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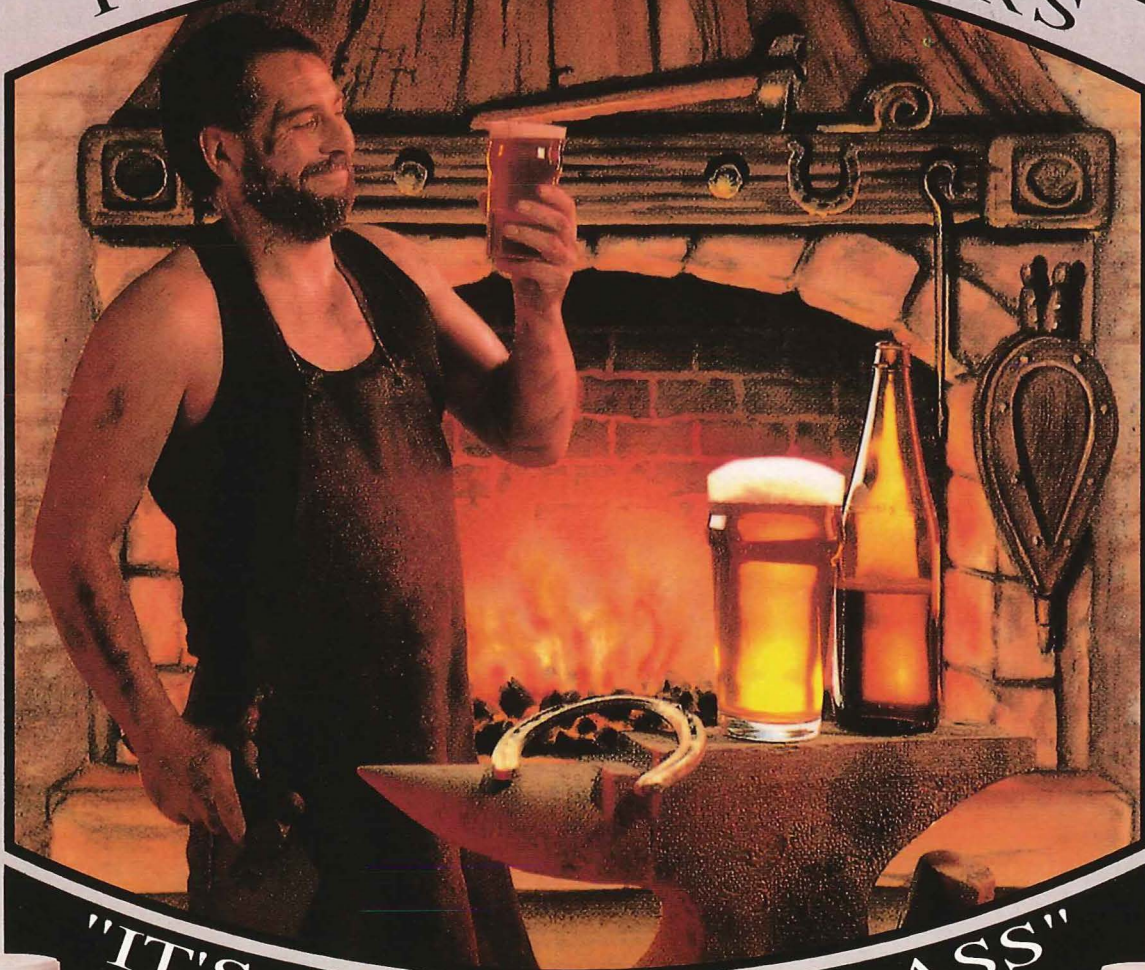
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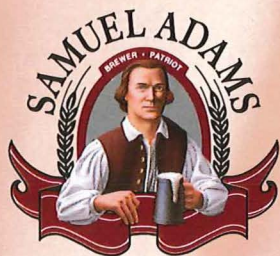
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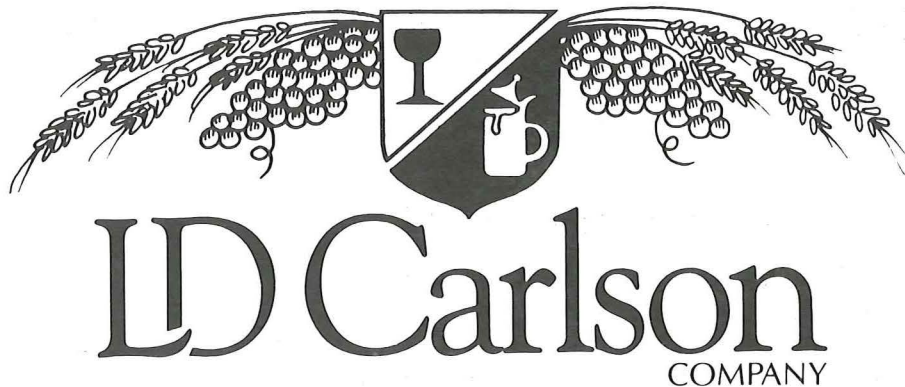
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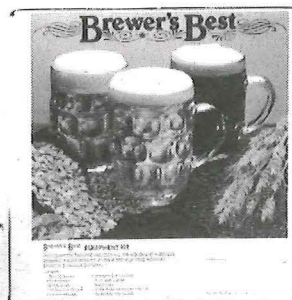
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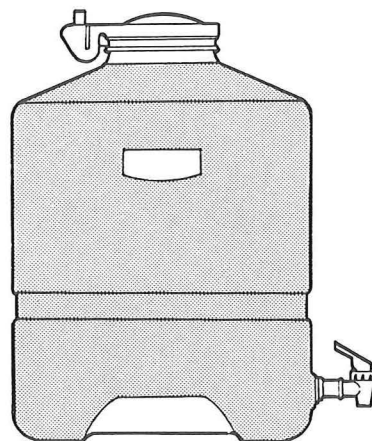
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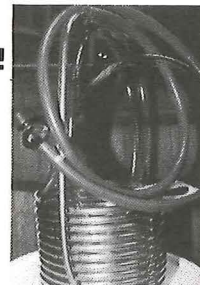


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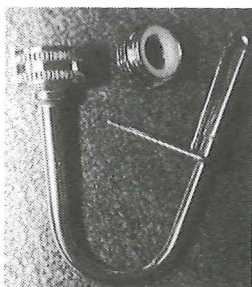
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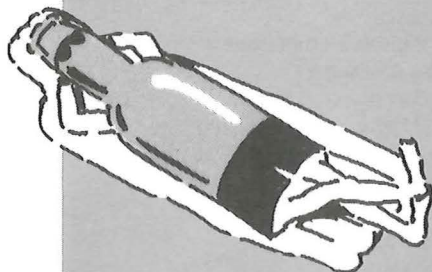
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ISSN 0196-5921

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THE AMERICAN HOMEBREWERS ASSOCIATION MISSION STATEMENT

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.

Printing by EBSCO Media, Birmingham, Alabama.

EDITORIAL

Charlie Papazian

About 10 years ago I brewed my last batch of contaminated-beyond-drinkable beer. No chokers for a decade. I had a good string going and was feeling pretty darn cocky. Sure, I had the occasional contaminated brew that didn't hold up that well, turned a bit phenolic or developed a hintful whiff of lactic acid with age. But all in all I've been doing pretty darn well for simple take-the-equipment-out-of-the-closet basement techniques. My prize yeast culture had been serving me well for 10 years.

But I got sloppy last winter. I pushed my yeast one recycle too many and what tasted terrific at bottling time turned revoltingly sour in three short weeks. The worst thing about the whole ordeal was I brewed this beer for a friend, with whom I brew about once every century, and she brought along her friends for the experience. How do you explain the premature death of a beer? How could it have happened to *me*? To *us*?

Oh, there was no doubt about it. It was gone. Kaput. Unsalvageable. Don't even mention my name along with a bottle of this stuff. My stash went down the drain. It would have been a great bock beer. Perfectly balanced. Brewed with the best ingredients. Filtered water. Partially mashed. The best hops in my freezer. It surely would have been chosen as first place in competition. Michael Jackson would have smiled upon sipping it and noted in his little black notebook, "The best homebrew I ever had in my life." I'm sure of it.

I would have taken the remaining bottles of this special beer on my travels, had it not become contaminated. You would have tried it and most certainly agreed that, "My

Nuts!



god, a national forest should be named after this beer." It would have served as the archetypical bock beer. Pat Baker, Russ Wigglesworth, Scott Birdwell, Gail Waltzer, Byron Burch, Dave Miller, Mary Richardson, Adetunji Joda, Kathi King, Thom Tomlinson, Karen Barela, Jake McKay, Jeff Markel, Whitey Jensen, T. Loysen, my editors and even George Fix and Jim Homer would have unanimously agreed. There would be no need to brew any other kind of bock ever again. It would have been served on a new television series called "Beer World." Damn. This surely would have been it.

To tell the truth I didn't dump all 30 bottles at once. I opened one each night for 30 nights, hoping for a miracle; maybe it was just that "one" bottle. Blind hope — perhaps some of you can relate. But as the days turned into fortnights the commercial beer jingle, "It doesn't get any better than this" took on a whole new meaning.

I was indeed a brewer. This weird reality; this bloody lousy beer shocked me more than anything else has in the past 10 years. I was a brewer. I make beer. I'm human. I got cocky and careless. I should have known better. But if I had known better, then I wouldn't have been a brewer. But I am a brewer. I make beer. Making a mistake is normal. Of course, making a mistake with what would have been the world's quintessential bock beer is totally dumb, stupid and foolish. I'm a brewer. These things happen every once in a while. The last bottle went down the drain the other night. I stopped crying after the first 14. Evacuating the last 16 bottles became a religious experience.

The whole thing was like being born again. I didn't realize it at the time, but I needed that. I think I learned my lesson well. I tend to be forgetful, so the experience helped shock me into taking care of some of the things I was beginning to take for granted.

I promise you that my beers will take on new life from this hard, hard lesson. If I may confide in you, I kind of hope I blow another batch in another 10 years, to keep me in line and in touch with reality.

But you wouldn't believe how perfect my latest batch of Pilsener is. It's called "A Fine Time To Be Me" and has got to be the most perfect batch I've brewed yet. I'm ashamed to admit my selfishness, but it's so good I don't think I'll enter it into any competition. Why waste three bottles? If you happen to stop by my home and I have any left, I might share it with you or offer you the latest brew, and discuss those all-time best batches.

It's summertime. Relax. Don't worry. Have a homebrew.



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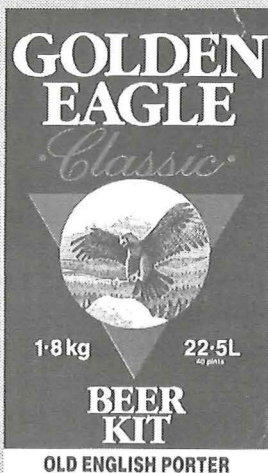
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DEAR

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Our Readers

Bubble Formation

Dear *zymurgy*,

A belated comment on the article in *zymurgy* Summer 1992, (Vol. 15 No. 2) "From Carboy to Beer Glass: A Note on Froth." Michael Tierney provides one of the best non-technical descriptions I've ever read about bubble nucleation. His story about Glaser, the bubble chamber and the Nobel Prize also interested me, but he left out the other major area where bubble nucleation plays a major role — hyperbaric physiology.

Hyperbaric physiology studies the behavior of the body under pressure. One focus is decompression sickness (the "bends"), caused by the formation of bubbles in a diver's body, usually because proper procedures are disregarded. Since the 1950s, bubble nucleation has been central in studying decompression sickness.

As a technical consultant and writer for the Professional Association of Diving Instructors (PADI — an organization that

trains divers) and a homebrewer, my explanations of decompression sickness sometimes include, "Have you ever dropped salt in a glass of beer?" Needless to say, I read "From Carboy" with "two hats on."

Good work, Michael Tierney.

Sincerely,
Karl Shreeves
Santa Ana, California

Quarterdoppelbock

Dear *zymurgy*,

As I sat and watched my favorite football team's (Greenbay Packers) playoff chances sink like the trub in a newly brewed beer, my mind turned from the NFL to brewing some beer over Christmas break. I first turned to the World of Worts column in *zymurgy* Winter 1992 (Vol. 15, No. 5), only to find a grave mistake was made by our fearless leader himself. Yes, the featured beer, "Quarterbock," is improperly named. It should be "Halfbock" or "Quarterdoppelbock", because if you start with a doppelbock (double bock), and quarter its strength, you end with a half-strength bock, not quarter-strength.

I also want to congratulate you on your new look. The last two issues have looked great! The magazine now looks even more professional than it did before. Keep up the good work!

I have a request for myself and other homebrewers who are a little larger than the rest of you. Not many of your shirts

are available in XXL, and I think they all should be. We homebrewers do drink our share of beer, and are just a little larger than the rest of the world!

Thanks,
Brian J. Walter
Fort Collins, Colorado

Mr. Walter's request has merit, so I will arrange to stock the XXL size for all shirts on a trial basis.
Mikel Detmer
Customer Service Manager
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What a Bargain!

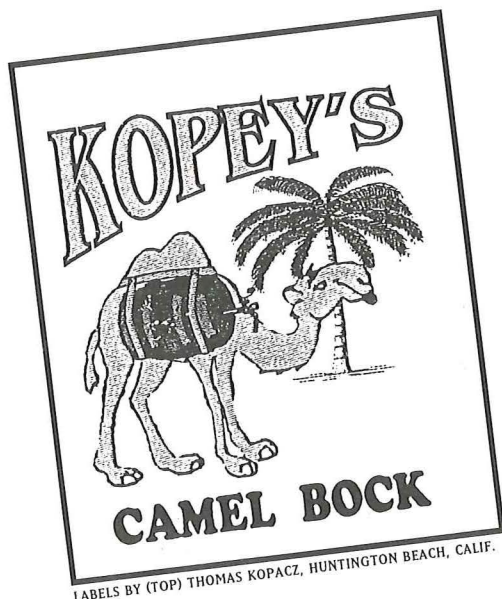
Dear *zymurgy*,

On my third time through *The New Complete Joy of Home Brewing* (Avon, 1992) — I finally read the introduction where Charlie Papazian says, "drop me a line." After reading the book three times I feel like I know Charlie, so here is a little story I thought, as an engineer, he might enjoy.

They say the job of an engineer is to figure out how to complete a project without enough money or equipment — on time and within budget. Here is how I brewed beer with very little money and no equipment. I "engineered" it.

First I went to the local spring water company and got a five-gallon plastic jug for a \$7 deposit — refundable, if I ever take it back. Next I went to the hardware store and got a compression union fitting for 10 cents. This made up the difference





Drop me a line sometime and I'll tell you how I made my own roasted barley for "Wise Ass Red Bitter."

Sincerely,
Mike Smith
Tarrant, Alabama

P.S. Forgot to tell you, Charlie, loved your book and learned a lot. Sorry, I got it from the library — no charge.

Mind Your Manners

Dear *zymurgy*,

After reading Tim Artz's letter, "We Homebrewers are Smarter Than That" in *zymurgy* (Vol. 15, No. 5), I thought another perspective of the relationship between the homebrewer and the professional was needed.

As a homebrewer I can appreciate the amount of work that a commercial brewer performs to have a finished product. I'm also keenly aware that to the brewer, this is *not* a hobby, but a business.

We should not expect free samples because we've brewed beer before any more than I should expect a free tuneup

from my mechanic because I changed the spark plugs in my car before. Most breweries offer some sort of sampler either free or for a small charge. Non-homebrewers use this sampler format and I think we should expect no special treatment.

As for touring the brewery, there's no question that prearrangement is mandatory. As homebrewers we should know that sanitation is number one in brewing. We should not handle any of the equipment or poke our head inside any vessels. To do so would only force the brewer to have to clean it again. Our lack of knowledge of brewery procedures and the lack of insurance means we should not get involved in any operations unless we are asked.

The issue homebrewers wrestle with most is whether or not to offer the brewer your critique of the beer. We all know that judging a beer's taste is subjective. I've found that given the opportunity to talk to the brewer, I get much more out of the conversation discussing what style and taste the brewer is trying to create rather than saying which beers are good or bad. This also gives the homebrewer the chance to show them what you know.

The only time unsolicited criticism is appropriate is if the beer is technically flawed; i.e., contaminated. But you had better be sure that the "flaw" was not

designed into the beer. To me, lactic acid is a form of contamination, yet I've tasted a few micro-brewed beers with the sour lactic acid flavor incorporated into the taste. Getting a contaminated beer shows a lack of quality control on the brewer's part. If we notify the brewer of a potential contamination, that becomes a wake-up call.

Homebrewers have a better appreciation of a well-crafted beer than the average consumer, but this doesn't give us any special rights. So let's just enjoy the beer.

Rex Garoutte
San Carlos, California

P.S. Leave me a seat at the bar. ☺

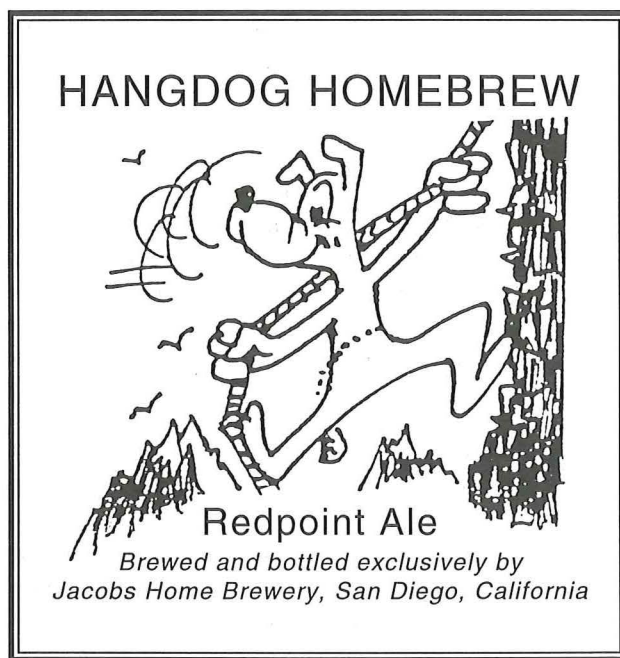
between the size of the hole in the top of the jug and the barrel of a round Bic pen (it was leaking ink anyway, so it cost nothing). Next I went to the drug store and got two pill bottles — a big one and a smaller, shorter one that would fit inside the larger one. No charge. I used the point of a knife to bore a hole in the bottom of the larger pill bottle.

I thought the plastic would be hard and I could make a round hole with the knife point then glue in the pen barrel. But the plastic was sort of semisoft and pushed in as I rotated the knife, making a water-tight seal without glue. Blind screaming luck.

I made a couple of holes in the lid of the big bottle with a hot coat hanger, turned the little bottle upside down on the pen barrel inside the big bottle and half filled the larger bottle with water, snapped the lid on and had one perfectly functional airlock — cost 10 cents.

I had to have a carboy brush and it cost \$4.95 (that hurt). I couldn't find any substitute. Three cans of Premier malt from the supermarket cost \$10.66 with tax (that didn't hurt too bad — this is gonna be the beer).

I saved up some old three-liter Pepsi bottles for bottling. Believe it or not, they work.



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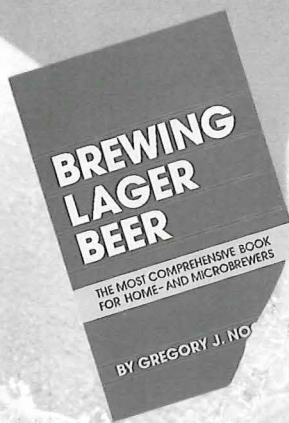
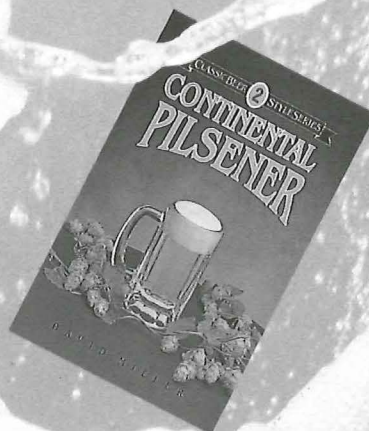
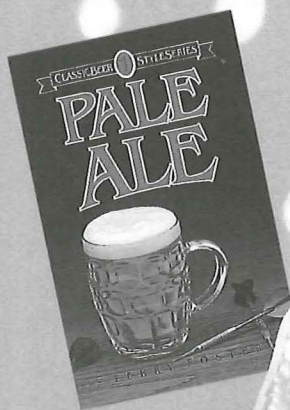
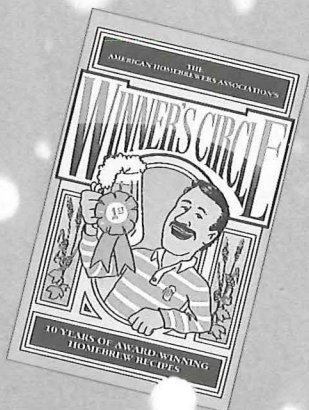
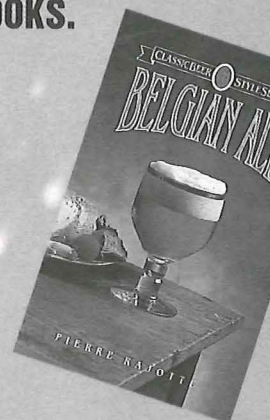
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ASSOCIATION NEWS

Karen Barela

15 years of Great Brewing



It's our 15th anniversary, and we have celebrations planned throughout the year.

The National Homebrewers Conference and National Homebrew Competition join the AHA in celebrating 15 years of offering the best information, quality services, beer and brewing opportunities, a hobby that teaches us to relax and not worry, and most of all a chance to enjoy a homebrewed, "unique because I made it" glass of delicious beer. The next time you brew think about what you were doing 15 years ago. Think about the amount of information that has accumulated about beer, brewing and homebrewing. If you are new to brewing, can you imagine how you would be brewing today without the convenience of technology, written information, your nearby homebrew supplier or your stack of mail-order resources? And if you are one of the original homebrewers who helped make it possible for the hobby and the AHA to celebrate this 15-year milestone, we thank you. It's a great time to be in the beer industry, to be the producers of the best magazine, to organize the world's largest homebrew competition, to put together the most informative (and fun) Conference and to celebrate 15 years with homebrewers who ultimately just want to enjoy homebrew.

Membership Grows Enthusiasm Shows

The growth in popularity of homebrewing continues, as shown by our 29 percent

growth in AHA membership in 1992. The expansion includes AHA-registered clubs where membership grew 35 percent in 1992 to 311 from a 1991 year-end count of 230 clubs. (We've already added 15 AHA-registered clubs so far in 1993!) The Sanctioned Competition Program sanctioned 93 homebrew competitions in 1992, 21 more than in 1991. The Beer Judge Certification Program had 907 participants at year-end, with 19 exams already scheduled for 1993. Enthusiastic homebrewers are organizing, judging and entering more competitions, attending more beer festivals and homebrewing events, reading more about homebrewing in books and periodicals, purchasing more brewing supplies and supporting homebrew retailers more than ever before. As always, we are here to provide you with the best information available about beer and brewing so you can translate your enthusiasm into a clean, enjoyable glass of homebrew.

NHC Goals

The first round of the National Homebrew Competition will be judged June 1 through 14 at four sites for beer, one for saké and one for cider. More than 200 judges are needed to complete the task. The National Homebrew Competition is constantly striving to accomplish the following goals:

- give entrants valuable feedback on the qualities of their beer in order to enhance the quality of homebrewing
- maintain valid standards of judging by the most qualified judges available
- maintain and improve the quality of the Competition as it continues to grow
- have manageable, organized, multiple

judging sites

- have a team of volunteer site coordinators at each location
- define and develop procedures and tools for registration, organizers, judges, entrants and volunteers
- have a working committee to advise the AHA on all aspects of the Competition
- award first, second and third place to brewers in each of the 28 categories
- award the Ninkasi (high point brewer), Club High Point Homebrewer, Meadmaker, Sakémaker and Cidermaker of the Year honors
- promote the quality of homebrewed beers to the beer-enthusiast public
- recognize the Competition sponsors to help enhance the image of the beer industry

For more information about the National Homebrew Competition, call the AHA at (303) 447-0816.

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petition. Pete's Brewing Co. of Palo Alto, Calif., is sponsoring the Ninkasi Award, named after the Sumerian goddess of brewing and awarded to the brewer who accumulates the most first, second and third places during the second round of the Competition. One of the winning beers will be brewed by Pete's Brewing Co. for their 1993 inaugural winter beer, a characteristically stronger, darker brew. The Ninkasi Award winner also will receive name recognition on every bottle of Pete's Wicked Winter Brew; registration to the two-week Short Course in Brewing Technology at the Siebel Institute of Technology in Chicago, Ill., (tuition, travel and lodging included); and attendance at the first brewing of their beer at Pete's Brewing Co. (travel and lodging included).

The winning brewer will be announced during the Final Frontier Awards Banquet at the Brewing Frontiers Conference on July 29 in Portland, Ore. A complete list of AHA National Homebrew Competition sponsors is elsewhere in this issue.

BJCP Goes Pro

For the first time, the Beer Judge Certification Program exam was offered during the Institute for Brewing Studies Microbrewers Conference. The April 19th exam in New Orleans, La., was offered to homebrewers, professional brewers and commercial beer industry executives who at-

tended the conference. The demand for qualified judges has exploded in the past 18 months and the professional brewing community has recognized the need and responded by supporting the BJCP. The relationship between homebrewing and micro/pub brewing continues to blossom as the two industries expand. Currently there are 40 BJCP judges who also are professional brewers:

Kenneth Allen, Anderson Valley, Brewing Co., Boonville, Calif.
Kinney Baughman, Tumbleweed Grille, Boone, N.C.
Al Colby, of the former Old Colorado, Brewing Inc., Fort Collins, Colo.
John Nat Collins, Woodstock Brewing Co., Kingston, N.Y.
Kevin Cox, Butterfield Brewery, Fresno, Calif.
Terry A. Dennis, Table Rock Brewpub and Grill, Boise, Idaho
Teri Fahrendorf, Steelhead Brewing Co., Eugene, Ore.
Jim Fishwild, Harrison Hollow Brewhouse, Boise, Idaho
Tod C. Foster, Bar Harbor Brewing Co., Bar Harbor, Maine
Roger Gribble, Winchester Brewing Co., San Jose, Calif.
Todd Hanson of the former Fox Classic Brewing Co. Inc., Appleton, Wis.
Larry Irons, Irons Brewing Co., Lakewood, Colo.
Jim Jensen, The Brewmaster's Pub, Kenosha, Wis.
Grant Johnston, Marin Brewing Co., Larkspur, Calif.



Greg Kelley, formerly of Judge Baldwin's Brewing Co./Kelley Brewing, Colorado Springs, Colo.

Alan J.V. Knight, Tracks Brewpub and others, Brampton, Ontario

John Korpita, Latchis Grille and Windham Brewery, Brattleboro, Vt.

Brad Kraus, Santa Fe Brewing Co., Galisteo, N.M.

Jeffrey D. Lebesch, New Belgium Brewing Co., Fort Collins, Colo.

Roger Lind, Lind Brewing Co., San Leandro, Calif.

Phil Markowski, New England Brewing Co., Norwalk, Conn.

Dave Miller, St. Louis Brewery/The Taproom, St. Louis, Mo.

Greg Möehn, Chicago Brewing Co., Chicago, Ill.

Phil Moeller, Rubicon Brewing Co., Sacramento, Calif.

Alec Moss, Golden Pacific Brewing Co., Emeryville, Calif.

Brendan Moylan, Marin Brewing Co., Larkspur, Calif.

Greg Noonan, The Vermont Pub and Brewery of Burlington, Burlington, Vt.

David Norton, The Brewmaster's Pub Kenosha, Wis.

Ron Page, New England Brewing Co., Norwalk, Conn.

Allan Paul, San Francisco Brewing Co., San Francisco, Calif.

Rande Reed, Thomas Kemper Brewing Co., Poulsbo, Wash.

Jeffrey Silman, formerly of Zip City Brewing, New York, N.Y.

Chuck Skyepeck, Bosco's Pizza Kitchen and Brewery, Germantown, Tenn.

Hubert Smith, Pizza Deli and Brewery, Cave Junction, Ore.

Norman Soine, Syracuse Suds Factory, Syracuse, N.Y.

Tom Sweeney, Mill Rose Brewing Co., South Barrington, Ill.

Artie Tafoya, Heavenly Daze, Steamboat Springs, Colo.

Andrew Tveekrem, Great Lakes Brewing Co., Cleveland, Ohio

Wayne Waananen, The Hubcap Brewery and Kitchen, Vail, Colo.

Philip Watney, Horseshoe Bay Brewing Co. Ltd., Horseshoe Bay, British Columbia

Beer enthusiasts across the country will benefit from the increased exposure, knowledge and experience of judges from both industries who spread the word about quality beer and brewing.

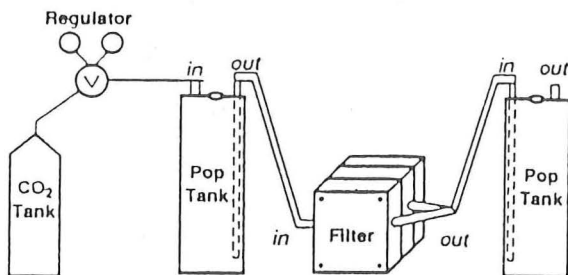
BJCP Volunteers Enhance Program

The value of the volunteers who help make the BJCP succeed often goes unnoticed. There are 10 key people who volunteer their time and energy to make sure all is well in the world of judges and would-be judges. The volunteer BJCP committee members are, John Dale, Neshanic Station, N.J.; Eric McClary, Carson City, Nev.; Dave Norton, Kenosha, Wis.; and Russ Wigglesworth, San Francisco, Calif. These four work year-round to ensure the integrity of the program by planning for the future, cultivating the program by ensuring the bylaws have the most current judging information available and by improving the program with procedural updates. The two volunteer associate directors, Alberta Rager of Lenexa, Kan., and Steve Stroud of Medford, Mass., hold key positions by being responsible, along with the two co-directors, for grading all of the BJCP examinations. Rager and Stroud meticulously grade, score and comment on every exam taken by potential judges and judges moving to higher

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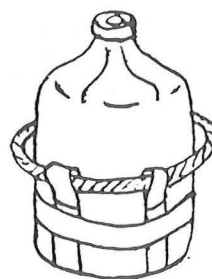
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ranks. Their qualifications? Stroud, the only person in the history of the program to score a perfect 100, is a National Judge. Rager also is a National Judge with 46 experience points and many years of professional grading and teaching experience. Both made a commitment that involves not just their judging skills and brewing knowledge but a great deal of their free time as well. At the helm of the BJCP are the two co-directors, Jim Homer of Boulder, Colo., and Pat Baker of Weston, Conn. These two volunteers have led the program from fewer than 250 participants to 930. More than 174 exams have been scheduled and given in eight years, largely under the direction of Homer and Baker. Praise and commendations are due all of these volunteers. The BJCP is co-sponsored by the AHA and the Home Wine Beer Trade Association and administered by the AHA. For more information contact Karen Barela or James Spence at the AHA, (303) 447-0816.

Brewing Frontiers Conference July '93

There is still time to join the fun, and we

know you don't want to miss the action. The Brewing Frontiers program will have 19 speakers, two special labs, a preconference tour, second-round National Homebrew Competition judging, two JamBEERys, a BJCP exam, 400 enthusiastic homebrewers, 30 clubs, award announcements, the Oregon Brewers Festival, three half-day Siebel courses, and we haven't even mentioned beer yet! Clubs will bring their best homebrews to share. The banquet will be prepared with beer as an ingredient and served with beer, including the commemorative brew. A selection of Oregon ales will be available in a tasting. The Oregon Brewers Festival will provide more than 50 micro/pubbrewed beers. In Portland alone there are more than five breweries to visit and 16 more in the state. Finally, individual homebrewers will bring a great selection of homebrewed beers to share with you. We guarantee there will be some of the best and strangest beers you have ever tasted! The education and beery good time is at the 15th Annual AHA National Homebrewers Conference in Portland, Ore., July 27 through 30. It's where brewing dreams come true. Call the AHA for details, (303) 447-0816.

Commemorative Conference Brew

Chris Studach of Eugene, Ore., was very busy this winter brewing 80 gallons and even busier this spring bottling 700 six-ounce bottles and 200 750-milliliter bottles of his Oregon Nut Brown Ale, the 1993 AHA National Homebrewers Conference Commemorative Beer. Studach used an extract made from Oregon-grown hazel nuts to add a special flavor to his one-of-a-kind brew. The logistics involved in brewing and bottling homebrew in this quantity are complicated, to say the least, but Studach has accepted the challenge with poise, grace and a love for great homebrewed beer. Studach is the winner of several homebrewing awards and competitions. The commemorative beer will be available to Brewing Frontiers Conference attendees during the AHA National Homebrewers Conference.

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brewed beer. Members of the Chicago Beer Society have taken this to the extreme. They've organized a Crazy Train — one box-car traveling from downtown Chicago, Ill., to downtown Portland, Ore., filled with 30 or so beer enthusiasts on their way to Brewing Frontiers, the AHA National Homebrewers Conference. They plan to pick up other interested homebrewers as the train stops in various cities along the way. It's making Amtrak history. They plan to brew what may be the first batch on a moving train (tentatively titled Agitator). Rumors abound that trains coming from Texas and Boston will hook up with the Crazy Train in Chicago, and that a West Coast train will travel from Southern California to Portland. All aboard!

Members of the AHA staff will be using conventional air travel to attend Brewing Frontiers, and so far plans do not include brewing while flying over the Rocky Mountains. AHA President Charlie Papazian, Vice President Karen Barela, AHA Administrator James Spence, *zymurgy* Editor-in-Chief Elizabeth Gold, *zymurgy* Advertising Manager

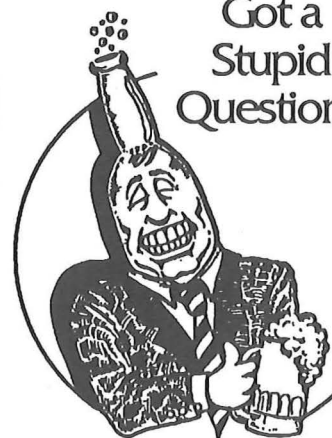
Linda Starck, AOB Marketing Director Lori Tullburg and members of the Institute for Brewing Studies staff invite you to attend.

We also encourage you to come to Denver, Colo., Oct. 8 and 9 for the Great American Beer Festival. (We'll be traveling by automobile.) AHA members are invited to the Members-Only Tasting on Saturday Oct. 8. This exclusive tasting is only open to AHA and IBS members and is your opportunity to sample the more than 700 beers with fellow homebrewers and professional brewers. Use a plane, train or automobile, but be sure to be there.

Have a Great Brewing Story?

zymurgy welcomes ideas, outlines, proposals or manuscripts on the subject of beer, cider, mead, saké and brewing. All submissions will be carefully considered. Direct inquiries to Elizabeth Gold, *zymurgy* editor-in-chief, PO Box 1679, Boulder, CO 80306-1679.

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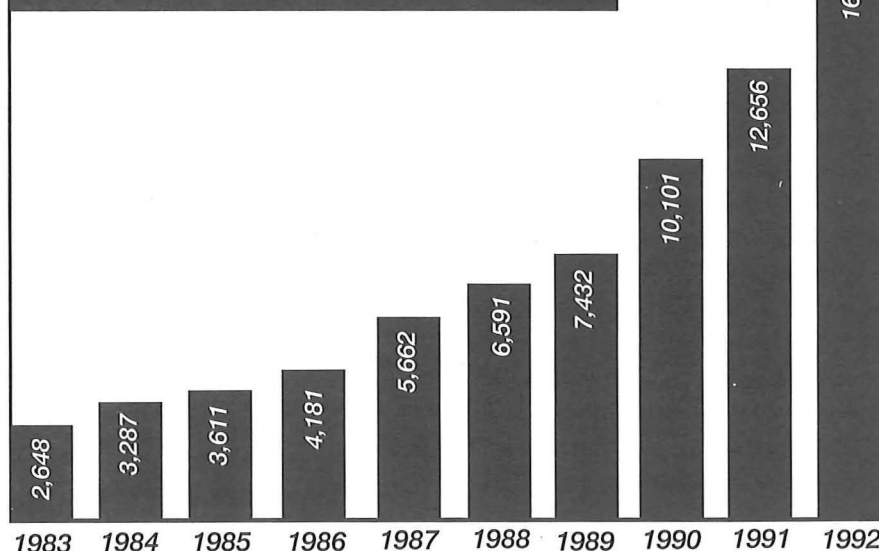
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American Homebrewers Association Year-End Membership 1983-1992



American Homebrewers Association

A Division of the Association of Brewers Inc.

1992 Income and Expense Statement (unaudited)

Revenues		1992
Membership and sponsorship	\$410,370	49.0%
zymurgy sales	148,400	17.8%
zymurgy advertisement sales	152,425	18.3%
National Conference	75,800	9.1%
National Competition	24,200	2.9%
Beer Judge Certification Program	7,650	0.9%
Club Program	1,370	0.2%
Sanctioned Competition Program	1,400	0.2%
Merchandise and Sales (Special publications, AHA-related sales)	13,900	1.6%
TOTAL	\$835,515	100.0%
Expenses		1992
Marketing and Public Relations	42,800	6.2%
zymurgy general	264,559	37.4%
zymurgy advertisement	32,265	4.6%
National Conference	56,800	8.0%
National Competition	28,350	4.0%
Beer Judge Certification Program	9,280	1.3%
Club Program	4,250	0.6%
Sanctioned Competition Program	1,700	0.2%
CompuServe and computer networking	5,100	0.7%
Overhead	261,800	37.0%
(salaries not attributed directly to specific programs above, merchandise sales and customer service, rent, taxes, insurance, utilities, postage, travel, etc.)		
TOTAL	\$706,904	100.0%

Note: AHA liability: deferred membership \$361,680

Send a self-addressed stamped (52 cents) 9 x 12-inch envelope for a more complete financial statement of the Association of Brewers. If you have specific questions please state them, and we will do our best to address your concerns.

CALENDAR



JUNE

- 13** BJCP Exam, Pottstown, Penn. Contact Rich Gleeson at (215) 833-2357.
19 Mt. Clemens 175th Anniversary Homebrew Competition, **AHA Sanctioned Competition**, Mt. Clemens, Mich. Sponsored by Mount Clemens Hardware. Entry deadline is June 12. Contact Arthur Baarck at (313) 468-5451.
19 BJCP Exam, Utica, N.Y. Contact Steve Hodos at (716) 242-9626.
25 Mazer Cup Mead Competition, **AHA Sanctioned Competition**, Ann Arbor, Mich. Entry deadline is June 18. Contact Ken Schramm at (313) 377-8682.

JULY

- 3** Big Sky Homebrew Competition, **AHA Sanctioned Competition**, Missoula, Mont. Contact James Pelland at (406) 542-3685.
10 Sheridan-Wyo Rodeo Competition, **AHA Sanctioned Competition**, Sheridan, Wyo. Entry deadline is July 10. Contact Tom Johnson at (307) 672-8015.
10 BJCP Exam, New York, N.Y. Contact Patrick Baker at (203) 227-8028.
10 BJCP Exam, Madison, Wis. Contact David Norton at (414) 694-7591.
13 Red River Valley Fair, **AHA Sanctioned Competition**, Fargo, N.D. Entry deadline is July 12. Contact Martin Draper at (701) 237-7854.
14-21 AHA 1993 National Homebrew Competition second-round entries received. Contact Karen Barela at the AHA (303) 447-0816.
17-18 California Small Brewers Festival, **AHA Sanctioned Competition**, Morgan Hill, Calif. Contact Sherry Archer at (408) 779-0234.
24 New England Brewers Festival, Quality Hotel Pavilion, Northampton, Mass. Call N.E.B.F. at (413) 584-2079.
24 Santa Clara County Fair, **AHA Sanctioned Competition**, San Jose, Calif. Entry deadline is July 23. Contact Robert Hight at (408) 247-6853.
24-26 *Brewing Frontiers Adventure*, Pre-Conference Tour. Call the AHA at (303) 447-0816.
27-30 AHA 1993 National Homebrewers Conference, *Brewing Frontiers*, Portland, Ore. Details in *zymurgy* Spring 1993. Call the AHA at (303) 447-0816.
29-Aug. 1 Siebel Institute of Technology, three-day seminar, various topics, Portland, Ore. For details and information call the Siebel Institute of Technology at (312) 463-3400.
30 BJCP Exam, Portland Ore. Contact James Spence at (303) 447-0816.
30-Aug. 1 Oregon Brewers Festival, Portland, Ore. Contact Widmer Brewing Co. at (503) 281-BIER.

AUGUST

- TBA** Central Ohio Brewfest, **AHA Sanctioned Competition**, Columbus, Ohio. Call Wines Inc. at (614) 846-5566.
1 Second Annual Central Illinois Homebrew Competition, **AHA Sanctioned Competition**, Normal, Ill. Contact Tony McCauley at (309) 452-1084.
9 Weiss is Nice, **AHA Club-Only Sanctioned Competition**. Entry deadline is Aug. 9. Contact James Spence at the AHA (303) 447-0816.
14 Josephine County Fair Amateur Beer Competition, **AHA Sanctioned Competition**, Grants Pass, Ore. Entry deadline is Aug. 13. Contact Michael Maas at (503) 476-0737.
15 San Mateo County Fair, **AHA Sanctioned Competition**, San Mateo, Calif. Entry deadline is Aug. 8. Contact Frank Bond at (408) 255-5660.
21 Los Angeles County Fair Homebrew Competition, **AHA Sanctioned Competition**, Pomona, Calif. Registration fees due July 31. Contact Bruce Brode at (213) 469-6211.
21 Gilroy Antique & Brewfest Homebrew Competition, **AHA Sanctioned Competition**, Gilroy, Calif. Entry deadline is Aug. 15. Contact Richard Allen at (408) 247-6010.

- 21** BJCP Exam, Ft. Mitchell, Ky. Contact Keith Wilbourn at (502) 422-6954.
28 New Mexico State Fair ProAm, **AHA Sanctioned Competition**, Albuquerque, N.M. Entry deadline is Aug. 20. Contact Guy Ruth at (505) 294-0302.

SEPTEMBER

- 11** Santa Cruz County Fair Homebrew Competition, **AHA Sanctioned Competition**, Watsonville, Calif. Entry deadline is Aug. 28. Contact Keith Smock at (408) 496-4856.
11 Sonoma County Harvest Fair Homebrew Competition, **AHA Sanctioned Competition**, Santa Rosa, Calif. Contact Norman Dickenson at (707) 523-1565.
28-Oct. 2 Mid-South Fair Homebrew Competition, **AHA Sanctioned Competition**, Memphis, Tenn. Contact Sue Cook at (901) 274-8800.
TBA Fifth Annual TRUB Open, **AHA Sanctioned Competition**, Durham, N.C. Contact Scott Oglesby at (919) 361-2886.

OCTOBER

- 1-3** Minnesota Brew Fest, **AHA Sanctioned Competition**, sponsored by Sherlock's Home Restaurant, Pub and Brewery, Minnetonka, Minn. Entry deadline is Sept. 25. Contact John Desharnais at (612) 844-1382.
2 Second Annual Dominion Cup Open/State Fair of Virginia Competition, **AHA Sanctioned Competition**, Richmond, Va. Contact Alan Williamson at (804) 231-1359.
8-9 Great American Beer Festival™ XII, Denver, Colo. Call the Association of Brewers at (303) 447-0816.
4 Best of Fest, **AHA Club-Only Sanctioned Competition**. Entry deadline is Oct. 4. Contact James Spence at the AHA (303) 447-0816.
15-16 Dixie Cup, **AHA Sanctioned Competition**, Houston, Texas. Entry deadline is Oct. 9. Contact Andy Thomas at (713) 954-6322.
16 Northern New England Regional Homebrew Competition, **AHA Sanctioned Competition**, South Portland, Maine. Entry deadline is Oct. 9. Contact Bill Giffin at (207) 737-2015.
16 Second Annual DLB Homebrew Competition, **AHA Sanctioned Competition**, Westlake, Ohio. Contact Pete Wilson at (216) 937-6594.
22 The Taste of the Great Lakes™, **AHA Sanctioned Competition**, Frankenmuth, Mich. Entry deadline is Oct. 11. Contact Jeff Hervert at (517) 652-3445.

NOVEMBER

- 6** Third Annual Novemberfest, Kirkland, Wash. Details TBA.
6 Dulles Regional Brewing Society Capitol District Open, **AHA Sanctioned Competition**, Fairfax, Va. Entry deadline is Nov. 1. Contact Fred Hardy at (703) 378-0329.
6 Second Annual Spooky Brew Review, Chicago, Ill. Entry deadline is Oct. 30. Contact Steve Hamburg at (312) 878-0177.
12-13 Hop Barley and the Ale's Reggae and Dredhop, Boulder, Colo. Entry deadline is Nov. 5. Contact Dan Brainard (303) 972-4034.

DECEMBER

- 4** Ambrosia Adventure, **AHA Sanctioned Competition**, Boulder, Colo. Contact Susanne Price at (303) 442-9111.
6 Poignant Porter, **AHA Club-Only Sanctioned Competition**. Entry deadline is Dec. 6. Contact James Spence at the AHA (303) 447-0816.

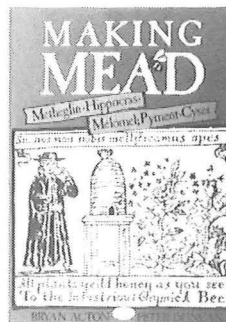
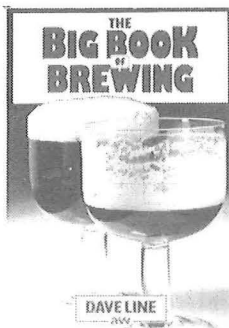
1994 JANUARY

- 23** First National Deaf Homebrew Competition, **AHA Sanctioned Competition**, Portland, Ore. Entry deadline is Jan. 8. Call the Grateful Deaf Homebrew Society at (503) 245-1795.

To list events, send information to *zymurgy*, Calendar of Events. Competition organizers wishing to apply for AHA Sanctioning must do so at least two months before the event. To be listed in *zymurgy* Fall 1993, information must be received by July 23, 1993. Contact Karen Barela at (303) 447-0816, FAX (303) 447-2825, PO Box 1679, Boulder, CO 80306-1679.

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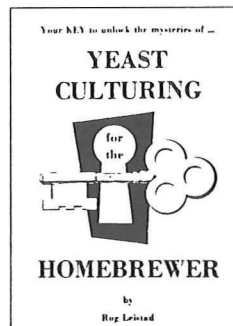
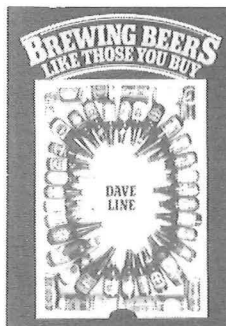


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Techniques and recipes for duplicating more than 100 of the world's most famous commercial beers. Everything from Thomas Hardy's to Foster's Lager to Lowenbrau.



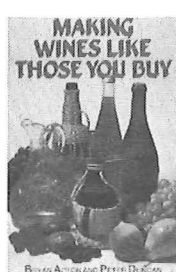
Yeast Culturing For the Homebrewer, by Roger Leistad

Liquid yeast cultures can dramatically increase the variety of beers you can make. Learn how easy it is to propagate liquid yeast cultures at home.



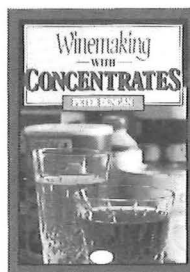
First Steps in Winemaking Berry

Everything a beginning winemaker needs to know to get started. Includes over 130 detailed recipes.



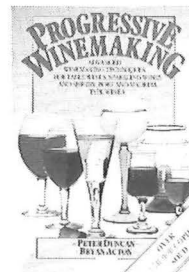
Making Wines Like Those You Buy, Acton & Duncan

This book shows how to make white, red and rose table wines, Sauternes, Hocks, Moselles, Madeiras and champagne, plus a wide variety of liqueurs and apertifs.



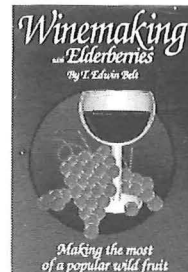
Winemaking with Concentrates Duncan

A practical guide to the production of wine from grape and other fruit juice concentrates.



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Winemaking with Elderberries, Belt

This commonly found fruit makes a multitude of delicious drinks. This book provides over 115 recipes and includes detailed instructions.

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How To Build A Small Brewery, Draft Beer In Ten Days, by Bill Owens

The brewing techniques described in this book are the same used by the author at his brewpub, Buffalo Bill's in California. Bill's six barrel brewhouse uses the same tower brewing methods described in this book. Bill Owens shows how to build the entire system at home and how to produce carbonated beers from all-grain in just 10 days.



BREW NEWS

James Spence

Georgia Homebrewing Legalized

On March 1, 1993, the Georgia Senate passed a bill legalizing homebrewing in Georgia. After the House passed the bill 109 to 12 in early February, the Senate voted 36 to 13 to allow 50 gallons of beer for private consumption to be brewed annually. Governor Zell Miller signed the bill into law on April 7, 1993. House Bill No. 197 takes effect July 1, 1993.

Yakima Labels Yanked

The Bureau of Alcohol, Tobacco and Firearms has ordered Yakima Brewing and Malting Co. to remove nutritional content from the labels of Grant's Scottish Ale, with the exception of calories, fats, proteins and carbohydrates. The Washington microbrewery began producing packaging materials with statements of vitamin, mineral and other nutritional content in November 1992. The BATF called on a 1950s rule that prohibits any statement claiming "that the use of any malt beverage has curative or therapeutic effects if such statement is untrue in any particular or tends to create a misleading impression." Grant's Scottish Ale contains 170 percent of the U.S. recommended daily allowance of vitamin B₁₂.

Gueuze News

Jean-Pierre Van Roy, owner of the world-famous Cantillon brewery in Brussels, is chal-



Attending the historic Georgia signing are (left to right) Rick Foote, Chicken City Ale Raisers, director; Ken Ward, Covert Hops Society newsletter editor; Phil Schlecht, Covert Hops Society member; David Mothershed, Covert Hops Society member; Rick Lubrant, HB 197 lobbyist and Covert Hops Society director; Rep. Barbara Mobley, co-sponsor of the bill; Gov. Zell Miller; Harry Hager, petition chairman and Covert Hops Society member; Ken Teal, LaGrange Homebrewers; Dow Scoggins, Helenbock Beer founder; Coby Glass, Ale Atlanta director; unidentified Aid of State; and Chester Bryant, director, Georgia Tobacco Tax Department of Revenue.

Grant's Scottish Ale

NUTRITIONAL INFORMATION PER SERVING (12 oz.)		PERCENTAGE OF U.S. RECOMMENDED DAILY ALLOWANCE (U.S. RDA)	
SERVING SIZE	12 OUNCES (355 ML)	SERVING SIZE	12 OUNCES (355 ML)
Calories	145	Calories	5.4%
Protein	2.24 grams	Protein	4.0%
Carbohydrate	12.7 grams	Riboflavin (B2)	4.6%
Fat	0 grams	Niacin	14.6%
Cholesterol	0 grams	Folacin	62.5%
Sodium	75 milligrams	Pyroxin (B6)	13.9%
Potassium	195 milligrams	Vitamin B12	170.0%

Ingredients: Refiltered pure water, barley malt, Yakima Valley hops and pure culture yeast.

lenging rival gueuze brewers' claims to true gueuzedom. Van Roy claims that seven of the district's breweries are cheating by fermenting their beers under controlled conditions. Lambic and gueuze beers traditionally have been produced by spontaneous fermentation with wild yeasts and bacteria. The breweries claim they use sugars to sweeten their beers for modern palates. CAMRA's *What's Brewing* reports the case is in a Belgian court, and a magistrate is expected to decide after the analyses of the controversial beers have been completed.

Space Hops

Two German astronauts tested the effects of radiation and weightlessness on hop plants during a U.S. space shuttle flight in late February. A spokesman for Brauerei Beck said that German brewers hope to develop better types of hops from the space experiments. Natural radiation causes mutation in plants anyway, and the brewers hoped to find out what effects the extreme conditions of space will have on the plants.

Liquid Assets



Portland Brewing has come up with a unique way to attract investors. According to *Fortune*, each of the company's 600 shareholders receives a voucher worth a pint of ale a day at the downtown Portland brewery and pub. Stockholders must be Oregon residents. Pints are not cumulative or retroactive, but a loy-

al stockholder could conceivably consume three kegs of brew in a year.

AHA Sanctioned Competitions

Wines Inc. Christmas Competition

Tom Charlton of Columbus, Ohio, took Best of Show at the July 15, 1992, third Annual Wines Inc. Christmas Homebrew Competition in Columbus. The competition drew 30 entries.

California State Fair

The 1992 California State Fair in Sacramento drew 284 entries on Aug. 2. Kevin Johnson of Pacifica took Best of Show.

L.A. County Fair

Tom Estudillo of La Canada took Best of Show out of 112 entries at the 1992 Los Angeles County Fair Homebrewed Beer Competition in Pomona. The Best of Show judging took place Sept. 19.

DLB Homebrewers Competition

Peter Duck of North Ridgeville, Ohio, took Best of Show out of 32 entries at the 1992 DLB

Homebrewers Homebrew Competition held Oct. 17 in Westlake, Ohio.

Taste of the Great Lakes

Competing with 113 other entries, Kevan Hearn of Tigard, Ore., took Best of Show at the 1992 Taste of the Great Lakes competition Oct. 23 in Frankenmuth, Mich.

Minnesota Brewfest

Mark Konings of Minneapolis, Minn., took Best of Show out of 282 entries at the 1992 first Minnesota Brewfest in Minnetonka, Minn., on Oct. 25.

Reggale and Dredhop

Michael Deck of Boulder, Colo., took Best of Show at Hop Barley and The Ale's 1992 Fourth Annual Reggale and Dredhop competition in Boulder, Colo. His wheat beer beat 105 other entries in the Nov. 6 competition.

Spooky Brew Review

The Nov. 7, 1992, Spooky Brew Review drew 221 entries in Chicago, Ill. Rob Reed of Kokomo, Ind., won Best of Show with a brown ale.

Hops-Bops

Dave Paytas of Ridley Park, Pa., took Best of Show at the HOPS-BOPS: Homebrewers of Philadelphia and Suburbs-Best of Philadelphia and Suburbs competition on Nov. 8. The Philadelphia competition drew 109 entries.

California State Competition

Chuck Artigues of San Francisco, Calif., organized the 1992 14th Annual California State Homebrew Competition on Nov. 8, 1992. The competition in San Francisco drew 171 entries.

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Ithaca Brewers' Union

Seventy-five entries competed in the 1992 Ithaca Brewers' Union Fall Classic Open Homebrew Competition in Ithaca, N.Y. Dwight Beebe of Cortland, N.Y., took Best of Show at the Nov. 14 competition.

Riverside County Farmers Fair

Kendall Head of Chino beat 118 entries for Best of Show in the Nov. 14, 1992, Riverside County Farmers Fair in Temecula, Calif.

November Classic

Madison, Wis., had 14 entries competing in the 1992 November Classic. Steve Klafka of Madison took Best of Show.

St. Louis Brews

Jerry Dahl of St. Louis, Mo., took Best of Show at the 1992 St. Louis Brews Happy Holiday Homebrew Competition Dec. 19 in St. Louis. His Scotch ale beat 118 other entries in the competition.



Winner of the William Rahr Memorial Trophy for Best of Show at the Minnesota Brew Fest '92 is Mark Konings (second from left), with (left to right) Michael Jackson, world beer critic and judge; William Otteson, Rahr Malting vice president; and William Burdick, Sherlock's Home president and brewmaster.

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Crisp Maris Otter won 1st place at this year's National Malting Barley Competition.



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Murphy's Creek

Colorado: Lonetree Brewing Ltd., Denver

Maine: Lake Saint George Brewing Co., Liberty

Oregon: Liberty Brewing Co., Lake Oswego

Brewpubs

California: Redondo Beach Brewing Co.,
Redondo Beach

Florida: Kelly's Caribbean Bar and Grill, Key
West; The Mill Bakery Brewery and Eatery,
Fort Myers

Maine: Sea Dog Brewing Co., Camden

Nevada: Holy Cow Casino, Cafe and Brew-
ery, Las Vegas

New York: Manhattan Brewing Co., New
York (reopened)

Ohio: Barley's Brewing Co., Columbus

Vermont: The Jasper Murdock Alehouse at
the Norwich Inn, Norwich

Virginia: Richbrau Brewery, Richmond

Canada

Microbreweries

Northwest Territories: Arctic Brewing Co.,
Yellowknife

CLOSINGS United States

Alaska: Yukon Brewing Co. (closed in 1991),
Anchorage

Connecticut: Charter Oak Brewing Co., Bristol

Florida: Kidders Brewery, Fort Myers

Louisiana: Mill Bakery and Eatery (No. 4),
Baton Rouge

Montana: Great Northern Brewing, Colum-
bia Falls

Ohio: Meander Brewing Co., Youngstown

Wisconsin: Fox Classic Brewing Co., Appleton

Canada

Alberta: Bocalino Pasta Bistro, Edmonton

Ontario: Luxembourg Brewpub No. 4,
Oakville; Madawaska Tavern, Arnprior; The
Snooty Fox (formerly Luxembourg Brewpub),
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(Information provided by the Institute for
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GOLD for 12 l.

- Starting specific gravity : 1.053.
- Alcohol content : 5,5%.
- A real deluxe pilsner type of beer with a far better taste than the normal Lagers. Also comparable with Scandinavian deluxe-beers.

ABBEY BEER for 9 l.

- Specific gravity : 1.070
- Alcohol content : 8%.
- One of the Belgian specialty beers : the Abbey beer with vinous character due to its high alcohol content. Strong dark reddish brown beer with long keeping properties. Full flavoured taste with a malt aroma. Very thick and long lasting head (lacy).

AMBIORIX for 15 l.

- Starting specific gravity : 1.047
- Alcohol content : 6,5%.
- Amber beer with a red copper tint. Slightly acidic palate at first but with a sweet after-taste. Comparable with the well known beer of Roeselare.

DIABOLO for 9 l.

- Starting specific gravity : 1.071
- Alcohol content : 8%.
- Belgian specialty beer : golden colour beer with a thick and long lasting head (lacy). Characteristic aroma of devil type Belgian beers, soft palate with a slightly sweet after-taste. Diabolo also compares with triple Belgian beers (Triple).

KRIEK for 12 l.

- Starting specific gravity : 1.053
- Alcohol content : 5,5%.
- Kriek is the best known of the famous Belgian fruit-beers. Kriek is made by macerating cherries in beer. A slightly acidic and sweet aromatic beer with a red copper tint. Each kit contains pure cherry juice of at least 3 kg of cherries !

OLD FLEMISH BROWN for 12 l.

- Starting specific gravity : 1.060
- Alcohol content : 6 %.
- A dark brown beer with a red copper tint and a slight liquorice aftertaste that also compares with the Dutch 'Bock'-beers. In Belgium Oud Bruin (Flemish for Old Brown) type beers are strong aromatic beers with long keeping properties.

FRAMBOISE for 12 l.

- Starting specific gravity : 1.053
- Alcohol content : 5,5%
- BREWFERM framboise or raspberry beer, is a Belgian specialty. Together with the BREWFERM kriek this Framboise is the only fruit-beer-kit available in the world. Furthermore, these kits contain NO artificial flavors ! Each kit has an equivalent of 2 kilo of raspberries. This framboise beer has a very delicate aroma and is ideal as a refreshing summer-beer or as a surprising apéritif !

CHRISTMAS for 7 l.

- Starting specific gravity : 1.065
- Alcohol content : 6%.
- Dark strong heavy-bodied Belgian beer, sweeter than Abbey style beers. Strong malt flavour and aroma. Christmas type Belgian beers (brewed with top-fermenting yeast) are beers with long keeping properties which gets better and better after long maturation period. Thick and lacy head with extraordinary head retention.

KING for 9 l.

- Starting specific gravity : 1.070
- Alcohol content : 8%.
- An amber beer with vinous character due to its high alcohol content. Sweeter and lighter in colour than Abbey beer. A real beer for dessert with a fantastic taste !

SCOTCH for 9 l.

- Starting specific gravity : 1.050
- Alcohol content : 5%.
- Brewferm Scotch tastes like traditional scotch ales. Halfway between Christmas and Abbey style beers, this Scotch is a mouthfull and malt-accented beer. Good keeping properties.

WHEATBEER for 15 l.

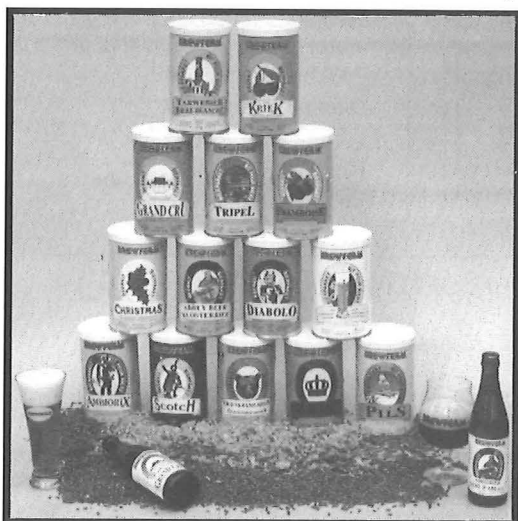
- Starting specific gravity : 1.053
- alcohol content : 5 %
- This is the first wheatbeer kit available ! It is very similar to the well known Belgian 'Witbieren' : very pale, honey-type, opaline colour, low alcohol content, sweet smell and a slightly acidic taste. An old recipe using oat flakes and a secret herb mixture.

GRAND CRU for 9 l.

- Starting specific gravity : 1.075
- Alcohol content : 8%
- The latest addition to the BREWFERM beerkit range. Gold opaline coloured, with strong flavor of grains and even bread. Very little hop aroma. Very mouthfull and even slightly fruit taste with a sweet aftertaste. Also these kits contain wheat malt and a special herb mixture.

TRIPLE for 9 l.

- Starting specific gravity : 1.075
- Alcohol content : 8 %
- Triple is a well known deep golden coloured Belgian specialty. Due to its high malt contents it has a very pleasant aroma and taste. Mouthfull, full bodied and even a bit herbaceous. High alcohol content.



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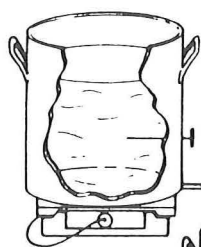
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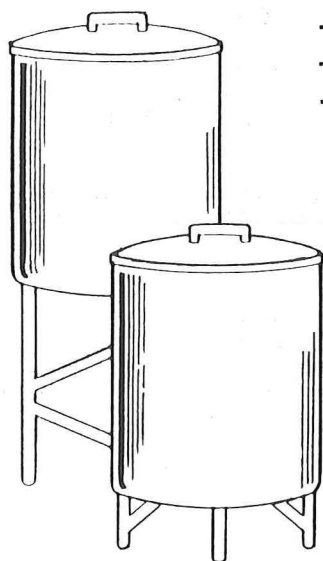
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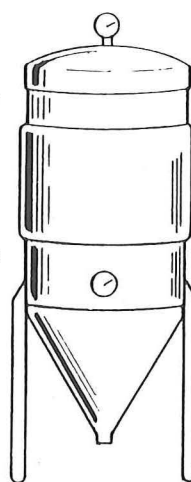
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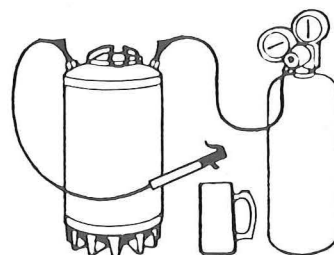
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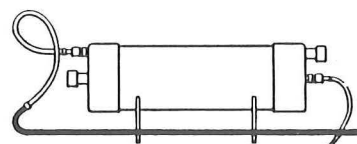
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JACKSON ON BEER

Michael Jackson

How Black Beer Survived Behind The Wall ...

With the growing interest in dark brews, could black beer be in for a revival?

When a beer calls itself black it proposes an impenetrability that fascinates. I sometimes wonder whether my own curiosity about brews of all kinds was not fired by the ads for Mather's Black Beer that appeared on the Leeds trams of my youth.

All beer was once either cloudy or dark, but the company that makes Mather's (yes,

it still exists) likes to trace the history of something specifically called black beer to the 1500s, the period of Oliver Cromwell.

Being a Yorkshire company, it also mentions that one of the county's many famous sons, Captain Cook, made a "black beer" from spruce shoots and leaves when he arrived in New Zealand in the 1700s.

Mather's Black Beer, which dates from the beginning of the 1900s, is high-gravity, still, malt extract, extremely sweet and with-

out hops. It is somewhat reminiscent of a tonic wine.

This Leeds brew is an ingredient of a shandy called a Sheffield Stout (was it a restorative for Yorkshire steelworkers, perhaps?) and another old favorite, the authentic rum and black. Some 1970s publicity material in my files recommends it mixed with milk or in a rye-bread soup — an Eastern European touch, that.

I was interested to hear that Mather's is currently having a tussle with the European Community over definitions and duties.

There are vestiges of black beers, spiced with spruce, birch or rose hips, in several maritime corners of the world, especially Baltic Europe. There also are rum concoctions in some Baltic ports.

Mather's has been inspired by this tradition, or its roots may be in Mumme, a malt-extract drink that was popular in Britain in



Hanoverian times. An example was still made in Brunswick, Lower Saxony, until two or three years ago.

Now I hear that two British brewers, Mitchell's and Adnams, may be importing, through the Pilsener producer Bitburger, a black beer from Thuringia, in former East Germany. Bitburger recently acquired the Köstritzer Schwarzbier ("Black Beer") brewery in Thuringia.

When I began to research the first edition of *World Guide to Beer*, back in the mid-1970s, someone told me he had vaguely heard

of a black brew made in a town called Köstritz, East Germany.

I looked in an atlas and could find no such town. I called the East German embassy and explained my problem. They said they would have to call me back. Some days later, to my surprise, they did. "Yes," they agreed, through what sounded like clenched teeth, "we can confirm that there is a town called Köstritz in our country."

It turned out to be called Bad Köstritz, the first word indicating that it was a spa; hence its refusal to answer to the letter "K."

Wishing to take advantage of our dialogue, I pressed on with my inquiries, and was surprised when the man on the other end of the phone seemed to say there were no beers at all in East Germany. I repeated the question, and elicited a different reply. "Oh, beers! I thought you said bears. There are no bears in East Germany ..."

My letter to the brewery went unanswered, and phone calls met with obtuse replies, so I put what little I could find into the book, and hoped that one day I would manage to taste the beer or even visit the place.

With the passage of time, it turned out that I was not the only person curious about Köstritzer Schwarzbier. A near-contemporary of mine, Dr. Axel Simon, had also become interested. The Simon family runs Bitburger, which is in the Rhineland Palatinate of what used to be West Germany.

The Simons were early sponsors of the brewing school and research institute in West Berlin, and have traditionally pursued their own education there.

While he was studying in Berlin in the 1960s, Axel Simon was intrigued by the proximity of the other Germany. By the time the student had progressed to the top level in the family business, the Berlin Wall was tumbling down and breweries in the east were becoming available for sale.

Dr. Simon and his colleagues cast their eyes east, and their attention fell upon what seemed the ideal acquisition. They believed there were affinities between Bitburger and Köstritzer. The one is famous for its very serious interpretation of the Pilsener style, and regards that as a specialty, the other for a black beer; they are both specialists, but also complementary.

Each has a long tradition. Even their geographical positions seemed an omen; they are on the same latitude on opposite sides of Germany. Both have built reputations despite being in very small towns. Both are in regions where the people have a reputation for being hard-working and responsible.

The first historical mention of Köstritzer beer is in the early 1500s. By 1696 there is an allusion to a brewery in the castle of the local count, and that was the beginning of the present enterprise.

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Despite the murkiness of all beers at that time, Köstritz seems to have established a particular reputation for blackness. When Germany's greatest writer, Goethe, was ill, a friend noted: "Thankfully, we have some Köstritzer Schwarzbier for him."

In the 1700s, students from the University of Jena were said to ride on horseback to Köstritz for the beer and return three days later.

By 1819 the beer was being sent by horse 175 miles to Berlin, and early printed publicity for the brewery describes the product as having "an international reputation."

As always in such cases, descriptions of the beer are vague, though it was said to "look like red wine." There is also mention of the brewery having switched from top to bottom fermentation in 1878.

The aristocratic owners had become earls by the time they built the present brewery in 1907. After World War II, it was nationalized by the East German government and in 1991 it was sold to Bitburger. In 1992 I finally got there.

It is a classically imposing Victorian brewery building, topped off with a tower. The tiled brewhouse must have been magnificent before the kettles were removed.

The state management fitted an extremely ugly brewhouse into a building across the yard in the 1970s.

The new owners have in Bitburger one of the most beautiful modern breweries in the former West Germany, by dint of tending their product and reinvesting their profits. The restoration of Köstritz will be a long haul, but they intend to proceed in the same manner.

The Schwarzbier has never ceased production, even though Pilsener-style beers were added to the range, and emphasized for some time in the early part of the century.

The state management permitted breweries to continue with their specialties so long as quotas for everyday beer were met.

Although the town of Köstritz has only 4,000 people to drink the beer, it does have the potential to be a tourist center with its half-timbered houses, baroque churches, cobble streets and pretty views of the wooded Eleanore Valley.

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baths to sufferers from rheumatism, became a hospital after the war, then closed altogether in 1990, but may be restored. The city of Gera is only six or seven miles away, the regional capital Erfurt not much farther.

may have experienced Köstritzer Schwarzbier earlier. When he was born, his mother had been sustaining herself on this brew.

The consumers of the born-again black beer may not be quite that young, but Dr. Si-

The essentials of Köstritzer Schwarzbier seem to be that it should be blacker than a more conventional dark lager, less attenuated and therefore fuller in body and drier with a characteristic of bitter chocolate.

Signs

Dr. Simon sees the Schwarzbier becoming once more a nationally known product, and the golden lagers increasing their penetration of the local market. Already there are shining new Köstritzer signs outside the local inns.

Much as he enjoys Bitburger, Dr. Simon

mon does see it appealing to a relatively youthful audience. Interest in dark beers seems to be growing from the young Germans' love affair with cloudy wheat brews.

The essentials of Köstritzer Schwarzbier seem to be that it should be blacker than a more conventional dark lager, less attenuated and therefore fuller in body and drier with a characteristic of bitter chocolate.

At the Bitburger brewery last year I tasted two versions of the Schwarzbier that had been brought from Köstritz.

The basic product was brewed from a gravity of 1.048 to 1.050, from 80 percent Munich malt and 20 percent from a much darker style. It was fermented to only 3.5 percent alcohol by volume then pasteurized.

The beer was solid black, had the aroma of malt loaf, a slightly oily body, notes of bitter chocolate and coffee and some roastiness in the finish.

A second version was based on the same beer with white sugar added to the kettle. This version also was pasteurized. It was, of course, sweeter, but also gentler and lighter in taste, with more malt flavor and less of the other flavors.

Both of these versions are still being made, but the sweetened version will have to be withdrawn at the end of the year when the German Beer Purity Law, the Reinheitsgebot, is extended to the former East Germany. In bottom-fermented beers sugar is not allowed.

Faced with having only one version, the brewery has tried to achieve a balance between the two. A new version has been de-

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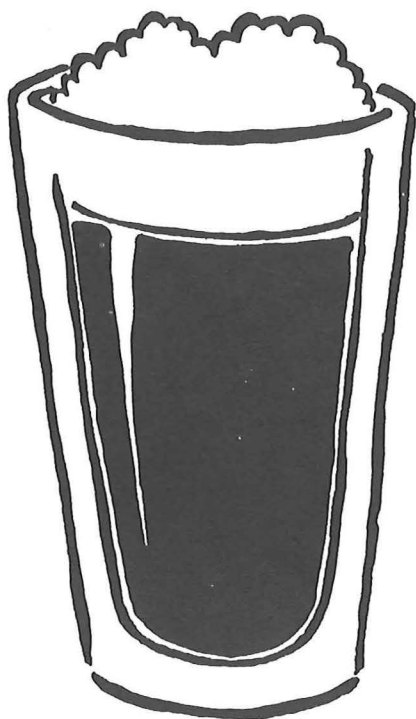
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veloped using three malts: Pilsener, Munich and roast. It will not be pasteurized.

On my recent visit to Köstritz I tasted the new version. It was still almost opaque and had all the flavor characteristics of its predecessors, especially the bitter chocolate, but with less richness and a dash less roastiness.

This resilient brew has experienced greater changes over the yeasts, but I cannot help regretting its reduction from two versions to one. On the other hand, how splendid that such an old and hidden specialty should re-emerge into the dark of day.

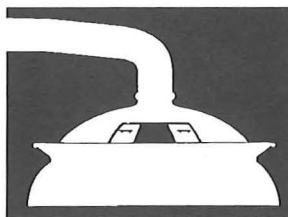
After my visit to Köstritz, I made some inquiries about the famous Schwartzbier of the Mönchshof brewery in Kulmbach, Franconia. This is a beer I have enjoyed many times, and I was appalled to learn that it had been discontinued.

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Michael Jackson is internationally the best-known writer on beer. His articles, books and documentary films have introduced beer styles to countless drinkers and brewers outside their native lands. His use of taste descriptions and accounts of his travels introduced a new genre of writing on beer. 

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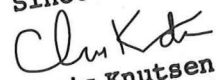
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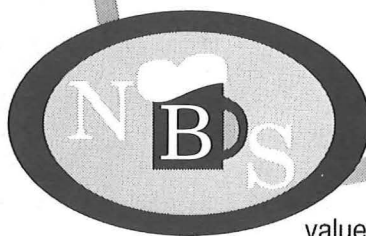
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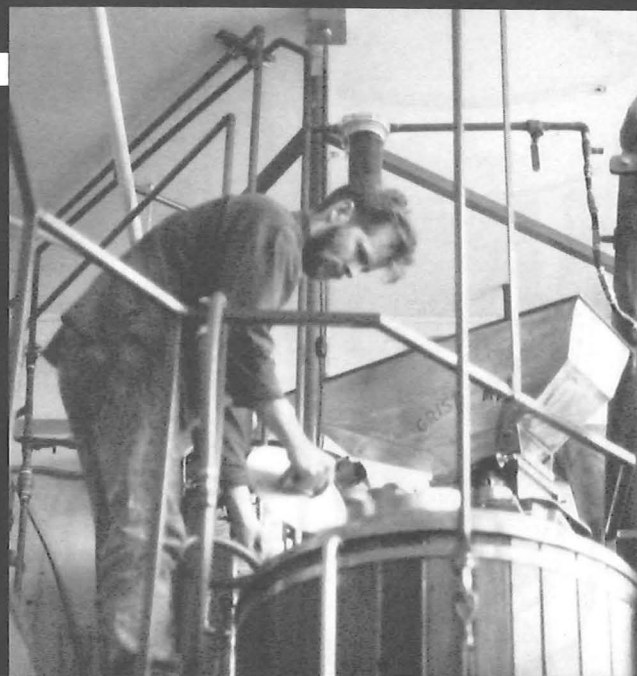
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HOMEBREW COOKING

WITH THE BREWGAL GOURMET

Candy Schermerhorn



Tasty Treasures of the Northwest

While preparing supper I gaze out at waves of heat undulating off the parched Arizona dessert. Thoughts of the cool Pacific Northwest hundreds of miles away overcome me.

On a visit there my husband and I once sampled a local loggers' breakfast of bigger-than-life portions, then we went out to explore the countryside. In a dazzling, fragrant pine forest we found tangled thickets of raspberries and blackberries and harvested enough for a refreshing sherbet, plus a few extra quarts just in case.

We stopped at a brewpub to sample a pint or two of finely crafted beer and garner data on the cultivation of hops, a prominent regional crop. We even indulged our not-quite-recuperated appetite with fresh bread dipped in a hot cheese-swirled

sauce made from local cheese and the house beer.

We promised to share a supper of beer-brined, alder-smoked salmon with our new brewing friends, so we headed for an open-air fish market then anticipated the impeccable food and fine beer we would indulge in the next day.

Reality returns as the kids tumble into the kitchen along with a blistering gust of heat. Sighing, I wistfully admit we cannot all live in the Pacific Northwest, but resolve to indulge in the distinctive fare this bountiful region has to offer.

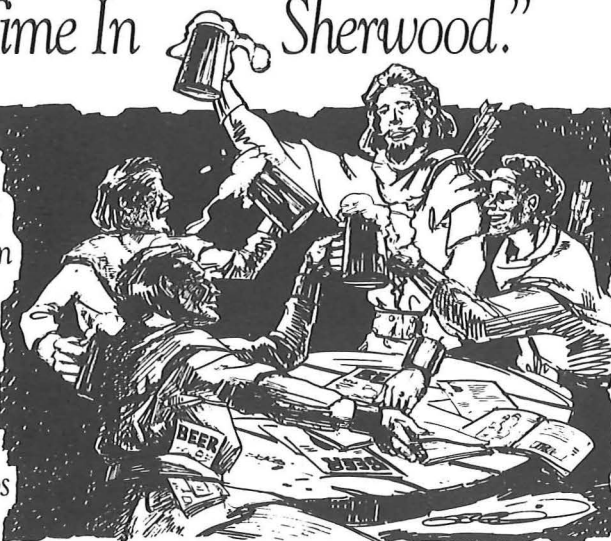
Hot Beer-n-Cheese Sauce

Not as heavy as fondue, this sauce is perfect as an appetizer for swirling bread in or embellishing steamed vegetables. It is ideal paired with a crisp salad for a summer supper. Makes approximately 2 cups.

- 2 1/2 tablespoons butter
- 2 1/2 tablespoons flour
- 2/3 cup Pilsener-style beer, warmed to 140 to 150 degrees F (60 to 65.5 degrees C)
- 1/3 cup half-n-half, warmed to 140 to 150 degrees F (60 to 65.5 degrees C)
- 4 ounces cream cheese, room temperature
- 1 teaspoon dry yellow mustard
- 1 teaspoon crushed dried thyme or herb of choice
- pinch cayenne (to taste)
- 10 ounces grated sharp cheddar (Tillamook from Oregon is good)
- 1 loaf of French or Italian bread

"If the Sheriff of Nottingham Had As Fine A Head As This Ale, He Would Not Have Spent All That Time In Sherwood."

For years, people have marveled that my merry men and I were able to evade capture by hiding in the forest. Perhaps 'tis time to set



the record straight. When we weren't robbing from the rich and giving to the poor, we were in a pub hoisting a pint in honor of Richard the Lion Hearted. Which is not to say we weren't clever lads. We'd move from pub to pub, but not just any establishment would do. We'd frequent only those championed in the pages of **All About Beer**, the best magazine about beer, breweries and drinking establishments in all the realm. If the Sheriff had sense enough to subscribe, it would have led him sure as an arrow to our door.

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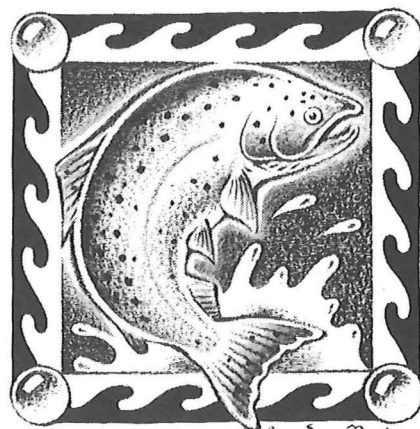
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(1) In a heavy pan melt butter over medium, sprinkle in flour and cook, stirring constantly, four minutes to form a roux.

(2) Whisking continuously, add the hot beer and cream. Add cream cheese, mustard, thyme and cayenne, stirring until smooth and heated through.

(3) Stirring slowly in one direction only, drop the cheddar cheese into the sauce one handful at a time. Wait until each addition is melted before adding another. Remove pan from heat and stop stirring when the cheese is melted. Serve immediately with crusty bread for dipping.



Alder-Smoked Salmon

The combination of marinating salmon in beer-spiked brine and hanging it to dry before smoking imparts a delicious quality to this pink treasure of the Pacific Northwest. Serves six.

- 2 pounds salmon fillets, with skin
- 2 cups water
- 2 cups pale ale
- 1/2 cup coarse or kosher salt
- 1/2 teaspoon dill
- 1/2 cup firmly packed brown sugar
- 1/2 teaspoon lightly crushed black peppercorns
- 1/2 teaspoon whole allspice
- 1 small bay leaf

(1) Heat water and beer to boiling, remove from heat and add salt, dill, sugar, peppercorns, allspice and bay leaf, stirring until dissolved. Allow the brine to cool to room temperature.

(2) Pour over salmon and weigh the fish down with a saucer. The fish should be completely submerged in brine. Allow to stand at room temperature for two hours.

(4) With cold water *lightly* rinse brine from the fish (do not remove all of it). Blot fish lightly with a paper towel.

(5) Thread a loop of dental floss through one end of fillet and hang in a cool, well-ventilated area or lay the fillets on an elevated wire rack in front of a fan. After four to six hours, the fish will acquire a glossy veneer that is dry to the touch.

(6) Heat your smoker to a very low heat and add alder-wood chips. Smoke fish slowly, checking occasionally. If you like it moist with just a hint of smokiness, the time will be relatively short. If you prefer it dry and very smoky, allow a longer smoking time.

Fresh Raspberry-Blackberry Sherbet

Get that ice-cream maker out of storage and treat yourself to this simple refreshing summer indulgence. Serves four to six.




- 1 cup weisse
- 1 cup sugar
- 1 cinnamon stick
- 1 tablespoon finely minced lemon zest
- 1 1/2 cups puréed blackberries, strained to remove seeds
- 1 1/2 cups puréed raspberries,

strained to remove seeds
1 tablespoon lemon or lime juice

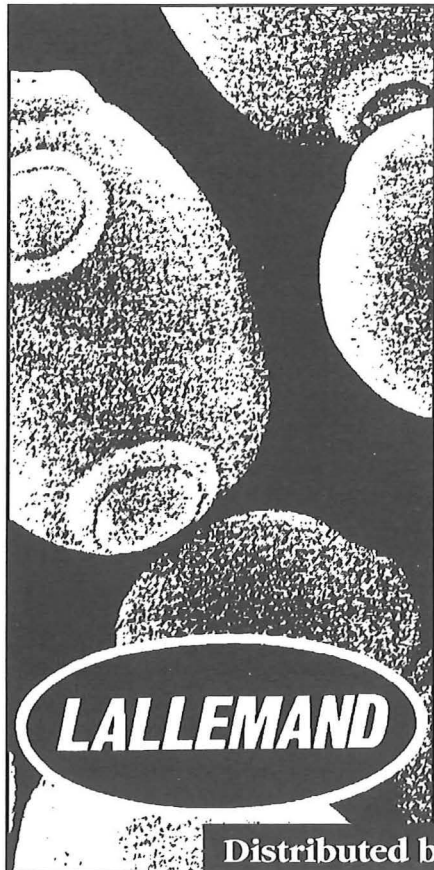
(1) In a small saucepan, combine beer, sugar and cinnamon stick.

(2) Heat slowly, stirring until sugar is dissolved. Bring to a slow boil and cover for one minute. Remove the lid and continue to boil for three minutes.

(3) Remove pan from heat, strain and cool to room temperature. Add remaining ingredients and chill.

(4) Pour into an ice cream-maker and proceed with factory directions. 

Candy Schermerhorn of Phoenix, Ariz., is the culinary consultant and instructor at Kitchen Classics. Schermerhorn takes great joy in educating the public about beer and its culinary potential through her cooking classes. This enthusiasm for homebrew cooking has prompted her to write *The Great American Beer Cookbook* to be published by Brewers Publications in the winter of 1993.



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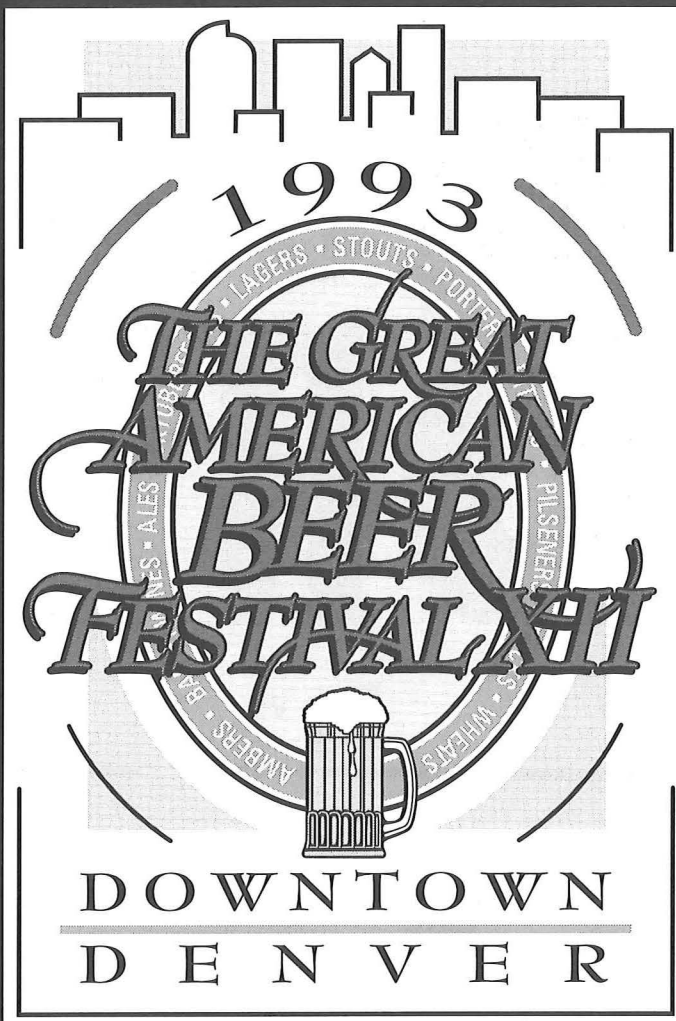
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B Summer BREWIN'

By Ray Daniels

While most beer drinkers consume a bit more of their favorite beverage during the summer, some homebrewers have found their summer-brewed beers don't taste the same as those made in cooler months. One reason may be the effect of higher temperatures on fermentation. In this article we'll explore the effects of elevated temperatures on beer flavor and discuss three strategies for brewing beers that meet your taste standards even when the temperatures soar.

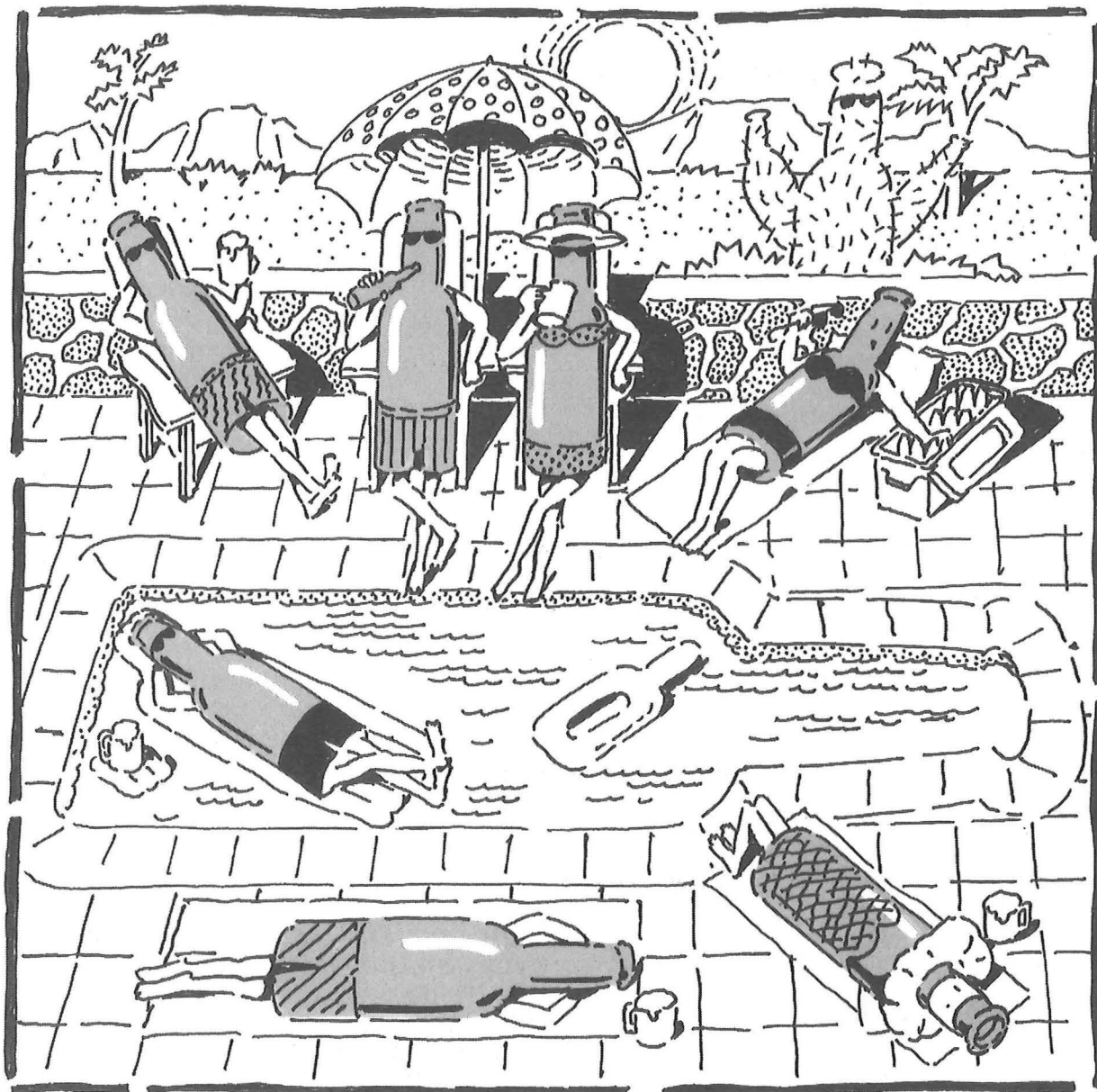
Fermentations conducted at higher temperatures produce more esters and fusel alcohols that *can* negatively affect beer flavor. I say "can" because some beer styles naturally exhibit higher ester or fusel alcohol levels. In such beers, detectable levels of these components bring the beer closer to style rather than further away.

While high-temperature fermentation products can occur in lagers as well as ales, the brewing challenges presented by summer tend to affect ales more extensively. Most lager brewers use a refrigerator for

lager fermentation so they are not affected by seasonal changes in temperature.

For optimal beer flavor, brewers generally conduct ale fermentations at temperatures of 68 degrees F (20 degrees C) or lower. Commercial breweries generally regard temperatures above that level as unacceptable. Their quest for a consistent, reproducible product requires that every batch be made following the same parameters and conditions.

Some texts on brewing acknowledge that ales can be fermented at temperatures of up to 72 degrees F (22 degrees C) without detrimental effects. *Malting and Brewing Science* (Chapman and Hall, 1982) states that under controlled conditions "acceptable beers can be produced at comparatively high temperatures ... 81 degrees F (27 degrees C) for top [-fermenting] yeasts. The quality of these beers is different however from those fermented at normal temperatures: Ester and fusel alcohol contents are higher." Let's explore the implications of high ester and fusel alcohol levels in greater depth.



Esters

Esters produce fruit and solvent flavors in beer. The most common ester is ethyl acetate. When present at low levels, it contributes a fruity component sometimes found in English ales. At higher concentrations, the effect of this chemical becomes more solventlike and increasingly unpleasant.

Two other common esters, isoamyl acetate and ethyl hexanoate, also produce distinct fruity flavors. The first, isoamyl acetate, gives a banana aroma and flavor that most homebrewers have the displeasure of producing at some point in their brewing ca-

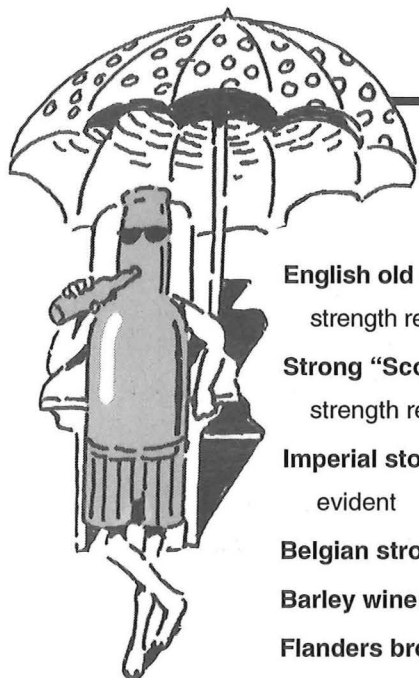
reers. Apple flavors attributable to ethyl hexanoate also crop up in homebrew with some regularity. The full, rounded character of this ester should not be confused with the sharper perception created by acetaldehyde, usually described as a "fresh-cut green apple" flavor.

Several factors influence ester production during fermentation. Every strain of yeast produces esters at a different rate. Some strains minimize the production of esters, others produce higher quantities. Poor wort oxygenation and high-gravity worts also contribute to increased esterification. Temperature plays a critical role but is one

of the easiest factors for a homebrewer to measure and control.

Fusel Alcohols

Aliphatic, or straight chain, alcohols include ethanol and the fusel alcohols. Ethanol is a two-carbon chain; fusel alcohols have chains with higher numbers of carbon atoms. Although related in structure fusel alcohols taste different than their two-carbon cousin, ethanol. The longer carbon chains change the overall shape of the molecule and hence the flavor it imparts.



Ester/Alcohol Character of Some Common Ale Styles

English old ale/strong ale: fruitiness-esters high, alcoholic strength recognizable

Strong "Scotch ale": Fruitiness-esters high, alcoholic strength recognizable

Imperial stout: Fruitiness, esters OK; alcohol strength evident

Belgian strong ale: vinous, alcoholic

Barley wine: Fruity-estery

Flanders brown: Fruity-estery

Lambic: fruity-estery

Classic pale ale, IPA, American pale ale: fruity, estery

Porter: fruitiness, esters OK

Belgian white: medium esters

English brown: some fruitiness and esters

The fusel alcohols, often in combination with high levels of ethanol, contribute vinous (winelike) and alcoholic characters to beer. Terry Foster has described the effect as "hot, slightly spicy flavor, detected in the nose as a pleasantly fragrant, vinous aroma and in the mouth mainly by a pleasant warmth on the middle of the tongue."

If you've made or tasted a strong ale or barley wine, you've probably experienced the sensations created by fusel alcohols. As with esters, some styles characteristically exhibit detectable fusel alcohol levels. Most often, these are high-gravity styles such as barley wines and strong lagers. Lighter styles such as English milds and pale ales should not exhibit this characteristic.

Fermentation temperature plays a significant role in increasing fusel alcohols in beer. Other factors that influence fusel alcohol production include elevated levels of amino acid in wort, anaerobic conditions, continuous agitation, large amount of yeast growth, high ethanol concentration and yeast type (*Malting and Brewing Science*, Volume II, p. 601).

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Do Summer Brew

From these brief comments on the negative effects of high-temperature fermentation, we can identify three ways to plan successful hot-weather brewing. The three approaches include (1) brewing styles characterized by esters or fusel alcohols, (2) selecting yeast strains that give good results at higher temperatures and (3) improvising ways to maintain ale fermentation temperatures.

One approach to high-temperature summer brewing is to brew the ale styles that normally exhibit high ester and fusel alcohol levels. A few of the styles you might focus on have already been mentioned. Barley wines and strong ales typically have complex flavor profiles that include fusel alcohols and esters. In addition, many of the Belgian ales, especially the strong ones, carry these flavor components. Lambic, gueuze and Trappist beers all carry high levels of these warm fermentation products. For some Trappist beers, fermentation temperatures of 77 degrees F (25 degrees C) are routinely employed.

Beyond styles that display these high-temperature fermentation products, you might also choose to brew beers with an ability to hide them. Robust dark ales, such as imperial stout and perhaps the stronger versions of porter and American brown ale allow for esters within the style. In addition, the robust character of these beers can help cover higher-than-normal levels of esters and alcohols to produce beers that will be pleasant to consume whatever the season.

Another fun summer brew that generally works well with higher temperatures is fruit beer. At reasonable levels, esters produced by higher fermentation temperatures can complement the overall impression of fruit in a beer. Because fruit is usually plentiful and cheap during the hottest part of the summer, a lot of fruit ales are fermented under less-than-ideal conditions.

Yeast Selection

As indicated earlier, yeast plays a big role in the production of esters, and to a lesser extent fusel alcohols as well. Some yeasts produce detectable amounts of esters even at regular ale fermentation temperatures (below 68 degrees F or 20 degrees C). Normal-

ly these yeasts are used in the production of styles that exhibit a bit of fruity-estery character such as classic pale ales. But when these yeasts ferment at higher temperatures, their natural ester-producing tendency gets pushed to extremes and the resulting beer is dominated by fruity flavors and aroma.

When faced with high-fermentation temperatures, you can achieve the typical level of ester-related fruitiness by using a different yeast with a lower ester-producing character. While most ale yeasts produce some level of fruitiness, a couple have been identified through the accumulated experience of homebrewers as being suitable for summer use because they produce fewer esters.

My own favorite in this category is Chico Ale yeast, sometimes called American ale yeast. Brewing lore reports that this is the yeast used by Sierra Nevada to make their fine ales, so it is a great yeast to begin with. Beyond that, my own experiences have confirmed the general consensus of homebrewers that this yeast can make very good beers even under elevated temperatures.

I'm a real fan of the American pale ale style, and my consumption usually outstrips production anyway. During the summer, I just can't wait for cool weather to whip up the next batch. Last summer I made a couple of batches using the Chico/American yeast from a liquid starter pack and it turned out great. I've also had summer success using this yeast for brown ale and porter. While my fermentation temperatures are rarely higher than 78 degrees F (26 degrees C), the results from this yeast in summer have been little different from beers produced in other seasons of the year.

Beat the Heat

When it comes to dealing with summer brewing, a lot of good homebrewing minds have been at work finding ways to beat the heat. Brewers who refuse to give in to the elements have devised many ways to keep their brewing cool. Let's look at a couple of the approaches that seem to work.

First, look for the coolest spot in your house and check to see what kind of temperature it maintains. Usually the cool spot is in the basement or at the lowest level of the building, often on the north or north-

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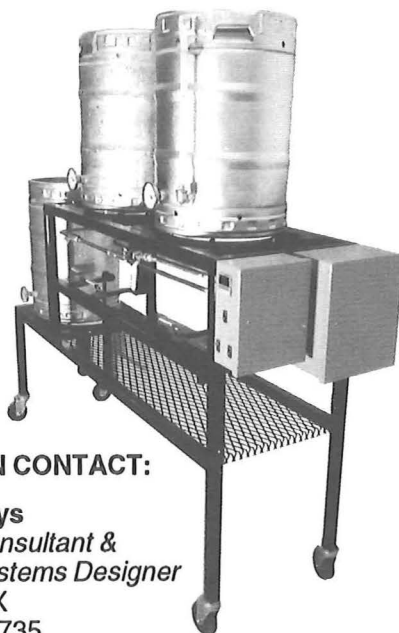
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east side. If you have a central air-conditioning unit, the room it is in and rooms near it are likely to be the coolest.

The next level of approaches involve water. Some brewers can maintain a cool temperature by setting a fermenter in a sink or tub with cool water and then draping their fermenter with wet towels. Running cold water in from the tap or adding ice twice a day can be the final touch that keeps temperatures under control.

If you are stuck in a hot apartment or traveling too much to attend to a tub-based cooling system, you'll have to try some other solutions.

Pure Geekatude

After a couple of batches, many homebrewers start to buy, build or collect gadgets and equipment that facilitate the process of making good beer. Personally, I've yet to run into a brewing problem that couldn't be addressed by something made of stainless steel or plastic. One of the great traditions of homebrewing is creative engineering to duplicate the conditions of a real brewery.

The first, and perhaps most logical, approach along these lines is to subvert an air-conditioning system to cool the beer during fermentation. This kind of setup can be based on either a central or window air-conditioning unit. The system consists of a box big enough to hold your fermenter and an air duct for delivering cool air to the box.

The box can be a simple cardboard box, or something more elaborate. The biggest priority is for ventilation rather than insulation. Cool air from the air-conditioning unit needs to pass through the box, surrounding the fermenter along the way. The air will be delivered to the box using an air duct — a length of clothes dryer exhaust duct, for instance. The duct is tightly attached to the cold air source and the box so it conducts a steady stream of cold air around the fermenter. You will want ventilation holes that allow the cold air to escape from the box as well. Rodney Morris says he has helped build systems of this type that can maintain 60 degrees F (16 degrees C) fermentation temperatures in an ambient room temperature of 80 degrees F (27 degrees C).

Another solution that might have appli-

cation for both ale and lager fermentations is to use a modified picnic cooler. For this approach, find a big, insulated picnic cooler — large enough so when standing on end, your fermenter will fit inside. To accommodate the mouth of the carboy and airlock, cut a slot in what will be the top of this device. With the lid/door of the cooler open, the fermenter should slide right into place.

Once this cooler is prepared, you can add ice, close it and maintain cool fermentation temperatures. Obviously, the amount and frequency of ice additions will determine how cold you are able to keep the fermentation. Also, remember that active fermentation generates heat, so you will need more coolant during high krausen than during secondary or the later stages of primary fermentation. (A tip of the hat to Tom Lyons of Florida for this idea.)

Another technique for beating the summer heat is the use of an old refrigerator or freezer in conjunction with a Hunter or Honeywell thermostat. For less than \$100 you can put together a system that will hold a fixed temperature in the range of 50 to 70 degrees F (10 to 20 degrees C) within 1 degree.

Brewers often measure their success by how well their finished products match the style they were attempting to duplicate. Ultimately, this requires control of certain important variables, and one of those is fermentation temperature. To achieve your goals when the weather gets hot, you don't have to invest a lot of money in fancy equipment or set your air conditioner at 68 degrees F (20 degrees C) for two weeks — many other solutions are available.

Remember the three solutions we've discussed can be combined to give optimal results. A heat-tolerant yeast combined with some way to moderate the heat can give you the same results as a more difficult yeast and a heroic cooling system that gets temperatures below 68 degrees F (20 degrees C). ☐

An official Chicago Beer Society "Beer Geek," Ray Daniels has been homebrewing since 1989, collecting honors in both national and regional competitions since 1990. He applies his training in biochemistry to the study and production of lager beers.

This article is available in Library 13-AHA/zymurgy/Clubs on CompuServe's Beer and Wine Forum as SUNNYB.REW.



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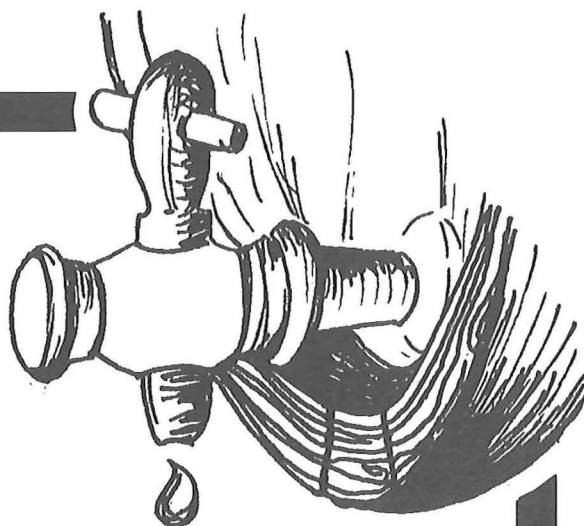
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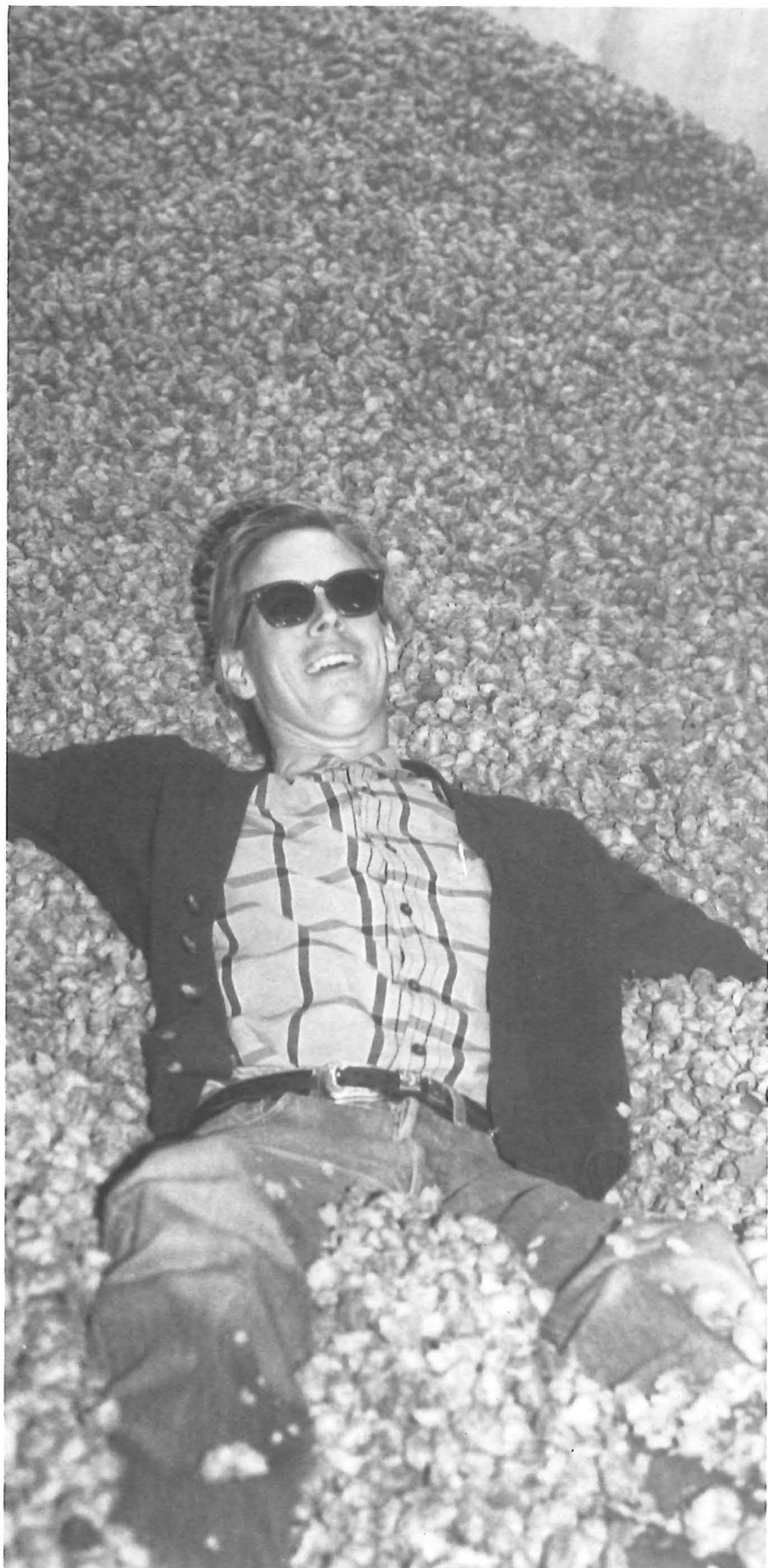
Boost Hop Bouquet By Dry-Hopping

By Mark Garetz

Dry-hopping. Ask two brewing experts what that phrase means and you'll get three opinions. Try looking it up in brewing literature and you'll get a wide variety of definitions and very little consensus among authors. On the other hand, a good many recipes in *zymurgy* and elsewhere call for a certain amount of hops to be "dry-hopped" with no explanation of the method.



This article explores the subject of dry-hopping and ways to increase the hop aroma of your beer. I've consulted commercial microbrewers, homebrewers, hop product suppliers and a host of books and articles.



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What is Dry-Hopping?

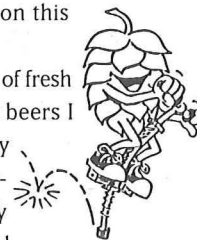
If we put together a definition of dry-hopping that accommodates all the authors' definitions, we come up with something that reads like this: Dry-hopping is the process of adding hops to beer at a point anywhere from after the kettle boil up to and including the bottling process. Now that is a very long period of time consisting of many brewing stages. Obviously, adding hops just after turning off the heat will have a completely different effect than adding the same amount during secondary fermentation. I will try to make some sense out of this highly ambiguous situation.

Why Dry-Hop?

The main reason for dry-hopping is to impart hop aroma to beer. "Now wait a minute!" I hear you say. "Hop aroma is provided by those hops added near the end of the boil, you know, those aroma hops mentioned in almost all beer recipes." Now it gets a bit complicated. What is meant by "hop aroma"? Well, two things really. There is the hop aroma imparted by adding hops very late in the boil (the last five minutes), variously called the finishing, aroma or late-addition hops. Although this step does impart a certain hop aroma, it is different from the aroma of fresh raw hops. The late addition of hops to the boil imparts a "hop character" to the beer, not a fresh hop aroma.

The reason is the fresh hop aroma comes from hop oils. These volatile oils are almost all lost to the atmosphere during boiling, even if boiling takes place for only a few minutes. What's more, the heat of the boil chemically changes the aroma of the oil that does remain. (More on this later.)

Personally, I love the smell of fresh aroma hops. One of the best beers I ever had was Anchor Liberty Ale served fresh at the brewery. That beer is generously dry-hopped and each sip had



the wonderful aroma of fresh hops. That is the effect I am striving for. Talking with brewers about how they dry-hop, and the reasons they do it a particular way gave me the idea for this article.

There is another benefit from dry-hopping. Fritz Maytag of Anchor Brewing says they discovered that dry-hopping has amazing preservative effects on beer. People are still enjoying dry-hopped Our Special Ale brewed by Anchor at Christmas that are almost 20 years old!

Traditional Dry-Hopping

Dry-hopping has been practiced for centuries in England. Cask-conditioned ales typically get fresh dry hops added along with finings and priming sugar (or kraeusen) when the beer is racked from the primary fermenter into the cask. This is the traditional dry-hopping method. The cask is then left to condition for seven to 14 days at around 55 degrees F (13 degrees C). The hop oils are slowly disseminated throughout the beer.

If you use a kegging system instead of bottles, you can follow essentially the same procedure they do in England. Add fresh aroma hops to the tank along with priming sugar and, optionally, finings. You will want to use whole hops as opposed to pellets, otherwise you'll still have to let the beer sit with the hops for about two weeks to allow the

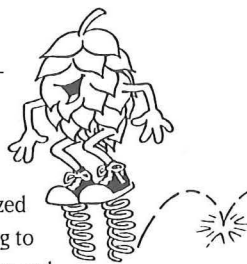
hop oil to be imparted to the beer. You can add the hops loose or tie them in a sanitized muslin or nylon bag to make cleanup easier and remove any potential for clogging your beer lines. You can tie the bag to the bottom of the internal beer tube to keep them immersed (they tend to float to the top) or add weights to the bag. Use glass marbles, a handful of copper pennies or other easily cleaned and sanitized weight. Ceramic (not metal) pie weights are available in most kitchen stores. Just don't use lead fishing weights!

The advantage of traditional dry-hopping is there is no place for the hop aroma to go but into the beer. The only disadvantage is the time you have to wait before you can drink the beer. The time will vary with the temperature, but two weeks is a good average. The lower the temperature, the longer it will take to extract the hop aroma. The only problem is that not all of us have kegging systems (myself included), so what do we do?

Fortunately, there are alternatives to traditional dry-hopping during the conditioning stage. The most widely practiced alternative is dry-hopping by adding fresh hops to the fermenter at a variety of points. All have their pros and cons, so let's examine each possibility.

The Hop Back

The hop back is used to strain hops and trub from boiled wort. It works like a lautertun in that spent hops form a filter bed to trap more hops and trub. The hot wort is run through the hop back. Some brewers put fresh hops in the hop back so the wort will pick up hop aroma. Because the temperature of the wort is below boiling when entering the hop back, the aroma change caused by temperature is minimized. If you want to experiment with a hop back, see the 1992 Special Issue of *zymurgy* (Vol. 15, No. 4) for ideas on how to build your own.



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The advantage of the hop back is primarily its filtering ability. There are many disadvantages in using it to add hop aroma. You have to use a lot of hops for two reasons: First, the beer is in contact with the hops for only a short time (the higher temperature compensates somewhat, though). Second, a lot of hop aroma is lost in primary fermentation. Adding enough hops to compensate for these losses is costly. Another major disadvantage is that it requires more hot processing of the wort. If you use a counterflow wort chiller you can hook up the hop back inline before the chiller, so no big deal. But if you use an immersion wort chiller, you have to move the wort around while it's hot, negating a big advantage of the immersion chiller.

Adding Hops to the Primary

Some books recommend you add hops to the primary fermenter as soon as the wort is cooled to about 75 degrees F (24 degrees C), or about the same time you pitch the yeast. This can work, but there are some good reasons to wait a bit.

Hops are not a sterile product. They contain bacteria and wild yeast. In an article published in the Master Brewers Association of America Technical Quarterly Vol. 27 No. 3 by Jean-Xavier Guinard, Michael J. Lewis and associates from the University of California-Davis, it was reported that the microbiological risks from dry-hopping were essentially non-existent. The fermentation process swamped any attempt of the yeast or bacteria on the hops to get established. However, this assumes a well-maintained and vigorous yeast starter as would be used by a commercial brewery or microbrewery. Not all homebrewers can be guaranteed a good, fast fermentation start, especially if



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only relying on the liquid yeast starter pouch. Though the risk of contamination by hops added at pitching time is minimal, why take an unnecessary risk?

Besides, much of the hop aroma will be scrubbed out of the wort by the vigorous action of the primary fermentation. Great volumes of CO₂ are given off, carrying the hop aroma with it. The hops will only be in contact with the beer for a short period of time if you rack into a secondary. To compensate for all these losses, you'll have to add a lot of hops, which is costly and wasteful. I can't think of any advantages to adding hops along with yeast. Given all the disadvantages, there's no reason to do it.

Adding Hops to the Secondary

Dry-hopping by adding fresh hops to the secondary fermentation stage makes the most sense. There is virtually no risk of contamination because the established yeast growth, alcohol and lower pH will inhibit any yeast or bacteria introduced with the hops. Since much less CO₂ is being given off, less hop aroma will be lost to the atmosphere, so you'll need fewer hops.

To dry-hop beer in the secondary, add hops to the secondary container before racking the beer into it. The beer should be left on the hops for about two weeks, depending on temperature. You can add hop pellets, whole hops loose or tied into a muslin bag with weights.

Note that even if you use only one fermentation vessel (as is common with ales and plastic bucket fermenters) and don't rack the beer into a secondary vessel, your beer still goes through primary and secondary fermentation stages. You just add the hops at the beginning of the secondary stage instead of at the time of racking into a secondary fermenter. The primary stage is characterized by heavy activity, lots of bubbling and, usually, lots of foam. The secondary stage starts as fermentation slows down. It is characterized by the foam dropping back and by bubbles in the airlock slowing down.

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Hop Oil

You probably have seen ads for hop oil or hop extract in **zymurgy** or other places. Hop extract is of no concern to us because that is used for bittering, not aroma. On the other hand, hop oil would appear to be exactly what we want. Hop oil is extracted from hops by three methods: steam distillation, solvent extraction and low-temperature liquid CO₂ extraction.

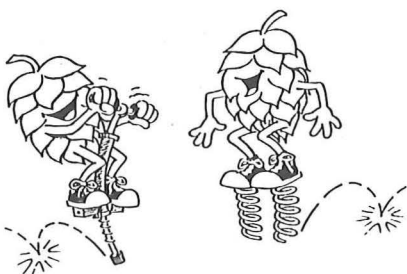
Because of the temperatures involved, steam distillation changes the character of hop oil from the fresh hop aroma into a cooked hop aroma, not unlike the effect of late-addition hops. Adding this product would eliminate the need to add hops late in the boil, but won't accomplish our goal of fresh hop aroma.

Solvent-extracted hop oil is made by immersing hops in a strong toxic solvent — either hexane or methylene chloride. The solvent is removed from the oil by heating the mixture, which changes the aroma as in steam distillation. Also, some traces of the solvent remain. I don't want any solvents in my beer, and I assume you don't want any in yours.

A recent innovation is the extraction of hop oil using high-pressure, low-temperature liquid CO₂. Because no high temperatures are involved, the hop aroma stays intact. And because no toxic solvents are involved and CO₂ is a natural part of beer anyway, CO₂-extracted hop oil is definitely the one to use.

The advantages of CO₂-extracted hop oil are many: You use it by mixing it into the beer during the priming step, just before bottling (or kegging). This means that most of the hop aroma will be trapped in the bottle or keg until the beer is ready to drink. This is very close to (maybe even better than) traditional dry-hopping in the cask. There is no risk from infection. Another advantage of hop oil is that the aromatic qualities can be blended from different varieties and batches to achieve consistency from year to year.

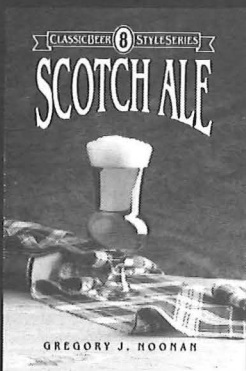
There are a few disadvantages. Because hop oil is the pure aroma essence, and it only takes a few parts per million to impart a good aroma, measuring a small amount of



hop oil is a very complicated task. For five gallons mix 0.1 mL of hop oil with 5 mL of the provided "hop oil dispersant medium" (based on grain alcohol that occurs naturally in beer) just prior to use. Add 1 to 5 mL of the mixture to five gallons, depending on how much aroma you want. This takes a syringe or a pipet (available at chemical supply stores). Currently, pure hop oil is only available to microbrewers and other large-volume users, mainly because of the difficulty in using the product for small batches. These problems may be overcome. I am working with the supplier to come up with a packaging and dispensing technique (and size) that will be more convenient for homebrewers.



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Hop Tea

If you like the idea of adding hop aroma just before bottling but think that using hop oil might be too complicated or expensive, you can give hop tea a try. A good method is suggested by Lynne O'Connor in her St. Patrick's of Texas Brewing Supplies Catalog. She recommends steeping one to two ounces of hops in hot water, straining and adding the liquid with the priming sugar just prior to bottling. You could combine the hop tea and sugar-priming steps by bringing water to a boil, dissolving the sugar and letting it cool (covered) to around 150 degrees F (65.5 degrees C). Stir in the hops, cover and let steep for 30 minutes to an hour while the mixture cools. Strain the liquid into the beer and mix well. Use whole hops not pellets unless you've got a very fine strainer.



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Bottle Hopping

Half seriously, with visions of mescal, I experimented with putting a whole hop cone into bottles just before filling them. This is as close as we can get to traditional dry-hopping in the cask — a 12-ounce glass cask! The only problem is leaving the cone in the bottle when pouring.

How Much, What Kinds

Which hops and how much to use are matters of personal taste. In my opinion most recipes call for far too few aroma-finishing hops and even fewer dry hops. Check it out by looking at the recipes in various issues of *zymurgy*. Compare the amount used with the judges' comments on hop aroma. You'll find that most recipes using around one-half ounce of aroma and/or dry hops got comments like "could use more hop aroma," or "not much hop aroma." Those using an ounce or more of finishing and/or dry hops usually get good comments. Use more hops than you think — its better to err on the high side. A lot will depend on the freshness of the hops and the method you use, but between one and two ounces is a good place to start. Run a test batch or two to find a method you like, then use the preferred method with different hopping rates. Also consider the beer style. Strong hop aroma is appropriate in pale and other medium-bodied ales, lagers and similar brews. The lighter the beer flavor, the fewer aroma hops, and conversely the heavier the beer the more hops you need. To get a fresh hop aroma to be noticeable in stout, you'll probably need upwards of six ounces for a five-gallon batch!

As for what kind of hops to use, well, they don't separate hops into bittering and aroma varieties for no reason! Obviously you're going to use an aroma variety. You might start by buying a few ounces of several different aroma varieties and sniffing. (Any you don't like can be used for bittering because the aroma will be boiled off. Just make sure



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to calculate the AAUs or IBUs correctly.) Buy them as fresh as you can and make sure your supplier uses oxygen-barrier bags. (If you can smell hops through the sealed bag it's not an oxygen-barrier bag.)

One last comment. Commercial brewers buy aroma hops based on their oil content, not their alpha-acid units. As homebrewers we don't have that option. So don't assume the same amount of Hallertauer from last year's crop (or supplier) will give the same results as another batch of Hallertauer be-

cause the oil content, storage conditions and even the drying method will affect the aroma significantly. Remember, freshness is everything!

Whole Hops vs. Pellets

Some brewers believe whole hops are better for aroma than pellets. Most author-

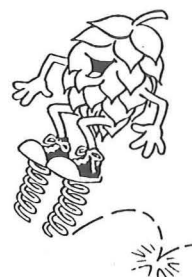
ities claim the pelletizing process actually keeps the product fresher and argue in favor of pellets because freshness is essential to good aroma. My suggestion is to trust your nose and use what smells good to you. Don't be prejudiced by the shape of the product. Pellets are a lot easier to get into the secondary. Pellets also give a better aroma yield because the lupulin glands have been crushed, releasing the hop oil. Dry-hopping is a relatively gentle process (compared to vigorous boiling), so more whole hops would be needed because the lupulin glands are intact. An option is to run whole hops through a food processor to break the lupulin glands. Recover the oils and powder clinging to the food processor by swishing 100 proof vodka around and adding that as well. A muslin bag is definitely called for if you use this method.

Acknowledgments

The author would like to thank the following for assistance: Gregory Lewis of Hop-union USA, Fritz Maytag and Phil Rogers of Anchor Brewing, Jim Koch of the Boston Beer Co., Roger Lind of Lind Brewing, Lynne O'Connor of St. Patrick's of Texas Brewer's Supply, Alan Pugsley, Darren Whitcher and his wife, Lynnette Garetz.

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Mark Garetz made wine once many years ago and has been homebrewing beer for a little over a year. He makes his living in the computer industry. An early member of the Homebrew Computer Club who "home-brewed" personal computers before the existence of Apples or IBM PCs (1975), Mark believes he has come full circle. He has written two computer-related books and too many computer articles to count.



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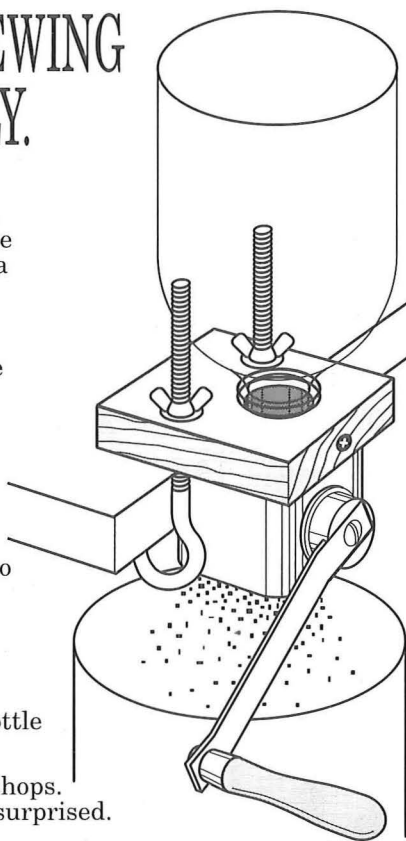
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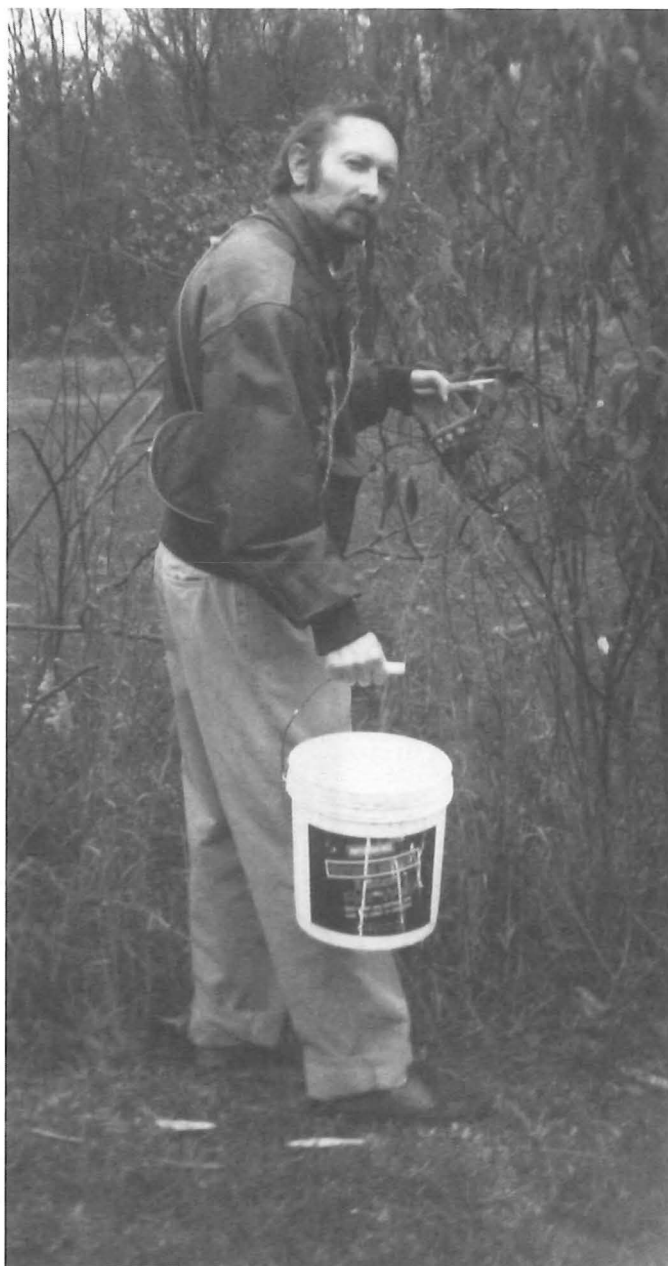
S talking the Wild Meads



By Ralph Bucca

Meadmaking and wild-plant gathering combine one of our oldest beverages with one of our oldest survival skills. Mead is a simple drink consisting of fermented honey, water, yeast and whatever else may fall into the fermentation vessel. Plain mead is tasty by itself, but it's much more interesting with the addition of flavors from fruit, flowers, leaves and roots.

Why bother with wild plants when so many different kinds are available in food stores and fruit stands?



Ralph Bucca in the field.

There are several reasons to get out into the countryside and stalk wild plants to flavor mead. This activity appeals to the deep-seated hunter-gatherer instinct that lies within us all. It's a good excuse to get the whole family involved in doing something together. Wild-plant gathering increases the variety of materials that can be used in meadmaking. It is a challenge to find and identify plants to be used. And finally, you are using the freshest materials possible because you just picked them.

You can use five parts of the plants — tree sap, flowers, leaves, fruits and roots. Depending on the season, the same plant may furnish up to three of them. The challenge is to locate the plants and know the best time to gather what you need, when fruits are

ripest and flowers at their peak. With leaves and roots, timing is less important. Apples, pears and blackberries are recognized by most people, but other interesting fruits are not. Field guides to wild edible plants are very useful because many are poisonous and should be avoided. These include buttercup flower, mature pokeweed plants and berries, holly berries and any plant you cannot positively identify. I would avoid mushrooms for meadmaking even though I do consume the

few varieties I recognize. Consult an expert and a plant guide before using any plant you are not certain is edible. Some plants may contain insecticides, pesticides, animal droppings, spiders or wasps.

When stalking wild plants, be prepared. Even though the weather may be hot, a long-sleeved shirt, long pants, comfortable shoes, hat and gloves are recommended. Clothing is for protection against briars, mosquitos, ticks, streams, branches and dangerous plants such as poison ivy, poison oak and stinging nettles that are lying in ambush. A pair of clippers and several wire-handled buckets are also needed. The best places to look are abandoned farms, old fields, fence lines, roadsides, stream sides and around ponds and swampy

ground. However, be careful to observe and obey no-trespassing signs. Most state and national parks forbid the removal of plants.

Many plants for wild meadmaking can be found in your friends' and neighbors' yards, and this source should not be ignored. I have developed a good barter relationship with the owners of fruit trees, rose bushes and elderberry shrubs who are quite happy for someone to harvest the excess fruit from their plants. When it's time to pick, I usually show up with a bottle or two of the

mead I made from their fruits the previous year. This relationship benefits all and generates feedback about your meads.

Another possibility is to grow wild plants in your own yard. I live on three acres that have a variety of vegetation. Two years ago I discovered several wild berry bushes — elderberry, raspberry and blackberry. During the winter I cleared out all the competing vegetation pruned and staked out the plants. They have responded by growing and producing more fruit each year.

Mead's Other Ingredients

Yeast

A wide variety is available for meads. Your choice depends on the results you want. To make a dry mead, use Champagne or Montrachet. They are fast fermenters with high SO₂ tolerance. For a medium finish use Prise de Mousse (Lalvin EC-1118) and for a sweeter, fruitier finish use Epernay 2, a slow fermenter that is SO₂ sensitive. All are available in dry form. Hydrate dry yeast in warm water or use a good active yeast culture.

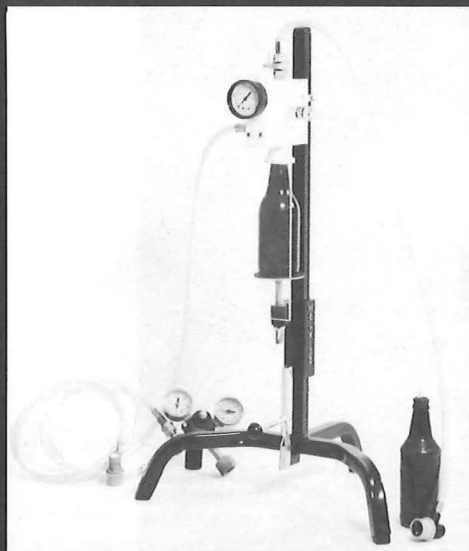
Honey

The amount and type of honey depend on what you are using it with and the level of sweetness you desire. A general rule for one gallon of 12 percent mead would be two pounds for dry, 2 1/2 to three pounds for medium and 3 1/2 to four pounds for sweet.

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Elderberry

Because it's difficult to estimate the amount of sugar in wild fruit I recommend using a hydrometer. The type of honey also depends on what you are combining it with. A light-flavored honey such as clover is recommended for flower and herb meads, while a stronger honey, such as wildflower, goes well with fruits.

Additives

In meadmaking, as well as in winemaking, certain chemical additives are used to make up deficiencies, correct excesses and achieve a well-balanced product.

One Campden tablet contains enough sodium metabisulfite to sterilize the fruit and kill wild yeast for one gallon. It is introduced 24 hours before the yeast is added.

Pectic Enzyme

Pectic enzyme also is added 24 hours before the yeast. It helps extract more juice from the pressing and prevents the mead from becoming cloudy. Use one-half teaspoon per gallon.

Tannin

Tannin improves the flavor and adds zest to flower and root meads. It is found naturally in all red fruit, apples, pears, grapes and oak leaves and is not needed for these meads. Use one-eighth teaspoon per gallon.

Acid

Acid is a necessary ingredient and found naturally in many fruits. It should be added to low-acid fruits or the mead will taste bland. It comes in three variations: citric, malic and tartaric and a combination called "acid blend." Use one teaspoon per gallon.

Hydrometer

A hydrometer is a floating glass instrument that indicates the amount of sugar in liquid. It is most useful before fermentation to determine how much honey is needed to achieve a determined alcohol level. Many wine- and meadmaking guides have conversion charts that eliminate the guesswork and aid calculations.

Water

Because water constitutes a large portion of mead, its quality is important. Soft or



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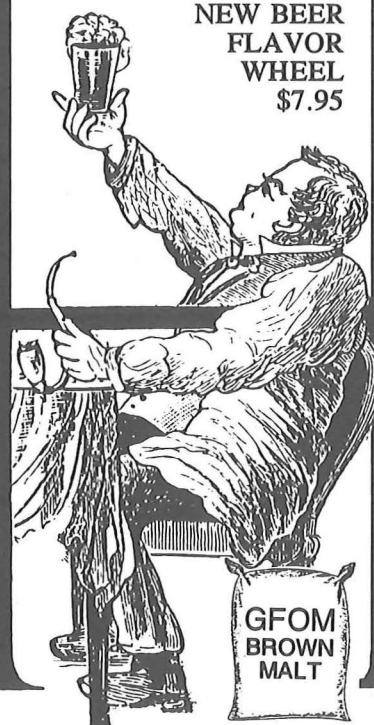
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distilled water is preferred, because it does not contain many minerals or salts. If your tap water tastes and smells good, it is fine to brew with. Any undesirable characteristics like chlorine or iron will impart undesirable flavors to your mead.

Temperature

The ideal temperature for mead fermentation is in the 60- to 75-degree-F (15.5- to 24-degree-C) range, where the yeast is happiest and fermentation will not get stuck.

Aging

Aging after mead has fermented for six months will impart a pleasant flavor, but should not be overdone. An ounce of toasted and boiled white oak chips per five gallons for three months will have a pleasant but not overwhelming effect. Try aging less delicate meads, like the berry meads, on oak chips.

Tree-Sap Mead


The meadmaking season starts in March with tree-sap mead using four common trees — birch, sycamore, walnut and maple. These can be identified by their bark or leaves.

Recipe for 1 gallon:

- 1 gallon tree sap
- honey (determine quantity from guidelines)
- 1 Campden tablet

Select trees at least nine inches in diameter and drill a three-quarter-inch hole at a 30-degree angle about an inch deep. Insert a drilled rubber stopper (the same kind used with fermentation locks) and insert a plastic tube running down into a gallon jug. This should take a couple of days to fill. After a gallon of sap has been collected, remove the stopper and replace it with a cork so the tree can be used again next year.

Boil the sap with the honey for a couple



Lager

Ale

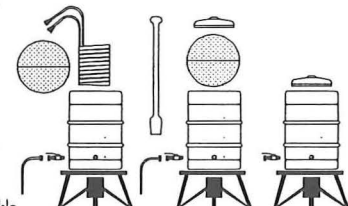
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Strawberry

of minutes and cool. Twenty-four hours later add an appropriate yeast for fermentation. Sap mead should be racked every three months and bottled the following spring.

Flower Mead

Flower-flavored meads (metheglyn) are made in spring. Choose flowers for their aroma and color. Because they don't contain any fermentables, all the other necessary ingredients must be added. The flowers described are available throughout the spring and are quite common. A generic recipe that is the base of all flower meads follows, but pay close attention to the amount of flowers, because this will vary. Use a light honey such as clover or orange blossom, so it won't dominate and hide the scent and color of the flowers.

The most famous flower mead is dandelion. April 23, Saint George's Day in England, is the traditional day for dandelions. Heads should only be picked in the morning up to midday, before they close up. Only the yellow flowers should be used. Avoid all green

parts or the mead will be bitter. Once I was not careful enough, and the mead tasted like grass clippings; I saved that beverage for my less discriminating acquaintances.

Recipe for 1 gallon:

- flowers (quantity varies with type of flower, see guidelines)
- 1 gallon boiling water
- 1 Campden tablet
- zest and juice of one orange and one lemon
- 3 pounds honey
- 1/4 teaspoon tannin
- 1 teaspoon acid blend

Place flowers in a large bowl, pour boiling water over and add a Campden tablet. Stir twice a day for two days. Strain liquid, add honey and the juice and zest of lemon and orange. Heat to a boil, stir well to dissolve the honey and allow to cool. Add yeast, tannin and acid blend. Ferment and rack every three months. This should be ready by Christmas but will be better after a year.

The amounts of flowers needed for 1 gal-



Dandelion

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Violet

lon of mead are: dandelion (3 to 4 quarts), elderberry (2/3 cup), roses (1 quart), violets (2 cups), honeysuckle (2 pints), clover (2 quarts), daisy (2 quarts), goldenrod (2 quarts), carnations (1 1/2 quarts), woodruff (2 quarts) and sarsaparilla (2 ounces dried).

Fruit Mead

Summertime is a berry good time for meadmaking. Strawberry, blackberry, raspberry, Juneberry, chokecherry and mulberry are the most common fruits to use. With fruit it's often a race with the birds and wildlife to get it. Fruits ripen over several weeks and may require a few trips to gather enough. Freeze each batch of fruit until you have foraged the amount needed.

Recipe for 1 gallon:

- 2/3 pound fruit
- 1 gallon boiling water
- 2 1/2 pounds honey (wildflower is a good choice)
- 1 Campden tablet

Crush fruit with a potato masher or food processor, add a gallon of boiling water and

honey. Stir well and add a Campden tablet then the yeast 24 hours later. After fermentation begins, a cap will form on the top that should be stirred twice daily so it won't dry out. Primary fermentation usually lasts seven to 10 days. Rack into secondary glass jugs and rack again every three months. Bottle when clear, usually after a year.

Fruit Juice Mead

From midsummer to late fall is the season for tree fruits — apple, pear, peach and plum. Grapes also can be used for this method. Two methods can be used for hard fruits: the crush method or the juice method. The crush method is the same as for berries, and the juice method requires more processing but produces clearer mead.

Recipe for 1 gallon:

- 1 gallon juice
- 2 1/2 pounds honey
- 1 Campden tablet
- 1/4 cup honey (added prior to bottling for sparkling mead)

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Raspberry

The fruit must be chopped and run through a grape or apple press or an electric juicer. After the juice has been heated enough to dissolve the honey add a Campden tablet. Twenty-four hours later add yeast. Rack after one week and every three months. These fruits make excellent sparkling meads. When bottling add 1/4 cup honey per gallon and bottle in Champagne or other capped bottles. Store in a warm dark place for one week to carbonate, then store in a cooler environment.

Root Mead

For making mead with the parts of plants that are below the ground, use corms, rhizomes, bulbs and tubers. They should be gathered as late in the season as possible while they are still identifiable. Some common plants are onions (2 cups), Queen Anne's lace (wild carrots, 3 pounds), wild ginger (1 ounce), dandelion (3 cups) and chicory (3 cups plus 2 cups of chicory flowers).

Recipe for 1 gallon:

roots, cleaned and chopped (determine quantity from guidelines provided)

Honey (determine quantity from guidelines provided)

1 Campden tablet

The plants should be thoroughly cleaned of dirt, cut up and steeped in hot water overnight. Discard the roots, add the honey and Campden tablet. Add the yeast 24 hours later. Root meads are for the adventurous and make great conversation pieces.

Stalking and making the wild meads is truly a zymurgistic adventure. Although a variety of plants have been described, this is just a sampling of what is out in the wild that could make a tasty or interesting mead. Use your taste buds and your imagination as your guide. Wild meadmaking should be attempted by those who welcome a challenge, and those who believe the best things in life are free. ☺

Ralph Bucca has been an active zymurgist for 20 years, stalking wild meads and wines. A member of BURP, he brews normal and abnormal beers. He was 1988 Meadmaker of the Year. Ralph and his family live on three acres near the Chesapeake Bay in southern Maryland.



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THE INSTITUTE FOR BREWING STUDIES

SERVING THE INDUSTRY'S
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By Jeff Mendel

For 15 years the Association of Brewers and the American Homebrewers Association have provided homebrewers with quality information, service and representation. When a homebrewer is inspired to go pro with his or her hobby, there is another division of the Association of Brewers to turn to for quality information and service — the Institute for Brewing Studies.

The Institute for Brewing Studies celebrates its 10th year of serving the rapidly growing microbrewery and pubbrewery industry in 1993. Established by AHA President Charlie Papazian in 1983, the Institute serves the needs of the homebrewers and entrepreneurs who pioneered a new segment in the American brewing industry.



Among the first brewpubs to open in 1983, were Yakima Brewery and Malting Co. in Yakima, Wash (top) and (bottom) Mendocino Brewery in Mendocino, Calif.



The Institute for Brewing Studies mission is to: (1) promote public awareness and appreciation of beer through education, research and the dissemination of information; (2) serve as a forum for the technical aspects of brewing; (3) seek ways to maintain quality in the production and distribution of commercially brewed beer and (4) encourage the responsible use of beer as an alcohol-containing beverage.

Products and services for microbrewers, pubbrewers and prospective brewers are available from the Institute. Primary among these is *The New Brewer*, the Institute's bimonthly journal. *The New Brewer* contains information on brewing technology and techniques, business and marketing topics, legal issues and news pertaining to the small brewer.

The Institute produces the largest Conference and Trade Show for this industry — the National Microbrewers and Pubbrewers

Conference and Trade Show. The Conference features 30 seminars covering many aspects of micro- and pubbrewing. Topics included brewing technology, marketing and distribution, brewpubs and start ups. The Trade Show allows industry suppliers to display their products and services to the most qualified prospects in the industry, as well as the opportunity to meet customers and potential customers. The 1993 Conference and Trade Show in New Orleans April 18 to 21 attracted 670 attendees. For homebrewers considering going professional, the Conference is an excellent place to make contacts and gather information.

Additional services provided by the Institute include Brewmaster for Hire, a network through which brewers can find employment and breweries can find a brewer with the ideal credentials. Homebrewers looking for job opportunities in the microbrewing and brewpub industry can send their ré-

sumé and cover letter, along with \$20 to cover processing and copying costs, to Brewmaster for Hire, Institute for Brewing Studies, PO Box 1679, Boulder, CO 80306-1679.

The Institute compiles information for two books essential to the prospective or start-up brewer. The *North American Brewers Resource Directory* (Brewers Publications) is an annually updated guide to the industry. Information includes listings of suppliers interested in doing business with micro- and pubbrewers, profiles of all breweries in North America, industry statistics, addresses and phone numbers of state and local regulatory agencies and more. *The Brewery Planner: A Guide to Opening Your Own Small Brewery* (Brewers Publications, 1991) is a useful guide recounting the experiences of a number of people who have found success in the micro- and pubbrewing industry. Armed with this information, the prospective brewer will know where to turn for help and supplies and learn the obstacles to avoid.

The information and services provided by the Institute are available to all, but the best way to access the Institute staff and its information is to become an Institute member. Memberships are offered to individuals for an annual fee of \$110. Membership includes a one-year subscription (six issues) to *The New Brewer*, discounts on the *North American Brewers Resource Directory* and *The Brewery Planner*, discounted registration to the National Microbrewers and Pubbrewers Conference and Trade Show and ac-



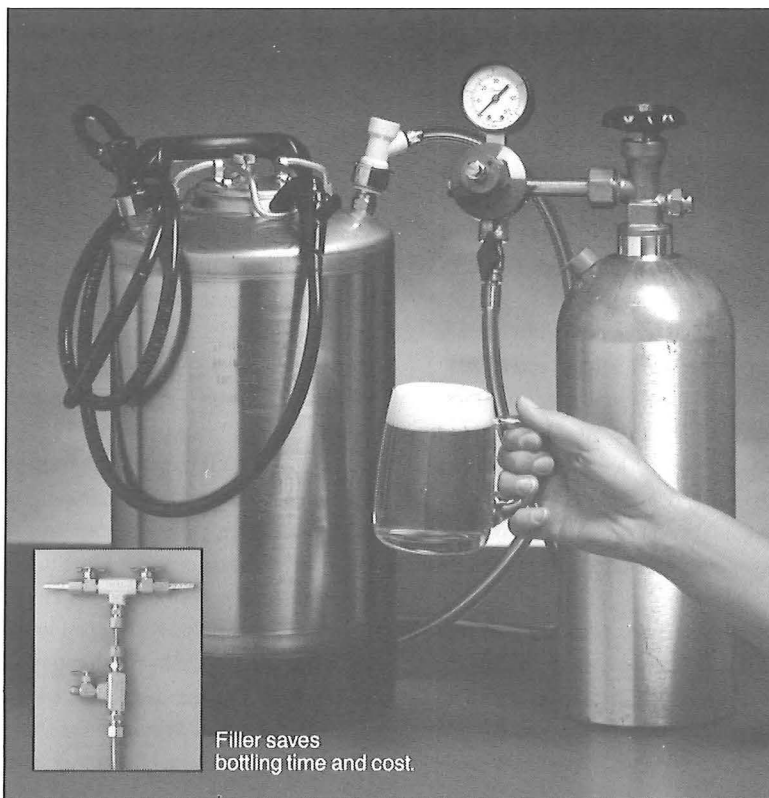
Buffalo Bill's Brewery as it appeared in 1983.

cess to the Institute staff and the information it compiles. Corporate memberships are available to breweries and the allied trades. Call the Institute for Brewing Studies at (303) 447-0816 for details.

Microbrewing Industry Grows

Contrary to trends evident throughout the U.S. brewing industry, the microbrewery/brewpub segment continued to show strong growth in 1992.

In 1983, a microbrewery was defined as any brewery producing fewer than 15,000 barrels of beer annually. While that definition still is useful, it is becoming obsolete as several micros have surged past the 15,000 barrel/year mark. These breweries are no longer "micro" in size, yet their products have remained true to their roots. A brewpub, on the other hand, is a brewery/restaurant that produces fewer than 15,000 barrels annually, and for the purposes of definition, sells more than 50 percent of its beer on the



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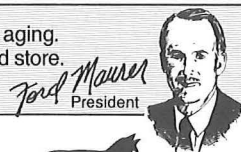
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premises. While the entire domestic brewing industry reported a drop of nearly one-half of 1 percent last year, the micro/brewpub segment experienced more than 25 percent growth in the number of operations and even greater growth, close to 40 percent, in volume of beer produced.

As the Institute for Brewing Studies enters its 10th year of serving the needs of the microbrewery and brewpub industry, it is interesting to look back at how the industry has progressed since the Institute's inception.

Only one brewpub existed prior to 1983 — the Yakima Brewing & Malting Co. in Yakima, Wash. California became the first state to pass brewpub legislation in 1983, paving the way for the first two brewpubs in that state — the Mendocino Brewing Co. and Buffalo Bill's Brewery. As these two breweries celebrate their 10th anniversary, it is worthy to note that a decade later there are more than 50 brewpubs in California alone and more than 200 nationwide. All told, 42 states and the District of Columbia have laws allowing brewpubs. In addition, there are 50 brewpubs in Canada.

The Institute will assist efforts to legalize brewpubs in the remaining eight states by providing information on the brewpub concept and the legislative initiative to allow brewpubs.

The number of microbreweries operating in the United States has grown steadily in their 15 years of existence. While only five of the 12 microbreweries in operation from 1977 to 1983 are still open, they have been joined by more than 100 microbreweries in the last 10 years.

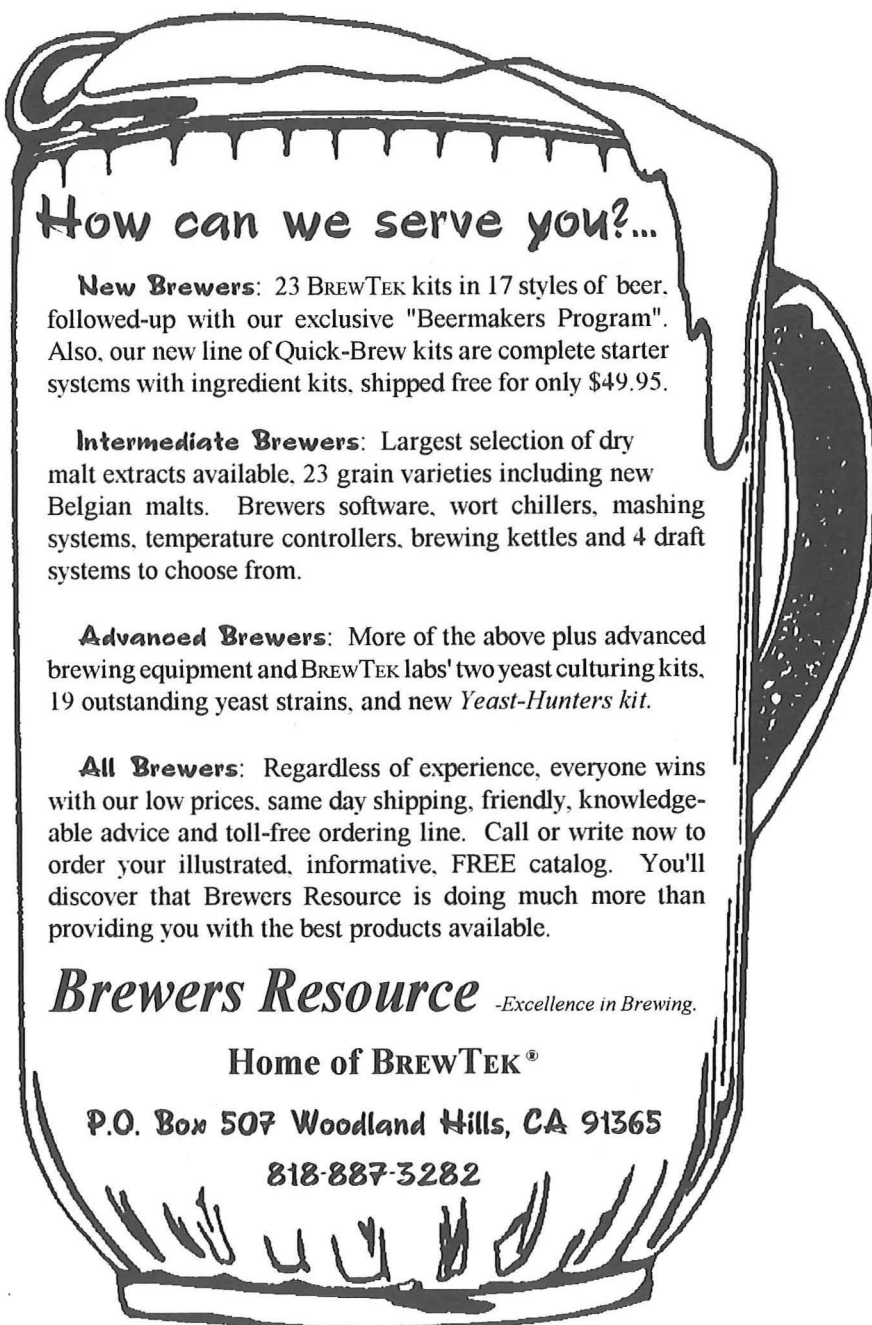
These microbreweries and brewpubs, more than 300 in the United States and 70 in Canada, have provided an increased variety of styles and flavors to the North American beer drinker. While more than 90 percent of North American beer consumers opt for the more mainstream beers of the major producers, a growing portion of the public (0.75 percent in the United States and close to 1.5 percent in Canada) are turning to the products of small local or regional breweries. More than 1,500 different brands of domestic beer are available to U.S. consumers, though not all in one place. For the Canadian consumer, more than 400 different beers are produced.

Interest in specialty beers is directly related to the interest in homebrewing. Homebrewers not only explore the beer flavor and style spectrum in their own kitchens and garages, but are enthusiastic supporters of the style variations presented by micro- and pubbrewers. It is no coincidence that many brewers and entrepreneurs learned their appreciation as homebrewers for the art and style varieties that could be created.

However, homebrewers are not the only supporters of the new beer movement. The growing interest in craft-brewed beers is part

of an overall trend in consumer preferences for items with a homemade feel, a local connection, traditional ingredients and production processes (commonly excluding additives, preservatives and pasteurization) and more distinctive sensory characteristics. More and more often people are willing to pay a higher price for a product that exudes quality and uniqueness. Microbreweries and brewpubs are filling that niche in the beer industry.

While the future of homebrewing looks bright, with the potential market numbering



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in the millions, the outlook for the micro- and pubbrewing industry also is encouraging. Many cities and towns lack their own local beer, even though Americans have shown quite a desire to make beer part of their lives and take an interest in hometown products.

However, there are reasons for concern in the small brewing industry. Excise taxes on beer are an annual candidate in the government's efforts to raise revenue from the private sector. Prior to 1990, federal excise taxes on beer had remained the same since 1951. The federal government raised the excise tax on beer 100 percent in 1990, though brewers producing fewer than 2 million barrels received an exemption on the first 60,000 barrels produced. That spared the micro- and pubbrewers for the time being. Will the small brewers fare as well the next time around? Stay tuned, as this discussion takes place annually.

In addition to the federal excise tax, each state levies its own excise tax on beer. State excise taxes have been increasing at a rate much more alarming than the federal rate. In some states, brewers must pay as much as \$15 per barrel in state excise tax in addition to the federal tax. Of course, any excise tax increase usually is passed on to the consumer in the form of higher prices.

Market saturation is another area that will become a concern in the near future. As more small breweries come on the scene, the ability to produce outstanding beer and position the brewery positively in the eyes of the public will prove to be extremely important. The industry is enjoying its heyday, and we should enjoy that.

For statistical information concerning the micro- and pubbrewing industry, contact the Institute for Brewing Studies at (303) 447-0816 or refer to the annually updated *North American Brewers Resource Directory 1993-94*, *The Brewery Planner* or *The New Brewer*, (Vol. 10, No. 3).

Jeff Mendel, Boulder, Colo., is the former director of the Institute for Brewing Studies. More than anyone in the country, he had his finger on the pulse of the small brewing industry as a result of his work with the statistical information in the Institute's data base and his conversations with brewers nationwide. Currently, Jeff is working to open his own microbrewery in Colorado. He earned an MBA from the University of Arkansas.

F O R T H E BEGINNER

Rusty McCrady

Kegging — The Easier Alternative

It didn't take long. It was more than a decade ago, after I'd gotten into homebrewing seriously. After the second batch the novelty began to wear off. By about the fourth or fifth batch, it had become downright tedious.

Surely I'm not talking about brewing my own beer!

You're right; the challenge and creativity in brewing one's own beer will probably never grow stale. It's the bottling that gets to be a chore.

Surely there's some way around this boring task, you say. And you're right again. For between \$50 and \$210, depending on where you get your equipment and how elaborate a setup you demand, you can have your own draft homebrew system.

While the expense may cause you to balk, the advantages of such a system are obvious. I interviewed Reuben Rudd, owner and head answer man of Brew Masters Homebrew Shop in Rockville, Md. He waxed enthusiastic on the subject of keg systems.

"The main thing is, it's one container rather than many. It's an easier system to use. You have combined carbonation from fermentation (kegs are primed similar to bottles) and maintenance carbonation, which you can regulate from your CO₂ bottle."

Rudd recommends either of two systems: beer balls, which come in 2 1/2- and five-gallon sizes, or Cornelius stainless-steel cylinder kegs

in 2 1/2-or five-gallon sizes, which are used to dispense soft drinks. Each system has points in its favor.

The beer-ball system — yes, the container is the same as those "party balls" you buy at the local package store — can be set up in any one of three ways. The simplest is the party system, which consists of thumb air pump on top and a tube leading to a tap dispenser.

Your first thought when you see this system in operation is, "Great! This is all I need."

Well, not exactly. This system is fine for what its name states: parties. The catch is that you are adding air (a source of oxygen), not CO₂, hence you must consume your beer in a few hours to a couple of days before it becomes flat and eventually oxidizes. To have

a truly permanent system that keeps beer perfectly fresh, you must be adding CO₂ as your pressurizing gas.

There are two fairly convenient ways to pressurize with CO₂. The more sophisticated, and the one Rudd recommends, is a system illustrated in Figure 1. It consists of a five-pound pressure bottle of CO₂ with a shutoff valve on top; two gauges (low and high pressure); and another shutoff valve between the gauges and the tube leading to the beer ball. The hardware on top of the beer ball lets the CO₂ in and extracts the beer through an outlet tube connected to a hand-held tap. Note that the beer leaves the ball via a stainless-steel tube near the bottom of the ball. There are two lengths of this steel tube — longer for five-gallon balls and shorter for the 2 1/2-gallon size.

Fitted on top of the beer ball is a Batch Latch, a product made specifically for homebrewers by Marc C. Fritz of Potsdam, N.Y. Inside this Batch Latch fits a replaceable soft rubber cap that is pierced by the stubby white gas inlet and the long stainless-steel extracting tube. On top of the Batch Latch you simply attach a gas valve to the flexible plastic CO₂ inlet tube running from your CO₂ bottle.

Once you have all this equipment ready you can proceed with the actual kegging. To the beer ball add no more than one-half cup of corn sugar per five gallons to prime (one-quarter cup for the 2 1/2 gallon size). Now shoot in some CO₂

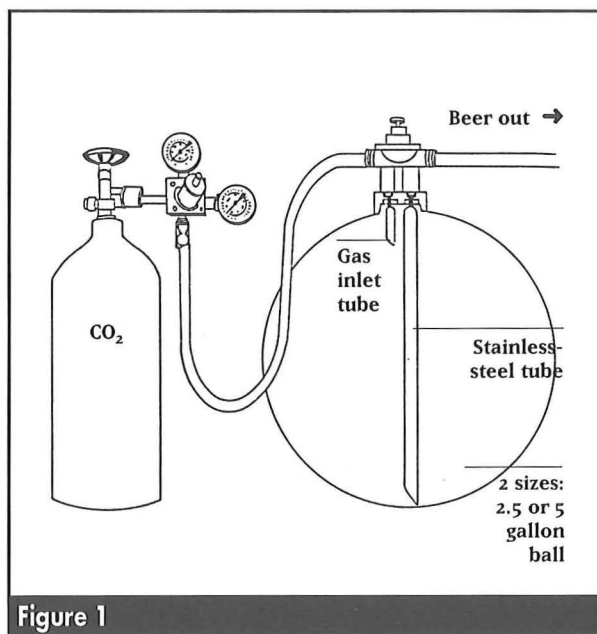


Figure 1



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from your pressure bottle to clear out the air from the beer ball (CO₂ is heavier than air, so it should stay in there). Then carefully add the uncarbonated beer from your fermenter just as you do when you bottle. Put on the puncture cap and tighten by screwing down the locking ring. The beer ball is now sealed airtight and your brew will carbonate by means of the priming sugar you've already added. Allow the beer to mature for about two weeks. When you're ready to start drinking it, reconnect your CO₂ system and keep the pressure at about 8 psi.

Any keg should be kept cool at all times, but it does not have to be refrigerated. According to Rudd, "Frosted mugs from your freezer will chill it down just fine to about the mid-forties." But if you dispense warm beer, the result will be a lot of foam because the release of CO₂ happens more quickly at warmer temperatures.

If the CO₂ carbonation system sounds a bit complex and expensive

compared to bottling, rest assured there is a less complicated system available, sometimes called the "English system." All the carbonation gadgetry described above is replaced by a non-adjustable regulator (set at about 15 psi) and a set of CO₂ charging bulbs. The CO₂ bulbs are available at hobby shops, some variety stores and homebrew shops in boxes of 10. This system is simpler and more portable than the beer-ball system detailed above, but the carbonation is much harder to regulate and the expense of buying the disposable charging bulbs does add up.

The omnipresent Cornelius-type soda keg (Figure 2) — anyone who's ever worked at a restaurant or snack stand is familiar with them — works about the same as the beer-ball system just described. One word of caution is to make sure you get the correct type of quick-disconnects that fit at the top where the CO₂ enters. There are two different kinds, Coke-type and Pepsi-type, depending on which type of Cornelius keg you've bought. Quick-disconnects usually are available at your local homebrew shop.

After you've kegged your beer in a Cornelius you need to put five to 15 pounds of CO₂ pressure into it to seal the gasket, unlike the beer-ball procedure. Use lower carbonation for English pub-style ales and the higher amount of CO₂ for most other types of beer that require good sparkle and head.

With either system you'll probably get

some sediment when you tap a batch for the first time because the stainless-steel tube is drawing from the bottom of the ball or keg. Just dispense until the beer runs clear.

While the beer-ball setup is lighter, the Cornelius keg is easier to clean because of its larger top opening and cylindrical shape. However, while a household chlorine bleach solution is fine for cleaning the plastic beer ball, chlorine may etch the inside of the Cornelius keg if it is in prolonged contact with it. An iodine-based cleaner-sterilizer such as "BTF" is recommended over chlorine for the Cornelius system. "BTF" is made by National Chemicals, Winona, Minn., and is available at most homebrew shops. Always release all pressure from any keg before disassembling for cleaning and always use a properly functioning regulator when applying CO₂ from a gas cylinder.

Whichever system you buy, check it for CO₂ leaks the first time and every subsequent time you set it up. Use a small paintbrush dipped into a solution of liquid dish detergent and water to test the exterior of connections for telltale bubbles. Make sure you shut off the handle of the CO₂ bottle when not in use and don't lose the small fiber (or plastic) washer when you take it in for a refill (see Yellow Pages for refill sites or ask your homebrew shop).

Still feel like bottling all your beer from now on? There are advantages to sticking with bottles, the obvious economy of infinite recycling being the main one. But it's good to know there's a quick, and in many ways easier, alternative to the drudgery of bottling.

Rusty McCrady is a high school teacher and homebrewer, not always in that order. He has been brewing steadily since 1982.

Please send questions or topics you'd like addressed in this column to Elizabeth Gold, *zy-murgy* editor-in-chief.

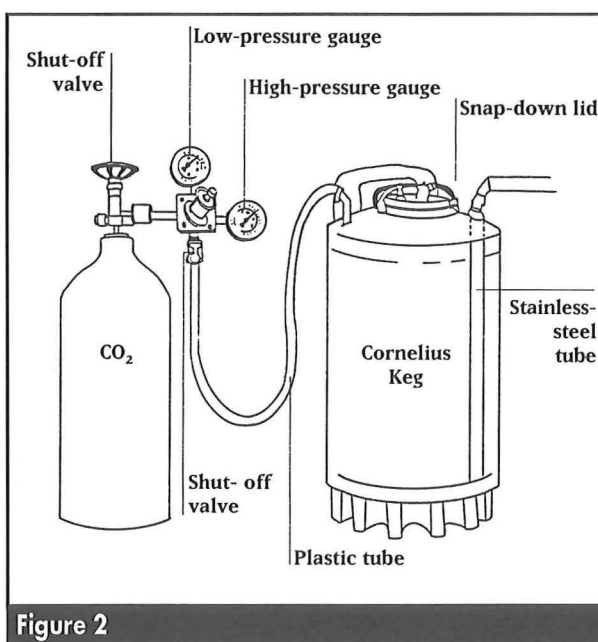
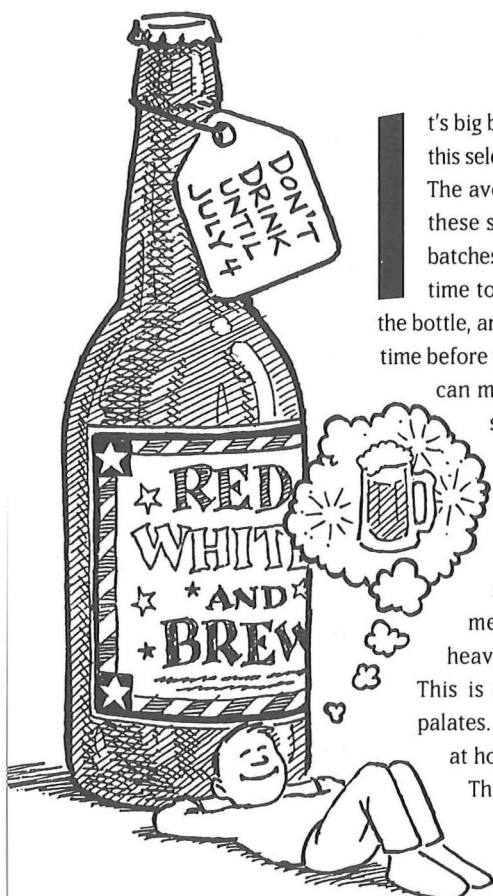


Figure 2

WINNERS

C I R C L E

James Spence



It's big brew time! Take a look at this selection of winning recipes. The average original gravity of these six brews is 1.081. These batches are going to take a long time to ferment, a long time in the bottle, and you should wait a long time before you drink 'em. See if you can make it until the holiday season before you take the first sips. Well, okay, see if you can make it to the Fourth of July. Take particular note of the judges' comments on Mark Quade's heavy, strong sipping mead. This is not a recipe for weak palates. Go ahead and try these at home.

These recipes are taken directly from the brewers' entry forms. Because brewers live in different

places and use different methods and equipment, your results may vary.

★ ★ ★ ★ BROWN ALE ★ ★ ★ ★

American Brown
Second Place
Charlie Milan
Baton Rouge, Louisiana
"Stars and Stripes Brown"

Ingredients for 5 gallons

- 7 pounds pale ale malt
- 1/2 pound crystal malt 120 °Lovibond
- 1/2 pound six-row Munich malt
- 1/4 pound chocolate malt

- 1/2 pound dextrin malt
- 1 ounce Centennial hops, 9.1 percent alpha acid (60 minutes)
- 1/2 ounce Cascade hops, 5.9 percent alpha acid (30 minutes)
- 1/2 ounce Cascade hops, 5.9 percent alpha acid (2 minutes)
- 1 tablespoon Irish moss
- Wyeast No. 1056 American ale liquid yeast culture
- 3/4 cup corn sugar to prime

- Original specific gravity: 1.044
- Final specific gravity: 1.017
- Boiling time: 60 minutes
- Primary fermentation: three days at 67 degrees F (19 degrees C) in glass
- Secondary fermentation: 11 days at 70 degrees F (21 degrees C) in glass
- Age when judged (since bottling): four months

Brewer's specifics

Mashed all grains at 156 degrees F (69 degrees C) for 90 minutes. Sparged with 30 quarts 168-degree-F (76-degree-C) water.

Judges' comments

"Hop bitterness present. Needs more malt for bigger body and balance. Could use more late boil hops for more hop aroma. Balance is nice."

"Very drinkable, true to style. Excellent brew."

"Appropriate and good example of style. Robust hop profile is a plus, yet maltiness comes through just enough."

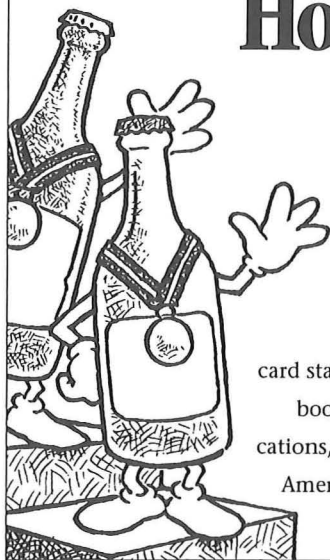
★ ★ ★ ★ PORTER ★ ★ ★ ★

Robust Porter
Second Place
Jack Spence
Alexandria, Virginia
"Peter's Porter"

Ingredients for 5 gallons

- 8 pounds pale ale malt
- 1 pound crystal malt 120 °Lovibond

Award-Winning Homebrew Recipes



- Yours for the Asking

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- 1/2 pound chocolate malt
- 1/2 pound black malt
- 1 ounce Chinook hops, 11.3 percent alpha acid (60 minutes)
- 1 ounce Cascade hops, 5.9 percent alpha acid (30 minutes)
- 1 1/3 ounce Cascade hops, 11.3 percent alpha acid (30 minutes)
- Brewers Choice Altbier yeast culture
- 3/4 cup dextrose to prime

- Original specific gravity: 1.057
- Final specific gravity: 1.008
- Boiling time: 60 minutes
- Primary fermentation: four 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): five months

Brewer's specifics

Mashed all grains at 158 degrees F (70 degrees C) for 90 minutes.

Judges' comments

"Clean, hoppy, malty, lingering sweet taste."

"Sour, phenolic taste covers toast of malt. Well-conditioned, good chocolaty aftertaste. A proud entry. Delightful overall."

"Good use of dark grains, the touch of roasted barley is not inappropriate. Good balance, well-crafted. Back off the roasted barley for lighter color."

"Smooth, slight bitterness from black patent malt. Clean medium hop bitterness."

★ ★ ★ ★ SPECIALTY BEER ★ ★ ★ ★

**Classic-style Specialty Beer
(Maple Barley Wine)
Second Place
Rob Lillard
Lyons, Colorado
"Old Maple Dog"**

Ingredients for 5 gallons

- 8 pounds Yellow Dog extract
- 3 pounds Munton & Fison amber dry malt extract
- 1 pound Munich malt
- 1/2 pound crystal malt
- 1/2 pound wheat malt
- 1 quart pure dark amber maple syrup, Grade A
- 2 ounces Eroica hops (60 minutes)
- 1 ounce Eroica hops (30 minutes)
- 1 ounce Fuggles hops (steeped 15 minutes after boil)
- 1 ounce Fuggles hops (dry)
- 1 ounce Willamette hops (dry)

5/8 cup corn sugar to prime
Whitbread dry ale yeast

- Original specific gravity: 1.104
- Final specific gravity: 1.038
- Boiling time: 60 minutes
- Primary fermentation: six days at 65 degrees F (18 degrees C) in glass
- Secondary fermentation: 16 days at 65 degrees F (18 degrees C) in glass
- Age when judged (since bottling): seven months

Brewer's specifics

Mashed all grains at 155 degrees F (68 degrees C) for 60 minutes. Maple syrup added after the boil.

Judges' comments

"Nice smooth flavor. No off-flavors. Maple comes through. Very nice barley wine. Maple makes it that much better. Better than some commercial brews I've tried."

"Malty, alcoholic. Maple barely comes through. Well-brewed beer."

★ ★ TRADITIONAL MEAD ★ ★

**Still Mead
Second Place
Mark Quade**

Port Aransas, Texas

"But Will You Love Me Tomorrow?"

Ingredients for 1 gallon

- 4 pounds dark pungent wild honey
- 2 teaspoons yeast nutrient
- Red Star Champagne yeast

- Original specific gravity: 1.120
- Final specific gravity: Unknown
- Boiling time: 60 minutes
- Primary fermentation: 90 days at 75 degrees F (24 degrees C) in plastic
- Age when judged (since bottling): 12 months

Judges' comments

"Tartness and musky pungency that balances intense sweetness. Almost an orangelike spicy finish. Like drinking a forest and a field of flowers all at once."

"Interesting flavors. Finish is phenolic. A little goes a long way!"

"Strong, sweet, honeylike. Alcoholic. Smooth, sweet and pungent. Well-balanced. No technical flaws."

"Full body, full of flavor. Honey has a unique and strong flavor, maybe too much. Nice brew. Wild pungency comes through well, but not totally in control."

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BARLEY WINE IS FINE CLUB-ONLY COMPETITION WINNER

Barley Wine

Jack Dawson

San Francisco, California

**Representing the San Andreas Malts
Unnamed**

Ingredients for 5 gallons

- 6 pounds Williams Light Australian malt extract syrup
- 5 pounds Williams Light Australian dry malt extract
- 1 pound crystal malt 10 °Lovibond
- 1 pound crystal malt 40 °Lovibond
- 3 ounces Chinook hops, 13 percent alpha acid (60 minutes)
- 1/2 ounce CFJ-90 hops, 9 percent alpha acid (5 minutes)
- 1/2 ounce CFJ-90 hops, 9 percent alpha acid (dry)
- 1 teaspoon Irish moss (30 minutes)
- Whitbread dry ale yeast

- Original specific gravity: 1.095
- Final specific gravity: Unknown
- Boiling time: 60 minutes
- Primary fermentation: five days at 65 degrees F (18 degrees C) in glass
- Secondary fermentation: 16 days at 65 degrees F (18 degrees C) in glass
- Age when judged (since bottling): 18 months

Judges' comments

"Astringency pervades an otherwise good flavor and balance."

"Sweetness balanced with medium hop bitterness. Alcoholic. Very good barley wine."



HAIL TO ALE CLUB-ONLY COMPETITION WINNER

India Pale Ale

Brian Miller
Tempe, Arizona
Representing Brewmeisters
Anonymous
"Brian's IPA"

Ingredients for 10 gallons

- 15 pounds Briess two-row malt
- 2 pounds Munich malt 10 °Lovibond
- 1 pound crystal malt 60 °Lovibond
- 1/2 pound CaraPils malt
- 1 ounce Galena hops, 13.2 percent alpha acid (60 minutes)
- 1/4 ounce Hersbrucker hops, 3.8 percent alpha acid (15 minutes)
- 1/4 ounce Cascade hops, 5.4 percent alpha acid (15 minutes)
- 1/2 ounce Saaz hops, 3.2 percent alpha acid (15 minutes)
- 1/4 ounce Hersbrucker hops, 3.8 percent alpha acid (finish)
- 1/4 ounce Cascade hops, 5.4 percent alpha acid (finish)
- 1/2 ounce Saaz hops, 3.2 percent alpha acid (finish)
- 1 ounce Cascade hops (dry)
- Brewers Choice No. 1056 liquid yeast culture
- 5 cups wort to prime

- Original specific gravity: 1.066
- Final specific gravity: 1.021
- Boiling time: 90 minutes
- Primary fermentation: 14 days at 60 degrees F (15 degrees C) in glass
- Secondary fermentation: seven days at 60 degrees F (15 degrees C) in glass
- Tertiary fermentation: 14 days at 40 degrees F (4 degrees C) in glass
- Age when judged (since bottling): two months

Brewer's specifics

Mashed all grains at 154 degrees F (68 degrees C) for 90 minutes. Boiled reserved wort for priming.

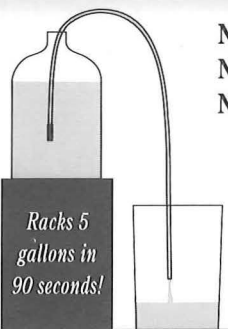
Judges' comments

"Nice malt flavor, but needs hops. Good high-alcohol content. Too sweet."

"Hops don't dazzle, needs more finish hops."

"Not enough hop bitterness."

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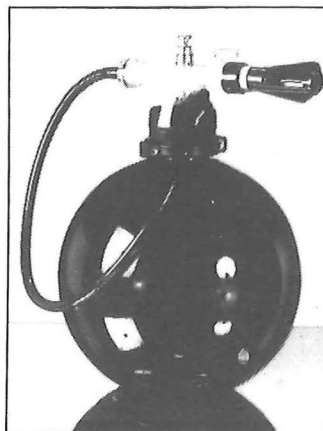
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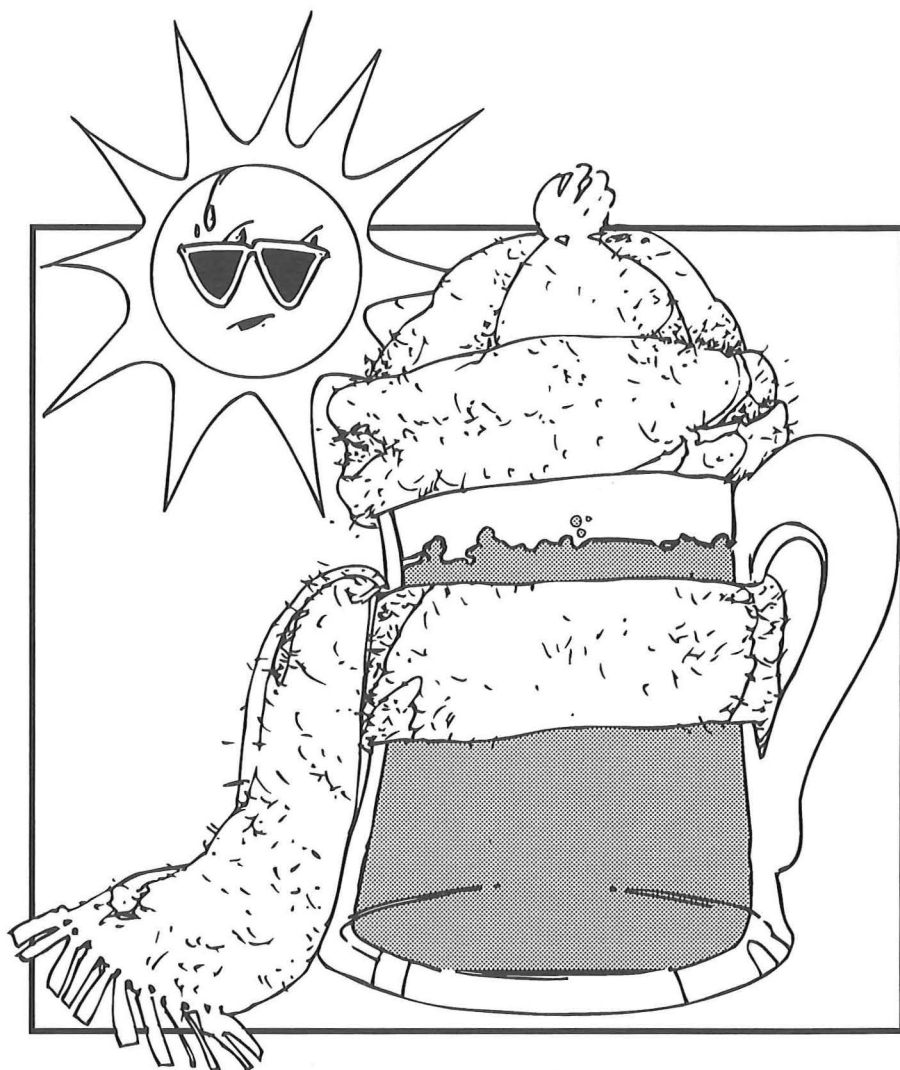
Charlie Papazian

Autumnal Special Reserve

It's difficult to anticipate the wild, fragrant colors of autumn, the coolness of evening and the harvest celebration when the green lusciousness of summer languishes in the air. But the inevitable indeed approaches, even as we sip our summer wheat beers from the comfort of a shady hammock, a chilled Pils on the beach or a summer ale in a suburban forest.

For a homebrewer the future looks bright when there's brew awaiting the first uncapping. Midsummer is the time to prepare for greeting the autumnal glow with an extra special Oktoberfest-style lager. The extra strength and lagering make Autumnal Special Reserve a worthy brew. But it must be brewed when summer's heat is at its peak and reserved in cool recesses for the future days of fall.

Autumnal Special Reserve is an Oktoberfest-style lager, with less bitterness than is typical. Noble varieties of hops — Saaz, Hersbrucker Hallertauer (a variety of Hallertauer grown in Hersbrucker) and American-grown Mt. Hood — are used sparingly to accent the mellow, rich roundness of malt. Regal maltiness is complemented with an almost opales-



cent amber glow from hints of wheat and Munich-style malt.

A clean source of lager yeast should be used. Bavarian or Munich-style lager yeast perform best in contributing lager character even if cold lager fermentation temperatures cannot be achieved. If you use essential sanitation techniques and your best effort to keep it cool, this brew will be truly worthy of a special reserve.

Because it matures with age, the recipe is for 10 gallons — five to be kegged and re-

served for a year-end treat and five to be bottled for a celebration in October.

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

Mash-extract recipe for 10 gallons (38 liters). The recipe may be halved to 5 gallons (19 liters).

For the mash

- 3 pounds (1.4 kilograms) crushed malted wheat
- 2 1/2 pounds (1.1 kilograms) crushed

Munich malt

- 4 pounds (1.8 kilograms) crushed pale malt

(If you don't want to mash you may substitute the above with about 6.5 pounds or 3 kilograms of wheat malt extract syrup containing 50 percent wheat and 50 percent barley malt.)

Add to the mash runoff

- 6.6 pounds (3 kilograms) Ireks German amber malt extract
- 3 pounds (1.4 kilograms) light dried malt extract

Boil with hops to achieve about 26 International Bittering Units:

- 9 Homebrew Bittering Units (1 used 3 ounces or 85 grams of 3 percent alpha acid Saaz whole hops) for bittering
 - 16 Homebrew Bittering Units (1 used 4 ounces or 113 grams of 4 percent alpha acid Hersbrucker Hallertauer whole hops) for flavor
 - 1 ounce (28.4 grams) Mt. Hood hops for aroma
 - 3/4 cup corn sugar for 5 gallons (19 liters) if bottled and about 1/3 cup of corn sugar for 5 gallons (19 liters) if kegged
 - liquid lager yeast culture
- Original gravity: 1.062 to 1.066 (15.5 to 16.5 degrees Balling)
 - Final gravity: 1.014 to 1.018 (3.5 to 4.5 degrees Balling)

A step-infusion mash is used to mash the grains. Begin by adding 2 1/2 gallons (9.5 liters) of 130-degree-F (54.5-degree-C) water to the crushed grain, stir, stabilize and hold the temperature at 122 degrees F (50 degrees C) for 30 minutes. Add 1 1/4 gallon (4.75 liters) of boiling water, stabilize temperature at about 158 degrees F (70 degrees C) and hold for about 30 minutes. Temperature may be allowed to drop to about 155 degrees F (68 degrees C) with no worrying.

After conversion, raise temperature to 165 degrees F (74 degrees C), laut and sparge

with 170-degree-F (77-degree-C) water. Collect about 5 gallons (19 liters) of runoff and add the malt extract and bittering hops and bring to a full boil.

Boil for about 60 minutes. When 30 minutes remain add 8 Homebrew Bittering Units of flavor hops (2 ounces or 57 grams of Hersbrucker Hallertauer). Fifteen minutes before the end of the boil add 8 more Homebrew Bittering Units of flavor hops (2 ounces or 57 grams of Hersbrucker Hallertauer). After a total wort boil of 60 minutes turn off the heat and add 1 ounce (28.4 grams) of aroma hops and let steep two to three minutes before straining and sparging into sanitized fermenters.

For advanced homebrewers who wish to match the bitterness of this recipe, 26 International Bittering Units were calculated by making the following assumptions: (1) use whole hops, (2) use a concentrated wort boil with about 3.5 pounds (1.6 kilograms) of extract per gallon (3.8 liters) of liquid boiled and (3) assume 23 percent utilization for 60 minutes of boiling, 12 percent utilization for 30 minutes of boiling and 6 percent utilization for 15 minutes of boiling. Beginners and intermediate homebrewers should relax, don't worry, have a homebrew and err on the side of up to 15 to 20 percent more hops (that's a pinch here and there or using pellets instead of whole hops) if you are so inclined, but *don't worry*.

Primary fermentation should be in the coolest environment you have down to about 50 degrees F (10 degrees C). If you have the facilities, rack your brew after primary fermentation into a secondary fermenter and lager for four to six weeks at 38 to 48 degrees F (3 to 9 degrees C). If you are brewing at ambient temperatures exceeding 60 degrees F (15.5 degrees C) then bottle and keg when brew is finished fermenting and has begun to clarify. At higher fermentation temperatures your Autumnal Special Reserve will take on a bit more fruity ale character but will no-doubt-about-it still be one you will specially reserve.

Prime with corn sugar and bottle or keg when fermentation is complete.

If proper attention has been given to sanitation techniques this beer will age wonderfully for eight to 12 months. Its peak fla-



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vor is one of personal preference. I preferred the three-to-six-month period, but this will vary with your techniques and yeast type.

If you know I'm coming your way, I wouldn't mind if you reserved me a bottle. Don't worry, I'll share it with you.

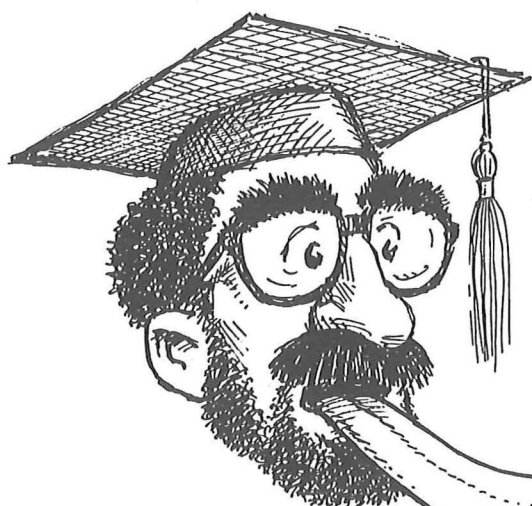
HOMEBREW BITTERING UNITS

Homebrew Bittering Units are a measure of the total amount of bitterness in a given volume of beer. 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 5-gallon batch, so it is important to note volumes whenever expressing bittering units.

Professor Surfeit

DEAR

P R O F E S S O R



BERLINER WEISSE AND LACTO-MAN

Dear Professor,

This past summer I had the pleasure of tasting several bottles of August Schell's Weisse. It was love. I vowed I would try to duplicate the style. I'm trying to figure out just how to do it in time for brewing season.

From your colleague Charlie Papazian's opus, *The New Complete Joy of Home Brewing* (Avon, 1991), I gather this beer is the Berliner Weisse style, and that it gets its distinctive tartness from the addition of lactic fermentation. Papazian warns it may be difficult to duplicate. How difficult? What would it take? What are the proper proportions of barley malt to wheat malt and how much? Would one use a weizen ale or lager yeast? And how about that lactic acid fermentation? After mastering mashing and yeast culturing I am ready for a new challenge.

Lovingly yours,
Chip Upsal
Mountain View, Missouri

Dear Chip,

Able to leap tall fermentation tanks with a single bound — this looks like a job for Lacto-Man!

*The beer style you so covet is indeed a refreshing sour beer thirsted for by many. For the homebrewer, I'd suggest a sour mash brewing process, (see *zymurgy*, Spring 1991, Vol. 14, No. 1, *World of Worts*, Vicarious Gueuze,). I think what you're looking for can be achieved in a controlled manner by creating a sour mash and then fermenting with wheat beer yeast.*

OK,
The Professor, Hb.D.

SWEET EXPLOSIONS?

Dear Professor,

Having produced a wide range of fairly successful "normal" beers, I have been trying some less usual fermented beverages, particularly cider and ginger beer.

I fermented a passable dry cider and sweetened another batch with saccharin. The problem I face is producing sweet cider and ginger beer without adding artificial sweeteners. Obviously, at bottling time the presence of unfermented sugar is going to create problems. With the ginger beer I experienced the predictable exploding bottles. An attempt to pasteurize another batch by placing the bottles in a kettle and gradually raising the temperature to 176 degrees F (80 degrees C) resulted in a success rate of 30 percent. The rest exploded beneath the closed lid of the pan; a most interesting noise.

So how can I bottle something sweet? Is my pasteurizing technique wrong? Are the bottles (Samuel Adams) the wrong type?

Maybe I should just be happy fermenting out the sugar and using artificial sweeteners. In that case, would saccharin or NutraSweet be preferable?

Cheers!
Martin Bide
New Bedford, Massachusetts

Dear Martin,

As a homebrewer you've got a toughy. The commercial fellas usually use sodium benzoate or other microorganism inhibitors. What to do naturally? Well, it's your choice if you want to use any kind of artificial sweetener (personally I can't stand the taste of any artificial sweetener). It will have to be your choice and not my recommendation.

One thing I might suggest is adding dextrin malt powder and/or steep one to two pounds of crystal malt in your brew before fermenting. The carbohydrates from these two natural "additives" are to a certain degree not fermentable and will lend some body and sweetness to your ginger beer and cider. I think you'll find the results far more pleasant than the "phfumpf" under the lid.

Naturally sweet,
The Professor, Hb.D.

ALUMINUM VS. THE REST OF THE WORLD

Dear Professor,

Is it OK to use aluminum pots instead of stainless to boil wort? I have several dandy eight- and 10-gallon aluminum stockpots that would make great brewpots if the chemistry between the aluminum and the wort isn't bad. I really don't want to buy a steel one because they're pretty expensive.

I'd appreciate your thoughts on this.

Sincerely,

Nelson A. Moffat
Marshfield, Wisconsin

Dear Nelson,

The never-ending debate about aluminum pots continues to fuel beer-ball discussion, even as we speak. I don't recommend aluminum. Acidic worts can react with aluminum in a way that detracts from the flavor of beer. No commercial breweries use aluminum. That's a good indication that something's up.

Stainless-steel pots are getting down there in price. Shop around and I'm sure once

A BAHN GOOD BUY

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Brewer's Calculator

• • • • WRITTEN BY A HOME BREWER, FOR THE HOME BREWER • • • •

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Stainlessly,
The Professor, Hb.D.

STRAWBERRY LAMBIC?

Dear Professor,

Each summer I like to indulge in a mélange of nature's most wonderful delights, fruit and beer. Last summer I brewed two separate batches of biere framboise. In other summers, cherry, strawberry and lingonberry (small wild red berries that grow on bushes here in Sweden) beers were brewed. All have worked well except the lingonberry and strawberry. I know now why the lingonberry probably did not mature as hoped; they have a high content of benzoic acid, a natural preservative. However, why was the strawberry of such poor quality? I

have read from cover to cover Jean-Xavier Guinard's book *Lambic* (Brewers Publications, 1990). However, no mention of strawberries in the *bieres des fruits* could be found. In all my other beer-brewing books, strawberries are not mentioned. Could there be something in these marvelous-tasting berries that prevents them from being enjoyed by the beer *connoisseurs du monde*? Help me, so I may be more prepared for summer's seasonal brew.

Bewildered homebrewer,
Stephen Demczuk
Stockholm, Sweden

Dear Stephen,

I have not heard of any problems inherent with strawberries. I have tasted some wonderful strawberry beers and meads, but I do note that strawberries are generally light in flavor contribution, so you need to use a lot. I think a strawberry lambic would be absolutely fantastic.

Berry nice,
The Professor, Hb.D.

NEW PRODUCTS

New Product descriptions are submitted by manufacturers and distributors and are printed here for reader information. These claims are made by manufacturers and/or distributors and do not imply testing by *zymurgy*. For more information contact Linda Starck at (303) 447-0816.

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Domed Brew Kettle

New from Stoelting, the dairy equipment designer and manufacturer, is a six-gallon stainless-steel domed brew kettle/brewing system for all-grain and kit brewers. Made of type 304 stainless steel with 20-gauge sidewalls and 18-gauge base, each unit includes a bottom drain and domed lid. An optional stainless-steel screen is available to facilitate one vessel mashing and sparging.

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Manufacturer's suggested retail price: unavailable. For information contact David Stoelting at Stoelting Inc., 502 Highway 67, Kiel, WI 53042, or call toll-free (800) 558-5807.

New Tap on Tap

Marc C. Fritz Inc. designed the Bulb Injector Tap for use with their Beer Sphere kegs using parts from around the world. The brewer naturally carbonates homebrew in the keg (2 1/2- or 5-gallon size) then taps it once aging is complete, dispensing the beer under its own primed pressure. Once the beer begins to flow slowly or lose carbonation, a CO₂ bulb is injected. There is no pressure regulator because the pressure relief valve controls the carbonation. Manufacturer's suggested retail price range for the bulb injector system is \$65 to \$85. Each

system is assembled and tested prior to shipping.

To find the Bulb Injector Tap retailer nearest you call Marc C. Fritz Inc. at (800) 762-2560.

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From the same company comes Phil's Mini Lauter-tun, designed for intermediate brewers who know how much better their extract brews are when some grain is used. One to five pounds of grain can be lautered easily.

After the brew is chilled, Phil's Mini Lauter-tun can be used as a whole hop-back to strain out spent hops and trub. The system consists of a two-gallon plastic bucket equipped with a false bottom, drain hose, shut-off clamp and lid plus simple operating instructions.

Manufacturer's suggested retail price: unavailable. For information call or write to Lis-termann Mfg. Co., 4120 Forest Ave., Norwood, OH 45212, (513) 531-2268.

T H E B E S T F R O M KITS

Kurt Denke

It's easy to misjudge people, and it's easy to misjudge beer. Accordingly, it can be easy to misjudge the relationship between a person and beer. My wife, Pam, discovered this in a pub in London several years ago. We'd never been in a real ale house and were eager to get our hands on a pint. We discovered an ancient Young's pub near our hotel and headed out for a drink. She ordered a pint of Winter Warmer, which gave the bartender quite a funny look. You could see the wheels turning in his head, cranking out something like: "American woman, knows nothing about beer, orders beer with cute name, doesn't know it's black, will hate it." A silly debate that took something of the flavor out of the evening ensued about whether she really wanted a pint of Winter Warmer. Pam, of course, brews and drinks some beers that make Young's Winter Warmer look pale and light-bodied, but somehow she must not look like the sort.

Just as people can misjudge others' appreciation of beer, people can misjudge how beer will affect them. I have heard a great many fantastic reports of the alcohol content of beers in other nations, most of which are rather obviously untrue. Guinness Stout has been reported to me to be 35 percent alcohol, while average everyday German beers are usually placed more modestly at 15 percent alcohol, presumably so that one can drink several of those one-liter mugs without difficulty. While the percentages are clearly wrong, I do not doubt that the people who report them believe them; alcoholic beverages always seem a bit stronger when one is abroad, even when they actually are weaker.

High-alcohol beers, while often wonderful concoctions, tend to be eccentric in flavor and are not for everyone. This was demonstrated to me dramatically once at a going-away party for an attorney at my firm. We were at a German restaurant and I was among the first to order. I ordered a bottle of EKV 28, an immensely strong, syrupy-sweet

beer. I didn't realize until our orders arrived that everyone at the table, knowing me to be a beer freak, also ordered a bottle. Yikes! Predictably, everyone took one sip, made a funny face and stopped. About 20 bottles of EKV 28 drifted my way as people hoped that, since I liked this stuff, I might finish what they'd left. A case of EKV 28 being enough to give a herd of caribou a bad hangover, I declined.

When I began brewing not many kits were on the market for strong beers. The staples of the kit market have always been the basic low-to-mid-gravity ales and lagers that are as popular as commercial brewery products. The expanded variety in recent years has filled out the strong beer segment of the kit market quite well among both the imported one-can kits and the domestic kits offered as custom products by various homebrew shops.

Here are a few suggestions that might make your experiments with high-octane beer kits a bit more rewarding.

First, make sure you actually like the beer

you're about to make. Have some commercial reference, not so you can imitate it but so you have a frame of reference. If you haven't encountered many strong beers, find a few locally and have a taste. See what you like or don't like about them. Although I hate generalizations, I'll indulge in a few here. High-alcohol beers tend to be quite dense and sweet with lots of complex aromatics resulting from fermentation. In a word, BIG. These beers have the sort of flavor around which an entire philosophy of life could be centered.

Second, keep in mind that, with fermentation-induced aroma being an enormous component of the flavor of these beers, the factors that influence those flavors will be more important than usual. It's important to try to keep a moderate fermentation temperature to prevent fruity esters from getting out of hand, and it's a good idea to use a two-stage fermentation system even if you're usually a single-fermenter brewer, to keep yeast autolysis from causing flavor trouble.

Third, having a sense of style is as important here as in any other sort of brew. If you're inclined to customize your batch, keep in mind that doses of hops and specialty malts can appear insignificant in a strong flavored beer. If you like hops, pull out all the stops and hop like mad; throw in your pogo stick if you like. If you're brewing from an English barley wine kit, keep in mind that the English tend to prefer their barley wines a bit on the sweet, syrupy and not-so-bitter side. If you prefer a more aggressively-hopped beer, say, along the stylistic lines of Sierra Nevada Bigfoot Barley Wine, you'll need to step it up. As for the fermentable side of the recipe, if you find that barley

wines often are too sweet and heavy for you, there's considerable room for some judicious use of adjuncts. I can't quite bring myself to throw in a bag of sugar, but I've had some wonderful results with honey in "drying out" a barley wine to make it a bit more crisp.

Fourth: patience, patience, patience. My first extremely strong beer was a Russian imperial stout that took about three months to condition in the bottle, by which time it tasted strangely nasty. It's hard to define in precise terms what happens to these beers as they age, but they often improve quite dramatically. After a year it was gorgeous.

The Beverage People Barley Wine Kit



"The Beverage People" is the house brand of Beverage People, formerly Great Fermentations, a California homebrew shop. As I have remarked before, custom-made beer kits from American homebrew shops are often among the best available because they are generally designed to a high standard of quality, and because they represent the American homebrewer's taste for assertively flavored beer.

This kit consists of a couple of bags of a light amber dried malt extract; two smaller bags of dry rice extract; about a pound of what appears to be a relatively light pre-crushed, caramel malt; water treatment; bittering and aromatic hops; priming sugar and Champagne yeast. Following the instructions enclosed, I steeped the malted barley in a couple of quarts of water at about 155 degrees F (68.5 degrees C) for 45 minutes. Then I put the steeping liquid, dry malt extract and water treatment with enough water to make a bit more than five gallons into my kettle. I added one packet of bittering hops at the beginning of the boil, the second packet 15 minutes later and the aroma hops five minutes before the end of the one-hour boil. I force-cooled the wort, put it into my primary fermenter and

pitched the yeast. After the initial vigorous fermentation slowed and a significant amount of yeast began to pile up in the bottom of the fermenter, I racked it to a glass carboy for secondary fermentation. After weeks of anticipation, I batch-primed it with the priming sugar, bottled and set it aside to condition.

The finished beer is very nice; the color is a deep copper and the body is dense but not too much so. The definite residual sweetness is quite normal for the style and seems to be well in proportion to the density. The aroma is complex, fruity and malty. While it's always hard to know what a young barley wine will taste like when it's mature, this beer already is extremely pleasant and will probably only improve with keeping.

John Bull Premium Traditional Bitter

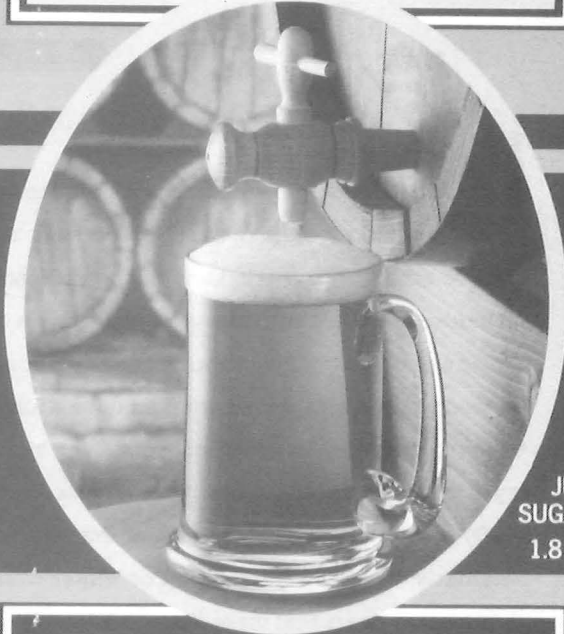
Having had such good luck with John Bull over the years, I thought I'd try another in the relatively new "Premium" line. Like most English kits, John Bull recommends adding 378.1 metric tonnes of sugar to each five gallon batch. Instead, I chose to cut the batch volume from five imperial to four U.S. gallons and make a simple, low-gravity bitter, like so:

For four gallons

- 1 can (4 pounds) John Bull Premium Traditional Bitter kit
- 1 ounce Fuggle hops (for aroma)
- 3/8 cup corn sugar (for priming)
- ale yeast (included with kit)

JOHN BULL PREMIUM

HOME BREW BEER KIT



JUST
SUGAR
1.8 kg

TRADITIONAL BITTER

MAKES 40 PINTS (22.5 litres)

- OG: 1.035
- FG: 1.010

I boiled the extract for 10 minutes with water to make four gallons, added the Fuggle hops, force-cooled the wort and pitched the yeast. I took the 378.1 metric tonnes of sugar, loaded it into a couple of rail cars, and by dumping it onto the market all at once was able to manipulate the price of sugar and make a handy profit in futures. After fermentation died down, I batch-primed and bottled the beer.

This beer has a light copper color, a medium body well-suited to a bitter and a pleasant but not too assertive hop bitterness. It is a good quaffing beer to be served next time the Queen Mother is over for tea. ☺

This article is available in Library 13-AHA/zymurgy/Clubs on CompuServe's Beer and Wine Forum as SUM93K.ITS.

REVIEWS



Applecomb "Honey"

What do you get if you let honeybees feed on apple juice mixed with sugar rather than the nectar of flowers? It isn't honey because honey is derived from flower nectar. You're free to call it what you wish if you are the beekeeper, but you can't call it honey.

I was given 24 pounds of Applecomb last summer. The first thing I did was stick my finger in and taste this honeylike stuff. It tasted like honey and apples. Interesting. What better thing to do with Applecomb than make a batch of mead, or should I call it cyser (a traditional mead made from apple juice and honey)?

Into a 5 1/2 gallon batch of what I called Applecomb Cyser went 17 1/2 pounds of Applecomb, boiled 10 minutes with 1 1/2 gallons of water, chilled and topped off with water to make 5 1/2 gallons total. One-fourth teaspoon of yeast extract was added as a yeast nutrient. The cyser was pitched with a Champagne-type yeast (Pris de Mousse). Original gravity was 1.126.

In two months the cyser was fully fer-

mented and crystal clear. I racked and allowed it to sit another two weeks before bottling. The final gravity was a whoppingly low 1.009.

I was hoping to end at about 1.020 for a somewhat medium sweet mead. Usually a honey mead of OG 1.126 would have ended in the 20s, but not so with Applecomb, "made by bees from sweet apple juice," as the label claims.

I tasted this crystal clear deep golden cyser after 2 1/2 months and concluded that the complexity of flavors is there and will be enhanced with aging, perhaps another six months to a year.

The aroma and flavor were apple and fruitlike. The low finishing gravity resulted in a dry cyser that is somewhat alcoholic hot and prickly in the mouth. The mouthfeel begins with a soft feeling but creeps to dryness.

I anticipate a more delicate flavor with age. There is nothing in the flavor now to indicate it will not improve—it has those "green" mead flavors. I look forward to opening my next bottle of Applecomb Cyser.

Meanwhile, if you wish to try your hand at something unique, I'd suggest using 20

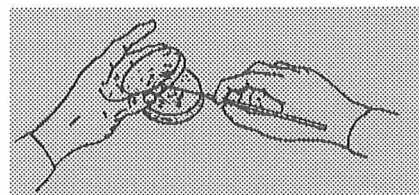
pounds of Applecomb to a five-gallon batch and try to achieve an original gravity between 1.135 and 1.140.

Applecomb, produced by the Summerset Co., Chicamuxen, Md., is available in the following quantities: 1 gallon (12 pounds), 2 gallons (24 pounds) and 5 gallons (60 pounds). The manufacturer's suggested retail prices are \$33, \$63 and \$145 postpaid respectively.

For information contact Summerset Co., (301) 743-5933, G.W. Ferris, Rt. #1 Box 460-L, Indian Head, MD 20640.

—Sexton Knight

Brewers Resource Yeast Culture Kit



This kit provides virtually everything you need to start and maintain yeast cultures. Here's a list of what you get: four prepared slant tubes, three prepared yeast slants, six tubes of sterile Super Starter®, six packs of Super Wort® dry malt extract and yeast nutrients for starters and four petri dishes pre-poured with sterile agar. You also receive an inoculating loop, one 500-mL Erlenmeyer flask for starters, parafilm, instructions and preprinted labels for test tube and petri dishes.

One of the main difficulties homebrewers encounter with yeast culturing is getting started in the first place! It's no sweat with this kit, because its most impressive item is the instruction booklet superbly written by

Maribeth Raines. The clear, straightforward instructions are written for someone who has never cultured yeast. The booklet emphasizes the simplicity of yeast-culturing procedures and the ease with which homebrewers can maintain their own yeast banks. There is even a cut-out pattern you can follow with the inoculating loop to properly streak yeast on the petri dishes.

The quality of the equipment and the growth media seemed extraordinarily high. Each starter tube has about 10 mL of sterile wort to provide a growth environment for small amounts of yeast. After two or three days in this small amount of wort, you simply pour it into the Erlenmeyer flask containing the Super Wort starter. After another couple of days this larger amount of starter is ready to pitch into your cooled wort. I had no problems with any of the ingredients or equipment. In fact, the slants and petri dishes I have been maintaining for several months seem fresh and viable, showing no sign of contamination. With a quick opening of each petri dish, a fresh, breadlike yeast aroma wafts up, indicating a good strong culture.

An alcohol lamp is convenient for yeast culturing and it would be nice if this kit came with one. I think some kind of rack for test tube slants and starters would be a terrific addition to any yeast-culturing kit including this one. I have knocked over a few too many test tubes in my refrigerator, and jury-rigging coffee mugs and drinking cups to hold them gets a little old. On the whole, the Brewers Resource Yeast Culture Kit is a dynamite addition to a homebrewer's equipment inventory.

The manufacturer's suggested retail price is \$34.95 with choice of four slants. For information contact Brewers Resource, PO Box 507, Woodland Hills, CA 91365; (818) 887-3282.

—James Spence

Old British Beers and How to Make Them

When the Durden Park Beer Circle was formed in 1971, some members were concerned that all topics of interest would soon

be covered and the club would have no reason to continue. That changed in 1972 when one of the members, John Harrison, read a book on the history of English ale and beer. In 1973 the Circle instituted a program to research the formulation of old beers and attempt to reproduce them with modern ingredients. The first version of *Old British Beers and How to Make Them* was published in 1976. The second, expanded edition contains formulations for 60 old beers that, according to the author, range from interesting to quite tasty.

What is an "old beer"? The beers in this book range from unhopped ales, circa 1300, to a 1937 barley wine with original gravity 1.136. Except for unhopped ales, high hop rates are the rule, along with high gravities. Both attributes make sense for times when temperature control was tenuous at best and fermentation science was unknown.

The Circle's sources of old beer formulations were limited at first to old brewing books and a friendly brewer. In 1984 they learned of the Scottish Brewing Archive in Edinburgh (now moved to Glasgow University). Harrison developed a cordial relationship with the archivist and was allowed access to brewing ledgers from Younger's and other brewers. Since then several brewers, including Whitbread, Courage and Bass, have set up archives.

What old beers are worth making? The Circle classifies beers by original gravity and color and plots them on axes defined by these parameters. Most modern beers lie within an L-shaped area abutting the two axes; the exceptions are strong dark beers such as Thomas Hardy's Ale and Courage Russian Stout. The Circle concentrates on beers that occupy areas on the plane uninhabited by modern commercial beers. These are generally light brown to black in color, with original gravity 1.050 and higher.

How well do the formulations replicate old beers? We'll never know. On the other hand, we'll never get closer. As a testament to their fidelity, some have stirred memories in senior citizens of the beers they drank as youths.

Old beers were brewed from old malts. The book discusses the most common varieties. The appendix explains how one can

sometimes substitute mixtures of modern malts for old malts. Unfortunately, the diastatic limitations of modern colored malts sometimes make this a pointless exercise. The problem is solved in the appendix which gives instructions for producing small quantities of colored malts at home by roasting pale malt in the oven.

Recipes call for all-grain homebrewing procedures and the reader is expected to be familiar with them. Procedures are given for producing the required high-gravity worts. The use of malt extract is not recommended. Nevertheless, the extract brewer stands to learn from the formulation. Recipes are for one imperial gallon, which is equivalent to about 1.2 U.S. gallons. The appendix gives color ratings of roasted malts and barley using European Brewing Convention (EBC) color numbers.

The historically minded homebrewer will appreciate the list of references spanning a period of 400 years. In particular, Reference 2 is said to contain information on all known historical brewery records. *Old British Beers and How to Make Them* is indispensable for the curious brewer.

Old British Beers and How to Make Them, Second Edition, by John Harrison, Ph.D. (Durden Park Beer Circle, 1991).

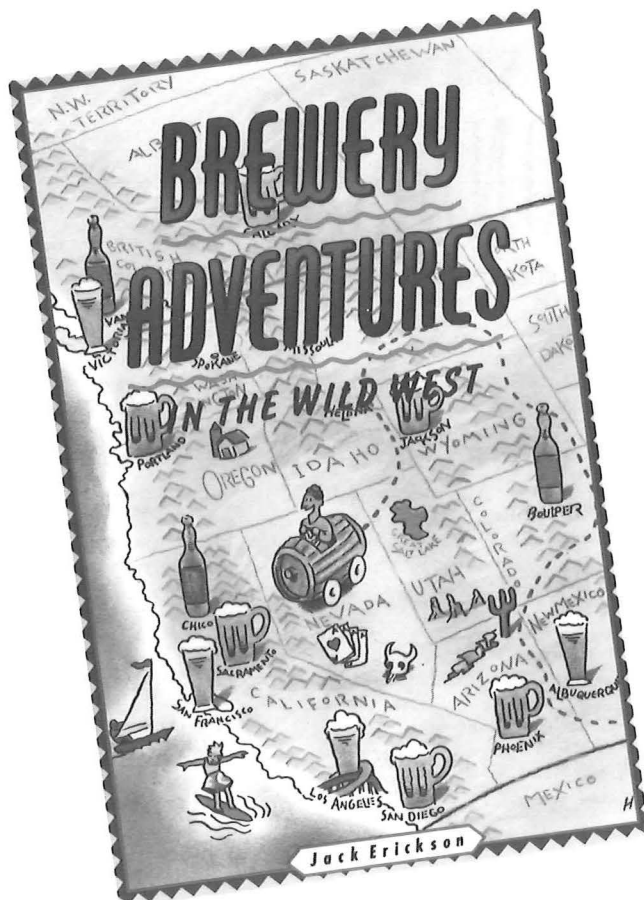
Publisher's suggested retail price: \$7 to \$9. For more information contact John Harrison, 5 Dorney Reach Road, Dorney Reach, Maidenhead, Berkshire, SL6 ODX, UK.

—Jim Dorsch

Brewery Adventures in the Wild West

Jack Erickson has been documenting the beer revolution for the better part of a decade. In his first book, *Star Spangled Beer*, he set out to document all of the brewpubs and microbreweries of America, circa 1987. He had an even 100. When I got my copy immediately after the book was released, I noticed some entries already were out of date. Now we have this new volume with 120 entries confined to 14 states and two provinces.





These types of books quickly become outdated in the volatile brewing movement. Both *Star Spangled Beer* and *Brewery Adventures in the Wild West*, in spite of the writing quality, are no different. Already one can leaf through *Brewery Adventures* and see the tombstones of breweries like Back Alley Brewing, Seattle Brewing/Duwamps Cafe or Los Angeles Brewing/Eureka Brewpub. Others have changed location, like Mike Hale's Brewery in Collville, Wash., which is just a memory now, but his Spokane operation is making up for that.

On the other hand, these books are important in marking the milestones of the movement. They freeze a moment in time and give us details to hang our memories on. These are books that today's participants in the beer revolution will use to tantalize new members into the ranks. They will form the jumping-off points for stories about how good each of the beers were, or as reminders of visits to other cities and brewpubs.

And Erickson does this well. He has a clean writing style that reads quickly. The book begins with a history of the beer revolution, which naturally leads to the chapter on Northern California. From there, he moves to the Pacific Northwest and British Colum-

bia. Then it's a long leap back to the Southwest, circling through the Rocky Mountains, Alberta, Alaska and Hawaii.

Erickson says the one thing he'd like *Brewery Adventures* to do well is act as a planning aid for travelers intent in putting together a beer tour. He is successful if the pubs and breweries he writes about are still in existence when you get to your destination. It is always wise to write or phone ahead and make sure the brewery is still in business at the address listed.

One small failing as a tour planner is the lack of maps. He lists 10 "brewery adventure cities," but the traveler must do the picking and choosing of establishments a bit in the dark because the breweries are listed in alphabetical order within states. Perhaps an index by major metropolitan area would solve this problem.

I enjoyed the book when I first picked it up, and upon rereading it I realize there are still some relatively nearby establishments I haven't tried, and I have to go visit them soon. I believe that *Brewery Adventures in the Wild West* will do that for you too.

Brewery Adventures in the Wild West by Jack Erickson (RedBrick Press, Reston, Va., 1991, publisher's suggested retail price \$14.95).

—Darryl Richman

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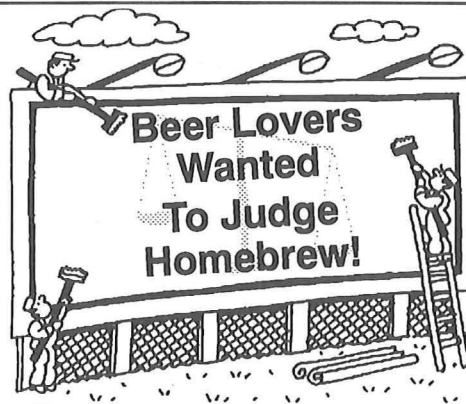
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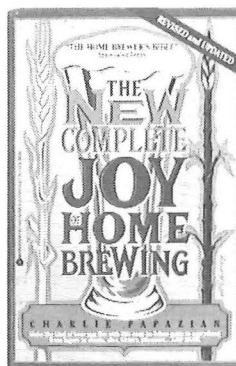
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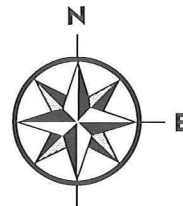
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Wiregrass Brewers Clubs, c/o John Sartwell, Route 3 Box 107, Ozark, AL 36360, (205) 299-3472.

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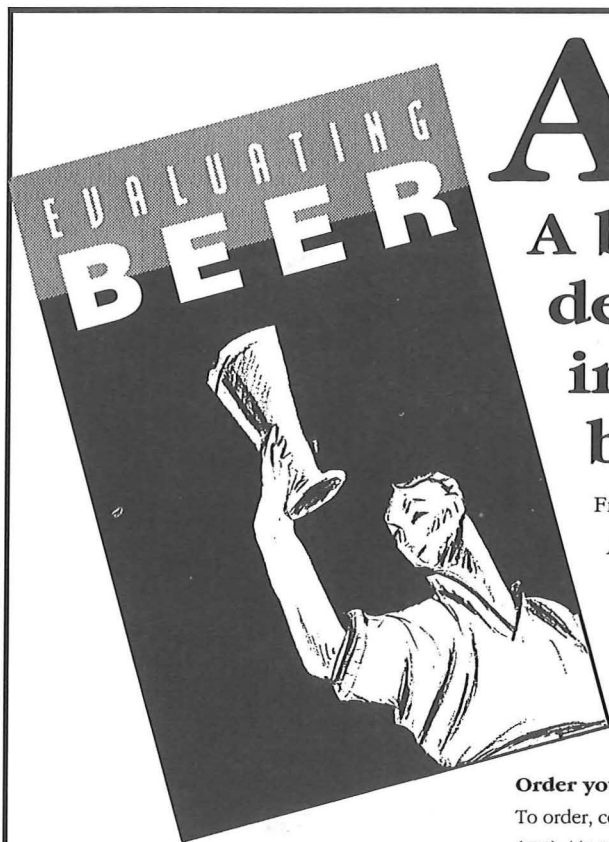
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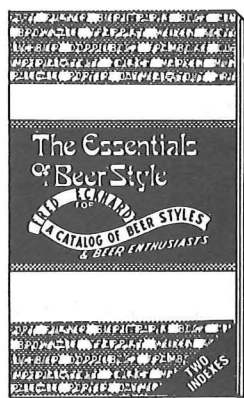
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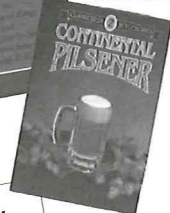
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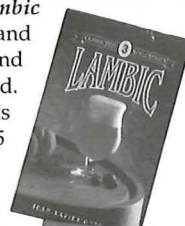


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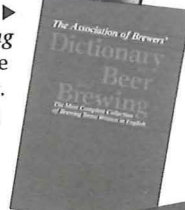


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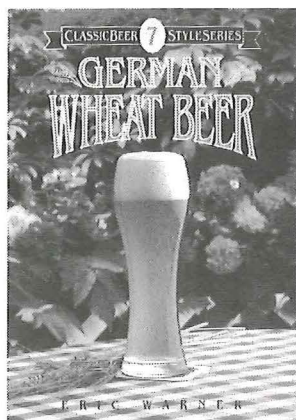
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Title	Cascade Delight	Batch:	24
Days since kegging:	887	Days in Primary:	8
Tom Nelson		Boil size - gals:	5.0
		Days in Secondary:	6
		Batch size - gals:	5.0
Date	Gravity	Alcohol	Style:
9/17/90	1.053	(v/v)	English Pale
Racking	9/25/90	1.012	5.4 %
Kegging	10/1/90	1.010	5.7 %
Yeast:		Low-Predicted-Hi	
Wyeast American Ale - 81056		Gravity	44 55 56
Ingredients		Color	4 4 11
Extraction Efficiency: 70 %		Style Info	IBU's 20 40 40
2 Row 10.00 lb 60 min		Brewing and Tasting Comments	
Munton & Fison Light Dry 0.5 lb		This recipe son Tom Cooper of	
Cluster 0.75 oz 0.0% 60 min		Houston, Texas, a first place	
Cascade 0.5 oz 5.9% 30 min		the 1990 AHA National	
Cascade 1.0 oz 5.9% 0 min		Homebrew Competition.	
Cascade 1.5 oz 5.9% 0 min		Judges' Comments	
Irish Moss 1.0 teaspoon		"Aroma-wonderfull Good	
Gypsum 1.0 teaspoon		bouquet, with malt high	
Citric acid 0.5 teaspoon		breaking in and out.	
		Appearance-good color. M	
		and clear; good head.	
		Flavor-great! Malt and hops	
		both come through! Clean and	
		balanced. Body-just	

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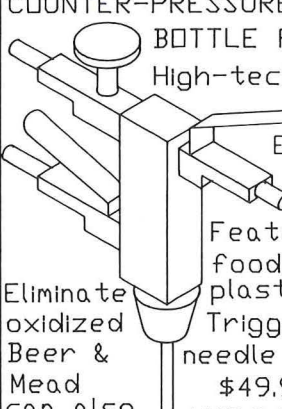
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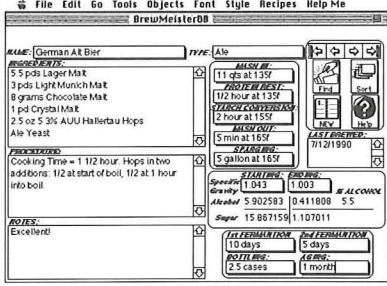
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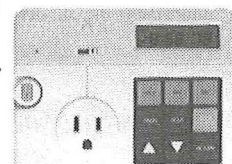
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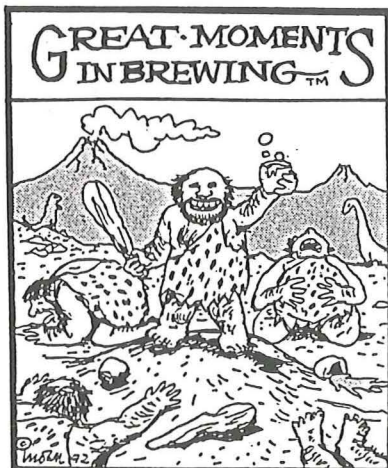
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Gortnok Rudis, Survivor of the First Homebrew competition, 23,442 B.C.

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Just tell you what you want to hear,
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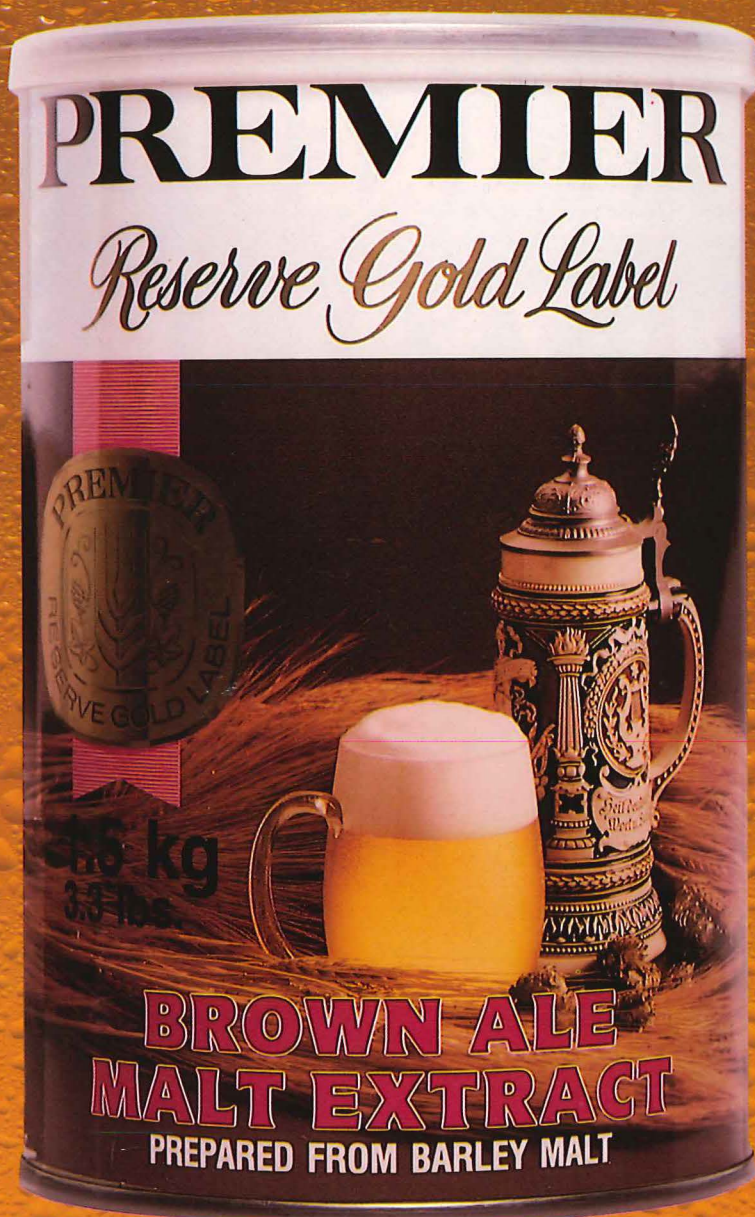
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BY ALICE REINHEIMER

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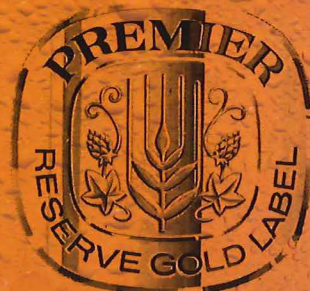
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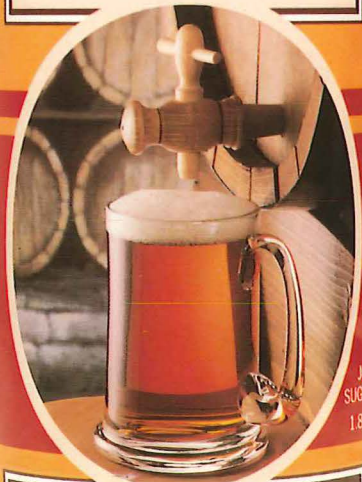
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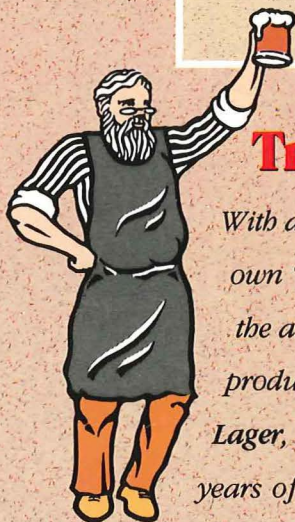
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