

Vol. 17 No. 2 Summer 1994 Published by the American Homebrewers Association \$6.00

ZYMURGY

THE HOMEBREWER AND BEER LOVER

**Brew Art History —
17th Century
Dutch Brewing**

*Become Saccharomyces Sassy
Manage a Yeast Ranch
Gas Gossip — CO_2 vs. N_2
Tips & Gadgets
Conversion Chart — Clip and Save!
13 Homebrew Recipes*



Pure New Zealand Beers

BLACK ROCK

*from natural
ingredients
we craft
unnatural
pleasures...*



EXCLUSIVE IMPORTERS
BLACKROCK BREWING COMPANY OF NORTH AMERICA
Toll Free Phone: Canada & USA 1-800-561 2039

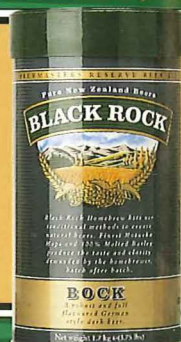
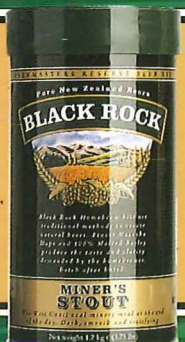
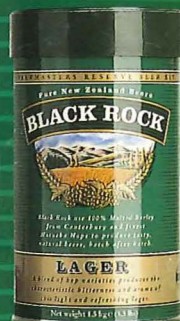
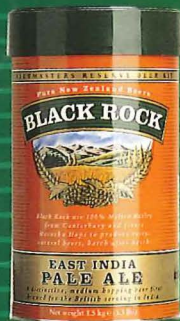
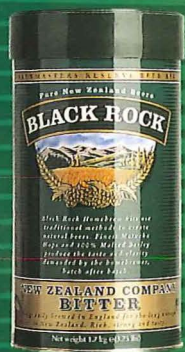
CANADA

Québec and Maritimes
DISTRIVIN LIMITÉE
996 Place Trans-Canada
Longueuil, Québec J4G2M1
Tel: 1-800-363-8581
Fax: 514-442-3531

Ontario
WINEXPERT INC.
710 South Service Road, Unit "A"
Stoney Creek, Ontario L8E5S7
Tel: 1-800-267-2016
Fax: 416-643-9161

USA

F.H. STEINBART COMPANY
234 S.E. 12th Avenue
Portland, OR 97214
Tel: 503-232 8793
Toll Free Tel: 1-800-735 8793
Fax: 503-238 1649



HOMEBREW ❖ SWEET ❖ HOMEBREW



Muntons

QUALITY BEERS FOR THE DISCERNING BREWER

ARMSTRONG

THE NEW BREW FROM NEW ZEALAND



Québec and Maritimes

DISTRIVIN LIMITÉE
996 Place Trans-Canada
Longueuil, Québec J4G2M1
Tel: 1-800-363-8581
Fax: 514-442-3531

Ontario

WINEXPERT INC.
710 South Service Road, Unit "A"
Stoney Creek, Ontario L8E5S7
Tel: 1-800-267-2016
Fax: 416-643-9161

Western Canada

CANUCK
BREWING PRODUCTS
10533 123rd Street
Edmonton, Alberta T5N1S5
Tel: 403-482-3456
Fax: 403-482-0824

USA

EVERGREEN
HOMEBREW WHOLESALE
P.O.Box 3760
3847 Evergreen Parkway
Evergreen CO 80439
Tel: 1-800-285-BREW (2739)
Office: 303-674-6668
Fax: 303-674-1220

RYECOR LTD
7542 Belair Rd
Baltimore MD 21236
Tel: 1-800-799-3353
Office: 410-668-0984
Fax: 410-668-3953

Exclusive Importer, JONMER INC. Freephone: Canada & USA, 1-800-366 MALT

BREW THE WINNER

EDME MALT EXTRACT, THE CRITICS CHOICE,
HAS BEEN ACCLAIMED IN REVIEW AFTER
REVIEW BY AMERICAN HOME BREW EXPERTS.

EDME HAS BEEN PRODUCING MALT EXTRACT
FOR OVER 100 YEARS, USING THE FINEST
BARLEY FROM THE HEART OF THE ENGLISH
COUNTRYSIDE.

EDME MAKES A WIDE RANGE OF BEERS FOR
YOU TO BREW, SO WHETHER YOU CHOOSE A
PALE LAGER OR A DEEP STOUT, YOU CAN
BE SURE OF A WINNER EVERY TIME.





SAMUEL ADAMS THE BEST BEER IN AMERICA™

*Winner of the Great American Beer FestivalSM
Four Years Running.*

**Samuel Adams Has Won More Top Awards
at the Great American Beer FestivalSM
Than Any Other Beer.**

AWARDS INCLUDE:

1985

FIRST PRIZE

Winner of the Consumer Preference Poll

1986

FIRST PRIZE

Winner of the Consumer Preference Poll

1987

FIRST PRIZE

Winner of the Consumer Preference Poll

GOLD MEDAL, Continental Pilseners

1988

GOLD MEDAL, American Light Pilseners

1989

FIRST PRIZE

Winner of the Consumer Preference Poll

GOLD MEDAL, Alts

BRONZE MEDAL, American Light Pilseners

1990

GOLD MEDAL, European Pilseners

GOLD MEDAL, Doppelbocks

1991

SILVER MEDAL, Dusseldorf Style Altbiers

1992

GOLD MEDAL, Dusseldorf Style Altbiers

SILVER MEDAL, German Wheat

1993

SILVER MEDAL, Amber Lager

BRONZE MEDAL, Bock Lager

**"Samuel Adams has won more
honors, awards, and tastings than
any American beer in history."**

All About Beer

**"Samuel Adams is simply the best
bottle of lager suds in the United States."**

People Magazine

"The most respected of U.S. microbrews"

USA Today

"Best Imported Beer"
Stockholm Aftonbladet

"Best Imported Beer"
Australian Gourmet

"Best Beer"
Boston Magazine

"Best Beer"
Philadelphia Magazine

"Best Beer"
Washingtonian Magazine

★★★ "An American Classic"
(highest rating for any American lager)
Michael Jackson, Pocket Guide to Beer

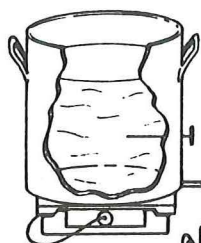
★★★★★ (highest rating for any lager)
World Beer Review

**"One of the four best
amber beers in the world"**
The Wine Advocate

First Place, International Beer Judging
Les Amis Du Vin

"The best of the nationally distributed brands"
James Robinson, The Beer Log

"Best Brew of the Decade"
Time



GRAIN BREWERS !

10, 15 or 20 GALLON - 3 VESSEL

GRAVITY-FEED BREWING SYSTEM

- STAINLESS STEEL
- 1 & 2 VESSEL SYSTEMS ALSO AVAILABLE

System shown includes
Sparge Water Vessel,
Mash-Lauter Vessel,
and Boiling Vessel

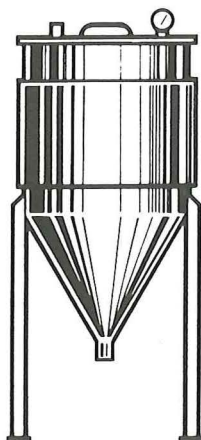
We can customize your
vessels to your
specifications



NEW!

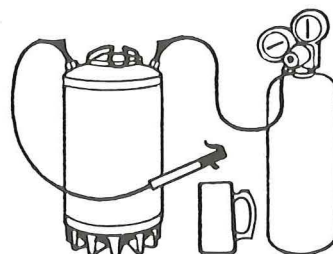
1/2 BARREL CYLINDROCONICAL FERMENTER

- Temperature Controlled
- Excellent For
- Yeast Propagation
- Test Batches



CALL 1 (206) 527-5047 For a quote

STAINLESS STEEL KEGGING SYSTEMS



3 gal. and 5 gal. kegs
available

Eliminates bottling

We sell complete systems
or parts

All parts are standard

BREWING STOVE

Portable propane stove

35,000 BTU output

12 x 12 inch cast iron grate

Rugged; well constructed

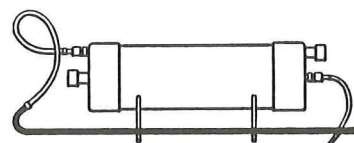
STAINLESS STEEL BREWING POTS

10, 15 and 20 gal. capacity

Heavy restaurant grade

Lid included

WORT CHILLER



High-grade copper coil
contained in waterproof shell

Wort is cooled by flowing
through copper coil while
water flows through the unit
and around the coil

Compact and efficient

Easily sterilized

Comes with all hoses and
copper siphon tube

COMPLETE BREWING SUPPLIES & EQUIPMENT - FAST MAIL ORDER SERVICE

SEND \$ 4.00 FOR COMPLETE CATALOG - DEDUCTIBLE FROM ORDER

BREWERS WAREHOUSE 4520 UNION BAY PL. N.E. SEATTLE, WA 98105 (206) 527-5047

ARE YOU A BEER GEEK?

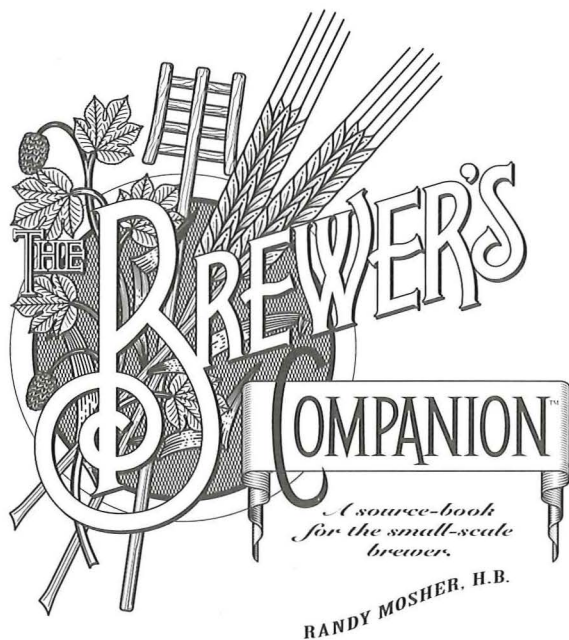
A TEST

- ☐ Have you driven off friends and enemies alike trying to brew the world's most distinctive smoked chili beer?
- ☐ Have you ever nearly come to blows over the difference between a thingamabob and a doojiemaflopper?
- ☐ Has your main squeeze figured out that he/she can really toy with you just by whispering "heliarc" in your ear?
- ☐ Did you turn into a pathetic mall rat the day "Giant Ed's House of Discount Belgian Ales" opened?

If you can answer "maybe" to even one of these, you just might be stricken with the heartbreak of geekitude. And while you don't have to be a Beer Geek to appreciate The Brewer's Companion, if you are, you'll want to sleep with it under your pillow.

With nearly 300 oversize pages filled with charts, tables, graphs and worksheets, it's the most jam-packed home brewing book ever. Emphasis is on the tools to turn your recipe fantasies into liquid form. IBU, SRM, HBU, IPA, CO₂ and other TLAs (Three Letter Acronyms) are all covered in excruciatingly detailed, yet amazingly accessible form. If you've seen Randy Mosher's work in past issues of Zymurgy, you know what we mean.

Get down to your local homebrew shop and check it out.



Published and distributed by



Seattle, Washington.

For wholesale pricing, orders, or more information, please contact Alephenalia Publications at 206-322-5022, or fax us at 206-322-5185

Merchant Du Vin Corp
140 Lakeside Ave,
Suite 300
Seattle, WA 98122

ZYMURGY

FOR THE HOMEBREWER AND BEER LOVER

Journal of the American Homebrewers Association

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.

Publisher— American Homebrewers Association
Managing Editor— Dena Nishek
Associate Editor— Kathy McClurg
Assistant Editor— Lois Canaday
Technical Editors— George Fix, Phil Fleming, Al Korzonas, Rodney Morris
Editorial Advisers— Karen Barela, Elizabeth Gold, Charlie Papazian, James L. Spence
Art Director— Vicki Hopewell
Graphics/Production Director— Tim Sposato
Graphic Designers— Sarah Chesnutt, Wendy Rodgers
Graphics Assistant— Melissa Bronson
Advertising Manager— Linda Starck
Advertising Assistant— Dede Laugesen
Circulation Director— Casey Koehler

AMERICAN HOMEBREWERS ASSOCIATION

President— Karen Barela
Administrator— James L. Spence

AHA Board of Advisers

Judy Ashworth, California; Don Hoag, Minnesota; Scott Birdwell, Texas; Michael Jackson, England; Ed Busch, New Jersey; Bill Murphy, Massachusetts; Steve Casselman, California; Charlie Olchowski, Massachusetts; Fred Eckhardt, Oregon; George Fix, Texas; John Sterling, Mississippi; Jeff Frane, Oregon

The American Homebrewers Association is a subsidiary of the Association of Brewers. Membership is open to everyone. **zymurgy** is the journal of the American Homebrewers Association and is published five times a year. Subscription and U.S. memberships are US \$29 per year. Foreign: US \$44 per year. **Changing your address? Let us know in writing, please.**

zymurgy welcomes letters, opinions, ideas, article queries and information in general from its readers. Correspondence and advertising inquiries should be directed to **zymurgy**, PO Box 1679, Boulder, CO 80306-1679, (303) 447-0816, FAX (303) 447-2825. All material © 1994, American Homebrewers Association. No material may be reproduced without written permission from the AHA.

(ISSN 0196-5921)

The opinions and views expressed in articles are not necessarily those of the American Homebrewers Association and its magazine, **zymurgy**.

Printing by EBSCO Media, Birmingham, Alabama.



32



44



52

FEATURES

- BREW ART HISTORY —
DUTCH BREWING IN THE 17TH CENTURY** 32
DICK CANTWELL

- YEAST MANAGEMENT TECHNIQUES** 38
MICHAEL LIGAS

- BECOME SACCHAROMYCES SAVVY** 44
PATRICK WEIX

- GAS GOSSIP — CARBON DIOXIDE VS.
NITROGEN IN BREWING** 52
CLIFF TANNER

- CONVERSION CHART — CLIP AND SAVE!** INSERT
*PHILIP FLEMING
AND JOACHIM SCHÜRING*

- AMERICAN HOMEBREWERS ASSOCIATION
REGISTERED HOMEBREW CLUBS** INSERT

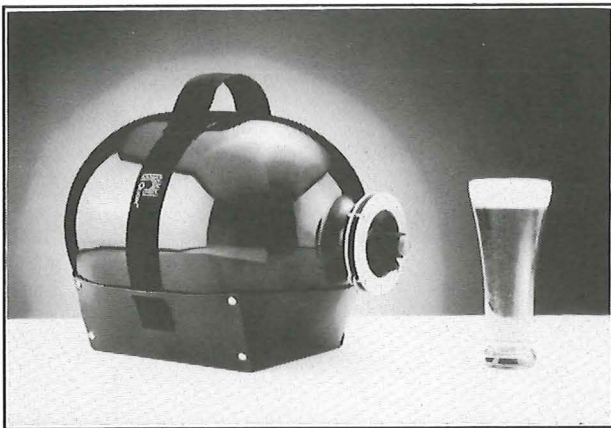
DEPARTMENTS

- Editorial 5
Dear *zymurgy* 7
Association News 10
Calendar 14
Brew News 19
Winners Circle 59
Dear Professor 67
New Products 71
Reviews 77
Homebrew Connection 89
Advertiser Index 92
Beer Bearings 95
Classified 98
Last Drop 104

COLUMNS

- JACKSON ON BEER** Bock Brings Germans Rushing to the Beer Garden 23
MICHAEL JACKSON
- HOMEBREW COOKING** Summertime is Beerbecue Time! 27
CANDY SCHERMERHORN
- TIPS AND GADGETS** Power Sparger 29
RANDY MOSHER
- FOR THE BEGINNER** Primed to Perfection 57
BRUCE SUSEL
- WORLD OF WORDS** Slumgullion Amber Ale 65
CHARLIE PAPAZIAN
- BEST FROM KITS** Featuring Marie's Munich Malt 73
REX CLINGAN
- HOMEBREW CLUBS** Club News and Competition Winners 82
JAMES SPENCE





Keg beer without a keg! Just PRESS, POUR & ENJOY!

Now you can enjoy keg beer without pumps or CO₂ systems and you can make homebrew without the hassle of bottles. The revolutionary *Party Pig*™ maintains carbonation and freshness because of its patented self-pressurizing system. It is re-usable and affordable, and it holds 2 1/4 gallons of beer. The "Pig" is easy to carry, is ideal for parties, picnics or holidays and is sized to fit into the "fridge".

Ask for the *Party Pig*™ at your favorite craft brewer and at your local homebrew supply shop. Retail homebrew shops and craft brewers contact:

QUOIN (pronounced "coin")

401 Violet St.

Golden, CO 80401 Phone: (303) 279-8731 Fax: (303) 278-0833

ASSOCIATION OF BREWERS INC.

The Association of Brewers Inc. is a Colorado non-profit corporation for literary and educational purposes to benefit brewers of beer and all those interested in the art of brewing. The Association of Brewers is exempt from Federal Income Tax under Section 501(c)(3) of the Internal Revenue Code. All gifts, grants and contributions are tax-deductible.

The Association of Brewers has four divisions: American Homebrewers Association, Institute for Brewing Studies, Brewers Publications and the Great American Beer Festival™.

ASSOCIATION OF BREWERS

President _____ Charlie Papazian
Vice President _____ Cathy R.-Baugh
Marketing Director _____ Lori Tullberg-Kelly
Operations Director _____ Robert Pease

AMERICAN HOMEBREWERS ASSOCIATION

President _____ Karen Barela

INSTITUTE FOR BREWING STUDIES

Associate Director _____ David Edgar

BREWERS PUBLICATIONS

Publisher _____ Elizabeth Gold

GREAT AMERICAN BEER FESTIVAL™

Director _____ Marcia Schirmer

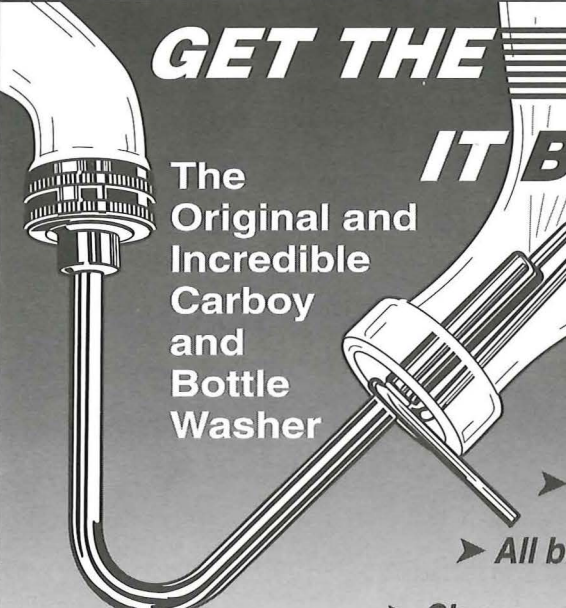
AOB Board of Directors

Marlin Buse, Harris Faberman, Sandi Genova, Stuart Kingsbery, Charles Kirkpatrick, Charles Matzen, Charlie Papazian, Loren Richardson

For information on the Association of Brewers or any of its divisions, write PO Box 1679, Boulder, CO 80306-1679; call (303) 447-0816 or FAX (303) 447-2825.

GET THE **JET**

IT BLASTS



The Original and Incredible Carboy and Bottle Washer

- Automatic shutoff
- All brass construction
- Cleans your bottles fast
- Attaches easily to faucet

Lifetime Guarantee

Inquire at your local shop or call 616-935-4555

Jet Carboy and Bottle Washer Co.

3301 Veterans Drive, Traverse City, MI 49684





GREAT LAKES BREW SUPPLY

With Supplies From

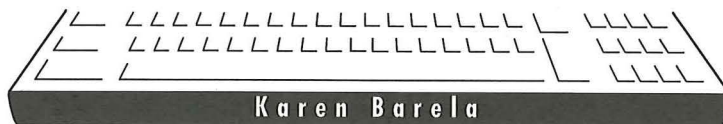
310 Adams Ave
Endicott, NY 13760

(607) 785-8729 [Fax]
(607) 785-4233
(800) 859-4527

Free Catalog, Excellent Advice

Price, Quality, and Service
- BALANCED - like a great brew!

EDITORIAL

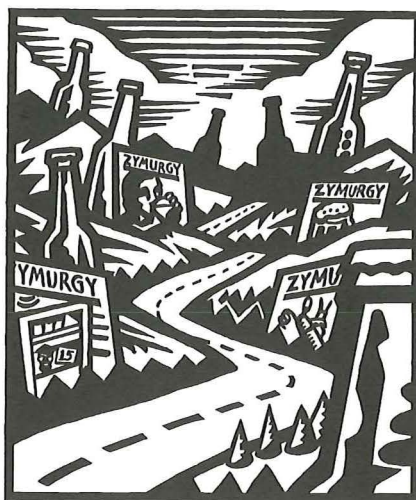


Karen Barela

None of us really knows where we're going or where we'll wind up, and if we did, we'd be about as exciting, creative and worthwhile as caged animals. This job and its evolution still seem like a kind of miracle to me, partly because it runs counter to the career path I set for myself. Here I am, having wandered onto the stage. Looking for answers and knowing that whatever answers I find, they have to be incomplete because the journey is.

The same can be said for this magazine. It's on a journey and no one really knows where it will end up. For those of us who work here, our futures depend on its journey, and for our readers, your homebrewing enjoyment is completely intertwined with it. We all bear the responsibilities for the consequences of the work we do here. The trouble is, I can't always grasp what that's supposed to be exactly. We are in business as journalists and educators — communicators as much as entertainers. We operate under a certain vibe that ranges from extremely casual to something quite efficient. We're nothing if not meticulous, but we've built in a certain potential for randomness, to let the journey lead us rather than us always leading the journey. **zymurgy** is elastic, and we're constantly pushing at the parameters so there are more choices. Choices for us as an Association and choices for you as a community of homebrewers.

zymurgy journeys far and wide because there is a certain kind of authenticity to homebrewing and to the community of homebrewers. Most of us respond, however abstractly, to the urge for community rather than self interest, and homebrewing and **zymurgy** express a renewed connection to our community roots. It's a community that we want to live in and it's capable of accom-



Endless Journeys

modating many tribes. It starts with the community of staff members at the AHA and AOB and encompasses all of our writers, editors, technical advisers and artists. It further embraces our board of advisers, numerous committee members and all of our highly dedicated volunteers. It eagerly encircles all of the homebrew club members, competition entrants and even the media. Most of all, the community is you, homebrewers and readers of **zymurgy** who embark on journeys of brewing handcrafted beers.

The road homebrewers choose to travel is full of choices and never-ending routes. **zymurgy** is here to provide the maps to help you along your way. We ask you to give us the important feedback about what we're covering and what we should do more of. I'd like to know what you think about what you're holding in your hands right now. I think homebrewing is neither a fad nor a trend, but

a statement of the deepest significance, provoking and inspiring a personal challenge in each of us. We each accept that challenge every time we brew, and for us at the AHA, we accept the extended challenge of inspiring you with words and ideas.

Sometimes it is hard to find original ways of presenting words and ideas and at times we'll rely on instinct over intellect. We always try to tell the story, complete with all of the scientific jargon, and at the same time completely demystify it. We aim for real interaction and real communication. We dream about and we search for that elusive story of the decade. More than anything, we think of the coverage and stories in **zymurgy** as participatory journalism and we are delighted to present the platform. We serve as a means for people and communities to get to know one another and to pass information along. We look for ideas that are more than just ideas. We look for a revolution in the homebrewing world.

There continues to be a desire for this magazine focused on all things beer and brewing, but also on the collective consciousness of the AHA. We want to keep you up on the latest happenings and what's going on with the people making waves. Running with it is what we are about and we want you to continue to run with us. We acknowledge the influence each and every one of you has on us and on the hobby. We share with you a pragmatic insistence on the opportunities of the present, a devotion for high-tech information and a fetish for the future. The evolution and the journey of **zymurgy** will continue to inspire the epic explorations of the art and science of homebrewing. We don't know where any of us is going, but we'll have fun getting there.

Good... Better... Best!

Customer Service

Our open lines of communication and monthly Newsletters provide you with the **best** information. We work *with you* when a return or credit is requested. Our customer service program makes ordering easy!

Inventory

A full line of quality products is available at our fingertips! We offer the most complete line of **quality products** available within the industry and are constantly improving our packaging and expanding our product lines.

Personnel

At the L.D. Carlson Company our friendly and knowledgeable staff will serve you with **complete** satisfaction. *Courtesy is our policy!*

Facility

Our **NEW** warehouse, covering twenty-eight thousand square feet, is efficiently designed to expedite your order, ensuring **quick** delivery!

Featuring Quality Products

Malt Extracts

- ◆ Bierkeller
- ◆ Brewferm
- ◆ Brewmart
- ◆ Coopers
- ◆ Edme
- ◆ Glenbrew
- ◆ John Bull
- ◆ Laaglander
- ◆ Munton & Fison

"Brewer's Best" Equipment Kits, Ingredient Kits, Crown Caps and Liquid Thermometers

"Vintner's Reserve" Wine Kits

"Vintner's Best" Wine Equipment Kits

Domestic, English and Belgian Grains
Leaf Hops, Hop Pellets and Hop Plugs

At the L.D. Carlson Company we always give you our **best!** Call us today...

1-800-321-0315

463 Portage Boulevard
Kent, Ohio 44240



L.D. Carlson
COMPANY

Quality Products for the Discriminating
Winemaker and Beermaker

Toll Free Fax!
1-800-848-5062

(WHOLESALE ONLY PLEASE)

DEAR ZYMURGY

Our Readers

Good Brewing Knows No Borders

Dear *zymurgy*,

As an avid homebrewer and a Canadian, I believe I should respond to remarks that have appeared in recent beer periodicals. Articles by Seth Schneider (*zymurgy* Fall 1993 Vol. 16, No. 3) and Fred Eckhardt (*All About Beer*, November 1993) have cast a somewhat disparaging view upon homebrewing outside the United States. In particular, several of Schneider's comments smack of "beer ethnocentrism."

In Schneider's opinion, the United States stands apart from the rest of the homebrewing world because, (in the United States homebrewing is) "a hobby, not a necessity," and (United States homebrewers) "go the extra mile to make great beer." Such broad generalizations are ill advised. Many Canadians like to compare American beer to making love in a canoe (f_____ close to water). This comparison is clearly ignorant of the many fine U.S. microbrewed and brewpub beers.

Undoubtedly, some individuals may take to homebrewing as a cheap source of alcohol, but then some people get their fix by drinking household cleansers. The vast majority of Canadian homebrewers is attempting to brew a quality and variety of beer that is not commercially available. The AHA's 1993 Ninkasi Award winner, Walter Dobrowney of Saskatoon, provides a shining example.

A good Canadian homebrewer is not an oxymoron. Whenever you are in Montreal, look up the Montreal Association of Serious Homebrewers — they'll be glad to share a pint of quality homebrew.

Cheers!

Yours truly,
Gavin Downing
Montreal, Quebec

I'm not sure where Schneider came up with the reasons for differences from country to country on the instructions, but possibly his last line says it all: "In the United States, we go the extra mile to make great beer."

I believe Schneider should in the future do more research, answer the question without the opinions and relax and have a homebrew. I know I went "the extra mile (kilometer)" and I'm enjoying a great homebrew.

Yours truly,
Randy Kelly
Thunder Bay, Ontario



Dear *zymurgy*,

It looks like I made a mistake in gearing my article strictly to the United States market. Your Canadian readers are right to complain. I stand corrected, and willingly suggest that readers in any country wishing to make a better brew should ignore instructions

on cans as discussed in the article. Once again, my American homebrew hubris got out of hand!

Best international regards,
Seth Schneider
Westport, Massachusetts

Dear *zymurgy*,

I'm not one to write and complain. Seth Schneider's contribution in *zymurgy* Fall 1993 (Vol. 16, No. 3) "For the Beginner," however, caused me to take up pen and paper.

Schneider's article has brought U.S. patriotism to new lows — instructions on beer kits!

(1) "The brewers in those countries (England and Canada), often do things as cheaply, simply and quickly as possible.

(2) "This also explains why they'll make (and drink!) some of the most awful wine kits.

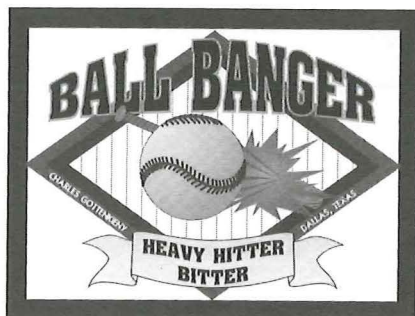
(3) "Here it's a hobby, not a necessity."

These three excerpts from the article are not mere hyperbole, but also false.

Homebrew Snobbery

Dear *zymurgy*,

Marty Nachel's letter in *zymurgy* Winter 1993 (Vol. 16, No. 5) struck a chord of resonance in my own experience. I, too, am an



extract brewer who hasn't made the full transition to all grain. Why? Time. I use so much time to brew that more expended on the quest for the perfect ale will cause my life to suffer from my obsessions. Is there nothing noble about extract brews? I think there is.

While I realize that "All Grainers" are using us "No Brainers" as a point of discrimination, marking their own activities as more sophisticated and pure than merely pouring a can into a pot and stirring in the yeast, I believe we extractors are relaxing more and having more homebrew. I do notice that all grainers are bit more tense on style and technique, certainly more technical, and much more intent on the entire process. I applaud such dedication to an art; it is this intensity that advances the art. But most extract brewers I know are solidly in the "whatever" camp. I brew beer to drink daily, not to bottle and pack and send it off to some distant land to be sniffed and swirled by a beer judge.

And you know, in the presence of my wife, father-in-law and friends, I have at times served a beer of true distinction, a veritable homebrewed Dom, and savored it in a way that made me feel like the king of the world, sad that others shall never taste a truly wonderful ale. The most common type I brew I simply call "Ordinary Ale" — and while I respect my product, my wife will often say ironically, "some ordinary."

While we are all "pointy-headed beer snobs," we revel to different degrees in the freedom our craft affords us.

Cheers,
Kristofer Younger
Wilmington, Delaware

P.S. What's a pointy-headed beer snob? Well, when I serve my brew it's those who know

the style and wonder, usually out loud, what the original gravity was.

Fresh Beer?

Dear *zymurgy*,

While I enjoyed Stephen Snyder's article on John Mallett and the Old Dominion Brewing Co. in *zymurgy* Winter 1993 (Vol. 16, No. 5), I noticed a small but significant error.

The article praised Old Dominion for stamping their bottles with "an expiration date in

plain English." In fact, every bottle sold under the Dominion banner displays the bottling date, which changes freshness from a brewer's edict to an evaluation made by the consumer.

Cheers,
Jim Dorsch
Alexandria, Virginia

Editor's note: Thanks, Jim. Old Dominion stamps its bottles with a bottling date contrary to what was reported in the 1993 Winter zymurgy.

LET US TEACH YOU ABOUT BREWER'S GOLD. (AND SILVER, AND BRONZE.)



One look at the list of winners of the 1992 Great American Beer Festival, and you'll notice that there's one thing a lot of them have in common: a certificate from one of our brewing courses. In all, our graduates took 15 gold, 9 silver and 14 bronze medals for the quality of their beers. The Siebel Institute is no ivory tower, but a real-world educational facility aimed at getting the kind of results that matter the most.

From our Diploma course in Brewing Technology to shorter programs and seminars on all aspects of brewing, there is most likely a course perfectly suited to your needs. Call us today for a course catalogue. And you might want to start clearing some space on your trophy shelf.

DIPLOMA COURSE IN BREWING TECHNOLOGY

MICROBIOLOGY AND QUALITY CONTROL LABORATORY COURSES

SEVEN DIFFERENT COURSES, 21 SCHEDULED SESSIONS THIS YEAR

COURSES FROM 3 DAYS TO 10 WEEKS ON ALL IMPORTANT BREWING TOPICS



For more information, write or call the registrar

**SIEBEL INSTITUTE
OF TECHNOLOGY**

4055 W Peterson, Chicago, IL 60646
Phone 312/463-3400 Fax 312/463-4962

Unit Conversion Chart

BY PHILIP W. FLEMING AND JOACHIM SCHÜRING

Index	lbs to kg	oz to g	fl oz to mL	gal to L		qt to L		pt to L		tsp to mL	Tbsp to mL	cup to mL	°F °C		°F °C		°F °C		°F °C	
				US	UK	US	UK	US	UK				°F	°C	°F	°C	°F	°C	°F	°C
0.25	0.11	7	7	0.95	1.14	0.24	0.28	0.12	0.14	1.2	3.7	59	32	0	80	27	128	53	176	80
0.50	0.23	14	15	1.89	2.27	0.47	0.57	0.24	0.28	2.5	7.4	118	33	1	81	27	129	54	177	81
0.75	0.34	21	22	2.84	3.41	0.71	0.85	0.35	0.43	3.7	11.1	177	34	1	82	28	130	54	178	81
1.00	0.45	28	30	3.79	4.55	0.95	1.14	0.47	0.57	4.9	14.8	237	35	2	83	28	131	55	179	82
1.25	0.57	35	37	4.73	5.68	1.18	1.42	0.59	0.71	6.2	18.5	296	36	2	84	29	132	56	180	82
1.50	0.68	43	44	5.68	6.82	1.42	1.70	0.71	0.85	7.4	22.2	355	37	3	85	29	133	56	181	83
1.75	0.79	50	52	6.62	7.96	1.66	1.99	0.83	0.99	8.6	25.9	414	38	3	86	30	134	57	182	83
2.00	0.91	57	59	7.57	9.09	1.89	2.27	0.95	1.14	9.9	29.6	473	39	4	87	31	135	57	183	84
2.25	1.02	64	67	8.52	10.23	2.13	2.56	1.06	1.28	11.1	33.3	532	40	4	88	31	136	58	184	84
2.50	1.13	71	74	9.46	11.36	2.37	2.84	1.18	1.42	12.3	37.0	591	41	5	89	32	137	58	185	85
2.75	1.25	78	81	10.41	12.50	2.60	3.13	1.30	1.56	13.6	40.2	651	42	6	90	32	138	59	186	86
3.00	1.36	85	89	11.36	13.64	2.84	3.41	1.42	1.70	14.8	44.4	710	43	6	91	33	139	59	187	86
3.25	1.47	92	96	12.30	14.77	3.08	3.69	1.54	1.85	16.0	48.1	769	44	7	92	33	140	60	188	87
3.50	1.59	99	103	13.25	15.91	3.31	3.98	1.66	1.99	17.3	51.8	828	45	7	93	34	141	61	189	87
3.75	1.70	106	111	14.19	17.05	3.55	4.26	1.77	2.13	18.5	55.4	887	46	8	94	34	142	61	190	88
4.00	1.81	113	118	15.14	18.18	3.79	4.55	1.89	2.27	19.7	59.1	946	47	8	95	35	143	62	191	88
4.25	1.93	120	126	16.09	19.32	4.02	4.83	2.01	2.42	20.9	62.8	1005	48	9	96	36	144	62	192	89
4.50	2.04	128	133	17.03	20.46	4.26	5.11	2.13	2.56	22.2	66.5	1065	49	9	97	36	145	63	193	89
4.75	2.15	135	140	17.98	21.59	4.50	5.40	2.25	2.70	23.4	70.2	1124	50	10	98	37	146	63	194	90
5.00	2.27	142	148	18.93	22.73	4.73	5.68	2.37	2.84	24.6	73.9	1183	51	11	99	37	147	64	195	91
5.25	2.38	149	155	19.87	23.87	4.97	5.97	2.48	2.98	25.9	77.6	1242	52	11	100	38	148	64	196	91
5.50	2.49	156	163	20.82	25.00	5.20	6.25	2.60	3.13	27.1	81.3	1301	53	12	101	38	149	65	197	92
5.75	2.61	163	170	21.77	26.14	5.44	6.53	2.72	3.27	28.3	85.0	1360	54	12	102	39	150	66	198	92
6.00	2.72	170	177	22.71	27.28	5.68	6.82	2.84	3.41	29.6	88.7	1419	55	13	103	39	151	66	199	93
6.25	2.84	177	185	23.66	28.41	5.91	7.10	2.96	3.55	30.8	92.4	1479	56	13	104	40	152	67	200	93
6.50	2.95	184	192	24.60	29.55	6.15	7.39	3.08	3.69	32.0	96.1	1538	57	14	105	41	153	67	201	94
6.75	3.06	191	200	25.55	30.69	6.39	7.67	3.19	3.84	33.3	99.8	1597	58	14	106	41	154	68	202	94
7.00	3.18	198	207	26.50	31.82	6.62	7.96	3.31	3.98	34.5	103.5	1656	59	15	107	42	155	68	203	95
7.25	3.29	206	214	27.44	32.96	6.86	8.24	3.43	4.12	35.7	107.2	1715	60	16	108	42	156	69	204	96
7.50	3.40	213	222	28.39	34.09	7.10	8.52	3.55	4.26	37.0	110.9	1774	61	16	109	43	157	69	205	96
7.75	3.52	220	229	29.34	35.23	7.33	8.81	3.67	4.40	38.2	114.6	1834	62	17	110	43	158	70	206	97
8.00	3.63	227	237	30.28	36.37	7.57	9.09	3.79	4.55	39.4	118.3	1893	63	17	111	44	159	71	207	97
8.25	3.74	234	244	31.23	37.50	7.81	9.38	3.90	4.69	40.7	122.0	1952	64	18	112	44	160	71	208	98
8.50	3.86	241	251	32.18	38.64	8.04	9.66	4.02	4.83	41.9	125.7	2011	65	18	113	45	161	72	209	98
8.75	3.97	248	259	33.12	39.78	8.28	9.94	4.14	4.97	43.1	129.4	2070	66	19	114	46	162	72	210	99
9.00	4.08	255	266	34.07	40.91	8.52	10.23	4.26	5.11	44.4	133.1	2129	67	19	115	46	163	73	211	99
9.25	4.20	262	274	35.01	42.05	8.75	10.51	4.38	5.26	45.6	136.8	2188	68	20	116	47	164	73	212	100
9.50	4.31	269	281	36.96	43.19	9.99	10.80	4.50	5.40	46.8	140.5	2248	69	21	117	47	165	74		
9.75	4.42	276	288	37.91	44.32	9.23	11.08	4.61	5.54	48.1	144.2	2307	70	21	118	48	166	74		
10.00	4.54	283	296	37.85	45.46	9.46	11.36	4.73	5.68	49.3	147.9	2366	71	22	119	48	167	75		
10.25	4.65	291	303	38.80	46.60	9.70	11.65	4.85	5.82	50.5	151.6	2425	72	22	120	49	168	76		
10.50	4.76	298	310	39.75	47.73	9.94	11.93	4.97	5.97	51.8	155.3	2484	73	23	121	49	169	76		
10.75	4.88	305	318	40.69	48.87	10.17	12.22	5.09	6.11	53.0	159.0	2543	74	23	122	50	170	77		
11.00	4.99	312	325	41.64	50.01	10.41	12.50	5.20	6.25	54.2	162.6	2602	75	24	123	51	171	77		
11.25	5.10	319	333	42.58	51.14	10.65	12.79	5.32	6.39	55.4	166.3	2662	76	24	124	51	172	78		
11.50	5.22	326	340	43.53	52.28	10.88	13.07	5.44	6.53	56.7	170.0	2721	77	25	125	52	173	78		
11.75	5.33	333	347	44.48	53.41	11.12	13.35	5.56	6.68	57.9	173.7	2780	78	26	126	52	174	79		
12.00	5.44	340	355	45.42	54.55	11.36	13.64	5.68	6.82	59.1	177.4	2839	79	26	127	53	175	79		

°F

°C

120

100

80

60

40

20

0

-20

°C

50

40

30

20

10

0

-10

-20

°F

°C

120

100

80

60

40

20

0

-20

°C

50

40

30

20

10

0

-10

-20

°F

°C

120

100

80

60

40

20

0

-20

°C

50

40

30

20

10

0

-10

-20

°F

°C

120

100

80

60

40

20

0

-20

°C

50

40

30

20

10

0

-10

-20

°F

°C

120

100

80

60

40

20

0

-20

°C

50

40

30

20

10

0

-10

-20

°F

°C

120

100

80

60

40

20

0

-20

°C

50

40

30

20

10

0

-10

-20

°F

°C

120

100

80

60

40

20

0

-20

°C

50

40

30

20

10

0

-10

-20

°F

°C

120

100

80

60

40

20

0

-20

°C

50

40

30

20

10

0

-10

-20

°F

°C

120

100

80

60

40

20

0

-20

°C

50

40

30

20

10

0

-10

-20

°F

°C

120

100

80

60

40

20

0

-20

°C

50

40

30

20

10

0

-10

-20

°F

°C

120

100

80

60

40

20

0

-20

°C

50

40

30

20

10

0

-10

-20

°F

°C

120

100

80

60

40

20

0

-20

°C

50

40

30

20

10

0

-10

-20

°F

°C

120

100

80

60

40

20

0

-20

°C

50

40

30

20

10

0

-10

-20

°F

°C

120

100

80

60

40

20

0

-20

°C

50

40

30

20

10

0

-10

-20

°F

°C

120

100

80

60

40

20

0

-20

°C

50

40

30

20

10

0

-10

-20

°F

°C

120

100

80

60

40

20

0

-20

°C

50

40

30

20

10

0

-10

-20

°F

°C

120

100

80

60

40

20

0

-20

°C

50

40

30

20

10

0

-10

-20

°F

°C

120

100

80

60

40

20

0

-20

°C

50

40

30

20

10

0

-10

-20

°F

°C

120

100

80

60

40

20

0

-20

°C

50

40

30

20

10

0

-10

-20

°F

°C

120

100

80

60

40

20

0

-20

°C

50

40

30

20

10

0

-10

-20

°F

°C

120

100

80

60

40

20

0

-20

°C

50

40

30

20

10

0

-10

-20

°F

°C

120

100

80

60

40

20

0

-20

°C

50

40

30

20

10

0

-10

-20

°F

°C

120

100

80

60

40

20

0

-20

°C

50

40

30

20

10

0

-10

-20

°F

°C

120

100

80

60

40

20

0

-20

°C

50

40

30

20

10

0

-10

-20

°F

°C

120

100

80

60

40

20

0

-20

°C

50

40

30

20

10

0

-10

-20

°F

°C

120

100

80



ILLUSTRATION BY MELISSA BRONSON

Thought About Turning Your Brew into Profit?



The New Brewer Is the Only Magazine to Help You
Understand How Successful Micro- and
Pubbreweries Became That Way.

NO-RISK OFFER

Subscribe now and receive six issues.
If you're not completely satisfied, we'll refund
the full price of your subscription.
\$55 a year (U.S.)
\$65 (Foreign)

If you are interested in today's small-brewing ventures, or perhaps starting a brewery of your own, *The New Brewer* is for you. It is the only magazine to fully cover the micro- and pub-brewing industry. Articles include details on how successful breweries are built, their brewing methods, shipping procedures, how they stay in business and how they succeed. *The New Brewer* is your guide to the art, pleasure and business of new brewing.

Published by The Institute for Brewing Studies, PO Box 1510, Boulder, CO 80306-1510; (303) 447-0816, FAX (303) 447-2825.

The New Brewer

THE MAGAZINE FOR MICRO- AND PUB-BREWERS

Turn a good beer into a great beer or a home brew into a business

Courses for serious brewers

Intensive Brewing Science for Practical Brewing

August 14-19

Sanitation and Microbiology for the Practical Brewer

August 22-26

The Master Brewers Program

Application deadline:
July 17

Taught by Michael J. Lewis, the highly regarded researcher and professor at the University of California, Davis—home of the nation's premiere brewing education program.

For information and a free catalog of courses for home brewers and microbrewers, call (916) 757-8899 or fax (916) 757-8634.

THE AMERICAN SCHOOL FOR
MALTING & BREWING
SCIENCE & TECHNOLOGY
UNIVERSITY OF CALIFORNIA, DAVIS

Brewer's Calculator

THE ULTIMATE IN BREWING SOFTWARE



New Version!!
Now keeps track of
Inventory Levels

Only
\$39

plus \$3 shipping and
handling

Recipe Formulation

Calculate Original & Terminal Gravity, Color, Bitterness, Water Treatment and More! Includes profiles for all AHA recognized styles.

Category India Pale Ale

Category Range

	Low	Calculated	Hi
Gravity	1.050	1.060	1.065
Alc./vol.	5	5.8%	6.5
IBU	40	52	65
Color	8	8.7	14
Terminal Gravity		1.015	

Inventory Databases

Easily edit any of the databases, including malt, hops, yeast and beer styles.

Call or write for more details or
send \$5 for a demo disk.
(Refundable with purchase)

Batch Logging

Neatly organize all of your brewing data and produce beautiful print-outs.

Regent Software Co.
15 Camellia Place
Oakland, CA 94602
(510) 482-1609

On-Line HELP! with malts, hops, yeast and beer styles.

CA residents add \$3.22

**Money-Back Satisfaction
Guarantee!**

Requires Windows™ 3.1 and 3 Meg RAM

Brew with the Best.

Stoelting Home Brewing Equipment

a comprehensively designed line of home brewing equipment beautifully crafted from stainless steel — the metal choice of professional brewers'.

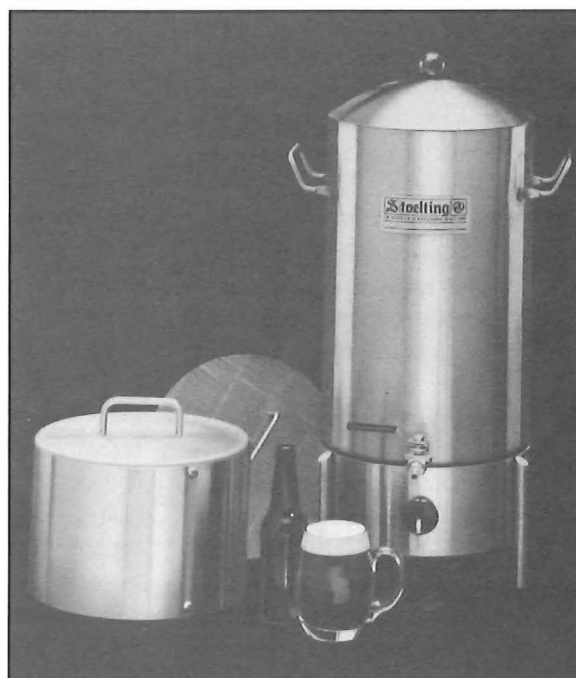
Stoelting's brew kettles and mash screens will meet your needs with 7, 10, 16, and 20 gallon sizes. For your heat-up and cool-down, use our gas or electric burner and our fast chilling wort chiller.

Set-up your home brewing system with the best — Stoelting Home Brew Equipment. You'll enjoy the taste of a quality brewed beer.

Call the Stoelting Brew Crew (800-336-BREW) to order our full-line brochure.



502 Hwy 67 Kiel, WI 53042



Pictured above - The Brew System 2:
a 7 gallon brew kettle, gas burner, mash
screen, and wort chiller with housing.

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

← Karen Barela →

BrewStorm '94 June 19-25

The brewing storm of the century is scheduled to begin June 19. Four thunderous tours of 20 fantastic Colorado brewing spots are only some of the highlights. Judges from around the world will choose the first-, second- and third-place beers of the AHA 1994 National Homebrew Competition. Mountains of homebrewing information will be presented in Denver



by a cast of 18 passionate brewing experts, including Charlie Papazian, Solomon Katz, George Fix, Byron Burch, Eric Warner, Paul Farnsworth, Ed Busch and Phil Fleming. Two Jambeeries, a combination of tastings and beer expos, offer the opportunity to mingle, mash and merge with brewers and beer lovers from across the country. Finally, on Saturday, June 25, you can enjoy the fifth annual Colorado Brewers Festival outdoors in Fort Collins, Colo.

More beer, homebrew, brewers, beer lovers, brain teasers, *brewthinking* and fun times will be had at the Conference than any other place. Complete details are available in *zymurgy* Spring 1994 (Vol. 17, No. 1) or by contacting Nancy Johnson, special events coordinator, at (303) 447-0816, FAX (303) 447-2825, PO Box 1679, Boulder, CO 80306-1679. We hope to see you there!

Explosive Growth

Those who said it was just a fad could not have been more wrong. The homebrewing hobby continues to grow and, in fact, it's nearly exploding! We've been tracking the amount of press coverage the hobby is receiving and it has never been greater. We've seen an interesting increase in the number of beer and brewing-related periodicals. We know that Charlie Papazian's books, *The Complete Joy of Home Brewing* (Avon, 1983) and *The New Complete Joy of Home Brewing* (Avon, 1991), have sold more than 350,000 copies since publication. We can see evidence of growth by counting the number of bicycles parked in front of our office for the AOB employees needed to keep up with growth in the craft-beer movement. AHA membership is at an all-time high of 20,696, up 27 percent from 1992. The Beer Judge Certification Program has grown to 1,232 participants, nearly 300 more than in 1992. There were 70 new clubs in the AHA registered club program in 1993, for a year-end total of 381. We figure with an average club roster of 50, that's 19,050 homebrewing hobbyists who belong to clubs. There were 94 AHA sanctioned competitions in 1993. Again, we guess an average of 75 brewers participate in each AHA sanctioned competition for a total of 7,050 in 1993. This rapid growth is great for the craft-beer movement as a whole. The more people who know about beer, homebrewing and craft-brewed beer, the better beer we will all be able to buy, brew and enjoy. We'd like to

hear from you about your adventures with the growth of homebrewing. Please write and describe your experiences.

New Art Director

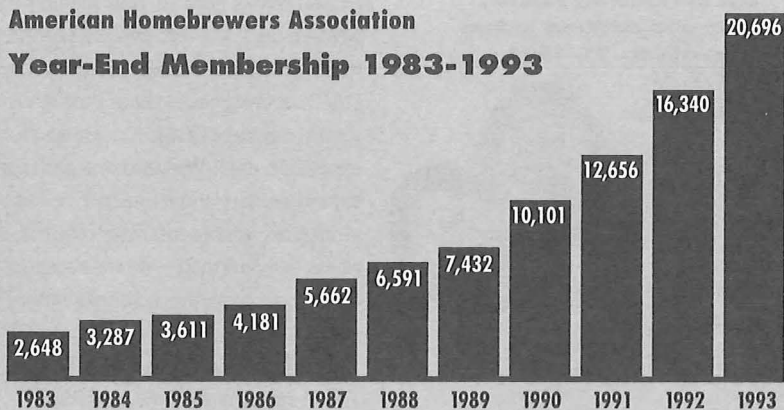
Vicki Hopewell, an AOB employee since January 1992, has been promoted to art director of *zymurgy*. Vicki's love for the outdoors, skiing and mountain bike riding, plus her talents for design and illustration keep her happy here in Boulder, Colo. Vicki's technical and scholastic training in illustration and design, as well as the challenge of presenting beer and brewing information in new and exciting ways, keep her talent fresh and our magazine looking great. Congratulations, Vicki!



zymurgy Schedule

We've made some changes in the *zymurgy* mailing schedule to bring you great homebrewing information evenly throughout the year. Your Spring 1995 *zymurgy* is scheduled to be mailed Feb. 10, about one month earlier than in previous years. Subsequent issues will arrive about 73 days apart. In the past, Fall, Special and Winter Issues were mailed within a three-month time frame between August and November. Now, you'll be able to enjoy a new issue approximately every two and one-half months. We look forward to bringing you hundreds of pages of exciting and practical beer and brewing information.

American Homebrewers Association Year-End Membership 1983-1993



American Homebrewers Association A Division of the Association of Brewers Inc.

1993 Income and Expense Statement (unaudited)

1993 Revenues

Membership and Sponsorship	\$546,713	48.1%
zymurgy magazine sales	\$190,254	16.8%
zymurgy advertisement sales	\$215,409	19.0%
National Homebrewers Conference	\$93,929	8.3%
National Homebrew Competition	\$32,049	2.8%
Beer Judge Certification Program	\$10,240	0.9%
AHA Registered Club Program	\$1,395	0.1%
Sanctioned Competition Program	\$1,950	0.2%
Miscellaneous	\$734	—
Merchandise and Sales (special publications and AHA-related sales)	\$43,077	3.8%
Total	\$1,135,750	100%

1993 Expenses

Marketing and Public Relations	\$93,993	10.7%
zymurgy general	\$286,978	32.3%
zymurgy advertisement	\$47,075	5.3%
National Homebrewers Conference	\$78,539	8.8%
National Homebrew Competition	\$23,339	2.6%
Beer Judge Certification Program	\$7,144	0.8%
AHA Registered Club Program	\$4,522	0.5%
Sanctioned Competition Program	\$3,901	0.4%
CompuServe and Computer Networking	\$4,646	0.5%
Overhead	\$338,210	38.1%

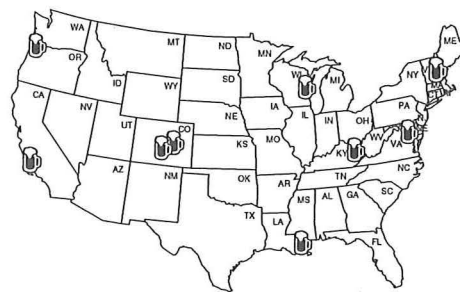
(Includes salaries not attributed directly to specific programs above, merchandise sales and customer service, computer/information systems, rent, taxes, insurance, utilities, postage, travel, misc.)

Total **\$888,347** **100%**

Note: AHA liability: deferred membership \$325,474

If you have specific questions regarding this statement, please put them in writing and send a self-addressed stamped (52 cents) 9 x 12-inch envelope to the Association of Brewers. We will do our best to address your concerns.

Did You Know ...



The National Homebrewers Conference is the world's largest homebrew conference? We've organized the National Homebrewers Conferences in cities across the country. Originally part of the Great American Beer FestivalSM, the Conference was combined with the Microbrewers Conference, then broke off and has stood on its own since 1986. More than 3,600 people have attended overall. Here is the breakdown:

Year	Conference Location	Number of Participants
1979-1985	Denver, Colo.	≈900 people*
1986	Estes Park, Colo.	50 people*
1987	Denver, Colo.	200 people
1988	Denver, Colo.	200 people
1989	Oldenberg, Ky.	400 people
1990	Oakland, Calif.	419 people
1991	Manchester, N.H.	408 people
1992	Milwaukee, Wis.	431 people
1993	Portland, Ore.	597 people
1994	Denver, Colo.	June 1994
1995	Baltimore, Md.	June 1995
1996	New Orleans, La.	June 1996

* Indicates GABF/Microbrewers/Homebrewers Conference combination.

Information Improvements

Thanks again for bearing with us through our computer metamorphosis. We are looking forward to having a bigger, better data base and association management system. We've hit a few bumps while converting but have worked hard to cushion the ride and take care of each and every one of our members and customers along the way. If you have any concerns about your membership or are a retail or wholesale customer with questions about an order, please don't hesitate to con-

tact us. Direct membership inquires to Circulation Director Casey Koehler, and retail and wholesale inquiries to Merchandise Manager Jake Stanford, (303) 447-0816, FAX (303) 447-2825, PO Box 1679, Boulder, CO 80306-1679.

Honoring BJCP Judges



The Beer Judge Certification Program, co-sponsored by the American Homebrewers Association and the Home Wine and Beer Trade Association, is the only one of its kind in the world. It continues to fulfill a mission to recognize those with a thorough understanding of the brewing process, the flavor components of beer and the historical development of world beer styles. We thought you might like to know who has achieved the top levels of certification and how the categories break down. Honorary Master judge is the title given to current committee members. For the new category, Grand Master, judges must earn 90 percent on the exam, 100 experience points and perform a designated service period to the BJCP as determined by the co-directors. Master judges have earned a minimum score of 90 on the exam along with 40 experience points. National judges have earned a minimum score of 80 on the exam along with 20 experience points. Points are earned by judging, stewarding or organizing an AHA sanctioned competition. One-half of all points earned must be judging points. These judges are highly qualified to judge beer. If you have any comments, praise or complaints about any judge in the BJCP program, please write to BJCP Administrator James Spence, PO Box 1679, Boulder, CO 80306-1679.

Judging Level	Number of Judges
Honorary Master	8
Master	11
National	49
Certified	337
Recognized	660
BJCP Committee Emeritus	3
Other	164

List of Honorary Master, Master and National Judges as of Feb. 21, 1994

Honorary Master Judges

Pat Baker
John Dale
Eric McClary
David Norton
Alberta Rager
Steve Stroud
Marty Velas
Russ Wigglesworth

Master Judges

Tom Ayres
Scott Birdwell
Charles Cox
Paul Dickey
Mike Fertsch
Philip Fleming

National Judges

Sheri Almeda
Ron Badley
Dennis Barthel
Robert Bates
Scott Bickham
Edmund Busch
Steve Daniel
Ray Daniels
Roman Davis
Steve Dempsey
Terry Dennis
Norman Dickenson
Fred Eckhardt
Paul Farnsworth
Bob Gorman
Thomas Griffith
Steve Hamburg
John Isenhour
Leslie Jones
Steven Klafka
Michael LaCharite
Rick Larson
James Link
George Martin
William McCrory



Richard Gleeson
Jay Hersh
Brad Kraus
Judy Lawrence
Keith Symonds

Dave Miller
Phil Moeller
Randy Mosher
Alec Moss
Bill Murphy
John Naegele
Brian North
Maureen Nye
Charlie Olchowski
Gordon Olson
John W. "Brook" Ostrom
Ron Page
William Pfeiffer
R. Bruce Prochal
Jackie Rager
Mary Frances Richardson
Darryl Richman
David Ruggiero
Chuck Skypeck
Marlene Spears
Andy Thomas
Nancy Vineyard
Greg Walz
David Welker
Ted Whippie

Renewal Facts

Many members have asked about our renewal program. Your membership is very important to us and that is why we want you to extend your membership. We designed the renewal program based on industry standards, then adapted them to fit our needs. We offer one-year and two-year standard memberships (two-year memberships are the most cost effective: you save \$5), sponsoring memberships with one- to five-year options and lifetime memberships (definitely your best deal over time). Regardless of the membership you choose (with the exception of lifetime members who never receive renewal notices) we send a maximum of seven renewal information pieces during the course of your membership. Upon joining, you receive the first piece, which is in your new member packet.

Fifteen weeks prior to your membership expiration date, you receive the second piece, which asks you to extend your membership. You'll receive pieces three through five at 11 weeks, eight weeks and four weeks from your expiration date. We send one piece on your expiration date and a final notice four weeks after. Once we process your renewal, the series is discontinued — so renew early! A few of you have experienced quirks caused by our computer transition, and we apologize. As always, please contact us if you have any questions regarding your membership.

The Homebrew Highway



The world is talking about the information highway available through on-line computer networks and services, and we, too, are involved in the information age. You can reach the Association of Brewers on CompuServe and Prodigy. We are open to suggestions for other homebrewing and beer networks in which to participate. To reach the AHA on Prodigy, contact BREW99A. To reach us on CompuServe (GO BEER) please direct your inquiries to individual ID numbers: AHA President Karen Barela, 75250,1350, AHA and BJCP Administrator James Spence, 70740,1107, **zymurgy** Managing Editor Dena Nishek, 73252,3571, or Brewers Publications Publisher Elizabeth Gold, 75250,1351.

Destination Homebrew

When beer is your business, traveling for business can be a real pleasure. Charlie traveled to Florida in January to meet with Steve Vernet, owner of the Homebrew Connection homebrew supply shop. In March he met with homebrewers in Las Vegas, Nev. As modera-

tor of a brewpub panel discussion during an industry trade show, Charlie had the opportunity to visit with members of the Southern Nevada Ales Fermentors Union (SNAFU) homebrew club and customers of The Homebrewery homebrew supply shop. Mid-April found many Association of Brewers staff members



National Microbrewers and Pub- brewers Conference and Trade Show.

in the Pacific Northwest for the National Microbrewers and Pubbrewers Conference and Trade Show. The Conference in Portland began with a three-day preconference tour for Japanese business leaders interested in learning about the U.S. beer industry and homebrewing. In May, Karen and staff members of the Association of Brewers will attend the National Restaurant Association Show in Chicago where they'll meet with Chicago-area AHA members and the Chicago Beer Society. Whenever Charlie and AOB staff members travel for beer business, they look forward to meeting AHA members in the area. Check the calendar for upcoming events or contact the AHA directly.

Send Us Your Ideas

zymurgy welcomes ideas, outlines, proposals and manuscripts covering all levels of brewing from beginner and intermediate to advanced/technical on the subjects of beer, mead, cider and saké brewing. All submissions will be carefully considered. Also, remember to send your beer news. We want to know about any items on beer that appear in your local media. And, if you are ever in our neighborhood, please stop by and say hello. Direct **zymurgy** inquiries to Managing Editor Dena Nishek, and direct beer news to AHA President Karen Barela at the American Homebrewers Association, PO Box 1679, Boulder, CO 80306-1679.

\$\$ PROFIT BREWING \$\$

Now available in California, U.S.A. from

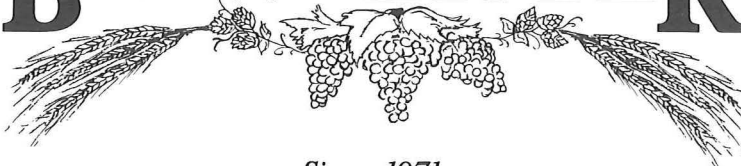


**Canada's leading chain in
the brew-it-yourself industry!**
**BREW-IT-YOURSELF
BEER STORES**

We are recognized for superior product, unparalleled training, powerful market position, profitable store design. We offer a professional and proven equipment and training package.
No franchise fees - No royalty fees. We prepare you for MORE than opening day!
Please mail or fax your request for a comprehensive information package to:
THE BREWING EXPERIENCE INC.
450 Woodlawn Road West, Unit 6 GUELPH, Ontario, Canada N1K 1A6 FAX: (519) 837-8838

BREWMART
•
IRONMASTER
•
EDME
•
TELFORDS
•
JOHN BULL

BREWMASTER



Since 1971

WINE AND BEER MAKING EQUIPMENT AND SUPPLIES

WHOLESALE


TO

HOME WINE AND BEER MAKING RETAILERS MICROBREWERIES AND WINERIES

CALL

1-800-288-8922

WHOLESALE INQUIRIES ONLY



MEMBER

2315 VERNA COURT
SAN LEANDRO, CA 94577

WINEMAKING STEMMER/CRUSHERS, PRESSES & EQUIPMENT

AUSTRALIAN
•
ALEXANDERS
•
BREWFERM
•
GEORDIE
•
TOM CAXTON

CALENDAR



MAY

- 14** Big and Huge Homebrew Competition, **AHA SCP**, Madison, Wis. Contact Steven Klafka at (608) 251-3485.
- 14** "TRASH IV" Fourth Annual Homebrew Competition, **AHA SCP**, Pittsburgh, Pa. Entries due April 29. Contact Ralph Colaizzi at (412) 931-9099.
- 14** Oregon Brew Festival, Corvallis, Ore. Contact Lee Smith at (503) 926-2286.
- 21** Brewfest 1994, Sacramento, Calif. Contact Denise Baran at (916) 856-7044, (800) 800-0230.
- 21** BJCP Exam, Minneapolis, Minn. Contact Andy Leith at (612) 937-0022.
- 21** James Page Open, **AHA SCP**, Minneapolis, Minn. Entries due May 14. Call James Page Brewing Co. at (612) 331-2833.
- 21** Moon Madness, **AHA SCP**, Pottstown, Pa. Entries due May 18. Contact Randy Martin at (610) 326-2620.
- 22** Renaissance Pleasure Faire Homebrewing Competition, **AHA SCP**, San Bernardino, Calif. Entries due May 7. Contact Venta Leon at (909) 880-6275.
- 22** BJCP Exam, Pottstown, Penn. Contact Rich Gleeson at (610) 833-2357.
- 31** Stout Bout Club-Only Competition, **AHA SCP**. Entries due May 31. Contact James Spence at (303) 447-0816.

JUNE

- 2** Great Canadian Homebrew Competition, **AHA SCP**, Toronto, Ont. Entries due May 13. Contact Denis Kinvig at (416) 536-1016.
- 2-5** HWBTA International Conference, Brighton, England. Contact Dee Roberson at (813) 685-4261.
- 3** BJCP Exam, Toronto, Ont. Contact Paul Dickey at (416) 237-9130.
- 4** BJCP Exam, Brighton, England. Contact Pat Baker at (603) 355-3359.
- 11** Jimmy's Grille First Micro-Brew Fest, Denver, Colo. Call (303) 322-5334.
- 12** Seventh Southern California Regional Homebrew Championship, **AHA SCP**, San Bernardino, Calif. Entries due June 10. Contact Terry Boyles at (909) 781-0287.
- 13** Eastenders Summertime Beers Contest, **AHA SCP**, Oshawa, Ont. Entries due June 11. Contact Robert McIntosh at (905) 576-4143.
- 17** Northstar Amateur Homebrew Competition, **AHA SCP**, Truckee, Calif. Entries due June 16. Contact Donna Morgan at (916) 587-0280.
- 19-25** American Homebrewers Association 1994 National Homebrewers Conference, Brew-Storm '94, Denver, Colo. Contact Nancy Johnson at (303) 447-0816.
- 25-26** Colorado Brewers Festival, Fort Collins, Colo. Call the Fort Collins Downtown Business Association at (303) 484-6500.
- 25** BJCP Exam, Fargo, N.D. Contact Marty Draper at (701) 237-7854.
- 25** Orange County Fair Homemade Beer Contest, **AHA SCP**, Costa Mesa, Calif. Entries due May 25. Contact Tim Higman at (714) 851-3274.
- 26** Beer Unlimited Zany Zymurgists' First BUZZ Off, **AHA SCP**, Malvern, Pa. Entries due June 19. Contact David Houseman at (215) 458-0743.

JULY

- 9** LA County Fair, **AHA SCP**, Pomona, Calif. Entries due June 18. Contact Gregory Stark at (818) 374-6371.
- 9** BJCP Exam, Brattleboro, Vt., Contact Pat Baker at (603) 355-3359.
- 9-10** Edmonton Homebrewers Guild Sixth Annual Open Homebrewing Competition, **AHA SCP**, Edmonton, Alb. Entries due June 27-July 4. Contact Laurie Malone at (403) 439-3989.
- 15-17** Small Brewers Festival of California Amateur Brewing Competition, **AHA SCP**, Mountain View, Calif. Entries due July 17. Contact Richard Allen at (408) 441-1166 ext. 4516.
- 16** El Dorado County Fair, **AHA SCP**, Placerville, Calif. Entries due July 5-13. Contact Elizabeth Zangari at (916) 626-7733.
- 16** Beerstock: The Northwest Amateur Brew Championships, **AHA SCP**, Seattle, Wash. Entries due July 12. Contact Dave Suchoski at (206) 860-2969.
- 17** Summer Cap-Off 1994, **AHA SCP**, Ceres, Calif. Entries due July 2. Contact Wayne Baker at (209) 538-BREW.
- 17** The Nude Brewers — Midsummer Brewing Contest, **AHA SCP**, Gainesville, Fla. Entries due July 12. Contact Ray Badowski at (904) 375-3772.
- 22-23** Second Annual Great New England Brewers Festival, Northampton, Mass. Call (413) 584-2079.
- 30** Central Ohio Brewfest 1994, **AHA SCP**, Columbus, Ohio. Entries due July 23. Contact Sean McGee at (614) 856-5566.

AUGUST

- 2-6** Great British Beer Festival 1994, London, U.K. Call CAMRA at 0727 867201, FAX 0727 867670.
- 5-6** North Texas State Fair Homebrewed Beer Competition, **AHA SCP**, Denton, Texas. Entries due July 23-30, 1994. Contact Johnny Morrison at (817) 383-4399.
- 6** Third Annual Central Illinois Homebrew Competition, **AHA SCP**, Normal, Ill. Entries due July 31. Contact Tony McCauley at (309) 452-1084.
- 8** Weiss is Nice Club-Only Competition, **AHA SCP**. Entries due Aug. 8. Contact James Spence at (303) 447-0816.
- 12** Mazer Cup Mead Competition, **AHA SCP**, Ann Arbor, Mich. Entries due July 28-Aug. 6. Contact Ken Schramm at (810) 816-1592.
- 14** California State Fair Homebrew Competition, **AHA SCP**, Sacramento, Calif. Entries due July 23. Contact Donna Bettencourt at (916) 381-1300.
- 19** Second Annual Made in the Shade Beer Festival, **AHA SCP**, Flagstaff, Ariz. Contact Ken Jones at (602) 774-5300.
- 20** BJCP Exam, Fort Mitchell, Ky. Contact Ed Westemeier at (513) 576-2872.
- 20** The Eighth Annual Great Taste of the Midwest, Madison, Wis. Contact Bob Paolino at (608) 249-7126.
- 20-21** Second Annual Peach State Brew-Off, **AHA SCP**, Atlanta, Ga. Entries due Aug. 2-16. Contact Rick Lubrant at (404) 636-2308.
- 22** Alaska State Fair Homebrew Competition, **AHA SCP**, Palmer, Alaska. Entries due Aug. 19-20. Contact Rick Levinson at (907) 265-1530.

28 Puget Sound Amateur Wine and Beer Makers Club Beer Competition, Western Washington Fair, AHA SCP, Puyallup, Wash. Entries due Aug. 19-20. Contact Grace Nilsson at (206) 845-9791.

SEPTEMBER

1 Brewfest '94 at South Lake Tahoe, AHA SCP, South Lake Tahoe, Calif. Entries due Sept. 1. Call Emerald Isle Brewing/Harvey's Casino at (916) 541-6879.

5 Central Illinois Brewers Association First Homebrew Competition, AHA SCP, Springfield Ill. Entries due Aug. 29. Contact Roger Meridith at (217) 428-7022.

16 BJCP Exam, Chapel Hill, N.C. Contact Mike Lelivelt at (919) 966-2627.

24 The Greater Topeka Hall of Foamers' Heartland Homebrew Competition, AHA SCP, Topeka,

Kan. Entries due Sept. 18. Contact Bernadine Lloyd at (913) 286-1775.

24 Sixth Annual TRUB Open, AHA SCP, Durham, N.C. Entries due Sept. 14. Contact Scott Oglesby at (919) 361-2286.

24-Oct. 1 Minnesota Brewfest '94, AHA SCP, Minneapolis, Minn. Entries due Sept. 12-18. Contact John Desharnais at (612) 227-2216.

25 Renaissance Pleasure Faire Homebrewing Competition, Novato, Calif. Entries due Sept. 10-17. Call (415) 892-0937.

OCTOBER

3 Best of Fest Club-Only Competition, AHA SCP. Entries due Oct. 3. Contact James Spence at (303) 447-0816.

9 First State Fair of Texas Homebrew Competition, AHA SCP,

Dallas, Texas. Entries due Sept. 17. Contact Ken Haycock at (214) 381-3770.

14-16 1994 Dixie Cup, AHA SCP, Houston, Texas. Contact Steve Moore at (713) 923-2412.

21 "The Taste of the Great Lakes™," AHA SCP, Frankenmuth, Mich. Entries due Oct. 14. Contact John Geyer at (517) 652-9081.

21-22 Great American Beer Festival™ XIII, Denver Colo. Call the Association of Brewers at (303) 447-0816.

22 BJCP Exam, Brattleboro, Vt. Contact Pat Baker at (603) 355-3359.

NOVEMBER

5 1994 Capitol District Open, AHA SCP, Washington, D.C. Entries due Oct. 31. Contact Fred C. Hardy at (703) 378-0329.

DECEMBER

5 Specialty Quest Club-Only Competition, AHA SCP. Entries due Dec. 5. Contact James Spence at (303) 447-0816.



1995

JANUARY

21 BJCP Exam, Brattleboro, Vt. Contact Pat Baker at (603) 355-3359.

FEBRUARY

11 BJCP Exam, Brighton, Mich. Contact Bill Pfeiffer at (313) 946-6573.

AHA SCP = American Homebrewers Association Sanctioned Competition Program

To list events, send information to **zymurgy** Calendar of Events. To be listed in **zymurgy** Fall 1994, information must be received by June 8, 1994. Competition organizers wishing to apply for AHA Sanctioning must do so at least two months before the event. Contact James Spence at (303) 447-0816, FAX (303) 447-2825, PO Box 1679, Boulder, CO 80306-1679.



The Home Brewery™

Manufacturer ♦ Wholesaler
♦ Retailer ♦

We supply top-quality ingredients and equipment to homebrewers nationwide. *Home Brewery* Equipment Kits, Ingredient Kits, Immersion Wort Chillers, Malt Extracts, and other products are sold in stores all over the country.

The free 32-page *Home Brewery Catalog* includes many new state-of-the-art homebrewing products such as the Party Pig™ and the Sabco Recirculating Infusion Mash System™

Our Wholesale Service Program is designed for hobby, liquor, grocery, and convenience stores.

Our *Home Brewery Catalog* and seven full-service shops are for homebrewers everywhere.

(800) 321-BREW
(1-800-321-2739)
FREE 32-page CATALOG

Ozark, Missouri
(800) 321-BREW

San Bernardino, Calif.
(800) 451-MALT

Las Vegas, Nevada
(800) 288-DARK

Bogota, New Jersey
(800) 426-BREW

Brooksville, Florida
(800) 245-BREW

Bardstown, Kentucky
(800) 992-BREW

Grand Forks, N.D.
(800) 367-BREW

BREWSTORM '94

Take refuge in the eye of the storm, as the Rocky Mountains brace for a homebrew squall at the American Homebrewers Association 1994 National Homebrewers Conference in Denver, Colo.

The extended forecast is calling for thunderous brew, electrifying seminars and a cloud-burst of homebrewing information through the week of June 19 to 25, with the stationary front stalled directly over the Hyatt Regency.

BrewStorm '94 — this is one storm you won't want to miss!

BrewStorm '94 is Here!

For information write the AHA at PO Box 1679,
Boulder, CO 80306-1679 or call (303) 447-0816.

zym17

SPONSORS

American Homebrewers Association

DIAMOND

Brew City Supplies Inc. — Milwaukee, Wis.
 Stephen Argilan Jr. — Andrews AFB, D.C.
 Tim Beauchot — Albion, Ind.
 Bill Benjamin — Modesto, Calif.
 Thomas Bergman — Jefferson, Md.
 Jeff Bonner — Cascade Homebrew Co. —
 Kennewick, Wash.
 Alan Burkholder — Columbus, Ohio
 A.J. Capone — South Plainfield, N.J.
 Jacob Chachkes — Atlanta, Ga.
 Edward Corn — Agua Dulce, Calif.
 Carman E. Davis — Nemrac Marketing Co. —
 Cuyahoga Falls, Ohio
 Tim Deck — McEwen, Tenn.
 Rick Deering — Gurnee, Ill.
 Michael Demchak — Rocky River, Ohio
 Steve Dempsey — Fort Collins, Colo.
 Robert Devine — Walnut Creek, Calif.
 Mark Dills — Portland, Ore.
 Karl Josef Eden — Sudwerk Privat Brauerei
 Hübsch — Davis, Calif.
 Arthur Eldridge — Esko, Minn.
 J. Rob Ellnor IV — New Albany, Ind.
 Douglas Faynor — Woodburn, Ore.
 Lee Fellenberg — Tacoma, Wash.
 Matthew Floyd — Bardstown, Ky.
 Kevin L. Fluharty — Elgin, Ill.
 Bob Frank — The Flying Barrel — Fredrick, Md.
 Roy Fuentes — San Antonio, Texas
 Mindy & Ross P. Goeres — AirCent RUF —
 APO AE
 Alan A. Harlow — Reading, Mass.
 Stuart Harms — Portland, Ore.
 Tom Hildebrandt — Greensboro, N.C.
 Marc & Susan Hinck — Niceville, Fla.
 Gary E. Huff — Gresham, Ore.
 James Hendrik Huiskamp — Keokuk, Iowa
 Art Jeyes — Crownsville, Md.
 Robert Kapusinski — Arlington Heights, Ill.
 Charles Kasicki — Port Angeles, Wash.
 Kevin L. Kline — Charlotte, N.C.
 John E. Kollar — Baltimore, Md.
 Ron Konecke — Wyoming, Pa.
 Thomas C. Kryzer — Silver Spring, Md.
 Steven Landry — Princeton, N.J.
 Paul McClure — Uncasville, Conn.
 Dan McLaughlin — Nesconset, N.Y.
 Robert K. Morris — Toledo, Ohio
 Gordon Olson — Los Alamos, N.M.
 Robert Pocklington — Houston, Texas
 Mark Powell — San Angelo, Texas
 Frank Pruy — Middleboro, Mass.
 Dan Robison — Salt Lake City, Utah
 SKId Rohe — Cockeysville, Md.
 Richard Ross — Woburn, Mass.
 Daniel J. Ryan — Derry, N.H.
 Michael Schiavone — Lewiston, N.Y.
 John Sievers — Towson, Md.
 Tom Smith — Columbia, Mo.
 Eric D. Steele — Milwaukee, Wis.
 James A. Steenburgh — Rochester, Minn.
 Richard Trouth — Sulphur, La.
 D.L. Van Dame — Flying Dutchman Enterprises
 — Fort Wayne, Ind.
 Gary Vanderlinden — Mountain View, Calif.
 Adam Walker — Long Beach, Calif.
 Bud Wallace — Merced, Calif.
 Robert J. Weber Jr. — USS Drum SSN 677 —
 FPO AP

Ed Westemeier — Cincinnati, Ohio
 Donald Wood — Stanton, Calif.
 Kent Woodmansey — Pierre, S.D.

GOLD

Yeasty Brew Unlimited — San Francisco, Calif.
 Jim Anschutz — Midland, Mich.
 Roger Ashworth — Sacramento, Calif.
 Jack Baker — B&J's Pizza Restaurant —
 Corpus Christi, Texas
 Chris Brauning — Zanesville, Ohio
 Shawn Brown — Minneapolis, Minn.
 Rob Brunner — Windsor, Colo.
 George Bush — Middleton, Wis.
 Bernhard Cordts — Ipswich, Mass.
 Peter Dakin — Kanata, Ontario, Canada
 Mark Gasser — Olney, Md.
 Carlton G. Hartman — Crystal Lake, Ill.
 Peter D. Johnson — Portland, Ore.
 Blaze Katich — Pittsburgh, Pa.
 Jonathan Lillian — Upper Montclair, N.J.
 Mike McClary — Warrenton, Va.
 W.E. Pinckert — Capistrano Beach, Calif.
 John Redue — Pass Christian, Miss.
 Michel Rousseau — Longueuil, Quebec,
 Canada
 Edward G. Schultz — Mountain View, Calif.
 Glen Sprouse — Roswell, Ga.
 Craig Starr — Atkinson, N.H.
 Brian Wurst — Lombard, Ill.

PEWTER

P.J. Brewing Co. — Laguna Beach, Calif.
 Stoppel & Associates — Colorado Springs,
 Colo.
 South Central Beverage — Jackson, Miss.
 Donald Adams — Sun Valley, Nev.
 Chris Ahlberg — Greenwich, Conn.
 Cary Allard — APO AP
 Myles Altimus — Richmond, Va.
 H. Clark Anderson — Santa Fe, N.M.
 Kent Anderson — Clinton, Mass.
 Tanner Andrews — DeLand, Fla.
 Charles Babcock — Thousand Oaks, Calif.
 John Balock — Melstone, Mont.
 Dominic Bender — Hanalei, Hawaii
 Thomas Bischoff Sr. — Wood-Ridge, N.J.
 Rod Burke — West Seattle Homebrew Supply
 — Seattle, Wash.
 Hugh Bynum — Portland, Ore.
 Walter Carey — Cos Cob, Conn.
 Michael Chronister — Norristown, Pa.
 Peter Cocchia — South Norwalk, Conn.
 David Cokely — Lee's Summit, Mo.
 John Conner — Colorado Springs, Colo.
 Charles Creekmore — Lawrenceville, Ga.
 Richard Danyko — New York, N.Y.
 Scott Day — Brew & Grow — Livonia, Mich.
 Tim Decker — Foster City, Calif.
 Daniel P. Dennis — Libertyville, Ill.
 Thomas DiDominic — Admore, Pa.
 Thomas C. Edmier — Glendale Heights, Ill.
 Scott Fast — San Jose, Calif.
 Dan Flynn — Germantown, Md.
 Richard Fortnum — Edinburgh, Scotland
 Dana Graves — Coventry, R.I.
 Thomas M. Haber — Livonia, Mich.
 Jim Harper — Houston, Texas
 Wade Harper — Austin, Texas
 John Harrison — Elk Grove, Ill.
 Dan Hartley — Orangevale, Calif.
 Tim Higman — San Juan Capistrano, Calif.
 John E. Irvine — Arlington, Va.
 Gregory Jevyak — Florissant, Mo.
 Brian Johnson — Palo Alto, Calif.
 Donna Lynn Johnson — Fermentation Frenzy
 — Los Altos, Calif.
 Phil Jungmann — Long Island City, N.Y.
 Tony LaMonte — Beverly, Mass.
 Jon Leghorn — Let's Brew — Virginia Beach, Va.
 Jeffrey Macomber — Cary, N.C.
 William Malkames Esq. — Allentown, Pa.
 James E. Mankovich — Boulder, Colo.
 Frank Markwalter — Abingdon, Va.
 David Martin — Baton Rouge, La.
 Joel Masters — Cayce, S.C.
 Bill McKinless — Bogota, N.J.
 Patrick Miles — Stevens Point, Wis.
 Carlo Milono — San Francisco, Calif.
 Chris L. Monnet — Houston, Texas
 Trevor Nichol — Alex's Corks & Kegs —
 Mississauga, Ontario, Canada
 Michael L. Niemann — Angleton, Texas
 Shari Nokes — El Toro, Calif.
 Shawn Nunley — Tracy, Calif.
 Mike O'Brien — Pico Brewing Systems —
 Ypsilanti, Mich.
 Michael Oliver — Lake Oswego, Ore.
 John Oszejca — Honolulu, Hawaii
 Paul J. Palek — Marietta, Ga.
 Dale Pedersen — APO AE
 Bob Petersen — Save-U-More Foods — Ames,
 Iowa
 Marc & Debi Prince — Haiku, Hawaii
 Pat & Gail Propsom — Madison, Wis.
 Franklin Radcliffe — Henderson, Nev.
 Daniel Robertson — Reno, Nev.
 Mike Rodgers-Wilson — Australian Home
 Brewing Party — Victoria, Australia
 T.C. Roffey — Lompoc, Calif.
 Allen Rudolph — Redwood City, Calif.
 Tru Samuels M.D. — Fort Washington, Pa.
 Randall L. Sedlacek — Roeland Park, Kan.
 Gordon Sheppard — Vienna, Va.
 Thomas B. Shirkness — Fairless Hills, Pa.
 Charles Silvey — Wall, N.J.
 Alex Skripnik — Bloomington, Minn.
 Linda K. Smith — West Palm Beach, Fla.
 Michael Smith — Huntsville, Ala.
 Mark Snyder — St. Paul, Minn.
 Anthony Stein — La Canada, Calif.
 Michael Sukitch — Yardley, Pa.
 Stuart Sutton — Fayetteville, N.Y.
 Craig Swanston — Winnipeg, Manitoba,
 Canada
 David Teckam — North Highlands, Calif.
 Mark Bryan Tornatore — Mendon, N.Y.
 Donald Trujillo — Fairfield, Calif.
 D.J. Valerio — Pinckney, Mich.
 Julian Valles — Torrimar, Puerto Rico
 Jeffrey T. Waalkes — Whitefish Bay, Wis.
 Ed Watkins M.D. — Columbus, Ind.
 Thomas Weeks — Denville, N.J.
 Robert N. Whittmore — Middlebury, Conn.
 Al Wojcik — Cicero, Ill.

PAPER

Jackson's Liquor Dispensary — Lexington, Ky.
 Science & Hobby Emporium — Tillson, N.Y.
 Thistle Grove Industries — Johnstown, Colo.
 Wagner's Beer King — Minnetonka, Minn.
 Edward Allen — New Kent, Va.
 Larry Allen D.C. — Doc's Brew — Temecula, Calif.
 Curt Ames — Arlington, Va.
 H. Clark Anderson — Santa Fe, N.M.
 Tanner Andrews — DeLand, Fla.
 Richard C. Aumand — RCA Distributors —
 North Walpole, N.H.
 John W. Barbican — Highland Park, Ill.
 James Barlow — Leominster, Mass.
 Charles T. Barrett — Spring Hill, Fla.
 Roger Wm. Bauer — Dog Lips Brewhaus —
 Tukwila, Wash.
 Gary Baum — O'Baum's Brewery — Agoura, Calif.
 Cliff Bennett — North Charleston, S.C.
 Bob Bensink — Virginia Beach, Va.
 David Birkhead — Oakland, Calif.
 Walter D. Blaschuk Jr. — Nashua, N.H.
 David Boldt — McLean, Va.
 James Bond — Chicago, Ill.
 Don Breton — Maryland Homebrew —
 Columbia, Md.
 John Bristol — Merrimack, N.H.
 David Brown — West Fort Ann, N.Y.
 Theodore Brunner — Portland, Ore.
 Chris Caffey — High Point, N.C.
 Adrian & Lynn Cantin — Adrian's Wine & Beer-
 making — Cochrane, Ontario, Canada
 James Cardona — St. Johnsbury, Vt.
 Walter Carey — Cos Cob, Conn.
 Brooks Carr — Garden City, N.Y.
 Keith Carter — Maynard, Mass.
 Andrew Castle — Chicago, Ill.
 Mark W. Castleman — Denver, Colo.
 M.E. Chilton — West Newbury, Mass.
 Bryan D. Chun — Riverside, Calif.
 Dan & Carlene Comer — Delray Beach, Fla.
 Michael Croddy — Colorado Springs, Colo.
 Barry Cunningham — Chillicothe, Ohio
 Don Dammann — Tucson, Ariz.
 Russell Danstrom — Salem, Va.
 Vincent De Chiara — Spokane, Wash.
 Tim Decker — Foster City, Calif.
 Andre Demers — Queensbury, N.Y.
 Joseph Demko — Alexandria, Va.
 David Diebel — Damnable Brewery — Canton,
 Mich.
 Sandra Dietzel — Milpitas, Calif.
 Dan Driessche — Rockford, Mich.
 William & Rebecca Dyster — Niagara Tradi-
 tion Homebrewing — Niagara Falls, N.Y.
 Michael Edwards — Minneapolis, Minn.
 David Escobar — Providence, R.I.
 Tom Evers — Wheeling, Ill.
 Floyd Fehrenbacher — Mary's Home Brewing
 Supplies — Olney, Ill.
 Tom Fergusson — Tigard, Ore.
 Jeff Fischer — Ankeny, Iowa
 Gern Flanders — Somersworth, N.H.
 Walter Floyd — Orangevale, Calif.
 Mark Folsom — Lyons, Colo.
 Scott Franz — Brewer's Outlet — Marion, Iowa
 Sean C. Galloway — Indianapolis, Ind.
 Norbert Garbe — Norbert's Brewhaus —
 Port Jefferson Station, N.Y.
 Robin Garr — Long Island City, N.Y.

Curt Gause — Newton, Iowa
 Rob Gibson — Oakland, Calif.
 Paul T. Gieser — Minneapolis, Minn.
 John Griffith — Boring, Ore.
 Thomas M. Haber — Livonia, Mich.
 Gary & Cathy Halifax — Halifax Hop & Vine Supply — Fruitvale, British Columbia, Canada
 Kerry Hauptli — Carrollton, Texas
 John Hawkins — Mansfield Center, Conn.
 Volker Henninger — Eagle, Idaho
 D. Gary Henry — Cupertino, Calif.
 Frederick Heywood — Boise, Idaho
 Todd Hicks — Mobile, Ala.
 James Houston — Los Angeles, Calif.
 Robert Hutchinson — San Clemente, Calif.
 Michael Ieronimo — Plymouth, Conn.
 Lynn Imperial — San Luis Obispo, Calif.
 Tom Jantzen — Diamond Bar, Calif.
 Chip Jarry — Homebrewer's Market — Leicester, Mass.
 Frank Jenkins — North Beach, Md.
 K. Scott Jetter — APO AE
 Paul Johnson — Fayetteville, N.C.
 Scott Johnson — Nashville, Tenn.
 Mark Kapusta — Granbury, Texas
 Mary Katos — West Dundee, Ill.
 Jim Kaufmann — Carmel Valley, Calif.
 Christopher Keaney — Sterling, Va.
 Wade Keech — Hanover, Pa.
 Calvin Keen — Grand Rapids, Mich.
 David King — Lakewood, Colo.
 Ken Knoff Jr. — Racine, Wis.
 Shawn A. Kokitus — Paw Paw, Mich.
 Piotr Komisarz — Seattle, Wash.
 John E. Kresevic — New Windsor, N.Y.
 Ron Kribbs — Naples, Fla.
 Peter La France — On Tap — Brooklyn, N.Y.
 Greg Larence — Sulphur Springs, Texas
 Greg Lentz — Charlotte, Mich.
 Adam Lewis — Portland, Ore.
 Kimberly Littlefield — Pacifica, Calif.
 Ed Long — Norwalk, Conn.
 James Lyda — Germantown, Md.
 John Macauley — Bar Harbor, Maine
 Michael Marino — Ypsilanti, Mich.
 Mark Marnell — Kingston, N.Y.
 Michael J. Matthews — Romulus, Mich.
 Bob Mayerle — Silverthorne Homebrewers Supply — Silverthorne, Colo.
 Jordan McColman — Boulder, Colo.
 Michael Sean McDonald — Madison Heights, Mich.
 W.H. McDonough Jr. — Ann Arbor, Mich.
 Lenny McIlroy — Westminister, Colo.
 Dave McMahon — Madison, Ala.
 Ed Megaw — Spring Hill, Kan.
 Ray Meyer — Derry, N.H.
 Russell Meyers — State College, Pa.
 Thomas Miklinevich — Monroe, Conn.
 Scott Morton — Ragtime Taproom — Atlantic Beach, Fla.
 Stephen Moyle — Fairfield, Calif.
 Eric Munger — Salem, Ore.
 George W. Munger — Lake Peekskill, N.Y.
 Howard P. Murphy — Eugene, Ore.
 Charles Murray — Reston, Va.
 Chris Neikirk — Norfolk, Va.
 Lantz Newberry — Shelton, Wash.
 George Ostrander — Royal Oak, Mich.
 Denis Padovani — Harvard, Ill.
 Eric Palmquist — Seattle, Wash.
 Mark Pearson — Oakland, Calif.
 Robert J. Peddle — Somerville, Mass.
 James Pelland — Missoula, Mont.
 Bruce Peterson — Finlayson, Minn.
 Tom Petzold — Grand Rapids, Mich.
 Tom Pike Jr. — Plainfield, Conn.
 Philip L. Pokorski — Ferndale, Mich.
 Patrick Prendergast — Palo Alto, Calif.
 Ewan Gareth Pritchard — Raleigh, N.C.
 David L. Quinn — Menlo Park, Calif.

Michael Ratkowski — Market Basket — Brookfield, Wis.
 David Rave — Altus, Okla.
 Bradley Reeg — Chicago, Ill.
 Thomas Ritchie — Kaneohe, Hawaii
 Jeffrey R. Rose — North Andover, Mass.
 John C. Ross — Monte Sereno, Calif.
 Rick Rudnick — Seattle, Wash.
 Robert K. Sall — San Clemente, Calif.
 Pat Schaller — St. Louis, Mo.
 Bill Schmid — Bountiful, Utah
 Jack Schmidling — Jack Schmidling Productions — Chicago, Ill.
 Ray Schrenkeisen — The Perfect Solution — East Chatham, N.Y.
 Fred Seybold — Aurora, Colo.
 Phillip Shannon — Springfield, Mo.
 W.E. Shook — Waynesboro, Va.
 John Silliman — High Bridge, N.J.
 Jon Simmons — Colonial Heights Hardware Co. — Colonial Heights, Va.
 Jeff Skinner — Gridley, Ill.
 David Smith — Brookhaven, Pa.
 Marc D. Smith — Fayetteville, Tenn.
 Mark Smith — Fishers, Ind.
 Ron Smith — Zionsville, Ind.
 T.P. Sondgaroth — Tucson, Ariz.
 William Soukup — Smithtown, N.Y.
 Tracey Spencer — Allen Brewster's Club — Allen, Texas
 David B. Squibb — Fredericksburg, Va.
 Dan St. George — Marblehead, Mass.
 Shaun St. Onge — Rochester, Mass.
 Gregory Stark — Pasadena, Calif.
 John Stasiewicz — Gaithersburg, Md.
 Carter Stein — Stein Beer — Gaston, Ore.
 Lat Stevens — Brewers Association of North Virginia — Falls Church, Va.
 William Stone — Springfield, Pa.
 Laurie Strang — Princess Anne, Md.
 Richard Sturtz — Edina, Minn.
 Pam Sullivan — Fort Wayne, Ind.
 Bruce Susel — Stella Brew — Dudley, Mass.
 Michael J. Takacs — Livonia, Mich.
 Michael Tanji — Haleiwa, Hawaii
 Dana Tessicini — Milford, Mass.
 Fred Thiel — Jonesboro, Ark.
 Bill Toothakre — Amber Waves Homebrew Supply — Rochester, N.H.
 Scott Travis — Rochester, N.H.
 Chris Turner — Flowertown, Pa.
 Scott Turner — Flowertown, Pa.
 Robert Van Wie — Santa Rosa, Calif.
 Pete Vickers — Seattle, Wash.
 Louis Walden Jr. — Glen Rock, N.J.
 Allen Ward — Aurora, Colo.
 Daniel Webb — Heartland Home Brew Supply — Jewett, Ill.
 Tom Wedegaertner — Raleigh, N.C.
 James J. Wehrly — Los Alamitos, Calif.
 Kit Whitaker — Chillicothe, Ohio
 Jeffrey Whitehead — Terra Alta, W.Va.
 Bob Williams — Raw Enterprises — Show Low, Ariz.
 Dave Wilson — Eurobrew — Biloxi, Miss.
 Jeff Wilson — Dripping Springs, Texas
 James Paul Winningham — Memphis, Tenn.
 Greg Winters — Milpitas, Calif.
 David & Cindy Wollner — Windham, Conn.
 Craig Woodruff — Annapolis, Md.
 Alan E. Woods — Naples, Fla.
 Ken Wyatt — Dearborn Heights, Mich.
 Ted Zauha — Chicago, Ill.
 Mark Zunkowski — Holiday, Utah
 Alex Zurek — South Haven, Mich.

**For more information
 on sponsorships call
 (303) 447-0816.**

Introducing The **COOL-BREW®** Draft Beer Cooling System



P
A
T
E
N
T
P
E
N
D

- ☐ Instantly chills room temperature beer
- ☐ Eliminates need for refrigeration and awkward tubs of ice
- ☐ Compatible with ALL draft systems
Comes Fully Assembled —
Includes Tap, Hose & Connectors
- ☐ Does not require high pressure or electricity
- ☐ Perfect for use indoors or outdoors
- ☐ To order send check or money order for \$119.95 + \$14.95 S+H to: North Harbor Mfg., 53 North Harbor Rd., Colchester, VT 05446.
or charge by phone
802 • 893 • 7500
Money Back Satisfaction Guarantee

A higher degree of control.

The Fermometer™!

This precision liquid crystal thermometer provides a convenient way to monitor pitching and fermentation temperatures. It's self-adhering, water-resistant and provides a sanitary alternative to conventional immersion thermometers.

Stop worrying about contamination and stuck fermentations!
 Take control of the flavor
 of your beer!



TKACH ENTERPRISES
 P.O. Box 344
 Castle Rock, CO, 80104
(303) 660-2297

BREW NEWS

James Spence

HEAD LINES

Herbal Extracts May Decrease Ethanol Levels

Rats fed ethanol one hour after being fed herbal extracts from flowers and roots of *Pueraria thunbergiana*, commonly known as kudzu, showed a decrease in blood and urine ethanol concentration. The rats were fed three grams of ethanol per kilogram of body weight — an amount equivalent to a 150-pound person consuming 205 grams of ethanol, or about eight alcoholic drinks.

Scientists believe that the herbal extracts protected alcohol dehydrogenase (ADH), and aldehyde dehydrogenase (ALDH) from being inhibited by the alcohol. ADH and ALDH are enzymes primarily responsible for ethanol metabolism. (*MBAA Communications*, Vol. 43, No. 4.)

Company Develops Sobering Drug

A small California medical company says it has purchased the rights to a drug that apparently helps the body rid itself of alcohol. Compumed Inc. of Manhattan Beach believes the drug can cut the time it takes the body to eliminate alcohol from several hours to a few minutes.

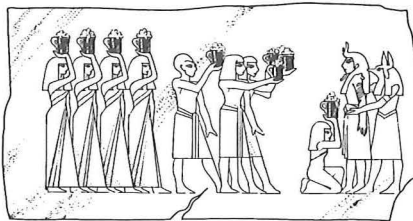
The drug, Detoxahol, apparently causes the small intestine to help the liver process alcohol more rapidly. While alcohol-caused damage to brain cells may still occur, the drug appears to have no other ill effects, accord-

ing to Compumed President Robert Stuckelman, because the drug simply boosts the body's normal functions.

Concerned the drug might promote heavy drinking, Stuckelman said, "We need to work with all the forces so it comes out in such a way that it doesn't encourage people to drink more, but acts as a benefit to those who are going to drink anyway." The drug faces at least five years of testing before it can be approved for prescription use. Expected to be first used in emergency rooms and ambulances, the drug may eventually be sold in a non-prescription version.

Compumed purchased the rights to the drug from an unidentified university that developed the drug with federal financing. Compumed's NASDAQ stock rose 2/32 points to 13/32 after the company announced the drug. (*New York Times*, Dec. 8, 1993.)

Dig Unearths Egyptian Brewery



At a location 200 miles south of Cairo, Egypt, Cambridge University archeologists have uncovered beermaking equipment estimated to be 3,500 years old. Sponsored by England's Scottish and Newcastle brewery, the dig at the city of Armana also found evidence that honey, flowers and dates were used to flavor the brews.

Artifacts indicate that Queen Nefertiti, the

stepmother of Tutankhamen, ordered the construction of the brewery. According to brewery spokesperson Jim Merrington, scientists at Scottish and Newcastle plan to use DNA engineering techniques to reconstruct the pharaonic yeast and recreate some of the brews the ancient Egyptians may have imbibed. (Reuters.)

Great American Beer FestivalSM Reaches Agreement with Boston Beer Co.

The Great American Beer FestivalSM Rules Committee announced an agreement with Boston Beer Co. in a dispute involving use of the Great American Beer FestivalSM (GABFSM) name in advertising and public relations for Samuel Adams lagers. The agreement includes a Boston Beer Co. radio ad that claims Samuel Adams lager beers have won at the Great American Beer FestivalSM "four years running."

In 1985, 1986, 1987, 1988 and 1989, the GABFSM included a Consumer Preference Poll in which Boston Beer Co. lagers placed first in 1985, 1986, 1987 and 1989. Based on those victories, the festival management authorized Boston Beer Co. in 1991, 1992 and early 1993 to use the phrase "Winner of the Great American Beer FestivalSM four years running." The authorization was based on the assessment the statement accurately reflected the Boston Beer Co. victories in the specified years. As a result of the decision to drop the Consumer Preference Poll from the Festival in 1990, and because of post-event publicity rules developed by the Association of Brewers Rules Committee, Boston Beer Co. has elected to

phase in a new advertising campaign bringing Boston Beer into full compliance with post-event publicity rules by May 15, 1994.

According to the Association of Brewers, producer of the GABFSM, the objective of post-event publicity rules and the Rules Committee is to uphold the integrity of the GABFSM and the credibility of judging results, thereby ensuring that GABFSM medalists receive the recognition they deserve for brewing excellence. The advertising guidelines include:

"In all cases reference to a medal must include a mention of the category in which the medal was awarded, the type of medal received (i.e., gold or first place, silver or second place, bronze or third place) and reference must also include a mention of the year in which the medal was won."

In mid-November 1993, Boston Beer Co. lost a lawsuit attempting to restrict Boston Beer Works from using "Boston" and "Boston Beer" in their advertising. The 1st Circuit Court of Appeals ruled that the Boston Beer Co. marks were descriptive and not entitled to trademark protection. (Association of Brewers.)

MICRO AND PUBBWERIES

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

OPENINGS

UNITED STATES Microbreweries

California: American River Brewing Co., Auburn; Humes Brewing Co., Glen Ellen
Colorado: Left Hand Brewing Co., Longmont; Lone Wolfe Brewing Co., Carbondale
Idaho: Sun Valley Brewing Co., Hailey
Massachusetts: Lowell Brewing Co., Lowell
Montana: Bridger Brewing Co., Belgrade
North Carolina: Smokey Mountain Brewing Co., Waynesville
Texas: Saint Arnold Brewing Co., Houston
Vermont: Magic Hat Brewing Co., Burlington

Brewpubs

California: Joe's Downtown Brewery and Restaurant, Napa (formerly Willett's Brewing Co.); Santa Clarita Brewing Co., Santa Clarita; Karl Strauss Brewery Gardens, San Diego
Florida: Hops Grill and Bar (No. 7), Jacksonville

Lulin Lager Fights Radioactivity

A brewery in Bulgaria is making Lulin Special Light Lager in an effort to help people combat radioactive strontium in their bodies. The brew, containing some 40 Bulgarian herbs, was developed at the Military Medical Academy's Central Laboratory on Radiobiology and Toxicology and Bulgaria's Academy of Sciences. Lt. Col. Valentin Angelov of the Scientific Development Council of Bulgaria says work began on the beer two years ago, prompted by the Chernobyl incident. He says experiments show that the lager greatly promotes the elimination of dangerous strontium isotopes. (*The New Brewer*, Jan./Feb. 1994, Vol. II, No. 1.)

TECHNOTES

Green Brewing

One use for kieselguhr sludge (used filtering material), spent grains and used beer

bottle labels is in the building industry. Kieselguhr sludge is dried and can be used as an adjunct in concrete, tarmac, bricks and tiles. Spent grains and ground labels can be mixed with brickmaking materials. Upon firing, the grains of paper burn away, leaving a lightweight, porous brick. The authors note that the brewery byproducts must be used as soon as possible because organic compounds in the sludge and grains decompose resulting in unpleasant odors. [*Brauwelt*, 1993, 133(30).]

Dietary Fiber in Beer Studied

An analysis of 15 different beer styles found that the total dietary fiber content of beer ranged from 183 to 3,534 milligrams per liter. The beer styles lowest in fiber were malt beverages, alcohol-free beer, light beers and malt liquor-style beers. Those highest in fiber? Wheat beers, doppelbocks and beers using smoked malt. Other beer styles had fiber content in the middle range. The study notes that these fiber contents are low compared to bread made from whole meal, for example. [*Monatsschrift fur Brauwissenschaft*, 1993, 46(6), 221-223.]

Women Smell Better than Men

A study of 27 male and 29 female students who were subjected to 40 different odors ranging from wine and vinegar to soap and bath oil found that women were better able to remember odors than men. The samples were presented in uniform dark bottles and test subjects were asked to say whether the odor was familiar, and if it was pleasant or unpleasant. The group was tested again after 30 minutes, one day, seven days and 21 days, and women out-performed men in the recognition memory test. (*Chemical Senses*, 1993, 18, 17-26.)

Alcohol-free Beer a Good Sports Drink

According to a German study focusing on "food for sportsmen," alcohol-free beer has several characteristics that make it suitable as a sports drink. Among the characteristics: it

Minnesota: Rock Bottom Brewery (No. 2), Minneapolis
Nevada: Great Basin Brewing Co., Sparks
New York: Empire Brewing Co., Syracuse
Oklahoma: Norman Brewing Co., Norman
Oregon: Blue Pine Brewing Co., Grants Pass; Northwestern Brewpub, Portland
Rhode Island: Union Station Brewing Co., Providence
Texas: The Village Brewery, Houston

CARIBBEAN

Grand Cayman: Santiago's (brewpub)
Netherlands Antilles: St. Maarten Breweries N.V., St. Maarten (micro)

CLOSINGS

UNITED STATES

Arizona: Electric Dave Brewery, South Bisbee
California: Willett's Brewing Co., Napa
Florida: Sarasota Brewing Co. (No. 2), Bradenton; Riverwalk Brewery, Fort Lauderdale
New Hampshire: Frank Jones Brewing Co., Portsmouth
Oregon: Roger's Zoo, North Bend

CANADA

Alberta: Strathcona Brewing Co., Edmonton
British Columbia: Sunshine Coast Brewers Ltd., Sechelt
Ontario: The Jolly Friar Brewpub, Sault Ste. Marie



contains a great deal of water, it is isotonic to slightly hypotonic, the proportion of carbohydrates in the total calorie content is very high — more than 60 percent and it has readily available sugars and slow resorbing dextrans. The ratio of water to calories indicates that alcohol-free beer contains "water-rich" calories. It has low quantities of raw protein but all the major amino acids, is free of fat and cholesterol, contains all the B vitamins and a great deal of potassium, magnesium, phosphorus and many trace elements making it a mineral and electrolyte drink. The carbon dioxide has a beneficial effect, the full-bodied, sharp, dry taste is inviting enough that a lot will be consumed, the cool temperature leads to rapid emptying of the stomach, it is a natural product and is free of chemical additives.

Make your first cold one after mowing the lawn an alcohol-free cold one. (*Brauwelt*, No. 43, 1993.)

Glucose Speeds Yeast Growth, Fermentation

Scientists studying variations in wort sugar composition found that yeast grew equally well on glucose and fructose, and slower on maltose and maltotriose. In addition, the uptake of fructose by the yeast was repressed if glucose was present in the growth medium. The same effect was seen in the uptake of galactose, maltose and maltotriose. The effect was observed less markedly in wort trials than in the synthetic media trials.

It also was found that adding glucose or invert sugar to wort increased yeast activity, and resulted in only a slight increase in fusel alcohol content of the beer. [Yeast starters made from glucose and/or sucrose have proven to increase yeast mass over maltose-based starters; however, subsequent fermentation of real wort was sluggish and finished with a high final gravity. —Ed.] [*Monatsschrift für Brauwissenschaft*, 1993, 46(5), 185-192.]

Foam Destabilization Prevented by Lipid-Binding Protein

Researchers found that adding 10 to 20 µg/mL of a lipid-binding protein (LBP) extracted from wheat, called puroindoline, increased the resistance of beer foam to destabilization caused by the addition of lipids to the beer. The presence of lipids in beer can come from malt and yeast, as well as from dirty and/or unrinsed glassware. High-fat snack foods and cosmetics also can transfer lipids to beer from the mouth and lips.

The researchers used free fatty acids, phospholipid and trilinolein as lipid compounds. The experiments show that a 0.02 mg/mL concentration of LBP reduced the destabilization potential of 10 µM, the highest concentration of stearic acid used in the study, to about 25 percent of beer untreated with LBP. Available canned lager was used in the study. (*Journal of the Institute for Brewing*, Vol. 100, pp. 23-25.)

Custom Labels Now Available



Zuk Boys' Redeye
Rolf's Trafalgar Bitter

Now you can have your own custom labels with your favorite photograph or line art in lively black and white.

When you serve your homebrew or give it as a gift, you won't feel awkward explaining just what it is while they read the masking tape label. Your custom label will proudly proclaim your own product.

The easy to apply self adhesive labels are a large 4 by 3 1/3 inches. You have complete flexibility in the design. \$39.95 per hundred labels.

Your Satisfaction Guaranteed

Call NOW
1-800-232-LABEL
for a **FREE** Sample
and Label Design Kit!

Nuttings Lake Publishing
P.O. Box 203-B, 20 Lake St.
Nutting Lake, MA 01865

Dealer Inquiries Invited

THE BREWER'S COOP

800-451-6348

OUR NEW CATALOG
IS FILLED WITH
HUNDREDS OF
TOP QUALITY
INGREDIENTS AND
EQUIPMENT FOR
THE BEGINNER AND
ADVANCED BREWER

QUALITY

SELECTION

SERVICE

GREAT PRICES

TAKE A LOOK
AT OUR
UNBEATABLE
PRICES AND
SELECTION

CALL THIS MONTH
AND RECEIVE
5% OFF YOUR
FIRST ORDER!

CALL FOR
YOUR FREE
CATALOG

RED BANK BREWING SUPPLY

67 Monmouth St., Red Bank, NJ 07701 908-842-7507

"New Jersey's Largest Homebrew Store"

For a free catalog call

800-779-7507

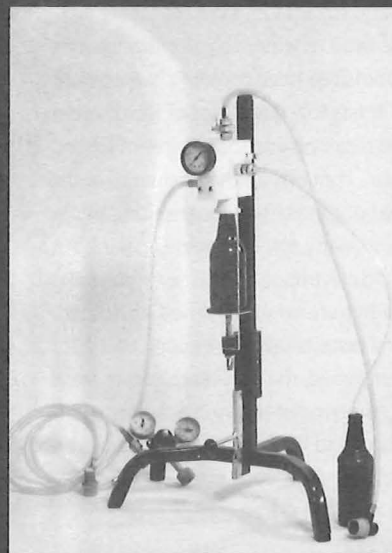
MALT • HOPS • YEAST • DRAFT EQUIPMENT • BREWING SUPPLIES

Melvico™ U.S. Pat. Pend./Can. Pat.

Pressure Bottler for

Beer ♦ Sparkling Wine ♦ Soft Drinks

Latest state of the art
pressure bottler
to bottle crystal beer
with no deposit, no
sugar added no waiting
time for second fermenta-
tion. Beer is ready to
serve right after bottling
like commercial brew-
eries. Melvico bottler
can be used to bottle
sparkling wine (cham-
pagne) soda pop, soda
water, or any sparkling
drink. It is easy to use.



Saturate liquid with CO₂ in pop tank, connect to
Melvico, fill bottle and cap. Comes with CO₂ regula-
tor, tubing, connectors and gas flow pressure gauge.
You supply your own filter pop tank and CO₂ and in
minutes you will bottle your crystal clear beer.
Distributed exclusively in U.S.A. and Canada, shipped
via U.P.S. (U.P.S. will custom clear US shipments).

Vinotheque

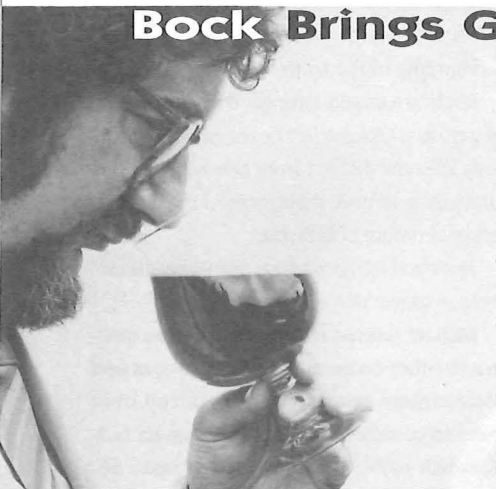
2142 Trans Canada Highway,
Dorval, Quebec, Canada. H9P 2N4.

Phone (514) 684-1331 Fax (514) 684-4241

JACKSON ON BEER

Michael Jackson

Bock Brings Germans Rushing to the Beer Garden



After the dark months of winter, the Bavarians are now venturing cautiously into their beloved beer gardens, even though the weather is not yet reliably warm enough to ensure comfort.

They can always give themselves a little central heating with a bock beer. In Germany, this is a brewery's strongest beer unless, as is often the case, it also has a "double" bock.

Both variations are seasonal specialties for cool weather, and the doppelbocks are especially associated with Lent. Extra strong beers were originally made at this time of year by monastic breweries as "liquid bread" to see the brothers through the weeks when their diet forbade not only meat but also fish.

The notion of beer as liquid bread is not fanciful. In the dawn of civilization, bread was baked as a raw material for brewing and in some corners of the world "traditional beers" are still something of an alcoholic porridge.

A rich, malty beer like a doppelbock is quite filling and does not, like the lighter, hoppier styles, further arouse the appetite.

The most famous doppelbock is the one first made by the monks of St. Francis of Paula. The saint's town is in Calabria, but the monks had crossed the Alps and founded their community in Munich in 1634.

They began to sell their beer commercially in 1780 and named their doppelbock after the Saviour — in Latin, Salvator. Other brewers copied the name until trademark laws were introduced. After that, competitors began to devise other names ending in -ator.

During the Napoleonic period, the brewery was secularized, but the tradition has continued. These days, the Paulaner brewery makes its Salvator available year-round, but still has a ceremonial tapping in March or April for the new spring season.

The ceremony is two weeks after Ash Wednesday. The prime minister of Bavaria and the mayor of Munich attend the event at which the invited elite of Munich are entertained by a topical cabaret but the public flocks to the brewery's beer garden to drink the beer.

In heavily Catholic Bavaria, where the most popular Christian name is Joseph, that saint's day on March 19 is often regarded as the beginning of the "strong beer season."

Going to the beer garden at the Paulaner brewery is sometimes referred to "as taking the beer cure," as though it were mineral water that was being sipped.

Like many monasteries, the Paulaners' was on a hill, a defensible point overlooking the city, and in the 1880s much of the present brewery and garden was built there. The hill is known as the Nockherberg, after a wealthy man who had his home there.

The Salvator, with a gravity of 1.072 to 1.074 and 7.5 percent alcohol by volume, is a dark brown lager with a malty aroma and the palate rounding out to a dryish finish. As the weath-

er warms, attention will drift from the Salvator to the lighter, sharper, more quenching Weissbier, the wheat brew of summer.

That might be the moment to sample the unfiltered products at Paulaner's brewpub in the center of town at Kapuziner Platz.

Every Munich brewery has these styles, but one associated with both is the Hofbräuhaus. It was the first brewery in Bavaria to use the term bock more than 300 years ago.

Its annual tapping ceremony, again private, is in the last week of April, again usually on a Wednesday, at the Hofbräuhaus tavern (no longer a brewpub, though it was in the 1500s), on the Platzl, the square that is the heart of the town.

The beer tapped in April is available throughout the next month and is called Maibock. In a slight gesture to the more summery weather it has a gravity of a mere 1.072 to 1.073



and an alcohol content of 7.2 percent. It is an amber-red lager with a malty fruitiness in its aroma and palate, without being oversweet, and is perilously easy to drink.

Head north from Munich past Nuremberg and Bayreuth and you will hit the bock-producing town of Kulmbach. This pretty little town of half-

timbered buildings sits at the foot of another of those defensible hills that has been topped by a castle since the beginning of this millenium.

For those who enjoy such treats, the castle has the world's biggest collection of toy soldiers (sorry, tin figures).

Kulmbach is at the meeting point of two small branches of the river Main and was an early center for the distribution of beer. Its propensity for strong styles may date from the days when their potency protected them on their travels. The most famous examples are the Reichel's "Ice Bock" and the Kulminator of the Erste Kulmbacher Union Brewery.

Both Reichelbrau and EKU are now large, modern breweries. Reichel, founded in 1846, has wooden lagering vessels ranged as a monument to tradition outside its white-painted tower. Its Eisbock, subtitled Bayrisch G'fornns ("Bavarian Frozen") has a gravity of 1.096 and is made from five malts, one with an intentionally sour, lactic character.

After a conventional bottom fermentation, the brew is frozen for 11 to 14 days. Between 5 and 7 percent of the volume of the brew stays behind as ice. Because water freezes before alcohol, this concentrates the brew, which then has six months of lagering.

The beer is released at about 7 p.m. at a public festival in the Kulmbach town hall on the last Saturday in March.

The festival opens with the ceremonial hacking open of an ice-bound wooden cask. The beer that emerges is very complex, with a deep, reddish-brown color; a malty aroma; a smooth palate; a warming, faintly bitter finish reminiscent of a coffee liqueur; and a strength of 10 percent alcohol by volume.

On the last weekend in July, Kulmbach has a beer festival on the town square, but the only brews served are specials for the occasion, at a respectable 5 percent. The more potent products can, of course, be found around the town. Reichel and its sister brewery, Kulmbacher Mönchshof (known for its Schwarzbier, a dark "black" lager) and EKU have ties on most of the local taverns.

EKU makes a dark cherry-to-brown, creamy, malty doppelbock called simply Kulminator, at 7.6 percent alcohol, and a paler (pinkish amber) but famously strong version at 11.5 to 12 percent alcohol subtitled "28." That figure refers to degrees Plato, the German system of original gravity. Call it 1.120 original gravity.

The brewery claims that this beer has nine months of lagering, dropping in temperature until it begins to freeze, but the amount of ice left behind in this instance is not regarded as being a significant factor in its potency.

Kulminator 28 is even more creamy and malty, slightly citrusy and instantly alcoholic. At the brewery I was offered it in a cocktail with orange juice and rum. After a hard night's drinking, this would be the perfect breakfast.

EKU was a union of two smaller breweries that linked in 1872. Its 1890s malting building still stands, a classic of the period, with modern equipment inside and makes a marvelous contrast to the postmodern brewery of 1990.

This northern part of Bavaria, known as Franconia, is the most densely breweried corner of Germany, and is endlessly interesting for the beer lover. Turn west and you are heading for Bamberg, better known for smoked beers than for bocks, though it does have the odd strong brew from mid-October through November and December.

At either end of the year, bock beers are usually considered to be winter warmers. I believe they are also a remnant of the days be-


fore artificial refrigeration, when it was impossible to brew in summer because of wild yeasts.

A high-gravity brew was made in March and laid down as a provision to be drawn upon during the summer months. When the warm weather was over, in September and October, the last of the stock was ceremonially consumed.


This may explain the resilient folklore that bock beer is made from the sediment taken from vessels during spring cleaning. A laughable story, but perhaps based on a misunderstanding of the truth.

Bocks are usually stronger than the Märzen (March) and Oktoberfest beers, and the traditions are now distinct from one another, but surely they all have their roots in the original seasonal nature of brewing.

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


Michael Jackson is internationally the best-known writer on beer. His articles, books and documentary videos 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. 

WINE HOBBY USA



We have everything you need to create your own beer and wines at a price that's easy to swallow. With 22 years in the "Home Brewing" business, we stand as one of the largest suppliers of quality products and ingredients on the east coast, offering over 200 malts, a wide variety of fresh hops, and a large selection of liquid and dry yeast.

For our free catalog, call:
1-302-998-8303 or
1-800-847-HOPS
or write:
WINE HOBBY USA
2306 West Newport Pike
Stanton, Delaware 19804



AHWD

AT HOME WAREHOUSE DISTRIBUTORS

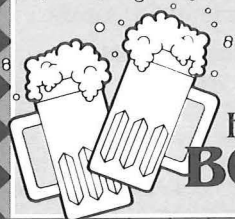
BEER & WINE MAKING SUPPLIES

- Warehouse Prices
- Over 120 Beer Kits and Malt Extracts
- Personalized Service

M&F
3.30 lb.
JUST \$6.95

CONTACT US FOR YOUR **FREE** CATALOG

P.O. Box 185 Clarence, NY 14031
(800) 210-8585 FAX (716) 681-0284



GREAT
HOMEBREW IS THE
BOTTOM LINE

CLASSIC BEER **9** STYLE SERIES

BOCK

**Brewed in Winter for
Consumption in Spring**

BOCK

By Darryl Richman

The ninth release in Brewers Publications' Classic Beer Style Series, *Bock*, will recount the legendary history of this hearty beer style, as well as examine flavor profiles, recipes, equipment and procedures.

Whether it be your first in the Classic Beer Style Series or your latest addition, your brewing library needs this book.

To order your copy today for \$11.95 (plus \$3.50 P&H),
contact Brewers Publications at PO Box 1679,
Boulder, CO 80306-1679;
(303) 546-6514, FAX (303) 447-2825.



zym17

The Beverage People!

Get the good stuff here,

... with service,

... and knowledge, too.

**Ingredient Kits for
18 Beer Styles.
Standard, Deluxe or Super
Brewer Equipment Kits.**

**Three-tier All-Grain
Brewing Systems.**

**Immersion Wort Chillers
Temptestr™ Thermometers**

**Fast, Mail Order.
Beermaking, Mead
and Winemaking
Catalogs.**

**Discount Program.
*The Beverage People News***

**Retail store open 6 days
Toll-Free Order Line
Service Worldwide**

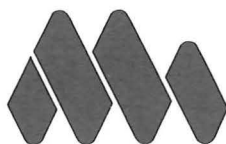
**Award winning staff
of Homebrewers.
Published in top Journals.**

**Teaching Junior College
classes in Beginning and
Advanced Brewing.**

**National and Certified
Beer Judges on staff.**



Byron Burch, Proprietor 840 Piner Rd, #14 Santa Rosa, Ca 95403 (800) 544-1867



MORRIS HANBURY U.S.A., INC.
INTERNATIONAL HOP MERCHANTS

"SPECIALIZING IN THE MICRO, BREW PUB AND HOMEBREWING INDUSTRY"

- RAW HOPS:** Leaf hops in normal bale packing and 3 KG mini-bales.
- Type 90 Hoplets:** Hop pellets in 10/20/25 KG packs. Nitrogen flushed small packs: 1 oz., 2 oz., 4 oz., 8 oz., 1 lb.
- Type 100 Hoplets:** Whole hop plugs, nitrogen flushed, ten 1/2 oz. plugs per pack.

**ALL OUR HOP PRODUCTS ARE PACKED IN OUR
SPECIAL HIGH-BARRIER FOOD-GRADE FOIL.**

PO Box 1548 YAKIMA, WA 98907 TELEPHONE: (509) 457-6699
TELEFAX: (509) 452-9468

William's Brewing Presents: Our Home Brewing Catalog



Since 1979, William's Brewing has been the leader in mail order home brewing.

Our free 40-page Catalog features everything for the home brewer, including home breweries, malt extracts, 17 hop varieties, informative articles, recipes, draft systems, and much more.

**Order Your Free
Catalog Today!**

WILLIAM'S BREWING
P.O. Box 2195-Y9
San Leandro CA 94577

Phone Orderline: 800-759-6025
Fax Orderline: 800-283-2745
Allow 3 weeks for free delivery

BEER EXPLORER'S

Logbook



Log Your Beer Adventures

You take a sip of barley wine. The adventure begins.

Record your own splendid adventure with beer in *Beer Explorer's Logbook*. Document your evaluations of micro-brewed beers, or the beers you make yourself. Use it to chart your progress in judging beer, or as a guide to the beers you judge special.

Pages prompt you to log key facts about 52 beers. Because beer worth drinking is worth remembering—a month or a decade later when you're writing your own book on beer. Includes a foreword by Michael Jackson and a glossary of beer styles and terms. Pocketsize (4 1/2 x 8). Price: \$8.95, plus \$2.00 P&H per order.

Ordering Information

Send your name, address, check or money order, VISA or MasterCard info to: **Passport to Adventure Press**, Dept. ZD, PO Box 516, Niwot, Colo. 80544. Fax your credit card order to (303) 652-2268. **Money back guarantee.**

Colorado residents add 3% state tax.

The Brewer's Planner

The Brewer's Planner

The Computer Aid For Home Brewers

For Apple Macintosh® Computers

Complete Recipe Formulation!

Calculation of: Water Treatment, Beer Color & O.G., Hop Bitterness

Batch Logging!

Handles the Simplest to the Most Complex Brews, Print Logs & Contest Forms, Mash and Fermentation Graphs

Many More Features!

Send SASE for Brochure & Recipe

Only \$50

Check or Money Order (US Funds)

Darryl Richman

The Crafty Fox

[10-ATT] 0-700-Crfty Fx
15600 NE 8th St.
Suite A3-327
Bellevue, WA 98008



HOMEBREW COOKING

WITH THE BREWGAL GOURMET

Candy Schermerhorn

With the approach of summer, it seems appropriate that we briefly ponder one of this nation's greatest culinary triumphs, one whose influence touches every state, town and individual backyard. Yes, without a doubt, barbecue is a tradition as deeply imbedded in our national psyche

as apple pie and homebrew — foods on which this great nation was founded.

The rustic, smoky flavor of outdoor cooking has intrigued people since prehistoric times. OK, so back then the only mode of cooking was over open fires, but since the 1950s when it became fashionable for families to cook outdoors, barbecue has been refined to an exquisite art in backyards and restaurants alike. This unpretentious cooking method produces wondrous fare that cheerfully sends your taste buds to their outermost sensory limits.

As with every art, there are certain guidelines involved. For one, a barbecue typically is not an event for just one person. The larger the gathering the greater the level of enjoyment. Without exception, food must be the center of attention and served in abundance. Such fare is always amply seasoned, usually with tongue-tingling impact since it must overshadow the shimmering heat of summer. And of course it would be unforgivable not to include beer as both seasoning and lip cooler, tempering fiery palates so each progressive bite will have just as much impact as the first.

Using beer in the preparation of this na-



Summertime is BEERbecue Time!

tional treasure is surely an alchemist's dream, a textbook example of the sum equaling more than the total of the parts. An example is Cantina Chicken, marinated in beer seasoned with lime juice, garlic, cilantro and the smoked ripe jalapeño peppers called chipotle chilies (available in the Mexican section of many groceries). Seared briefly and grilled slowly over coals sprinkled with mesquite chips, these succulent, zesty hens will make your taste buds tango! Sipping a cool, American lager alongside will play up the full flavor of the chicken while calming that jalapeño heat.

Of course, great barbecue is never complete without a hearty potato salad. For an enticing variation, why not offer one served warm like the spicy No-Longer-German version included here. Pair the salad with a brown ale to accentuate the flavor of the potatoes and herbs.

For vegetable lovers a side of skewered

vegetables basted with a light but zippy beer-honey sauce is sublime. And by all means don't forget the Corn-On-The-Malt, a delightful creation of two ingenious Oyster Bay homebrewers. End the meal with a plate of chilled summer fruit and a platter of soft brie or young gorgonzola. Surround it with the refreshing tartness of fruit ale.

I leave you with a word of warning. Barbecue chefs are passionately devoted to their particular style of cooking, so proceed with great caution when making suggestions or comments. Fortunately, even the most opinionated never pass up the opportunity to consume vast quantities of someone else's barbecue (kind of like homebrewers, eh?). With that in mind, I recommend trying the following recipes — brew appétit!

Cantina Chicken

The hearty fare you would expect in a border-town cantina! Serves four.

- 2 whole chickens, split and cleaned
- 3 cups German lager
- 1/3 cup virgin olive oil
- 2 limes, juiced
- 5 to 6 large cloves of garlic, peeled and mashed
- 1 to 2 canned chipotle chilies, finely minced (wear rubber gloves and be careful, these are very spicy chilies)

- 1/3 to 1/2 cup coarsely chopped fresh cilantro*
- 1/2 teaspoon freshly ground cumin seed
- 1/2 teaspoon freshly ground black pepper
- 2 tablespoons kosher salt

* If you can't get fresh cilantro, substitute an equal amount of Italian parsley plus 1 teaspoon of ground coriander seeds.

(1) Combine the beer, olive oil, lime juice, garlic, chilies, cilantro, cumin and black pepper. Pour two-thirds of the marinade over the chicken and refrigerate six to 18 hours — the longer the stronger!

(2) Drain the chickens and rub with salt. Sear on grill over medium heat then cook slowly over very low heat until tender (2 1/2 to three hours), basting occasionally with the reserved marinade.

Low temperature when cooking in this fashion is between 200 and 225 degrees F. When using charcoal briquets, allow them to burn down to coals, raise the grill to the highest position and grill with the lid down.

When using a gas grill, keep the heat on low. If you have dual burners, run only one and place the poultry at the opposite end, cooking with the lid down. If your grill will not cook as low as 200 to 225 degrees, keep the lid propped open to decrease heat.

If necessary, place a heavy heat-proof pan on the grill. Put a small rack in the pan to raise the chicken above the juices and grill with the lid partly propped open. This will dissipate some of the heat and allow the bird to cook for a longer period of time.

No-Longer-German Potato Salad

Cooking the potatoes with beer and spicy crab boil before dressing them in a warm bacon and sour cream sauce gives these potatoes a delicious original flavor. Serves four to six.

- 2 pounds new red potatoes, scrubbed
- 8 cups water
- 1 1/2 cups brown ale
- 2 to 3 tablespoons crab boil (try Cajun crab boil for a real flavor kick, available in your grocery)

- 1 1/2 tablespoons salt
- 6 slices of lean, honey-smoked bacon
- 1 large onion, coarsely chopped
- 1/3 cup fruity olive oil or walnut oil
- 1/3 cup brown ale
- 3 tablespoons brandy or sherry
- 3 tablespoons balsamic vinegar
- 1 1/2 tablespoons sweet-hot beer mustard
- 1 tablespoon sugar (optional)
- 2 teaspoons thyme
- 1 teaspoon freshly ground pepper
- 2/3 cup sour cream
- chopped Italian parsley and scallions for garnish

(1) Tie the crab boil in a small square of cheesecloth. Bring the water, ale, crab boil and salt to a boil and briskly simmer for 20 minutes, covered.

(2) Add the potatoes and cook just until tender. Drain and place back in the hot pot to keep warm. Halve or quarter the potatoes if they are larger than bite-size.

(3) In a medium skillet, fry bacon until crisp. Remove and drain on paper towels. Measure the drippings and pour one-quarter cup back into the pan. Crumble the cooled bacon and reserve.

(4) Allow pan to cool for a few minutes. Re-heat to medium-low and add onion, sautéing until limp. Whisking constantly, add the pre-measured oil, beer, brandy, vinegar, mustard, sugar, thyme and ground pepper.

(5) Stir thoroughly and cook briskly two minutes, then remove from heat before whisking in the sour cream. Pour over the hot potatoes. Garnish with crumbled bacon, scallions and chopped Italian parsley.

Veggie Skewers

An unusual combination of flavors for vegetables, both spicy and sweet. Serves four to six.

- 1/3 cup olive oil
- 2 cloves garlic, peeled and sliced thinly
- 1/2 teaspoon Szechwan peppercorns (or red pepper flakes)
- 1 to 2 teaspoons small, red chili pods, cut into half-inch chunks
- 6 thin slices of fresh ginger root, peeled

- 2 teaspoons sesame oil
- 3 to 4 tablespoons honey (or to taste)
- 1/4 cup porter
- 2 tablespoons light soy sauce
- 1 each of red pepper, green pepper, zucchini and yellow squash
- 12 pearl onions (blanched and peeled)
- 12 button mushrooms, scrubbed

(1) Heat the oil over medium-low. Lower the heat and add garlic, peppercorns, chilies, ginger and sesame oil. Cook slowly for a minute and a half until the garlic and ginger are very fragrant and the oil takes on the flavor of the ingredients.

(2) Remove from heat and cool briefly. Stir in honey, porter and soy sauce and set aside while you cut the vegetables to a uniform size and skewer. Strain the oil and honey mixture and press any excess liquid out of the garlic and ginger.

(3) Just before grilling, brush the vegetables with the flavored oil mixture. Depending on the thickness of the vegetables, cook for 10 to 15 minutes over low heat.

Corn-On-The-Malt

What a delightful change from the usual boiled version. Serves four to six.

- 6 large ears of fresh corn in husk
- 1/2 to 2/3 cup dry malt extract (I like crystal malt.)

(1) Gently pull back the husks without tearing them and remove the silk. Place in a large pan of water for two hours.

(2) Just before grilling, roll or sprinkle the corn with malt. Pull the husks back over and tie with soaked cooking twine or strips of soaked husks.

(3) Grill slowly over low heat until tender, about 45 minutes to one hour.

Candy Schermerhorn is a culinary consultant and televised cooking personality in the Phoenix, Ariz., area. Candy takes great joy in educating the public about beer and its culinary potential through her classes and her book, *The Great American Beer Cookbook* (Brewers Publications, 1993).

TIPS & GADGETS

Randy Mosher

Power Sparger

The power sparger allows you to sparge under pressure using an unmodified soda keg and a few bucks worth of hardware-store parts with no negative effect on efficiency. Many commercial breweries use much larger devices, known as mash filters in the brewing trade, based on the same principle. The filtering action is the same as with a conventional lauter, but the sparge water is forced through the grain bed using CO₂ pressure as the power source.

In the lauter keg, a copper pickup strainer rests at the bottom of the grain bed connected to the "liquid out" fitting of the keg. A simple sprayer is connected to the "gas in" fitting. A second keg filled with hot water is attached to the fitting with the sprayer and pressurized with CO₂. The flow rate can be varied by adjusting the pressure, but around 15 psi is in the right neighborhood.

You will need two standard Cornelius tanks, the CO₂ and associated fittings. These can be diverted temporarily from conditioning/serving duties because they require no permanent modifications. In addition to the hardware listed below, you will need two dip tubes that will have to be modified by cutting and bending. The dip tubes can be made by carefully flaring the ends of 5/16-inch copper tubing to exactly match the stainless-steel originals.

This may all sound pretty complicated, but relax. It really is a simple afternoon project that can brew great beer while saving you hours and hours. (Be sure to wear eye protection when drilling or sawing.)

Hardware-store list:

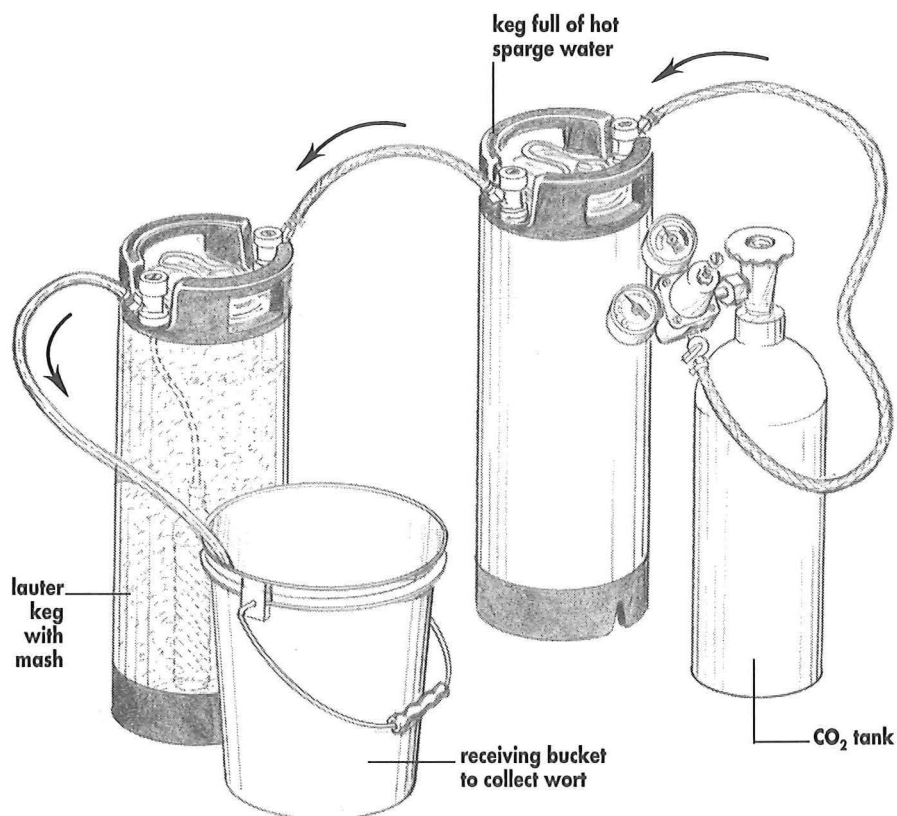
- 1 6-inch length of 1 1/2-inch-diameter copper tubing
- 1 1 1/2-inch copper cap
- 1 1 1/2-inch to 1/2-inch copper reducing coupling
- 1 5/16-inch compression coupling
- 1 5/16-inch compression elbow
- 2 rubber O rings, sized to fit on the 5/16-inch tubing to replace the brass compression rings

- 1 1-foot length of 5/16-inch copper tubing (or 3 feet if you plan to make the new dip tubes yourself)
- 9 small, short stainless-steel sheet-metal screws (Ideally #6 x 1/4 inch)

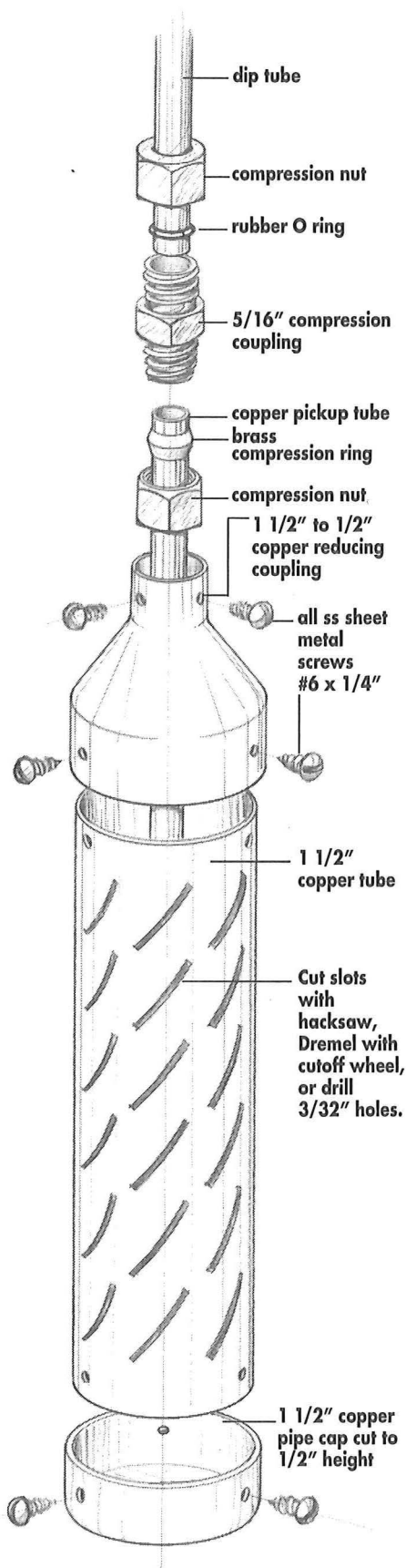
Tools:

- Drill with a bit sized to fit the sheet-metal screws
- Hacksaw or tubing cutter
- File
- Wrenches to fit the compression fittings

POWER SPARGER SET-UP



Strainer Assembly



■ Cut the copper cap so it is 1/2 inch high. Smooth the cut with a file. With the hacksaw, make a series of diagonal slits in the 1 1/2-inch-diameter copper tube. (A drill with a 1/16-inch bit or a Dremel tool and a cutoff disk also will do the job.) You want enough holes so liquid will drain freely, but you don't have to go nuts. The holes should go down to where the cap attaches. Place the cutoff cap on one end. Mark positions for three holes equally spaced around the cap. Drill the first hole and screw one of the sheet-metal screws into it. (Drill a hole slightly smaller than the screw so the threads have something to bite into.) Drill the other two holes and insert the screws.

■ Repeat the drilling and tapping procedure with the reducing coupling at the other end of the tube.

■ Mark off positions for holes around the narrow end of the reducing coupling. Drill all three and thread the screws into them. (Any of the sheet-metal screws may be replaced by brass or stainless-steel machine screws, but you must use a tap to thread the holes they're going into.) File down the ends of the screws in the small end of the coupling so they are flat.

■ Cut a 12-inch-long piece of the 5/16-inch copper tubing and clean up the cut on one end with a file. Using the brass ring in the compression fitting, attach the clean end of this piece to one end of the compression coupling and tighten. Fine-tune the length of the tube by holding it alongside the strainer. The middle of the compression coupling should align with the small holes in the narrow end of the reducing coupling. Mark the tube and cut so it falls short of the bottom cap by 1/4 inch or so. Holding the assembly by the coupling, slide the 5/16-inch tube into the strainer assembly and tighten the screws in the small end of the reducing coupling to hold the compression fitting securely.

Dip Tube

■ Bend the long dip tube into a shallow S curve so the bottom end of the tube is centered in the keg at the point where it will connect to the strainer. You can do this by inserting the tube partway into its hole in the

keg and using the hole as a fulcrum for bending. *Make sure* the bend is as shallow as possible because if the tube kinks it won't slide in and out of the hole.

■ Place the strainer in the keg and mark the cutoff point of the dip tube where it connects with the strainer. The strainer should nearly rest on the bottom. Cut the dip tube where marked and smooth the end. Connect the strainer using the compression nut with a rubber O ring. *Do not* use the brass compression ring or you'll never get the tube out of the keg.

Sparge Sprayer

■ Cut the other dip tube off to a 2-inch length and smooth the cut end.

■ Cut a 5-inch piece of the copper tube and smooth one end. Pinch the other end off with a pair of pliers or a hammer. Smash it down good. Connect the other end to the compression L using the brass compression ring. Drill or file a 1/8-inch-diameter hole at a point that centers it in the keg when connected to the short dip tube. The hole should point upward when the tube is installed. Attach the sparge assembly to the short dip tube with the compression nut and a rubber O ring. *Do not* use the brass compression ring. Instead of the one-foot length of 5/16-inch copper tubing, you could use the cut off part of the dip tube.

Keg Jumpers

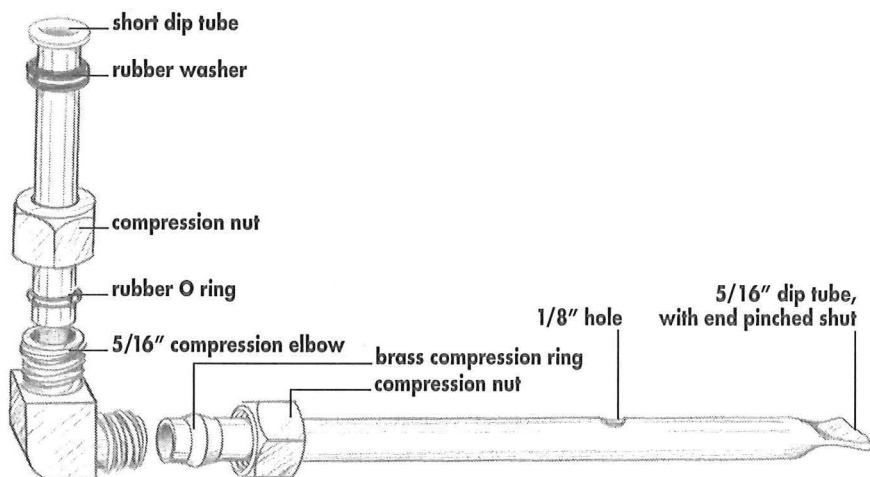
■ You will need a length of reinforced hose with two quick-disconnect fittings: one liquid, one gas. A second hose has a liquid fitting on one end with nothing on the other end, and is long enough to reach a bucket on the floor.

To Use

■ Attach both fittings to their appropriate holes in the kegs and screw on the two tank quick-disconnect fittings. Remember to include the rubber washers that seal the tube flares. Clamp down the big lid.

■ Mash as usual in a kettle or cooler, then transfer the ready-to-sparge mash into the lauter keg at about 170 degrees F (77 degrees C), if possible. Try to minimize splashing as you

SPARGE SPRAYER



transfer. Wrap the lauter keg with a blanket or otherwise insulate as well as possible.

Have your sparge water ready at a temperature of about 175 degrees F (79 degrees C). Fill the second soda keg with the hot sparge water and connect the "liquid out" fitting from the water-filled keg to the "gas in" fitting on the lauter keg. Connect the CO₂ tank to the "gas in" fitting of the water keg. Connect the

second hose to the "liquid out" fitting on the lauter keg and place the naked end into a vessel that will receive the wort. Turn on the gas, set to a pressure of about 10 psi. The wort should flow, producing cloudy wort from the lauter keg. Turn up the pressure if you need to get the wort flowing faster. Continue until the wort flows clear. Turn off the gas and depressurize the system. Open the water keg

and add the cloudy wort. Close the lid. Attach the jumper hose from the water to the lauter keg and attach the gas to the water keg. Open the gas valve and allow to flow. Adjust with the pressure control, if needed. The whole thing should drain out in about 25 minutes.

■ When finished, shut off the gas, depressurize, then empty the keg. Disassemble for cleaning.

Many enhancements to this system are possible. A thermometer may be added with a plastic T connector to the jumper hose to give the temperature of the water going into the lauter keg. If you want to get really fancy, an in-line water heater similar to the one in RIMS-type systems can be added. Complex, computerized control of the heater is not necessary; the temperature may be adjusted with a dimmer on the heating element. Note: Make sure the dimmer is rated to handle the current of the heater.

Randy Mosher, an 11-year homebrew veteran, runs a graphic design and product development company in Chicago, Ill., when he isn't tinkering with gadgets.



**Call for Free Catalog of
Home Brewing Supplies**

The Malt Shop

N3211 Highway S,
Cascade, WI 53011

**414-528-8697
1(800)235-0026**



The Malt Shop

*Quality Brewing Supplies from
America's Heartland*

BUY IN BULK AND SAVE BIG!!!

DeWolf-Cosyns Belgian Malt

2 row Pale Ale	\$30.00 / 50 lbs.
2 row Pilsener Malt	\$30.00 / 50 lbs.

Schreier Wisconsin Malt

2 row Malt [Harrington]	\$25.00 / 50 lbs.
-------------------------	-------------------

Briess North American Malt

2 row Malt	\$25.00 / 50 lbs.
6 row Malt	\$25.00 / 50 lbs.

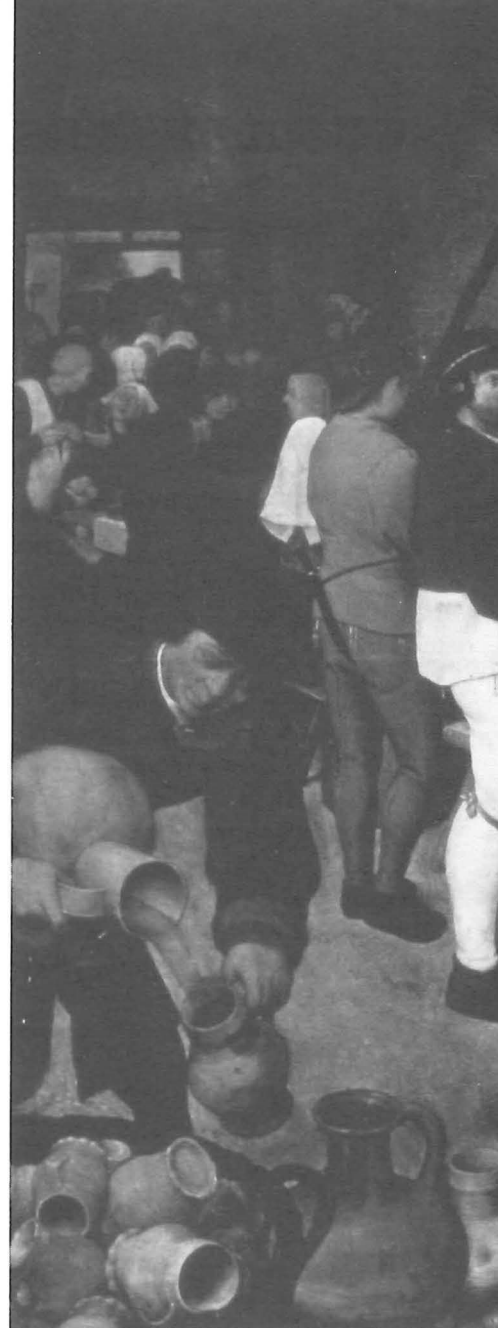
Briess Liquid Malt Extract — \$49.00 / Case of 10 / 3.3 lbs.
Available in the following types — Gold, Amber, Dark, Weizen

BREW

Art History —

Dutch Brewing in the 17th Century

By Dick Cantwell



Beer appears in art more often than you might think. Glasses of tawny brew appear alongside oysters, cheeses, fruits and dead fowl in various Netherlandish still lifes. Scenes of tavern revelry and country life abound in Dutch, Flemish and English painting (Pieter Bruegel's "Peasant Wedding" probably is most notable among them). And of course there's the famous bottles of Bass ale in Edouard Manet's "Bar at the Folies-Bergeres." While it might be presumed that today's Bass would bear at least a family resemblance to the con-

tents of the bottles Manet painted in 1882, it's intriguing to imagine what some of these other, less identifiable beers would taste like today. Well, it's possible, with a little research, to fill up your virtual reality glasses, to re-create and enjoy the beers of art and history.

We've all heard or read of (and perhaps tasted) the Sumerian beer produced through the combined resources of Anchor Brewing Co. and the University of Pennsylvania. The pewter grail of British brewing seems to be the re-creation of a historically accurate porter. When my wife Chiyo, the curator of European paintings at the Seattle Art Museum, began arranging for an exhibition of 17th-

century Dutch paintings, I decided to try brewing a beer like those appearing in many paintings of the time, to be served at one of the receptions for the exhibition.

With only a few exceptions, the commercial examples of Dutch beer available to us in the late 20th century constitute a pretty level landscape. It might be argued, in fact, that without the close proximity of a canal, a windmill or a procession of engaging foot traffic past one's umbrella-shaded café table, Heineken, Amstel, Grolsch and even Oranjeboom don't taste much different from the industrial beers that dominate the traditional flatlands of American brewing. Holland and



"Peasant Wedding," 1568, by Pieter Bruegel the Elder (c. 1515 - 69)

its beers haven't always been this way, however, as even a cursory study of its Golden Age will attest. Politically, militarily, culturally and zymurgically, the 16th- and 17th-century Netherlands were a force with which to contend. Take a look inside the glasses and mugs depicted in some of the still lifes and genre paintings of Holland's Golden Age and you'll see something quite different from the pale lagers that have conquered the world in succeeding centuries. For the purposes of actually brewing one of them, however, it's necessary to get a bit closer.

To begin building my recipe I looked first at the paintings. Genre scenes of tavern high-

jinks showed plenty of beer, but most often in opaque earthenware pots and pitchers. Aside from an occasional glimpse of foam, the divination of color, condition and certainly specific ingredients was somewhat difficult. A still life depicting a glass of beer, a brazier and some clay pipes by Jan Jansz van de Velde III was to be in the show, and on checking the exhibition catalog I found other examples of his work that showed beer. Tawny to brown, usually somewhat murky and bearing a creditable half-inch or so of foam, these beers reminded me most strongly of modern Belgian beers to which, because of border fluctuations in the Low Countries and the relative

continuity of brewing culture in what is now Belgium, they were quite likely related. Based almost entirely on the painted visual evidence, I figured color to be 15 to 20 SRM, carbonation to be low but present (say 1.5 to 2.0 volumes of CO₂), and hop bitterness — well, I didn't have much idea of that, aside from knowing that by this time hops would almost certainly have been used. Alcohol content, too, would have to be determined by what I found out in the course of my research.

So I began asking around. Taking advantage of some of the luminaries assembled for the Home Brew U conference in Seattle in March 1993 hosted by Merchant du Vin, Lib-

erty Malt Supply and the Pike Place Brewery, I put some questions to Michael Jackson and Randy Mosher. I also followed up on a footnote in Simon Schama's *The Embarrassment of Riches*, a cultural history of Holland's Golden Age, in which Professor Richard Unger of the University of British Columbia is cited as an authority on 17th-century Dutch brewing. Through Charles Finkel and Merchant du Vin I contacted Roger Mussche of Lindeman's in Vlezenbeek, Belgium, and consulted experts on the history of hop cultivation in Europe: Greg Louis of HopUnion and Dr. Alfred Haunold of Oregon State University.

Unger proved an invaluable source of information. Not only had he written specifically on the relationship of beer and art in 17th-century Holland, he had studied some 18th-century Dutch brewing texts and was kind enough to share his notes with me.

These notes suggested a somewhat more high-tech approach to wort production, more similar to modern micro-methods, than those outlined in Pierre Rajotte's excellent *Belgian Ale* (Brewers Publications, 1992), which I had already found extremely useful in providing some quantified descriptions of extant brewing styles of the region, if not precisely the cities of Delft, Gouda, Haarlem, Amsterdam, Leiden and Utrecht on which Unger concentrates. Gravity, for example, seems by the 18th century to have been the main method of wort-drawing, and not the fascinating use of Rajotte's stuykmanden, the Belgian basket and siphon method. The 18th-century text no doubt represents a somewhat refined version of methods in use during the century before, but its geographical source, at least, is appropriate.

In addition to describing actual malting and brewing processes, one of Unger's sources provides insights into the layout and configuration of brewery vessels as well as the hierarchy of labor prevalent in breweries of his time. Raw materials, including water

and coal, are discussed in terms of desirability, as well as the appropriate woods for the construction of mashing and fermentation vessels. On the subject of grains, I will quote from Unger's notes:

"Beer made from wheat, oats and rye; made from wheat and cooked a long time remains unclear for a long time. Strong. Beer made from oats cools down more than that from wheat ... Remains unclear. Beer made from rye if done right and carefully dealt with will give a good taste, depending on purity ... Best is beer made with barley because it is much thinner than beer made from the other grains ... Don't get thick blood from it. Mol is made from unmalted barley."

Further reading in H.S. Corran's *A History of Brewing* led me to the writings of a German, Theodor von Bergzabern, who under the Latin name of Tabernaemontanus published a 1588 Herbal, in which he touched on the brewing of beer:

"They take wheat, barley, spelt, rye or oats, either one kind (for good beer can be prepared from all these cereals) or two or three together; they steep them in a fresh spring or good running water or (which is even better) in boiled hop water, until the grain bursts out. Then the water is run off and the grains dried in

the sun. The water in which the grain is steeped is kept; when the grains are dry they are ground in the mills and the meal put into the aforementioned steep water. It is let boil for three to four hours and the hops added and all boiled up to a good froth. When that is done it is filled into other vessels. Some put a little leaven into it and this soon gains a sharp biting flavor and is pleasant to drink."

Writing generally about German practice (though with the mention of grains other than barley, probably after 1516, in regions beyond Bavarian borders), von Bergzabern goes on to praise Dutch and Flemish methods of flavoring and darkening beer with honey, sugar and syrups, and even reserves accolades for Eng-

lish ales, particularly those brewed from wheat. But he had made me aware of spelt as a brewing grain, and after receiving confirmation from Unger that spelt could well have been used in the Netherlands, I added it to the list from his notes.

My grain bill, and the strength of the beer I was to brew, proved more complicated as my research continued. Appendices to an article by Unger titled "Beer and Beer Drinkers," that he delivered at Hofstra University in 1991, trace the production histories of Dutch brewing cities from the 14th to the brink of the 19th centuries. In addition, they treat different beer types with regard to the proportion of various grains used in their production, and the ratios of grain used to finished beer. This is a dizzying array of information, not so much by its volume as by the questions it raises concerning extract efficiency and ingredients. What does it mean in modern terms, for example, for brewers in 1590s Haarlem to have produced 3,720 liters of beer from 4,600 liters of grain (a ratio of 0.81 liters of beer for every liter of grain)? Well, if a liter of grain weighs 800 grams (1.76 pounds), as Unger states in his appendix, and a liter is 33.8 U.S. fluid ounces, it would take something like 23.5 pounds of grain to produce a homebrew-sized five-gallon batch of "beer" of unspecified strength or gravity — poor extraction by anyone's reckoning.

Not all the ratios are quite so anemic. Most recipes throughout the 15th and 16th centuries range from 1.1 to 1.6 liters of beer per liter of grain, requiring something like 12 to 17 pounds per five gallons. Still, we don't know exactly what beer was being produced, and what it was made from, other than "grain." Cross-referencing this information with another appendix, outlining the proportional use of various grains, provides some insights. A beer brewed in Haarlem around 1580 was made from 34 percent barley, 9 percent wheat and 57 percent oats. With oats comprising this much of the mash (providing it's a similar beer we're talking about, and there is no such assurance, not through any fault of Unger's but because of the sketchy nature of historiographic information), isn't surprising that extract was low. By Unger's data, Haarlem seems from the early 15th to the mid-16th centuries to have relied heavily on oats for its brewing. Perhaps more to the liking of modern expectation would be a

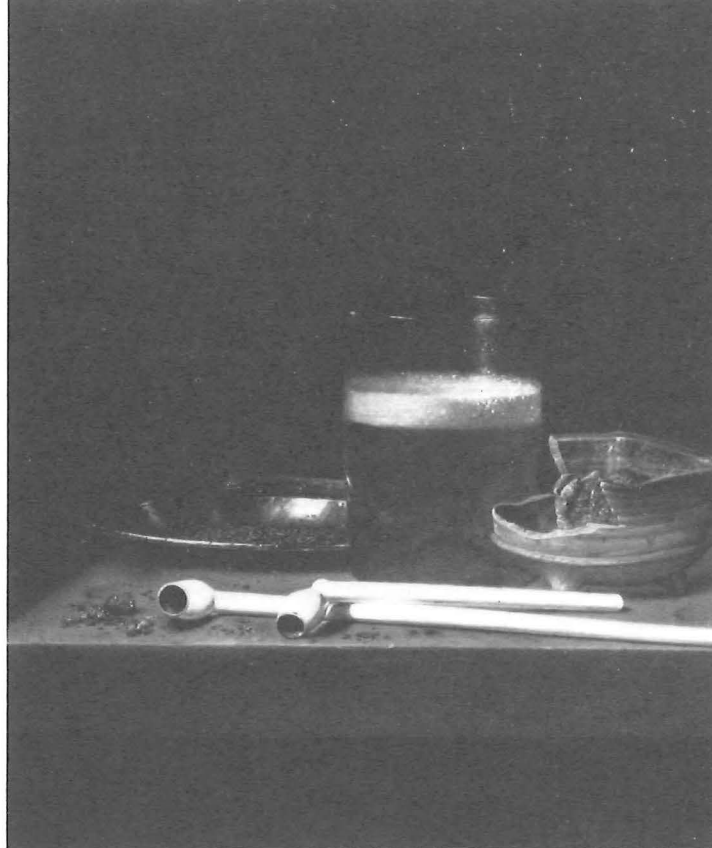


15th century Amsterdam recipe that calls for 38 percent barley, 26 percent wheat and 36 percent oats; or a 1497 formulation from Leiden that demands no oats at all, but 40 percent rye to complement 37 percent barley and 23 percent wheat. You get the idea. With grain percentages and beer-to-grain ratios shuffling around from city to city and century to century, it's extremely difficult to come up with a historically rock-solid recipe for brewing a beer one has set out simply to be "Dutch."

I effectively threw up my hands at the prospect of synthesizing a single, more or less traceable recipe and exercised a little brewer's license in brewing a beer using nearly everything I had encountered in my grain research that would give some indication of the flavor complexities of the age while still resembling beer to the

modern palate. I also shot for a medium-strong beer, in the range of 1.050 to 1.060 starting gravity. Further experimentation would no doubt be interesting; to brew a workingman's Kuyt from early 16th century Gouda, or a Mom, Hond, Garlebisch or Kniesenak (with specifications as to herbs, grains and distinctive hopping) outlined by W. van Lis in 1745. The range of styles brewed throughout the course of Dutch brewing history is as broad as any I have encountered. It's safe to say my research to date has yielded only an allusive prototype, and my own apprenticeship on the subject is in its infancy.

Broken down by grain type, my recipe looked like this: 57 percent barley malt, 13 percent wheat malt, 13 percent rye malt, 9 percent flaked oats and 8 percent unmalted spelt. With Dutch malts unavailable to me in Seattle, I opted for some of the excellent Belgian malts imported to the United States. Keeping malt complexity in mind, but unwilling to entirely give up on the enzymatic power of pale malt, I used (for each 10-gallon batch) five pounds each of DeWolf-Cosyns Pilsener and Munich malt, and three pounds of DeWolf-Cosyns aromatic malt for color and flavor. At 25.7° Lovibond, the aromatic malt was the darkest Belgian malt available to me. In keeping with the farmhouse touches in evidence in Dutch brewing's past,



"Still Life with a Glass of Beer, Brazier and Clay Pipe" by Jan Jansz van de Velde (1620 - 62)

one of the brewers at Pike Place offered to turn out a few pounds of homemade crystal malt using floor-malted two-row pale Marris-Otter as a foundation. It was a procedure he had used to give an interesting complexity to some of his ales, involving steeping whole grain overnight, bringing it up to mash temperature and holding it, and then slowly roasting it (see below for complete procedure). I used two pounds per 10-gallon batch. The German wheat malt (3 1/2 pounds) was from Weyermann in Bamberg, the rye malt (3 1/2 pounds) from Briess, the oats (2 1/2 pounds) from Crosby and Baker and the spelt (two pounds) from my local food coop. I was gratified, incidentally, by the receipt of a FAX, a couple of days after I had brewed the beer when it was obviously too late to profit by the recommendation, from Roger Mussche of Lindeman's. Having been advised of the grains I planned to use, Mussche suggested grain proportions within the variance of a few percentage points here and there.

Conversation with Greg Lewis of HopUnion led me to believe that the hops most likely used in Holland during the time would have come via Germany as some descendant of Bohemian Saaz, whether Hallertauer, Spalt, transplanted Saaz or some other variety now lost to us. Because of its relative unfamiliarity to the American

palate, I chose Spalt. Unger advised me to hop heavily, since the Dutch were enamored of the effects of liberal hopping, both for flavor and stability. I hopped at a rate of just under 30 HBU, using seven ounces of Spalt at 4.2 percent alpha acid to bitter, and a total of two ounces at the end to finish my 10-gallon batches.

Yeast, prone as it is to mutation and contamination over a period of weeks — to say nothing of centuries — provided a complex problem that brought a somewhat complex solution. The sketchy understanding of the function of yeast — based almost entirely on empirical evidence prior to the early decades of the 19th century — indicates that multiple strains of somewhat dubious purity would generally have been used by brewers in the Golden Age. The rate of failure was high, and

Unger suggests that brewers often ran side businesses in malt vinegar. Because my experimental beer was needed for a donors' reception at the Seattle Art Museum, I could not afford to produce 20 gallons-plus of acetic acid. I therefore opted for the Wyeast No. 1214 Belgian ale yeast, the commercially available strain probably closest, because of geographical origin and multistain complexity, to yeasts pitched, repitched and no doubt microbiologically compromised by the brewers of the Dutch 17th century. I knew I wanted to cask condition the beer in English firkins, the modern container probably most similar to the casks in use 300 years ago, and that to do so I would prime with actively fermenting beer. I saw no reason to avoid the introduction of another yeast, in this case Pike Place ale yeast in a state of high krausen, to facilitate the secondary fermentation.

My brew day arrived with the rain and leaden sky familiar both to Seattleites and Hollanders of every era. I had enlisted the help of Kevin Forhan and Fal Allen, Pike Place brewers, and Ed Tringali of Big Time Brewery. As we drew and heated the mash water I boiled the spelt for about an hour until the grains were open. Half was added to the first mash, conducted at 151 to 148 de-

grees F (66 to 64 degrees C), and the other was reserved and kept warm until it was added to the second mash, which maintained a temperature range of 152 to 149 degrees F (67 to 65 degrees C). Each batch was sparged for about an hour with 10 gallons of water at 165 to 170 degrees F (74 to 77 degrees C), and the worts were boiled for 90 minutes. Both mashing and boiling took place in converted stainless-steel half-barrel kegs. The bittering hop addition was made 30 minutes into the boil, and two additions of finishing hops were made at the end of the boil and after a 10-minute settling period.

Lacking a coolship (cooler tun), we force-cooled the wort with a counterflow wort chiller, and the yeast starters were pitched at about 65 degrees F (18 degrees C). Starting gravities were 1.055 and 1.057. Fermentation was conducted for four days within a few degrees of the starting temperature, at which time the beer was racked into firkins (containing 40 liters, or around 10.5 U.S. gallons) and primed with 1 3/4 liters of actively fermenting Pike Place Pale Ale at a gravity of about 1.040. A week later the beer was delivered to the museum and allowed to settle for a day before venting, when the taps were hammered in and the beer was served. The beer was lively, though lightly carbonated, phenolic, hazy and spicily hoppy. The color, in large part owing to the homemade crystal malt, was very close to the beer in the van de Velde painting — reddish-brown and somewhat murky. The wheat and rye combined to give it an intriguing, satisfying sharpness, almost as though the beer had been spiced, and the oats and spelt imparted a thickness in mouthfeel. If not specifically representative of a particular style (I considered it a loosely defined "dubbel"), I feel confident that it provided a window on the world from which its inspiration came.

Though naturally none of the Dutch museum patrons who sampled the Speltsbier, as we called it, was of sufficiently advanced age to lend their opinions any historical weight, it was gratifying to see them coming back for more, praising its serving temperature as much as the complexity of its flavor. As with any project involving research I wish that I had more time to explore my subject. What I had done constituted little more than a starting point. I wish, for example, that my timing had been such that I might have shared some of

the source material for an upcoming exhibit at the Amsterdam historical museum on the history of Dutch brewing. I like to think, though, that by brewing the beer I did I have some idea what was in that glass in the van de Velde painting, lying alongside the clay pipes and the brazier, perhaps set down moments before the image began to be recorded, its taste still in the mouth of the artist.

17th Century Dutch Speltsbier

Ingredients for 10 gallons

- 5 pounds DeWolf-Cosyns Pilsener malt
- 5 pounds DeWolf-Cosyns Munich malt
- 3 pounds DeWolf-Cosyns aromatic malt
- 2 pounds homemade Marris-Otter crystal malt (a total of 57 percent barley malt), method follows
- 3 1/2 pounds wheat malt (13 percent)
- 3 1/2 pounds rye malt (13 percent)
- 2 1/2 pounds flaked oats (9 percent)
- 2 pounds raw boiled spelt (8 percent)
- 7 ounces German Spalt hops, 4.2 percent alpha acid, for bittering
- 1 ounce German Spalt hops for finishing
- 1 ounce German Spalt hops for aroma
- Wyeast No. 1214 Belgian ale culture starter

Boil spelt for one hour or until grains begin to split and open, and add when mashing in. Mash-in with 8 gallons of water and stabilize at 151 degrees F (66 degrees C). Hold for 90 minutes and sparge with 10 gallons of 168-degree-F (76-degree-C) water. Boil for 90 minutes, adding boiling hops after 30 minutes, finishing hops when heat is turned off, and aroma hops 10 minutes later. Force cool and pitch yeast starter.

Homemade Crystal Malt

Building on Randy Mosher's recipe for homemade crystal malt as it appears in *The Brewer's Companion* (Alephenalia Publications, 1994), Pike Place brewer Kevin Forhan

followed these steps to produce crystal malt for the brewing of Speltsbier:

(1) Steep pale malt 24 hours in a covered pan in room-temperature water. Water will be absorbed during this time, so you may need to add more to complete the next step.

(2) Heat slowly on stove top to about 150 degrees F (66 degrees C) (starch conversion temperature) and hold for 90 minutes.

(3) Spread out on a baking pan or cookie sheet and heat very slowly in oven over a couple of hours, turning occasionally, to 250 degrees F. Hold temperature and continue to turn for a few hours until grain is nicely roasted and dried. Remove and allow to cool before crushing.

References

- Corran, H.S., *A History of Brewing*, David & Charles, North Pomfret, Vt., 1975.
- Fix, George J., "Belgian Malts: Some Practical Observations," *Brewing Techniques*, Vol. 1, No. 1, May/June 1993.
- Mosher, Randy, *The Brewer's Companion*, Alephenalia Publications, Seattle, Wash., 1994.
- Rajotte, Pierre, *Belgian Ale*, Brewers Publications, Boulder, Colo., 1992.
- Schama, Simon, *The Embarrassment of Riches: An Interpretation of Dutch Culture in the Golden Age*, University of California Press, Berkeley and Los Angeles, Calif., 1988.
- Sutton, Peter C., *Dutch & Flemish Seventeenth-Century Paintings: The Harold Samuel Collection*, Cambridge University Press, Cambridge, 1992.
- Unger, Richard, "Beer and Beer Drinkers," delivered in connection with 17th Century Dutch Art and Life at Hofstra University, 1991.
- van Lis, W., *Brouwkunde of Verhandelng van het voornaamste dat tot een Brouwery en Moutery en het Brouwen en Mouten behoort: alsmede een korte Beschryving van het Bier*, Rotterdam: Philippus en Jakobus Losel, 1745 (as interpreted, digested and translated by Richard Unger).
- Dick Cantwell, author of several articles on beer and brewing, began his professional brewing career as the first brewer at Seattle Brewing Co./Duwamps Cafe. From there he moved to Pike Place Brewery where he worked from 1991 through 1993. These days he is head brewer at Big Time Brewery in Seattle.

BREW YOUR OWN GROW YOUR OWN



**GRANDPA ALWAYS TOLD YOU
THAT HOMEGROWN
IS THE BEST.
NOT ONLY IS
HOMEGROWN
THE BEST,
BUT SO IS
HOMEBREWED
BEER. NOW
YOU CAN
HAVE BOTH
YEAR-ROUND
WITH OUR
HELP.**

**HID LIGHTS, ORGANICS, HYDROPONICS,
BEER BREWING SUPPLIES**

RETAIL OUTLET STORES:

CHICAGO SUBURBAN AREA:

CHICAGO INDOOR GARDEN SUPPLY
297 N. BARRINGTON RD.
STREAMWOOD, IL 60107
(708) 885-8282

MILWAUKEE AREA:

BREW & GROW
19555 W. BLUEMOUND RD., #36
WAUKESHA, WI 53186
(414) 789-0555

DETROIT AREA:

BREW & GROW
33523 W. 8 MILE RD., #F5
LIVONIA, MI 48152
(313) 442-7939

MINNEAPOLIS AREA:

BREW & GROW
8179 UNIVERSITY AVE. N.E., #417
FRIDLEY, MN 55432
(612) 780-8191

CITY OF CHICAGO:

CHICAGO INDOOR GARDEN SUPPLY
CALL FOR DETAILS
(800) 444-2837

MAIL ORDER SALES:

ALTERNATIVE GARDEN SUPPLY
CALL NOW FOR A FREE CATALOG
(800) 444-2837

SPECIAL DISCOUNT

**FOR HOME BREW CLUB MEMBERS
CALL FOR DETAILS**

**Its full value
becomes
clear...**



**...when
it's empty.**

The E.Z. Cap bottle protects your best brewing efforts inside a uniquely styled 16 oz. amber bottle and beneath an impervious resealable cap. Most important, E.Z. Cap performs this noble task over and over again; rewarding your one-time purchase with repeated pleasure.



Calgary, Alberta, Canada

Phone/FAX (403) 282-5972

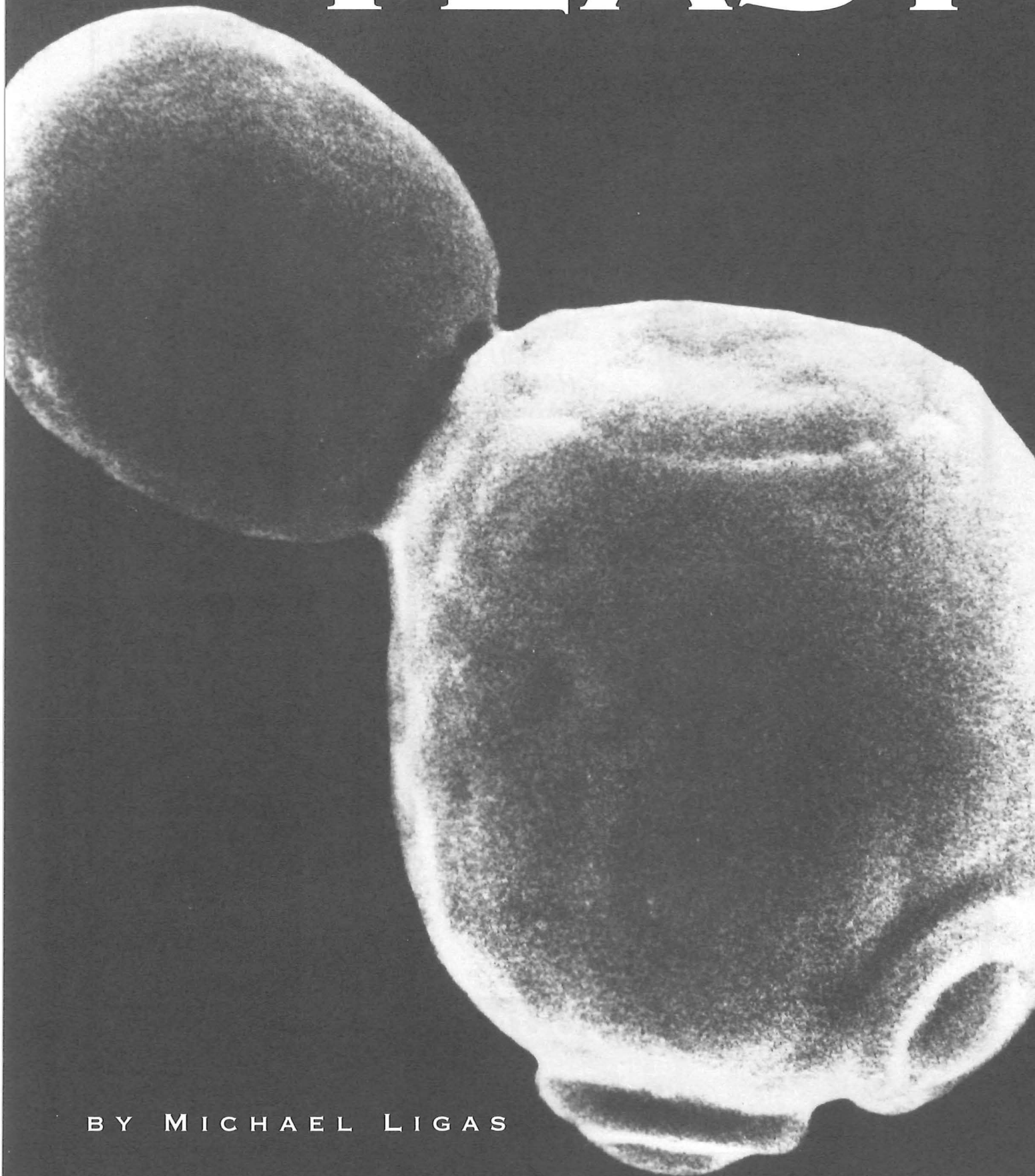
L.D. Carlson Co.

463 Portage Blvd., Kent, OH 44240
(216) 678-7733 or 1-800-321-0315

F.H. Steinbart Co.

234 S.E. 12th, Portland, OR 97214
(503) 232-8793 or 1-800-735-8793

YEAST



BY MICHAEL LIGAS

MANAGEMENT TECHNIQUES

In the following discussion, effective yeast management techniques will be broken down into two sections: yeast biology and behavior, and yeast handling methods. The aim is to give a general appreciation for brewer's yeast as a living organism and to subsequently discuss practical handling techniques that produce optimum yeast health and save money.

BEER'S LIFE FORCE

Yeast, in general, are unicellular fungi. A simplified drawing of a yeast cell cross-section (Figure 1) reveals that a yeast cell, like all eukaryotic cells, is compartmentalized internally by various membrane-delineated structures called organelles.

Each organelle has a specific function within the cell and this helps to organize myriad biochemical reactions. Like a sophisticated machine, a yeast cell requires proper care to optimize its health and, in the case of brewer's yeast, produce good beer. A homebrewer must always pay attention to important factors such as nutrients, temperature, sanitation and a healthy starting stock of yeast cells.

BREWER'S YEAST

The yeast used in most beer production belong to the genus *Saccharomyces* based on many characteristics, two of which are multilateral budding during asexual reproduction and spheroid or ovoid shaped spore. Classical taxonomy separated ale and lager yeast into two species, *cerevisiae* and *uvarum* (two of eight *Saccharomyces* species). *S. cerevisiae* tends to be top-fermenting and is used at warmer temperatures of 50 to 68 degrees F (10 to 20 degrees C) while *S. uvarum* tends to be bottom-fermenting and is employed at colder temperatures of 40 to 50 degrees F (4 to 10 degrees C). Both ferment the sugars glucose, fructose, sucrose, maltose and maltotriose. The main criterion for distinguishing between the two species is the degree to which the sugar raffinose is fermented. *S. cerevisiae* only ferments part of the molecule while *S. uvarum* utilizes the entire sugar. A wide variety of strains of both species are available to the homebrewer with certain strains being appropriate for certain styles of beer. (See accompanying article by Patrick

Weix on page 44.) Strain separation is based on many characteristics, including degree of attenuation, flocculation, fermentation byproducts, temperature tolerance, DNA content (molecular sequence) and so on.

FERMENTATION

After being pitched into wort, brewer's yeast follow a specific life cycle, going through several distinct population phases (Figure 2). During the first phase, called the lag or initial phase, there is little if any increase in the overall yeast cell population. The cells use this time to assimilate nitrogen, sugars and oxygen in preparation for subsequent growth and fermentation. This phase lasts ideally for eight to 12 hours in lagers fermented in the range of about 45 to 50 degrees F (7 to 10 degrees C) and is dependent on the health of the yeast and the difference between the starter temperature and the wort temperature. Avoid temperature changes greater than 10 degrees F (6 degrees C). A large temperature differential will weaken the yeast and in severe cases can cause the yeast to go dormant or die. The most important consideration for a homebrewer when pitching yeast into wort is to make sure there is sufficient oxygen available for the yeast during the lag phase. This is the only time during the brewing process when oxygen is desirable in wort. Well-aerated wort (stirred and/or swirled vigorously prior to adding the yeast) will provide sufficient oxygen for the yeast to use during the lag phase in order to build up the energy reserves needed later in fermentation. The lag phase is often referred to as aerobic because of the presence and use of oxygen.

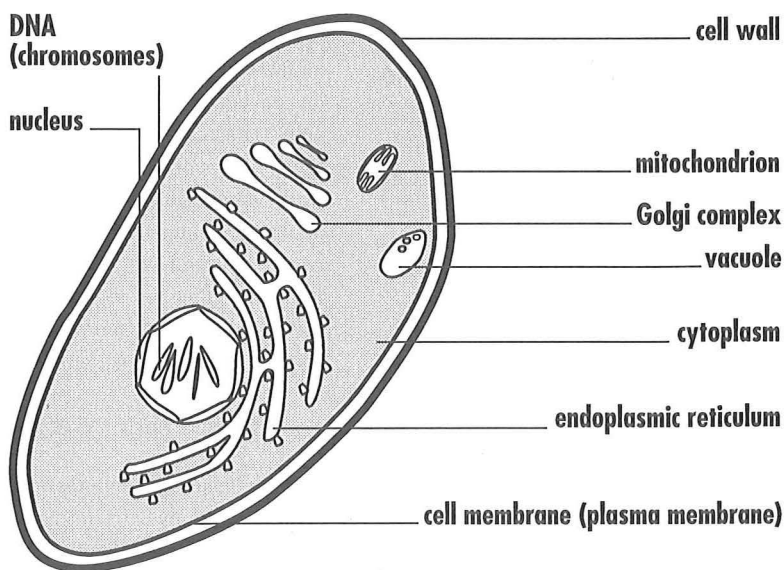


FIGURE 1. Yeast Cell Cross-section

The initial phase ends with the beginning of the respiration phase characterized by the evolution of CO₂ but no significant reduction in wort gravity. Very little ethanol is produced, remaining oxygen is absorbed by the yeast and the yeast growth (cell division) is greatest during this phase. Other characteristics of this phase are a buildup of energy reserves and acidification. This phase typically lasts from 12 to 16 hours for lagers fermented around 45 to 50 degrees F.

When the oxygen supply is exhausted, the respiration phase ends and the fermentation phase begins. Fermentation is characterized by the reduction of the wort gravity and the production of CO₂ and ethanol.

The final phase is sedimentation during which the yeast flocculate and settle to the bottom of the fermenter.

All the times mentioned should be cut roughly in half for ales fermented around 65 to 68 degrees F (18 to 20 degrees C). At even higher temperatures the whole process (from pitching to the end of fermentation) can be completed in 48 hours with the expense of increased ester production.

It is important to note that conversion of fermentable sugars into alcohol and carbon dioxide is not the only important contribution of yeast to the brewing process. Trace amounts of volatile and non-volatile compounds are being produced (and sometimes used later) by the yeast and these compounds make important contributions to the flavor of the final product.

These compounds include esters (which give fruity aromas and flavors), diacetyl (which gives buttery or butterscotch aromas and flavors) and 2, 3-pentanedione (which gives hon-eylike aroma and flavors).

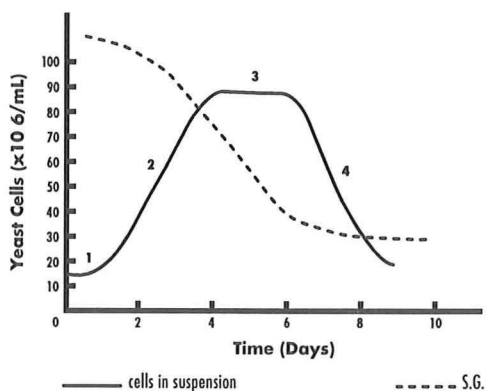


FIGURE 2. Typical Growth Curve for Brewers Yeast

DRIED YEAST

Dried yeast is commonly used in homebrewing probably because of ease of handling and low price. It is manufactured by producing large amounts of yeast by either batch or continuous fermentation followed by careful lyophilization (drying under vacuum) and then packaging. Some considerations for the homebrewer who uses dried yeast are: (1) a reputable source (manufacturer and retailer) with a high turnover of stock and preferably cold storage, and (2) proper handling at home (cold storage and proper rehydration). Dried yeast does have a shelf life that can be extended by storage in a refrigerator. The drawback of using dried yeast is its level of purity. In general, dried yeast contains mostly the brewer's yeast that is desired but may also contain low levels of wild and mutant yeast and bacteria. These can have a noticeable effect on the final flavor of the beer if the contaminants constitute a large enough fraction of the microbial population in fermenting wort. Many homebrewers use dried yeast with consistent results.

Adding dried yeast directly to wort is a bad practice. The high concentration of sugars and other wort components make for a fairly concentrated medium that slows the rate of osmosis during yeast cell rehydration. Viability suffers (and so does the health of surviving yeast cells) and an extended lag phase may also result. The basic procedure for handling dried yeast takes into account that the cells have been dehydrated in the drying process and need to have their water content restored prior to pitching. First, boil one cup of water for five minutes. Remove from heat, cover and let cool until warm to the touch, between 95 and 104 degrees F (35 and 40 degrees C). Add the contents of a dried yeast sachet to the warm water and cover again. Let stand for about 10 minutes then stir and add to your cooled, aerated wort. The cells will have a much easier time absorbing water this way and the overall viability (surviving cells as a percent of the total population) will be higher.

LIQUID YEAST

Pure liquid yeast cultures are produced in small volumes by batch fermentation under carefully controlled aseptic conditions. The advantages to using liquid cultures are: (1) a variety of available stains that often match

specific beer styles, and (2) purity (lack of microbial contaminants). Purity is the biggest plus to using liquid cultures. Microbial contamination can come from any wild or mutant yeast, including other brewer's yeast that may not be desired, as well as a plethora of bacteria. Wild yeast contamination can include such ominous sounding beasts as *Brettanomyces anomalus*, *Brettanomyces claussenii*, *Candida beechei*, *Candida intermedia*, *Dekkera bruxelensis*, *Kloeckera apiculata*, *S. unisporus* and *Schizosaccharomyces pombe*, to name a few! Common wort and beer spoiling bacteria include species of *Lactobacillus*, *Pediococcus*, *Streptococcus*, *Micrococcus*, *Acetobacter*, *Oenobacterium*, *Gluconobacter* and *Zymomonas*. Off-flavors produced by microbial contaminants are wide and varied resulting from the production of esters, phenolics, sulfur-containing compounds, ketones, aldehydes, diacetyl, acetaldehyde, DMS, fusel alcohols and acids such as lactic and acetic. Pure yeast cultures reduce if not eliminate the risk of contamination and off-flavors being derived from your yeast source.

Two disadvantages associated with pure liquid yeast are: (1) low pitching rate (number of live cells per unit volume of wort), and (2) higher cost. These can be circumvented through the use of a starter culture and reculturing.

MAKING A STARTER CULTURE

The problem of low pitching rate can be overcome by scaling up your source of liquid yeast into a larger volume before pitching (Figure 3). A container of sterile or sanitized starter culture medium must first be prepared.

To do so, mix 4 tablespoons of dried malt extract (hopped or unhopped) with two cups of water. Boil for 20 to 30 minutes, then cover and cool until close to room temperature. Uncover at this point and transfer to a glass vessel (Erlenmeyer flask, Mason jar, juice container) that has been properly sanitized in a dilute bleach solution or sterilized by baking at 300 degrees F for three hours and slowly cooled.

A preferred method for sterilizing the starter culture medium involves mixing the medium, adding it to a glass vessel, covering the vessel opening with foil and sterilizing in a pressure cooker for a minimum of 15 minutes but preferably for 30 minutes. Once cooled this starter can be used immediately or safe-

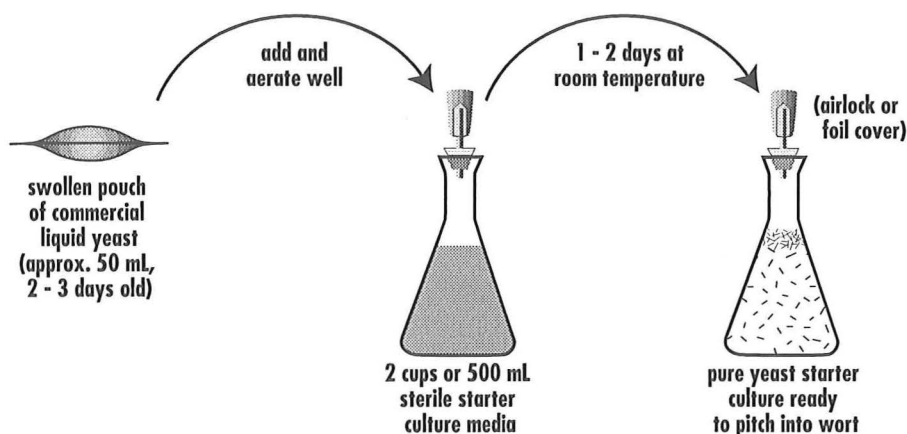


FIGURE 3. Making a Starter Culture

ly stored in a refrigerator until needed. The pressure cooker method ensures a thorough sterilization of the culture medium under high pressure and high temperature.

When ready to use, open a swollen pouch of pure liquid yeast (or a test tube containing the pure yeast) and pour into the sterile starter culture medium. Cover with a piece of foil or place an airlock on the top and swirl to aerate. Incubate the starter culture for one to two days at room temperature until an active krausen is visible. (Krausen is the rocky foam appearing on the surface of wort during the first days of fermentation.) Once active fermentation has subsided, the yeast can be pitched into prepared wort or it can be stored in a refrigerator for a few days.

CULTURING YOUR OWN PURE YEAST

With a little care and ingenuity the homebrewer can culture and maintain pure yeast stocks. This can save money in the long run and in the opinion of some, allows the homebrewer to overcome the final mystic frontier of yeast management. The main and predominant concern when culturing yeast is *cleanliness*. Every possible and reasonable effort must be made to minimize potential contamination.

First of all, consider the local environment as a source of microbial contamination. The air and all surfaces of relevance, like counter tops, are of prime importance and must be sanitized. Choose a location that has few air currents (close all windows, turn off ceiling fans, furnace fans and air conditioners) while culturing. It will not hurt to spray the air with a disinfectant such as Lysol five minutes be-

fore culturing. Wipe all working surfaces (counter tops, cabinet handles, sinks) with a mild bleach solution, iodine solution or rubbing alcohol.

The second source of contamination is you, the yeast culturist. Your hands, mouth and body must all be prepared with cleanliness in mind. Wear clean clothes and tie back long hair. Rinse with mouthwash (or a mouthful of brandy) and do not talk while culturing. Wash your hands and arms well with an antibacterial soap and dry with a fresh, clean towel. In general, pay attention to the details of cleanliness.

EQUIPMENT

The following is a list of the equipment required for basic yeast culturing at home. With a little effort, it can be assembled by visiting your local homebrew supply shop, health-food store, hardware store, scientific supply store and variety store, as well as using a little creativity (an inoculating needle with a loop on the end can be made with a bit of thin stainless-steel wire and a handle of some sort).

- inoculating needle (looped on the end)
- flame source (Bunsen gas burner, alcohol burner, propane torch)
- glassware (Mason jars, baby food jars, juice containers, flasks)
- pressure cooker
- petri dishes (presterilized plastic or reusable glass)
- agar
- measuring spoons
- measuring cup
- a small weight scale

PREPARING MALT-AGAR PLATES

Malt-agar plates are petri dishes containing agar-solidified starter culture medium. They are used to grow, purify and store yeast stocks. They must be prepared at least a few hours before use to allow them to solidify. They can be stored up to one month in a refrigerator before using. Preparation of malt-agar plates is simple. Mix 4 tablespoons of dried malt extract (hopped or unhopped) with 1 heaping tablespoon agar in 2 cups water (1.5 to 2 percent agar by weight) in heatable glassware. Cover the mouth of the glass vessel with foil, sterilize for 30 minutes in a pressure cooker and depressurize slowly to avoid boilover.

When the container of molten malt-agar has cooled to the point where it can be held comfortably in your hands (113 degrees F or 45 degrees C), swirl it to evenly distribute the medium, remove the foil lid, heat the mouth of the vessel for a few seconds over a flame source and then carefully pour into sterile petri dishes, opening the lids only as long as is necessary to pour. Make sure you follow the guidelines described above. If any bubbles are evident on the surface of the freshly poured malt-agar they can be broken up by quickly passing a flame over the petri dish. Let the malt-agar solidify a few hours, preferably curing overnight. If the plates are not going to be used for a few days they can be wrapped in foil and stored in a refrigerator. Seal the dishes with parafilm or electrical tape to prevent the many organisms that are in your refrigerator from contaminating your plates. Always store solidified plates upside-down so condensation does not drip onto the media. If you find anything growing on an unstreaked plate, don't use it.

STREAKING YEAST ONTO MALT-AGAR PLATES

Yeast are applied to malt-agar plates by a method called "streaking." The objective is to transfer yeast onto the surface of the malt-agar in a declining cell-concentration gradient until, at some point, single yeast cells will be located at points distant from other single cells. Isolated single cells will then replicate, first to two cells, then to four, eight, 16, 32 and so on. As the cell population grows exponentially, a visible small circular white colony

of cells will develop. All the cells in a given colony will be clones of the single progenitor. Because a colony arose from a single cell that had been separated sufficiently from other yeast and/or bacteria cells, it follows that any future cultures derived from it can be considered "pure," provided sterile handling methods were followed.

Any source of brewers yeast can be streaked and grown on malt-agar. Rehydrated dried yeast and yeast from the bottom of a bottle of homebrewed or commercial beer can be used with the aim of isolating a pure, clean stock from these potentially contaminated sources, as well as subsequently storing the obtained yeast strain(s). Of course, pure liquid yeast can also be streaked onto malt-agar with a good degree of confidence that it is already pure and therefore most of the colonies will be identical.

Streaking yeast onto malt-agar plates is fairly straightforward (Figure 4). Once again, good sanitation and handling methodology are critical to reduce the risk of contaminating your plates with unwanted microbes. First, flame your inoculating needle until it is red hot and then cool it by waving it gently through the air. It shouldn't take more than 10 seconds to cool off because the metal wire is quite thin. Dip the looped end of the needle into the yeast source. A thin liquid film of yeast cells will be visible within the loop, much like the film of soapy water one sees when blowing bubbles from a loop.

Transfer the loop of yeast to the surface of a malt-agar plate by touching it to a point near the outer edge and then gently spread the cells out in a smooth gliding back-and-forth motion (Figure 4) until you have cov-

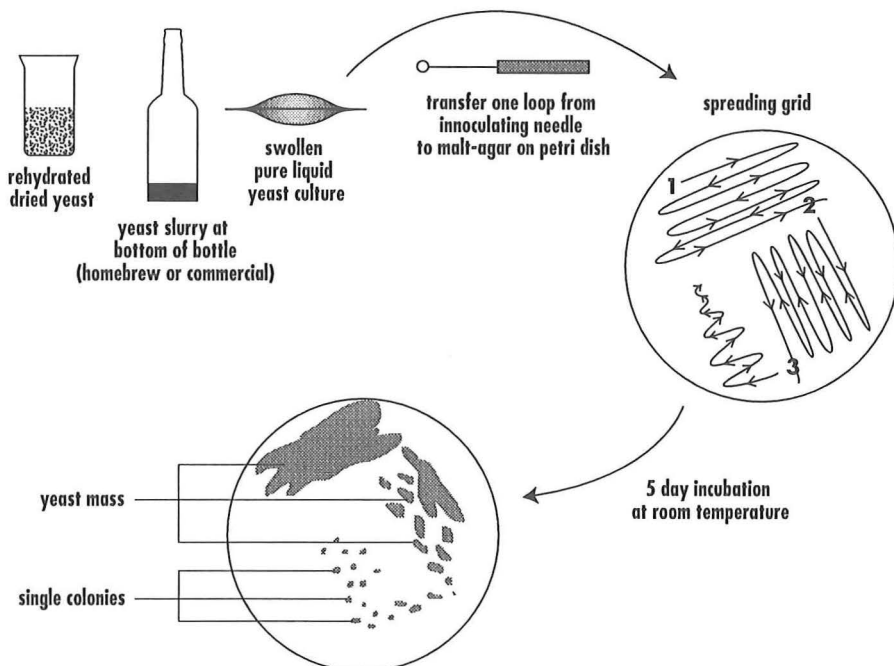


FIGURE 4. Streaking Yeast onto Malt-Agar

ered about 50 percent of the surface of the medium. Cover the plate. Reflame and cool the loop as before. Touch the loop onto the surface of the malt-agar at the point where the first streak was terminated (in order to pick up some cells at that point) and then spread in a perpendicular direction to the first streak, using the same motion as before, contacting the uninoculated 50 percent of the malt-agar surface.

The reflaming, cooling and restreaking series can be repeated once more to obtain a third gradient if desired (Figure 4). Cover the plate and let the surface dry. Incubate the plate upside-down at room temperature for three to five days. Single, dome shaped, creamy-

white yeast colonies will develop at points near the end of the second or third streaks, and a thick, dense film of yeast will be visible where the initial spreading occurred. The culture can now be stored in a refrigerator until you are ready to propagate your yeast from a single colony up to brewing volume. In order to avoid dehydration of the malt-agar, tightly wrap the edge of the petri dish with vinyl electrical tape and then cover tightly with foil prior to refrigeration. Storage can be for three to four months with good viability.

PROPAGATING FROM A SINGLE COLONY

Sooner or later, probably sooner, you'll be itching to brew your favorite batch of beer using the yeast you've so carefully cultured. This can be a very gratifying experience. Give yourself about five days to scale up your yeast, using the following two-step growth procedure (Figure 5).

Prepare two vessels (use beer bottles or large flasks that are covered with foil or stoppered with an airlock), one containing one-fifth cup and the other 2 cups of sterile starter culture media (previously described). Flame and cool your inoculating needle and then remove a single, well-isolated colony from a malt-agar plate. Remove the foil lid on the first (4 table-

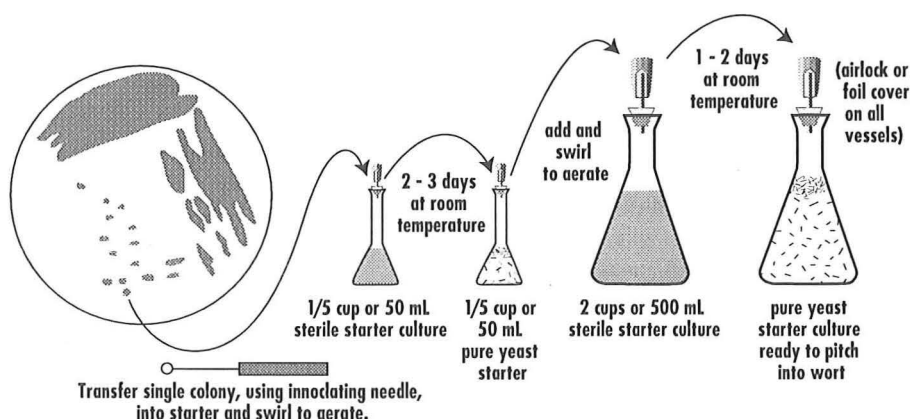


FIGURE 5. Making a Starter Culture from a Single Colony

spoon) vessel, flame the opening for a few seconds and transfer the yeast colony from the loop into the culture medium. Reflame the opening, re-cover with foil and swirl vessel to aerate the medium. Incubate this culture for two to three days at room temperature until it becomes turbid and a krausen is visible. You will need to scale up the culture one more time to obtain enough cells for pitching. To do this, remove the foil lid on the first vessel and flame the opening. Do the same for the second vessel containing the 2 cup culture. Carefully pour the contents of the first culture into the larger flask. Reflame the opening of the freshly inoculated large flask and re-cover with foil or an airlock. Swirl to aerate and incubate one to two days at room temperature. Soon the culture will become turbid with a healthy krausen visible. Pitch into freshly prepared wort when the activity dies down. Alternatively, it can be stored in a refrigerator for up to a week without appreciable loss of viability.

SUMMARY

Practical yeast management techniques are well within the grasp of the homebrewer. A basic understanding of the living nature of yeast and of its behavior and requirements during growth and fermentation establishes a good base from which to learn and appreciate reliable procedures for effective yeast handling.

Effective yeast management applies to the use of dried yeast, pure liquid yeast cultures, and ultimately to the culturing, purification and maintenance of pure yeast strains at home. A critical concern for any homebrewer embarking on a home culturing program is sanitation. By combining stringent sanitation with reliable procedures, healthy yeast stocks can be maintained indefinitely. The practical benefits are economical and gastronomic.

Michael Ligas, who has been homebrewing beer, wine, mead and cider for 13 years, is serving his second year on the board of directors of the Canadian Amateur Brewers Association (CABA). He has reached the level of "Expert Brewer" in CABA's "Brewers Excellence" program and recently became a Recognized BJCP judge.

Reprinted with permission from CABA Newsletter, Vol. 3, No. 4, August 1993. Originally presented to the 1993 Great Canadian Homebrew Conference.



—
Brew Master
▼

The Complete Home Brewer's Software Aid

Recipe Creation:
Calculate Color, Bitterness, and Original Gravity and Match with many styles of beer.

Inventory Management:
Track Grain, Hops, and Other Ingredients. Generates Shopping Lists for your recipes.

Batch Logging:
Tracks Gravity and Compensates for Temperature. Graph Temperature Curves for Mash and Fermentation.

And Much More!

**Only
\$39**

plus \$3 shipping and handling

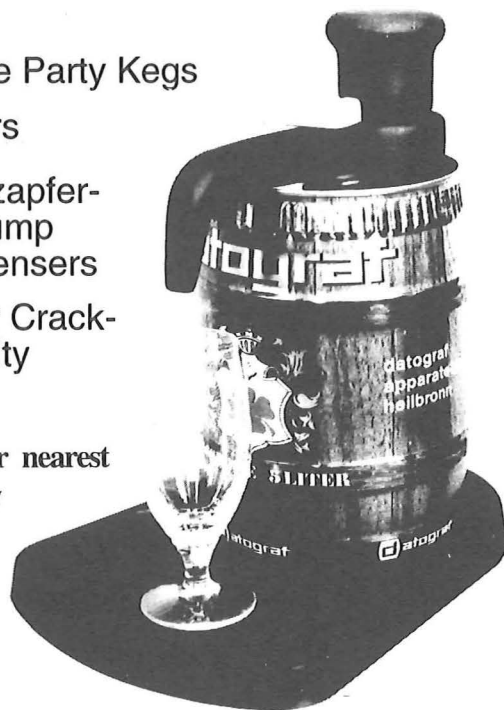
Abita Software Development
P.O. Box 67402
Scotts Valley, CA 95067
CA Residents include
7 1/4% Sales Tax
For Microsoft Windows

THE LIFE OF THE PARTY!

datograf

- ★ 5 litre Party Kegs
- ★ Fillers
- ★ Bierzapfer-airpump dispensers
- ★ Beer Crack-gravity taps

Available at your nearest
local homebrew
retailer!



Now available in the U.S. from the L.D. Carlson Company



Wholesale Only
CALL TOLL FREE
800 321-0315
463 Portage Blvd.
Kent, Ohio 44240

Wholesale Only Please!

B E C O M E

SACCHAROMYCES SAVVY



east are unicellular fungi. Most brewing yeast belong to the genus *Saccharomyces*. Ale yeast is *S. cerevisiae*, and lager yeast is *S. uvarum* (formerly *carlsbergensis*, and sometimes considered to be a subspecies of *S. cerevisiae*). Another type of yeast you may hear mentioned, usually in conjunction with Weizens, is *S. delbrueckii*. Finally, lambicophiles will want me to say that *Brettanomyces* is also used in brewing; however, I can't think of anything that somebody somewhere hasn't used to brew a lambic! You may ask, "If ale and lager yeasts are basically the same species, why all the fuss?" The fuss has to do with strain variation. All dogs are the same species, yet no one will ever mistake a basset hound for a Doberman (at least not twice).

By
Patrick
Weix

Using different strains can add fun and spice to brewing, especially if you have some idea of the differences. I originally collected the information in the accompanying table to catalog the flavor profiles of the various strains available. But first I would like to discuss some of the general characteristics of brewing yeast and try to answer some of the more frequently asked questions. You may ask yourself, "Why should I care? I just rip open that little packet on top of the *Can-O-Malt* and toss it in!" Well, you should care. The more informed you are about the different aspects of brewing, the better your beer will be — and isn't that what it's all about?

G. DYE



TEMPERATURE

One of the most obvious differences between ale and lager yeasts is the different temperatures at which fermentation is carried out. The normal temperatures for ale yeast range from 60 to 75 degrees F (16 to 24 degrees C). A few strains ferment well down to 55 degrees F (13 degrees C), but 68 degrees F (20 degrees C) is a good average. Lager strains normally undergo primary fermentation at 50 to 55 degrees F (10 to 12 degrees C). Then a slow, steady reduction to the desired temperature for secondary fermentation (usually 32 to 45 degrees F or 0 to 7 degrees C) usually will give good results.

The fermentation rate also is closely related to temperature within a specific range. The reason is simply that fermentation is a sequence of chemical reactions facilitated by the enzymes in the yeast. The lower the temperature, the slower the rate of fermentation. At higher temperatures, yeast will produce more esters, diacetyl and higher alcohols. Therefore, it is important to take into account that yeast are living organisms and do not thrive under rapidly varying conditions. They have evolved mechanisms to protect themselves from wild fluctuations in temperature, mechanisms that are not always in your beer's best interests! So try to keep your fermenting beer at a steady temperature, and when you reduce the temperature to lager, do so slowly.

ATTENUATION

Attenuation refers to the percentage of sugars converted to alcohol. Each yeast strain ferments different sugars to varying degrees, so attenuation is determined by both the composition of the wort and the yeast strain used. The degree of attenuation also affects the sweetness and body because those sugars not broken down by fermentation remain in the wort. Larger, longer-chain sugars contribute mostly to the mouthfeel and body of the beer while the shorter, smaller sugars (mono- and disaccharides) contribute more to the sweetness.

Apparent attenuation of yeast normally ranges from 67 to 77 percent, and is calculated by:

$$\text{Apparent Attenuation} = \frac{(\text{Original Gravity} - \text{Final Gravity})}{(\text{Original Gravity} - 1.000)}$$

where 1.000 refers to the specific gravity of water.

For example, if the OG is 1.040 and the FG is 1.010, then:

$$\text{Apparent Attenuation} = \frac{(1.040 - 1.010)}{(1.040 - 1.000)} = \frac{0.03}{0.04} = 75\%$$

Actually, it's slightly more complex than that (isn't everything?). There's "apparent attenuation" and "real attenuation." The difference comes about because alcohol has a specific gravity of less than 1 (about 0.8). The calculation of real attenuation takes into account the changing gravity of the wort caused by the increasing amount of alcohol present. Most attenuation figures, however, are given in terms of apparent attenuation.

PITCHING RATES AND METHODS

So, is the attenuation of the yeast strain the only aspect that determines the final percentage of alcohol? No, of course not! Two other factors are very important: pitching rate and flocculation (see below). The pitching rate refers to how many viable yeast cells are added to your wort. Pitching rate is especially important for those wanting to make barley wines, bocks, Scotch ales or other high-alcohol beers. Underpitching can cause a number of problems, such as long lag times and/or incomplete fermentations. Again, if you are happy with the beer you make, it should not be necessary to make any changes, but if you are just starting out, are having problems with long lag times or are interested in making a stronger style of beer than usual you might want to try the following methods and pitching rates.

Hydration Procedure For Dry Yeast: Use 14 grams of dry yeast (usually two packets) per five gallons of brew. *Rigorously* sanitize everything used in the hydration procedure. This includes boiling and cooling the water for rehydration so chlorine is boiled off and the water is sanitized. I find it easiest to do this by heating a Mason jar containing one cup of water and covered with either a plastic lid or plastic wrap in the microwave. Heat the water to boiling then let it cool in the microwave until the jar can be handled but is still warm. The temperature of the water should be at about 90 to 100 degrees F (32 to 38 degrees C). Carefully open the yeast packages, add them to the water and let stand for 15 minutes.

Once the wort has been chilled and aerated (shaking the carboy works well), pitch the yeast and water slurry. Shake or swirl the carboy to disperse the yeast. Attach the blowoff tube or fermentation lock.

The two essential rules are to sanitize everything in sight and aerate your wort to ensure rapid initial yeast growth — your best defense against bacterial or wild yeast infection.

Preparation of Liquid Yeast: Liquid yeast typically require more preparation than dry yeast. You must buy it a day or two in advance so you can activate it and start its growth. Some yeast are packaged with a starter, but others require you to make your own. Either follow the distributor's directions or use the following recipe.

Recipe for Starter Wort

- 5 **tablespoons of dry malt or 6 tablespoons of liquid malt**
- 2 **cups of water**
- optional — a hop pellet or equivalent amount of loose hops**

Hops have a natural antibacterial effect, and may help keep your starter free from contamination.

Boil and add to a sanitized wine or quart beer bottle. Allow both the wort and liquid yeast to come to room temperature to avoid shocking the yeast. Aerate the starter well after it has cooled. Carefully sanitize the neck of the bottle and the outside of the yeast package. Add the yeast to the wort. Attach an airlock and leave the bottle at room temperature. When the starter activity subsides it is ready to pitch. It's that easy!

If all this piques your interest and you want to go the extra step and start your own yeast ranch, I recommend purchasing a kit. Several manufacturers offer full-featured kits for beginners and advanced brewers. (See the accompanying article by Michael Ligas on page 38.) Remember to keep yeast notes along with your beer notes so that you can learn from experience.

FLOCCULATION

Flocculation refers to the tendency of yeast to clump together and settle out of suspension. The primary determinant of how well a strain flocculates appears to be the "stickiness" of the carbohydrates in the cell wall. The degree and type of flocculation varies for different yeasts. Some strains clump producing a firm, stable yeast cake. Some flocculate very little, giving a more granular consistency. Most yeast strains clump and flocculate to a moderate degree. A yeast that is more flocculant will fall out of suspension better. How does that affect the final clarity of your brew? Because it will be in the bottle at least a week or two before you drink it, it really doesn't seem to matter so much. However, it does matter for other characteristics of the beer; namely, attenuation and diacetyl. If the yeast settle out too quickly, some chemical reactions may remain unfinished. These strains may not be as attenuative because of shorter contact time of yeast and sugars and may not finish reducing all the diacetyl, leaving a butterscotch flavor.

In short, only the extremes of flocculation are likely to be noticeable to the homebrewer. Strains with a very low flocculency are likely to need some sort of finings, such as isinglass, while highly flocculent strains are suitable for those beers where diacetyl is desirable, such as certain British ales.

ALCOHOL TOLERANCES

The alcohol tolerance of most brewing yeast is at least 8 percent alcohol by volume. Barley wines up to 12 percent can be produced by most ale strains. Pitching rates need to be increased proportionally to higher gravities. Alternately, Champagne or wine yeast can be used for high-gravity beers, sometimes resulting in alcohol levels up to 18 percent. To get the characteristics of particular beer yeast strains in barley wines or imperial stouts, some brewers start with the desired strain of beer yeast, ferment to 5 to 8 percent, then finish with a Champagne or wine yeast.

SMELL AND TASTE

Although the principal flavors present in a beer result from the malts and hops, the strain of yeast can add important flavors, good and/or bad. Yeast that add little in the way of extra flavors is usually described as having a clean taste. These are especially useful for beginners because they permit experimentation with different malts and hops without worrying about yeast influence.

Yeast produce three main classes of metabolic byproducts that affect beer flavor: phenols, esters and diacetyl. Phenols can give a spicy or clovelike taste, but can also result in medicinal tastes. Esters can lend a fruity taste to beer. Diacetyl can give beer a butterscotch or woody taste. The desirability of any one of these components depends largely on the style of beer being brewed. In addition, there are certain byproducts in these families that are more noxious than the others. A lot depends on the individual palate and the effect you're aiming for. A final note: some yeast, especially lager yeast during lagering, can produce a rotten egg smell. This is the result of hydrogen sulfide production. Although this scent bubbling out of the airlock is enough to make the strongest homebrewmeister blanch, fear not! The good news is that this will usually pass, leaving the beer unaffected. Relax, etc.

ACKNOWLEDGMENTS

Special thanks to David Adams, George Fix, Al Korzonas and Doug O'Brien for providing information and insight.

Patrick Weix is a M.D./Ph.D. student in the genetics and development program at the University of Texas Southwestern at Dallas. He became interested in homebrewing when, within the span of one week, his friend Chuck Hodge suggested it, he drove past a store called Homebrew Headquarters and he found the Homebrew Digest on Internet. Patrick took this as a sign from above and has been hooked ever since. He currently brews with the Lakewood Grain Co-op.





TABLE OF AVAILABLE YEAST STRAINS

The difficulty in selecting a yeast is not one of quality control as it may have been a number of years ago. The difficulty today is simply in wading through the many strains available to find the one right for you and the type of beer you want to brew. No one yeast can be perfect for every beer! It just isn't possible. The key is to find the one you need. When I started brewing, I found myself faced with just this situation, so I collected information from the major yeast distributors and contacts found on the Homebrew Digest, an Internet electronic bulletin board for homebrew enthusiasts. The results are compiled into the accompanying table.

Unfortunately, I have not had the time or money to brew with every yeast in this table, so I cannot personally vouch for all the information other than to say that it was collected in good faith by people interested in making good beer. The distributors also may change their strains or catalog numbers.

PART 1: ALE YEAST (*SACCHAROMYCES CEREVISIAE*)

■ DRY

Strains	Characteristics and Styles ¹	Attenuation ²	Flocculation ²	Notes
Coopers Ale Yeast	Very clean fruitiness.	—	—	—
Doric Ale Yeast	General ale yeast.	—	—	Good reputation.
Edme Ale Yeast	Some fruity esters.	High	—	Starts quick. Good reputation.
Lallemand Nottingham Yeast	Nutty tastes/smells.	—	High	Very good reputation. It is a fast starter with quick fermentation at 62 degrees F (17 degrees C).
Lallemand Windsor Yeast	Estery to both palate and nose with a slight fresh yeast flavor.	—	Medium	Produces a beer that is clean and well-balanced. Not as quick as the Nottingham.
Munton & Fison Ale Yeast	Some fruity esters.	High	—	—
Red Star Ale Yeast	Excellent general purpose ale yeast with a clean taste.	76-78%	—	Fast, reliable starter. New strain — nothing like the Red Star from five years ago.
Whitbread Ale Yeast	Pale ales, and other ale styles.	—	—	Sometimes seems to have odd aftertaste in finished ale.

■ LIQUID

Strains	Characteristics and Styles ¹	Attenuation ²	Flocculation ²	Notes
BrewTek CL-10 American Microbrewery 1	A smooth, clean, strong fermenting ale yeast.	High	—	Works well down to 56 degrees F (13 degrees C).
BrewTek CL-20 American Microbrewery 2	Creamy malt profile with hints of diacetyl.	—	—	—
BrewTek CL-120 British Pale Ale 1	Bold, woody and dry character.	—	—	Accentuates mineral and hop flavors.
BrewTek CL-130 British Pale Ale 2	A smooth, full-flavored, well-rounded ale yeast. Mildly estery.	High	—	—
BrewTek CL-160 British Draft Ale	Well-rounded flavor with a buttery rich diacetyl.	—	—	—
BrewTek CL-170 Classic British Ale	Complex ale with very British tones and fruitlike esters.	—	—	—
BrewTek CL-240 Irish Dry Stout	Leaves a very recognizable character to dry stouts with roasted malts coming through well.	—	—	—
BrewTek CL-260 Canadian Ale	Pleasant, lightly fruity and complex finish.	—	—	—
BrewTek CL-300 Belgian Ale 1	Robust and estery with notes of clove and plum.	—	—	Produces a classic Belgian-ale flavor.
BrewTek CL-320 Belgian Ale 2	Flanders-style yeast. Makes a terrific strong brown.	—	—	A good base brew for fruit-flavored beers.
BrewTek CL-340 Belgian Ale 3	Classic Trappist character with esters of spice and fruit.	—	—	—
BrewTek CL-380 Saison	Mild yet pleasant esters and apple pie spices.	—	—	—
BrewTek CL-400 Old German Ale	Mildly estery flavor. Good for traditional altbiers.	High	—	—
BrewTek CL-450 Kölsch	Clean, lightly yeasty flavor in the finish.	—	—	Mineral and malt characters come through well.
Wyeast 1007 German Ale Yeast	Ferments dry and crisp, leaving a complex yet mild flavor.	73-77%	High	Produces an extremely rocky head and ferments well down to 55 degrees F (12 degrees C). This is actually a Kölsch yeast.
Wyeast 1214 Belgian Ale Yeast	With both clovelike phenolics and alcohol spice. Banana estery flavor. Good for abbey beers.	—	—	Ferment warm or with inadequate aeration and you're likely to get a bubble-gum note. Reported to be the Chimay strain.
Wyeast 1028 London Ale Yeast	Rich mineral profile, bold woody slight diacetyl production.	73-77%	Medium	Optimum fermentation temperature: 68 degrees F (20 degrees C).

Strains	Characteristics and Styles ¹	Attenuation ²	Flocculation ²	Notes
Wyeast 1056 American/Chico Ale Yeast	Ferments dry, finishes soft, smooth and clean. Very well-balanced.	73-77%	Low to Medium	Optimum fermentation temperature: 68 degrees F (20 degrees C). The cleanest of the bunch, this is Sierra Nevada's yeast. Probably the best available all-around yeast.
Wyeast 1084 Irish Ale Yeast	Slight residual diacetyl is great for stouts or Scotch ales. It is clean, smooth, soft and full-bodied.	71-75%	Medium	Optimum fermentation temperature: 68 degrees F (20 degrees C). Reputed to be the yeast Guinness uses.
Wyeast 1087 Wyeast Ale Blend	General purpose ale strain.	—	—	Yeast blends are created to ensure a quick start, good flavor and good flocculation. (They come in the new 80-gram packages.)
Wyeast 1098 British Ale Yeast	Great in pale ales and bitters, good in porters. Tart, crisp, clean.	73-75%	Medium	Ale yeast from Whitbread. Ferments well down to 55 degrees F (12 degrees C).
Wyeast 1338 European Ale Yeast	Especially well-suited to altbier. A full-bodied complex strain finishes very malty.	67-71%	High	Alt yeast from Wissenschaftliche (#338) in Munich. Produces a dense rocky head during fermentation. Optimum fermentation temperature: 70 degrees F (21 degrees C).
Wyeast 1728 Scottish Ale Yeast	Scottish-style ales, smoked beers and high-gravity ales.	—	—	—
Wyeast 1968 Special London Ale Yeast	Rich malty character and balanced fruitiness.	—	High	Possibly the Young's yeast strain.
Wyeast 1565 Kölsch Yeast	Develops excellent maltiness and subdued fruitiness with a crisp finish.	—	—	A hybrid of ale and lager characteristics. Ferments well at moderate temperatures.
Yeast Culture Kit A01	Barley wine, brown ale, pale ale, India pale ale, cream ale, porter, stout.	—	—	From California.
Yeast Culture Kit A04	Düsseldorf Altbier, Kölsch.	—	—	From Oregon.
Yeast Culture Kit A06	Porter, stout, imperial stout.	—	—	From Oregon.
Yeast Culture Kit A08	Barley wine	—	—	From Dorchester, England. High residual sweetness.
Yeast Culture Kit A13	Porter, stout, imperial stout.	—	—	From Ireland.
Yeast Culture Kit A15	Brown ale, pale ale, India pale ale, cream ale, bitters and milds.	—	—	From England. Strong yeast flavors.
Yeast Culture Kit A16	Trappist ales (abbey, doubles, trippels).	—	—	From Belgium.
Yeast Culture Kit A17	Brown ale, pale ale, India pale ale, cream ale, bitters and milds.	—	—	From London.
Yeast Culture Kit A34	Barley wines, Scotch ale, Scottish bitters, strong ale.	—	—	From Edinburgh, Scotland.
Yeast Culture Kit A35	Belgian whites.	—	—	From central Belgium.
Yeast Culture Kit A36	Belgian ales.	—	—	From Houffalize, Belgium.
Yeast Culture Kit A37	Altbier, Kölsch.	—	—	From Bavaria, Germany.
Yeast Lab A01 Australian Ale Yeast	Brown ales and porters. Produces a very complex woody and flavorful beer.	74-75%	Medium	Australian origin.
Yeast Lab A02 American Ale Yeast	Produces a very fruity aroma.	74-75%	Low	Clean strain with soft and smooth flavor when fermented cool.
Yeast Lab A03 London Ale Yeast	Classic pale ale strain. A hint of diacetyl and rich mineral profile, crisp and clean.	74-75%	Medium	A powdery yeast.
Yeast Lab A04 British Ale Yeast	Pale ales and brown ales. A complex estery flavor. Ferments dry with a sharp finish.	74%	Medium	This strain produces a great light-bodied ale.
Yeast Lab A05 Irish Ale Yeast	Stouts and porters. A hint of butterscotch in the finish, soft and full-bodied.	73%	High	Slightly acidic.
Yeast Lab A06 Düsseldorf Ale Yeast	German Altbier. Finishes with full body, complex flavor and spicy sweetness.	75%	High	—
Yeast Lab A07 Canadian Ale Yeast	Light and cream ales. Light-bodied, clean and flavorful beer.	76%	Medium	Very fruity when fermented cool.
Yeast Lab A08 Trappist Ale Yeast	Trappist strain, producing a malty flavor.	76%	High	Alcohol tolerant. A balance of fruity, phenolic overtones when fermented warm.

PART 2: LAGER YEAST (*SACCHAROMYCES UVARUM*)

■ DRY

Strains	Characteristics and Styles ¹	Attenuation ²	Flocculation ²	Notes
Yeast Lab Amsterdam Lager or Yeast Lab European Lager	Both are supposed to produce a clean smooth lager.	Medium	High	Ferment at 60 to 70 degrees F (16 to 21 degrees C).

■ LIQUID

Strains	Characteristics and Styles ¹	Attenuation ²	Flocculation ²	Notes
BrewTek CL-600 Original Pilsener	Sweet, underattenuated finish with a subdued diacetyl character.	—	—	Makes a full-bodied lager.

Strains	Characteristics and Styles ¹	Attenuation ²	Flocculation ²	Notes
BrewTek CL-620 American Megabrewery	Leaves a light, crisp, almost dry finish to lagers.	—	—	A strong fermenter.
BrewTek CL-640 American Microbrewery	A clean, full-flavored, malty finish.	—	—	A strong fermenter.
BrewTek CL-660 North German Lager	German Pilseners, Mexican and Canadian lagers. Exhibits a clean, crisp, traditional lager character.	—	—	A clean, crisp traditional lager. A strong fermenting and forgiving yeast.
BrewTek CL-680 East European Lager	Imparts a smooth, rich, almost creamy character, emphasizing a big malt flavor and clean finish.	—	—	Use to create "California common beers."
BrewTek CL-690 California Esteem	Steam®-style beers. Leaves a slightly estery, well-attenuated finish.	High	—	Optimum fermentation temperature: 52 degrees F (11 degrees C). Leaves some residual green-apple notes. (It is worth mentioning that this yeast strain is reportedly used quite a bit in St. Louis, if you know what I mean.)
Wyeast 2007 Pilsen Lager Yeast	Specific for Pilsener-style beers. Ferments dry, crisp, clean and light.	—	—	Optimum fermentation temperature: 50 degrees F (10 degrees C).
Wyeast 2035 American Lager Yeast	Unlike American Pilsener styles. It is bold, complex and woody. Produces slight diacetyl.	—	Medium	Optimum fermentation temperature: 48 degrees F (9 degrees C).
Wyeast 2042 Danish Lager Yeast	Rich, yet crisp and dry. Soft, light profile that accentuates hop characteristics.	71-75%	Medium	Warm fermenting bottom cropping strain, ferments well to 62 degrees F (17 degrees C) while keeping lager characteristics.
Wyeast 2112 California Lager Yeast	Steam®-style beers. Malty profile.	73-77%	Low	Optimum fermentation temperature: 48 degrees F (9 degrees C). Weihenstephan 34/70.
Wyeast 2124 Bohemian Lager Yeast	Ferments clean and malty.	73-77%	High	Yeast blends are created to ensure a quick start, good flavor and good flocculation. (They come in the new 80-gram packages.)
Wyeast 2178 Wyeast Lager Blend	Supposed to make a good clean lager.	72-76%	Medium	Lager yeast strain used by many German breweries. Optimum fermentation temperature: 48 degrees F (9 degrees C). It is reported to be a slow starter. Weihenstephan 206.
Wyeast 2206 Bavarian Lager Yeast	Rich flavor, full-bodied, malty and clean. Bocks, lagers.	69-73%	—	Sulfur produced during fermentation dissipates with conditioning. (My recommendation, and that of a commercial brewer using it: use some sort of mechanism for clearing the beer. The commercial brewer said they always use finings with this strain.)
Wyeast 2278 Czech Pils Yeast	Pilseners and bock beer. Classic dry finish with rich maltiness.	—	Medium	Optimum fermentation temperature: 50 degrees F (10 degrees C). More likely to bring out hop flavor than Wyeast 2206. Weihenstephan 308.
Wyeast 2308 Munich Lager Yeast	Smooth, soft, well-rounded and full-bodied.	73-77%	Very Low	From Bavaria, Germany.
Yeast Culture Kit L09	American dark lager, American lager, Bavarian dark, Doppelbock, Dortmund/Export, Eisbock, German Bock, German Lagers, German Schwarzbier, Hellesbock, Munich Helles, Märzen/Octoberfest, Pilsener.	—	Medium	That long list is the distributor's suggested uses.
Yeast Culture Kit L17	American lagers, Bohemian Pilsener.	73-77%	—	From Plzeň, Czechoslovakia.
Yeast Lab L31 Pilsener Lager Yeast	Ferments dry and clean.	—	—	—
Yeast Lab L32 Bavarian Lager Yeast	Rich in flavor with a clean, malty sweetness. Medium-bodied lagers and bocks, Vienna and Märzen styles.	—	Medium	—
Yeast Lab L33 Munich Lager Yeast	Medium-bodied lagers and bocks. Wissenschaftliche strain with subtle and complex flavors.	73%	Medium	A hint of sulfur when fresh.
Yeast Lab L34 St. Louis Lager Yeast	American style lagers. Produces a round, very crisp and clean fruity flavor with medium body.	75%	Medium	—
Yeast Lab L35 California Lager Yeast	"California common beer" strain. Malty with a sweet woody flavor and subtle fruitiness.	75%	Medium to High	—

PART 3: WEISSEN, LAMBIC, MEAD AND BARLEY WINE STYLES

Strains	Characteristics and Styles ¹	Attenuation ²	Flocculation ²	Notes
BrewTek CL-900 Belgian Wheat	Leaves a sweet, mildly estery finish.	—	—	—
BrewTek CL-920 German Wheat	Spicy, clovy and estery.	High	—	—
BrewTek CL-930 German Weiss	Spicy, clovy and estery.	—	—	Still produces the sought-after clove and phenols, but not as intense as CL-920.
BrewTek CL-980 American White Ale	A smooth, slightly sweet wheat beer.	—	—	Underattenuated malt flavor.
BrewTek CL-5200 <i>Brettanomyces lambicus</i>	Belgian lambic beers.	—	—	—
BrewTek CL-5600 <i>Pediococcus damnosus</i> (a bacteria)	Used in lambics.	—	—	Produces acid and diacetyl.

Strains	Characteristics and Styles ¹	Attenuation ²	Flocculation ²	Notes
Wyeast 3056 Bavarian Weissen Yeast	Produces a South German-style wheat beer with cloying sweetness when the beer is fresh.	73-77%	Medium	A 50/50 blend of <i>S. cerevisiae</i> and <i>delbrueckii</i> . Optimum fermentation temperature: 56 degrees F (13 degrees C). Problematic to get the right flavor, often produces relatively unattenuated beer without the clovelike aroma/flavor.
Wyeast 3068 Weihenstephan Wheat Yeast	Bavarian Weizen.	—	—	<i>Saccharomyces delbrueckii</i> single strain for German wheat beers (especially Bavarian Weizen).
Wyeast 3273 <i>Brettanomyces bruxellensis</i>	A very consistent and clean cloviness.	—	—	<i>B. bruxellensis</i> is the dominant <i>Brettanomyces</i> strain in the Brussels area.
Wyeast 3944 Belgian White Beer Yeast	Rich, earthy, odiferous character.	—	High	Rich, phenolic character for classic Belgian styles.
Yeast Culture Kit M01	Belgian ales, wit beers, Grand Cru, abbey biers. A very estery strain without the usual battering of bananas.	—	—	From Bavaria. Although the vendor lists American wheat as a suggested style, it appears to produce too much clove taste for that; however, that does make it excellent for the Bavarian Weizens! After all, it is a Bavarian yeast.
Yeast Lab W51 Bavarian Weizen	American wheat, Dunkel Weizen, German Weizen, Weizenbock.	Medium	Medium to Low	This strain produces a classic German-style wheat beer.
Yeast Lab M61 Dry Mead	Moderately high, spicy phenolic overtones reminiscent of cloves.	Tolerance to 14-15%	Medium to Low	Very alcohol tolerant.
Yeast Lab M62 Sweet Mead	Ferments dry, fruity and clean, yet leaves noticeable honey flavor and aroma.	Tolerance to 12-13%	Medium to Low	This strain has reduced alcohol tolerance.

WINE YEAST

Strains	Characteristics and Styles ¹	Attenuation ²	Flocculation ²	Notes
Red Star Pasteur Champagne Yeast	Imperial stouts and barley wines, mead.	High	—	Good reputation. High tolerance for alcohol. Some use it by itself, others pitch Pasteur after their chosen beer yeast poops out.
Yeast Culture Kit M06	Barley wine (Champagne).	—	—	From Montreal, Canada.
Wyeast 3021 Pasteur Champagne Yeast	Imperial stouts and barley wine, mead.	High	—	Good reputation. High tolerance for alcohol. Some use it by itself, others pitch after their chosen yeast poops out.

¹CHARACTERISTICS REFER TO THE SCENTS AND FLAVORS PRODUCED; STYLES REFER TO THE BEER STYLES FOR WHICH THE PARTICULAR YEAST IS ESPECIALLY SUITED.

²INFORMATION NOT AVAILABLE FOR ALL STRAINS. ATTENUATION AS GIVEN BY DISTRIBUTOR.



"Dedicated to Better Beer"

**Quality Products, Competitive
Prices and Personal Service.**

We Offer a Complete Selection of Supplies for the
Beginning and Advanced Homebrewer, including:

90 Malt Extracts and Beer Kits

25 Grains

20 Hop Varieties

Draft Beer Systems

Pure Yeast Cultures

200,000 BTU Brewing Stand

~Club Discounts~

Free Descriptive Catalog. 24-Hour Order Line:

1-800-638-2437

The Brewhaus

4955 Ball Camp Pike, Knoxville, TN 37921

615/ 523-4615

Ron Downer, Owner & Brewmaster

It's Coming...

**The Canadian BREW-ON-PREMISES
concept is arriving in the U.S.**

If you're interested in setting up a "B O P" in your area-

CALL THE EXPERTS!

Malt Products Corp., with its Canadian partner,
is the largest supplier of malt extract to BOP's
and has been since the beginning. We have
the industry experience to provide you with the
custom blends that work!

Use us to get a head start--

Our legal staff has done extensive research at both the federal
and state levels on the legality of the BOP concept -- currently,
16 states have approved BOP's without alcohol tax, 5 more are
pending. Information at your fingertips,
saving you months of legwork.



**MALT
PRODUCTS** CORPORATION

88 Market Street
Saddle Brook, NJ 07662
(800) 526-0180 Phone
(201) 845-0028 Fax
Joe Hickenbottom
VP Sales & Marketing



ILLUSTRATION BY GREG DYE

Dear Readers,

We goofed and we're sorry. Turn the page over for the corrected portions of the Table of Available Yeast Strains from "Become Saccharomyces Savvy" (pages 50 and 51) Summer 1994 (Vol. 17, No. 2).

You can clip the chart apart and paste as indicated over the incorrect version.

Cheers,
zymurgy

Strains	Characteristics and Styles ¹	Attenuation ²	Flocculation ²	Notes
BrewTek CL-620 American Megabrewery	Leaves a light, crisp, almost dry finish to lagers.	—	—	A strong fermenter.
BrewTek CL-640 American Microbrewery	A clean, full-flavored, malty finish.	—	—	A strong fermenter.
BrewTek CL-660 North German Lager	German Pilseners, Mexican and Canadian lagers. Exhibits a clean, crisp, traditional lager character.	High	—	A clean, crisp traditional lager. A strong fermenting and forgiving yeast.
BrewTek CL-680 East European Lager	Imparts a smooth, rich, almost creamy character, emphasizing a big malt flavor and clean finish.	—	—	—
BrewTek CL-690 California Esteem	Steam [®] -style beers. Leaves a slightly estery, well-attenuated finish.	—	—	Use to create "California common beers."
Wyeast 2007 Pilsen Lager Yeast	Specific for Pilsener-style beers. Ferments dry, crisp, clean and light.	71-75%	Medium	Optimum fermentation temperature: 52 degrees F (11 degrees C). Leaves some residual green-apple notes. (It is worth mentioning that this yeast strain is reportedly used quite a bit in St. Louis, if you know what I mean.)
Wyeast 2035 American Lager Yeast	Unlike American Pilsener styles. It is bold, complex and woody. Produces slight diacetyl.	73-77%	Medium	Optimum fermentation temperature: 50 degrees F (10 degrees C).
Wyeast 2042 Danish Lager Yeast	Rich, yet crisp and dry. Soft, light profile that accentuates hop characteristics.	73-77%	Low	Optimum fermentation temperature: 48 degrees F (9 degrees C).
Wyeast 2112 California Lager Yeast	Steam [®] -style beers. Malty profile.	72-76%	High	Warm fermenting bottom cropping strain, ferments well up to 60 degrees F (16 degrees C) while keeping lager characteristics.
Wyeast 2124 Bohemian Lager Yeast	Ferments clean and malty.	69-73%	Medium	Optimum fermentation temperature: 48 degrees F (9 degrees C).
Wyeast 2178 Wyeast Lager Blend	Supposed to make a good clean lager.	—	—	Yeast blends are created to ensure a quick start, good flavor and good flocculation. (They come in the new 80-gram packages.)
Wyeast 2206 Bavarian Lager Yeast	Rich flavor, full-bodied, malty and clean. Bocks, lagers.	73-77%	Medium	Lager yeast strain used by many German breweries. Optimum fermentation temperature: 48 degrees F (9 degrees C). It is reported to be a slow starter. Weihenstephan 206.
Wyeast 2278 Czech Pils Yeast	Pilseners and bock beer. Classic dry finish with rich maltiness.	—	Very Low	Sulfur produced during fermentation dissipates with conditioning. (My recommendation, and that of a commercial brewer using it: use some sort of mechanism for clearing the beer. The commercial brewer said they always use finings with this strain.)
Wyeast 2308 Munich Lager Yeast	Smooth, soft, well-rounded and full-bodied.	73-77%	Medium	Optimum fermentation temperature: 50 degrees F (10 degrees C). More likely to bring out hop flavor than Wyeast 2206. Weihenstephan 308.
Yeast Culture Kit L09	American dark lager, American lager, Bavarian dark, Doppelbock, Dortmund/Export, Eisbock, German Bock, German Lagers, German Schwarzbier, Hellesbock, Munich Helles, Märzen/Octoberfest, Pilsener.	—	—	From Bavaria, Germany. That long list is the distributor's suggested uses.
Yeast Culture Kit L17	American lagers, Bohemian Pilsener.	—	—	From Plzeň, Czechoslovakia.
Yeast Lab L31 Pilsener Lager Yeast	Ferments dry and clean.	73%	Medium	—
Yeast Lab L32 Bavarian Lager Yeast	Rich in flavor with a clean, malty sweetness. Medium-bodied lagers and bocks, Vienna and Märzen styles.	75%	Medium	—
Yeast Lab L33 Munich Lager Yeast	Medium-bodied lagers and bocks. Wissenschaftliche strain with subtle and complex flavors.	75%	Medium	A hint of sulfur when fresh.
Yeast Lab L34 St. Louis Lager Yeast	American style lagers. Produces a round, very crisp and clean fruity flavor with medium body.	74-76%	Medium to High	—
Yeast Lab L35 California Lager Yeast	"California common beer" strain. Malty with a sweet woody flavor and subtle fruitiness.	74-75%	Medium	—

Paste at top of p. 50 in *zymurgy* Summer 1994.



Strains	Characteristics and Styles ¹	Attenuation ²	Flocculation ²	Notes
Wyeast 3056 Bavarian Weissen Yeast	Produces a South German-style wheat beer with cloying sweetness when the beer is fresh.	73-77%	Medium	A 50/50 blend of <i>S. cerevisiae</i> and <i>delbrueckii</i> . Problematic to get the right flavor, often produces relatively unattenuated beer without the clovelike aroma/flavor.
Wyeast 3068 Weihenstephan Wheat Yeast	Bavarian Weizen. Very consistent with clean cloviness.	—	—	<i>Saccharomyces delbrueckii</i> single strain for German wheat beers (especially Bavarian Weizen).
Wyeast 3273 <i>Brettanomyces bruxellensis</i>	Rich, earthy, odiferous character.	—	—	<i>B. bruxellensis</i> is the dominant <i>Brettanomyces</i> strain in the Brussels area.
Wyeast 3944 Belgian White Beer Yeast	Belgian ales, wit beers, Grand Cru, abbey biers. A very estery strain without the usual battering of bananas.	—	High	Rich, phenolic character for classic Belgian styles.
Yeast Culture Kit M01	American wheat, Dunkel Weizen, German Weizen, Weizenbock.	—	—	From Bavaria. Although the vendor lists American wheat as a suggested style, it appears to produce too much clove taste for that; however, that does make it excellent for the Bavarian Weizens! After all, it is a Bavarian yeast.
Yeast Lab W51 Bavarian Weizen	Moderately high, spicy phenolic overtones reminiscent of cloves.	Medium	Medium to Low	This strain produces a classic German-style wheat beer.
Yeast Lab M61 Dry Mead	Ferments dry, fruity and clean, yet leaves noticeable honey flavor and aroma.	Tolerance to 14-15%	Medium to Low	Very alcohol tolerant.
Yeast Lab M62 Sweet Mead	A very fruity, sweet mead with tremendous honey aromas.	Tolerance to 12-13%	Medium to Low	This strain has reduced alcohol tolerance.

Paste at top of p. 51 in *zymurgy* Summer 1994.

A black and white photograph of a glass of beer with a thick head of foam. The glass is partially filled with dark beer, and a large, dense head of white foam sits on top, overflowing slightly. The foam has a fine, bubbly texture. The glass is set against a dark, reflective background.

Gas Gossip:

Nitrogen *vs.*
Carbon Dioxide
in Brewing

By Cliff
Tanner

Beer aficionados everywhere know a big, creamy, chocolate-brown head and the extra-smooth, stout flavor can only mean one thing: Guinness on tap. But many establishments don't like the extra bother of Guinness on tap because Guinness insists on a nitrogen mixture to dispense their beer. Now Guinness has introduced a pouch of nitrogen in their cans. Why does Guinness insist on the use of nitrogen (N₂)?

More importantly, what can we as homebrewers learn about nitrogen and carbon dioxide from the commercial brewers?

CO₂ vs. N₂

Carbonation — the word comes from the use of carbon dioxide (CO₂) in our beer — is something we want. Carbonation gives us the head we so enjoy on our beer. Carbonation gives us the beautiful "Brussels lace" down the sides of the glass. And carbonation contributes to beer's mouthfeel. The CO₂ dissolved in beer helps give us all of that — and more! We know that CO₂ is a stable gas that can displace the air that contains oxygen and help prevent rapid aging and that wet-cardboard taste. As homebrewers, we use CO₂ to purge our beer tanks, lines and other apparatus after sterilizing and before use to get rid of the oxygen-containing air. At colder temperatures CO₂ is reported to combat the action of microorganisms.

CO₂ is a common and inexpensive gas available locally from gas suppliers serving beverage, welding and fire extinguisher customers. There is no difference in the CO₂ you get from any of these suppliers; all have high quality, beverage-grade CO₂. At room temperature, CO₂ becomes a liquid at about 800 psi, so CO₂ tanks are filled with liquid CO₂, and are

sized and filled by the pound. Homebrewers usually choose tanks in the five- to 20-pound range. Because they are filled with liquid, CO₂ tanks remain at about 800 psi until all the liquid CO₂ is used up. Then they rapidly drop in pressure as the remaining CO₂ gas is used. Therefore, a high-pressure gauge on a CO₂ tank measures only CO₂ gas pressure and not the liquid remaining in the tank.

In contrast, N₂ is an elemental, inert gas that is far less soluble than CO₂ (Table I). N₂ can actually attract and "purge" free oxygen from liquids, such as brewing water before use, and can be used for purging air from tanks and lines. N₂ is less dense than CO₂ and far less soluble in our beer. Since it is not very soluble in beer, it can be used at high pressure to drive beer through long lines in commercial establishments without increasing the effervescence that using high-pressure, pure CO₂ would cause. Thus, a mildly effervescent beer, such as draft Guinness, can be dispensed at high pressure without increasing the effervescence.

N₂ can usually be found at welding or medical gas suppliers. N₂ is a gas at room temperature for the pressures at which we get it, so the tanks are sized in cubic feet and filled by pressure. In physical size, a

20-pound CO₂ tank will be about the same size as a 75-cubic-foot N₂ tank. If cost is a factor, filling a 75-cubic-foot N₂ tank costs roughly \$2 less than filling a 20-pound CO₂ tank.

What About the Beer?

The real difference, however, is in the beer. First, the physical characteristics of N₂ bubbles are different from the characteristics of CO₂ bubbles. Essentially, N₂ bubbles start smaller than CO₂ bubbles, they stay small, cling together better and last longer. This means the head on a beer dispensed with N₂ will be larger, creamier and last longer. Plus, it will have better "Brussels lace" down the side of the glass.

N₂ also "smooths out" the flavor components of beer, most likely because highly effervescent beers tend to be more "prickly" and acidic (carbonic acid) than mildly effervescent beers. Consider again draft Guinness that is dispensed with N₂. It has a wonderful head but is relatively low in effervescence — hence it is smoother than a beer with a similar head attained from high CO₂ pressure like Duvel, for example. Duvel has a certain "bite" that draft Guinness doesn't.

Using CO₂

CO₂ is relatively easy to use in homebrewing. We create CO₂ every time we use yeast in our brewing. We prime our beers with fermentables, or counterpressure ferment during the secondary fermentation (see Teri Fahrendor's "Closed System Pressurized Fermentation" in the *zymurgy* 1992 Special Is-

sue Vol. 15, No. 4) to introduce CO₂ into the beer for carbonation. Or we can use purchased CO₂ to carbonate our beers. People call the use of bottled CO₂ artificial carbonation versus the natural carbonation caused by yeast fermentation.

Artificial (or forced) carbonation with CO₂ is a relatively simple task with a kegging system. Simply refer to the CO₂ carbonation chart

TABLE 1

Comparative Properties of CO₂ and N₂

	CO ₂	N ₂
Molecular Weight	44.01	28.01
Density (at 0°C)	1.977 (gm/L)	1.251 (gm/L)
Volume/weight ratio (at 15°C; 1.0 bar)	533 (m ³ /tonne)	844 (m ³ /tonne)
Solubility (at 0°C; 1.0 bar)	3.36 (gm/L)	0.029 (gm/L)
or	1.71 (v/v)	0.023 (v/v)

Comparative Solubility of CO₂ and N₂

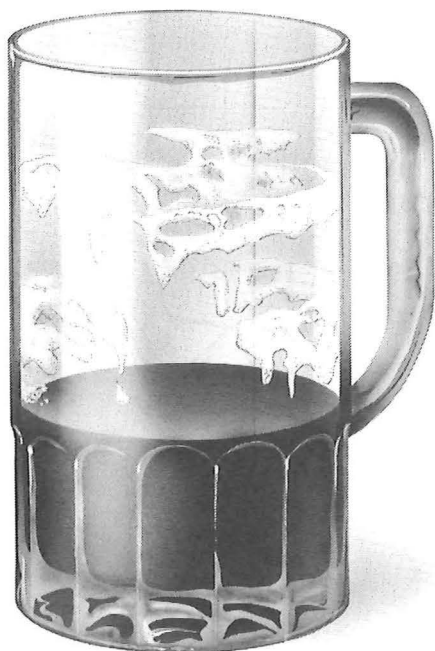
Solubility (at 1.0 bar)	CO ₂	N ₂
0°C	3.36 (gm/L)	28.7 (gm/L)
10°C	2.28 (gm/L)	22.9 (gm/L)
15°C	1.94 (gm/L)	20.6 (gm/L)
20°C	1.67 (gm/L)	20.0 (gm/L)
40°C	1.02 (gm/L)	14.9 (gm/L)
60°C	0.71 (gm/L)	12.5 (gm/L)

TABLE 2

Pressure to use for Volumes of CO₂ Dissolved in Beer

Volume CO ₂ (gm/L)	32.0	33.0	34.0	35.0	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0	54.0	55.0	56.0	57.0	58.0	59.0	60.0
1.7	0.6	1.0	1.3	1.7	2.1	2.4	2.8	3.2	3.6	3.9	4.3	4.7	5.1	5.5	5.9	6.3	6.7	7.1	7.5	7.9	8.3	8.7	9.1	9.5	9.9	10.3	10.7	11.2	11.6
1.8	1.6	1.9	2.3	2.7	3.1	3.5	3.9	4.3	4.7	5.1	5.5	5.9	6.3	6.7	7.1	7.5	7.9	8.3	8.7	9.1	9.6	10.0	10.4	10.8	11.3	11.7	12.1	12.6	13.0
1.9	2.5	2.9	3.3	3.7	4.1	4.5	4.9	5.3	5.7	6.2	6.6	7.0	7.4	7.8	8.3	8.7	9.1	9.6	10.0	10.4	10.9	11.3	11.8	12.2	12.6	13.1	13.6	14.0	14.5
2.0	3.5	3.9	4.3	4.7	5.1	5.6	6.0	6.4	6.8	7.3	7.7	8.1	8.6	9.0	9.5	9.9	10.4	10.8	11.3	11.7	12.2	12.6	13.1	13.5	14.0	14.5	15.0	15.4	15.9
2.1	4.4	4.9	5.3	5.7	6.2	6.6	7.0	7.5	7.9	8.4	8.8	9.3	9.7	10.2	10.7	11.1	11.6	12.0	12.5	13.0	13.5	13.9	14.4	14.9	15.4	15.9	16.4	16.8	17.3
2.2	5.4	5.8	6.3	6.7	7.2	7.6	8.1	8.6	9.0	9.5	10.0	10.4	10.9	11.4	11.8	12.3	12.8	13.3	13.8	14.3	14.8	15.3	15.7	16.2	16.7	17.3	17.8	18.3	18.8
2.3	6.3	6.8	7.3	7.7	8.2	8.7	9.1	9.6	10.1	10.6	11.1	11.6	12.1	12.5	13.0	13.5	14.0	14.5	15.0	15.5	16.1	16.6	17.1	17.6	18.1	18.6	19.2	19.7	20.2
2.4	7.3	7.8	8.2	8.7	9.2	9.7	10.2	10.7	11.2	11.7	12.2	12.7	13.2	13.7	14.2	14.7	15.3	15.8	16.3	16.8	17.3	17.9	18.4	18.9	19.5	20.0	20.6	21.1	21.6
2.5	8.2	8.7	9.2	9.7	10.2	10.7	11.2	11.8	12.3	12.8	13.3	13.8	14.4	14.9	15.4	15.9	16.5	17.0	17.6	18.1	18.6	19.2	19.7	20.3	20.8	21.4	21.9	22.5	23.1
2.6	9.2	9.7	10.2	10.7	11.2	11.8	12.3	12.8	13.4	13.9	14.4	15.0	15.5	16.1	16.6	17.2	17.7	18.3	18.8	19.4	19.9	20.5	21.1	21.6	22.2	22.8	23.3	23.9	24.5
2.7	10.1	10.6	11.2	11.7	12.3	12.8	13.3	13.9	14.4	15.0	15.5	16.1	16.7	17.2	17.8	18.4	18.9	19.5	20.1	20.6	21.2	21.8	22.4	23.0	23.6	24.1	24.7	25.3	25.9
2.8	11.0	11.6	12.1	12.7	13.3	13.8	14.4	15.0	15.5	16.1	16.7	17.2	17.8	18.4	19.0	19.6	20.1	20.7	21.3	21.9	22.5	23.1	23.7	24.3	24.9	25.5	26.1	26.7	27.4
2.9	12.0	12.6	13.1	13.7	14.3	14.9	15.4	16.0	16.6	17.2	17.8	18.4	19.0	19.6	20.2	20.8	21.4	22.0	22.6	23.2	23.8	24.4	25.0	25.6	26.3	26.9	27.5	28.1	28.8
3.0	12.9	13.5	14.1	14.7	15.3	15.9	16.5	17.1	17.7	18.3	18.9	19.5	20.1	20.7	21.3	22.0	22.6	23.2	23.8	24.5	25.1	25.7	26.3	27.0	27.6	28.3	28.9	29.6	30.2
3.1	13.9	14.5	15.1	15.7	16.3	16.9	17.5	18.1	18.8	19.4	20.0	20.6	21.3	21.9	22.5	23.2	23.8	24.4	25.1	25.7	26.4	27.0	27.7	28.3	29.0	29.6	30.3	31.0	31.6
3.2	14.8	15.4	16.0	16.7	17.3	17.9	18.6	19.2	19.8	20.5	21.1	21.7	22.4	23.0	23.7	24.3	25.0	25.7	26.3	27.0	27.6	28.3	29.0	29.7	30.3	31.0	31.7	32.4	33.0
3.3	15.7	16.4	17.0	17.7	18.3	18.9	19.6	20.2	20.9	21.6	22.2	22.9	23.5	24.2	24.9	25.5	26.2	26.9	27.6	28.2	28.9	29.6	30.3	31.0	31.7	32.4	33.1	33.8	34.5
3.4	16.7	17.3	18.0	18.6	19.3	20.0	20.6	21.3	22.0	22.6	23.3	24.0	24.7	25.4	26.0	26.7	27.4	28.1	28.8	29.5	30.2	30.9	31.6	32.3	33.0	33.7	34.5	35.2	35.9
3.5	17.6	18.3	18.9	19.6	20.3	21.0	21.7	22.4	23.0	23.7	24.4	25.1	25.8	26.5	27.2	27.9	28.6	29.3	30.1	30.8	31.5	32.2	32.9	33.7	34.4	35.1	35.8	36.6	37.3
3.6	18.5	19.2	19.9	20.6	21.3	22.0	22.7	23.4	24.1	24.8	25.5	26.2	27.0	27.7	28.4	29.1	29.8	30.6	31.3	32.0	32.8	33.5	34.2	35.0	35.7	36.5	37.2	38.0	38.7
3.7	19.5	20.2	20.9	21.6	22.3	23.0	23.7	24.5	25.2	25.9	26.6	27.4	28.1	28.8	29.6	30.3	31.0	31.8	32.5	33.3	34.0	34.8	35.5	36.3	37.1	37.8	38.6	39.4	40.1
3.8	20.4	21.1	21.8	22.6	23.3	24.0	24.8	25.5	26.2	27.0	27.7	28.5	29.2	30.0	30.7	31.5	32.3	33.0	33.8	34.5	35.3	36.1	36.9	37.6	38.4	39.2	40.0	40.8	41.5
3.9	21.3	22.1	22.8	23.5	24.3	25.0	25.8	26.6	27.3	28.1	28.8	29.6	30.4	31.1	31.9	32.7	33.5	34.2	35.0	35.8	36.6	37.4	38.2	39.0	39.8	40.6	41.4	42.2	43.0
4.0	22.2	23.0	23.8	24.5	25.3	26.1	26.8	27.6	28.4	29.2	29.9	30.7	31.5	32.3	33.1	33.9	34.7	35.5	36.3	37.1	37.9	38.7	39.5	40.3	41.1	41.9	42.7	43.5	44.4

$$P = -16.6999 - 0.0101059 \times T + 0.00116512 \times T^2 + 0.173354 \times T \times V + 4.24267 \times V - 0.0684226 \times V^2$$



"Brussels lace."

(Table 2), determine the amount of carbonation desired for the style of beer you're brewing and read the pressure necessary to match the temperature of your beer. Roughly, the colder the temperature, the higher the pressure applied, and the longer the time frame the greater the carbonation achieved. Although some people shake their kegs to speed up the carbonation process, this is a bad practice because the agitation can affect shelf life and head-forming capacity. Shaking breaks some of the medium-length peptide chains necessary for head formation.

It's easy to change the carbonation level of the beer in a keg system using CO₂. Simply reduce or increase gas pressure as necessary to achieve the desired level.

Because CO₂ is heavier than air (1.68 times as heavy) it is easy to purge a keg with the top open, or through the relief or gas valves at the top because the gas will settle at the bottom first. Other containers are purged by venting the container at the highest possible opening. Hoses are purged by attaching the gas supply at one end and venting the far end.

Using N₂

To use N₂ in your homebrewing you will need two things: a tank of N₂ and a regulator. The tank usually can be rented, leased or pur-

chased from a welding or medical gas supplier or a homebrew equipment supplier. It is not as frequently used as CO₂, so it may be a bit more difficult to find.

You can't use your CO₂ regulator as is, so the best advice is to rent or purchase a separate regulator. When compressed gases were first used in this country it was for oxy-acetylene welding. It was important that a regulator with oxygen still inside not be attached to an acetylene gas supply (and vice versa). The result could be suddenly detached limbs. So somebody got the idea to make acetylene (fuel) regulators with a male tank fitting and oxygen (oxidizer) regulators with a female tank fitting so they couldn't get mixed up. CO₂ regulators are "oxidizer" regulators and have female tank fittings and N₂ regulators are "fuel" regulators and have male tank fittings. In addition, you'll need a screw-on fitting on the regulator outlet to change hoses from CO₂ to N₂, as required.

N₂ is lighter than air (0.966 times as heavy) meaning in order to purge your keg with N₂, it must be closed and venting must be through the liquid dip tube that goes to the bottom of the keg. Always purge kegs at relatively low pressure in order to reduce disturbance of the layer between air and the gas. Other containers can be purged by venting at the lowest point possible. Hoses are purged with N₂ in the same manner as with CO₂.

Commercial breweries often use N₂ to clear their brewing water of oxygen. This is done for the makeup water used for high-gravity brewing, or for the water used to deposit diatomaceous earth on a filter before filtering beer. Breweries gently bubble the gas through the water using a sintered brass or stainless-steel carbonating stone. For the volume of water homebrewers use, however, the same goal can be easily accomplished by boiling the water before use.

Dispensing beer with N₂ can be simple; just connect the N₂ supply tank to a carbonated beer keg at the required pressure for proper CO₂ dispensing. The goal is to maintain the CO₂ levels appropriate for the style of beer while overcoming any resistance in the beer lines and faucet. Your beer will pick up very little N₂ over time, but the N₂ will help to further stabilize the beer during dispensing. If you want your beer to dissolve N₂ gas, much higher pressures, colder temperatures and longer times are required than with CO₂.

Changing the carbonation level of a kegged beer is much more difficult once it is tapped with N₂, however. To increase the carbonation level, the N₂ pressure must be released and CO₂ reintroduced to bring the carbonation up to desired levels.

Mixed Gases

Mixed gases can also be used for dispensing. Guinness uses a 75 percent N₂, 25 percent CO₂ mixture and dispenses at 30 psi. Other mixes include 30/70, 50/50 and 60/40 for lagers and more effervescent beers (Table 3). Gases can be mixed by local welding gas suppliers, although the cost per fill will increase dramatically — often doubling — and a separate carbonation chart is required for each mix.

Summary

The benefits of N₂ for the homebrewer are primarily in the area of dispensing mildly effervescent beers or for addressing the problems of too much effervescence when trying to push beer through long serving lines. If you are on a quest to duplicate draft Guinness, then you have no choice other than to build an N₂/CO₂ mixed-gas system. The disadvantages include the additional cost of a N₂ tank and regulator and the fact that N₂ isn't always as readily available as CO₂. Whether or not the advantages outweigh the disadvantages is a decision each homebrewer must make based upon their own level of brewing as well as their pocketbook.

TABLE 3 Effect of Gas Mixture on Pressure and Dissolved Gases on Ale and Lager Dispensed at 10°C (Taylor, Bamber, Brown and Murray, 1992)

	Gas Mixture (CO ₂ /N ₂)		
	30/70	50/50	60/40
Ale 2.5 gm/L (1.3 v/v)			
Dispense pressure (psig)	38	17	12
CO ₂ content (gm/L)	2.5	2.5	2.5
N ₂ content (mg/L)	57	25	16
Lager 4.1 gm/L (2.1 v/v)			
Dispense pressure (psig)	71	37	28
CO ₂ content (gm/L)	4.1	4.1	4.1
N ₂ content (mg/L)	93	40	27

References

Butterworth, M.J.; "Uses for Nitrogen," *The Brewer*, Oct. 1983, Vol. 69(828), pp 407-410.

Guise, Bill; "Exchanging Gases to Extend Life," *Food Processing*, Sept. 1986, pp 35-37.

Harris, Len and Charles Borton; "Mixed Gas Dispense — Why Ignore the Advantages," *Brewing and Distilling International*, Dec. 1989, pp 24-25.

Taylor, David G., Paul Bamber, Jon W. Brown and James P. Murray; "Uses of Nitrogen in Brewing," *MBAA Technical Quarterly*, 1992, Vol. 29, pp 137-142.

Special thanks to Rich Fortnum, Malting, Brewing, and Distilling Science, Heriot-Watt University, Edinburgh, Scotland.

Cliff Tanner, a brewer and member of the Northern AleStars Homebrewers Guild for 12 years, is owner of Braukunst Homebrewers Systems, a kegging specialty company.

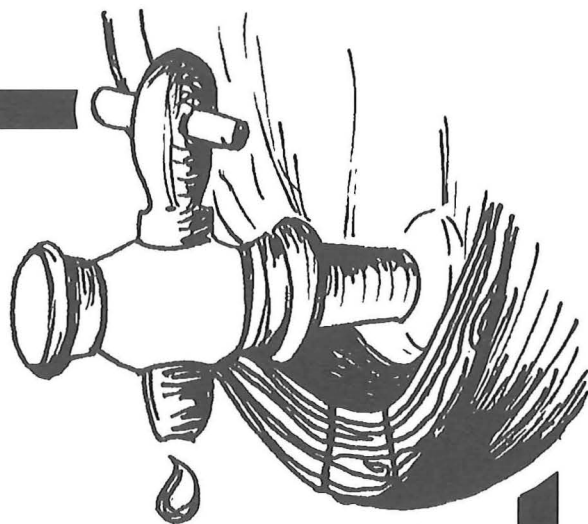
This article is available on Library 13-AHA/zymurgy/Clubs on CompuServe's Beer and Wine Forum as GASSUM.94.



BACCHUS & BARLEYCORN, LTD. everything for the amateur brewmaster and enologist; largest variety of beer and winemaking ingredients and supplies in the Midwest, a service oriented establishment, free consultive services, competitive prices, free catalogue.

FAST FAST MAIL ORDER SERVICE

Bacchus & Barleycorn, Ltd.
8725Z Johnson Drive
Merriam, KS 66202
(913) 262-4243



Tap the Source.

Looking for quality beer and wine making supplies?
Tap into the prime source.

- Beer & Wine Making Full Product Lines
- Wide Selection of Refrigerated Hops
- Extensive Draft Equipment Supplies
- Wholesale Inquiries

Bringing you 75 years of brewing service and expertise



234 SE 12th Avenue Portland, OR 97214
503 232-8793

"The only ingredient Frozen Wort did not supply was the water."

-Stu Tallman, 1992 AHA Homebrewer of the Year

-Munich Dunkel - "StuBrew"

"Frozen Wort's Harrington 2-row malted barley is the palest, highest quality, and most versatile domestic barley we have ever used. We prefer it to Klages. It was used in any of our winning beers."

- Steve and Tina Daniel, 1992 Ninkasi Award (AHA High Point Winners)

VAST SELECTION OF SUPPLIES & EQUIPMENT GREAT PRICES & FAST SERVICE

WRITE OR CALL FOR FREE CATALOG

THE FROZEN WORT

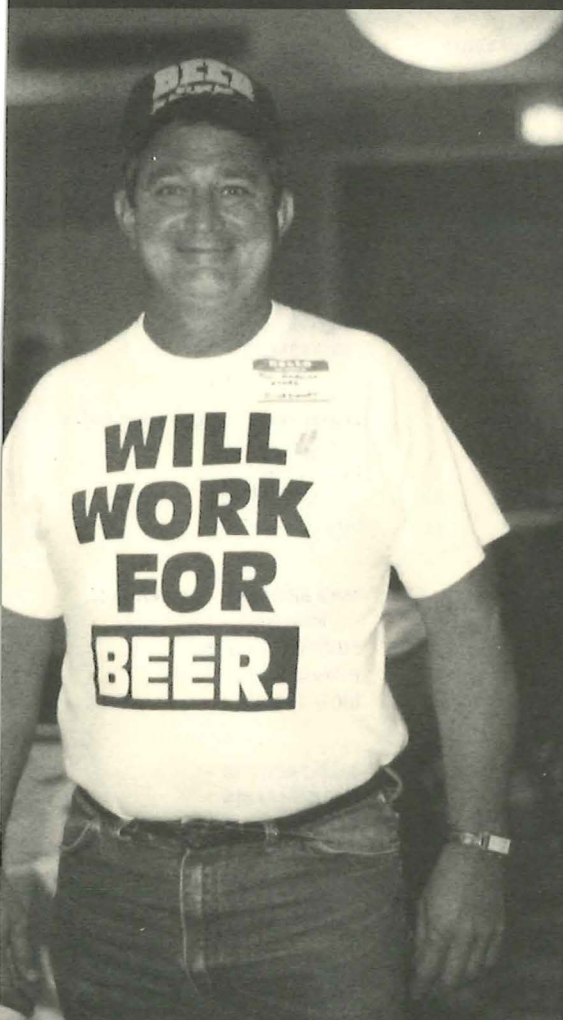
P.O. Box 947, GREENFIELD, MA 01302-0947

TELEPHONE: (413) 773-5920 FAX: (413) 772-2333

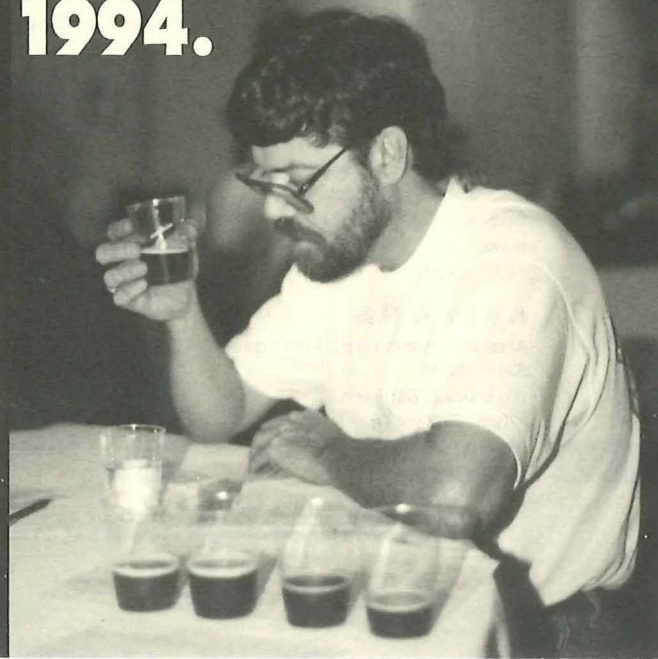
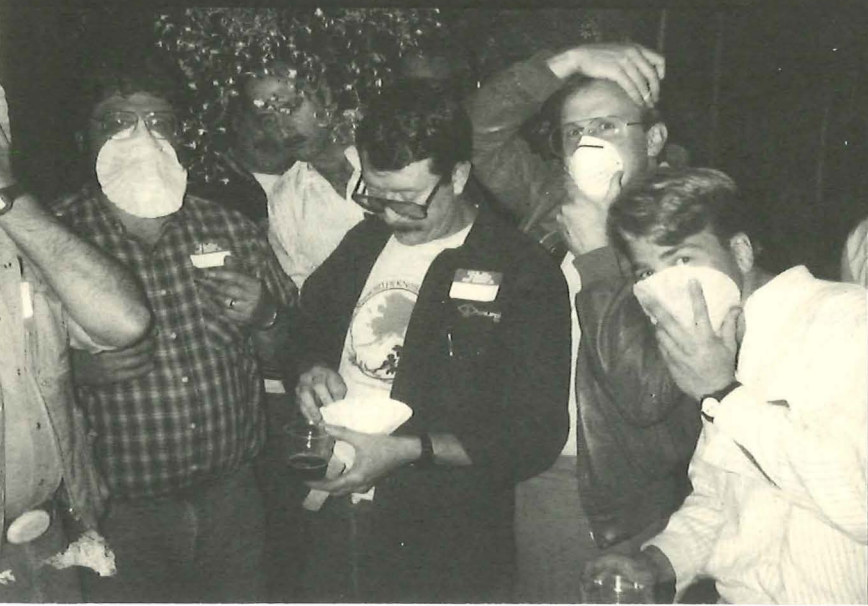


American Homebrewers Association

Registered Homebrew Clubs



Complete
list as of
JANUARY
1994.



UNITED STATES

Homebrew SIG (MENSA)

c/o Ross Goeres
AIRCENT RUF UNIT 23625
APO AE, 09189

ALABAMA

Birmingham Brewmasters

c/o Hunter Bell
1917 29th Ave. S.
Birmingham, AL 35209-2617
(205) 871-2337

Lower Alabama Lagers

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

Madison Sobriety Club

c/o David Wiley
123 Harpers Hop Rd.
Madison, AL 35758
(205) 722-9544

Wiregrass Brewers Clubs

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

ALASKA

Great Northern Brewers

c/o James S. Roberts
3605 Arctic Blvd. #1204
Anchorage, AK 99503
(907) 337-9360

Greater Alaska Suds Swillers

c/o Roger P. Penrod
939 High Grade Way
Fairbanks, AK 99712-2017
(907) 479-8795

Rainbrewers

c/o Russ Staska
171 Raspberry Lane N.
Ketchikan, AK 99901
(907) 247-0767

The Q & Q Brewers Guild

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

ARIZONA

Arizona Brewers and Vintners Association

c/o Bruce E. Dahlgren
3713 W. Gelding Dr.
Phoenix, AZ 85023
(602) 843-4337

Brewmeisters Anonymous

c/o Lynn McLuty
9163 W. Crocus Dr.
Peoria, AZ 85281-3786
(602) 974-8928

Old Pueblo Homebrewers

c/o James Liddil
2332 E. Adams
Tucson, AZ 85719
(602) 881-8768

Suds of the Pioneers

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

Wort First!

c/o Perry Davidson
1000 N. Beaver St. #114
Flagstaff, AZ 86001
(602) 774-7513

ARKANSAS

Arkansas Homebeermakers Association

c/o Kurt Schilling
7914 Forest Rd.
North Little Rock, AR 72118
(501) 753-7114

Fayetteville Lovers of Pure Suds (FLOPS)

c/o John Griffiths
625 W. Dickson #9
Fayetteville, AR 72701
(501) 521-0456

CALIFORNIA

Barley Bandits

c/o Dick Reese
105 S. Glendon St.
Anaheim, CA 92806
(714) 630-6527

Barley Literates

c/o Beer Crafts
950 W. San Marcos Blvd., Suite 1
San Marcos, CA 92069
(619) 788-7696

Bay Area Mashers (BAM)

c/o Doug Ashcraft
5998 Alhambra Ave.
Oakland, CA 94611
(510) 339-1816

Big Dog Homebrewing Club

c/o Gordon Ponce
PO Box 1069
Livermore, CA 94550
(510) 449-5118

Brew Angels

c/o David Brattstron
18150 Burke Dr.
Plymouth, CA 95669
(209) 245-4379

The Brewbirds of Hoppiness

c/o Kelly Dunham
1229 Lerida Way
Pacifica, CA 94044
(415) 355-7143

Brewers of the Central Coast (BOCC)

c/o Sean Portwood
470 Price St. #A2
Pismo Beach, CA 93449

California Culinary Academy Brewers Association (CCABA)

c/o Chef Mark Davis
625 Polk St.
San Francisco, CA 94102
(800) BAY-CHEF

Clan de Stein

c/o Scott Smith
2235 Chapala St.
Santa Barbara, CA 93105
(805) 687-0996

Crown of the Valley Brewing Society

c/o Tom Estudillo
1616 Orangetree Lane
La Canada, CA 91011
(818) 952-1386

Delta Brewing Club

c/o Gordon L. Brimhall
3137 Almondridge Dr.
Antioch, CA 94509
(510) 778-8359

Draught Board Home Brew Club

c/o Charles Webster
33039 Lake Wawasee St.
Fremont, CA 94555
(510) 487-4274

Foothill Fermenters

c/o Dan Bell
21332 Adamson Dr.
Grass Valley, CA 95949-9534
(916) 268-8181

Gold Country Brewers Association

c/o Donna Bettencourt
PO Box 160854
Sacramento, CA 95816
(916) 381-1300

Hangtown Association of Zymurgy Enthusiasts (HAZE)

c/o Elizabeth and Craig Zangari
3226 Naomi
Placerville, CA 95667
(916) 626-7733

High Desert Barley Hoppers

c/o Don Miller
8755 Devon Ave.
Hesperia, CA 92345
(619) 947-7944

High Desert TRUblemakers

c/o Pete Hubert
1204 Elm St.
Edwards Air Force Base, CA 93523
(805) 258-4824

Inland Empire Brewers

c/o Terry Boyles
2780 Bubbling Wells
Riverside, CA 92501
(909) 781-0287

Lagerheads Homebrewing Guild

c/o Bruce Garlinger
PO Box 651
Inyokern, CA 93527
(619) 378-4BRU

MAD BREWERS — Bakersfield

c/o Mike Shue
3408 Wrenwood St.
Bakersfield, CA 93309
(805) 831-3719

MAD BREWERS — Napa/Sonoma

c/o Dan Sullivan
3167 Laurel St.
Napa, CA 94558
(707) 258-9369

Maltose Falcons Homebrewing Society

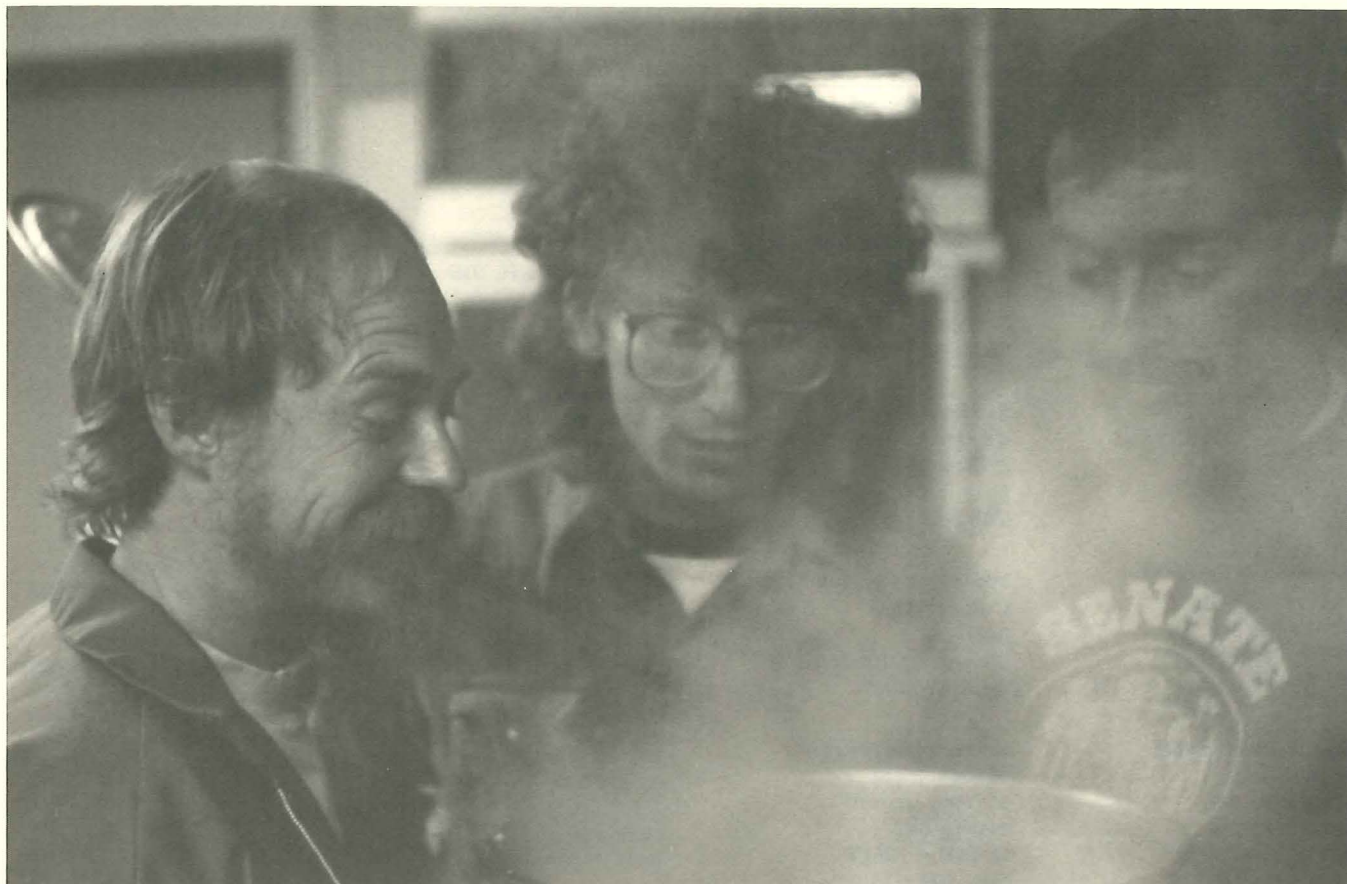
c/o Bruce L. Brode
22836 Ventura Blvd. #2
Woodland Hills, CA 91364
(818) 884-8586

Monterey Beer Nuts

c/o Jim Morrison
511 Grand Ave.
Pacific Grove, CA 93950
(408) 375-0950

Old Capitol Brewing Club

c/o Christopher Howley
418 Mills Dr.
Benicia, CA 94510
(707) 644-5517



Mark Kessenich, Bob Drouth and Tom Pritchard of the Madison Homebrewers and Tasters Guild, Madison, Wis.

Quality Ale & Fermentation Fraternity (QUAFF)

c/o Rich Link, Beer and Wine Crafts
460 Fletcher Pkwy.
El Cajon, CA 92020
(619) 447-9191

Redwood Coast Brewers Association

c/o Michael Byers
707 Pelton Ave. #108
Santa Cruz, CA 95060
(408) 426-3005

San Andreas Malts

c/o Russ Wigglesworth
PO Box 884661
San Francisco, CA 94188-4661
(415) 885-1878

San Joaquin Worthogs

c/o Dale James
2217 N. Prospect
Fresno, CA 93722
(209) 264-5521

San Luis Obispo Brewing Society (SLOBS)

c/o Howard Gootkin
1568 Frambuesa Dr.
San Luis Obispo, CA 93405
(805) 541-0713

Santa Clara Valley Brewers Association

c/o Bob Hight
433 California St.
Santa Clara, CA 95050
(408) 247-6853

Shasta County Sudsers

c/o Raymond Ault
4621 Balls Ferry Rd.
Anderson, CA 96007
(916) 365-6284

Some of Upland's Diversified Zymurgists (SUDZ)

c/o Scott Donaghe
426 Deborah Dr.
Pomona, CA 91767
(909) 625-0126

Sonoma Beerocrats

c/o Nancy Vineyard
840 Piner Rd. #14
Santa Rosa, CA 95403
(707) 544-2520

South San Diego Brewers and Vintners Club

c/o Jarrod Bell
661 Gretchen Rd.
Chula Vista, CA 91910
(619) 427-2474

Stanislaus Area Association of Zymurgists

c/o Micah Millspaw
309 S. 6th Ave.
Oakdale, CA 95361-4032
(209) 847-9706

Stanislaus Hoppy Cappers

c/o Wayne Baker
1907 Central Ave.
Ceres, CA 95307
(209) 538-2739

The Strand Brewers Club

c/o Peter A. Chin-Sang
3418 N. Studebaker Rd.
Long Beach, CA 90808-3047
(310) 425-8700

Susanville Homebrew Institute of Technology

c/o Larry Anthony
527 Lakewood Way
Susanville, CA 96130-3512
(916) 257-8803

Tahoe Homebrewer's Club (THC)

c/o Matt Quella
PO Box 18668
South Lake Tahoe, CA 96151-8668
(916) 544-5592

The Tandem Malty Processors

c/o Neil Johnston
19191 Vallco Pkwy. MS 4-24
Cupertino, CA 95014-2525
(408) 946-6064

Temecula Valley Homebrewers Association

c/o Vinnie Cilurzo
41220 Calle Contento
Temecula, CA 92592
(714) 676-5250

Wild Yeast Culture

c/o Gareth Gordon
641 Paloma Ave.
Oakland, CA 94612
893-0385

Worts of Wisdom

c/o Richard Allen
3389 Creighton Place
Santa Clara, CA 95051-1501
(408) 247-6010

Yolo County Homebrewers

c/o Vern Wolff
PO Box 538
Esparto, CA 95627
(916) 787-3615

COLORADO

Bierewolves of Loveland
c/o Bob Green
PO Box 411
Loveland, CO 80537
FAX (303) 663-1557

Deep Wort Brew Club
c/o John Landreman
550 Gillcrest Rd.
Colorado Springs, CO 80906
(719) 579-6977

Foam on the Range
c/o Joe Pardee
7588 S. Quay Ct.
Littleton, CO 80123
(303) 973-9860

Hop Barley & The Ale's
c/o Mark Fagerburg
31610 Hilltop Rd.
Golden, CO 80403
(303) 442-9111

Hops Around the Rock
c/o Bob Burns
45587 Summit Rd.
Parker, CO 80134
(303) 841-8853

Horsetooth Homebrewers
c/o Bo Viger
830 Winchester Dr.
Fort Collins, CO 80526-2638
(303) 223-6156

Mash Tongues
c/o Steve Dempsey
704 Ponderosa Dr.
Fort Collins, CO 80521-3129
(303) 491-0630

One Brew Over the Cuckoos Nest (OBOCN)
c/o Dave Lipitz
1614 E. Orman
Pueblo, CO 81004
(719) 564-1611

The Crested Butte Brewskiers
c/o Graham Ullrich
PO Box 2045
Crested Butte, CO 81224-2045
(303) 349-5969

The Unfermentables
c/o Mark Groshek
6535 E. Colorado Dr.
Denver, CO 80224
(303) 757-8394

CONNECTICUT

Beer Brewers of Central Connecticut
c/o Judy Lawrence
1550 Randolph Rd.
Middletown, CT 06457
(203) 346-5440

The Connecticut Beernutts
c/o Steve Henry
199 Wilcox Rd.
Middletown, CT 06457-5531
(203) 34-8926

Hop River Brewers
c/o Richard Rosen
265 Route 6
Andover, CT 06232
(203) 742-5465

UConn Zymurgy Club
c/o Robert Vieth
Box U-139
University of Connecticut
Storrs, CT 06269

Underground Brewers of Connecticut
c/o Victor Gubinski
44 Lalley Blvd.
Fairfield, CT 06430
(203) 259-8693

DELAWARE

First State Brewers
c/o Scott Bieber
407 Pheasant Circle
Bear, DE 19701
(302) 834-8747

FLORIDA

2 Dudes That Brew
c/o Peter Coleman
317 Citrus Dr.
Nokomis, FL 34275
(912) 876-0556

Bradenton Brewski's
c/o Chet Kedzierski
PO Box 51
Bradenton, FL 34206
(813) 747-2437

Broward Beer Nuts
c/o Eileen Parker
6031A Miramar Pkwy.
Miramar, FL 33023
(305) 962-0100

Central Florida Homebrewers
c/o John Cheek
1320 N. Semoran Blvd. #101 A
Orlando, FL 32807
(407) 282-3880

Escambia Bay Brewers
c/o Tom Walpole
2240 Riddle Rd.
Cantonment, FL 32533

Florida Institute of Zealous Zymurgists (FIZZ)
c/o David McCarty
2626 S.W. 14th Ave.
Fort Lauderdale, FL 33315
(305) 764-1527

HBU (HomeBrewers Underground)
c/o Gary Essex
206 Walton Ave.
Niceville, FL 32578
(904) 678-6186

Hernando Hops Society (HHS)
c/o Joe Johnston
416 South Broad St.
Brooksville, FL 34601
(904) 799-3004

Hogtowne Brewers
c/o Ray Badowski
21 S.W. 2nd St.
Gainesville, FL 32601-6237
(904) 375-7949

North Florida Brewers League
c/o Ron Lawrence
9113 Bithlow Lane
Tallahassee, FL 32312
(904) 668-6981

The Northeast Florida Society of Brewers
c/o Bob Davis
7 Park Terrace Dr.
St. Augustine, FL 32084
(904) 824-5252

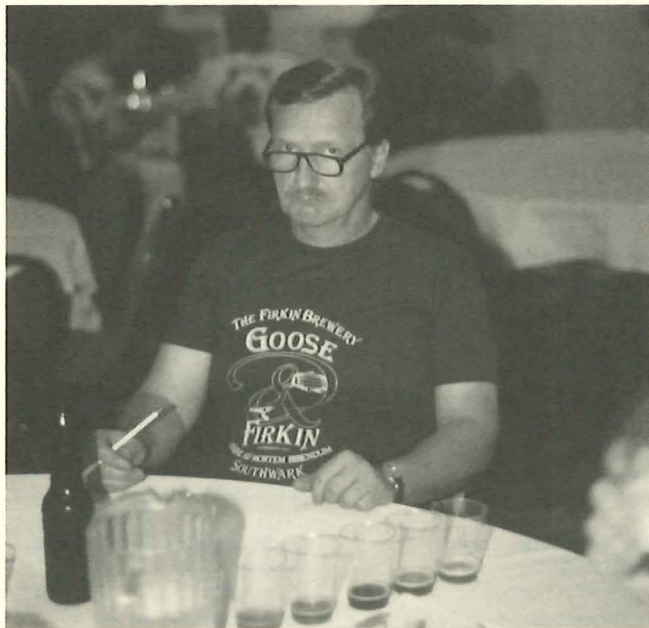
The Nude Brewers
c/o The Hogtown Brewer
21 S.W. 2nd St.
Gainesville, FL 32601
(904) 375-3772

Palm Beach Draughtsmen
c/o Stephan Vernet
4345 Okeechobee Blvd., Bldg. F5
West Palm Beach, FL 33409
(407) 686-4019

South Florida Homebrewers
c/o Lauren or Bryan Hemedinger
441 S. State Rd. 7
Margate, FL 33068-1934
(305) 968-3709 FAX(303) 968-3591

Spacecoast Associates for the Advancement of Zymurgy (SAAZ)
c/o Ric Huber
4485 Citrus Blvd.
Cocoa, FL 32926

Tampa Bay BEERS (Beer Enthusiasts Enjoying Real Suda)
c/o Mark Stober
PO Box 24691
Tampa, FL 33623-4691
(813) 977-0141



Dave Norton of the Bidal Society of Kenosha, Wis.

PHOTO BY KAREN BARELA

GEORGIA

Ale Atlanta
c/o Coby Glass
1852 Aaron Ct.
Powder Springs, GA 30073
(404) 943-5583

Brew-52's
c/o Robert Hall
450 Ruth St.
Athens, GA 30601
(404) 369-1285

Chicken City Ale Raisers
c/o Rick Foote
6252 Brookfield Dr.
Murrayville, GA 30564
(404) 983-1135

The Clergy of Zymurgy of the Golden Isles
c/o Victor Ross
3225 Altama Circle
Brunswick, GA 31520
(912) 267-6911

Covert Hops Society
c/o Rick Lubrant
PO Box 15256
Atlanta, GA 30333
(404) 377-3024

Savannah Brewers' League
c/o Rob Moline
1303 E. 66th St. #1
Savannah, GA 31404
(912) 355-5491

HAWAII

Deja Brews Homebrewing Club of Kaua'i
c/o Bruce Ingerson
4915 Nonou Rd.
Kapaa, HI 96746
(808) 823-8929

IDAHO

Homebrewers Of the Palouse (Hop)
c/o Kane Francetich
PO Box 516
Troy, ID 83871
(208) 835-5263

Ida-Quaffer Homebrewers Association
c/o Editor
3894 W. State St.
Boise, ID 83703
(208) 344-5141

SEIZURE
c/o Tim Hill
1240 Alameda Ave.
Idaho Falls, ID 83401-2153
(208) 523-2674

ILLINOIS

Association of Bloomington/Normal Brewers (ABNORMAL)
c/o Tony McCauley
404 Tilden Place
Normal, IL 61761-1432
(309) 452-1084

Brewers of South Suburbia (BOSS)
c/o Steve Kamp
PO Box 461
Monee, IL 60449
(708) KEG-BEER

Brewers On the Bluff
c/o Lake Bluff Park Dist./Steve Howard
PO Box 95
Lake Bluff, IL 60044
(708) 234-4150

Central Illinois Brewers' Association
c/o Mark Kellums
335 N. Main
Mt. Zion, IL 62549
(217) 864-4216

Chicago Beer Society
c/o Steve Paeschke
769 Laurel Ave.
Des Plaines, IL 60016
(708) 391-3289

Club Wort
c/o Jim Thommes
5504 Deerfield Lane
Rolling Meadows, IL 60008
(708) 397-7648

Egyptian Zymotic (EZ) Brewers
c/o Doug Diggle
514 S. Illinois Ave.
Carbondale, IL 62901
(618) 457-3513

The Forest City Brewers
c/o George Tauscher
5301 Orchard Ave.
Rockford, IL 61108
(815) 227-4677

Headhunters Brewing Club
c/o Greg Lawrence
4 S. 245 Wiltshire Lane
Sugar Grove, IL 60554
(708) 557-2523

Home Beers Racketeers
c/o Fleming's Winery
RR2 Box 1
Oakwood, IL 61858
(217) 345-4558

Northern Illinois Better Brewers
c/o Jon Huettel
2316 Oak St.
Northbrook, IL 60062-5220
(708) 498-6154

Northwest Amateur Wine and Beermakers Guild
c/o Roy J. Horton
1419 Redwood Dr.
Mount Prospect, IL 60056
(708) 439-4525

Prairie Schooners
c/o Karl Menninger
PO Box 10082
Springfield, IL 62791-0082
(217) 522-1906

Weinkeller Beer Enthusiasts
c/o Bob Ward
9114 W. 140th St. Suite 3NE
Orland Park, IL 60462
(708) 403-6666

Wizards of Wort
c/o Steve Schmit
1109 Stanton Rd.
Lake Zurich, IL 60047
(708) 438-0233

Wort-Mongers of Eastern Illinois
c/o Ken Knoop/The Grape N Grain Gourmet
623 Monroe St.
Charleston, IL 61920
(217) 348-8077

INDIANA

Bull and Stump Brew Club
c/o Rob Reed
1420 W. 350 North
Kokomo, IN 46901
(317) 452-6371

Fermenters Of Special Southern Indiana Libations Society (FOSSILS)
c/o Roger Baylor
PO Box 6880
New Albany, IN 47151-6880

Foam Blowers of Indiana (FBI)
c/o Ron Smith
4561 Brentwood Court
Zionsville, IN 46077

Fort Wayne Freebrewers Guild
c/o Keith Vosburgh
2128 Edgehill Ave.
Fort Wayne, IN 46805
(219) 482-5642

Tippecanoe Homebrewers Circle
c/o Richard Fudge
Box 59
Battle Ground, IN 47920
(317) 567-2478

Wells County Homebrewers Club (WELCOME)
c/o Jim Craig, Sec./Treas.
1121 Honeysuckle
Bluffton, IN 46714
(219) 824-0387

IOWA

Cedar Rapids Association of Zymurgy, Yeastology and Homebrewers (CRAZY Homebrewers)
c/o Gary Cotton
401 Norwick Rd. S.W.
Cedar Rapids, IA 52404
(319) 396-3818

Central Iowa Homebrew Club
c/o Dan A. Morey
1408 Georgia Ave. #3
Ames, IA 50014-3006
(515) 292-8207

Heartland Homebrew Club
c/o Gary Porter
RR 4 Box 112
Grinnell, IA 50112-9143
(515) 236-7487

MUGZ
c/o Jan Van Ommen
200 W. Spring St.
Eldritch, IA 52748

North Iowa Wine Club
c/o Laurence Fredricksen
24 Bayside Ave., Route 1 Box 174E
Clear Lake, IA 50428
(515) 357-2290

Raccoon River Brewers Association
c/o Greg Helton
3920 42nd St.
Des Moines, IA 50310
(515) 279-4990

KANSAS

The Derby Brew Club
c/o Roger Clark
942 Morrison
Derby, KS 67037
(316) 788-5327

Greater Topeka Hall of Foamers
c/o Bryce Benedict
1273 S.W. Oakley
Topeka, KS 66604
(913) 233-6717

Kansas City Beer Meisters
c/o Alberta Rager
8206 Bell Rd.
Lenexa, KS 66219-1631
(913) 894-9131

Rapsallions of Wichita
c/o Kerry Clinkenbeard
1320 Bitting
Wichita, KS 67203
(316) 263-6871



Crescent City Homebrewers, Kenner, L.A.

S.E. Kansas Homebrewers Association

c/o Ben Fox
611 N. Mulberry
Eureka, KS 67045
(316) 583-7256

KENTUCKY

LAGERS, Ltd.

c/o David R. Pierce
PO Box 22588
Louisville, KY 40252
(812) 948-9969

Lone Wolf Brewers

c/o Michael Berheide
120 Delwood Ave.
Berea, KY 40403
(606) 986-2647

LOUISIANA

Baton Rouge Enzyme Wrights (BREW)

c/o Jim Waits
1818 Wooddale Blvd. #18
Baton Rouge, LA 70806

Crescent City Homebrewers

c/o Wayne Rodrigue
4233 Alabama Ave.
Kenner, LA 70065
(504) 468-9273

The Dead Yeast Society

c/o Jim Boudreaux
204 Montrose Ave.
Lafayette, LA 70503-3822
(318) 981-4072

Redstick Brewmasters

c/o Erick Swenson
628 Senternary St.
Baton Rouge, LA 70808
(504) 769-2177

MAINE

BrewSpeak

c/o Stephen Hodgdon
297 Route 236
Berwick, ME 03901
(207) 384-3278

Maine Ale & Lager Tasters (MALT)

c/o Ron Bouffard
PO Box 464
Topsham, ME 04086-0464
(207) 666-8888

Maine Homebrew Society

c/o Victor Baillargeon
PO Box 7853
Portland, ME 04112
(207) 773-6858

Malt of the Earth Society

c/o Ernest Gurney
PO Box 117
Farmington Falls, ME 04940
(207) 778-6738

Seacoast Homebrewers Club

c/o Vic Neuwirth
RR 1 Box 2665
Wells, ME 04090
(207) 646-2445

Worthog Homebrewing Club

c/o Greg Blanchette
Box 4255
Dresden, ME 04342
(207) 737-8174

MARYLAND

Bay Country Brewers

c/o Reid Woolford
4408 Parkwood Ave.
Baltimore, MD 21206
(410) 485-4854

Chesapeake Real Ale Brewers (CRABS)

c/o Jeff Jordan
9267 Broken Timber Way
Columbia, MD 21045
(410) 381-3236

Cross Street Irregulars

c/o Hugh Sisson
36 E. Cross St.
Baltimore, MD 21230
(410) 539-2093

Terrapin Brewers Association

RR2 Lot 5B
La Plata, MD 20646-9802
(301) 932-1706

The Libation Association of Northern Maryland

c/o Steven Schultz
311 Bigmouth Ct.
Abingdon, MD 21009
(410) 569-0248

MASSACHUSETTS

Barleyhoppers Brewing Club

c/o Mark Larrow
154 King St.
Northampton, MA 01060
(413) 586-0150

The Biermeister Brewers Club

c/o Eric Marzewski
706 Chelmsford St. #301
Lowell, MA 01851
(508) 458-0604

Boston Brew-Ins

c/o George Curran
16 Cutter Ave. #3
Somerville, MA 02144

The Boston Wort Processors

PO Box 397198
Cambridge, MA 02139-7198

Colonial Brewers

c/o Bill Lytle
Box 229
Brookfield, MA 01506

The Gambrinus Society

c/o Herbert Holmes
92 Marsh Rd.
Barre, MA 01005
(508) 355-2753

Hampshire Brewing Collective

c/o Rob Young
Hampshire College PO Box 1527
Amherst, MA 01002
(413) 549-7604

PHOTO BY KAREN BARELA

Homebrew at Sloan

c/o Greg Hennessy, MIT Sloan
School of Management
50 Memorial Dr.
Cambridge, MA 02139
(617) 628-2309

IBIS

c/o Wade Krull
32A Cherry Hill Dr.
Danvers, MA 01923
(508) 777-4247

Missile Mashers

c/o Edward Bardsley
38 Hillside Ave.
Lawrence, MA 01841
(508) 681-9064

The Spinal Taps

c/o Dr. Michael Biblyk
19 Shaw St.
West Newton, MA 02165
(617) 527-4255

The Stellar Brewers

c/o Bruce Susel
PO Box 23
Charlton Depot, MA 01509
(508) 248-6823

Trubadours

c/o Dan Harris
12 Roosevelt Ave.
Holyoke, MA 01040
(413) 532-4457

Valley Fermenters

c/o Charlie Olchowski
PO Box 988
Greenfield, MA 01302-0988
(413) 773-5920

Worry Worts

c/o Marty Bonneau
25 Pine Ridge Circle
Taunton, MA 02780
(508) 880-6838

MICHIGAN

Ann Arbor Brewers Guild

c/o Rolf Wucherer
1942 Steere Place
Ann Arbor, MI 48104
(313) 663-8196

Beernutz

c/o Brew & Grow/Bonnie Day
33523 W. 8 Mile #F5
Livonia, MI 48152
(313) 442-7939

Capital City Brew Crew

c/o Jim Booth
412 Everett Dr.
Lansing, MI 48915
(517) 371-1754

Cass River Home Brewers Club

c/o Joseph C. Schaffer
1433 Hillside
Davison, MI 48423
(313) 743-2991

Detroit Car Boys

c/o Rich Byrnes
PO Box 92418
Warren, MI 48092-0418
(313) 558-9844

Fermental Order of Renaissance Draughtsman

c/o Rich Byrnes
30972 Cousino
Warren, MI 48092
(313) 558-9844

Great Lakes Brewers, Michigan Chapter No. 1

c/o Joe Gedmen
34632 Hivley
Westland, MI 48185
(313) 721-6288

Hogshead Brewers

c/o D.J. Downs
1994 A Woodward Ave. #215
Bloomfield, MI 48304
(313) 362-4466

Keweenaw Real Ale Enthusiasts United for Serious Experimentation in Naturally- Effervescent Refreshment

Science (KRAEUSENERS)
c/o Daniel Butler-Ehle
Route 1, Box 27
Calumet, MI 49913
(906) 337-3525

Lake Street Brewers

c/o Butch or Rich
220 W. 8th St.
Holland, MI 49423
(616) 396-8227

Michiana Omnifarious Nomadic Kraeuseners & Spargers (MONKS)

c/o Todd Keller
1350 Ferry St.
Niles, MI 49120
(616) 683-9162

Port Elizabeth Brewers Guild

c/o Mike Kelly
PO Box 1452
Caseville, MI 48725

Prime Time Brewers

c/o Bruce Brandt
4140 18 Mile Rd.
Casnovia, MI 49318
(616) 675-7005

MINNESOTA

Boreal Bottlers

c/o Jerry Bourbonnais
Route 6 Box 236
Bemidji, MN 56601
(218) 586-2488

Minnesota Brewers Association (MBA)

c/o James Frechette
7169 167th Court W.
Rosemont, MN 55068-1903
(612) 891-5458

Minnesota Timberworts

c/o Terry Sprung
204 10th Ave. N.E.
Rochester, MN 55906
(507) 285-0591

Mobius Microbrewers

c/o Mark W. Peery
400 Wilshire Dr. S.
Minnnetonka, MN 55305-1560
(612) 591-1602

Northern Ale Stars Homebrewers Guild

c/o Don Hoag
5426 Beartrap Rd.
Saginaw, MN 55779
(218) 729-6302

MISSOURI

Missouri Winemaking Society

c/o Paul Hendricks
2018 Norma Lane
St. Louis, MO 63138

St. Louis Brews

c/o Jerry S. Dahl
9 Adams Lane
Kirkwood, MO 63122
(314) 822-8039

MONTANA

Big Sky Basement Brewers and Blues Revival Society

c/o Jim Hunter
614 So. Cottage
Miles City, MT 59301
(406) 232-4378

The Hopping Anarchists

c/o Kirk Astroth
7359 Raven Dr.
Belgrade, MT 59714
(406) 388-1232

MT Books Society

c/o Kurt B. Wurm
3538 Granger Ave. W.
Billings, MT 59102
(406) 656-9630

Zoo City Zymurgists

c/o Neil Christensen
1626 S. 6th W.
Missoula, MT 59801
(406) 728-8552

NEBRASKA

Barley Pops and Alewives

c/o Marilyn Kielniarz
1402 S. 52 St.
Omaha, NE 68106

Omahops

c/o Fermenter's Supply and
Equipment
4472 S. 84th St.
Omaha, NE 68127
(402) 593-9171

Respected Ale & Lager Fermentors - Of Nebraska (RALF-ON)

c/o Jeff Ramage
116 Westridge Ave.
Bellevue, NE 68005-3515
(402) 291-2208

NEVADA

Southern Nevada Ale Fermenters Union (SNAFU)

c/o The Homebrewery
4300 N. Pecos Rd. #13
Las Vegas, NV 89115
(702) 644-7002

Washoe Zephyr Zymurgists

c/o Eric McClary
6185 Franktown Rd.
Carson City, NV 89704
(702) 883-7187

NEW HAMPSHIRE

Brew Free or Die

c/o Dan Hall
PO Box 1274
Merrimack, NH 03054-1274
(603) 778-1231

Lakes Region Homebrewers

c/o Jon Scanlon
RFD1 Box 388B
Northfield, NH 03276
(603) 286-8149

New Hampshire Biernuts

c/o Chris Heatley
34 Hooper
Keene, NH 03431
(603) 358-0161

Northern Brewers

c/o The Wine Cellar
650 Amherst St.
Nashua, NH 03063
(603) 883-4114

Seacoast Union of Maltsters

c/o Bill Rucker
3 Jessica Court
Somersworth, NH 03878-2300
(603) 692-3609

Twin State Brewers

c/o Paul White
RRI Box 106A
Orford, NH 03777
(603) 353-4564

NEW JERSEY

Bell Hops

c/o Dave Ballard
599 Putnam Ave.
Piscataway, NJ 08854
(908) 752-7347

Brunswick Brew Club

c/o Brian Conger
4302 Hana Rd.
Edison, NJ 08817-2569
(908) 248-1559

Jersey Shore Homebrewers

c/o Mike Kilkenny
607 Larkspur Lane
Jackson, NJ 08527
(908) 842-7507

Mid-Atlantic Sudsers and Hoppers (MASH)

c/o Ed Busch
PO Box 105
Flagtown, NJ 08821
(908) 359-3235

New Jersey Worthogs

c/o Bill Luchkiw
49 Windmill Lane
New City, NY 10956

South Jersey Fermenters

c/o Mark Scelza
617 W. Second St.
Florence, NJ 08518
(609) 499-0952

NEW MEXICO

The Atom Mashers

c/o Geoff Reeves
425 Quartz St.
Los Alamos, NM 87544
(505) 662-0417

The Desert Quenchers

c/o Anne L. Stout
427 Vassar Ct. #A
Las Cruces, NM 88005
(505) 523-6820

Dukes of Ale

c/o Guy Ruth
11524 Manitoba N.E.
Albuquerque, NM 87111
(505) 294-0302

NEW YORK

Adirondack Homebrewers

c/o Dick Cummings
5 Highland Place
Lake Placid, NY 12946
(518) 523-1557

The Borderline Yeast Injectors

c/o Gary (Doc) Dougherty
449 Court St.
Binghamton, NY 13904
(607) 722-2476

Brewbonic Plague

c/o Eric Hahn
65 Clarendon Place
Buffalo, NY 14209
(716) 884-8099

Broome County Fermenters Association

c/o Brice Feal
2601 Grandview Place
Endicott, NY 13760
(607) 757-0634

Catskill Mountain Homebrewers Club

c/o Bill and Sue Norotny
93 Grove School Rd.
Catskill, NY 12414
(518) 943-2289

Homebrewers of Staten Island

c/o Jeff Lewis
1569 Richmond Rd.
Staten Island, NY 10304
(718) 351-8124

Hudson Valley Homebrewers

c/o Bruce Franconi
RD2 Box 35
Red Hook, NY 12571
(914) 758-3221

Ithaca Brewers Union

c/o Perry Geib
PO Box 6604
Ithaca, NY 14851
(607) 277-7122

Long Island Brewers Association

c/o Mark Burford
20 Bell Ave.
Blue Point, NY 11715
(516) 363-2713

Mohawk Valley Friends of Beer

c/o Karl Sweitzer
RRI Box 275 Roberts Rd.
Sauquoit, NY 13456-9604
(315) 737-8341

New York City Homebrewers Guild

c/o Greg Zaccardi
174 Walnut St.
Montclair, NJ 07042
(718) 398-1610

Paumanok United Brewers (PUB)

PO Box 8023
Hicksville, NY 11802-8023
(516) 368-0406

Salt City Brew Club

PO Box 1935
Syracuse, NY 13201

The Saratoga Thoroughbreds

c/o Wolfgang Kurth, The Hoppy Troll
454 Broadway
Saratoga Springs, NY 12866
(518) 581-8160

Sultans of Swig

c/o Timothy Herzog
412 Lamarck Dr.
Buffalo, NY 14225
(716) 837-7658

Upstate New York Homebrewers Association

PO Box 23541
Rochester, NY 14692
(716) 272-1108

Wort Ever Ales You

c/o Andrew Schmidt
307 Quaker Rd.
Chappaqua, NY 10514
(914) 238-4549

NORTH CAROLINA

Carolina Brewmasters

c/o Bruno J. Wichnoski III
5323 Larewood Dr.
Charlotte, NC 28215
(704) 597-5782

Piedmont Institute of Sud Sippers (PISS)

c/o Phil Ridge
309 Concord St. #203C
Greensboro, NC 27406
(910) 273-6856

Triangle Unabashed Homebrewers (TRUB)

c/o Lucy Adams
116 Northwood Dr.
Chapel Hill, NC 27516
(919) 942-8925

NORTH DAKOTA

Buffalo Brewers

c/o Curt Saylor
1206 3rd Ave. NE
Jamestown, ND 58401
(701) 252-4358

Prairie Homebrewing Companions

c/o Ray Taylor
917 22nd Ave. N.
Fargo, ND 58102

OHIO

Bloatarian Brewing League

c/o Larry Gray
7012 Mt. Vernon Ave.
Cincinnati, OH 45227
(513) 271-2672

Burkhardt's Brew Pub Club

c/o Burkhardt's Brew Pub
3700 Massillon Rd.
Uniontown, OH 44685
(216) 896-9200

Columbus Homebrewers Understand Good Stout (CHUGS)

c/o Walter den Haan
6600 Dublin Rd.
Delaware, OH 43015

Dayton Regional Amateur Fermentation Technologists (DRAFT)

c/o Marty Vinings
PO Box 246
Dayton, OH 45449
(513) 298-3623

DLB Home Brewers Club

c/o Dean Dilzell
30311 Clemens Dr.
Westlake, OH 44145
(216) 228-3619

Salacious Homebrewers In Toledo

c/o Robert Morris
2160 Thornridge
Toledo, OH 43614

Society of Northeast Ohio Brewers (SNOBs)

c/o Fred Dockus
515 High St.
Wadsworth, OH 44281
(216) 336-9262

Youngstown Area Homebrewers Organization of Ohio (YAHOO)

c/o Bob Bero
6140 Leffingwell Rd.
Canfield, OH 44406
(216) 533-1035

OKLAHOMA

Fellowship of Oklahoma Ale Makers (FOAM)

c/o John Boston
2451 A East 14th Place
Tulsa, OK 74104
(918) 749-7639

High Plains Draughters

c/o Joe Bockock
513 N.W. 38th St.
Oklahoma City, OK 73118
(405) 525-9858

Just Brew It!

c/o Tim Harper
PO Box 3082
Bartlesville, OK 74006
(918) 335-0122

OREGON

Capitol Brewers

c/o Steven Lee Winans
905 20th St. S.E.
Salem, OR 97301
(503) 363-0311

Cascade Brewers Society

c/o Scott Weech
26654 Pickens
Eugene, OR 97402
(503) 484-4758

The Grateful Deaf Homebrew Society

c/o Ken Fisher
5025 S.W. Pasadena #2
Portland, OR 97219
(503) 245-1795

Heart of the Valley Homebrewers

c/o Jeff Tobin
539 3rd Ave. S.E.
Albany, OR 97321
(503) 926-0596

Helles Canyon Quaffers

c/o Ken Hohmann
69796 Jimtown Rd.
Wallowa, OR 97885
(503) 886-3501

Mary's Peak Lagers

c/o Dean Bautz
7735 N.W. Hood View Circle
Corvallis, OR 97330
(503) 745-5865

Oregon Brew Crew

c/o Scott Sanders
7260 S.W. 82nd
Portland, OR 97223
(503) 293-6120

Saccharomyces First!

c/o David L. Murray
73 Pine St. #5
Klamath Falls, OR 97601
(503) 883-3070

**Society for Upgrading Drinkable
Spirits (SUDS)**

c/o Rob Sampson
HCR 87 Box 1072
Baker, OR 97814
(503) 523-6063

Southern Oregon Beer Farmers

c/o Ross Litton
1670 Pinegate Way
White City, OR 97503

Southern Oregon Brewers Society

c/o Larry Cosby
4501 Azalea Dr.
Grants Pass, OR 97526
(503) 479-3243

**Stout-hearted Brewers of the
Umpqua Valley**

c/o Paul Moon
PO Box 503
Glide, OR 97443
(503) 496-0119

**Western Oregon Regional
Tasters Society (WORTS)**

c/o Tom Rhodes
2459 S.E. Tualatin Valley Hwy. #167
Hillsboro, OR 97123

PENNSYLVANIA**Beer Unlimited Zany Zymurgists
(BUZZ)**

c/o Jim McHale
81 Lancaster Ave. Store 35
Malvern, PA 19355
(215) 889-0905

Berks United Zymurgists (BUZ)

c/o Terry Ripple
1010 Lancaster Ave.
Reading, PA 19607
(215) 777-5520

Boys from Brew Ha Ha

c/o Randy Martin/Jim Burrus
209 High St.
Pottstown, PA 19464
(215) 326-2620

**Danville Area Malt Nuts United
for Tastier Suds (DAMNUTS)**

c/o Pete Cera
303 Water St.
Danville, PA 17821
(717) 275-1282

Lancaster County Brewers

c/o Ted Eyraud
545 N. Lime St.
Lancaster, PA 17602
(717) 293-0345

**Three Rivers Alliance of Serious
Homebrewers (TRASH)**

c/o Greg Walz
3327 Allendorf St.
Pittsburgh, PA 15204
(412) 331-5645

Low Country Libations

c/o Josh Quigley
845 D Savannah Hwy.
Charleston, SC 29407
(803) 571-4748

**Palmetto State
Brewers**

c/o Craig Mole
1431 Nunamaker Dr.
Columbia, SC 29210
(803) 772-7994

**The Nude Brewers, Gainesville, Fla.****Harrisburg Area Homebrewers
Association (HAHA)**

c/o Tom Scotzin
65 N. 5th St. #C
Lemoyne, PA 17043-1611
(717) 737-0483

**HOPS: Homebrewers of
Philadelphia and Suburbs**

c/o Evan Meyers
440 Renfrew
Ambler, PA 19002
(215) 646-8322

The Keystone HOPS

c/o Jason Harris
Montgomery Farmers Market
Route 63
Montgomeryville, PA 18936
(215) 641-HOPS

Keystone Keggers

c/o Andrew Kovalchick
421 North Lumber St.
Allentown, PA 18102
(215) 821-4808

**York Area Homebrewers
Association (YAHA)**

c/o Mike Knaub, Starview Brew
51 Codorus Furnace Rd.
Mt. Wolf, PA
(717) 266-5091

RHODE ISLAND**Attleboro Suds Suckers**

c/o Dean Booth
77 Thibeault Ave.
Woonsocket, RI 02895
(401) 765-3770

Rhody Bloviates

c/o Leon Dudley
199 Mesa Dr.
North Kingstown, RI 02852
(401) 884-1349

**SOUTH
CAROLINA****Hopportunists of Clemson**

c/o Brad Purinton
597 Lakeside Dr.
Six Mile, SC 29682
(803) 868-2859

TENNESSEE**Bluff City Brewers**

c/o Jim Gosney
8927 Magnolia Leaf Cove
Cordova, TN 38018
(901) 756-5298

Chattanooga Brew Club

c/o Eddie Scoggins
304 Georgetown Rd.
Cleveland, TN 37311
(615) 478-3184

**East Tennessee
Brewers Guild**

c/o Chris Foell
1437 Bexhill Dr.
Knoxville, TN 37922
(615) 691-8933

Mashville Brews

c/o Lil Ole Winemaker Shop
5839 Charlotte Pike
Nashville, TN 37209
(615) 356-3089



BURP, Lorton, Va.

VERMONT

Black River Brewers

c/o Tom Coleman
PO Box 404
Ludlow, VT 05149
(802) 228-4178

Central Vermont Homebrewers

c/o Dr. Phil Zunder
15 Pinewood Rd.
Montpelier, VT 05602
(802) 229-9617

Cramhill Brewers

c/o Tony Lubold
RD 2 Box 238
Randolph, VT 05060
(802) 728-3754

Green Mountain Mashers

c/o Anne Whyte
10 School St.
Essex Junction, VT 05452
(802) 879-6462

VIRGINIA

Back Door Brewers

c/o Bill Pemberton
PO Box 5754
Charlottesville, VA 22905
(804) 973-7701

Brewers Association of Northern Virginia (BANOVA)

c/o Lat Stevens
2852 New Providence Court
Falls Church, VA 22042
(703) 698-5268

Brewers United for Real Potables (BURP)

8912 Jandell Rd.
Lorton, VA 22079
(703) 339-8028

Dulles Regional Brewing Society (DRBS)

c/o Fred Hardy
13215 Poplar Tree Rd.
Fairfax, VA 22033
(703) 378-0329

Hampton Roads Brewing and Tasting Society

c/o Roger Dellinger
1716 Moonstone Dr.
Virginia Beach, VA 23456
(804) 471-1195

James River Brewers

c/o John Wise
516 W. 28th
Richmond, VA 23225
(804) 231-0100

Smoky Mountain Brewmeisters

c/o Katie Cardwell
3712 Walker Blvd
Knoxville, TN 37917
(615) 689-9064

Tennessee Valley Homebrewer's Association

c/o John Yust
1443 Whitower Dr.
Knoxville, TN 37919
(615) 693-7262

Tri-City Homebrewers Club

PO Box 215
Kingsport, TN 37662
(615) 392-1316

Yeasty Boys

c/o Jay Woodall
7836 Ooltewah-Georgetown Rd.
Ooltewah, TN 37363
(615) 875-8918

TEXAS

The Bay Area Mashtronauts

c/o Michael Wiley
17050 Hwy. 3
Webster, TX 77598
(713) 338-2241

Bay Area Society of Homebrewers (BASH)

c/o Adam Klager
3309 Orlando Dr.
Corpus Christi, TX 78411
(512) 853-7105

Bock 'n' Ale-ians

c/o Dr. Paul Farnsworth
7404 Hummingbird Hill
San Antonio, TX 78255
(512) 695-2547

Borderline Brewers

c/o Mike Seidensticker
615 Baltimore Dr.
El Paso, TX 79902-2517
(915) 544-5741

Brew Bayou

c/o Mark K. DeWeese
PO Box 1575
Brazoria, TX 77422
(409) 848-0516

Brew Maxx Homebrew Club

c/o Scott Brown
7803 Hermosa Dr.
Amarillo, TX 79108-2713
(806) 381-8404

Cowtown Cappers

c/o Joan Basham / Winemaker
5356 W. Vickery Blvd.
Fort Worth, TX 76107-7520
(817) 377-4488

Denton Fermented Brewers Society

c/o Pat Towner Morrison
210 South Elm, #C
Denton, TX 76201
(817) 383-4399

The Foam Rangers Homebrew Club

c/o Lou Carannante
5611 Morningside Dr.
Houston, TX 77005-3218
(713) 523-8154

Lager-Rythmics

c/o Steve Moninger
3925 Fredricksburg Rd.
San Antonio, TX 78201
(210) 737-6604

MaltHoppers Beer Club

c/o George Ashley
PO Box 3392
Bryan, TX 77805
(409) 693-3004

North Texas Homebrewers Association

c/o Mike Leonard, Wine and Beer
13931 N. Central Expressway #320
Dallas, TX 75243
(214) 234-4411

Zymurgic Enthusiasts of Austin

c/o Brian Peters
1506 Chelsea Lane
Austin, TX 78704
(512) 443-4934

UTAH

Zion Zymurgists Hops (ZZ HOPS)

c/o Cory Bailey
10194 Buttercup Dr.
Sandy, UT 84092
(801) 572-7884

Rappahannock Engineers of Ales and Lagers (REAL)

c/o Jerry Hoehn
PO Box 504
Locust Grove, VA 22508
(703) 972-7467

St. Arnou Society

c/o Wayne Grovenstein
2011 Lewis Mountain Rd.
Charlottesville, VA 22903-2414

WASHINGTON

Boeing Employees Wine and Beermakers

c/o Craig Paterson
18513 S.E. 215
Renton, WA 98058
(206) 432-0526

Brew Fish

c/o Charles Castellow
23326 94th Place W.
Edmonds, WA 98020
(206) 546-5788

The Brews Brothers Society of Greater Seattle

c/o Rob Nelson
PO Box 1016
Duvall, WA 98019-1016
(206) 788-0271

Columbia River Ale Brewers Society (CRABS)

c/o Stan Smith
Coho Loop #10
Cook, WA 98605
(509) 538-2299

Fidalgo Island Brewers

c/o Tony Bigge
PO Box 1102
Anacortes, WA 98221
(206) 293-8070

Grande Tete Homebrewers

c/o Todd S. Hymel
4829 33rd Ave. N.E.
Seattle, WA 98105-4004
FAX (713) 783-7819

Impaling Alers

c/o Larry Rifenberick
7405 S. 212 #103
Kent, WA 98032
(206) 872-6846

Mid-Columbia Zymurgy Association

c/o Michael J. Hall
1120 McPherson Ave.
Richland, WA 99352
(509) 946-5735

Mt. Baker Brewers

c/o Gary Southstone
3277 North Shore Rd.
Bellingham, WA 98225-9406
(206) 676-GARY

The Red, White and Brew Society

c/o Alan Moen
253 Independence Way
Cashmere, WA 98815-1091
(509) 782-1147

River City Brewers

c/o Bob Ketcham
Jim's Homebrew Supply
N. 2619 Division
Spokane, WA 99207

Seattle Secret Skinny Brewers Society

c/o Marvin Crippen
3532 N.E. 92nd St.
Lacey, WA 98115
(206) 459-4759

South Sound Suds Society (SSSS)

c/o Chris Enrico
4809 24th Ave. S.E.
Lacey, WA 98503-3252
(206) 459-4759

West Sound Brewers

c/o Tom Chase
6215 Pear St.
Suquamish, WA 98392
(206) 598-4377

Whatcom Homebrewers Club

c/o Leonard Kerr
1176 Sudden Valley
Bellingham, WA 98226-4818
(206) 398-7942

Yakima Enthusiastic Ale and Stout Tasters (YEAST)

c/o John Farver
1403 Garfield Ave.
Yakima, WA 98902
(509) 248-9032

WEST VIRGINIA

Capitol Beermakers Guild

c/o Dan Vallish
405 Fairview Dr.
Charleston, WV 25302
(304) 343-0350

Maltaineers

c/o Jim Plitt
Stone's Throw
128 S. Walnut St.
Morgantown, WV 26505-6043
(304) 296-3530

WISCONSIN

Beer Barons of Milwaukee

c/o Andrew Moss
N. 75 W. 7297 Linden
Cedarburg, WI 53012
(414) 375-4216

The Beer Chasers

c/o Ron Strobel
19555 W. Bluemound Rd. Suite 36
Waukesha, WI 53186
(414) 789-0555

Bidal Society of Kenosha

c/o Carol Norton
7625 Sheridan Rd.
Kenosha, WI 53143
(414) 654-2211

Boars Head Brewing Club

c/o Jeff Parish
2321 Trillium Dr.
Eau Claire, WI 54701
(715) 839-0555

The Brewtown Brewmasters

c/o John Gorecki
2268 S. 7th St.
Milwaukee, WI 53215
(414) 781-BREW

Central Wisconsin Amateur Wine Club

c/o Ed Holt
1200 E. 26th
Marshfield, WI 54449
(715) 384-9441

Focal Point Homebrew Club

c/o Mike Champion
1540 N. Torun Rd.
Stevens Point, WI 54481
(715) 345-2305

The Frugal Homebrewers

c/o Greg Snapp
264 W. Broadway
Waukesha, WI 53186
(414) 544-0894

The Grain Exchange

c/o Dale Dean
1091 Liberty
Green Bay, WI 54304
(414) 498-3230

King Gambrinus Court Brewers

c/o Art Steinhoff
7680 Big Pine Lane
Burlington, WI 53105
(414) 539-2736

Lakeshore Home Zymurgists

c/o Michael Conard
1023 Lincoln St.
Keweenaw, WI 54216-1667
(414) 388-2728

Madison Homebrewers & Tasters Guild Ltd.

c/o Bob Paolino
PO Box 1365
Madison, WI 53701-1365
(608) 241-7126

Manty Malters

c/o Jeff Parks
4513 Harvest Circle
Manitowoc, WI 54220
(414) 684-6135

Sin City Sudzzers

c/o Rick Woods
1404A North Ave.
Sheboygan, WI 53083

Society of Oshkosh Brewers (SOBs)

c/o Jeffrey Affeldt
Galaxy Hobby
756 Northland Mall
Appleton, WI 54914
(414) 730-9220

Sud Savors

c/o Dave Heyn
406 Edgewood Dr.
Neenah, WI 54956
(414) 725-2773

Tappa Kegga Brew

c/o Shawn Conaway
2735 S. 15th Place
Milwaukee, WI 53215-3703

Wisconsin Vintners Association

c/o John Rauenbuehler
6100 Kent Ave.
Whitefish Bay, WI 53217
(414) 964-2098

WYOMING

Snowy Range Foamentors

c/o Claude Morris
810 S. 23rd
Laramie, WY 82070
(307) 742-0516

AUSTRALIA

NEW SOUTH WALES

Northside Wine/Beermakers Circle

c/o Brian Starley
I Young Crescent
Frenchs Forest, NSW 2086
(02) 451-3999

Redwood Coast Brewers

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

QUEENSLAND

Brisbane Amateur Beer Brewers

c/o John Thorp
140 Smith Rd., Woodridge
Brisbane, QLD 4114

**James Cook University
Home Brewers Guild**
c/o Christopher Sawbridge
James Cook University Union
Townsville, QLD 4811
(077) 81 4788

VICTORIA

Amateur Brewers Association — Victoria

c/o Colin Penrose
5 Raleigh St.
Seville, VIC 3139
059-643 473

Amateur Brewers of Victoria

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

CANADA

CABA — Canadian Amateur Brewers Association

c/o Paul Dickey
19 Cheshire Dr.
Islington, ON M9B 2N7
(416) 237-9130

ALBERTA

Dryland Brewers

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

Edmonton Homebrewers Guild

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

Fairview Independent Zealous Zymurgists (FIZZ)

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

Marquis De Suds Homebrewers

c/o Brad Ledrew
232 Strathbury Bay S.W.
Calgary, AB T3H 1N4
(403) 240-3849

BRITISH COLUMBIA

Campaign for Real Ale (CAMRA) Victoria

c/o John Rowling
1440 Ocean
Victoria, BC V8P 5K7
(604) 595-7728

Royal Canadian Malted Patrol

c/o Vic Boutin
3419 Kingsway
Vancouver, BC V5R 5L3
(604) 435-8335

NEW BRUNSWICK

Sparky's Social Club

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

NEWFOUNDLAND

Fish N' Brew's

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

NOVA SCOTIA

The Brewnosers

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

ONTARIO

Amateur Winemakers of Ontario

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

Canadian Association for Better Ale and Lager (CABAL)

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

Cochrane Homebrewers Club

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

Collingwood Brewing Club

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

The East Enders

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

Thunder Bay Home Brewers Association

c/o Bruce Holm
160 Iris Crescent
Thunder Bay, ON P7A 8A1
(807) 767-5077

Timmins and Sudbury Homebrewers Association

c/o Susan Lomas
PO Box 2241
South Porcupine, ON P0N 1H0
(705) 235-2382

Toronto Regional Association of Specialty Homebrewers' (TRASH)

c/o Dave Kimber
1534 King St. W. #3
Toronto, ON M6K 1J8
(416) 538-2479

QUEBEC

Bootlegger's Homebrew Club

c/o Mike Mathison
53a Rue Ste-Anne
Ste-Anne-De-Bellevue, PQ H9X 1L5
(514) 457-1455

Montreal Association of Serious Homebrewers (MASH)

c/o Scott Vitus
1385 Garneau St.
Bruno, PQ J3V 2V5
(514) 441-9529

JAPAN

Far East Brewers

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

Foreign Fermentations

c/o Randy Ulland
343 Nikaido, Kamakura-shi
Kanagawa-Ken, 248
0467-23-5187

The Japan Homebrewing Promotion Association

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

NEW ZEALAND

Auckland Guild of Winemakers

c/o Hec Denniston
426 Sandringham Rd.
Auckland 3

Far North Brewers & Vintners

c/o Nancy Barden
PO Box 214
Mangonui, Northland

Hamilton Brewers & Winemakers Club

c/o Barry G. Whiteley
45 Radiata St.
Hamilton
64-7- 8559653

Hibiscus Winemakers & Brewers

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

Manukau Winemakers & Apiarists

c/o Basil Dempsey
18 Picton St
Papatoetoe

North Shore Fermenters Club

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

Waimea Amateur Brewers Society

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

SWEDEN

Amylase

c/o Tommy Sandstrom
Tornrosavägen 29
Molnlycke, 43531
031-882371

Brygg — Halsä

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

Fermentation Army

c/o Patrick Holmqvist
Tullingebergsvägen 19 bv
S-146 45 Tullinge
46 8 778 46 80

Heimbrewed

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

UNITED KINGDOM

Campaign For Real Ale (CAMRA)

c/o I.W. Dobson, Company
Secretary
34 Alma Rd.
St. Albans, Herts, AL1 3BW
0727 867201



FOR THE BEGINNER

Bruce Susel

Primed to Perfection

In this issue, I'll discuss the ever-sparkling subject of carbon-

ation in its natural form. Most commercial breweries carbonate their finished product with CO₂ gas. We have this option by kegging and force-carbonating our beers in the same way. But we homebrewers also know carbonation can be accomplished naturally by simply starting a second fermentation after bottling. Because the bottle is capped, any pressure that would normally be released via an airlock is forced back into the beer. Not just a simple twist of fate!

Preparing your beer for natural carbonation involves one final racking of your cleared beer into a mixture of "priming media." Most fermentable ingredients can be used to prime beer. After the primed beer is racked and bottled it must remain at the temperature at which primary fermentation was carried out for a period of seven to 21 days depending on what was used for priming. After this time, the brew can be consumed or further aged at cooler temperatures.

Following are some of the more common ingredients used for naturally carbonating beer.

Corn Sugar: Brewer's corn sugar is the most widely used ingredient to prime beer. It is reliable and ferments out almost completely, leaving no noticeable taste to most palates. I'm always hearing stories from new brewers who remember helping their dad measure sugar into each bottle and the gushing and exploding bottles. These probably were caused by inaccurate measurements or contaminated sugar. To avoid that scenario, boil the entire amount of corn sugar for five minutes in about a cup of water and mix with the entire batch, eliminating uneven car-

bonation as well as bacterial problems. A good way to mix in the priming media is to put it in the bottling bucket first, then gently siphon wort into the media.

The amount of corn sugar to use can vary with beer styles and drinking temperatures. A good rule is to start with three-fourths cup for a five-gallon batch. Most people tend to drink lighter-bodied beer at colder temperatures. Because colder liquids tend to absorb more CO₂, people who drink their beer ice-cold may use up to a cup, but be wary when taking a case across country in the back of your station wagon! Beer primed with one cup sugar per five gallons needs to be kept cool. Beers enjoyed at warmer temperatures may be primed with three-fourths cup although some people prefer the lighter carbonation of two-thirds cup. As usual, your own preference is key, and after a few batches you'll have a system worked out. Typical carbonation time for beer primed with corn sugar is seven to 14 days. Priming with corn sugar tends to maintain an even level of carbonation over time.

Malt: Dried malt extract or extract syrup may be used to prime beer. The dried type is easier to use and light malt is preferred, but any color will suffice. I've never heard of hopped extract being used for priming, but if anyone does opt to try I'd be glad to judge the results. To use malt extract, start with 1 1/4 cups, boiled in a pint of water. Malt extract has only about 70 to 80 percent of the fermentables (by weight) of corn sugar, which is why you must use more. Adjust as you would with corn sugar for style and serving temperature. Boil the malt extract for a few

minutes to achieve a hot break (the foaming that occurs during the initial boil) so

remember to use a large enough pan. Beer primed with malt tends to take longer to carbonate, generally 10 to 14 days for full carbonation. Malt priming is ideal for brown and darker ales because malt-primed beers tend to produce a foamy, dense head characteristic of those styles.

Honey: Honey can be used to carbonate beer and sparkling meads. The priming rate for honey is one-half cup per five gallons. Honey also should be boiled and foam removed as it rises. When the foaming has stopped and the liquid cooled, prime as usual. Expect to wait about 10 to 14 days for carbonation.

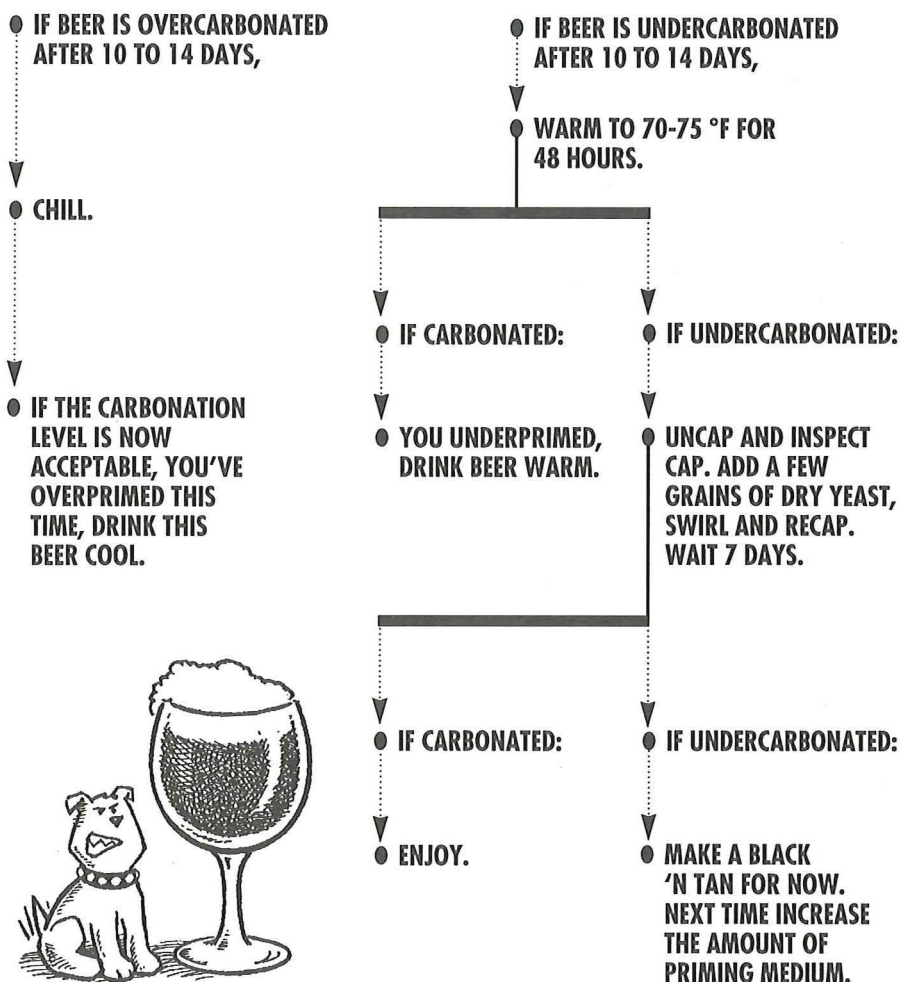
Molasses: Use one cup per five gallons when trying this form of sugar to carbonate. Use the same boiling procedure as with malt. Molasses is bound to be good in a rich porter or imperial stout. Carbonation time is about the same as with corn sugar.

Brown sugar: This is nothing more than refined cane sugar with some molasses added. Use three-fourths of a cup and boil as you would with corn sugar.

Other Stuff: Fermentables are everywhere: juice concentrate, maple syrup, coffee and chocolate syrups, to name a few. The key to experimenting with these is determining the fermentable sugar content and scaling it to the amount present in three-fourths cup of corn sugar, which amounts to about 4 ounces. Who knows? That blast of cranberry chocolate syrup you primed with may turn a judge in your favor!

Kraeusening is more advanced from of natural carbonation. To krausen, brewers prime with unfermented or "green" beer. For

TROUBLE-SHOOTING STEPS



more information on this method, check *zymurgy* Winter 1993 (Vol. 16, No 5).

Trouble-shooting Steps

The problems of poor carbonation can usually be identified and sometimes corrected. If chilled beer is flat after 10 to 14 days, move a bottle to a warm, (70- to 75-degree-F, 21- to 24-degree-C) room for 48 hours. If the beer is carbonated after this time, you've underprimed. Drink this beer warm to enjoy the carbonation and write it off to experience. If beer is still flat, inspect cap liner — they aren't those old cork caps you picked up at the flea market are they? If they are, recap one bottle, swirl it and wait a few days. Still no success? "If the thunder don't get you then the lightning may." Your yeast may have died

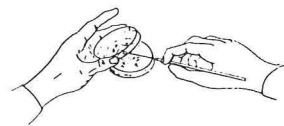
from unknown causes or from remaining in secondary fermentation too long. Try uncapping a bottle and adding a couple of grains of dry yeast and recap. Wait seven to 10 days and sample.

If all else fails, you can't go back and you can't stand still. Decant beer into a pitcher with equal parts of a beer that is carbonated and try your luck at a "black and tan."

If your beer is overcarbonated, try cooling it down. If chilled beer has better carbonation, drink it cold and learn from the experience.

Bruce Susel owns Stella Brew Homebrew Supplies in Charlton and Marlboro, Mass. A brewer for several years, he is also working on a book and patent. The former Digital Equipment Corp. employee in manufacturing and research engineering may be spotted at a Grateful Dead show or hanging out where the karma is good.

A great beer starts with a great yeast...



The BrewTek Advanced Yeast Culturing Kit provides a simple and economical solution to low pitching rates, allows you to store yeast stocks for use at your convenience and, as your own personal lab, adapts to your limitations.

It includes:

- ✓ Pre-Poured Petri Dishes,
- ✓ Pre-Poured, Blank Slants,
- ✓ Super Starters, Super Wort,
- ✓ Inoculation Loop,
- ✓ Erlenmeyer Flask, Parafilm,
- ✓ Your Choice of 4 Yeast Cultures from our Yeast Bank.
- ✓ Our Acclaimed, Illustrated Book, *Yeast Culturing for Home Brewers*.
All for only \$34.95! +S&H

Be sure to ask your local retailer about the new BrewTek Yeast Culturing Kit. Three different kits, only \$19.95 ea. (sug. retail) for six, strong, ½ liter starters!

Also available from *Brewers Resource*:

- The Yeast Hunters Kit, for collecting yeast while traveling.
- Our yeast bank of nineteen proven yeast strains from around the world.
- Yeast culturing media, accessories, racks, flame sources and more.



Brewers Resource
-Excellence in Brewing-

P.O. Box 507
Woodland Hills, CA 91365
800-827-3983
818-887-3282
818-887-3090 FAX

Dealer Inquiries Welcome

WINNERS

C I R C L E

James Spence

Ahhh! Summer brewin'. There's almost nothing better than those temperate evenings sitting out on the lawn watching the sprinkler refresh the leaves and blades. Relax, you have a right to be lazy during summer, especially if you've spent the day brewing one of these award-winning beers. Professional brewers will be the first to tell you that brewing is hard work. Reward your hard day's brewing by uncapping a cool lager (you did brew up a nice one from zymurgy Spring 1994 "Winners Circle," didn't you?) and kick back, watch the kids play and talk with your friends about quiet things.

Don't forget that homebrewers are not a dime a dozen. They are all very special individuals who celebrate their hobby by brewing their way and only their way. Because of this, your results from following these recipes may vary. Don't let it bug you.

BROWN ALE



SECOND PLACE
AHA 1993 NATIONAL HOMEBREW COMPETITION
Jim Dilldine
Craig, Colorado
"Cedar Mountain Brown Ale"
American Brown

Ingredients for 5 gallons

- | | | | |
|-------|--|-----|---|
| 6 2/3 | pounds Northwestern Gold malt extract syrup | 1/2 | ounce Washington Cascade hops, 4.6 percent alpha acid (end of boil) |
| 1 | pound Williams Australian Dark dry malt extract | 1 | teaspoon Irish moss |
| 6 | ounces chocolate malt | | Wyeast No. 1007 liquid yeast culture |
| 6 | ounces roasted barley | 7/8 | cup corn sugar to prime |
| 6 | ounces crystal malt 80 °L | | |
| 1 | ounce English Fuggles hops, 3.8 percent alpha acid (60 minutes) | | |
| 1 | ounce Northern Bullion hops, 7.9 percent alpha acid (60 minutes) | | |
| 1/2 | ounce English Fuggles hops, 3.8 percent alpha acid (10 minutes) | | |
| 1/2 | ounce Washington Cascade hops, 4.6 percent alpha acid (10 minutes) | | |

- Original specific gravity: 1.056
- Final specific gravity: 1.012
- Boiling time: 60 minutes
- Primary fermentation: seven days at 65 degrees F (18 degrees C) in plastic
- Secondary fermentation: seven days at 65 degrees F (18 degrees C) in glass
- Age when judged (since bottling): 4 1/2 months



Brewer's specifics

Steep grains until boil.

Judges' comments

"Very hoppy. Could use a little more malt for sweetness. Dry mouthfeel."

"Slightly phenolic, good hopping. Could use more maltiness to balance hops."

"Slightly overhopped for style."

"Good beer, but needs more malt. Good attempt."

"Very good. Would like more malt flavor for better balance."

FRUIT BEER



THIRD PLACE

AHA 1993 NATIONAL HOMEBREW COMPETITION

Kelly Mower and Brent Stromness

Salt Lake City, Utah

"Blue Bones Porter"

Classic-style Fruit Beer

Ingredients for 10 gallons

- 16 pounds Klages malt
- 1 1/2 pounds crystal malt 70 to 80 °L
- 1 pound Special roast malt
- 3/4 pound chocolate malt
- 1 pound wheat malt
- 2 ounces black patent malt
- 1 ounce Cascade hops, 5.5 percent alpha acid (70 minutes)
- 1 ounce Chinook hops, 11.9 percent alpha acid (70 minutes)
- 2 ounces Perle hops, 5.6 percent alpha acid (70 minutes)
- 1 ounce Willamette hops, 4.0 percent alpha acid (10 minutes)
- 1 ounce Goldings hops, 5.6 percent alpha acid (five minutes)
- 1 ounce Fuggles hops, 2.6 percent alpha acid (finish)
- Wyeast No. 1056 liquid yeast culture
- 8 ounces blueberry extract
- 2/3 cup corn sugar to prime

- Original specific gravity: 1.060
- Final specific gravity: 1.032
- Boiling time: 70 minutes
- Primary fermentation: nine days at 65 degrees F (18 degrees C) in glass
- Secondary fermentation: five days at 65 degrees F (18 degrees C) in glass
- Age when judged (since bottling): two months

Brewers' specifics

Mash grains for 60 minutes at 154 degrees F (68 degrees C). Add blueberry extract when racking into secondary.

Judges' comments

"Nice combination, but there is an oxidized note that interferes."

"Could use more dark malt flavor. Maybe a bit more base malt flavor. Porter flavor is a bit weak."

"Very tough fruit to deal with. Excellent beer."

TRADITIONAL MEAD



SECOND PLACE

AHA 1993 NATIONAL HOMEBREW COMPETITION

Byron Burch

Santa Rosa, California

"Paschal Celebration"

Sparkling Mead

Ingredients for 5 gallons

- 18 pounds Meadmaker's Magic™ Canadian clover honey
- 5 gallons water
- 4 tablespoons tartaric acid
- 1 tablespoon malic acid
- 2 ounces The Beverage People™ yeast nutrient for mead
- 1/4 teaspoon The Beverage People™ Irish moss
- 20 grams The Beverage People™ Prise de Mousse wine yeast
- bottle conditioned

- Original specific gravity: 1.104
- Final specific gravity: not available
- Boiling time: 10 minutes
- Primary fermentation: 14 days at 85 degrees F (29 degrees C) in glass
- Secondary fermentation: seven days at 85 degrees F (29 degrees C) in glass
- Age when judged (since bottling): 17 months

Judges' comments

"Slight sourness. Some honey character. Sweet."

"Sweet bubbly, pleasant honey character, very nice — could use just a bit more acidity."

"Very Champagnelike with a citric finish. Very drinkable."

MELOMEL, CYSER, PYMENT, METHEGLIN



THIRD PLACE

AHA 1993 NATIONAL HOMEBREW COMPETITION

Peter Knight

St. Helena, California

"Lime Mead"

Still

Ingredients for 4 gallons

- 15 pounds honey
- 6 ounces lime juice
- Prise de Mousse wine yeast

- Original specific gravity: 1.140
- Final specific gravity: 1.020
- Boiling time: 10 minutes
- Primary fermentation: two months at 70 degrees F (21 degrees C) in glass
- Secondary fermentation: four months at 70 degrees F (21 degrees C) in glass
- Age when judged (since bottling): 13 months

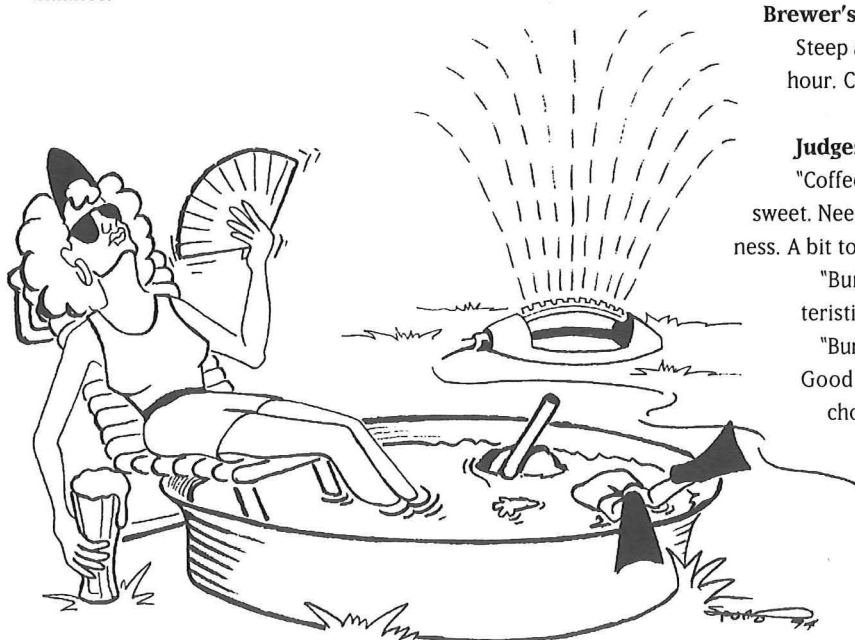
Judges' comments

"Lime juice comes through with good honey beneath. On the verge of cloying, but lime cuts this down a bit. Had to search a bit for honey in aroma."

"Sweet. Some lime. A little acidic. Maybe more lime."

"Light sweetness. Light acid in finish. Very clean. Nice sour character in flavor."

"Sweetness has a uniqueness about it. Good clean finish and good balance."



SPECIALTY BEER

SECOND PLACE

AHA 1993 NATIONAL HOMEBREW COMPETITION

Frank F. Miller

Libertyville, Illinois

"Coffee and Cream Stout"

Classic-style Specialty Beer

Ingredients for 5 gallons

- 6 2/3 pounds Northwestern dark malt extract
- 1 pound Munton and Fison amber malt extract
- 3/4 pound crystal malt
- 1/4 pound black patent malt
- 1/4 pound roasted barley
- 1 pound lactose
- 1/2 pound French roast coffee
- 1 ounce Northern Brewer hops, 6.8 percent alpha acid (60 minutes)
- 1 ounce Liberty hops, 4.0 percent alpha acid (60 minutes)
- Wyeast No. 1084 liquid yeast culture
- 3/4 cup corn sugar to prime

- Original specific gravity: not available
- Final specific gravity: 1.020
- Boiling time: 60 minutes
- Primary fermentation: seven days at 65 degrees F (18 degrees C) in glass
- Secondary fermentation: seven days at 65 degrees F (18 degrees C) in glass
- Age when judged (since bottling): four months

Brewer's specifics

Steep all grains until boil. Lactose boiled with extracts for one hour. Coffee fermented with wort for two weeks.

Judges' comments

"Coffee aroma not completely pleasant. Pleasant flavor. Malty sweet. Needs a more bitter finish. Lactose may contribute to sweetness. A bit too sweet for my taste."

"Burnt coffee aroma. Little or no bitterness. Stout characteristics are hard to find."

"Burnt aroma like coffee that has been on the burner all day. Good coffee flavor not near as burnt as the aroma. Sweet, chocolate, medium hop bitterness. Could use slightly more bitterness."

"Maybe low in hop bitterness. Aroma at first smelled like coffee grounds. Very good beer."

PORTER



THIRD PLACE

AHA 1993 NATIONAL HOMEBREW COMPETITION

Joel Rosen and Nancy Simon

Hermosa Beach, California

"Partial Mash Porter"

Robust Porter

Ingredients for 3 gallons

- 3 pounds, 2 ounces Telfords dark dry malt extract
- 1 pound British pale malt
- 9 ounces crystal malt 60 °L
- 2 ounces chocolate malt
- 2 ounces black patent malt
- 4 ounces flaked barley
- 1/2 ounce Northern Brewer hops, 7.1 percent alpha acid (60 minutes)
- 1/2 ounce Northern Brewer hops, 7.1 percent alpha acid (20 minutes)
- 1/2 ounce Kent Goldings hops, 5.0 percent alpha acid (finish)
- Wyeast No. 1098 liquid yeast culture
- 2 2/3 ounces dextrose to prime

- Original specific gravity: 1.061
- Final specific gravity: 1.019
- Boiling time: 60 minutes
- Primary fermentation: eight days at 68 degrees F (20 degrees C) in glass
- Age when judged (since bottling): three months

Brewers' specifics

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

Judges' comments

"Dark malt flavor. Malt sweetness, alcoholic warmth. Cloying sweetness. Underconditioning hurts overall flavor profile."

"Sweetness OK. Medium bitterness may be low."

"May want to boost hop bitterness a little. Chocolate malt is in character."

"Sweetness-maltiness leads the way. Hop bitterness could be higher. A bit underconditioned. I'll have another please."

"Way too roasty. Good brew, but a bit much for a porter."

POIGNANT PORTER CLUB-ONLY COMPETITION WINNER



Robust Porter

Craig Pepin

Durham, North Carolina

Representing the Triangle

Unabashed Homebrewers (TRUB)

"Blackjack Porter"

Ingredients for 5 3/4 gallons

- 8 3/4 pounds British pale malt
- 2 1/2 pounds Klages malt
- 1 1/4 pounds crystal malt 60 °L
- 10 ounces chocolate malt
- 3 ounces black patent malt
- 12 ounces light brown sugar
- 8 ounces blackstrap, unsulfured molasses
- 1 ounce Bullion hops, 9.2 percent alpha acid (60 minutes)
- Sierra Nevada Ale liquid yeast culture

- Original specific gravity: 1.060
- Final specific gravity: 1.012
- Boiling time: 60 minutes
- Primary fermentation: nine days at 64 degrees F (18 degrees C) in glass
- Secondary fermentation: 11 days at 64 degrees F (18 degrees C) in glass
- Age when judged (since bottling): 2 1/2 months

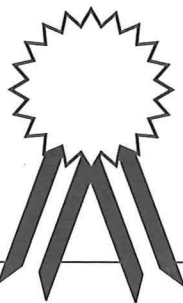
Brewer's specifics

Mash grains at 150 to 155 degrees F (66 to 68 degrees C) for 75 minutes. Raise to 168 degrees for mash-out. Add brown sugar and molasses at beginning of boil.

Judges' comments

"Some slight sourness. Good beer. Could have a little more body, color and hop bitterness."

"Medium malt sweetness. Could have more hop bitterness."



Every first-place recipe from the AHA 1993 National Homebrew Competition was printed in *zymurgy* 1993 Special Issue (Vol. 16, No. 4) "Winners Circle."

HOME BREWER'S OUTLET, INC.

DISCOUNT HOME BEER & WINE
MAKING SUPPLIES AND EQUIPMENT

- 1) BEER AND WINE EQUIPMENT KITS
- 2) 175+ DIFFERENT MALT EXTRACTS
- 3) DRY YEAST (16 VARIETIES)
- 4) LIQUID YEAST (17 VARIETIES)
- 5) PELLET HOPS (22 VARIETIES)
- 6) COMPLETE KEGGING SYSTEM

OUR 28 PAGE CATALOG HAS OVER 650
ITEMS. ORDER BY PHONE, MAIL OR
VISIT US AT OUR SOUTH FLORIDA
LOCATION.



4345 OKEECHOBEE BLVD., F-5
WEST PALM BEACH, FL 33409

PHONE: 1-800-644-5555

MASTERCARD/VISA ACCEPTED

BREWING QUALITY BEERS

The Home Brewer's
Essential Guidebook

Byron Burch

Second Edition now available!
132 pages - New Illustrations.
List price \$5.95.

Wholesale
Inquiries:

JOBY BOOKS
P.O. Box 512
Fulton, CA 95439
(707) 542-3001

Distributor List Available on Request

FOR NITTY GRITTY TECHNICAL

DETAILS ON BREWING PRACTICE

SUBSCRIBE TO

BREWING TECHNIQUES

THE ART AND SCIENCE OF SMALL-SCALE BREWING

"Praised by home brewers and professional brewers alike"

Sign up for a one-year subscription (6 issues)
for \$30* and get a back issue

FREE!

*Canada: US\$35; Rest of World: US\$45

For a limited time
**Free Back
Issue!**

Call TOLL-FREE

1-800-427-2993

Taking calls 24 hours a day, 7 days a week

VISA and Mastercard accepted



P.O. Box 060904
Staten Island, NY 10306

**The Experienced and Knowledgeable Supplier
in the New York tri-state area.**

Broadest grain malt, malt extract, hop & yeast inventory.
Unique selection of equipment for the serious home brewer!

P.B.S. [Precision Brewing Systems]*

Stainless Brew Kettles; 10, 15, 20, 25 gals.

with: drain, thermometer, sight glass, hop rack
Wort Chillers; Counterflow and Immersion types
Rota-Sparg, automatic rotating sparge system
Wort-Ox, Wort oxygenation system
E-Z Filter system; removes chill haze

CO-2 Keg Systems

Configured to your requirements

WE CARRY REPAIR AND REPLACEMENT PARTS

Commercial Equipment

Taps, faucets, cold plates, fittings

*Dealer inquiries invited

Ph. (718) 667-4459

Fax (718) 987-3942

What Cabernet Sauvignon grapes are to red wine, Maris Otter barley is to ale malt.

Maris Otter is a rare, old fashioned two-row barley, low in yield per acre and tough to grow. Seasoned brewers still insist on the delicious, rich, plump, nut-like character and the finesse that the variety gives their pale and brown ales, porters, stouts and barley wines. Crisp Malting Ltd. of Great Ryburgh continues to contract with local Norfolk farmers to supply them this extraordinary barleyscorn. Crisp maintains one of the few remaining traditional floor maltings in England. Their fine pale, crystal, and dark malts are now available to micro- and home brewers in the U.S. and Canada through Liberty Malt Supply Company and their retail agents.



Dealer inquiries welcomed

LIBERTY MALT SUPPLY COMPANY

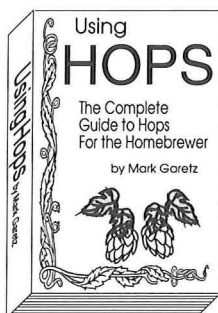
☆ America's finest selection of malt ☆ Founded in 1921 ☆
1418 Western Avenue, Seattle, WA 98101— Tel. 206-622-1880 Fax 206-622-6648

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

Using HOPS

The Complete Guide to Hops for the Homebrewer

by Mark Garetz



Finally, a comprehensive reference guide to one of the most important ingredients in your homebrew: HOPS!

Using Hops is the first book to cover the subject of hops with depth and accuracy. Subjects include hop varieties, decoding hop names, bittering, finishing and dry hopping, buying and storing hops, and much more.

Using Hops will be available in March '94. See your homebrew retailer, or order direct. Your brewing library shouldn't be without it!



Published by
HopTech
POB 2172
Danville, CA 94526
(510) 736-2350

1-800 DRY-HOPS

(1-800 379-4677)

FAX: 1-510 736-7950



Retailers: Call us for the name of your nearest distributor.

Relax...

The Market Basket

has a superior selection of quality homebrew ingredients and supplies all at excellent prices.

**\$40⁰⁰
VALUE**

For Only

**\$19⁹⁵
+S&H**

HOP SAMPLER

Eight Ounces Each of:

German Hersbrucker • Cascade • Brewer's Gold
Willamette • Clusters • Fuggle

All together 3 pounds of the very freshest hop pellets available on the planet.

NORTHWESTERN EXTRACT

Case of 10 - 3.3 lb.

Mix and Match Unhopped
Gold, Amber, Dark or Weizen

ON SALE! **\$49⁰⁰**
plus S & H



Free Catalog / Fast Service

Call Toll Free

1-800-824-5562

Local calls (414) 783-5233

24 Hr. Fax (414) 783-5203

14835 W. Lisbon Road

Brookfield, WI 53005-1510

WORLD OF WORTS

Charlie Papazian



Let's see, the last five columns included a German Dunkel, Kölsch, fest-wine, Oktoberfest and a stout. I do believe it's time to revisit a good ol' middle-of-the-road-everyone-will-like-this kind of a beer. Slumgullion Amber Ale is just that. The name was inspired by Slumgullion Pass between Creede and Lake City, Colo. Slumgullion also refers to a pot of stew that contains all kinds of things.

Slumgullion is not so sharp and bitter as a British pale ale, yet has plenty of smooth hop character to inspire comment and praise such as, "This is good beer. I like this. It's not too bitter, not too malty, not too dark, not too light yet is thirst quenching. Yeah. Good job. I like this beer."

The artful touch of specialty malts adds delicate complexity. The dry hops don't wallop you, but do offer a nice finish. Slumgullion is everyone's type of beer and is similar in character to many specialty amber lagers and ales on the beer shelves these days.

Note the high-temperature protein rest. This promotes the type of protein development and degradation that enhances foam quality and stability. When brewing an all-malt beer it is not so critical to develop nutrient-type proteins at lower temperature protein rests. All-malt beer formulations almost always have plenty of protein nutrients regardless of protein rests.

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

Mash-extract recipe for 6 1/2 gallons (25 liters) because 5 gallons (19 liters) isn't enough:

For the mash

- 4 pounds (1.8 kilograms) crushed pale malt
- 1 pound (0.45 kilogram) crushed wheat malt

Slumgullion Amber Ale

- 1 pound (0.45 kilogram) crushed Vienna malt
- 1 pound (0.45 kilogram) crushed 40 °L crystal malt
- 1/2 cup (118 milliliters) crushed chocolate malt

Add to the mash runoff

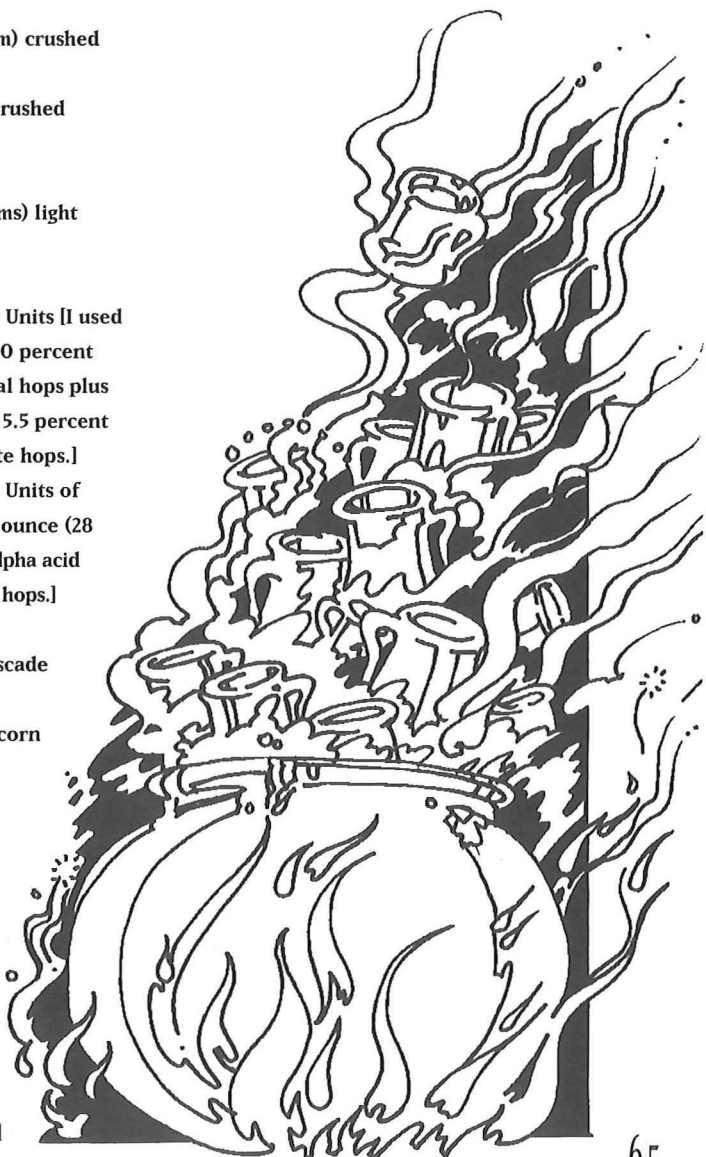
- 2 3/4 pounds (1.24 kilograms) light dried malt extract

And boil with hops

- 6.6 Homebrew Bittering Units [I used 1/4 ounce (7 grams) 10 percent alpha acid Centennial hops plus 3/4 ounce (21 grams) 5.5 percent alpha acid Willamette hops.]
- 4 Homebrew Bittering Units of flavor hops [I used 1 ounce (28 grams) of 4 percent alpha acid American Tettnanger hops.]
- 1/4 teaspoon Irish moss
- 1 ounce (28 grams) Cascade hops (dry)
- 7/8 cup (207 milliliters) corn sugar for bottling
- ale yeast (your favorite brand)

- Original specific gravity: 1.043 to 1.047 (11 to 12 °B)
- Final specific gravity: 1.008 to 1.012 (2 to 3 °B)
- IBUs: about 25 or 26

A step infusion mash is employed to mash the grains. Add



7 quarts (6.7 liters) of 135-degree-F (57-degree-C) water to the crushed grain, stir, stabilize and hold the temperature at 130 degrees F (54 degrees C) for 30 minutes. Add 3 1/2 quarts (3.3 liters) of boiling water and stabilize the temperature at about 148 to 152 degrees F (64 to 67 degrees C) and hold for about 45 minutes. Temperature may be allowed to drop from 152 to 148 degrees F (67 to 64 degrees C) with no worrying. Then raise the temperature to 160 degrees F (71 degrees C) and hold for 10 to 15 minutes to complete conversion.

After conversion, raise the temperature to 167 degrees F (75 degrees C), laut and sparge with 3 gallons (11.4 liters) of 170-degree-F (77-degree-C) water. Collect about 4 gallons (15.2 liters) of runoff and add the malt extract and bittering hops and bring to a full boil.

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

Bitterness of 25 to 26 IBUs were calculated for this recipe by making the following assumptions: (1) Whole hops were used, (2) The wort boil was a concentrated boil with about 2 pounds (0.9 kilograms) of extract per gallon (3.8 liters) of liquid boiled, (3) 24 to 28 percent utilization was assumed for 90 minutes of boiling and 14 percent utilization was assumed for 20 minutes of boiling. Beginners and intermediate brewers should relax, don't worry and have a homebrew


Ferment with ale yeast. Rack your brew after primary fermentation into a secondary fermenter and add 1 ounce (28 grams) of whole or pelletized Cascade hops and let ferment to completion, or "cellar" for two more weeks. Most of the dry hops you've added will either end up floating on the surface of the beer or sink to the bottom. Take care when siphoning during bottling to avoid hops.

Prime with corn sugar and bottle when fermentation is complete.

Age until clear and carbonated and enjoy the fresh maltiness and lively but not overpowering hop character. Chilled on a hot summer day, this is a real winner.

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 five-gallon batch, so it is important to note volumes whenever expressing bittering units. 



391 Main St Monroe, Ct 06468

Maltose Express has a retail outlet in Monroe, Ct. and we will mail order to anywhere in the US within 24 hours. We carry everything that you will need to brew beer or make wine, including Liquid Yeast, Grains, Hops, Kegging Systems and Wine Concentrates. Call us for a free catalog and compare our prices.

3 lbs Northwest or Dutch DME - \$7.50	Kegging Systems - \$ 145.00
3.3lbs M&F, John Bull - \$7.25	WYeast - \$ 3.50
Munton's Connoisseurs Kits - \$10.00	Corona Grain Mill - \$ 35.00
4 lbs Alexander's Extract - \$8.75	Beer-Making Kit - \$ 49.99
3 or 5 gallon used kegs - \$30.00	Party Pigs - \$35.00
33 Quart Brewing Pots - \$32.00	6.6 lb Ireks Extract - \$16.00

For information or catalog

(203)452-7332

To order from out of State

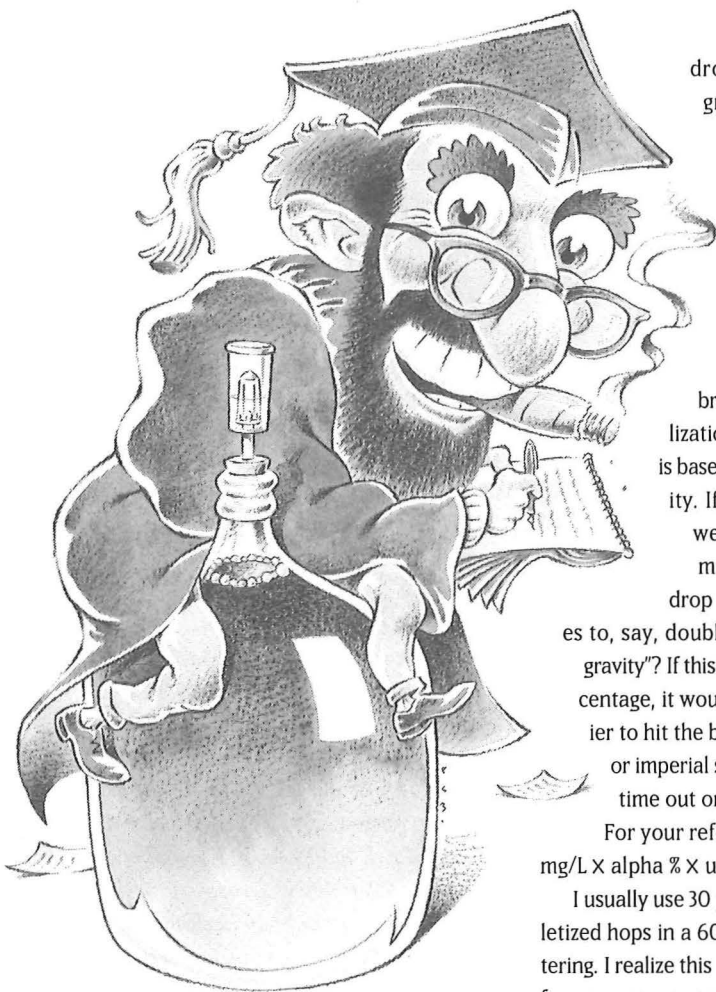
1-800-MALTOS

Visa and Mastercard Accepted

Professor Surfeit

DEAR

P R O F E S S O R



Hop Utilization

Dear Professor,

As a BJCP Certified judge, I have noticed while judging the higher gravity beer classes one recurring fault seems to surface. Almost all of the beers are underhopped with insufficient bitterness to balance the sweet maltiness. This leaves a cloying sweetness on the palate. I am sure the reason this happens so often (to me included) is that hop utilization

drops off rapidly as wort gravity rises.

With IBU calculation a rather simple process, I hope you can help us all out. Granted, hop utilization depends on about a billion variables, but most won't concern us as homebrewers. I guess that hop utilization, when calculating IBUs, is based on a standard wort gravity. If this is true, what is it? If we can establish this, how much does the utilization drop as our desired gravity rises to, say, double or triple the "standard gravity"? If this can be expressed as a percentage, it would really make things easier to hit the bitterness of a barley wine or imperial stout more closely the first time out on a particular recipe.

For your reference, I use the formula:
$$\text{mg/L} \times \alpha \% \times \text{utilization} = \text{IBUs}$$

I usually use 30 percent utilization for pelletized hops in a 60-minute boil for base bittering. I realize this is a simplified formula, but for an average gravity beer, it hits the mark pretty closely. I hope you can help us all out.

Hoplackingly,
Jay Schultz
Racine, Wisconsin

Dear Jay,

You can generally depend on a 30 percent utilization with a wort of original gravity of about 1.040 or so only when you do a full wort boil. If you concentrate the wort that is boiled, your utilization goes down.

In that scalawag Papazian's book, The New Complete Joy of Home Brewing (Avon, 1991) he has a chart on page 268 that estimates how efficiency goes down with increased wort gravity.

Assuming a 60-minute boil he shows that if there are two pounds of extract per gallon 1.070 wort then utilization drops to 27 percent. With three pounds of extract per gallon (1.110 wort) it drops to 23 percent and with four pounds 1.130 to 21 percent and so on. So you can see you are correct.

But please don't discount those fine malty lightly hopped German-style doppelbocks. They should not be bitter.

*I luv doppelbocks,
The Professor, Hb.D.*

Glomming On

Dear Professor,

My brewing buddies and I are experienced homebrewers who are perplexed with the trub removal phenomenon. Here's what happens.

After proper wort preparation and chilling, the yeast is pitched and, as Dave Miller describes in *Continental Pilsener* (Brewers Publications, 1990), we remove the trub several hours later by simply racking the inoculated wort to another vessel to ferment. Having used this procedure many times, we all agree that there is a noticeable reduction in fusel alcohols and in general the brew is much smoother and less harsh than when trub is not removed.

However, here's where the problem occurs. All of us have noticed that while flavors have improved drastically, our fermentations are slow or sometimes stop prematurely leaving slightly higher finishing gravities. (For ex-

ample, a brew that finishes at say 1.014 without trub removal now finishes at 1.020 to 1.022 with trub removal.) We each have our own unique brewing and wort-handling techniques and none of us has changed anything other than starting to remove the trub. We all use liquid cultures from prepared starters, refrigerated fermentation and have never had this problem before. We even fine-tuned the timing of when to remove the trub — just prior to when the yeast starts active churning, therefore allowing the yeast to get almost to the active stage before siphoning off the trub.

As we are all engineers, we each have our own idea of what's happening. One is that separation of trub deprives the yeast of some nutrients and, while our fermentations always start well, the yeast weakens before it finishes the job. Another is that those large off-white/yellow globby yeast colonies don't make it through the siphon and the majority of the yeast gets left behind in the trub, thus a low yeast count. One guy feels there is no problem at all. The reduction of fusel alcohols alone accounts for the higher finishing gravities because alcohol tends to thin out a brew.

Professor, could you shine some light on our detrubulation situation?

Finishing high,
Mark G. Fragnito
Syracuse, New York

Dear Mark,

Well, you engineers have provided a pretty good diagnosis, if you ask me. (But I don't think you're on track with the fusel theory.) Trub is a nutrient when not overdone, but if you are pitching your yeast and then hours later racking wort off the trub, you are likely leaving behind a lot of active yeast cells that have glommed onto trub or have settled out before kicking into high fermentation. My recommendation is not to pitch yeast until you have removed the trub. If you want to give your yeast a head start, pour off a quart or so of wort into a sterile jar (before trub removal) and add yeast to that. This should keep your yeast happy and farting, while the rest of the wort settles out the trub. You know what to do then, right?

No problemo,
The Professor, Hb.D.

No Bubbles for Mike

Dear Professor,

I am not worrying, but having a homebrew is not yet possible. I brewed up a batch of my super-deluxe killer ale, nothing too out of the ordinary. Couple cans of malt, some fresh hops and some crystal malt to top things off. Same recipe that has tickled my taste buds many times over.

After brewing, I cooled the wort to about 70 degrees F (21 degrees C). With a sterile cup I scooped some slurry from a batch of stout (a very delicious stout, I may add, that I just happened to be racking) and pitched it in.

It took almost 72 hours to kick in, but when it did, boy did it go. It foamed up into my airlock and then some. After fermentation, I racked and put my future ale away till time permitted me to bottle. Well unfortunately, it was six months until I could bottle.

All seemed well, three-fourths cup of corn sugar in some boiling water, sterile hoses and caps, and I proceeded to bottle my heart out. The problem is seven weeks later, no carbonation. None whatsoever. There is, however, the slightest dustlike touch of sediment. It could almost be overlooked.

I was careful not to leave a bleach residue in the bottles and my caps are sealed just as tight as ever. Professor, what should I do, for I have no bubbles?

Thirstily,
Mike Dwyer
Traverse City, Michigan

Dear Mike,

Well, six months until bottling time would kind of diminish the viability of whatever yeast was left over. But let's not dwell on who to blame here. Let's find some solutions.

Get yourself a package of dried beer yeast. Uncap each bottle one at a time, add a few granules of yeast and recap. Store at about 70, degrees F (21 degrees C). Certainly not cooler than 60, degrees F (15.5 degrees C). This should work.

Bubbles in your brew,
The Professor, Hb.D.

Converting the Heathen

Dear Professor,

I have been homebrewing for almost one year now. I've made about 25 five-gallon batches and experimented with each one. I am ready to begin brewing all-grain recipes, and I have a couple of questions that Charlie Papazian's *The New Complete Joy of Home Brewing* (Avon, 1991) does not explicitly cover.

(1) If I wanted to use some malt extract recipes but use all grain instead of malt extract, how do I equate the two? For instance, a recipe may call for six pounds of malt extract. How many pounds of grain should I mash to equal the six pounds of malt extract? I suspect that I would have to use more than six pounds of grain.

(2) If a malt extract recipe calls for dark or amber malt extract, what do I need to do to the all-grain mash to make it dark or amber? What do the manufacturers of malt extract do to make dark or amber malt extract?

Sincerely,
Mike Townsend
Coos Bay, Oregon

Dear Mike,

*There is an excellent article by Loysen and Favre that discusses grain-to-extract and extract-to-grain conversions for exactly your needs. It appears in **zymurgy** Summer 1990 (Vol. 13, No. 2) "Malts: The Great Debate." Until you get a copy of that article a very general rule of pinkie is 1.3 to 1.4 pounds of pale malt equals 1 pound of dry extract or 1.1 pound of syrup.*

The AHA provides an excellent specialty malt-to-extract conversion chart free to all members. (Request the specialty malt information, item 947, when ordering.)

Join the AHA and you won't be searching far for all the answers to your questions.

The Answer People,
The Professor, Hb.D.

Shake the Spell

Dear Professor Surfeit,

I had successfully brewed about 25 batches of lager and ale when my co-worker and

fellow brewer, Don, came to me for advice. He said his fermentations were very slow and at times would not even begin for several days after pitching the yeast. I asked him about some of the more obvious causes of the problem and could not come up with an answer. I had never had a problem of that sort. But ever since then, I have had one fermentation ordeal after another, and Don's brew has been turning out fine. Is it possible that he has placed some sort of brewer's curse on me? Does it have anything to do with the fact that he has a moustache and I do not?

My latest batch has been fermenting for about 25 days and has finally slowed down. It is a lager and the temperature is about 58 degrees F (14.5 degrees C). My prior brews completed fermentation in about seven days, and I have not changed my techniques. Some of my other "slow" brews have had off-flavors — one was a gusher and one tasted fine. Is this yeast autolysis, and if so, what causes it? By the way, these brews are mostly extract brews with some grain added.

Sincerely,
Sue Bolander
Rothsay, Minnesota

Dear Sue,

You can borrow my moustache any old time. But the "beered" I keep.

The most likely reasons for your problems are either: (1) You didn't aerate your cooled wort enough or (2) your brew got contaminated with wild yeast.

Now it's my guess if you have a fermentation that starts out really slowly (assuming you've added enough healthy yeast) and keeps chugging along at a snail's pace, then you haven't aerated enough. But if you've got a reasonably good primary fermentation but it just lingers and lingers, then perhaps you've got a wild yeast that continues to ferment away stuff that would not normally be fermented by beer yeast. This is what I suspect if you've got gushers and the other anomalies you speak of.

So my dear, listen closely and you shall hear the midnight ride of Yeasty Fear. Gotta keep it clean and shake it like you never shaken before.

Gotta go,
The Professor, Hb.D.



THE NEW BREWS FROM NEW ZEALAND



ARMSTRONG AVAILABLE IN 3.75 lb. HOPPED KITS

- Lager • Pilsner Blonde
- Draught • Bitter
- Dark Ale • Canadian Ale

3.3 lb. UNHOPPED MALT

- Light • Amber • Dark

BLACK ROCK AVAILABLE IN 3.75 lb. HOPPED KITS

- Export Pilsner • Bock
- Miner's Stout • NZ Colonial Bitter

3.3 lb. HOPPED MALT

- Dry Lager • Lager
- Mild • East India Pale Ale
- Colonial Lager • NZ Draught

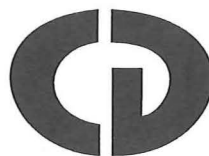
3.3 lb. UNHOPPED MALT

- Light • Amber • Dark



Distributed by **RYECOR Ltd.**, Baltimore, MD (800) 799-3353
Call NOW to Order (Wholesale only) or Call (410) 668-0984
Us For Your Closest Homebrew Retailer FAX (410) 668-3953

NOW AVAILABLE AT YOUR LOCAL HOMEBREW SHOP



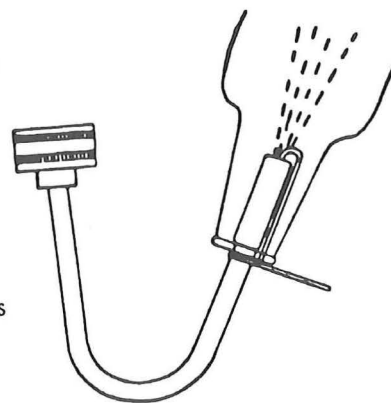
CHATEAU CARBOY AND BOTTLE WASHER

**Constructed of solid brass
and stainless steel
Fully guaranteed
Automatic shut-off
Faucet adapter Available**

WHOLESALE ONLY
call or write for a list of distributors
throughout Canada and the
United States

Manufactured by
Chateau Distributors
(604) 882-9692
(604) 882-9697 FAX

Canada: P.O. Box 8000-391
Abbotsford, B.C. V2S-6H1
United States P.O. Box 2683
Sumas, WA 98295-2683



Fruit Beers Made Easy!

HopTech has taken all the hassle out of making fruit ales, Belgian styles, stouts or wheat beers.

Our 100% natural fruit extracts contain no preservatives, sugar or pectin to get in the way of the brewing process. Simply add prior to bottling or kegging.

Flavors: Raspberry, Blueberry, Peach, Pear, and Cherry. \$5.95 per bottle (enough for 5 gallons) plus S&H. *Microbrewery sizes also available.*

Call or write for more info and our highly informative catalog of hops and hop products.

1-800 DRY-HOPS

(1-800 379-4677)

FAX: 1-510 736-7950



HopTech

POB 2172
Danville, CA 94526
(510) 736-2350

Dealer and Microbrewery Inquiries Invited



FREE CATALOG



Everything you need for beermaking or winemaking!

- ★ Malt Extracts & Kits
- ★ Grains & Hops
- ★ Brewing Supplies & Equipment

We have been supplying home fermenters for over 20 years - write or call today!

- ★ Brewing Yeasts ★
- Full Line - Liquid & Dry**

(800) 342-1871

(206) 365-7660

FAX (206) 365-7677

THE CELLAR

Dept. ZR, Box 33525
Seattle, WA 98133



Full color • 8 designs

\$4 no soaking,
no scrubbing,
no kidding!

for 24 labels &
matching cap tops

Dry gummed \$3.50

BLUE HERON

ENTERPRISES

PO Box 427, Charlestown, RI 02813

Wholesale only

For your nearest retailer call
(401) 364-7701



THE PHILMILL

High Extract and Easy Lautering

— achieve rates that published recipes are based upon. Unique single-roll geometry gives the long, even crush commercial mills use to minimize husk damage.

Adjustability — Infinite and stable, adjustment is accomplished with the simple twist of a large thumb screw—even while the mill is turning.

ALSO AVAILABLE FROM
LISTERMANN
MANUFACTURING:

Phil's Lautering System —

Inexpensive all-grain brewing modeled after commercial equipment and methods.

Phil's Mini Lauter Tun and Hop Back —

For grain-extract batches, it will lautur up to five pounds of grain. Also used as a separator for both pellet and leaf hops after the boil.

Phil's Philler — The ultimate in fill level control—you can slow the speed and the level stays where you stop it. Optimize headspace for reduced oxidation and fresher-tasting beer.

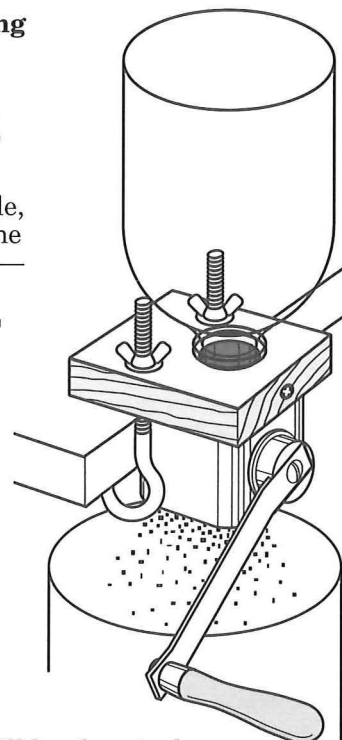
Loose Components — Build you own Phil's Lautering System with Phil's Sparger and Phil's Phalse Bottom—three sizes of each available for five and ten gallon coolers and standard buckets.

Check with your local homebrew shop. Dealer inquiries welcome.

LISTERMANN MFG. CO.

1776 Mentor Ave., Norwood, OH 45212 • 513/731-1130

Distributed in Canada by D. Repol Enterprises, Inc. • 416/666-2307



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.

SUDS 2.2 for DOS and SUDSW 2.2 for Windows

SUDS and SUDSW are brewers' log programs for MS-DOS and Microsoft Windows, respectively. SUDS offers a recipe editor providing template recipes for popular beer styles, an unlimited number of recipe and log entries, full recipe search facility, hop IBU calculator and more. SUDS is distributed as shareware. You can try the full version free of charge and if you like the program registration costs \$20, or \$15 if you include a recipe with your registration. Registered users receive the latest copy of SUDS or SUDSW and a utility allowing them to load the entire Cat's Meow II publication (from Internet) into their SUDS database, thus adding 415 recipes. A copy of Cat's Meow II file is included free. The full DOS or Windows versions are available from the following sources: CompuServe Wine and Beer Forum in the General Homebrewing Library 14 (Go Wine) as SUDS22.EXE (DOS) or SUDW22.EXE (Windows); Internet: ftp from sierra.stanford.edu, directory/pub/homebrew/programs/SUDSW under the same file names as above and the Power BBS at (610) 740-9196 as SUDS22.ARJ, SUDW22.ARJ. For information contact Michael C. Taylor, 1626 Main St., Bethlehem, PA 18018-1905, CompuServe 76625,2552 or Internet 76625.2552@compuserve.com.

The Carboy Cozy

Vermont Whyte & Co. offers the Carboy Cozy, a quilted cotton cover for five-, six- and 6.5-gallon glass carboys. The cozy has a drawstring closure and slips over the carboy, around the airlock. It is designed to protect beer from light and provide insulation. The company is developing an oversized version for seven-gallon carboys as well as a "Fat Boy" model for large plastic fermenters. These will soon be available by special order. The manufacturer's suggested retail price for the Carboy Cozy is \$19.95. For information contact Vermont Whyte & Co., 10 School St., Essex Junction, VT 05452-3607, (802) 879-6462.

Germicidal Ultraviolet Lamp

Ultraviolet lamps are used in some hospital emergency rooms, intensive care units and labs to disinfect the air. Germick Germicidal Ultraviolet is offering the same ultraviolet lamps to homebrewers for use in brewing areas. The lamps can be mounted on the wall or used in ceiling fixtures suspended above the room for overhead or upper air irradiation. The fixtures are shielded on the bottom so the radiation is directed only toward the ceiling and sides. The bot-

tom of the fixtures should be at least seven feet above the floor so people will not bump into them or look directly at the bare tubes. Overhead UV lamps are most effective in rooms with ceilings at least nine feet high because this allows a significant portion of the air to be irradiated. These fixtures are designed to project the ultraviolet rays across the upper room air thereby destroying bacteria and viruses that are carried into the ultraviolet field by convection currents or air circulation. The manufacturer's suggested retail price for a single lamp and fixture that plugs into any 110V outlet is \$99.95 plus \$18 S&H. Customers should specify a wall or ceiling mounted fixture. For information contact Germick Germicidal Ultraviolet, Box 130 Overbrook Rd., Dallas, PA 18612; (717) 675-3260, FAX (717) 287-8850.

ONE STEP No-Rinse Cleanser

ONE STEP is a no-rinse cleanser offered by LOGIC Inc. By using active oxygen rather than a toxic halide, ONE STEP provides an alternative to no-rinse cleansers with iodophors without compromising the ease of use. ONE STEP is non-toxic and readily biodegrades to naturally occurring substances. To use, dissolve one tablespoon of ONE STEP in one gallon of warm water. Clean your equipment and bottles. There is no need for rinsing, which could possibly recontaminate equipment. The manufacturer's suggested retail price is \$1.95 for an eight-ounce package. For information contact LOGIC Inc., 440 S. Greer St., Memphis, TN 38111; (901) 458-7097.

Compiled by Dede Laugesen.



ANTROM'S Computerized Homebrewing Encyclopedia and Recipe Calculator

- Includes an integrated personal homebrewing inventory manager and recipe calculator
- Has a guide to beer styles -- Including Recipes!
- Provides brewing information for the homebrewer with any level of experience: Beginner, Intermediate, or Advanced
- Tips and information about every step in the brewing process -- All available at the push of a button
- Trouble shooting guide to help you improve your brews
- Plus much, much more...



Introductory Price \$59

Free shipping for a limited time

Send Check or Money Order to:

ANTROM Associates
20044 Hob Hill Way
Gaithersburg, MD 20879-1307

MD Residents include 5% sales tax

Requires IBM-PC or Compatible and Microsoft (tm) Windows 3.1

ASK FOR

"Draft Beer To Go" with

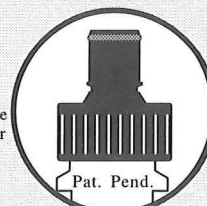
The Carbonater
Valve Coupling™



"Wow, this is great, this is how I'm getting my beer to the Great American Beer Festival this year."

Greg Noonan
Upon first sight of the Carbonater valve coupling™

With Mr. Noonan's support along with other Micros. The Carbonater valve coupling Is now accepted by the Great American Beer Festival for submitting entries.



Liquid Bread, Inc.

2450 Absher Rd.
Narcoossee, FL 34771
(407) 957-4472
Fax (407) 273-0137
On the west coast
F.H. Steinbart (503) 232-8793

MADE
IN
THE
U.S.A.

"Allows us to get draft quality beer to our customers refrigerator without investing in a bottling line. Reception has been great. Brings customers back again and again and again!"
Nice lure his customers say.

Doug Cartwright
General Manager
Kelley Creek Brewing
Co-Bonny Lake
WA after Grand
Opening

The Carbonater fits

on a standard 2 litre Plastic Soda (PETE) bottle. It uses a ball lock (standard beverage) fitting. This allows for the purging of air, after gently filling from your tap, then injecting 30 psi, giving you a 100% CO2 headspace. This method properly used gives you a shelf life similar to the beer remaining in your keg. Force carbonating still beverages is a breeze.

Home Brew Outlet is California's leader in retail stores. We're now extending our great prices and service nation wide! Your order will be shipped out in 24 hrs in most cases.

**MAIL ORDER
GRAND OPENING
THE ORIGINAL
HOME BREW OUTLET**

Home Brew Outlet is second to none! LOW PRICES & SERVICE YOU DESERVE!!

CALL FOR YOUR FREE CATALOG!

Orders / Catalogs:

Home Brew Outlet 1-800-959-2648
3235 Elkhorn Blvd. #4
N. Highlands, CA 95660
Advice Line: (916) 348-6322

Beer and wine hobby



Greater Boston's oldest and most complete homebrewing supplier and mail order house.

- QUALITY SUPPLIES
- EXCELLENT SERVICE
- LARGEST SELECTION
- 24 HOUR ORDERLINE AND FAST DELIVERY
- FULLY STOCKED WAREHOUSE STORE
(617) 933-8818

FREE CATALOG 800-523-5423

180 New Boston Street, Woburn, MA 01801.
FAX: (617) 662-0872

THE BEST FROM KITS

Rex Clingan

Kits. For me the word summons images of cans of hopped malt extract complete with dried yeast and cake-mix instructions — the kind a never-before homebrewer might select to make a first batch of beer. These days kits are available that go well beyond this to make beer an intermediate brewer would be proud of.

In this column I will review kits featuring custom-produced malt extract syrup, Marie's Munich, from St. Patrick's of Texas.

I brewed my first all-grain batch in 1993, attempting to put together an Oktoberfest for local homebrew club judging. While it was a very drinkable beer, the comments of the judges indicated that I had soundly missed the mark on the style as far as malt flavor was concerned. After sampling Oktoberfests from Aktien, Beck's, Spaten, Boston Brewing Co. and others at the 1993 Great American

Beer FestivalSM, I had a pretty fair idea what the judges meant.

The opportunity to experiment with a malt extract expressly produced to allow extract brewers to emulate the rich, malty flavor of the Munich styles was too good to pass up.

The Kit

St. Patrick's kits typically contain malt extract syrup, specialty grains, a small grain bag, dried malt extract, liquid yeast, hop pellets and corn sugar for priming. I set out to brew with St. Patrick's new extract syrup developed to produce the German styles that depend on Munich malts.

Marie's Munich extract is a blend of 20 percent DeWolf-Cosyns Belgian aromatic Munich, 30 percent Briess American 20 °L Mu-

nich and 50 percent Briess American pale two-row malts. It is available in syrup and dried forms. To better evaluate the merits of this extract, the specialty malts normally included in the kits were eliminated from two of the recipes brewed for this column.

The plastic jars the extract syrup came in are very nice and the shipping container was a five-gallon Briess malt extract bucket suitable for a fermenter, Zapap lauter-tun or bottling bucket. Grain was conveniently supplied in the steeping bag.

I think this type of brewing is a good compromise for brewers in the early stages of immersion in this hobby. Brewing with extracts and a small amount of grain requires less equipment and less time than all-grain brewing, but does cost somewhat more.

These are kits for what Charlie Papazian's *The New Complete Joy of Home Brewing* (Avon, 1991) calls intermediate brewing — hybrid extract brewing with the addition of a small fraction of fermentables steeped from grains with the balance supplied by extract syrups.

Brewing Method

I added the dried extracts to cold water to minimize lumping and brought the water to a boil, took the pot off the heat, added the syrup and stirred to dissolve and to avoid scorching. I boiled the full volume of wort for 45 minutes using two pots on the kitchen stove.

I used a hop tea method for hop aroma and flavor. Personally, I think homebrewers can produce beer with a great hop signature this way. Just before brewing, a tea was prepared steeping all of the hops for the batch



Methods for accommodating active fermentation.

in one-half gallon of boiled water for 15 to 30 minutes. I strained the hop residue and used it in the boil for bittering, and reserved the hop tea in the fridge to put into the secondary fermenter at racking time. This method may have been unnecessarily involved because the strong malt aroma from the Marie's Munich malt syrup dominated.

I preheated a carboy with steam from a pressure cooker connected to my three-eighths-inch diameter stainless-steel racking tube used as a steaming wand. After a 45 minute boil, the hot wort was then strained into the preheated glass carboy. I used a jockey box with a one-quarter-inch stainless-steel coil as wort chiller on the five-gallon batches, but relied on ambient cooling (covered outside on a cold, windy night) for the three-gallon batches. Prior to racking I purged the carboys with CO₂ to limit oxidation. Steam from the pressure cooker was also used to sanitize my equipment. A spare carboy served as my blowoff reservoir for two batches running at once. I used 6 1/2-gallon carboys to ferment the five-gallon batches. By using five-gallon carboys for the three-gallon half batches, I avoided using the blowoff method and instead installed a fermentation lock from the beginning. I fermented each batch at 60 to 65 degrees F (16 to 18 degrees C).

With liquid yeast cultures it is best to use a starter to give the beer a good fast start. Greg Noonan in *Brewing Lager Beer* (Brewers Publications, 1986) recommends a two-quart starter for a five-gallon batch. I have found that even an eight-ounce starter incubated for a day or two makes a big difference over the liquid culture on its own. For these batches I used a one-quart starter with about three-quarters cup dried malt extract and about a dozen hop pellets. I pitched the starter after high krausen.

Doppelbock

Ingredients for five gallons

- 12 pounds St. Patrick's Marie's Munich malt extract syrup
- 5 ounces Hallertauer hop pellets, 3.5 percent alpha acid
- 1 ounce Czech Saaz hop pellets, 3.8 percent alpha acid

Yeast starter made with:

- 3/4 cup dried pale malt extract
- 12 Cascade hop pellets, 5.2 percent alpha acid
- 1 quart water

Boil 15 minutes, cool and combine with:

Wyeast Bohemian liquid lager yeast

- Original specific gravity: 1.080
- Final specific gravity: 1.030

This beer is very malty in aroma and flavor. The Marie's Munich malt syrup is a winner. Hops are not really very evident. It is a sweet beer, but perhaps within the range for the style. It is smooth with the alcohol apparent but nicely blended with sweet malty flavor. The style references are Paulaner's Salvator and Kessler Doppelbock. It is very close in malt flavor to the Salvator. The Bohemian lager yeast used is described as fermenting smooth and malty, leaving a noticeable residual sweetness. This really describes the Doppelbock produced, although it might be interesting to repitch with either the Bohemian lager or another variety better suited for strong lagers to see what a drier version of this brew would be like. With my first sip of Salvator, I thought it was the best beer I had ever tasted, and the Doppelbock brewed with Marie's Munich comes close.

Oktoberfest

Ingredients for five gallons

- 6 pounds St. Patrick's Marie's Munich malt extract syrup
- 1 pound pale dry malt extract
- 3.5 ounces Hallertauer hop pellets, 3.5 percent alpha acid
- 1 ounce Czech Saaz hop pellets, 3.8 percent alpha acid

Yeast starter made with:

- 3/4 cup dried pale malt extract
- 12 Cascade hop pellets, 5.2 percent alpha acid
- 1 quart water

Boil 15 minutes, cool and combine with:

- 2 ounces yeast slurry from Doppelbock starter

- Original specific gravity: 1.050
- Final specific gravity: 1.016

The maltiness of the Marie's Munich malt syrup came through nicely in the aroma, but was not as well-defined in the flavor. This is apparently appropriate for the style. This beer was not as malty as the Spaten or Aktien beers, but more like an all-around dark lager such as Beck's and Sam Adams. This beer seemed a little thin in body, especially compared to the Doppelbock. The true kit formulation, with the addition of one pound of 10 °L crystal malt steeped, would probably make a better beer.

For the final batch, I wanted to brew one of the St. Patrick kits as it was supplied, and chose a Weizenbock. However, after reading the Here to Heaven Oktoberfest Wine Ale recipe in *zymurgy* Winter 1993 (Vol. 16, No. 5) "World of Worts," and remembering Rubicon Brewery's Winter Wheat Wine at the GABFSM, I decided to split the batch, making half as the Weizenbock and half as an Oktoberfest/wheat/barley wine. I ended up low on gravity, so I think it is more appropriately called a Doppelweizenaltwein.

Weizenbock

Ingredients for three gallons

- 1/2 pound wheat malt, steeped
- 1 1/2 pounds St. Patrick's Marie's Munich malt extract syrup
- 1 1/2 pounds wheat malt extract syrup
- 1 1/2 pounds wheat dry malt extract
- 1 ounces Centennial hop pellets, 8.9 percent alpha acid
- 1/2 ounce Hallertauer hop pellets, 3.5 percent alpha acid

Yeast starter made with:

- 3/4 cup dried pale malt extract
- 12 Cascade hop pellets, 5.2 percent alpha acid
- 1 quart water

Boil 15 minutes, cool and combine with:

Wyeast Weiherstephan wheat liquid yeast

- Original specific gravity: 1.060
- Final specific gravity: 1.016

I had never tried a Weizenbock, so I really didn't know what to expect. It was terrific. I was undecided about the banana-clove character of true Weizens, but am very fond of wheat beers in general. The Weizenbock was a wheat beer with real substance and I liked it after the second swallow. The alcoholic smoothness and body blended with the Weizen character and ferocious head for a beer unlike any I've had the pleasure of sampling. My only regret is that I did not brew more of it

Doppelweizenaltwein

Ingredients for three gallons

- 1/2 pound wheat malt, steeped
- 1 1/2 pounds St. Patrick's Marie's Munich malt extract syrup
- 1 1/2 pounds wheat malt extract syrup
- 1 1/2 pounds wheat dry malt extract
- 3 pounds dried pale malt extract
- 1 ounce Centennial hop pellets, 8.9 percent alpha acid
- 1/2 ounce Hallertauer hop pellets, 3.5 percent alpha acid
- 1 ounce Cascade hop pellets, 5.2 percent alpha acid

Yeast starter made with:


- 3/4 cup dried pale malt extract
- 12 Cascade hop pellets, 5.2 percent alpha acid
- 1 quart water

Boil 15 minutes, cool and combine with:

- 2 ounces yeast slurry from Wyeast London ale starter

- Original specific gravity: 1.080
- Final specific gravity: 1.030

Wow! This is beer. The Munich malt character really comes through in this one. Comparing the two, I'd almost say that the Munich extract is wasted on the Weizenbock. It is overwhelmed by the Weihenstephan yeast aroma and flavor. This is probably my favorite of the four, being fairly similar to the Doppelbock, but in my opinion it is better balanced with the extra Cascade hops.

Since he began in 1993, Rex Clingan, of Louisville, Colo., has already brewed more than 15 batches of ales. When he's not brewing or tinkering, Rex is a pharmaceutical process and development engineer. 

Recipes Recipes Recipes Recipes Recipes

Trade homebrew recipes with other homebrewers through the Recipe Exchange.

For information
fax, write or call
the Recipe Exchange
c/o Allegheny Printing
1910 Cochran Road
Pittsburgh, PA 15220
Phone/Fax 412-561-0660



**In our efforts to serve you,
we've found a way to
be two places at once.**

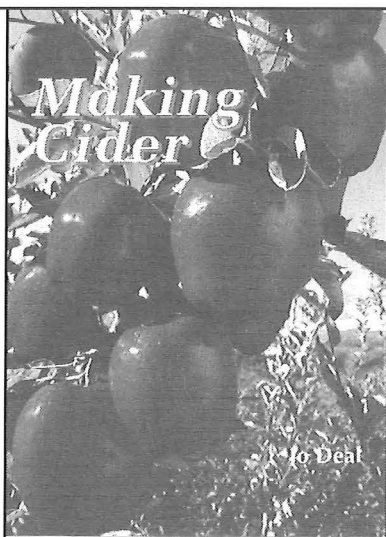
CROSBY & BAKER LTD

Wholesale Home Brew Supplies

Atlanta, Georgia 800-666-2440

Westport, Massachusetts 800-999-2440

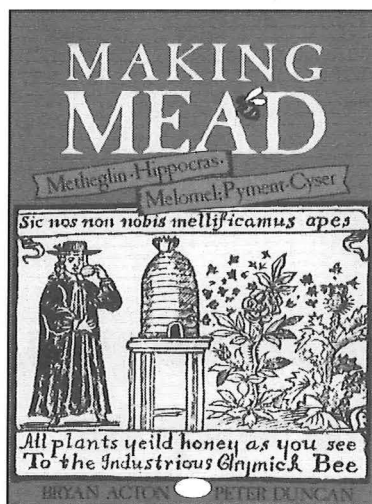
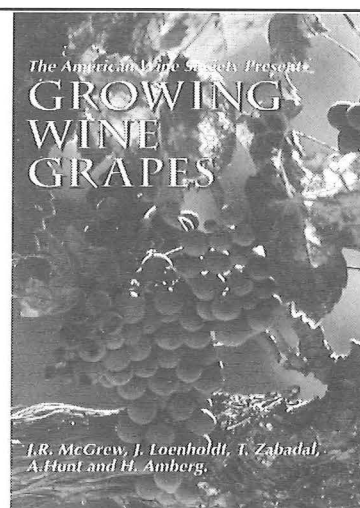
"Making Cider was far and away the single most valuable guide I had in learning to make hard cider"



Gabriel Ostriker

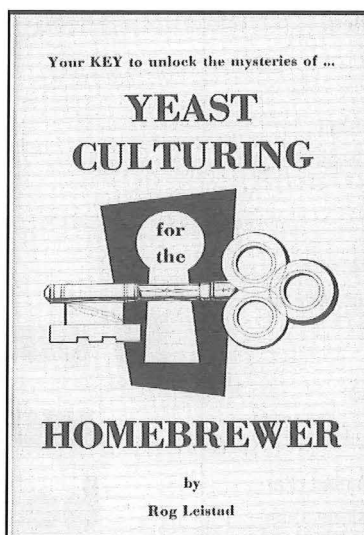
1993 AHA Cidermaker of the year

This book will help you select the best site for your vines, choose the grape varieties best suited to your climate, properly establish the vines, prune and train the vines, know when and how to harvest the ripe grapes, plant and nurture grafted vines, recognize grape pests and diseases, control and prevent pests and diseases.



A complete guide to the making of sweet and dry meads, melomel, metheglin,

hippocras, pyment and cyser. Scores of recipes.



Liquid yeast cultures can dramatically increase the variety of beers you can make. Learn how easy it is to propa-

gate liquid yeast cultures at home.

Available at your local homebrew store.

Published by:

G.W. Kent, Inc.

3667 Morgan Road, Ann Arbor, Michigan 48108

REVIEWS

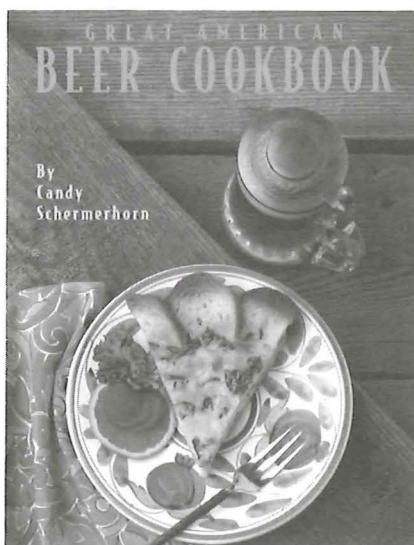
The opinions of individual reviewers do not necessarily represent the opinions of the American Homebrewers Association or *zymurgy*.

Great American Beer Cookbook

As a chef-instructor and "culinarian," I am constantly searching for ways to make the food I prepare as unique as my own personality. My experiences in homebrewing reflect this trait. It follows naturally that if I combine the individuality of my most sublime brew with a recipe that enhances and defines its full spectrum of flavors, the results will be downright stellar. I've recently discovered a great launch pad from which to originate my mission to boldly go where few men and fewer chefs have gone. Candy Schermerhorn's latest effort, the *Great American Beer Cookbook* (Brewers Publications, 1993) lights the way to the stars.

One of the things I like most about the book is that Candy outlines basic cooking techniques in the beginning chapters. The instructor in me smiled warmly as the fundamentals were extolled in simple, clear language. I don't need to tell you how many cookbooks fail for lack of clear direction in the basics. This is the book for all you apprehensive gourmets who still think the equivalent of rocket science goes on in the kitchen during the preparation of fine food. If you can brew a batch of foamy fermented fun-brew then you are light years closer to gastronomic nirvana than you realize.

It is said that variety is the spice of life and this is never more true than in the creation of our daily fare. When we can liven up the most basic dishes with the simple addition of a little "liquid bread," our taste buds



are treated to a whole galaxy of new flavors. The *Great American Beer Cookbook* begins with breakfast, a great way to use up those leftover bottles of chili beer that just keep hanging out in the back of the fridge. Add a couple teaspoons to your next omelette for a really nice kick in your sinuses. Lunch finds us with a bowl of Firehouse Chili, if you are willing to part with any of your prized light lager. Served with green salad, corn bread and lots of chilled cerveza, as recommended by the author, it will send you into hyperspace. Dinner time calls for a little cooling of the afterburners so may I suggest chilling with Scallops Escabèche. This delightfully cool dish acquires only gentle heat from the moderate use of chilies and juxtaposes them against the wonderful flavor and texture of citrus-cooked scallops. The dry, clean flavor of German Pilsener in the finish makes this a memorable dish.

Not often do you find a cookbook author as self-assured and magnanimous as Candy. Throughout the book she offers ways, and gives license, to create your own flavors. If you don't have the specific beer called for, relax, use what you have. After you get the hang of making the luxurious and yeasty breads presented in the book, you may want to create your own secret recipe using the how-to of recipe reformulation for converting almost any standard bread recipe to a beer bread.

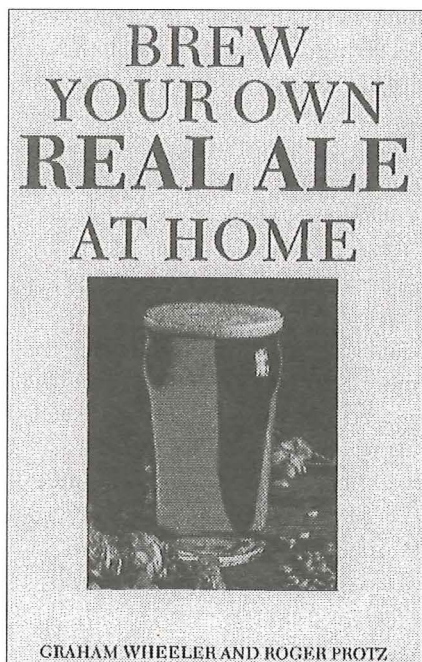
Probably the book's most interesting and creative use of beer comes with its inclusion in dessert. The sweet maltiness and subtle bitterness of beer make it a valuable addition to many sweets. Even to the uninitiated, recipes such as Jessie Mahoney's Chocolate, Stout and Bourbon Pie and Butter-n-Bear Cake create a delectable vision they can't wait to sink their teeth into.

At the California Culinary Academy where I oversee the Brewing Arts Association, our mission is to educate the public and the brewing industry about the incorporation of beer with food. We strive to open the senses to the revelation that beer can be paired with much more than sausages and pizza. As Michael Jackson indicates in the book's introduction, the renaissance in beer and cooking is caused by the resurgence of varietal brews offered by small brewers producing limited runs of specialty beers, "a new world is open to the cook." This cookbook opens an entire universe of possibilities for both the professional and novice in the kitchen. (*Great American Beer Cookbook* by Candy Schermerhorn, Brewers Publications, 1993, 291 pages, publisher's suggested retail price: \$24.95.)

Reviewed by Mark Davis, homebrewer and chef.

Brew Your Own Real Ale at Home

Would you like to brew a sumptuous Fuller's London Pride, Young's Special, Theakston's Old Peculier or Guinness Extra Stout on your own home setup? How about a hundred or so other noted British milds, pale ales, old ales, porters, stouts and barley wines? Now you can do just that with the aid of Graham Wheeler's tutelage and Roger Protz's research into current British brewers' formulations.



The book introduces North American brewers to British beers, guides them through ingredients, hops, yeasts and equipment and gives brewing instructions for three levels of expertise. Wheeler and Protz provide a full-mash version for each ale, but often include a partial mash or malt extract alternative to fit the reader's level. A handy index of the ale recipes includes a key indicating those that can be made using the simpler techniques.

To be sure, there are hurdles. Weights are expressed in grams, temperatures in centigrade and hops and even malt varieties are specific to the British setting. But a reader who hopes to enjoy the fruits of one of the world's most respected brewing legacies will not be daunted. With a little ingenuity, American sources can be found for almost all items in the book.

"Real ale" is a term coined by Britain's Campaign for Real Ale, a consumer group that has successfully fought to preserve that traditional style of draft beer. And, while British ingredients and techniques are vital to it, the style is defined more by how beers are matured and served than by how they are made. But the book is curiously thin on the steps to mature, cask-condition and properly dispense your beer as draft ale.

Wheeler and Protz do provide basic kegging instructions and a guide to bottling. Again, with ingenuity and some practice, North American homebrewers can put up tasty draft real ales in any pressure vessel, including a Cornelius or soda keg.

The book is particularly complete on the origins of each beer style—a fascinating guide for those whose interests run to authenticity. And it is the authoritative resource for replicating contemporary British ales. Its formulations are based on Roger Protz's two editions of *The Real Ale Drinker's Almanac* (Neil Wilson Publishing Ltd., 1993), exercises in research, wheeling and some browbeating in which the persistent Protz pried prize recipes from Britain's notoriously secretive brewers.

The disclosures will interest Americans used to the luxury of complicated (and expensive) malt and hop bills. Page after page of "Pale and Crystal" and "Fuggles and Golding" may drive the fidgety to sling in extra specialty malts and hop varieties. But avoid this. The genius of British brewing is its simplicity—and the delectable results it produces.

Readers should also be prepared to use sugars for up to 10 percent of extract in some formulations. Don't be deterred by the need for "invert sugar," it is easily made on the stove top with table sugar and citric acid. Consult your local homebrew supplier.

Although kettle sugars were first introduced in Britain as a tax dodge (when the government taxed malt instead of wort), they are now firmly established. Your palate will decide if their high fermentability and consequent effect on terminal gravity are pleasing or not.

A few of the ideas promoted in the book should be avoided. Partial mash grains, particularly those for pale beers, should be steeped alone and then rinsed into the main wort, not boiled with the malt extract. Byron Burch recommends a stove top minimash

and Charlie Papazian advocates bringing them up to heat with the main wort and then removing them.

In addition, grain beds should not be run dry before sparging begins, wort chilling overnight is fraught with peril, topping-up water should be sterile and yeast vitality should produce startup within 12 hours and never "a couple of days."

But by all means, North American brewers should emulate big British brewers. The book is replete with tips, some contrary to practices recommended in other popular brewing books, but proven efficient in Britain.

In this writer's opinion, for homebrewers there is no better introduction to real ale—a classic beer style. (*Brew Your Own Real Ale at Home* by Graham Wheeler and Roger Protz, CAMRA Books, 187 pages, publisher's suggested retail price: £6.99 or about \$10.50 plus shipping.) Available by writing CAMRA, 34 Alma Road, St. Albans, Herts. AL1 3BW, Great Britain, or calling 727 867201.

Reviewed by Hubert C. Smith, a Certified BJCP judge.

EASYMASHER and EASYSPARGER

The EASYMASHER by Jack Schmidling Productions is a small device consisting of a stainless-steel strainer assembly, spigot and compression fittings designed to be installed in a large kettle. After drilling a three-eighths-inch hole in the side of the kettle close to the bottom, the EASYMASHER spigot is screwed into the hole, a compression fitting attached to it inside the kettle, and the remaining tubing and strainer attached to the compression fitting. The company sells the EASYMASHER separately, or already installed in an eight-gallon enameled-steel kettle.

The principle behind the system is that by mashing and lautering in the kettle and using the spigot to collect wort, the stainless-steel mesh prevents grain particles from ending up in the wort, much like a standard false bottom lautering system.

Using the EASYMASHER is simple—it works just like any other mashing vessel. You can use it on your stove to do step infusion mashes, or stick it in your oven, like I did, to

do a single infusion mash. The oven maintains the proper temperature with no problems.

Jack Schmidling Productions also sells the EASYSPARGER, which uses a seven-quart enameled-steel kettle with barbed fittings, designed to provide a continuous source of hot sparge water.

A section of hose connects to your kitchen faucet and runs to the EASY-SPARGER sitting on a stove burner. A second hose barb on the EASYSPARGER is used as an

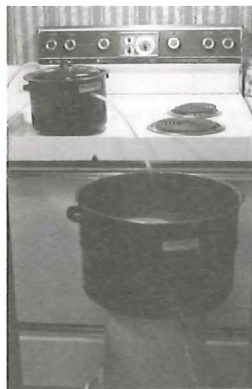


outlet for the hot water, which is sprinkled slowly over the grain bed. Water from the tap flows to the EASYSPARGER, is heated and overflows through the second hose barb into the lauter-tun.

I set up the EASYSPARGER during the mash. The five-foot length of plastic hose, connect-

ed with the generic rubber fitting to my kitchen faucet, easily reached the EASY-SPARGER on my stove. Be warned, however, that if your stove is some distance from your sink, you may have trouble, particularly if your stove and sink are on opposite sides of the kitchen. If this is the case, you may have to buy a longer piece of hose that will run from your sink, across the floor and up to the EASYSPARGER on your stove.

Adjusting the flow of water is a little tricky. You will probably need to use your hot water tap and keep the burner on high. A good simmer will have the outflow water hovering right around 170 to 180 de-



grees F (77 to 82 degrees C). Be sure to take the temperature of the water before you start to sparge. A small hole drilled in the lid of the EASY-SPARGER is designed for a

probe thermometer that will help you check the temperature. The water cools rapidly on its way from the simmer in the pot to the grain bed.

The outflow water flows over the grain bed in the EASYMASHER. The EASYMASHER needs to be about 2 1/2 feet above the floor, just below the outflow tube. The instructions say that the hot water pressure in the outflow tube will cause the water to "spurt out" and the end of the tube to "dance around," which makes it "unnecessary to take any measures to disperse, spray or sprinkle the water into the EASYMASHER." For the most part this is true, although the spurting can be a bit erratic. Once you have the proper sparge water flow established, try not to remove the lid on the EASYSPARGER, or fuss with the flow too much — the temperature changes rapidly.

With about one inch of water over my grain bed, I opened the spigot on the EASYMASHER and through a length of hose collected the first runnings of wort. These first runnings were incredibly clear. In fact, not a single particle of grain was visible. I was truly amazed at this efficiency.

EASYMASHER

The sparge took less than 1 1/2 hours to collect about 6 1/2 gallons of wort, mainly because I found that to keep the water level above my grain I had to keep the outflow of wort down to a trickle, which is no problem. This sparge time is a definite improvement over the bucket lautering system I have used in the past, which, when used properly, made my sparges only about 30 to 45 minutes in length.

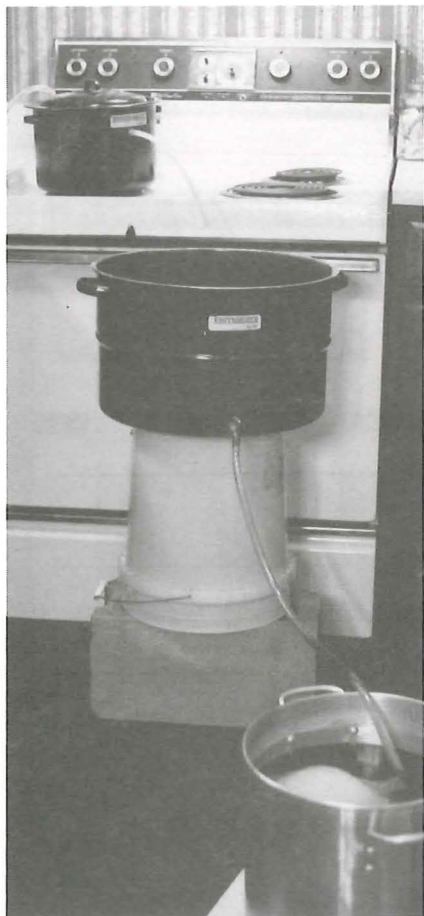
The EASYMASHER is a compact unit allowing a grain-extract brewer to do partial mashes with a minimum of effort and investment, and the all-grain brewer to do a full-scale mash. The unit could easily be installed in a smaller kettle if the brewer did not want to use a large eight-gallon kettle like I did. The straining system is so efficient it is unnecessary to be overly concerned about a properly set grain bed, channeling of the grain or a set mashes. You can even stop the flow of wort, stir the grain bed gently in the midst of the sparging, and it sets properly again in a very short time so you can continue. The brass spigot does get quite hot, however, so you will want to use an oven mitt or a short piece of rigid tubing to turn it off and on.

The EASYSPARGER is a clever arrangement that does what it's supposed to do. It does seem to be a "kitchen specific" arrangement, however, meaning that it may not be the best setup for all kitchens. While it takes up much less space than a three-tiered gravity-feed system, it is a slightly more complicated concept, and is less straightforward in design than the gravity-feed system.

Overall, EASYMASHER and EASYSPARGER are good, simple products that provide excellent alternatives to the traditional methods of sparging and lautering. Jack Schmidling Productions sells them ready-made, but the parts are not hard to come by if brewers want to assemble the system themselves. Manufacturer's suggested retail price for the EASY-SPARGER is \$29, EASYMASHER kit is \$21 and for the EASYMASHER installed in an eight-gallon kettle is \$69.

For more information, contact Jack Schmidling Productions, 4501 Moody, Chicago, IL 60630; (312) 685-1878.

Reviewed by James Spence, AHA administrator.





OVER 140 MALT EXTRACTS IMPORTED & DOMESTIC

- 20 + GRAIN MALTS
- 15 + HOP VARIETIES
LEAF - PELLETS - PLUGS
- LIQUID & DRY YEAST
- FERMENTATION EQUIPMENT
- WINE MAKING SUPPLIES
- LITERATURE

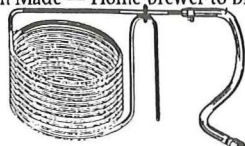
FREE Catalog FAST Service
Master Card & Visa Accepted

123 Glen Ave, Upton, MA 01568

1-800-626-2371

RCA DISTRIBUTORS EXCLUSIVE!!! (PATENT PENDING)

New & Improved
Immersion Wort Chiller
Simple - Time Saving - Easy-to-use
Custom Made — Home Brewer to Brew Pub



Basic Model #IWC-8 Dimensions; 25' +/-,
length of 3/8" copper tubing. Coil Diameter
9" w. x 15" h. Fits 5-7 gal. Primaries/buckets



BEER • SODA • WINE

CALL/WRITE FOR **FREE CATALOG**

Phone/Fax 603-445-2018
800-RCA-BREW

FREE INFORMATION

FROM THE ASSOCIATION OF BREWERS!

The Association of Brewers is a non-profit educational association dedicated to promoting the appreciation of beer and brewing.

Free How-tos

- | | |
|---|--|
| 917 The Pure Seal Caps® Bottlecaps | 912 How to Use Specialty Malts, with Malt Extract Conversions |
| 932 How to Teach a Homebrew Class | 913 The Zymurgist's Guide to Hops |
| 931 How to Start a Homebrew Club | 911 Beginners Package |
| 910 How to Brew Your First Batch of Beer | |
| 914 Outline for Intermediate Brewing | |

Free Lists

- | | |
|---|--|
| 915 Additives Allowed in Commercial Beers Brewed in the United States | 916 Beer-Related Magazines, Newspapers, Journals, Newsletters |
| 930 Homebrew Clubs in Canada, New Zealand, Australia and the United States | 933 Homebrewers Connection Retail Outlets |

Free General Information

- | | |
|--|--|
| 940 Retailer's Starter Set (Please include additional \$2.50 for postage and handling.) | 920 Introductory CompuServe Information Service kit (members only) <i>Includes one month free and \$15 usage credit on CompuServe's beer forum.</i> |
| 900 An Introduction to the American Homebrewers Association | 922 Application and info for the AHA's Sanctioned Competition Program |
| 901 <i>zymurgy</i> Mini-Index 1978-1993 | 929 The Beer Judge Certification Program Booklet |
| 906 <i>The New Brewer</i> magazine Index 1984-1993 | |
| 999 The Beer Enthusiast Catalog | |

Special information from the Association of Brewers

- | | |
|--|--|
| 555 Brewery List...\$5 An excellent state-by-state list of all breweries and brewpubs in North America. Updated quarterly. | 563 Brewers Introductory Packet...\$15 For individuals thinking about opening their own brewery. Contains the Brewery List (above), the Industry Update issue of <i>The New Brewer</i> magazine, the Industry Fact Sheet and other information. |
|--|--|

Please Enclose \$3 to Cover P&H.

Name _____ Phone _____

Address _____

City _____ State/Province _____

Zip/Postal Code _____ Country _____

Total amount enclosed \$ _____



Association of Brewers, PO Box 1679, Boulder CO 80306-1679;
(303) 546-6514, FAX (303) 447-2825.

FREE

MEMBERSHIP APPLICATION

AMERICAN HOMEBREWERS ASSOCIATION

Become a member of the American Homebrewers Association and receive more than a subscription to *zymurgy*.



The AHA brings you:



• Five issues of *zymurgy* each year packed with recipes, homebrew tips, information on equipment and brewing events.



• The AHA National Homebrew Competition



• The AHA National Homebrewers Conference

Program



• Beer Judge Certification Program

Program



• Sanctioned Competition Program

back guarantee



• All the information your homebrew needs!



• Full money-back guarantee

MEMBERSHIP APPLICATION

\$

Total Enclosed (U.S. dollars only) Full Money-Back Guarantee! Prices subject to change

Name _____

Address _____

City _____ State/Province _____

Zip/Postal Code _____ Country _____

Payment: Check _____ Visa _____ MC _____

Credit Card No. _____ Exp. date _____

Signature _____ Daytime Phone (_____) _____

☐ Enclosed is \$29 U.S. for *one-year* membership in the AHA.

☐ Enclosed is \$34 U.S. for *one-year* Canadian Membership.

☐ Enclosed is \$44 U.S. for *one-year* Foreign Membership.

All payments must be made in U.S. dollars

☐ Enclosed is \$53 U.S. for *two-year* membership in the AHA.

☐ Enclosed is \$63 U.S. for *two-year* Canadian Membership.

☐ Enclosed is \$83 U.S. for *two-year* Foreign Membership.

Make checks payable in U.S. dollars to the American Homebrewers Association, PO Box 1510, Boulder, CO 80306-1510, USA. Or call (303) 447-0816 for credit card orders.

***PRICES VALID UNTIL DEC. 1, 1995.**

GIFT MEMBERSHIP

☐ **Yes**, send a gift membership to my friend. And send a personalized gift card from me — I'll pay above.

You can introduce a fellow homebrewer to the many benefits of the AHA by sending a gift membership.

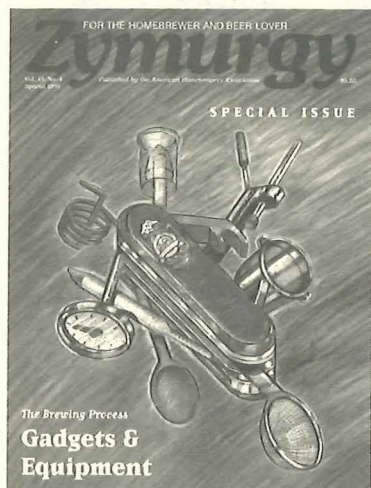
Name _____

Address _____

City _____ State/Province _____ Zip/Postal Code _____ Country _____

***PRICES VALID UNTIL DEC. 1, 1995.**

EXPAND YOUR BREWING LIBRARY

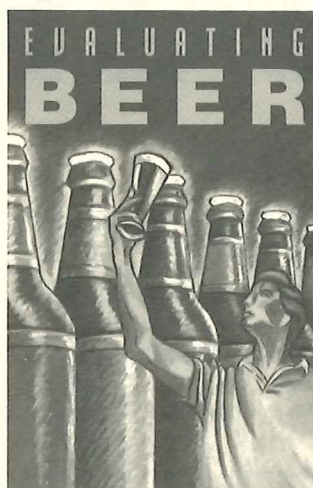


Zymurgy

1992 Special Issue Gadgets and Equipment

The 1992 Special Issue of *zymurgy* is devoted to the Brewing Process featuring Gadgets and Equipment. More than 100 information-filled pages describe the latest and most inventive brewing equipment available. Each article is written by an expert homebrewer, many of them equipment inventors themselves. Also featured are 26 award-winning homebrew recipes that make this Special Issue one of the most valuable homebrew resources published all year.

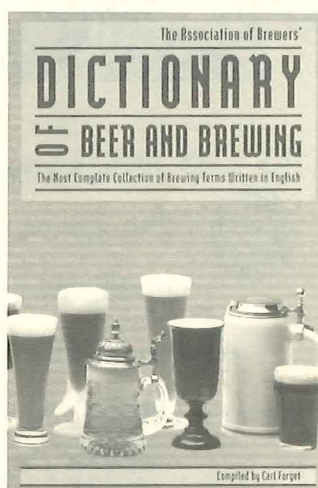
8 1/2 X 11, 102 pp., Vol. 15, No. 4, \$9.50 plus shipping. #762



Evaluating Beer

The long and seemingly endless search for a book completely devoted to the intricacies of beer evaluation is over. *Evaluating Beer* will teach you more than you imagined about evaluating the beer you make or the beer you taste. You don't have to be a brewing scientist to understand beer evaluation. With the guidance of our authors, you'll learn all about flavor components, sensory perception and more. *Evaluating Beer* will answer your beer evaluation questions and leave you with a better understanding of beer flavor dynamics.

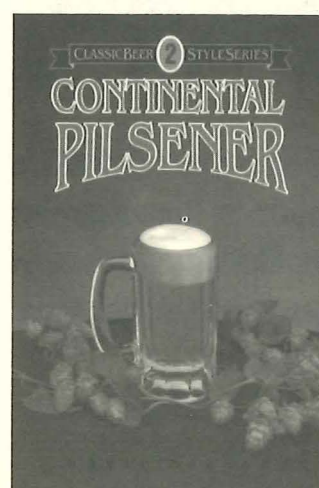
Brewers Publications, 1993.
5 1/2 X 8 1/2, 244 pp., \$25.95 plus shipping. #465



Dictionary of Beer and Brewing

Compiled by Carl Forget
The art and science of brewing and beer enjoyment has a language all its own. There's no better way to learn what all the terms mean than with the *Dictionary of Beer and Brewing*. From the technical to the typical, you'll have every beer and brewing term used worldwide right at your fingertips. Amaze your brewing friends or the local brewer with your understanding of the terms used in the brewing process.

Brewers Publications, 1988.
5 1/2 X 8 1/2, 186 pp., \$19.95 plus shipping. #462



Continental Pilsener

By David Miller
This revolutionary beer style changed the course of brewing history when brewers in Plzeň, Czechoslovakia, introduced it to the world. It's a clean, refreshing style you know, love and can brew to perfection. Award-winning homebrewer and author David Miller examines the history of this venerable style, then guides you through the process of brewing it. Includes recipes. Required reading for the bottom-fermenting brewer.

Brewers Publications, 1990.
5 1/2 X 8 1/2, 102 pp., \$11.95 plus shipping. #402

EXPAND YOUR BREWING LIBRARY ORDER FORM

Item	Quantity	Price	Total
1992 Special Issue <i>zymurgy</i> #762	_____	@\$ 9.50 = _____	
Evaluating Beer #465	_____	@\$25.95 = _____	
Dictionary of Beer and Brewing #462	_____	@\$19.95 = _____	
Continental Pilsener #402	_____	@\$11.95 = _____	
	Shipping Total	= _____	
	TOTAL	= _____	

(For domestic P&H, add \$3 for the first book or magazine and \$1 for each additional book.)

Name _____

Address _____

City _____ State/Province _____

Zip/Postal Code _____ Country _____

Payment: Check _____ Visa _____ MC _____

Credit Card No. _____ Exp. date _____

Signature _____ Daytime Phone () _____

Exciting **NEW** courses for microbrewers!

Beginning September, 1994

The American Brewers' Guild *will offer courses tailored to the craft brewing industry*

Lead Instructor: *Dr. Michael Lewis*, professor of Brewing Science,
University of California, Davis—and highly regarded instructor,
researcher and mentor to the brewing industry

In Davis, California

The Practical Brewer's Apprenticeship

A structured ten-week education and internship program
October - December, 1994 and January - March, 1995

In cities across North America

Weekends, September, 1994 - June, 1995

Brewpubs and Microbreweries: The Definitive Shortcourse

Brew on Premise: The Definitive Shortcourse

For more information call (916) 753-0497, fax (916) 753-0176 or write
American Brewers' Guild, 2110 Regis Dr., Suite B, Davis, CA 95616

Ask for our catalog of courses for microbrewers and
special beer courses and events for the
advanced home brewer

American Brewers' Guild

Education and Training for the Craft Brewing Industry



**WE'RE NEW!
WE'RE COOKIN'!
BUY FROM US!**

We have everything you'll need ...
as time goes on we'll have more
than you'll ever need!

Evergreen Brewing Supply

12121 NE Northup Way, Suite 210

Bellevue, WA 98005

Toll Free 1-800-789-BREW

Mark & Kimberly Henry, Owners

- Same Day Shipping
- Call for our Free Catalog
- Competitive Prices

**Get
Involved ...
Join a
Club!**



Your Homebrew Will Thank You

Join a homebrew club in your area and you'll meet plenty of others with the same devotion and enthusiasm for the art and science of homebrewing. The homebrewing community is growing, so take this opportunity to get involved with other homebrewers in your area.

To find the nearest AHA registered homebrew club in your area, contact the AHA: PO Box 1679, Boulder, CO 80306-1679; (303) 447-0816 FAX (303) 447-2825.

Philly's Original

**Convenient
to Brewpubs**

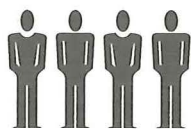
**Free
Catalog**

**Fast,
Friendly
Service**

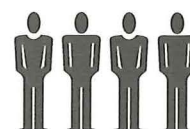
**Ask
About
Free
Shipping**



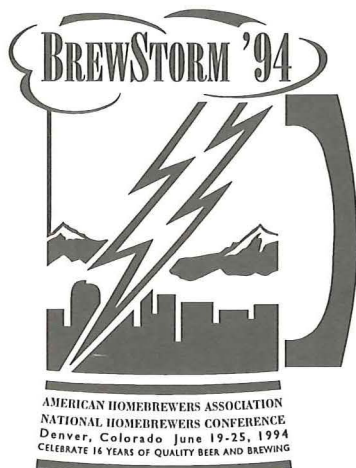
**2008 Sansom Street
Philadelphia PA 19103
(215) 569-9469**



HOMEBREW CLUBS



James Spence



BrewStorm '94 Schedules Club Activities

For eight years the AHA National Homebrewers Conference has been the country's premier event for homebrewers. The AHA National Homebrew Competition, seminars, panels, banquets and brewery tours are the highlights of the Conferences, but past attendees have also enjoyed a true sense of camaraderie and friendship that pervades the events.

For 1994, the AHA has scheduled a homebrew club forum featuring experts from established homebrew clubs. The Mile High Homebrew Club Rendezvous is a chance for attendees to express their concerns, discuss issues and learn from people who started and held together some of the country's best-regarded homebrew clubs.

Clubs also play a large role in the Jambeeries, or homebrew expos, where manufacturers, distributors and clubs gather to view the latest in homebrew technology and

share news and brews from around the country. In addition to the networking opportunity the Jambeeries offer, clubs have their own booths to display, sell and trade T-shirts, hats, newsletters and anything else.

The 1994 Conference, BrewStorm '94, will be in downtown Denver, Colo., June 19 through 25 at the Hyatt Regency. For more information on club participation at BrewStorm '94 contact Nancy Johnson at the AHA.

Brewing for a World Record

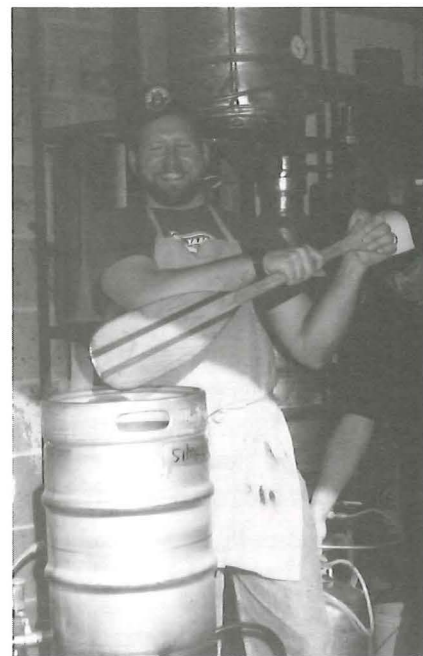
Billing the event as the First Annual Oktoberfest Brewathon, the Great Northern Brewers of Anchorage, Alaska, organized a marathon that earned a self-proclaimed world record for homebrew club brewing.



Great Northern Brewers, Anchorage, Alaska

Held in conjunction with the club's Oktoberfest celebration, the Oct. 2, 1993, event saw 25 two-person brewing teams brew 10 gallons of beer each during a 15-hour period. Each team, usually composed of a novice brewer and a veteran brewer, brewed for a three-hour shift, five teams per shift. At midnight, 250 gallons of beer had been brewed, a record the club is confirming with the folks at the Guinness Book of World Records. The only known previous record has been held by Arizona's Brewmeisters Anonymous. Time constraints limited the brewing to extract batches, but two all-grain beers were made for demonstration purposes.

In other news from the Great Northern Brewers, two members tying the knot exemplified the homebrewing spirit by registering for gifts, in part, at the Arctic Brewing Supply shop.



NEW AHA REGISTERED HOMEBREW CLUBS

For a complete list of AHA Registered Homebrew Clubs, see the AHA Registered Homebrew Clubs insert in this issue. If you want to register your homebrew club with the AHA, send a brief letter about your club including the same kind of information you see here to AHA Administrator James Spence, PO Box 1679, Boulder, CO 80306-1679, phone (303) 447-0816, FAX (303) 447-2825, CompuServe 70740,1107.

NEW CLUBS

GEORGIA

Savannah Brewers' League, c/o Rob Moline, 1303 E. 66th St. #1, Savannah, GA 31404; (912) 355-5491.

HAWAII

Deja Brews Homebrewing Club of Kaua'i, c/o Bruce Ingerson, 4915 Nonou Rd., Kapaa, HI 96746; (808)823-8929.

NEW HAMPSHIRE

Lakes Region Homebrewers, c/o Jon Scanlon, RFDI Box 388B, Northfield, NH 03276; (603) 286-8149.

NEW JERSEY

Brunswick Brew Club, c/o Brian Conger, 4302 Hana Rd., Edison, NJ 08817-2569; (908) 248-1559.

PENNSYLVANIA

The Keystone HOPS, c/o Jason Harris, Montgomery Farmers Market, Route 63, Montgomeryville, PA 18936; (215) 641-HOPS.

York Area Homebrewers Association (YAHA), c/o Mike Knaub, Starview Brew, 51 Codorus Furnace Rd., Mt. Wolf, PA 17347; (717) 266-5091.

TEXAS

Brew Bayou, c/o Mark K. DeWeese, PO Box 1575 Brazoria, TX 77422; (409) 848-0516.

WASHINGTON

Seattle Secret Skinny Brewers Society, c/o Marvin Crippen, 3532 N.E. 92nd St., Seattle, WA 98115; (206) 522-5143.

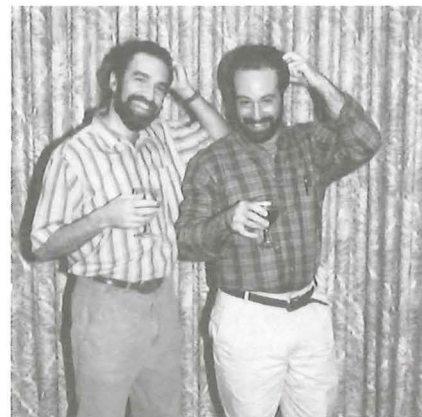
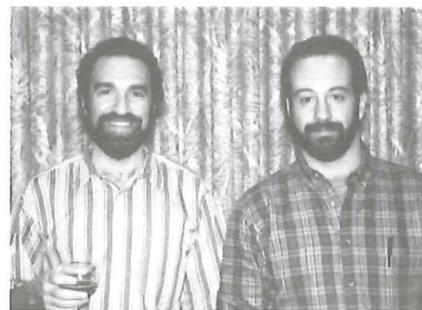
Papazian Visits Florida Homebrewers

AHA founder Charlie Papazian spent a few days in West Palm Beach in early January visiting the Palm Beach Draughtsmen. Charlie gave a brewing seminar to about 70 people at the West Palm Beach Airport Hilton, and tasted nearly 50 of the club's homebrews. "For the most part, they were impressively good," Charlie said.

He met Victor Sears, the closest Charlie Papazian look-alike he has ever seen. Acting as host, Steve Vernet of the Homebrew Connection supply shop took Charlie to The Irish Times brewpub in Palm Springs Garden for lunch.

Tax-Exempt Status for Clubs

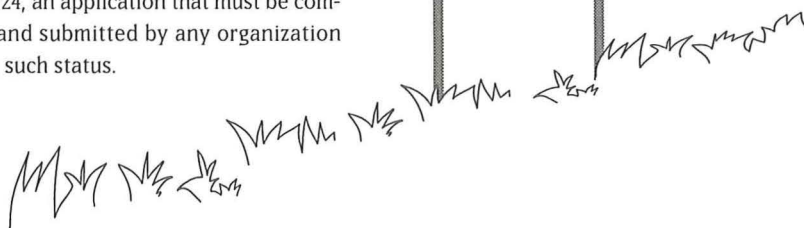
For various reasons, homebrew clubs may wish to apply to the Internal Revenue Service for exemption from federal income tax. Under IRS rules, organizations falling into certain categories of endeavor may be eligible for tax-exempt status. The Association of Brewers is a 501(c)(3) organization under the IRS regulations — a distinction for corporations and associations that focus primarily on educational activities. Homebrew clubs may fall under the category of 501(c)(7) organizations, which denotes social and recreation clubs, including hobby clubs. If your club is interested in applying for tax-exempt status under Section 501(c) of the IRS code, you should contact the Internal Revenue Service and ask for publication 557, "Tax-Exempt Status for Your Organization," which describes most types of tax-exempt status granted by the IRS and lists the factors that determine eligibility. In addition, publication 557 describes the important responsibilities tax-exempt organizations have under the codes. You should also ask for IRS Form 1024, an application that must be completed and submitted by any organization seeking such status.



Charlie Papazian with Victor Sears, the closest Charlie Papazian look-alike we've seen.

Club Activity Idea

Many states have "Adopt-a-Highway" programs. Participation in such a program could be a terrific chance for homebrew clubs to show their community spirit and support. Organizations that adopt a highway keep their road free of litter and are often recognized by a sign posted on the highway. Contact your city, county or state transportation departments for details.



Register Your Club

AHA Registered Homebrew Clubs receive a complimentary subscription to *zymurgy*, six exclusive newsletters per year, eligibility for the six annual Club-Only Competitions, discounted AHA member mailing-list rental, discounted exhibitor booths at AHA National Homebrewers Conferences and interaction with more than 375 other groups as part of the world's largest network of homebrew clubs.

Registering your club is free! Please put us on your mailing list. The contact information you provide should be an address and phone number where people can contact you if they are interested in joining, and where we and other clubs can send you stuff or give you a call. Plus, your club liaison should be someone willing to be responsible for distributing information sent to your club to everyone else in the club. A club post office box is a terrific idea, and if the contact person's answering machine mentions your club, that's great too.

CLUB-ONLY COMPETITION WINNERS


BEST OF FEST

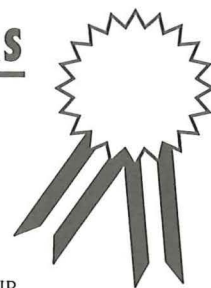
- ★ **First Place**
Darren Cousineau,
Fresno, Calif., of the San Joaquin
Worthogs
- ★ **Second Place**
Andrew Jones,
Holcomb, N.Y., of the Upstate New York
Homebrewers Association
- ★ **Third Place**
Vince Shumski,
York, Pa., of the Harrisburg Area
Homebrewers Association

The 29-entry competition was organized by the Hogtown Brewers, Gainesville, Fla.

POIGNANT PORTER

- ★ **First Place**
Craig Pepin,
Durham, N.C., of TRUB
(Triangle Unabashed Brewers)
- ★ **Second Place**
Donna Bettencourt,
Sacramento, Calif., of the Gold Country
Brewers Association
- ★ **Third Place**
Paul Kerchevske,
Manitowoc, Wis., of the Manty Malters

The 59-entry competition was organized by the American Homebrewers Association, Boulder, Colo. 



AHA SANCTIONED COMPETITION



Kudos

July 18, 1993,
CALIFORNIA STATE FAIR,
Sacramento, Calif., 202 entries.
Vern Wolff of Esparto, Calif.,
won best of show.

July 27, 1993,
STANISLAUS COUNTY FAIR
HOMEBREW COMPETITION,
Modesto, Calif., 38 entries.
Mike Harper, won best of show.

Sept. 25, 1993,
BIG FRESNO FAIR,
Fresno, Calif., 50 entries.
Darren Cousineau, Fresno, Calif.,
won best of show.

Oct. 15, 1993,
DIXIE CUP,
Houston, Texas, 677 entries,
Fred Gibson, Pasadena, Texas,
won best of show.

Oct. 16, 1993,
GORDON'S CAVE A VIN
OKTOBERFEST '93,
Montreal, Quebec, 72 entries.
Stephan Witkowski, Montreal,
Quebec, won best of show.

Oct. 17, 1993,
BREWMASTER THIRD ANNUAL
OKTOBERFEST HOMEBREW
COMPETITION,
San Leandro, Calif., 66 entries.
Tom Altenbach, Tracy, Calif.,
won best of show.

Oct. 22, 1993,
EMERALD COAST BREW FEST '93,
Fort Walton Beach, Fla.,
22 entries.
Colleen Keleher, Mobile, Ala.,
won best of show.

Oct. 22, 1993,
THE TASTE OF THE GREAT
LAKES™
Frankenmuth, Mich.,
140 entries.
Jeff Renner, Ann Arbor, Mich.,
won best of show.

Oct. 23, 1993,
SECOND ANNUAL CAMRA B.C.
HOMEBREWING COMPETITION,
Victoria, British Columbia,
115 entries.
David and Melinda Brockington,
Seattle, Wash., won best of show.

Nov. 5, 1993,
SECOND ANNUAL SPOOKY
BREW REVIEW,
Chicago, Ill., 154 entries.
George Fix, Arlington, Texas,
won best of show.

Nov. 6, 1993,
DULLES REGIONAL BREWING
SOCIETY: CAPITOL DISTRICT OPEN,
Fairfax, Va., 98 entries.
Kent Taylor, Nashville, Tenn.,
won best of show.

Nov. 7, 1993, 1993
NORTHWEST PILSENER
COMPETITION,
Portland, Ore., 21 entries.
Brett Gober, Vancouver, Wash.,
won best of show.

Nov. 7, 1993,
CALIFORNIA STATE
HOMEBREW COMPETITION,
San Francisco, Calif., 148 entries.
Ray Call, Stockton, Calif.,
won best of show.

Nov. 7, 1993,
HOPS-BOPS,
Philadelphia, Pa., 164 entries.
Delano Dugarm, Arlington, Va.,
won best of show.

Nov. 12, 1993,
HOP BARLEY & THE ALE'S
FIFTH ANNUAL REGGAE AND
DREADHOP HOMEBREW
COMPETITION,
Boulder, Colo., 108 entries.
Steve Dempsey, Fort Collins, Colo.,
won best of show.

Nov. 20, 1993,
MADISON HOMEBREWERS
NOVEMBER CLASSIC,
Madison, Wis., 16 entries.
Bob Paulino, Madison, Wis.,
won best of show.

Nov. 20, 1993,
SALT CITY BREWERS ANNUAL
HOMEBREW COMPETITION,
Syracuse, N.Y., 80 entries.
Lee Turner, Baldwinsville, N.Y.,
won best of show.

Nov. 20, 1993,
TOPEKA HALL OF FOAMERS
HEARTLAND HOME BREW
COMPETITION,
Topeka, Kan., 44 entries.
Gary and Brent Lloyd, Topeka,
Kan., won best of show.

Nov. 29, 1993,
CHRISTMAS.S.H.,
Montreal, Quebec, 92 entries.
Bob Johnson, Burlington, Vt.,
won best of show.

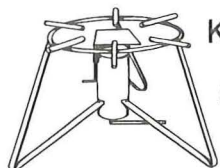
Dec. 4, 1993,
AMBROSIA ADVENTURE,
Boulder, Colo., 48 entries.
Vern Wolff, Esparto, Calif., won
best of show.

You can receive an AHA
Sanctioned Competition
application for your
homebrew competition by
contacting the AHA.



GREAT

**For
Making
Your
Own
Beer!**



King Kooker
Model #
90 H/S PK

Available Through Your Local
Home Brew Shop

METAL FUSION, INC.
1-800-783-3885



**Free
Grain
Crushing**

We Cater to the
Novice and Advanced Brewer

**Beer and Wine Supplies
and Equipment**

- Malts
- Hops
- Wine Concentrates
- Large Selection
- Knowledgeable Staff

The Grape and Granary
1302 E. Tallmadge Ave.
Akron, Ohio 44310
Free Catalog
(216) 633-7223
1-800-695-9870

Great Beer Starts Here



**Always the lowest price!
GUARANTEED!**

**Case of 10 NWE 3.3# Extract
Mix & Match - Only \$ 50.00
Brew City Supplies**

PO Box 27729 Dept. ZA
Milwaukee, Wisconsin 53227
Phone/Fax (414) 425-8595

• Over 200 Extracts • Grain Mills • Books • Mashing Hardware • More!

Write for your free copy of our 1994 - 32 Page Catalog!

Forget the REST - Buy from the BEST!



Beer & Wine Making Supplies

**Fresh Products
Prompt Service**

**Quality Merchandise
Dependable Advice**

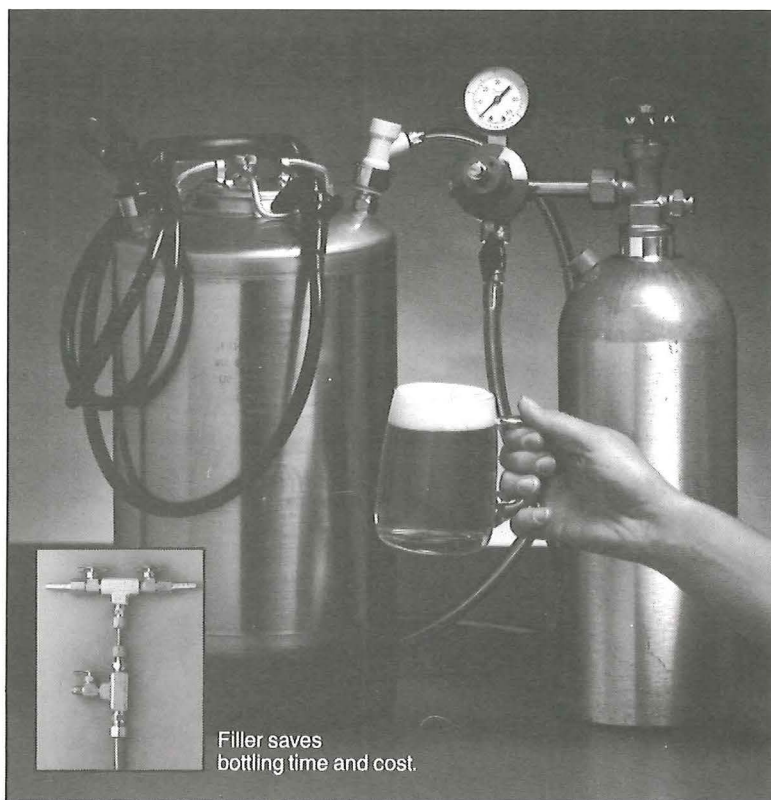
Low Prices

**FREE catalogs upon request
"Brewing System & Style Guide" for BEGINNERS
or a Comprehensive 72 page Catalog for
ADVANCED BREWERS & WINEMAKERS**

114-O Freeland Lane

Charlotte, NC 28217

(800) 365-BREW



Filler saves
bottling time and cost.

WHOLESALE ONLY. Dealer Inquiries Invited.

HOME BREW KEG (3 or 5 gallons)

The Foxx Home Brew Keg allows you to dispense, store and clean-up with bulk efficiency. All components are heavy-duty, but simple to use.

The Foxx Bottle Filter can be your easy way to bottle filling. By following simple instructions you can produce a sediment free bottle of beer with the same carbonation as keg beer, with no foaming!

Allows better beer aging.
Easier to clean and store.
Better for Parties!

Forrest Mauer
President



421 Southwest Blvd., Kansas City, MO 64108
(816) 421-3600

K.C. (800) 821-2254 FAX (816) 421-5671
Denver (800) 525-2484 FAX (303) 893-3028



Now available from all The Home Brewery™ shops!

"BREW MAGIC" Recirculating Infusion Mash System*

- Precision Microprocessor Temperature Controls to + or - .1 degree F.
- Built-in High Efficiency Heat Exchanger
- Automated Manifold Design
- Produces Greater Yields

- Causes no frothing, foaming, or hot side aeration
- All Stainless Steel vessels, 15 1/2 gallon capacity
- Special Magnetic Drive Recirculating Pump

*Reviewed by Dr. George Fix in *Zymurgy*, Winter, 1993:
"I was simply astonished." "A totally automated system,
with which the brewer can exert precise control." Dr. Fix

Stainless Steel Brewing Kettles

Sold separately.

15 1/2 gallon capacity. Totally reconditioned and legal with all edges rounded and deburred. Includes a removable Stainless Mesh False Bottom, built-in 3" Dial Thermometer, Stainless 1/2" Ball Valve and Stainless Lid and Siphon Tube.

- 289.95 plus shipping -



Call for more
information

(800) 321-BREW

Advanced Brewers Scientific

Buy Direct and Save - Best Prices

- Easiest Yeast Culture Kits Available
- Complete Line of Lab Supplies & Equipment
- Finest & Most Extensive Yeast Culture Bank Anywhere

Phone or Write for Free Catalog

Western U.S. (503) 234-7503
3034 SE 20th, Portland OR 97202

Eastern U.S. & Canada (419) 732-2200
2233 Sand Rd., Port Clinton OH 43452

Napa Fermentation Supplies

Quality Home Brewing
Equipment and Supplies
since 1983

Full line of brewing supplies
Free catalog
Mail and phone orders
Fast delivery

Napa Fermentation Supplies
724 California Boulevard
Napa, CA 94559

Retail Store Hours:
M-F 9 a.m. - 5 p.m.
Sat. 10 a.m. - 5 p.m.

Ph. (707) 255-6372
FAX (707) 255-6462
Out-of-state (800) 242-8585



COMPLETE LINE OF HOME BREWING
SUPPLIES & EQUIPMENT

SPECIAL!

HALLERTAU
HERSHBRUCHER
HOP PELLETS
ALPHA 4.0%

\$7.00
PER POUND

8 1/4 GALLON
(33 QUART)
BAKED ENAMEL
BREW KETTLES
WITH LID

\$28.97

Heartland Hydroponics For All Of Your
Brewing and Growing Needs

Heartland Hydroponics

Vernon Plaza, 115 Townline Road
Vernon Hills, IL 60061
(3.5 Miles West of I-94 on Route 60)
Phone 800-354-4769

CALL
FOR A FREE
CATALOG



ALWAYS



THE LOWEST PRICES IN CHICAGOLAND!
CHECK US OUT BEFORE YOU BUY!

**What do you give a Homebrewmeister
who has everything?**

The Kit



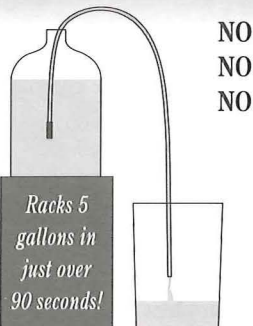
A complete filter system for
removal of bacteria, yeast
sediment, and chill
haze. Includes clear
plastic housing,
.5 micron high
efficiency
cartridge,
tubing and
connections.

The Filter Store Plus

Call the Filter Store Plus at
1-800-828-1494

to place your order or request a free catalog.
Write the Filter Store Plus, P.O. Box 425 Rush, N.Y. 14543

The Original SyphonWonder™ from Down Under



NO PUMPS OR BATTERIES
NO COMPLEX MOVING PARTS
NO INHALING OR SWALLOWING

Simple To Use:

1. Attach SyphonWonder to your 1/2-inch to 3/4-inch hose.
2. Insert into liquid and quickly shake up and down.
3. Flow will begin and continue automatically.

- **CONSTRUCTION** Stainless steel and food grade plastic – won't rust or wear out – easy to clean and sanitize
- **THE ORIGINAL** Finally available in the U.S. – don't pay for low-quality plastic or copper imitations
- **GUARANTEED** Comes with lifetime warranty
- **OTHER USES** Aquariums, waterbeds, gas, diesel – even acids

Send check or money order for \$7.95 + \$2.00 P&H each to:
MYSTIC CONCEPTS • P.O. Box 19726 • Denver, CO 80219

Dealer Inquiries Welcome – Call (800) 255-2345

Elliott Bay Metal Fabricating, Inc.

Specializing in 2, 4, 7, 10 & 15 Barrel Systems



— Elliott Bay Metal Fabricating, Inc. —
P.O. Box 777 • Monroe, Washington 98272 • (206) 788-5297

Telephone: (503) 254-7494, Fax: (503) 251-2936
7024 N.E. Glisan Street, Portland, Oregon 97213 U.S.A.



Serving The Trade
Since 1963

WHOLESALE
ONLY

**Complete Line of
HOME BEER
and
WINE MAKING SUPPLIES**

HOME OF THE FAMOUS
JET BOTTLE CAPPER

**FASTEST SERVICE FROM
COAST TO COAST.**

**WRITE FOR OUR DETAILED
LIST OF ITEMS.**

MAXIMUM FREIGHT \$2.50

Anywhere in the Continental United States

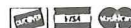
Free 16 Page Catalog

- ☐ Hundreds of Products
- ☐ Minimum Order \$30
- ☐ Shipped Within 24 Hours

1-800-762-2560



Monday-Saturday 10-5 EST



HOMEBREW CONNECTION

THESE FINE RETAIL SHOPS ACROSS NORTH AMERICA OFFER HOMEBREWING INGREDIENTS AND SUPPLIES. PLAN TO VISIT THEM WHEN YOU ARE IN THE AREA.

ARIZONA

Brewmeisters Supply Co.
3522 W. Calavar Rd.
Phoenix, AZ 85023
(602) 843-4337

CALIFORNIA

Barley And Wine Home Fermentation Supply
1907 Central Ave.
Ceres, CA 95307
(209) 538-BREW; (800) 500-BREW

Bencomo's Homebrew Supply
1544 N. Palm
Fresno, CA 93728
(209) 237-5823

The Beverage People
840 Piner Rd., #14
Santa Rosa, CA 95403
(707) 544-2520; (800) 544-1867

Bucket of Suds
317 Old County Rd.
Belmont, CA 94002
(415) 637-9844

Doc's Cellar
470 Price St.
Pismo Beach, CA 93449
(805) 773-3151

Fermentation Frenzy
991 N. San Antonio Rd.
Los Altos, CA 94022
(415) 941-9289

Great Fermentations of Marin
87M Larkspur
San Rafael, CA 94901
(415) 459-2520; (800) 542-2520

The Home Brewery
738 S. Waterman Ave., #B-28
San Bernardino, CA 92408
(909) 888-7746; (800) 451-MALT

HopTech
PO Box 2172
Danville, CA 94506
(800) DRY-HOPS; (510) 736-2350;
FAX (510) 736-7950

Napa Fermentation Supplies
724 California Blvd.
Napa, CA 94559
(707) 255-6372; (800) 242-8585

Oak Barrel Winecraft Inc.
1443 San Pablo Ave.
Berkeley, CA 94702
(510) 849-0400

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

R & R Home Fermentation Supplies
8385 Jackson Rd.
Sacramento, CA 95826
(916) 383-7702

Santa Cruz Homebrew
616 California St.
Santa Cruz, CA 95060
(408) 459-0178

COLORADO

The BREW-IT Co.
129 Remington St.
Fort Collins, CO 80524
(800) 748-2226; (303) 484-9813

Doc's Brew Shop
3150-BI S. Peoria
Aurora, CO 80014
(303) 750-6382

Highlander Home Brew Inc.
151 W. Mineral Ave., Suite 113
Littleton, CO 80120
(303) 794-3923; (800) 388-3923

Liquor Mart Inc.
1750 15th St.
Boulder, CO 80302
(303) 449-3374

Old West Homebrew Supply
301 B East Pikes Peak Ave.
Colorado Springs, CO 80903
(719) 635-2443; (800) ILV-BREW

Silverthorn Homebrewers Supply
301 Lagoon Lane
PO Box 978
Silverthorne, CO 80498
(303) 468-8330

What's Brewin'
1980 8th St.
Boulder, CO 80302
(303) 444-9433

Wine & Hop Shop
705 E. 6th Ave.
Denver, CO 80203
(303) 831-7229

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

CONNECTICUT

B.J.O.B. Brew Your Own Beer
283 Whisconier Rd.
Brookfield, CT 06804
(203) 775-9020

Brother Logan Home Brewing Supplies
60 Jerry Daniels Rd.
Marlborough, CT 06447
(203) 295-8620

The Mad Capper
PO Box 161
Glastonbury, CT 06033
(203) 659-8588

S.E.C.T. Brewing Supply
c/o SIMTAC
20 Attawan Rd.
Niantic, CT 06357
(203) 739-3609

Wine and Beer Art of Smith Tompkins
1501 E. Main St., Route 202
Torrington, CT 06790
(203) 489-4560

DELAWARE

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

FLORIDA

The Home Brewery
416 S. Broad St.
PO Box 575
Brooksville, FL 34605
(904) 799-3004; (800) 245-BREW

Home Brewer's Outlet Inc.
4345 Okeechobee Blvd.
Building F-5
West Palm Beach, FL 33409
(800) 644-5555

The Home Brewery
416 S. Broad St.
PO Box 575
Brooksville, FL 34601
(904) 799-3004; (800) 245-BREW

GEORGIA

Brew Your Own Beverages Inc.
20 East Andrews Dr. N.W.
Atlanta, GA 30305
(404) 365-0420

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

ILLINOIS

Chicagoland Winemakers Inc.
689 W. North Ave.
Elmhurst, IL 60126-2132
(708) 834-0507

Chicago Indoor Garden Supply
297 N. Barrington Rd.
Streamwood, IL 60107
(708) 885-8282; (800) 444-2837

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

Evanston First Liquors Homebrewing
1019 W. Davis St.
Evanston, IL 60201
(708) 328-9651

Fleming's Winery
RR 2 Box 1
Oakwood, IL 61858
(217) 354-4555; (800) 832-4292

Home Brewing & Wine Making Emporium
28 W. 685 Rogers Ave.
Warrenville, IL 60555
(708) 393-2337; (800) 455-BREW

Home Brew Shop
307 W. Main St.
St. Charles, IL 60174
(708) 377-1338

Leisure Time Pet & Hobby
123 S. Mattis
Country Fair Shopping Center
Champaign, IL 61821
(217) 352-4007

Lil' Olde Winemaking Shoppe
4 S. 245 Wiltshire Lane
Sugar Grove, IL 60554
(708) 557-2523

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

Sheaf & Vine Brewing Supply
5425 S. LaGrange Rd.
Countryside, IL 60525
(708) 430-HOPS

You-Brew Country Food & Liquor
19454 S. Route 45
Mokena, IL 60448
(708) 479-2900

KANSAS

Ale-N-Vino
925 N. Kansas Ave.
PO Box 8155
Topeka, KS 66608
(913) 232-1990; (800) 335-BREW

Bacchus & Barleycorn Ltd.
8725 Johnson Dr.
Merriam, KS 66202-2150
(913) 262-4243

CJ's Beer & Wine Hobby Shop
539 E. Santa Fe
Olathe, KS 66061
(913) 764-5717; (800) 858-0664

KENTUCKY

The Home Brewery
1446 N. 3rd St.
Bardstown, KY 40004
(502) 349-1001; (800) 992-BREW

Nuts N Stuff Inc., Bulk Foods
2022 Preston St.
Louisville, KY 40217
(502) 634-0508; (800) 867-NUTS

Winemakers Supply & Pipe Shop
9477 Westport Rd.
Westport Plaza
Louisville, KY 40221
(502) 425-1692

MAINE

The Purple Foot Downeast
116 Main St., Dept. Z
Waldoboro, ME 04572
(207) 832-6286

MARYLAND

Bierwerks Inc. T/A Elsie's Gourmet German Delicatessen
8141 Telegraph Rd.
Severn, MD 21144
(410) 551-6000; (800) 619-6660

Brew N' Kettle
1000 Light St.
Baltimore, MD 21230
(410) 783-1258

Brew Masters Ltd.
12266 Wilkins Ave.
Rockville, MD 20852
(301) 984-9557; (800) 466-9557

The Brewkeg
822-C Frederick Rd.
Catonsville, MD 21228
(410) 747-2245

Cellar Works
at Fullerton Liquors
7542 Belair Rd.
Baltimore, MD 21236
(410) 665-2900

The Flying Barrel
III S. Carroll St.
Fredrick, MD 21701
(301) 663-4491

Maryland Homebrew
9009-D Mendenhall Ct.
Columbia, MD 21045
(410) 290-FROTH

MASSACHUSETTS

Barleymalt and Vine
26 Elliot St.
Newton, MA 02161
(800) 666-7026

**Barleymalt and Vine
w The Wine Vault**
Route 126 and 9
Framingham, MA 01701
(508) 875-6980

Barnstable Brewers Supply
Windmill Square, Route 28
PO Box 1555
Marstons Mills, MA 02648
(508) 428-5267

Beer and Wine Hobby
180 New Boston St.
Woburn, MA 01801
(617) 933-8818; (800) 523-5423

Biermeister
PO Box 9334
Lowell, MA 01853
(508) 458-5899

The Hoppy Brewer Supply Co.
550 Central Ave.
Seekonk, MA 02771
(508) 761-6615

The Keg & Vine
697 Main St.
Holden, MA 01520
(508) 829-6717

The Modern Brewer Co.
2304 Massachusetts Ave.
Cambridge, MA 02140
(617) 868-5580; 800-Send-Ale

Stella Brew — Discount Homebrew Supplies
16 State Rd.
PO Box 432
Charlton City, MA 01508
(508) 248-6823; (800) 248-6823

The Vineyard — Home Brewers And Vintners Supply Shop
123 Glen Ave.
PO Box 80
Upton, MA 01568
(508) 529-6014; (800) 626-2371

MICHIGAN

Brew & Grow
33523 W. 8 Mile, #F-5
Livonia, MI 48152
(313) 442-7939

Midwest Brewing Supply
PO Box 6215
Saginaw, MI 48608
(517) 793-9420 (phone and FAX); (800) 644-BREW (order line)

True Brew Homebrewing Supply Co.
PO Box 125
Algonac, MI 48001
(810) 794-1038

Wine Barrel Plus
30303 Plymouth Rd.
Livonia, MI 48150
(313) 522-9463

MINNESOTA

Brew-N-Grow
8179 University Ave. N.E.
Fridley, MN 55432
(612) 780-8191

WindRiver Brewing Co. Inc.
7212 Washington Ave. S.
Eden Prairie, MN 55344
(612) 942-0589; (800) 266-HOPS;
FAX (612) 942-0635

MISSOURI

The Home Brewery
S. Old Highway 65
PO Box 730
Ozark, MO 65721
(417) 485-0963; (800) 321-BREW

Johnny Brew-Meister's
Crossroads West Shopping Center
2101 W. Broadway
Columbia, MO 65203
(314) 446-8030; FAX (314) 446-8031

St. Louis Wine & Beer Making
251 Lamp & Lantern Village
St. Louis, MO 63017
(314) 230-8277

Winemaker's Market
4349 N. Essex Ave.
Springfield, MO 65803
(417) 833-4145

NEVADA

The Home Brewery
4300 N. Pecos Rd., #13
North Las Vegas, NV 89115
(702) 644-7002; (800) 288-DARK

NEW HAMPSHIRE

Beer Essentials
92 Renshaw Rd.
Weare, NH 03281
(603) 529-4664; (800) 608-BEER

Brewer & Associates/Maine Hopper
112 State St./PO Box 6555
Portsmouth, NH 03801
(603) 436-5918

Granite State Natural Food Inc.
164 N. State St.
Concord, NH 03301
(603) 224-9341

Orfordville Home Brew Supplies
Route 25A RRI Box 106A
Orford, NH 03777
(800) 498-4564; (603) 353-4564

RCA Distributors (East Coast)
10 North St.
North Walpole, NH 03609
(603) 445-2018; (800) RCA-BREW

The Seven Barrel Brewery Shop
Colonial Plaza,
Exit 20, Interstate 89
W. Lebanon, NH 03784
(603) 298-5566

The Stout House
Eastern Slope Plaza
North Conway, NH 03860
(603) 356-5290; (800) 842-BREW

Stout Billy's
61 Market St.
Portsmouth, NH 03801
(603) 436-1792; (800) 392-4792

NEW JERSEY

Ale & Mead Brewing
181 Willowdale Ave.
Montclair, NJ 07042
(201) 744-5498

The Brewmeister
115 N. Union Ave.
Cranford, NJ 07016
(908) 709-9295; (800) 322-3020

Brunswick Brewing Supply
727 Raritan Ave.
Highland Park, NJ 08904
(908) 572-5353; (800) 884-2739

Coffee Thyme 'N More
201 N. Broadway
Gloucester, NJ 08030
(609) 456-8833

The Home Brewery
56 W. Main St.
Bogota, NJ 07603
(201) 525-1833; (800) 426-BREW

Red Bank Brewing Supply
67 Monmouth St.
Red Bank, NJ 07701
(908) 842-7507; (800) 779-7507

Richland General Store
Route 40, PO Box 185
Richland, NJ 08350
(609) 697-1720

Wine Rack
293 Route 206
Flanders, NJ 07836
(201) 584-0333

NEW YORK

America's Brewing Co.
100 River Rd.,
Triangle Plaza, Suite 8
Harriman, NY 10926
(914) 782-8586

Arbor Wine & Beermaking Supplies Inc.
74 W. Main St.
East Islip, NY 11730
(516) 277-3004

Bottom of the Barrel
280 E. Dominick St.
Rome, NY 13440
(315) 339-6744

The Brewery
11 Market St.
Potsdam, NY 13676
(315) 265-0422; (800) 762-2560

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

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

E. J. Wren Homebrewer Inc.
Ponderosa Plaza
209 Oswego St.
Liverpool, NY 13088
(315) 457-2282

East Coast Brewing Supply
124 Jacques Ave.
PO Box 060904
Staten Island, NY 10306
(718) 667-4459; FAX (718) 987-3942

Great Lakes Brew Supply
310 Adams Ave.
Endicott, NY 13760
(607) 785-4233; (800) 859-GLBS

Heimstatte Homebrewers Supply
RD #1 Box 354
Livingston Manor, NY 12758
(914) 439-4367

**Little Shop of Hops
Home Brewing Supply Co.**
15 W. 39th St.
New York, NY 10018
(212) 704-4248; (800) 343-HOPS;
FAX (212) 704-9611

Little Shop of Hops II
79 New St.
New York City, NY 10004
(212) 422-3636

Mountain Malt and Hop Shoppe
54 Leggs Mills Rd.
Lake Katrine, NY 12449
(800) 295-MALT; (518) 943-2289

The New York Homebrew Inc.
38 Cherry Lane
Floral Park, NY 11001
(800) YOO-BREW;
FAX (516) 358-0587

Niagara Tradition Homebrewing Supplies
7703 Niagara Falls Blvd.
Niagara Falls, NY 14304
(716) 283-4418

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

U.S. Brewing Supply
815 Madison Ave.
Albany, NY 12208
(800) 383-9303; (518) 449-2470

NORTH CAROLINA

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

American Brewmaster
3021-7 Stoneybrook Dr.
Raleigh, NC 27604
(919) 850-0095

NORTH DAKOTA

Happy Harry's Polar Package Inc.
1125 19th Ave. N.
Fargo, ND 58103
(701) 235-4661

**The Home Brewery
at Happy Harry's Bottle Shop**
2151 32nd Ave. S.
Grand Forks, ND 58201
(701) 780-0902; (800) 367-BREW

OKLAHOMA

Bob's Brewhaus
724 W. Cantwell Ave.
Stillwater, OK 74075
(405) 372-4477

OREGON

F.H. Steinbart Co.
234 S.E. 12th St.
Portland, OR 97214
(503) 232-8793

Home Fermenter Center
123 Monroe St.
Eugene, OR 97402
(503) 485-6238

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

Wasson Bros. Winery & Beer and Wine Supply
41901 Hwy. 26
Sandy, OR 97055
(503) 668-3124

PENNSYLVANIA

Ambler Brewer's Connection
903 E. Butler Pike
Butler & Bethlehem Pikes
Ambler, PA 19002-6031
(215) 643-3565

Beer Unlimited
515 Fayette St.
Conshohocken, PA 19428
(610) 397-0666

Beer Unlimited
Routes 30 and 401,
Great Valley Shopping Center
Malvern, PA 19355
(215) 889-0905

BREW by YOU
3504 Cottman Ave.
Philadelphia, PA 19149
(215) 335-BREW

Country Wines
3333 Babcock Blvd.
Pittsburgh, PA 15237-2421
(412) 366-0151

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

Homebrewers Outlet
10 Lincoln Circle
Fairless Hills, PA 19030
(215) 943-8569

Keystone Homebrew Supply
Montgomeryville Farmers Market
Route 63
Montgomeryville, PA 18936
(215) 641-HOPS

Spielgrund Gourmet Shop
3528 E. Market St.
York, PA 17402
(717) 755-3384

Starview Brew
51 Codorus Furnace Rd.
Mt. Wolf, PA 17347
(717) 266-5091

RHODE ISLAND
Brew Horizons
884 Tiogue Ave.
Coventry, RI 02816
(401) 826-3500

Northeast Brewers Supply
Mariner Square
140 Point Judith Rd., Unit C-45
Narragansett, RI 02882
(401) 789-9635; (800) 352-9001

**Northeast Brewers Supply
Providence Division**
745 Branch Ave.
Providence, RI 02901
(401) 521-4262

TENNESSEE
Allen Biermakens
4111 Martin Mill Pike
Knoxville, TN 37920
(615) 577-2430; (800) 873-6258

The Winery & Brew Shoppe
60 S. Cooper St.
Memphis, TN 38104
(901) 278-2682

TEXAS
Austin Homebrew Supply
306 E. 53rd St.
Austin, TX 78751
(512) 467-8427

**DeFalco's Home Wine & Beer
Supplies**
5611 Morningside Dr., Dept. Z
Houston, TX 77005
(713) 523-8154; FAX (713) 523-5284

Homebrew Supply of Dallas
777 South Central Expressway, Suite I-P
Richardson, TX 75080
(214) 234-5922

Homebrew Headquarters
2810 Greenville
Dallas, TX 75206
(214) 821-7444; Order lines
(800) 966-4144, (800) 862-7474

Homebrew Headquarters — North
13929 North Central Expy.,
Suite 449
Dallas, TX 75243
(214) 234-4411; (800) 966-4144

Homebrew Headquarters — West
900 E. Copeland, Suite 120
Arlington, TX 76011
(817) 792-3940; (800) 862-7474

**St. Patrick's of Texas Brewers
Supply**
12922 Staton Dr.
Austin, TX 78727
(512) 832-9045

The Winemaker Shop
5356 W. Vickery
Fort Worth, TX 76107
(817) 377-4488; FAX (817) 732-4327

VERMONT
The Brew Lab
94 N. Main St.
St. Albans, VT 05478
(802) 524-2772

Something's Brewing
196 Battery St.
Burlington, VT 05401
(802) 660-9007

Vermont Homebrewer's Supply
20 Susie Wilson Rd.
Essex, VT 05451
(802) 879-2920; (800) 456-BREW

VIRGINIA
Brew America
138 Church St. N.E., Suite F
Vienna, VA 22180
(703) 938-4805

WASHINGTON
Brewer's Warehouse
4520 Union Bay Place N.E.
Seattle, WA 98105
(206) 527-5047

The Cellar Home Brew
14411 Greenwood N.
Seattle, WA 98133
(206) 365-7660; (800) 342-1871

Evergreen Brewing Supply
12121 N.E. Northup Way, Suite 210
Bellevue, WA 98005
(800) 789-BREW; (206) 882-9929

**Jim's 5¢ Home Brew Supply &
Traditional Beer Emporium**
N. 2619 Division St.
Spokane, WA 99207
(509) 328-4850; (800) 326-7769

**Liberty Malt Supply Co./Pike Place
Brewery**
1432 Western Ave.
Seattle, WA 98121
(206) 622-1880;
FAX (206) 622-6648

Northwest Brewers Supply
915 6th St.
Anacortes, WA 98221
(206) 293-8070

West Seattle Homebrew Supply Co.
4823 California Ave. S.W.
PO Box 16532
Seattle, WA 98116
(206) 932-1202; FAX (206) 932-1205

WEST VIRGINIA
Tent Church Vineyard
RD 1, Box 218
Colliers, WV 26035
(304) 527-3916; (800) 336-2915

WISCONSIN
B. Bros. Brewing Supply
1733 Charles St.
La Crosse, WI 54603-2135
(608) 781-WINE

Life Tools AdventureOutfitters Inc.
1035 Main St.
Green Bay, WI 54301
(414) 432-7399

**The Market Basket Homebrew &
Wine Supplies**
14835 W. Lisbon Rd.
Brookfield, WI 53005-1510
(414) 783-5233

North's Worts
7625 Sheridan Rd.
Kenosha, WI 53143
(414) 654-2211

North Brewery Supplies
9009 S. 29th St.
Franklin, WI 53132
(414) 761-1018

The Wine & Hop Shop
434 State St.
Madison, WI 53703
(608) 257-0099

WYOMING
Whole Foods Trading Co.
1239 Rumsey Ave.
Cody, WY 82414
(307) 587-3213

CANADA

BRITISH COLUMBIA
**Spagnol's
Wine and Beer Making Supplies
Ltd.**
1325 Derwent Way
Annacis Island
New Westminster, BC V3M 5V9
(604) 524-9463; FAX (604) 524-1327

ONTARIO
Marcon Filters
40 Beverly Hills Dr.
Downsview, ON M3L 1A1
(416) 248-8484

➔ **If you are
interested in
having your shop
listed, please call
Linda Starck,
(303) 447-0816,
for all the details.**



HopTech *The hop supplier
with a difference!*

HopTech knows hops. We supply only the finest **hops and hop products** to the homebrewer and microbrewer. And we do it better than anyone else.

All of our hops are shipped nitrogen flushed in our SuperBarrier[™] foil pouches that protect the hops **10 times better** than standard oxygen barrier bags. Our hops are stored at -5° F to insure freshness.

Did you know that an alpha acid rating for hops used to finish or dry hop is a worthless number? To get consistent results you need to know the oil content. **HopTech is the only supplier to rate all hops for oil content as well as alpha acid.**

HopTech is the exclusive supplier to the homebrewer of CO₂ extracted hop oils for easy dry hopping. We also carry hop iso-extracts, late hop essences and our hop bag and weight system for traditional dry hopping.

Call for our informative catalog today.



See HopTech proprietor Mark Garetz's article
on Dry Hopping in the Summer '93 Zymurgy

HopTech 1-800 DRY-HOPS
POB 2172 (1-800 379-4677)
Danville, CA 94526 FAX: 1-510 736-7950
(510) 736-2350



Dealer, Microbrewery and Brew Club Group Buy Inquiries Invited









Introducing BrewTap:

a microbrewery
mail order club
created for
beer connoisseurs
and home brewers.

As a member of BrewTap, you will receive:

-  2 six-packs of different quality microbrews delivered to your home each month
-  Our newsletter containing a description of the month's featured brews, as well as recipes, facts, and tips about home brewing
-  Special discounts on reorders of your favorite brews
-  Our guarantee: any problems with your delivery, call us for an immediate resolution

BrewTap is dedicated to finding you a wide variety of microbrews for you to sample. Broaden your taste in beer and increase your knowledge about something you already love... a great brew!

The cost is just \$14.95 per month plus tax and shipping. You must be 21 years old to join and you may cancel your subscription at any time.

Call for more
information.

1-800-940-BREW
(2739)

We've Got What Your Competition Needs!

Competition
Handbook

Competition
Forms

Evaluation
Forms

Assistance
Over the
Phone

The newly revised AHA Sanctioned Competition Kit has everything you need to know about organizing and running a successful homebrew competition. With more than 16 years experience running competitions all around the country, we've taken the guesswork out of homebrew competitions.

Call James Spence for an application and information at (303) 447-0816 or FAX (303) 447-2825.

\$40 for AHA members, \$70 for non-members.
Two-month minimum notice required.



ZYMURGY ADVERTISER INDEX

Abita Software Development	43
Advanced Brewers Scientific	87
Allegheny Printing	75
Alternative Beverage	85
Alternative Garden Supply	37
American Brewers Guild	81
Antrom Associates	72
Armstrong	Color No. 4
At Home Warehouse Distribution	25
Avon Books	97
Bacchus and Barleycorn Ltd.	56
BarleyCORN	103
Beer and Wine Hobby	72
Beverage People, The	25
Black Rock Brewing Co.	Color No. 2
Blue Heron Enterprises	70
Boston Beer	Color No. 6
Braukunst	103
Brew City Supplies	85
Brew Tap	92
Brewer's Coop, The	22
Brewers Resource	58
Brewers Warehouse	1
Brewery, The	88
Brewhaus, The	51
Brewing Experience Inc., The	13
Brewing Techniques	63
Brewmaster	13
California Celebrator	94
Cellar, The	70
Chateau Distributors	69
Coopers Brewery	Outside Back Cover
Crafty Fox, The	26
Crosby and Baker Ltd.	75
Custom Brew Beer Systems	Color No. 9
E.Z. Cap Bottle Distributors	37
East Coast Brewing Supply	63
Edme Malt Ltd.	Color No. 5
Elliott Bay	88
Evergreen Brewing Supply	81
F.H. Steinbart Co.	56
Filter Store Plus, The	87
Foxx Equipment Co.	86
Fred Eckhardt Communications	102
Frozen Wort, The	56
G.W. Kent	76 & Color No. 8
Grape and Granary, The	85
Great Fermentations of Marin	101
Great Lakes Brew Supply	4
Heart's Home Brew Supply	103
Heartland Hydroponics	87
Home Brew Outlet	72
Home Brewer's Outlet Inc.	63
Home Brewery, The	15 & 86
Home Sweet Homebrew	81
HopTech	64 & 70 & 91
Jet Carboy and Bottle Washer	4
Jim's Home Brew Supply	103
Joby Books	63
L.D. Carlson Co.	6 & 43
Liberty Malt Supply Co.	2 & 64
Liquid Bread	72
Listermann Mfg. Co.	70
Malt Products Corp.	51
Malt Shop, The	31
Maltose Express	66
Marcon Filters	102
Market Basket, The	64
Metal Fusion	85
Morris Hanbury	26
Munton and Fison	Color No. 3
Mystic Concepts	88
Napa Fermentation	87
North Harbor Mfg.	18
Northwestern Extract Co.	97
Nuttings Lake Publishing	21
Oregon Specialty Co. Inc.	88
Paine's Malt Ltd.	Inside Back Cover
Passport to Adventure	26
pico-Brewing	101
Premier Malt Products Inc.	Color No. 10
Quoin	4
RCA Distributors	80
Red Bank Brewing Supply	22
Regent Software Co.	9
Ryecor Ltd.	69
Siebel Institute of Technology	8
Stoelting	9
Tkach Enterprises	18
University Extension, University of California, Davis	9
Vineyard Home Brewers and Vintners Supply, The	80
Vinotheque	22
William's Brewing	26
Wine Hobby USA - Delaware	24
Yankee Brew News	102

We proudly invite you to

SUPPORT THE SPONSORS OF THE AHA 1994 NATIONAL HOMEBREW COMPETITION

Alternative Beverage,
Charlotte, N.C.

Alternative Garden Supply,
Streamwood, Ill.

Anchor Brewing Co.,
San Francisco, Calif.

Bencomo's Homebrew Supplies,
Fresno, Calif.

Boston Beer Works,
Boston, Mass.

Brewski Brewing Co.,
Culver City, Calif.

Briss Malting Co.,
Chilton, Wis.

Butterfield Brewery,
Fresno, Calif.

California Concentrates,
Acampo, Calif.

Coopers Brewery,
Medina, Wash.

Crosby and Baker,
Westport, Mass.

EDME Limited,
Essex, England

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

Havill's Mazer Mead Co.,
Rangiora, New Zealand

Homebrew Headquarters,
Dallas, Texas

Honeymoon Mead Co.,
Austin, Texas

*Home Wine and Beer Trade
Association,*
Valrico, Fla.

Institute for Brewing Studies,
Boulder, Colo.

Jim's Homebrew Supply,
Spokane, Wash.

JV Northwest Inc.,
Wilsonville, Ore.

L.D. Carlson Co.,
Kent, Ohio

Lyon's Brewery of Dublin,
Dublin, Calif.

Mamteken-Brussel Imports,
Austin, Texas

Marin Brewing Co.,
Larkspur, Calif.

Momokawa Sake Ltd.,
Forest Grove, Ore.

Munton & Fison,
Suffolk, England

National Honey Board,
Longmont, Colo.

Northwestern Extract,
Brookfield, Wis.

Pete's Brewing Co.,
Palo Alto, Calif.

Premier Malt Products,
Grosse Pointe, Mich.

Something's Brewing,
Burlington, Va.

Tabernash Brewery,
Denver, Colo.

The Beverage People,
Santa Rosa, Calif.

The Cellar,
Seattle, Wash.

The Purple Foot,
Milwaukee, Wis.

*Washington Hop
Commission/Yakima Valley
Hop Growers,*
Yakima, Wash.

Wine And Hop Shop,
Denver, Colo.

Wynkoop Brewing Co.,
Denver, Colo.

Please join us in thanking these companies for their generous sponsorship of the AHA 1994 National Homebrew Competition.

The long-awaited beer cookbook from zymurgy's Brewgal Gourmet, Candy Schermerhorn

GREAT AMERICAN BEER COOKBOOK

From Brewers Publications comes a cookbook like no other! All recipes use beer to enhance flavor potential, giving food an added culinary dimension. The *Great American Beer Cookbook* by the Brewgal Gourmet features mouth-watering recipes that are *chic* (Lobster and Brie Soup with Weissbier), *exotic* (Apple and Ham Pie with Curry Sauce using India Pale Ale), *down-home* (Potent Portered Beer Ribs) and *sinful* (Chocolate Stout Cake) – 217 recipes in all!

**Thanks to Brewers Publications and Candy Schermerhorn,
Beer is not just for drinking anymore.**

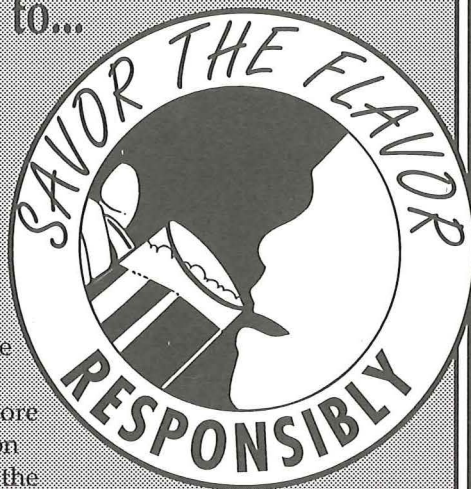


Brewers Publications

To receive your copy for only \$24.95 (plus \$3.50 P&H), call or write Brewers Publications at PO Box 1679, Boulder, CO 80306-1679; (303) 546-6514, FAX (303) 447-2825. Satisfaction Guaranteed.

zym17

The Association of Brewers
reminds beer lovers every-
where to...



If you have questions or want more information regarding the Association of Brewers Individual Responsibility Policy, please write PO Box 1679, Boulder, CO 80306-1679 or call (303) 447-0816, FAX (303) 447-2825.

zym17

"Our news is as fresh as your Beer!"



For the latest news, views, rumors, etc. on the "crafted-brewed" beer movement, read the

Celebrator®

Beer News Brewspaper

Dude, I can't wait another minute. Enclosed is my check for \$14.95. Please send me one year of the totally awesome Celebrator Beer News. "I'm stoked!"

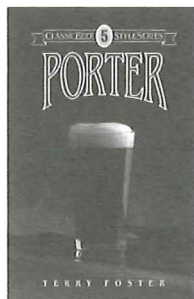
Send to: Box 375, Hayward, CA 94543

Name _____
Address _____
City _____ State _____ Zip _____
Phone _____

(or, send \$1 for sample issue First Class Mail!)

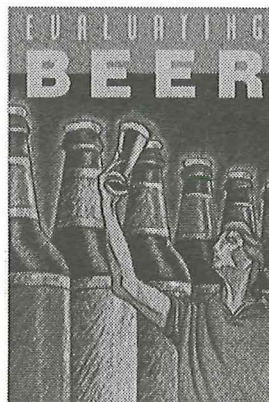
George Washington Couldn't Be Wrong!

Take a hint from America's first president and Porter lover! Master brewers and first timers alike will benefit from this Classic Beer Style Series book. Terry Foster will take you through the history, brewing techniques and recipes of this full-bodied beer. With *Porter* you'll learn all there is to know about this rich tradition brewed by America's first president.



Porter.

\$11.95, Plus \$3.50 Domestic P&H. Brewers Publications, PO Box 1679, Boulder, CO 80306; (303) 546-6514, FAX (303) 447-2825.



At Last!

A book completely devoted to the intricacies of beer evaluation.

Discover how to evaluate beer from the experts, including Charlie Papazian, Greg Noonan, Jim Koch, Morten Meilgaard and George Fix, just to name a few.

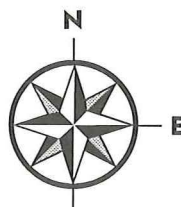
Order your copy today, for only \$25.95 (plus \$3.50 P&H).

To order, contact Brewers Publications at PO Box 1679, Boulder CO 80306-1679; (303) 546-6514, FAX (303) 447-2825.

Satisfaction Guaranteed.

zym17

BEER BEARINGS



A D I R E C T O R Y O F N O R T H A M E R I C A ' S F I N E S T P U B S

CALIFORNIA

HENRY 'N HARRY'S GOAT HILL TAVERN

1830 Newport Blvd.
Costa Mesa, CA 92697
(714) 548-8428

Seeing is believing! Our world-record 131 taps pour 101 different draft beers. Casual atmosphere featuring darts, billiards, shuffleboard and pinball. Open seven days, 11 a.m. to 2 a.m.

LYON'S BREWERY OF DUBLIN

7294 San Ramon Rd.
Dublin, CA 94568
(510) 829-9071

A beer connoisseur's heaven with 40 microbrewed and imported beers on draft. Non-smoking pub featuring darts, billiards and live music. Open seven days 11:30 a.m. to midnight.

COLORADO

WYNKOOP BREWING CO.

1634 18th St.
Denver, CO 80202
(303) 297-2700

Colorado's oldest brewpub, located in historic lower downtown in a renovated 1880 warehouse, features fresh beer, hearty pub fare, with live cabaret below, elegant pool hall upstairs. Free brewery tours Saturdays 1 to 5 p.m.

ILLINOIS

GOOSE ISLAND BREWING CO.

1800 N. Clybourn
Chicago, IL 60614
(312) 915-0071; FAX (312) 337-0172

"Every beer-loving visitor to Chicago should make sure they have a glass or two of beer at Goose Island." Michael Jackson, *Pocket Guide to Beer*.

IOWA

DALLAS COUNTY BREWING CO./OLD DEPOT RESTAURANT & PUB

218 S. Ninth St.
Adel, IA 50003
(515) 993-5064

Fine dining featuring game meats like buffalo and venison in restored depot. Adjacent microbrewery producing lagers, ales, porter and seasonal beers. Bottled beer, gift shop.

MASSACHUSETTS

SUNSET GRILL AND TAP

130 Brighton Ave., PO Box 659
Allston, MA 02134
(617) 254-1331

Best beer bar in Boston four years running. Sunset has 76 taps (microbrewed) and 300 bottled beers! Yard and half yards. Join the Sunset Beer club, cheers!

NEW YORK

CANTERBURY ALES

314 New York Ave.
Huntington, NY 11743
(516) 549-4404

Authentic English pub-famous burgers, prime rib, fish-n-chips, 16 different tap beers and ales; amber, porter, stout and 18 bottled, all but two imported.

HOLMES & WATSON LTD.

450 Broadway
Troy, NY 12180
(518) 273-8526

More than 200 brews with 23 on draft. Comfortable, relaxed decor. Full menu featuring burgers, wings, certified Angus steaks, salads, innovative sandwiches. Open daily.

OHIO

THE GREAT LAKES BREWING CO.

2516 Market St.
Cleveland, OH 44113
(216) 771-4404

Three-time Gold Medal winner at Great American Beer FestivalSM: 1990 Dortmunder, 1991 Porter and 1992 Traditional English Bitter! And the food matches the beers' quality! Charming turn-of-century building. Bottles and tours available.

OREGON

DESCHUTES BREWERY INC.

1044 N.W. Bono St.
Bend, OR 97701
(503) 382-9242; FAX (503) 383-4505

Top-quality handcrafted ales, fresh food including brewery-made sausage, bread, potato chips, mustard, root beer and ginger ale. Comfortable atmosphere. Ales distributed in Oregon and Washington.

PENNSYLVANIA

CHIDO'S TAVERN

107 & 109 W. 8th Ave.
Homestead, PA 15120
(412) 461-3113

The Wall Street Journal, *Sports Illustrated* and others recommend Chido's 120 worldwide bottled beers and frequent premium specials. Setting Pittsburgh's beer pace for 40 years. Restaurant.

DOCK STREET BREWING CO. BREWERY & RESTAURANT

Two Logan Square at 18th & Cherry St.
Philadelphia, PA 19103
(215) 496-0413

Philadelphia's only full-grain brewery. International brasserie cuisine. Billiard room. Live jazz/reggae Friday and Saturday. A thoroughly polished pub. Moderately priced. Lunch, dinner, late night.

RHODE ISLAND

CUSTOM HOUSE TAVERN

36 Weybosset St.
Providence, RI 02903
(401) 751-3630

Traditional British pub with pints of Bass ale, Guinness stout on draft, a large selection of foreign and domestic bottled beers. Music Sunday, Monday and Tuesday.

UTAH

SQUATTER'S PUB BREWERY

147 West Broadway
Salt Lake City, UT 84101
(801) 363-BREW; FAX (801) 575-7139

Salt Lake's only brewpub. Featuring pizza, sandwiches, pasta, fresh seafood and award-winning beer. Open daily 11:30 a.m. to 1 a.m. Located downtown in the Salt Lake Brewing Co. building.

WISCONSIN

BREWMASTERS PUB RESTAURANT & BREWERY

4017 80th St.
Kenosha, WI 53142
(414) 694-9050

Pub brews including Amber Vienna Style, Kenosha Gold, Royal Dark and a monthly special enjoyed with lunch or dinner in a 1900s masonry barn. Open seven days.

CANADA

ÈC'EST WHAT?

67 Front 19 Church
Toronto, ON MSE 1B5
(416) 867-9499

Pub-Club-Café. Downtown. Twenty of Toronto's best on tap. Brewery and winery on premises. Original live music nightly. Ethno-Clectic menu 'til the wee hours.

SPINNAKERS BREW PUB

308 Catherine
St. Victoria, BC V9A 3S8
(604) 386-2739

Canada's first in-house brewpub. Enjoy outstanding brews with great pub fare while enjoying the panoramic view of Lime Bay in our taproom.

Your Brew Will Thank You

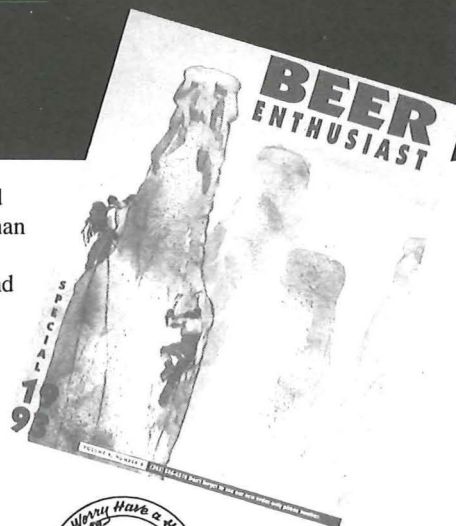
The Beer Enthusiast Catalog from the Association of Brewers is the most complete and comprehensive collection of books on beer and brewing found anywhere. With more than 50 titles plus back issues of *zymurgy* and *The New Brewer* magazines and Brewers Publications books, the Beer Enthusiast Catalog will take your brew to another level and expand your understanding of the beer you drink.

To order your free Beer Enthusiast Catalog, call or write the Association of Brewers, PO Box 1679, Boulder, CO 80306-1679; (303) 546-6514, FAX (303) 447-2825.

All books and merchandise in the Beer Enthusiast Catalog carry an unconditional money-back guarantee.

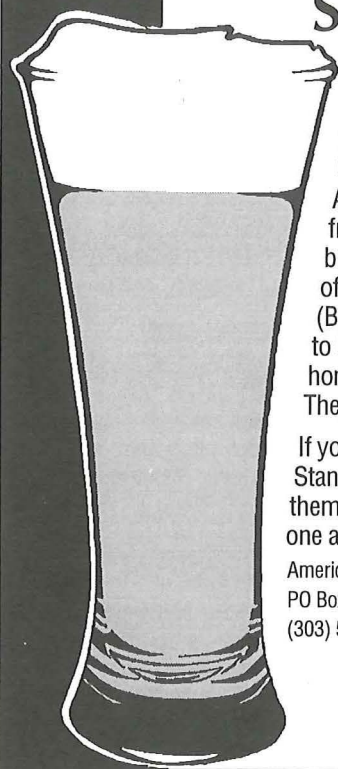


Brewers Publications



zym17

So Many Recipes, So Little Time



If you are devoted to the art of homebrewing you can never have too many recipes. We've designed the AHA Recipe Stand offering free award-winning homebrew recipes from the pages of the book *Winners Circle* (Brewers Publications, 1989), to be displayed at your local homebrew supply store. They're yours for the asking!

If you don't find an AHA Recipe Stand at your local shop — ask them to call us, and we'll send one at no charge.

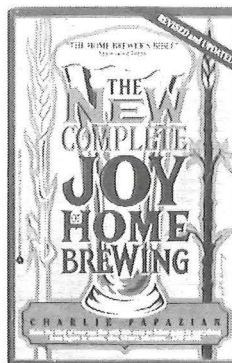
American Homebrewers Association,
PO Box 1679, Boulder, CO 80306-1679;
(303) 546-6514, FAX (303) 447-2825.



THE ALL-TIME CLASSIC REVISED AND UPDATED

THE NEW COMPLETE JOY OF HOME BREWING

From America's leading authority on home brewing, Charlie Papazian, comes this definitive, easy-to-follow guide to brewing everything from the lightest lager to the darkest stout.



Includes sections on:

- Getting your home brewery together: the basics—hops, malt, yeast and water
- 10 easy lessons to making your first bubbling batch of beer
- Brewing exciting world-class styles of beer that will impress and delight your friends
- Using fruit, honey and herbs for a spicier, feistier brew
- Brewing with malt extracts for an unlimited range of strengths and flavors
- And much, much more!

#76366-4 • 416 pages

"DEALER INQUIRES INVITED" AVON BOOKS, Room 286HB
1350 Avenue of the Americas, New York, NY 10019 Tel: 212-261-6882

AVON BOOKS
The Hearst Corporation

We're Looking for a Few Good Palates

It's a *brewtal* job, but someone has to judge and sample dozens of homebrewed beers in every imaginable style. As the art of homebrewing continues to grow, so does the demand for certified beer judges. If you have a love of beer and an understanding of beer flavors, styles and techniques, then the **Beer Judge Certification Program** is for you!

Sponsored by the American Homebrewers Association and the Home Wine and Beer Trade Association, the Beer Judge Certification Program is your opportunity to join the exciting world of certified brew judges! If you have what it takes, contact the AHA, PO Box 1679, Boulder, CO 80306-1679, or call (303) 447-0816, FAX (303) 447-2825.



MALT EXTRACTS

High Quality Brewers Wort:
Packaged in easy to use 3.3# poly bags.

Golden • Dark • Weizen • Amber
Hopped and Unhopped

The Full Line of BRIESS Grains
and Specialty Malts in Whole
Kernel and Brewers Grist.

Dry Malt Extract in all four types.
Dextrose and Corn Syrup.
Hop Pellets

**Northwestern
Extract Co.**

Wholesale Only
(800) 466-3034

3590 North 126th Street, Brookfield, WI 53005

CLASSIFIED

CALL LINDA STARCK, ADVERTISING MANAGER, AT (303) 447-0816 FOR OPTIONS, RATES AND DEADLINES.

INGREDIENTS

Frugal - Free Catalog - Write Southern Homebrew Supply, 2103 Scenic Rd., Tallahassee, FL 32303.

Extensive stock of grains, hops, yeast and supplies at the right price. Free Catalog. Frozen Wort, PO Box 947, Greenfield, MA 01302-0947; (413) 774-2217

Make quality beer for 12¢ a bottle. Low prices UPS SHP. MC/Visa/Discover. Free catalog. Flemings Winery (800) 832-4292.

Raw Hops. Eight varieties with updated alphas. Hop rhizomes (plants) available March-May. Hop oil. Call or write for catalog or local distributor. Freshops, 36180 Kings Valley Hwy., Philomath, OR 97370; (503) 929-2736.

BULK MALT SALE

Muntions 55-pound pails (syrup) light, amber, dark \$77.95. Stout House (603) 356-5290.

U.S. Brewing Supply

Low Prices! Large Selection! Free Catalog! Fast Service! 24-Hour order line! MC/Visa (800) 728-BEER.

SAVE MONEY WITH MAIL ORDER

Top quality ingredients. Free catalog. Hal-lowell & Co. (800) 484-9764 Ext. 2337.

MAKE QUALITY BEERS!

Free catalog and guidebook. Low prices, fastest service guaranteed. Reliable. Fresh-est hops, hops grains, yeast, extracts. Full line equipment. The Cellar, Dept. AZ, PO Box 33525, Seattle, WA 98133; (206) 365-7660, (800) 342-1871.

Wanted:

Brewers new and old needing quality ingredients, good service, free catalog or sound advice. Call (206) 293-8070, North-west Brewers Supply, 915 6th St., Ana-cortes, WA 98221.

We love to talk beer (and wine) and we know what we're talking about! Fast reli-able friendly: The Purple Foot. Complete selection. Never out of stock. Free catalog: 3167 S. 92 St. Dept. Z, Milwaukee, WI 53227; (414) 327-2130; FAX (414) 327-6682.

JUST HOPS

We specialize in those hard to find import-ed whole hops. Kept vacuum sealed and frozen. Free catalog. Just Hops, 335 N. Main, Mt. Zion, IL 62549; (217) 864-4216.

QUALITY GOURMET KITS

Beer and wine. Free catalog-Fast service. Sebastian Brewers, (800) 780-SUDS.

The Perfect Place to Buy or Sell! Contact Linda Starck, advertising manager, at (303) 447-0816 for options, rates and deadlines.

LIQUID YEAST

Most \$2.75 each Biere-de-Garde, Witbier, Kolsch, plus many more. Guaranteed. Free sample and strain list. Send \$1 S&H to Head Start Cultures, 921 Bill Smith Rd., Cookeville, TN 38501.

Z-WHEAT SPECIAL KIT

Six lbs. Alexander's Wheat Beer Extract, 1/2 lb. English Crystal Malt, one ounce of each: Cluster, Hallertauer and Perle hops pellets, and our Wheat Beer liquid yeast. Send \$20 check or M.O. (includes shipping, cont. U.S.) to: The Homebrewers' Store, PO Box 82736, Kenmore, WA 98028.

BOTTLE QUALITY WATER FOR 3¢

a gallon. Bacteriostatic activated carbon fil-ter three-year manufacturer's warranty. Removes chlorine, bad odors and taste, plus much more. Great beer starts with great water. Call (914) 883-7197.

SUPPLIES

STELLA BREW WE TREAT YOU KIND

Discount brewing supplies and more! PO Box 432, Charlton City, MA 01508. Call (800) 248-6823. New store! 197 Main St., Marlboro, MA 01752; (508) 460-5050. Free catalog/info!

THE HOMEBREWERS' STORE

(800) TAP-BREW



The Whistle Pig

HOMEBREW SUPPLIES FOR THE UNAFRAID

For the more sophisticated

Quality ingredients and information for homebrew and soda. Eliminate the guesswork. Whether you are an aficionado of the art or a down and dirty devotee. Call for our catalogue.

1-800-WISLPIG
(1-800-947-5744)

St. Patrick's of Texas

12922 Staton Drive
Austin, Texas 78727
512-832-9045

- Wyeast \$1.50 limit 1
- 8 gallon pot \$33.50
- wort chiller \$21
- Marie's Munich Extract
- Mesquite and rare Guajillo Honey
- 5 gallon kegs 3 for \$33
- 7 gallon carboy \$12
- complete kegging system \$143

3-level brewing systems
SS screens, SS valves, sturdy stands

Briess Malt Extract
dry \$7.50/3# syrup \$10.90/6#

Belgian grain 30 Wyeasts
fruit flavorings 6 to 16 gallon SS pots



BEER BOTTLE CARRIERS

- Different 12 oz. Carrier Styles (plain White)
- Preprinted with Real Beer Available for the Signature Look
- Less Than 50 cents Each (discount for large volumes)
- Excellent for Gift Packaging Your Beer
- Custom Printing Available (e.g. Beer Club, Retail Store logos)

TO PLACE AN ORDER CALL
1-800-400-BEER

WE KNOW BEER

Our microbrewery sells homebrew supplies. We offer expertise and true brewing experience as well as great products. James Page Brewery, 1300-Z Quincy, Minneapolis, MN 55413-1541; (800) 347-4042.

FREE CATALOG.

Quality homebrew supplies. Fast service. Belle City Brew Haus, PO Box 513 Dept. 8P, Racine, WI 53401; (414) 639-9526; (800) 236-6528.

Beermakers • Winemakers

Free catalog. Large selection malt extracts, grains, fresh hop flowers compressed into 1/2-ounce discs. Yeast Bank™, equipment, accessories. Country Wines, 3333Y Babcock Blvd., Pittsburgh, PA 15237.

Low Prices Great Service!

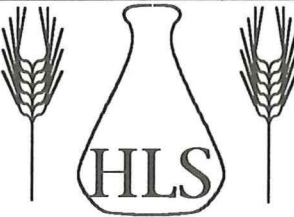
Let us help you do what we enjoy doing best: brew great beer. Fast, easy, economical. Free catalog. R.J. Goods, 3555 Rt. 60E 302, Barboursville, WV 25504.

Brewers Dozen

We feel the benefit of all-grain brewing is rewarding in itself, but some of you need a little extra convincing. Send for our 20-page all-grain info packet and we'll include a dozen Grolsch-style bottle gaskets. Free. No charge. No Kidding! Stew's Brew, W. 10157 710th Ave., River Falls, WI 54022; (715) 425-2424.

DEFALCO'S - SINCE 1971

Homebrew supplies. One of the country's widest selections of beer, mead and wine making supplies. Try us for those hard-to-find items. 5611-Z Morningside Dr., Houston, TX 77005. Call (800) 216-BREW for ordering or a free catalog.



HLS
Homebrewers
Laboratory
Services
Fast, Accurate, & Inexpensive
BEER ANALYSIS
For The Serious Homebrewer
HLS
P.O. Box 269 Whitmore, CA 96096
(916) 472-1240
Member American Society of Brewing Chemists

D.P. Homebrew Supply. Best prices, service and selection anywhere. Write for free catalog: PO Box 37, Mohegan Lake, NY 10547; (914) 739-0977.

Superbuy Bulletin. Beermakers send for Jann's bimonthly Superbuy Bulletin. Great Prices. Jann's, 8102 Santa Clara Blvd., Fort Pierce, FL 34951; (407) 489-5699 or 465-5950.

The Perfect Place to Buy or Sell! Contact Linda Starck, advertising manager, at (303) 447-0816 for options, rates and deadlines.

Free Catalog! Mailed Today

Call: (816) 254-0242. Or write: Kraus, Box 7850-Z, Independence, MO 64054.

Screen-printed and kiln-fired beer bottles and steins, no minimum quantity: 3506 C St. N.E., Auburn, WA 98002; (206) 624-2360.

TELL US WHAT YOU NEED

We'll take care of your brewing needs. Free catalog-bulk price list. Midwest Brewing Supply 24-hour order line. MC/Visa/Discover (800) 644-BREW.

Taos Brewing Supply


All-grain blended brew kits complete with hops, yeast and easy-to-follow instructions from the best pubs in America. "The best beer money can't buy." (505) 758-0099.

WAGNER'S BEER KING

Free homebrewing catalog. Low prices! (612) 934-7635.

BEER BREWING KITS \$49.95

Six lbs. of liquid malt extract \$11.95. Home beer and wine making supplies. Free catalog. Dyer Brewing Supplies, PO Box 4161, Visalia, CA 93278; (209) 625-2359.



New
DIGITAL
pH METER

RANGE: 00.00-14.0
RESOLUTION: 0.001
ACCURACY: 0.1
CALIBRATION: By Slope & Two OFFSET Trimmers
ELECTRODE: Replaceable
BATTERY LIFE: 3000 Hours
SIZE: 2" x 7"

GREAT FOR MASHING
JUST "DIP & READ"
Accessory Kit \$5.50
\$39.50 + \$3.50 P&H

American Brewmaster
3021-7 Stoneybrook Dr.
Raleigh NC 27604
(919) 850-0095

COLORADO MOUNTAIN CONNECTION

"For all your beer and winemaking needs." Call Big Bob or Patrece for a free catalog. Silverthorn Homebrewers Supply (303) 468-8330.

Creative Brewers! The finest supplies at low prices. Free catalog. C&M Supplies, PO Box 618, Bolivar, OH 44612; (612) 874-4447.

Huron Brewing Supplies Inc.

Free Catalog! Great products and prices: PO Box 347, Ypsilanti, MI 48197; (313) 485-4014.

FREE CATALOG - TRY US!

(800) 455-BREW(2739). Quality products. Friendly service. Outstanding prices. Fast Shipping. Home Brewing & Wine Making Emporium.

FREE CATALOG (800) 266-HOPS

At WindRiver Brewing Co. we offer the finest in supplies, knowledge and service! We also have wholesale prices for homebrew stores. Fastest shipping in the midwest. Call for more information.

BOOKS, ETC.


World Beer Review, a newsletter for the beer gourmet and enthusiast. \$1 for sample copy or subscribe for only \$18.50. WBR, Box 71A, Clemson, SC 29633.

SOFTWARE

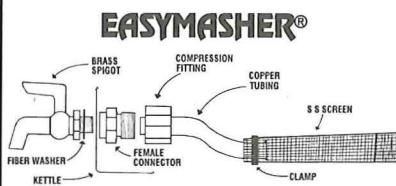
BREWING MADE EASY

Windows 3.1 brewing software. Formulation, on-line help, styles, etc. Send \$45 to: Southington Computing Services, 291 Berlin Ave., Southington, CT 06489; (203) 621-0300.

THE MALTMILL®
for the **serious** homebrewer or the small **brewery**. Don't be fooled by pint sized imitations.



EASYMASHER®



- The simplest and least expensive all-grain system.
- Even the novice can achieve extraction of 30+ pts.
- So efficient, it can make beer from flour.
- Easy to install in any brew kettle.
- Nothing else needed for the first all-grain batch.

Jack Schmidling Productions
4501 Moody • Chicago 60630 • (312) 685-1878

101 Recipes for Microsoft Windows

Categorized, specific gravity, alcohol content, add notes, tables for gravities, percent alpha, calculate bittering units. Send \$25 with name and mailing address to: SGS Computer Enterprises, 1946 N. Mutual-Union Rd., Cable, OH 43009.

MEAD

Two gallons of mesquite honey for \$17.50 plus UPS - Chaparral Honey Corp., 1655 W. Ajo No. 154-Z, Tucson, AZ 85713.

MISCELLANEOUS

Specialty coffee, teas, herbs and spices! Free catalog: NorthStar, 6850-Z Colburn-Culver, Sandpoint, ID 83864; (208) 263-7180.

T-SHIRTS, GLASSWARE, HATS

By New Belgium, Kessler, Anderson Valley, Celis, HC Berger, Helenbeck and many more. For a free full-color catalog, send an SASE to Micro T., 1205 W. Elizabeth #E155, Fort Collins, CO, 80521; or call anytime (303) 495-0887.

THE HOMEBREWERS' STORE

(800) TAP-BREW

EQUIPMENT

15.5 GALLON KEGS

Build your own pilot brewery! Reconditioned 304 SS half barrel brewing kettles. Straight sided, ready to use. \$99.95 + SGH (414) 681-2608.

THE HOMEBREWERS' STORE

(800) TAP-BREW.

NEW! CARBOY COZY

Quilted cotton cover fits over five- and six-gallon carboys. Drawstring top fits over airlocks and handles. Protects brew from light! Insulates! Looks great! Only \$19.95 Vermont Whyte & Co. (802) 879-6462.

The Mail Order Prices You Expect

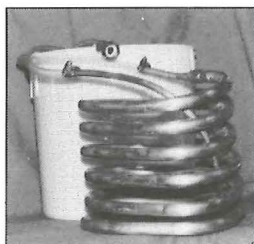
Copper wort chiller 25 feet by 3/8 inch only \$42.99. Barley Brothers HB Supply, 16702 Ferndale Ave., Cleveland, OH 44111. Free Catalog (216) 476-1457.

USED 5-GAL S.S. KEGS \$25

Complete keg system \$160. Free shipping. System includes three-pound CO₂ cylinder, regulator, keg, all fittings and hoses. Check or money order to K.W. Brewing Supplies, 2728 Ave. N., Plano TX 75074.

RAPID CHILL

Immersion Type Wort Chiller



Manufactured from 3/4" hard copper
Sturdy - No wire reinforcement needed - Easily cleaned
Chills home brew in 10-15 minutes
Available direct from Manufacturer
Made in USA \$69.95 plus shipping

For more information or to place an order write or call:
Bennett Enterprises
P.O. Box 152 • Woodbury Hts., NJ 08097
609-845-1451

CLASSIFIED

A PERFECT PLACE TO BUY OR SELL!

Call Linda Starck, advertising manager, at (303) 447-0816 for options, rates and deadlines.

MINI KEGS!

"Greatest time saver since the bottle filler."

Finally, an inexpensive way to keg your home brew!
Special limited time offer, only

\$49.98

plus \$5.00 shipping
4-5 liter kegs, 4-keg bungs
4-16 gram CO₂, & 1 CO₂ KEG TAP
EVERYTHING IS REUSEABLE!

Five gallons of brew fill four mini kegs in about ten minutes!!!
Small in size, BIG on convenience
THE PINE CHEESE MART'S
WINE & BEER MAKING SHOP
Serving fellow brewers for over 14 years
Our store is open 7 days a week
FREE SHIPPING ON QUALIFIED ORDERS
CALL FOR MORE INFORMATION
1-800-596-2739

CHOOSE TO RE-USE

A Bottle-Shipping System that you don't throw away



Safe • Simple • Re-Usable

12-BOTTLE SHIPPING CONVENIENCE
\$21.00 + \$3.50 SHIPPING
WITH FULL RETURN INSTRUCTIONS
VISA AND MASTERCARD ACCEPTED

THE CASE PLACE
112 Mockingbird
Harrison, AR 72601
501-741-3117

YOUR ONE STOP SHOP FOR BREW SUPPLIES

The Brew Place

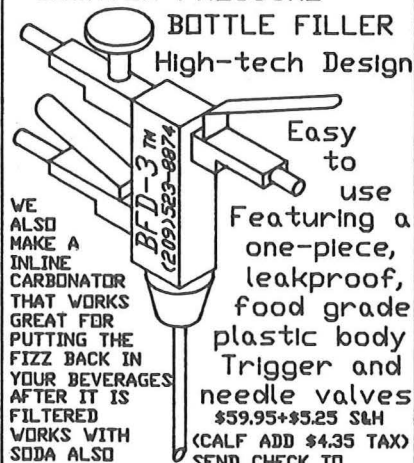
Northwestern malt extract
Case of ten-3.3# mix and match unhopped \$49.00
Gold, Amber, Dark, Weizen
Two-row klages grain-briess
50# bag \$23.00 20 varieties of hop pellets 17 varieties of Briess grains and much more!!



Call Toll-Free for a Free catalog
1-800-847-6721
Local calls (414) 262-1666

The Brew Place
P.O. box 414
Oconomowoc, WI 53066

COUNTER-PRESSURE BOTTLE FILLER High-tech Design



WE ALSO MAKE A INLINE CARBONATOR THAT WORKS GREAT FOR PUTTING THE FIZZ BACK IN YOUR BEVERAGES AFTER IT IS FILTERED WORKS WITH SODA ALSO

Easy to use
Featuring a one-piece, leakproof, food grade plastic body Trigger and needle valves
\$59.95+\$5.25 S&H
(CALF ADD \$4.35 TAX)
SEND CHECK TO

SORRY BENJAMIN MACHINE PRODUCTS
ND 1121 DOKER DR. UNIT 7
VISA OR MC MODESTO CA 95351

Feature Component

Jet Burner

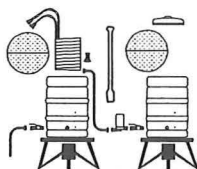
This adjustable, heavy duty, burner may be configured for either propane or natural gas.

All burners come with a battle, to defuse the flame, regulator, manifold, burner control and hose.



Propane - 200,000 BTU or
Natural Gas - 100,000 BTU
Please specify when ordering.

Sale price is \$47 each
2 or more \$40 each + shipping
Shipping weight is 19# each



Our complete 2 kettle system
with one (1) optional pump.

Our 3 Kettle System
- Price \$900 + shipping

Our 2 Kettle System
- Price \$690 + shipping

Our Single Kettle System
- Price \$245 + shipping

"The micro micro (pico)
brewing system for
individuals, clubs or
pilot plants that are
looking for an efficient,
cost effective way to
brew 10 to 25 gallon
batches."

pico-Brewing Systems, Inc.

8383 Geddes Road
Ypsilanti, MI 48198-9404
Phone (313)482-8565
FAX (313)485-BREW

Great Fermentations of Marin



87-Z Larkspur
San Rafael, CA 94901
Call, or Write for our
**FREE
CATALOG**

1-800-570-BEER

Barrier-bagged hops and
age dated yeast assure
you of the best in custom
made kits. Our new Pub
Series brings you:

Red Apple Ale
Oak Stout
Toasted Amber Ale
Chocolate Porter

Control refrigerators or
freezers from 40 - 80 F
with our Digital Controller
\$29.95

EASY All-Grain Brewing
with **SUPER-TUN**
Insulated Mashing,
Sparging, Lautering Tun.
5 Gallon; \$99.95
10 Gallon; \$119.95

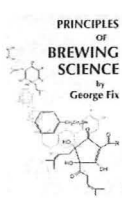
Don't miss these great books from the Brewers Publications library.



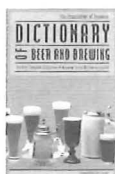
and oktoberfest. Brewers Publications, 1992,
117 pp., \$11.95



**Brew Free or Die! Beer and
Brewing, Volume 11**
Transcripts of presenta-
tions from the 1991
National Homebrewers
Conference held in
Manchester, N.H. Brewers
Publications, 1991, 240
pp., \$18.95 AHA members
(\$21.95 non-members).



Principles of Brewing
Science
Interesting and easy to
understand, author George
Fix explains the fundamental
chemical and biochemical
process involved in the cre-
ation of beer. From reactions
to fermentation, this book is
fully indexed, with an Appendix that includes
an overview of elementary chemistry. Brewers
Publications, 1989, 250 pp., \$29.95



**Dictionary of Beer and
Brewing**

From the common to the
obscure, from abbey beer to
zythum, you won't want to
be without this indispensable
reference book by Carl
Forget. Brewers Publications,
1988, 186 pp., \$19.95



Brewing Lager Beer

This respected, all-grain re-
ference book provides a thor-
ough description of the
brewing process, along with
several select recipes. Greg
Noonan guides you through
the brewing of seven classic
lager beers. Brewing infor-
mation is presented in

descriptive, easy-to-read tables. Brewers
Publications, 1986, 313 pp., \$14.95



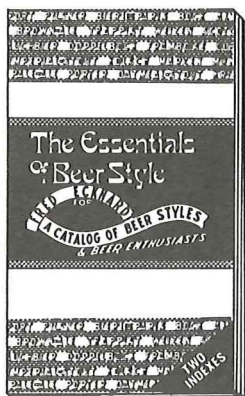
Brewing Mead

Delve into the past of this
rare drink through poetry,
myth and history. Robert
Gayre traces the history of
this ancient brew. Charlie
Papazian provides easy
step-by-step recipes
straight from his kitchen.

Brewers Publications, 1986, 202 pp., \$11.95

Brewers Publications, PO Box 1679, Boulder, CO 80306-1679; (303) 546-6514,
FAX (303) 447-2825. Add \$3 P&H for the first book, \$1 for each additional book.

zym17



The Essentials of Beer Style is an ideal handbook for the serious beer enthusiast, and an unparalleled source of hard-to-find information about the process of brewing the world's great beers. It is an indispensable reference tool for small brewers, home brewers, and beer importers and distributors in their search for information on rare or obscure beer types.

For those who want to know about beer tasting, the final third of the book is a full and complete handbook on that subject—a gold mine of information for aspiring beer judges.

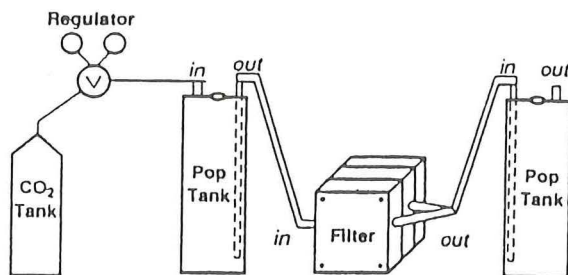


The Essentials of Beer Style: A Catalog of Classic Beer Styles for Brewers & Beer Enthusiasts, Fred Eckhardt, 224 pages. At your favorite homebrew supply shop or order direct from Fred Eckhardt Communications, P.O. Box 546, Portland, OR 97207. \$14.95, plus \$2.00 shipping. Wholesale inquiries invited.

MARCON FILTERS

produces Beer Filters for homebrewers, pilot breweries, microbreweries, and pub breweries, etc.

*All models can use pads or reusable membranes
D.E. plates available*



For Draft Beer we have the economical
"Carosello Pressurized System"

MARCON FILTERS

40 Beverly Hills Drive, Downsview, Ontario,
Canada M31 1A1, Phone (416) 248-8484

New England's Beeriodical since 1989 YANKEE BREW NEWS



More New Englanders turn to
Yankee Brew News than all other
brewspapers combined.

Find out why.

For a four-issue subscription send \$7.95 to **Yankee Brew News** ■ Box 8053, JFK Station
■ Boston, MA 02114 ■ Phone (617) 846-5521 or send \$1.50 for a sample issue

Weiss is Nice

What else would you be brewing this time of year? Few beer styles can compare when the mercury is rising, and the AHA sponsored Weiss is Nice Club-Only Competition is the perfect reason to gear up for the heat! Entries are due Aug. 8, 1994. Three bottles per entry, one entry per club. Please use the AHA Sanctioned Competition entry forms and include the \$5 entry fee. All clubs registered with the AHA are eligible and encouraged to participate.

Send all entries to: Upstate New York Homebrewers Association c/o Steve Hodos, 295 Canterbury Rd., Rochester, NY 14607.



Questions? Contact James Spence
at (303) 447-0816

CLUB-ONLY COMPETITION

Serving the Great Northwest
for over 40 years!



Now Shipping Nationwide!!!

Complete selection of equipment and
supplies for Home Brewing & Winemaking.
Full line of malt extracts, grains, hops
(flowers & pellets), liquid & dry yeasts.

QUANTITY DISCOUNTS

We specialize in
FAST & FRIENDLY CUSTOMER SERVICE

Call or write for our catalog

(Free West of Mississippi, \$2.50 East of Mississippi)

JIM'S HOME BREW SUPPLY

2619 North Division, Spokane, WA 99207

509 / 328-4850

24 Hour Order Phone

HEART'S HOME BREW SUPPLY INCREDIBLE PRICES

1 Top Quality Two
Row Pale Klages
50lb. bag \$19.95

Brewers Choice
Wyeast liquid Yeast
\$2.95 per pack

3 Cascade Hops
Raw or Pellets
\$5.95/lb.

2

~ Twenty Six Different Grains
~ Thirty Two Different Hops
~ Large Selection of Malts
and Kits ~ Low Prices Every
Day ~ Friendly Knowledgeable
Service ~ Open Late for Your
Convenience ~ Call Now for
Comprehensive Free Catalog



HEART'S HOME
BREW SUPPLY

Hours Mon-Thur 9am-11pm Fri-Sat 9am-12mid

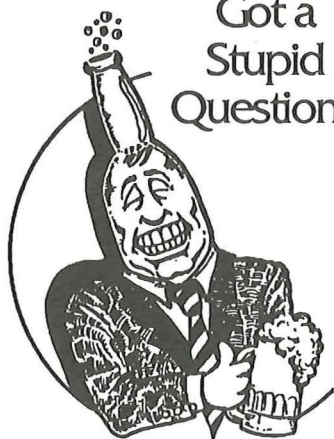
1-800-392-8322

5824 North Orange Blossom
Trail Orlando, Florida 32810



WE APPRECIATE
YOUR BUSINESS

Got a
Stupid
Question?



Ask the Beer Geek.

Only in
BarleyCorn

A one year subscription
(six issues) to the premier
East Coast Beer
magazine is only \$15.

BarleyCorn

P.O. Box 2328

Falls Church, VA 22042

**Kegging,
bottling &
dispensing
Equipment for
the Advanced
homebrewer...**



Braukunst Homebrewers' Systems

55 Lakeview Drive • Carlton, MN 55718-9220
(218) 384-9844 (800) 972-Brau
24-hour voice/fax order line

LAST DROP

The Perfect Pour



For quite some time now, a number of us from the AOB have been periodically pin balling around town from bar to bar in pursuit of the finest Guinness pour. You know, that pint of dark roasty life-giving liquid sporting the three-fourths-inch thick creamy beige head that lasts 'til the last gulp! Inevitably toward the end of the evening, having consumed multiple "Guinnii," the conversation turns to the "wouldn't it be great if" scenarios. One frequent fantasy is "Wouldn't it be great if Guinness were on tap here, Guinness were on tap there." Well, the beer gods were listening and our fantasies were realized when the brewery produced the "Guinness on tap almost anywhere" scenario! Guinness' introduction of its pub-style draft-in-a-can concept was a dream come true. This came as an especially sweet surprise to me, for I had been looking for the ultimate in canned beer! Why canned beer, you ask? It's a simple matter of weight. You see, I have three passions — fishing, camping and beer.

What's my point? What does that have to do with canned beer and weight? I'm not talking about driving your camper to the state park, tossing the cooler in the boat, firing up the out-

board, cruising to the middle of the lake and tossing out a worm and a bobber. And I don't mean reaching into the 20-gallon cooler and pulling out twist-off bottle after bottle of corn-fed, slow-brewed, triple-filtered, true tap taste of Extra Dry Lawnmower Light Lager and suckin' em down while the sun burns your belly bright. Sure, some even say, "It doesn't get any better than this." But I disagree, it does, at least from where I'm sipping.

I'm talking about a wilderness backpacking, fly fishing, real beer kind of adventure. The combo of these three loves, hobbies, addictions, call them what you will, is a sure cure for what ails you, with one small side effect. Weight.

As a backpacker, you want to keep your load as light as possible. As a fly fisherman, you want to be fully equipped with rod, reel, waders, vest, etc. In the vest you have everything from line, weights, hooks and knives to hemostats, gloves, rain gear and multiple feather-crested fur balls that will present tantalizing taste treats, tricking wary trout. The weight of fishing gear alone is back bending! Then there's that portable house you're carrying, including one of the comforts of home, beer! As a beer lover, well, you want something tasty,

especially after a long day of sucking trail dust or losing fly after fly in the endless pursuit of the lunger of a lifetime!

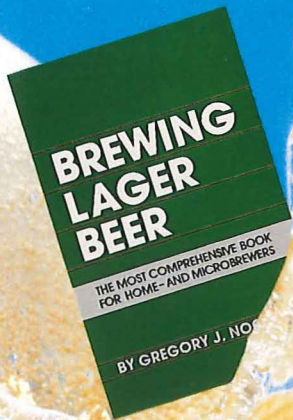
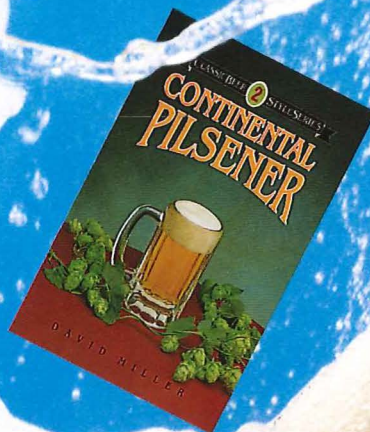
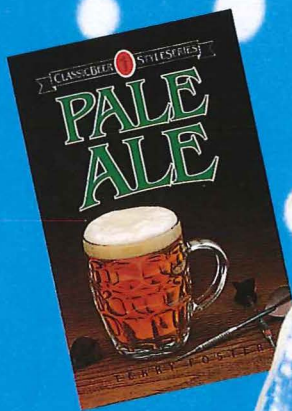
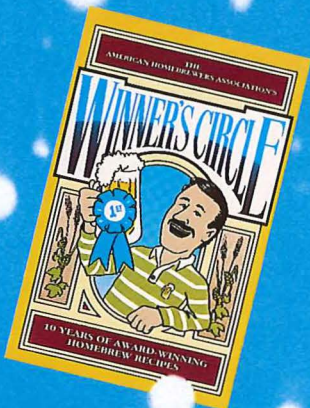
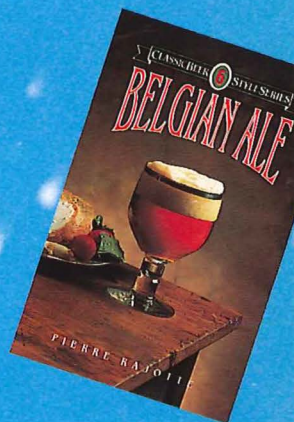
And though liquor may be quicker and lighter, as far as refreshment goes, it's only beer that satisfies. While others pack their small and relatively light flasks of whiskey and tequila for fireside consumption, as a homebrewer and beer lover I have frequently yielded to the temptation of doing the same with my beer. It seems like a bonehead idea, stuffing bottles of brew into my pack at the start of a 10-mile hike. And midway through the hike, sweating and sucking pond water, you definitely know it's a stupid idea! But when you're sipping a homebrewed porter or barley wine while your buddies are wincing down shots of discount tequila, well, all of a sudden you feel like Einstein!

And stein brings us back to beer! I love taking my homebrew for a walk, but carrying all that glass weight can literally be a drag. I've heard plastic soda bottles are an option, but I haven't tried that yet. If you want beer and it's not in bottles, that leaves cans. With cans you're just adding the liquid weight, and that's only a one-way haul. So you can see the advantage. But what's available in cans? Not much in terms of dark beer. Until now!

Which brings us back to Guinness, liquid joy, the ultimate in canned beer and the three-passion combo. Killer fly fishing for trout in the wilderness and sipping a Guinness with that thick creamy head as the sun goes down. I've found the finest Guinness pour in town anywhere. It's at Tim's backpack bar and outdoor grill. It truly doesn't get any better than this! Now if I could just convince Kathy Ireland to join me next time!

By Tim Sposato, Association of Brewers graphics/production director and Guinness connoisseur.

GET BREWING



Brewers Publications publishes
the complete spectrum of books
for homebrewers, professional
brewers and beer enthusiasts.

Brewers Publications
PO Box 1679
Boulder, CO 80306-1679
(303) 546-6514 FAX (303) 447-2825
Call or write for a free catalog.

YEAST LABTM

takes
the worry
out of
fermentation

Yeast Lab products are available at the finest homebrew stores in the U.S. and Canada. Please contact your homebrew store for brochures and details.

Pure Liquid Yeast Cultures
genetically stable, laboratory tested,
and easy to use.

	A01	<i>Australian Ale</i>
	A02	<i>American Ale</i>
	A03	<i>London Ale</i>
	A04	<i>British Ale</i>
	A05	<i>Irish Ale</i>
	A06	<i>Dusseldorf Ale</i>
	A07	<i>Canadian Ale</i>
	A08	<i>Trappist Ale</i>
new	A09	<i>English Ale</i>
<hr/>		
	L31	<i>Pilsner Lager</i>
	L32	<i>Bavarian Lager</i>
	L33	<i>Munich Lager</i>
	L34	<i>St. Louis Lager</i>
	L35	<i>California Lager</i>
<hr/>		
	W51	<i>Bavarian Weizen</i>
new	W52	<i>Belgian Wheat</i>
<hr/>		
	M61	<i>Dry Mead</i>
	M62	<i>Sweet Mead</i>

Active Dried Brewing Yeast

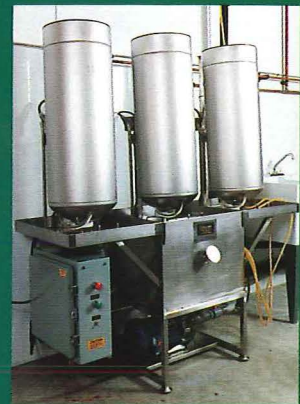
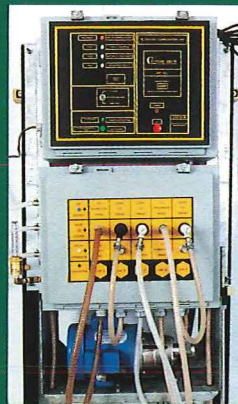
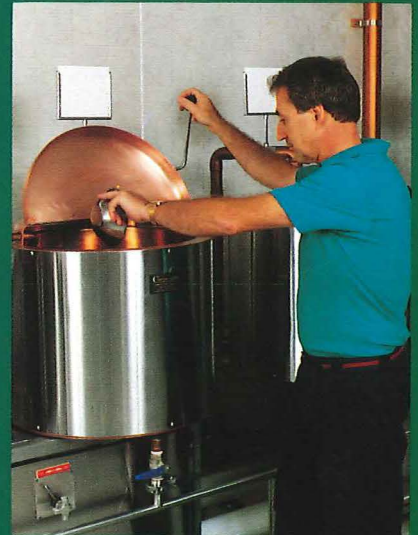
European Lager (14 grams)
Amsterdam Lager (7 grams)
Australian Ale (14 grams)
Whitbread Ale (14 grams)



U.S.A. Ann Arbor, Michigan
Canada Windsor, Ontario


Imagine...

A place where customers can brew their own personal beer using "your" facilities.



One of the fastest growing industries in Canada,
is now making it's mark in California.

You too can become involved in this exciting growth industry.

 **USTOM BREW**
BEER SYSTEMS

36 Keefer Court, Suite 5, Hamilton, Ont. L8E 4V4 1-800-363-4119

Premier Reserve Gold Label

A BREWER'S TRADITION FOR OVER SIXTY YEARS!

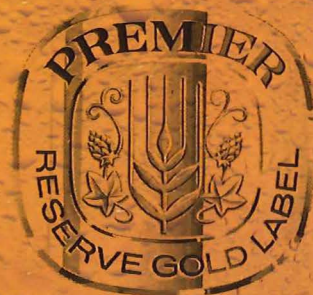
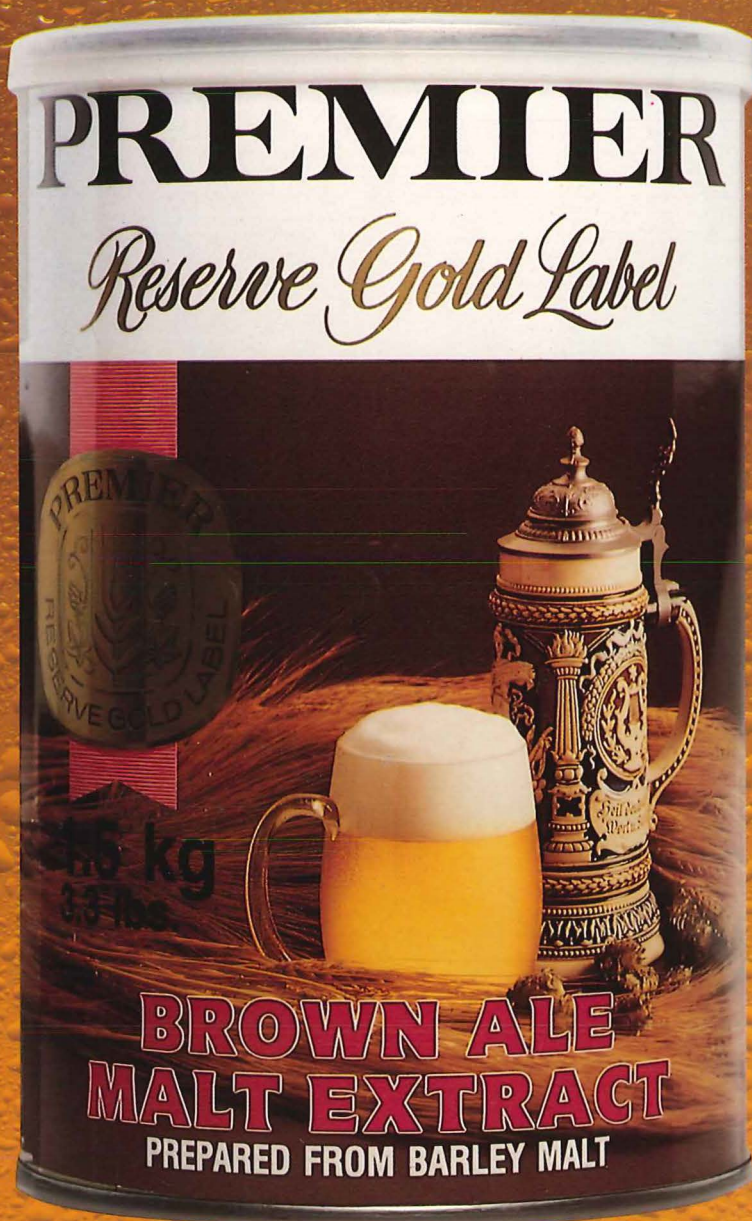
The times were simpler when the roaring 20's were coming to an end and we were just beginning. America has changed a great deal over the past three generations—many businesses have come and gone, but we have endured. Why? Because we put you first by giving you what we believe is the best product of its kind in the market.

You've wanted quality at a fair price (the best value) and we've delivered. You've asked for selection (the best variety) and we added new flavors. And you have demanded the best ingredients so you have the same great taste and color, batch after batch, and we've given it to you.

Yes, we have changed...but we have only done so to fulfill your needs...to give you the best. And we have been rewarded with longevity that makes us one of the oldest manufacturers of malt products in America.

So, if you already use Premier Reserve Gold Label beer kits we say "Thank you!" And to those of you who haven't tried them—the time has never been better for you to find out why we call these products Reserve Gold Label.

SHOWN ACTUAL SIZE

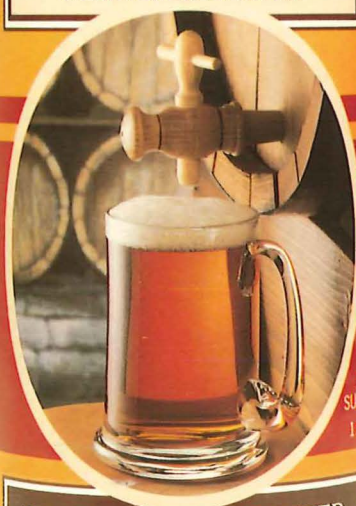


SIX OF THE BEST!

HEADMASTER'S
CUPBOARD
STRICTLY
OUT OF BOUNDS!



JOHN BULL
PREMIUM
HOME BREW BEER KIT



TRADITIONAL BITTER

Makes 66 bottles 12oz. fl. (22.5 litres)

FROM

JOHN
BULL

PREMIUM
HOME BREW BEER KITS

TOP OF ITS CLASS

So simple you can brew it anywhere!

The 100% Malt Extract Kit currently available only from your specialist retailer in the following varieties

Tyneside Brown
Stout
Traditional Bitter

Barley Wine
Dry Lager

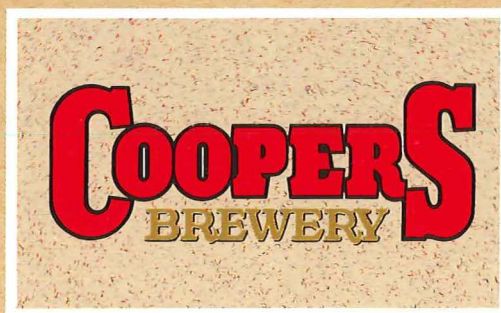
Export Pilsner
Lager
Canadian Recipe Ale

PAINE'S
MALT LTD

ST NEOTS HUNTINGDON
CAMBS. PE19 1BN

Coopers Pure Malt Extract

Makes a good beer great



Imported for Canada and the U.S.A. by
CONSOLIDATED BEVERAGES
1-800-368-9363 • FAX (206) 635-9364