or if it does not have an express warning not to reuse it, would I be safe in assuming that it is OK to use it as a pseudo-colander?

As an alternative, what are the pros and cons of using a grain bag and do I need to take special precautions for cleaning and sanitizing between uses? Relaxed, not worried, but curious,
Paul A. Landry
Bossier City, Louisiana

Dear Paul,

My alarm button went off as soon as you said "laundry powder." Never mind the question of whether it is a food-grade bucket (at least for the moment). I really am wondering about the fragrance of the detergent. I would almost guarantee that it would be im-

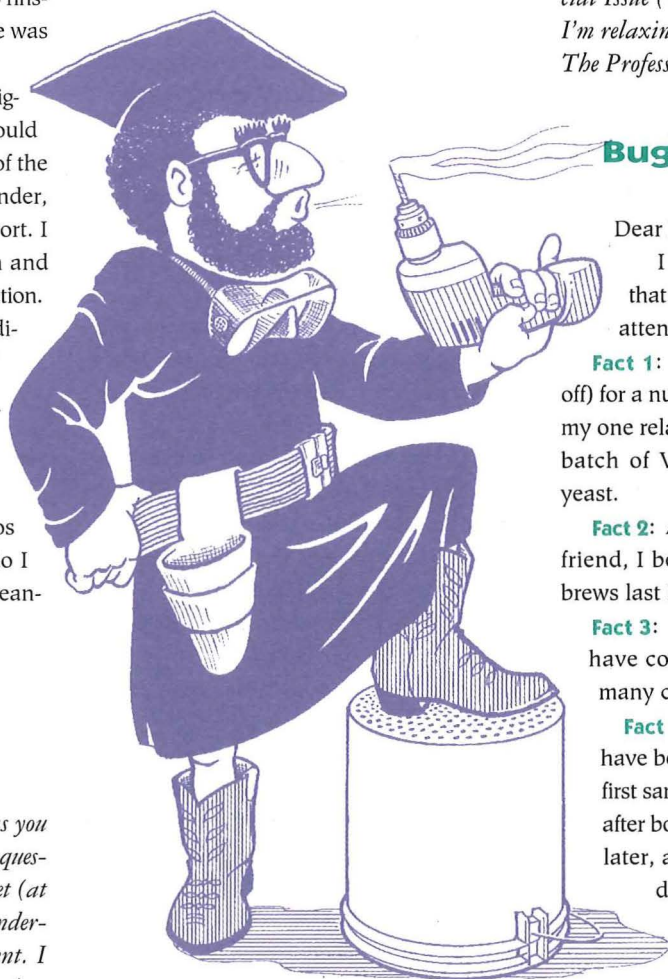
possible to get that odor out of the bucket no matter what you did. You're better off seeking another source for your buckets.

There are plenty of restaurants that buy buckets of pie filling, cake frosting, etc. (avoid the pickles) or your local homebrew supplier will be sure to have a dependable and safe supply of new ones. Any aroma from your bucket will be readily transferred to your beer.

If you are using a grain bag to separate grain from extract and to sparge through, you can just rinse the bag in water or run it through the washing machine. Items that come in contact with your wort or grain before the boil only have to be clean. Items that come in contact with the wort after the boil must be clean and sanitized.

For additional straining apparatus and lautering options, see Zymurgy 1995 Special Issue (Vol. 18, No. 4).

*I'm relaxin' too,
The Professor, Hb.D.*



Bugs in the Brew?

Dear Professor,

I have an interesting situation that I hope can be remedied by your attention.

Fact 1: I have been brewing (on and off) for a number of years and can attribute my one relatively serious mistake to a bad batch of Vierka lager (Vierkascheizen) yeast.

Fact 2: At the suggestion of an esteemed friend, I began dry-hopping some of my brews last February.

Fact 3: Since the inception of Fact 2, I have continued to enjoy my beers, in many cases much more so.

Fact 4: The above-mentioned beers have been superb from the time I have first sampled them (usually three weeks after bottling) until two or three months later, at which time about half of my dry-hopped batches have suddenly become overcarbonated. Upon close inspection, some (but not all) of these

miscreants have exhibited a thin, opaque haze, which I begrudgingly attribute to a bacterial infection in the bottle.

Why is this happening? Because this only occurs when I dry-hop, the logical assumption is that bugs are getting in on the hops. If this is the case, then why are the first two months OK? Could the yeast be mutating into some deviant life form that decides to ferment once-unfermentable products? If so, why does this problem seem correlated to the dry-hopping?

I use sanitary techniques: all bottles, hoses, bottlecaps and fermenters are immersed for at least one hour in two tablespoons (29.6 mL) per five gallons (19 L) of bleach solution (usually overnight in the case of the bottles).

Any suggestions? Please advise, and be advised that I am not worried, but hopeful that you might come up with a scheme to allow me to continue dry-hopping.

Tim Rule

Baltimore, Maryland

Dear Tim,

It sounds like your beer is getting infected from the process of adding the dry hops, not from the hops themselves. Take precautions not to introduce any contaminants when you are transferring your beer from fermenter to fermenter and adding dry hops. Clean and sanitize lids and airlocks carefully and replace them quickly to reduce the chance of airborne bacteria entering your beer. Use one tablespoon (14.8 mL) of bleach per gallon (3.8 L) of water to sanitize.

Why does it take so long to see the effects in your bottled beer? Well, the buggers take time to multiply and reach a point where their effect is noticeable. Warm-temperature storage accelerates the process.

It does sound like a wild yeast or bacterial contamination. More likely a wild yeast if you're not experiencing a great deal of off-flavors, but just gushing and haze.

*Good luck and don't give up,
The Professor, Hb.D.*

Overcoming Yeast Inhibitions

Dear Professor,

Please answer a few simple questions that

have caused me to worry a bit, but have not prevented me from enjoying my homebrew.

First, most batches I have brewed in the last few years have exhibited the same pattern of activity during fermentation. During the first one to three days I get intense activity in a plastic primary fermenter. When the kraeusen has receded, I rack the beer to my glass secondary and take a gravity reading. After this point, I get very little activity in the secondary and the gravity essentially does not change during the next two weeks. The beers have all been extract ales (pales, browns and stouts) using no adjuncts. Some have been made with mashed grain and others not; some with dry yeast (two packages of Red Star or Edme) and some with Wyeast liquid cultures. This pattern would not bother me much, but I never seem to get the full attenuation that I would expect.

I sanitize my glass carboy with bleach, but rinse thoroughly with hot water afterward and do not think residual chlorine is inhibiting the yeast.

The sole exception to this pattern was when I brewed a lager. Then the fermentation was very active in the secondary. Can you please tell me whether fermentation is going to completion for my ales? Yes, the beer tastes fine (and improved markedly after my switch to liquid yeasts), but I reserve the right to worry a little.

Second, when designing a recipe and striving for malt-hop balance, I try to calculate my hop addition based on HBUs per pound of malt. My questions are:

(1) Will hops boiled for 30 minutes provide the same HBUs as those boiled for 60 minutes? What fraction should be used? Better yet, how does the alpha-acid utilization change with time?

(2) Does one ounce of whole hops equal one ounce of pellets?

(3) Does one pound of extract equal one pound of mashed grain?

(4) Is the HBU per pound of malt a linear relationship in terms of balance for all quantities and types of malt?

I have some thoughts on these questions, but would like to hear an answer from you. Relaxing and enjoying,
Gil Hantzsch
Madison, Wisconsin

Dear Gil,

Your ales are good, you say? Then don't worry. But if you need to confirm some of your suspicions, the way to test your attenuation potential is to ferment a portion of your original wort in a single small fermenter such as a Champagne bottle. Keep it warm say between 75 and 80 degrees F (24 and 27 degrees C), to force ferment it. The end gravity is the potential end gravity of your secondarily fermented ale. There you have it.

(1) HBUs are not a measure of bitterness. It is basically a measure of the weight of alpha acids. The amount doesn't change whether you boil for 20 minutes, 30 minutes or add it to a bowl of tomato soup. There are several lengthy dissertations on hop bitterness and utilization available in the *Zymurgy Special Hop Issue 1990* (Vol. 13, No. 4), Byron Burch's book *Brewing Quality Beer*, or Charlie Papazian's *The New Complete Joy of Home Brewing* (Avon, 1991). Essentially you begin to max out with utilization as you approach 60 to 70 minutes boiling time. Worts of higher gravities tend to reduce utilization.

(2) One ounce (28 g) of fresh whole hops equals about 0.85 ounce (24 g) of fresh pellets, when formulating homebrew recipes.

(3) No. But there is an excellent article in *Zymurgy Summer 1990* (Vol. 13, No. 3) by Loysen and Favre that discusses converting grain recipes to extract recipes and vice versa.

(4) The relation is too complex and is affected by final gravity of beer, alcohol and roasted malts. I wouldn't advise trying to simplify things to a linear relationship because there are too many exceptions.

Havabrew,

The Professor, Hb.D.

Jump Starting Frozen Yeast

Dear Professor,

Here's my situation: I read in Charlie Papazian's book about a technique to store liquid yeast cultures for prolonged periods of time by freezing with a 10 percent addition of USP glycerine. I scoop a half cup or so of yeast sediment from the bottom of my fermenter after I bottle and pour it into a sterilized jar. Then I

add the glycerine, screw the lid on the jar, swirl the mixture around and put it in my freezer.

My worries begin when I revive the sleeping yeast. I sterilize a 16-ounce (473-mL) beer bottle, add the thawed yeast-glycerine mixture and then add eight ounces (236.6 mL) of sterile wort that I previously canned. I top it off with an airlock, have a homebrew and wait. After five or six days of no activity, the starter finally bursts with activity and ferments like mad.

I can't help but wonder what is taking place during the five- or six-day lag time when nothing is happening in my starter. I imagine all kinds of critters doing dastardly deeds while my yeast is slowly waking up from cold storage. I imagine what might happen if I put that starter with those critters into five gallons (19 L) of wort.

I wonder if you can tell me, Professor, whether or not I should worry. Is this a good procedure? Is it normal for the yeast to take five to six days to wake up? Should I just forget the whole thing as being too risky? What is the best way to tell if critters do grow in my starter? Your advice would be greatly appreciated.

John A. Watt
Milwaukee, Wisconsin

Dear John,

Too much initial slurry! Start up about one-half ounce (14.8 mL) of slurry in about one-quarter cup (59 mL) of wort. Once that gets going, gradually scale up the volume of your starter until you have about a quart (0.95 L) or so for pitching. That should help your anxiety (we don't use the "W" word around here). Start small,
The Professor, Hb.D.

Brewing on the Edge

Dear Professor,

I have a question concerning mash-out. I conduct an infusion mash in a picnic cooler by adding 170-degree-F (77-degree-C) water to the grains and rest at a conversion temperature of 155 degrees F (68 degrees C). My question is this: Can I add boiling water to the mash to raise the temperature to 170 degrees F (77 degrees C) for mash-out or do I have to pour it into the boiler and heat it on the stove? Will the boiling water or the dilution of the mash affect the outcome? What

about oxidation from pouring it into the boiler for heating then back out for sparging?

Also, if you close the windows and lock your spouse and friends out of the house in summer to keep them from bringing in any airborne contaminants during cool down and pitching does this mean you have finally gone over the edge? My wife is concerned. So many questions.

On the edge in Maine,
Phillip Powell
Auburn, Maine

Dear Phillip,

Hey, no problem. Dump some boiling water in to raise the temperature to mash-out. You may recall that you will be diluting the mash anyway by sparging with hot water later. So get on with the relaxing. As far as your aeration concerns go, do things gently, kind of like the way you treat your spouse after asking her to leave during meltdown, I mean cool down.

Hold the dust mop,
The Professor, Hb.D.

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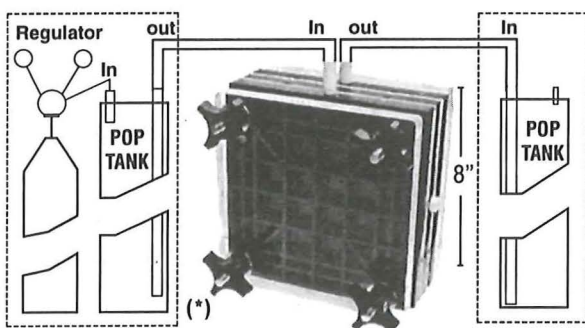
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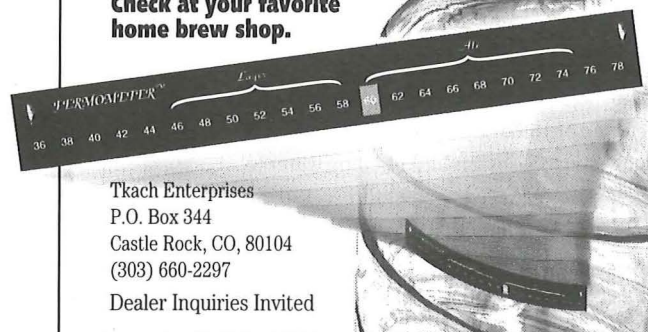
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MediaRight Technology released a Windows-based CD-ROM, *The Interactive Complete Joy of Home Brewing*, based on the popular book by Charlie Papazian.

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The manufacturer's suggested retail price is about \$40. For information contact MediaRight Technology Inc., 584 Broadway, Suite 606, New York, NY 10012; (212) 966-7383; FAX (212) 966-6488.



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To make the removal of pin-lock plugs easy, Precision Brewing Systems has developed a wrench that fits over two or three pins, allowing the socket of the wrench to completely grip the nut of the plug. This design ensures adequate torque and can be applied safely to remove the plug and clean the keg completely. The Plug Puller can be used with either a three-eighths-inch socket wrench, an adjustable wrench or a seven-eighths-inch open-end wrench. The product is available through local homebrew suppliers or directly from PBS.

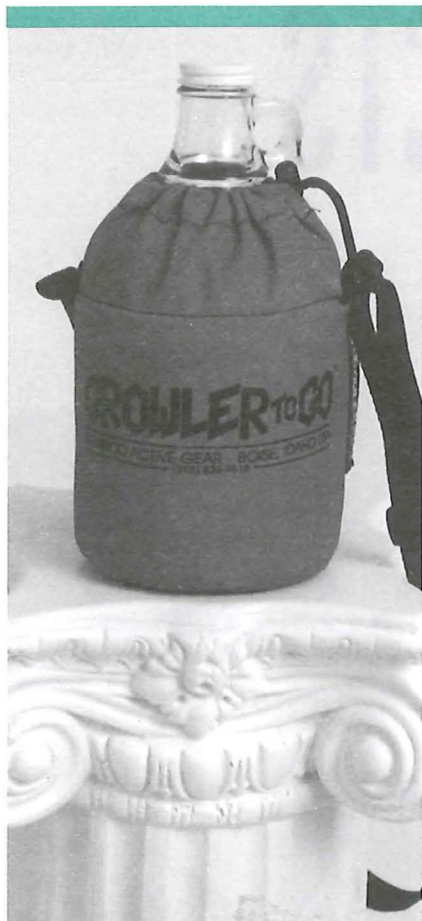
Manufacturer's suggested retail price is \$14.75. For information contact Precision Brewing Systems, PO Box 904, Staten Island, NY 10306; (718) 667-4459; FAX (718) 987-3942.



Keg Refrigerator

The Figalator by Port Jackson Manufacturing is a keg cooler that will accommodate three- or five-gallon kegs (Firestone or Cornelius). The Figalator's Wraparound™ design cools the keg with direct contact between the keg and cooling coils. The Figalator cabinet is 12 inches wide by 12 inches deep, and hides the keg and hoses. The Figalator also is available with a 1 1/4-pound CO₂ cylinder mounted inside the cabinet.

Manufacturer's suggested retail price for the basic system is \$389. For information contact Port Jackson Mfg., 10 Garden Lane, Accord, NY 12404; phone/FAX (914) 331-3471.



Growler Carriers

"Growler to Go" is an insulated growler carrier available for one-half-gallon glass and plastic brew cubes, two-liter European, Italian and plastic soda bottle growlers and five-liter minikegs. All models have a durable heavyweight nylon exterior and a shoulder strap.

"Growler to Go" is insulated with either closed-cell foam or Polar Fleece™, depending on the model. Several models of "Growler to Go" have a pouring handle, allowing you to pour your beer without taking it out of the carrier. All models can be custom screen printed.

Manufacturer's suggested retail price is \$19.95 plus shipping and sales tax where applicable. For information contact Idaho Active Gear, 12095 Alfred St., Suite 2, Boise, ID 83713-1761; (208) 939-4618; FAX (208) 939-5564.

Compiled by Bob Stephan, advertising assistant.

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THE BEST FROM KITS

Tim Harper & Lee Kobylnski

Evolutions In Brewing

In recent years an increasing number of homebrew supply outlets has begun offering kits containing all the ingredients needed to brew a wide range of beer styles. This new breed of kits generally consists of malt extracts, specialty grains, multiple hop additions and high-quality brewing yeast. They expose new brewers to more advanced brewing techniques in an easily digestible format, and provide reliable recipes for brewing to style. Three members of the Just Brew It homebrew club of Bartlesville, Okla., offer the following reviews for your quaffing enjoyment (remember, your mileage may vary).

California Common Beer Kit

The California Common Beer kit from St. Patrick's of Texas Brewers Supply was brewed by Lee Kobylnski. It was time for the annual Just Brew It extract brewing demonstration meeting, and because Lee was host, he chose the style and recipe: California common beer because it's one of his favorites, and with a kit from St. Patrick's there is no recipe formulation required. St. Patrick's has a large selection of kits from which to choose and the catalog lists the ingredients and the original gravity for each kit.

The kit arrived with grains weighed, crushed and ready to steep in a cheesecloth bag (also included). The two hop additions were premeasured and in separate plastic containers. The extracts were mixed and came in a plastic pail. All in all, this was very handy and reduced the amount of preparation necessary. The following recipe was included in the package.

Ingredients for 5 gal (19 L)

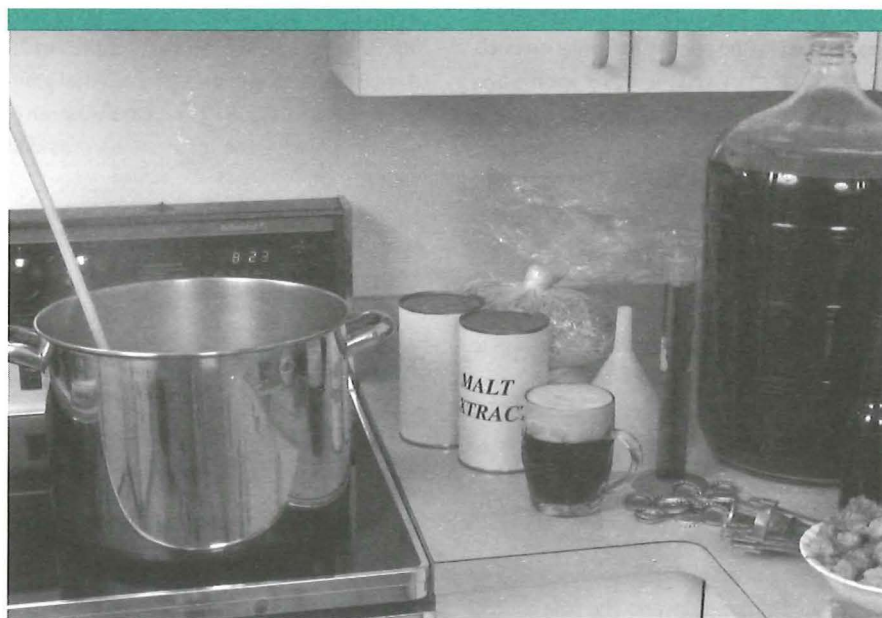
- 6 lb Briess pale malt extract (2.72 kg)
- 1 lb Briess amber extract (0.45 kg)
- 1 lb 10 °L crystal malt (0.45 kg)
- 1 3/4 oz Northern Brewer hop pellets (50 g) (60 min.)
- 1 oz Northern Brewer hop pellets (28 g) (5 min.)
- Wyeast California lager yeast
- 3/4 cup corn sugar (177 mL) (to prime)

- Original gravity: 1.054
- Final gravity: 1.011

The instructions were easy to follow and Lee deviated only twice: He steeped the specialty grains for 30 minutes at 160 degrees F (71 degrees C) and made a starter for his yeast. A summary follows: Break pouch in yeast envelope one day before brewing and leave at

room temperature. Drop grain in brewing water and heat. Remove grain when water begins to boil and discard grain. Add all extract and bittering hops and boil 45 to 60 minutes (Lee chose 60 minutes). Add finishing hops during the last five minutes of the boil. Cool wort and pour into fermenter. Add water to bring total volume to five gallons (19 L), add yeast and ferment. Boil priming sugar in one cup (237 mL) of water and add to beer prior to bottling. The back of the instruction sheet is full of good tips that any beginning brewer should find handy.

The result was a very good beer with good hop bitterness balanced against the toffeelike malt character. The beer was medium copper with a reddish tinge and had clean white foam with good head retention. This beer earned many compliments and it didn't last very long.



The price of the kit was very close to the cost of the ingredients had they been purchased separately. This kit is a good choice if you are just starting out and don't want to make your own recipe, don't want to buy quantities of ingredients and store the leftovers, or if you just want to brew a batch without any hassle.

American Pale Ale Kit

The American Pale Ale kit from Brewers Resource was brewed by Bruce Colgate. The kit included a blend of American and British dry malt extract, Perle hops for bittering, Cascade hops for flavor and finish, a blend of crystal and dextrin malts, Wyeast Irish ale yeast and priming sugar. The original gravity was 1.051 and final gravity was 1.012.

The beer was easy to make because all the packages in the kit were well-labeled and the instructions were easy to follow. The recommended procedure for steeping the crushed malt had the brewer use an additional pan to steep the malt and then pour the "tea" into the boil kettle. A steeping temperature was not included, so Bruce decided 170 degrees F (77 degrees C) would suffice. Next, he brought two gallons of water to a boil, added the "malt tea" and the extract then stirred to dissolve. The wort was boiled and bittering hops added. The total boil time was one hour.

Bruce had two gallons (7.5 L) of preboiled water frozen in plastic jugs ready to chill the wort. At the end of the boil he cut the jugs and put the ice into the primary fermentation bucket. By pouring hot wort through a strainer over the ice three things are accomplished: (1) solids are strained out, (2) the wort is oxygenated and (3) the wort is cooled quickly. This technique chills the beer to between 75 and 80 degrees F (24 and 27 degrees C) in about five minutes. [Pouring hot wort through a strainer could cause the negative flavor effects of hot-side aeration. — Ed.] Fermentation took about two days to begin, but then it went like crazy. Lag time could be reduced by preparing a starter in advance. After two days the beer was racked to a glass secondary fermenter where it stayed for about a week and a half. Then it was primed with the sugar provided and bottled.

The beer came out close to style with lots of hop and caramel flavors. The pale ale had

a golden to amber, caramel color and a nice head. The aroma was malty, sweet and fruity with a subtle hop aroma. The flavor was clean and malty sweet, but lacked the hop bite of a traditional pale ale.

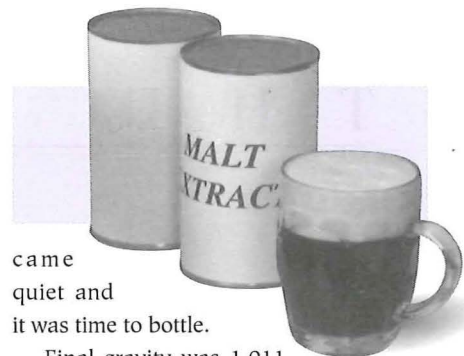
The overall quality and packaging of this kit was quite good. Anyone who wishes to produce a good pale ale but who is intimidated by recipe formulation should give this kit a try.

Scots Brown Ale Kit

Bill Farrell brewed the Scots Brown Ale kit available from The Home Brewery. It included one package of light and dark dry malt extract, Kent Goldings hops for bittering, Fuggles hops for flavor, Willamette hops for aroma, one package each of dark crystal and chocolate malts, some Irish moss, two packs of Doric dry ale yeast, corn sugar to prime and two cheesecloth grain bags. All the ingredients came neatly packaged with each component of the kit clearly labeled with contents and instructions. Alice in Wonderland never had it so good, what with the Irish moss saying, "Add me 15 minutes before the end of the boil" and the Fuggles hop pellets chanting, "Add me 10 minutes before the end of the boil." Such a cooperative kit.

The instructions called for five gallons (19 L) of water to be heated on the stove and the crystal malt to be placed into the cheesecloth grain bags provided. After steeping the grain, the dry malt extract and bittering hops were added and the wort brought up to boiling. After boiling, the wort was chilled to 75 degrees F (24 degrees C). The original gravity measured 1.038. The yeast was rehydrated following the instructions provided with the kit.

To say that the fermentation stage of the Scots Brown Ale kit is vigorous would be an understatement. Then after a week all be-



came quiet and it was time to bottle.

Final gravity was 1.011.

Bottles were washed and ready. The primary fermenter lid was pried off, the racking tube inserted and the lovely smelling, malty, hoppy brown ale was siphoned into the bottling tank. Dissolved in a pint of ale drawn off during the siphoning was the final packet labeled "Corn sugar — add me last."

Two weeks later when the cap was lifted from the bottle a satisfying "pfft" was heard. The clear dark brown to ruby ale had a creamy tan head — a very pretty beer. The aroma was malty and toasty with a faint hop character and a subtle ester profile. Overall, the body was a bit thin, and it was a little too bitter for the style, but definitely a pleasant, tasty brew.

Conclusion

Successful brewing boils down to two rules: sanitize and follow the directions. Sanitation cannot be overemphasized. By following the directions, the new brewer is capitalizing on the work of others and reaping the benefits of prior experience.

This assortment of homebrew kits represents but a small fraction of the offerings available to homebrewers everywhere. All the kits reviewed in this article contained high-quality ingredients, detailed and educational instructions and, above all, produced high-quality beers.

A homebrewer since 1982, Tim Harper is a laboratory technician with Phillips Petroleum. He is a founding member of Just Brew It and a Recognized BJCP judge. Lee Kobylinski, a homebrewer since 1991, enjoys bicycling and running when he isn't brewing or working as a project engineer at Reda Pump. Bruce Colegate is a process control specialist with Phillips Petroleum who has been brewing seriously for about five years. Bill Farrell, a homebrewer since 1981, is a senior technical computer specialist with Phillips Petroleum who also spends time playing racquetball, chauffeuring Little Leaguers and writing.

Contact Information

St. Patrick's of Texas Brewers Supply, 12922 Staton Dr., Austin, TX 78727, (512) 832-9045; (800) 448-4224

Brewers Resource, 409 Calle San Pablo #104, Woodland Hills, CA 93012, (800) 827-3983

The Home Brewery, 10 locations, call (800) 321-BREW for a catalog

REVIEWS

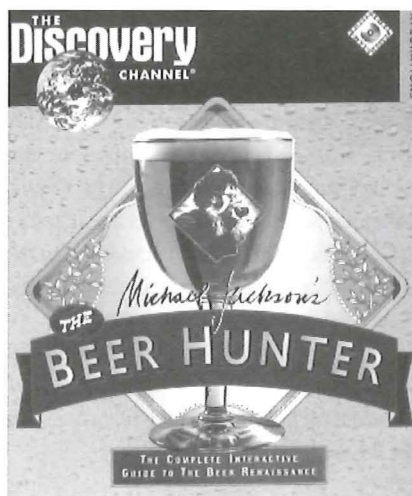
The opinions of individual reviewers do not necessarily represent the opinions of the American Homebrewers Association or Zymurgy.

Michael Jackson's Beer Hunter CD-ROM

When this review was due the folks at the Discovery Channel were still trying to get us a Macintosh version of Michael Jackson's The Beer Hunter CD-ROM. So before we talk about features, impressions and critiques, it's important to note that I had to look at the CD on foreign technology — the IBM PC. After deliberation, I decided this might not be a bad starting point because this may end up being the most popular gift this year on birthdays and holidays for the beer enthusiast and aficionado alike. Many users may be kick starting their multimedia machines to view the CD, so we're on equal playing ground here. And coming from the Mac world, my expectations of user-friendly design are high.

The Beer Hunter is not what the title may lead you to expect — this is not a search for the perfect beer, but an overview of U.S. craft brewing by a guy who should know. The result of Michael Jackson's U.S. tour is an objective discussion of beer styles as they vary from region to region. In an area on the CD called the Field Guide, Jackson has reviewed hundreds of beers and selected 24 favorites.

In two other major areas on the CD, the History of Brewing and the Art of Brewing, the Discovery Channel showcases its media expertise with full-length audio-video segments that are supported by text for printing. These video segments are the same quality you may have seen on the six-part "Beer Hunter" television series. Now you can have it all on your desktop.



An area called Beer Resources lists products, services, events and organizations related to beer. It's dry, text-oriented, research-library material. But when you think of how you will use this information, that's probably what you want — a quick directory without bells or whistles. Actually, one of the fun features of the CD is that when you're not playing one of their sound or audio-video files, you hear the background sounds of a tavern.

I enjoyed listening to Jackson discuss his views on craft brewing. His image looks directly at you from the screen and is personable, making you want to interact, ask a question, debate a point, share a story or two. (Maybe that's for a later version). The point is that you have a world-traveler and self-proclaimed "Beer Hunter" on your desktop. For beer enthusiasts, I give it some neat points for that. For the dabbler or aficionado there's an array of information that weaves craft brewing into the context of social and



historical development. The CD is informative without being pedagogical. It shines in the video segments.

I'd like to see greater search capabilities, like the ability to enter a key word and find what I'm looking for immediately. The navigation is a little clumsy until you've tried it a couple of times. After that, it really does feel like a field guide for the beer hunter in all of us. Overall, I'd recommend adding this to any CD-ROM library.

This CD-ROM would make a great gift for the computer literate beer enthusiast or aficionado. The avid "beer geek" will probably like to compare notes with Jackson's assessment of the U.S. brew scene and use the CD-ROM as a beer-tasting tool. The enthusiast will enjoy earning deeper knowledge of the craft-brewing revolution going on down the block and across the nation. The main caveat for Windows users is not to give up on the installation, it should work. System Requirements:

Multimedia PC: (>486 SX, 2x CD-ROM, 4-8mb RAM), Windows 3.1/>DOS 3.3, Windows compatible sound card.

Macintosh: Performa or larger with 2x CD-ROM, 4mb RAM, System 7.0 or later, color monitor.

Michael Jackson's The Beer Hunter, produced by The Discovery Channel Multimedia, suggested retail price \$39.95.

Learn more on-line. On the WWW: <http://and.com/discovery/beerhunter.html>
On AOL: Key word: 'Discovery'
Reviewed by Mark Silva, CEO of *The Real Beer Page on the World Wide Web* (<http://RealBeer.com/rbp/>). Special thanks to Sherry Grant of Grant's Brewing in Yakima, Wash., for sharing her multimedia PC to review *The Beer Hunter*.

The Hop Atlas

As homebrewers, we find ourselves surrounded by hops in their many forms: whole hops, pellets, extracts and oils. All are products of a worldwide industry that exists to supply brewers everywhere, both large and small. Many books and articles are available on hops, but never before has there been anything like *The Hop Atlas*, *The History and Geography of the Cultivated Plant* (Barth and Sohn, 1995). Never before has anyone published such a comprehensive collection of hop history, industry data, useful information on all the hop-growing regions around the world and beautiful hop art. This book is to the hop lover what Michael Jackson's *The New World Guide to Beer* (Running Press, 1988) is to the beer lover. It's a big, beautiful coffee-table book devoted to hops.

The book is broken down into an introductory section, which provides a background of the plant and the industry, and then into several geographical sections — it is, after all, an atlas. So if you're interested in the Hallertau region you can access it easily. You can just as easily look up places like Serbia and Tasmania, and their histories and production statistics are there. Interspersed among all the industry data, maps and photos are short articles that give the impact of historical events, such as Prohibition and the many wars that

have devastated the industry. It's great to find hard data on when and where people started using hops in beer. You can track the hop industry across the United States from the colonial days in New England to the Northwest today. You can also put into perspective the innovations that shaped the industry, from the change from poles to trellises to the first hop-picking machines to the breeding of high-alpha-acid varieties. In short, this book is an excellent reference for anyone whose life, livelihood or hobby involves hops.

The Hop Atlas goes into great detail about legislative as well as weather-related conditions that have affected the hop market and trade. It places great emphasis on importing and exporting, and the amounts each region requires. These details are of more interest to those in the hop and brewing industries than to the average homebrewer, but should not discourage you from exploring this book. It is the only reference of its kind, and the folks at Barth and Sohn truly accomplished what they set out to do — establish a standard reference on the history and geography of the plant, the brewer's gold, hops.

The Hop Atlas, Joh. Barth and Sohn, 1995, publisher's suggested retail price is \$110.
Reviewed by Jim Pericles, pilot plant brewer at the Boston Beer Co.

The Valley Mill

The Valley Mill by Valley Brewing Equipment has two diamond-patterned stainless-steel rollers and a hopper that holds about five pounds of grain. It was shipped almost completely assembled and only required the attachment of the handle, hopper and wooden mount. Large nylon heads on the screws allow for easy assembly in the predrilled holes. The mill is easily adjustable by pulling out and turning the large black index wheel on the end of the mill. A white plastic indicator on the wheel gives a rough indication of where the rollers are set. The construction of the rollers allows for parallel adjustment, which is important for a uniform crush.

The Valley Mill took 30 cranks to grind one pound of grain. Another plus for the Valley Mill is the larger hopper. On the other hand, the wooden base must be purchased separately, and to attach an electric hand drill for motor-

ized crushing, the Valley Mill requires a separate attachment.

I was favorably impressed with the Valley Mill. If you already own a good roller mill such as the Schmidling Malt Mill, you may not consider replacing it with the Valley Mill because the two perform virtually identically. However, if you are looking to purchase your first grain mill or replace a cheaper, less efficient mill, the Valley Mill is certainly one to consider. It does have some advantages over other mills, such as being adjustable at a lower price. It depends on which features are most important to you.



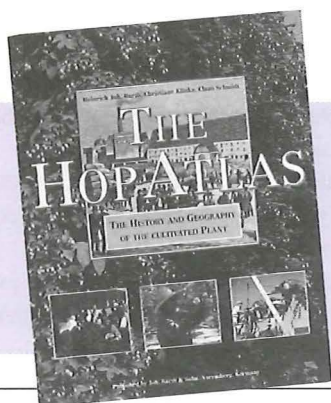
The Valley Mill is manufactured by Valley Brewing Equipment, 1310 Surrey Ave., Ottawa, Ontario, Canada K1V 6S9. For information call (613) 733-5241, FAX (613) 731-6436 or e-mail weldon@hookup.net. The manufacturer's suggested retail price is \$99 (US) plus shipping and handling.

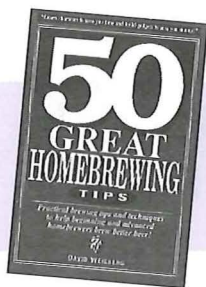
Reviewed by Ed Greenlee, an attorney living in Baton Rouge, La. A Certified BJCP judge, Ed has been brewing for five years and has won two best of shows and numerous ribbons.

[Just prior to publication of this issue the manufacturer informed us that the Valley Mill now includes an FDA-approved plastic hopper and a three-eighths-inch power drill adapter for the same retail price. — Ed.]

50 Great Homebrewing Tips

The 124-page paperback book, *50 Great Homebrewing Tips* (Lampman Brewing Publications, 1995) by David Weisberg is filled with information and suggestions. He starts with basic ideas about making beer with kits and moves to a quick but thorough introduction





of all-grain brewing. Along the way Weisberg crams in a number of useful ideas from tips to avoid oxidizing beer while racking to gadgets that will help keep beer warm during the winter or cold during the summer. Weisberg even gives a practical use for stale dry yeast.

The title does not do this book justice. Each of his 50 "tips" is more like a minichapter covering a particular aspect of homebrewing. Some of the tips are simply pearls of wisdom that brewers can use to save time or money. Other tips are ways to modify brewing techniques to ensure a better-quality product. Still others explain how to build various gadgets to assist in homebrewing.

In addition to tips, the reader is treated to a variety of quotes and quips collected from other brewers, photos and drawings of some of the gadgets and setups the author describes and an occasional cartoon. There is even an appendix containing a recipe for beer pretzels made with homebrew.

Weisberg's writing is quite accessible, even if some of his humor is just a little silly. Most of the suggestions are solid, well-based and practical. Others are novel and innovative. Just a few are at odds with my understanding of the "right" way to do things, but who is to say I am right?

Although I am certain that a veteran of 50-plus all-grain batches would find a pearl or two in *50 Great Homebrewing Tips*, the target audience is clearly beginning and intermediate brewers. The former will definitely see immediate improvements using some of the more basic tips and the latter will be able to fine-tune their brewing by using some of Weisberg's practical advice. All in all, the book is a bargain at just under \$8.

50 Great Homebrewing Tips by David Weisberg, Lampman Brewing Publications, 1995, publisher's suggested retail price: \$7.95.

Reviewed by Gary Arkoff, a homebrewer since 1993 who won a bronze medal in the 1994 National Homebrew Competition for his California common beer.



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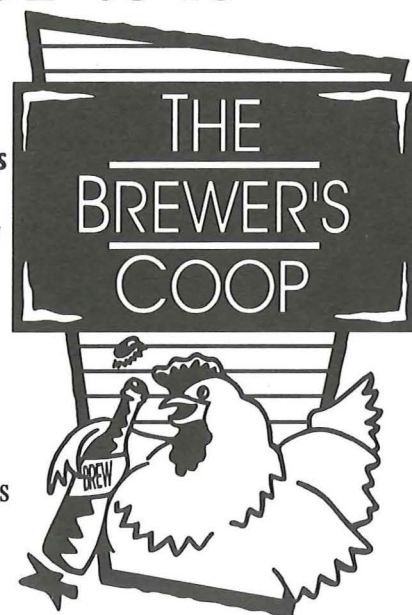
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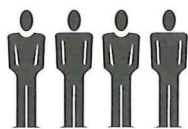
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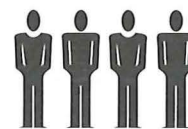
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HOMEBREW CLUBS



Caroline Duncker

CLUB INSURANCE — IT'S UP TO YOU



Club meetings provide a chance for members to socialize and educate themselves about beer styles, beer history, the sensory evaluation of beer, and of course, homebrewing. Clubs teach members to become better brewers while providing a social atmosphere. And at every meeting and club activity where homebrew and/or commercial beer is served and tasted, alcohol liability is an issue.

How can a club and its officers protect themselves from alcohol-related incidents and be proactive in avoiding accidents? Once a club is incorporated (see *Zymurgy* Summer 1995 Vol. 18, No. 2 "Club News") a layer of protection is provided to the officers so they cannot be sued individually, but the club itself is still at risk. Another option is liability insurance. There are two different types of liquor liability insurance: liquor liability and host liquor li-

ability. Liquor liability is for establishments that require payment for liquor, while host liquor liability is for events such as office parties or homebrew club meetings when alcohol is given to those attending the event. Homebrew clubs may want to pursue a general liability coverage with host liquor liability as part of that coverage. Liability insurance would help protect the club if need be and the club could be represented in court for up to the amount of coverage it had on its policy.

At this time there is no national plan in place for homebrew clubs to protect themselves like there is for microbreweries or brewpubs. Numerous variables make it difficult for homebrew clubs to be insured across the board. Insuring a club depends on the size of the club, how long it has been in existence, where the meetings are held and in what state the club resides. For example, it may be easier in terms of cost and willingness of the insurance agency to take

on alcohol liability coverage for a club five years old with 50 members meeting at a member's house in Nebraska than a club of six months with 200 members meeting at a local brewpub in Pennsylvania. The coverage of each policy depends on the particulars of the club.

If a club meets at local brewpubs, the brewpub's liquor liability insurance may cover the club and its members. However, if club members are drinking homebrew they brought in, not beer from the establishment, the brewpub may not be responsible. In this case, your club may want to look into liability insurance. From the insurance business standpoint, meeting at a local brewpub may make them hesitant to insure your club. For example, if a club meeting is over after two hours and some club members stay and drink at the brewpub, the club may be liable.

Another deterrent from the club's perspective may be the cost involved to insure the club and its officers. Many clubs have



Clubs can serve food at meetings for a nominal fee.



Don't allow your glass to be topped off with beer; it is harder to know how many beers you've had.



Clubs can start taxi services, encourage carpooling and supply non-alcoholic beverages to designated drivers.

just enough money to mail out their newsletter every month and cannot afford to invest in this precautionary measure.

"In most cases it is cost-prohibitive for homebrew clubs to purchase liquor liability insurance," says Peter Whalen of Goggin & Whalen, agent of Continental Insurance and insurer of brewpubs and microbreweries. On the other hand, when homebrew clubs are involved in hosting beer festivals, liquor liability insurance is often required for the event. One-day-event insurance can cost anywhere from \$300 to \$500 dollars. Whereas, one year of coverage for

a club with 50 members that has been in existence for five years and meets at a member's house could cost about \$1,000.

If your club is considering liability insurance, it is important to meet with a local liability insurance provider and discuss where the meetings are held, how often,

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 about your club including the same kind of information you see here 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 and address corrections received through July 24, 1995. Club registrations received after that date will appear in *Zymurgy* Spring 1996 (Vol. 19, No. 1).

CANADA

QUEBEC

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

SASKATCHEWAN

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

GERMANY

German Homebrewers Association, c/o Dipl. Brm. Christian von der Heide, Adlzreiterstr 27, München, D-80337; 4989 74791091 FAX; 100541.2263@compuserve.com.

NETHERLANDS

Bergsch Bierbrouwersgilde, c/o Marc van der Steen, Krokussenveld 19, 4613 DX Bergen op Zoom, 01640-37715.

De Roerstok, c/o René van Gestel, Diederikdreef 30, 50456 GT Tilburg, 013-351011.

De Wortketel, c/o Piet Strijker, Schoollakkers 21, 7932 PM Echten, 05288-1251.

Delta Brouwers, c/o Jan Passieux, Wilhelmijnestraat 58, 4413 BB Krabbendijke, 01134-2364.

HAB Twents Bierbrouwersgilde, c/o Roy Revet, Uelensnerweg 32, 7651 KW Tubbergen, 05793-1518.

St. Petri - gilde, c/o G. W. Wolf, Ruitersveldweg 46, 8091 HW Wezep.

Stichting Noordhollandse Alternatieve Bierbrouwers (SNAB), c/o C. van Zwam, Bertus Aafjeshof y, 1628 VH Hoor (NH).

'tWort wat, c/o Theo van de Voorde, Houtwijkerveld 24, 2131 MG Hoofddorp, 02503-31286.

UNITED STATES

ARIZONA

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

CALIFORNIA

GenenBrewers, c/o David Allison, 460 Pt. San Bruno Ave., South San Francisco, CA 94080; (415) 225-5764; allison2@gene.com.

Sons O' Beaches Brewers, c/o Jeffrey L. Lee, 2301 Valley Dr., Hermosa Beach, CA 90254; (310) 222-3791, FAX (310) 533-1158; JEFFLEE@HARBOR3.HUMC.EDU.

COLORADO

The TRIBE, c/o Bob Dillon, 809 Vivian, Longmont, CO 80501; (303) 651-9164.

CONNECTICUT

Sanderflohansontappanberg Brew Club, c/o Mark Floberg, 27 Bonita Dr., Huntington, CT 06484.

Those Crazy Brewers, c/o Elizabeth Pryor, 34 Sachem Rd., Southbury, CT 06488; (203) 264-4958.

DELAWARE

Tri-State Brewers, c/o Mark Warrington, PO Box 334, Rockland, DE 19732-0334; warringt@esvax.dnet.dupont.com; 76322,2102.

FLORIDA

Bull Brewing Co., 2225 E. 131 Ave. #3102, Tampa, FL 33612; ccampbel@sunflash.eng.usf.edu.

GEORGIA

South Atlanta Association of Zymurgists (SAAZ), c/o Brian Kelly, 105-B N. 85 Pkwy., Fayetteville, GA 30214; (404) 719-0222.

IDAHO

High Desert Brewers Association, c/o Carrie Getty, 2325 Balboa Dr., Idaho Falls, ID 83404; (208) 524-0970.

ILLINOIS

Silverado Homebrew Club, c/o Terry Richardson, 405 S. 12th Ave., St. Charles, IL 60174; (708) 584-8254.

INDIANA

Strange Brewers, c/o Jim Kirk, 3848 S. Sherman Dr., Indianapolis, IN 46237; (317) 786-0464; captain@indy.net.

KANSAS

Salina Original Tasting Society Homebrew Club, c/o Jim Huskey, 319 Russell Ave., Salina, KS 67401.

LOUISIANA

Mystic Krewe of Brew, c/o John LaBarbera, 763 Rue Calais, Mandeville, LA 70471-1203; (504) 561-3363/626-0962.

MAINE

Raymond Ale Taster's Society (RATS), c/o Craig Stephenson, Raymond Homebrew and Zymurgy Shop, PO Box 362, Raymond, ME 04071-0362; (207) 655-3719.

MARYLAND

Maryland Ale and Lager Technicians (MALT), c/o Tim Hardman, 2200 Notely Lane, Crofton, MD 21114; (410) 721-7462.

People's Ale and Lager Society (PALS), c/o Ben Schwalb, 1609 Manning Rd., Glen Burnie, MD 21061.

Southern Maryland Association of Superior Homebrewers (SMASH), c/o Gerald Elder, 47 Airport View Dr., Hollywood, MD 20636-9760.

The Aleing Sailors Homebrew Club, c/o Dan or Kelly, Chesapeake Brewing Co., 1930 Lincoln Dr., Unit C, Annapolis, MD 21401; (410) 268-0450.

MICHIGAN

No Restraints Brew Club, c/o Ronald Rucins, 54218 Folklore Dr., Shelby Township, MI 48316.

Upper Peninsula Brewer's Guild (UPBG), c/o Brian Murphy, 111 White St., Hancock, MI 49930; (906) 482-4708; brmurphy@mtu.edu.

MINNESOTA

Buffalo Ridge Homebrewers, c/o Joel Johnson, 207 W. Elm, Luverne, MN 56156; (507) 283-2027.

Cloudy Town Brewers, c/o Bruce LeBlanc, 1190 Flamewood Dr., Sauk Rapids, MN 56379; (612) 251-0229.

Rum River Wort Hogs, c/o Tim Curran, 17640 Eaton St. N.W., Ramsey, MN 55303; (612) 441-4533.

South Metro Wort Mongers, c/o Deb Nelson, 14386 Embury Ct., Apple Valley, MN 55124; (612) 893-6502.

MONTANA

Exalted Brewers of Great Falls, c/o Caroline Carter, 1124 4th Ave. N., Great Falls, MT 59401; (406) 454-3514.

NEBRASKA

OmaHOPS, c/o Steve Nasr, 2412 S. 153rd St., Omaha, NE 68144; (402) 333-0668.

NEW JERSEY

BEERS-R-US Brew Crew (BRU), c/o Matt Mehalick, 974 Linwood Place, North Brunswick, NJ 08902; (908) 937-5624.

Homebrewers Of Princeton Surroundings (HOPS), 82 Nassau St., Princeton, NJ 08542; (609) 252-1800.

NEW YORK

Corning Brew Crew, c/o David Tennent, 4748 Clawson Dr., Campbell, NY 14821; (607) 974-3417 D; (607) 527-4111; tennent_dl@corning.com.

Keuka Brewers Association, c/o Michael Cook, 8319 Pleasant Valley Rd., Hammondsport, NY 14840; (607) 569-2451.

Libatious Anarchistic Mashers of Buffalo's Inner City (LAMBIC), c/o David M. Heftka, 25 Mercer Ave., Buffalo, NY 14214; (716) 832-0605; nigott@beer.buf.servtech.com.

North Yeast Fellowship Of Ale and Mead (NY FOAM), c/o Joe Burke c/o McConigles, 9 W. Main St., Washingtonville, NY 10992; (914) 496-8112.

NORTH CAROLINA

Winston-Salem Wort Hawgs, c/o Ed Pearson, 1416 Claxton Ridge Rd., Kernersville, NC 27284; 73571,3276.

OHIO

Scioto, Olentangy and Darby Zymurgists (SODZ), c/o Jonathan Woodman, 1823 Hobbes Dr., Hilliard, OH 43026; (614) 876-5999 E; (614) 224-8488 D; woodmanj@aol.com.

OREGON

Good Heathens, c/o Randy Reid, 1285 Criteser Loop, Toledo, OR 97391; (503) 336-2458.

PENNSYLVANIA

Northeast Pennswoods Homebrewers Guild, c/o Steve Nash, 305 Mary St., Mountaintop, PA 18707; (717) 474-6668.

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Buffalo Ridge Homebrewers, c/o Joel Johnson, 207 W. Elm, Luverne, MN 56156; (507) 283-2027.

TEXAS

Ale-ian Society of Lubbock, c/o Dave Yaskovitz, 2209 21st St., Lubbock, TX 79411; (806) 791-1463; regar@ttuhsc.edu.

The Brews Brothers, c/o Kevin Arnold, 4319 Sarasota Lane, McKinney, TX 75070; (214) 529-6645; arnie@i-link.net.

WASHINGTON

Homebrewers of Puget Sound c/o Cascade Brewing Supplies 224 Puyallup Ave. Tacoma, WA 98421; (206) 383-8980.

WEST VIRGINIA

Greater Huntington Homebrewers Association, c/o John L. Szarek, 1930 S. Englewood Rd., Huntington, WV 25701; (304) 696-7314; szarek@musom01.mu.wvnet.edu.

The Better Beer Brewing Brethren of the Blue Ridge (The 5 B's), c/o Ed or Hutch, 8 Ransom Square, Ranson, WV 25438; (304) 725-7780; tlgc@ix.netcom.com.

WISCONSIN

Bull Falls Brewers, c/o Terese Barta, 1005 Brookfield Lane, Wausau, WI 54401; tmarta@mail.wiscnet.net.

what is done at typical meetings, what other club events take place throughout the year (festivals, picnics, camp outs, brewoffs), the number of members in the club and how long the club has been around.

Regardless of insurance, your club should be proactive in providing a proper

atmosphere for beer consumption and educate members about the use of alcohol-containing beverages. At each meeting individual responsibility should be stressed and encouraged. Be careful not to top off glasses with beer; it is difficult to keep track of how many beers you've had if your glass contin-

ues to be filled. Encourage club members to know how they are affected by alcohol, pay attention to their own warning signals and know when they have reached their limit.

Clubs can start taxi services, encourage carpooling, supply non-alcoholic beverages to designated drivers and serve food at meet-



Aug. 21, 1993

GERMAN AMERICAN FESTIVAL BEST BREWER

Toledo, Ohio, 13 entries
Jeffrey J. Gralak of Toledo, Ohio, won best of show.

May 21, 1994

MOON MADNESS

Pottstown, Pa., 152 entries
John Cramer of Lansdale, Pa., won best of show.

July 9, 1994

L.A. COUNTY FAIR

Pasadena, Calif., 93 entries
Steve Gurtson of Sacramento, Calif., won best of show.

Aug. 19, 1994

SECOND ANNUAL MADE IN THE SHADE

Flagstaff, Ariz., 52 entries
Jeff Handley of Sedona, Ariz., won best of show.

Jan. 15, 1995

SECOND ANNUAL AMBROSIA ADVENTURE

Denver, Colo., 100 entries
Keith Wanless of Littleton, Colo., won best of show.

Feb. 4, 1995

FOURTH ANNUAL CENTRAL ILLINOIS HOMEBREW COMPETITION

Normal, Ill., 98 entries
Dennis Davison of Greenfield, Wis., won best of show.

Feb. 14, 1995

FUR RENDEZVOUS

Anchorage, Alaska, 248 entries
Steve Schmitt of Anchorage, Alaska, won best of show.

Feb. 18, 1995

FEBFEST '95

Lake Bluff, Ill., 31 entries
Mike Frost and Mike Kowal of Glendale Heights, Ill., won best of show.

Feb. 20, 1995

THIRD ANNUAL PRESIDENT'S DAY HOMEBREW COMPETITION

Philadelphia, Pa., 42 entries
Roger Epstein of Philadelphia, Pa., won best of show.

March 11, 1995

AMERICA'S FINEST CITY HOMEBREW COMPETITION

San Diego, Calif., 300 entries
Douglas King of Winnetka, Calif., won best of show.

March 11, 1995

BACK TO BASICS

Rolling Meadows, Ill., 51 entries
Chuck Gollay of Palatine, Ill., won best of show.

March 11, 1995

QUEEN OF BEER WOMEN'S HOMEBREWING COMPETITION

Placerville, Calif., 84 entries
Melinda Brockington of Seattle, Wash., won best of show.

March 17, 1995

1995 MARCH MASHFEST

Fort Collins, Colo., 143 entries
John Landreman of Colorado Springs, Colo., won best of show.

March 18, 1995

WINTER CARNIVAL BREWERS ASSAY

Fairbanks, Alaska, 42 entries
Terry Schmidt of Fairbanks, Alaska, won best of show.

March 18, 1995

CRAZY HOMEBREWERS' HOP INTO SPRING

Lisbon, Iowa, 47 entries
Mike Hansen of Coralville, Iowa, won best of show.

March 18, 1995

WORT YOU BREWIN 1995

Delta, British Columbia, 78 entries
Mike Feist of Vancouver, British Columbia, Canada, was the competition winner.

March 18, 1995

HOMEBREW RENDEZVOUS '95

Philadelphia, Pa., 91 entries
Bill Brothers of Riegelsville, Pa., won best of show.

March 25, 1995

BLUEBONNET BREW OFF

Denton, Texas, 658 entries
Steve Vallencourt of Orlando, Fla., was the competition winner.

March 25, 1995

BREWERS OF SOUTH SUBURBIA 1995 REGIONAL HOMEBREW COMPETITION

Palos Hills, Ill., 187 entries
Chris Kaufman of Derby, Kan., won best of show.

March 25, 1995

HUDSON VALLEY HOMEBREWERS FIFTH ANNUAL HOMEBREW COMPETITION

Newburgh, N.Y., 190 entries
Daniel Beurket of Staatsburg, N.Y., won best of show.

March 25, 1995

MARQUIS DE SUDS 11TH ANNUAL OPEN HOMEBREW COMPETITION

Calgary, Alberta, 157 entries
Matthew Lowe of Calgary, Alberta, Canada, won best of show.

March 26, 1995

WORLD CUP OF BEER

El Cerrito, Calif., 156 entries
Ebben Raves and Mark Amonio of Hayward, Calif., won best of show.

March 31, 1995

FIFTH ANNUAL DUKES OF ALE SPRING THING

Albuquerque, N.M., 168 entries
Bob Zamites of Santa Fe, N.M., won best of show.

April 1, 1995

BORDERLINE YEAST INFECTORS FIRST ANNUAL

Binghamton, N.Y., 153 entries
Scott Bickham of Ithaca, N.Y., won best of show.

April 8, 1995

GREEN MTN. HOMEBREW COMPETITION

Burlington, Vt., 308 entries
Paul Hale of Burlington, Vt., won best of show and was awarded Vermont Homebrewer of the Year. John Jaynes of Boston, Mass., won the Brewmaster's Cup.

April 9, 1995

EVANSTON FIRST SEVENTH HOMEBREW CHALLENGE

Evanston, Ill., 126 entries
George Westlund of Des Plaines, Ill., won best of show. Mike Montgomery of Plainfield, Ill.; Steve Prentice of Skokie, Ill.; Eddie Brian of Iowa City, Iowa; and Jim Hodge of Lincolnwood, Ill., won best of show.

April 22, 1995

CRESCENT CITY COMPETITION

Metairie, La., 370 entries
Ronald Bach of Winter Springs, Fla., won best of show.

April 22, 1995

MALTOSE FALCON'S MAYFAIR

Manhattan Beach, Calif., 185 entries
Paul Sedgwick of Canoga Park, Calif., won best of show.

April 22, 1995

UPSTATE NEW YORK HOMEBREWERS ASSOCIATION 17TH ANNUAL CONTEST AND SIXTH EMPIRE STATE OPEN

Rochester, N.Y., 207 entries
Dave Wunder and Frank Caico of Rochester, N.Y., won best of show.

April 24, 1995

NINTH ANNUAL GEM STATE HOMEBREWERS COMPETITION

Boise, Idaho, 88 entries
Loren Carter of Boise, Idaho, won best of show.

April 28, 1995

GREAT ARIZONA BEER FESTIVAL

Phoenix, Ariz., 216 entries
Dean Randall of Phoenix, Ariz., won best of show.

April 29, 1995

U.S. OPEN

Charlotte, N.C., 192 entries
Steve Peeler of Gaffney, S.C., was the competition winner.

May 13, 1995

OREGON HOMEBREW FESTIVAL

Albany, Ore., 198 entries
Mike Basinger of Salem, Ore., won best of show.

May 13, 1995

RENAISSANCE PLEASURE FAIRE HOMEBREWING COMPETITION

Novato, Calif., 157 entries
Ray Ballard of Moreno Valley, Calif., won best of show.

May 14, 1995

JAMES PAGE OPEN INVITATIONAL

Minneapolis, Minn., 144 entries
James Gebhardt, Ray Taylor and Paul Kaufenburg of Fargo, N.D., won best of show.

May 19, 1995

GREAT ALASKA THIRD ANNUAL CRAFT BEER & HOMEBREW COMPETITION

Haines, Alaska, 79 entries
Jeff Hill and Steve Tinney of Juneau and Craig Love of Anchorage, Alaska, won category divisions.

May 20, 1995

TRASH V

Pittsburgh, Pa., 235 entries
Bob Joseph of Elizabeth, Pa., won best of show.

May 21, 1995

11TH ANNUAL GREAT CANADIAN HOMEBREW COMPETITION

Toronto, Ontario, 175 entries
Matthew Plexman of Toronto, Ontario, Canada won best of show.

June 10, 1995

ORANGE COUNTY FAIR HOMEMADE BEER COMPETITION

San Juan Capistrano, Calif., 263 entries
Vin Ludwig of Santa Ana, Calif., won best of show.

June 10, 1995

WINFIELD RIGHTS OF SPRING FIRST HOMEBREW COMPETITION

Winfield, Ill., 83 entries
Mike Montgomery of Plainfield, Ill., won best of show.

June 17, 1995

OREGON BREW CREW PILSENER COMPETITION

Portland, Ore., 18 entries
Layne Davis of Palouse, Wash., won best of show.

June 25, 1995

BUZZ OFF

Chester Springs, Pa., 209 entries
Owen Hutchins of Philadelphia, Pa., won best of show.

ings for a nominal fee. Club members also may become TIPS trained (Training for Intervention Procedures by Servers of Alcohol). The TIPS program teaches the acceptable standards of practice for serving alcohol and knowing when someone has reached the limit for alcohol intake. [The staff of the AHA and 80 percent of the AOB have been TIPS trained. —Ed.]

Homebrewing is a wonderful hobby and clubs are the perfect venue for increasing beer awareness in a fun, social atmosphere.

No one wants to think about liquor liability, but the fact is that beer is an alcohol-containing beverage and needs to be consumed responsibly. Play smart and look into safeguarding your club either with incorporation, general liability insurance, liquor liability insurance, individual responsibility programs and other measures that limit alcohol intake. Most important, don't shy away from the issue of liquor liability — be proactive and stay informed.

The AHA is interested in how your club

handles this issue. Please drop us a note and let us know how your club stays proactive.

For more information on club incorporation, see *Zymurgy* Summer 1995 (Vol. 18, No. 2). For general and liquor liability insurance contact your local liability insurance provider. For information on the Individual Responsibility and Savor the Flavor Responsibly Programs contact the Association of Brewers for the latest brochure. For TIPS training contact Health Communications Inc. at (202) 333-8267.

CLUB-ONLY COMPETITION WINNERS

1995 HAIL TO ALE

1st JACK HAGENS of North Bend, Wash., representing Brews Brothers Society of Seattle

2nd MICHAEL KNAUB of Mt. Wolf, Pa., representing York Area Homebrewers Association (YAHA)

3rd TODD TAYLOR of Bartlesville, Okla., representing Just Brew It

The 81-entry competition was organized and judged by the Central Florida Homebrewers.

1995 BOCK IS BEST

1st DR. TIMOTHY J. DALTON of Boston, Mass., representing Boston Wort Processors

2nd BOB NIEMI and MIKE TAKACS of Livonia, Mich., representing Fermental Order of Renaissance Draughtsmen (FORD)

3rd SAMUEL NANTZE of Las Cruces, N.M., representing Desert Quenchers

The 68-entry competition was organized and judged by New Hampshire's Brew Free or Die.

1995 RAUCHBIER ROUNDUP

1st MARK TAYLOR of Independence, Kan., representing the Verdigris Valley Homebrewers Association

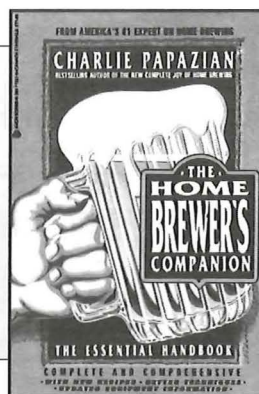
2nd RAY FRANCISCO and BOB REGENT of Hayward, Calif., representing the Bay Area Mashers

3rd LARRY ROTH of Marion, Iowa, representing the Cedar Rapids Association of Zymurgy and Yeastology (CRAZY)

The 53-entry competition was organized and judged by Ithaca Brewers Union, New York.

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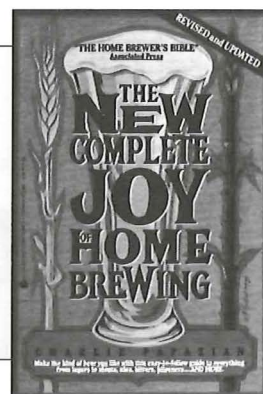
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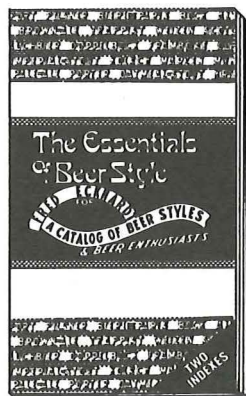
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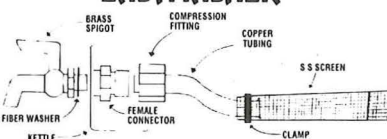


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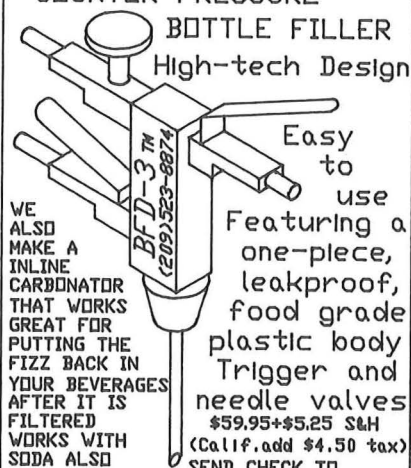
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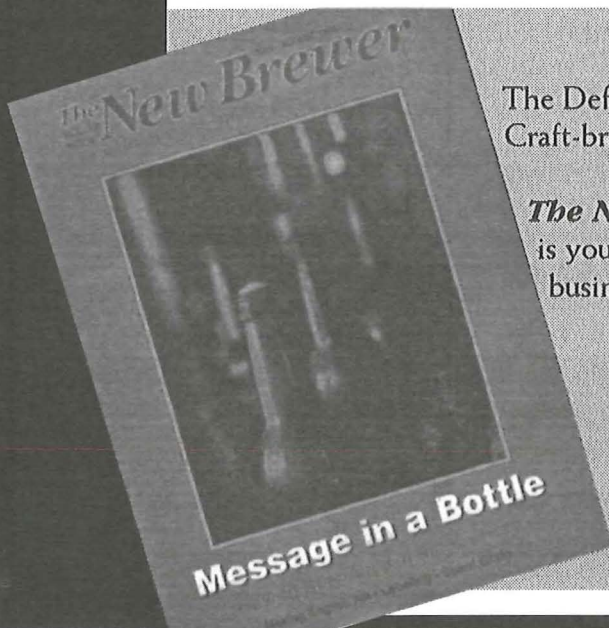
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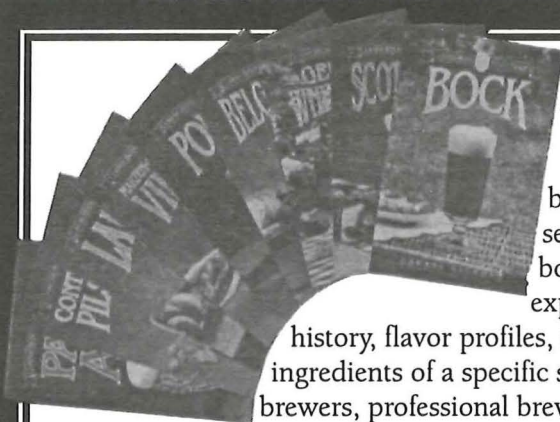
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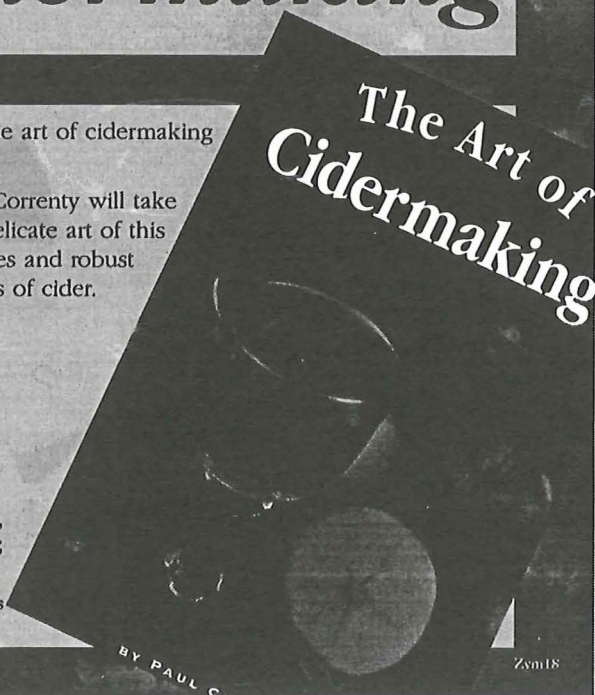
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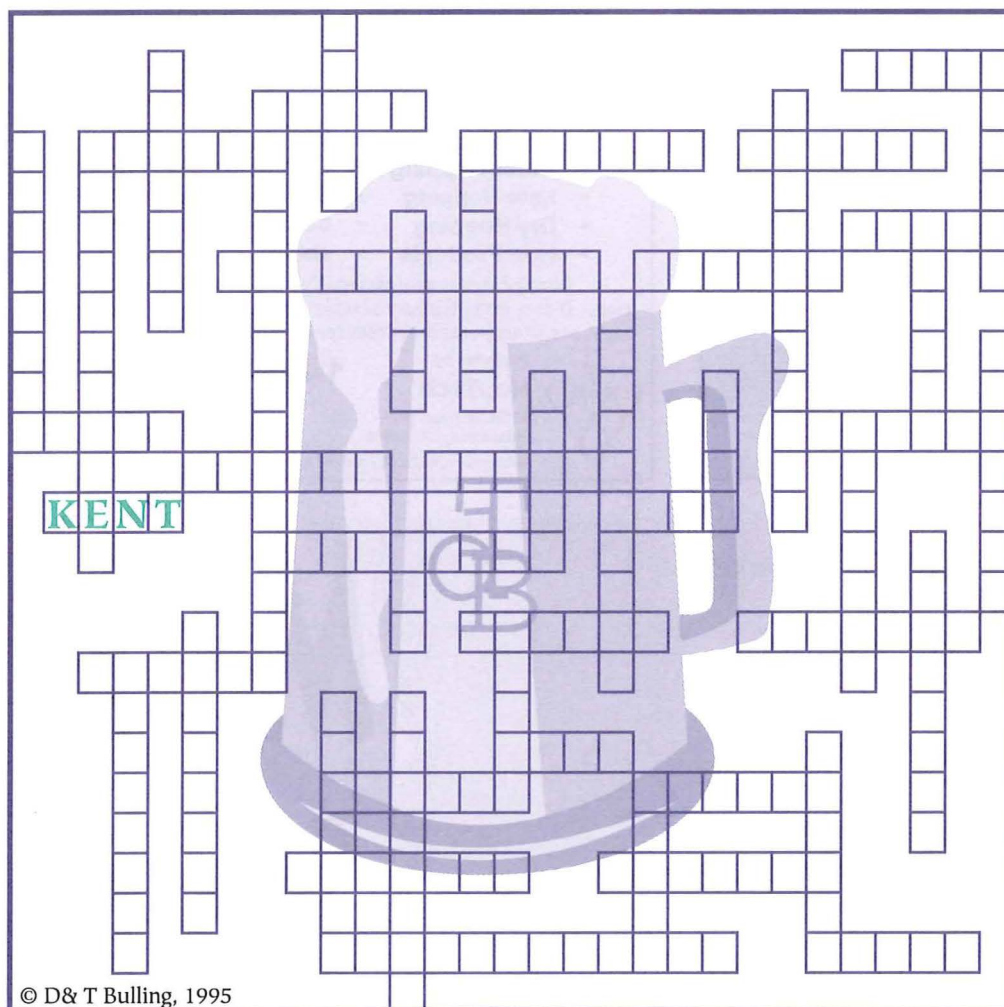


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WORDQUEUE

Insert the correct words into the boxes using all the words listed below.

See page 59 for solution.

Tom Bulling, a homebrewer for four years, is a geologist for an international oil company. He started brewing thanks to a fellow geoscientist who enjoys a good stout. Tom is attempting to brew a wide range of beers but always comes back to brewing a "Wildcatter Weizen." He also has a batch of mead fermenting. Enjoy the puzzle with a homebrew!

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Acid
Hops
Kent
Mild
Saaz

5 Letters

Alpha
Aroma
Comet
Harsh
Noble
Orion
Perle
Saxon
Spalt
Taste

6 Letters

Aquila
Banner
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Target

Viking
Yeoman
Zenith

7 Letters

Boiling
Brewing
Bullion
Cascade
Chinook
Cluster
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Liberty
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8 Letters

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9 Letters

Wye Target

10 Letters

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11 Letters

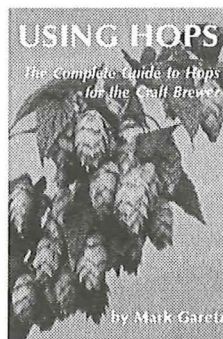
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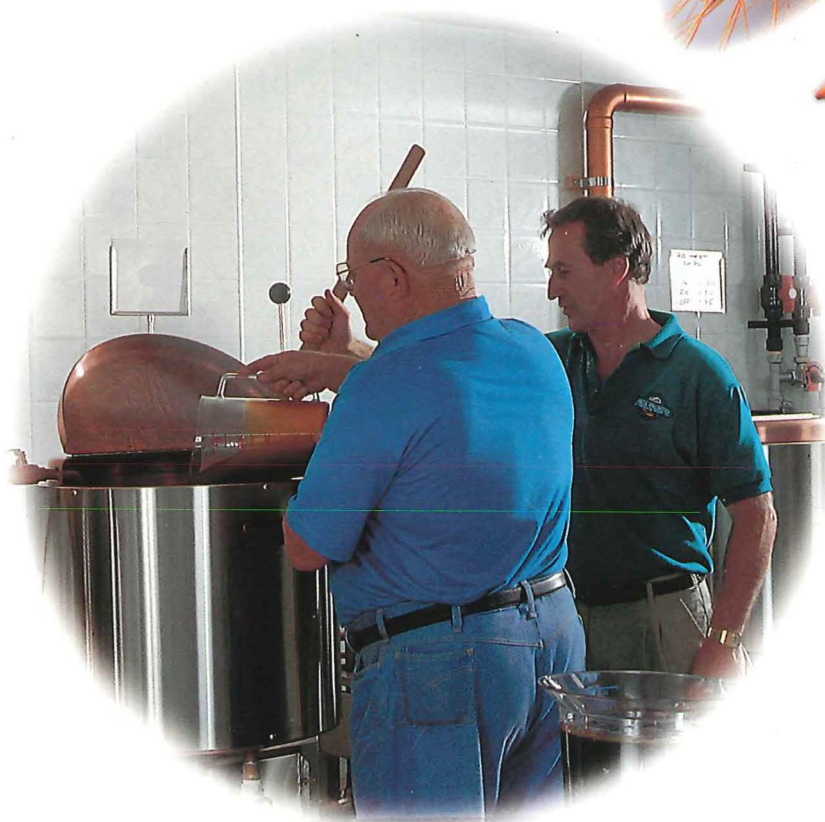
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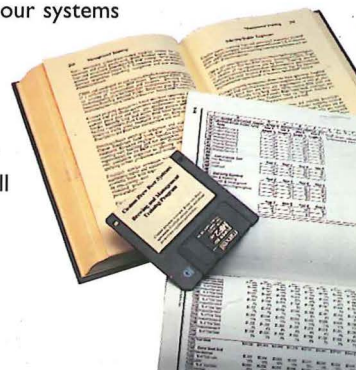
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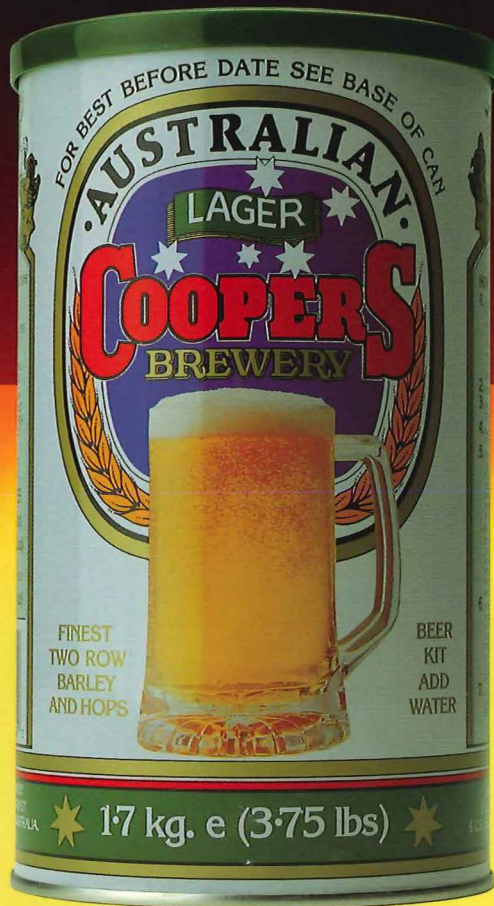
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