

Vol. 27 No. 2 March/April 2004 The Journal of the American Homebrewers Association

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Microbrewery Festival

Club Night

Friday, June 18

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Grand Banquet

Saturday, June 19

26th Annual AHA National Homebrew
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Tom Nickel

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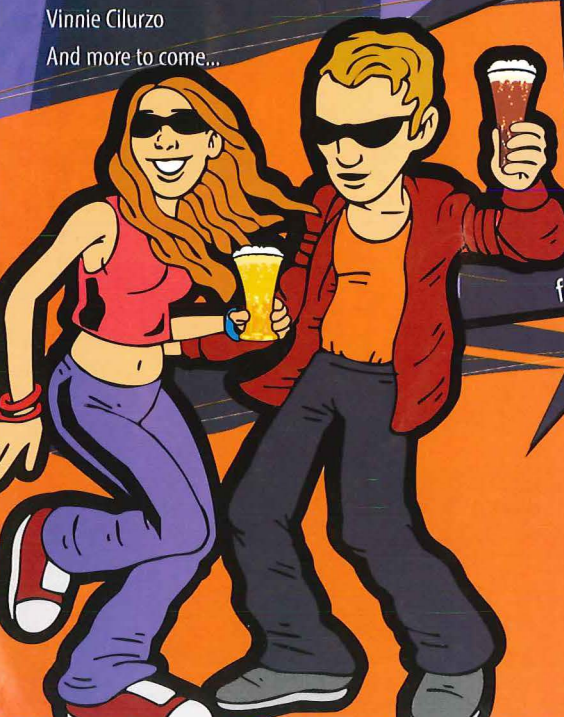
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See page 41
for registration form.

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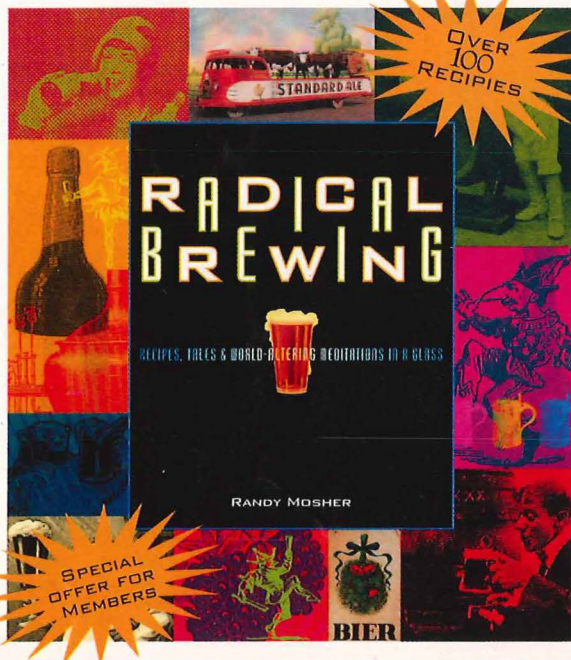
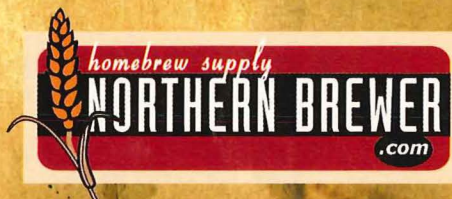
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MARCH/APRIL 2004, VOL. 27, NO. 2

ZYMURGY®

Zymurgy \zī'mər jē\ n: the art and science of fermentation, as in brewing.

COLUMNS

IT'S THE BEER TALKING 5

Bigger, Better AHA National Homebrew Competition

By Paul Gatz

HOME BREW AND BEYOND 7

Sick and Tired of Hops

By Ray Daniels

EDITOR'S DESK 9

Big Plans, Big Beers, Big Fun

By Jim Parker

HOME BREW CLUBS 11

All Roads Lead to Vegas

By Gary Glass

WORLD OF WORTS 47

Heaven Waits Barley Wine Ale

By Charlie Papazian

DEPARTMENTS

CALENDAR 19

SPONSORS 21

DEAR PROFESSOR 23

BREW NEWS 49

WINNERS CIRCLE 55

ZYMURGY CONNECTION 58

ADVERTISER INDEX 63

CLASSIFIEDS 63

LAST DROP 64

COVER ILLUSTRATION BY JEFF MANGIAT

HOP EXPLOSION: DOUBLE IPAS 26

From a beer first brewed to ease a professional brewer's trepidation over how his secondhand brew system would perform, Double India pale ales have burst onto the scene in the past 10 years—including their own category in the Great American Beer Festival and even their own festival. We chart the history of this style that bursts with more malt and even more hops, but takes plenty of subtlety, balance and nuance to master.

By Jim Parker

DO YOU WANT THAT BEER SUPER-SIZED? 32

Although the concept of double or imperial beers is nothing new, modern brewers are doubling their pleasure when brewing everything from wit beers to American brown ales. We take a look at some of the big beers that are winning the hearts and livers of American brewers.

By Jim Parker

BASIC CALCULATIONS FOR BREWING BIG BEERS 34

In an excerpt from his new book *A Handbook of Basic Brewing Calculations* published by the Master Brewers Association of the Americas, Steve Holle guides you through the steps necessary for formulating recipes for super-strong beers.

By Steve Holle

MASSIVE MASH TUNS 42

Whether brewing a really big batch or a really big beer, sometimes you need a really big mash tun. One often-overlooked source for these monster mash tuns is discarded commercial soup kettles. These highly functional, easily converted behemoths can often be found at a bargain price.

By Bob Capshaw

FOR GEEKS ONLY! 45

Ambient air? Pure oxygen? How about hydrogen peroxide? What's the best way to aerate your wort before fermentation? The Strand Brewers tackled this age-old question and their results may surprise you.

By Ron Cooper

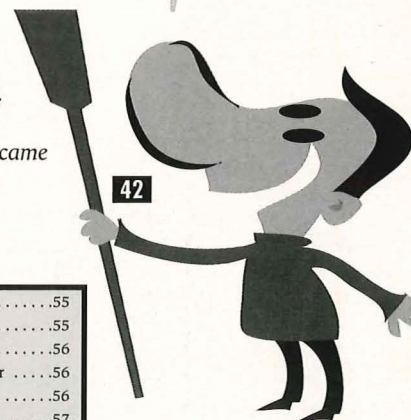
LAST DROP 64

"Life isn't all skittles and beer." So goes the old English saying about the popular pub pastime of the 18th century. But what about the modern-day candy, Skittles? For one crazy engineer and fan of "The Simpsons," Skittlebrau became the ultimate beer and food pairing project.

By Lawrence McCartin

QUICK RECIPE GUIDE

Double IPA	30	Scottish Ale	55
Imperial American Brown Ale	32	Melomel	55
Imperial ESB	33	Kölsch-Style Ale	56
Barleywine	47	Northern German Pilsner	56
Monster Mash		American Pale Ale	56
Barleywine	54	American Pilsner	57
English Bitter	54		
American Pale Ale	54		

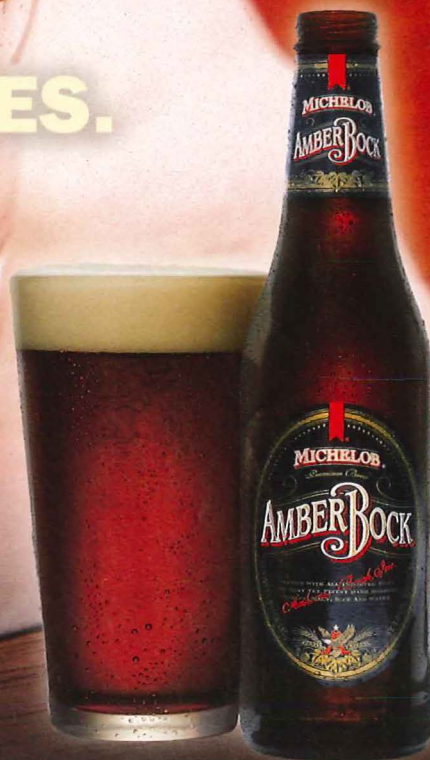


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BY PAUL GATZA

Bigger, Better AHA National Homebrew Competition

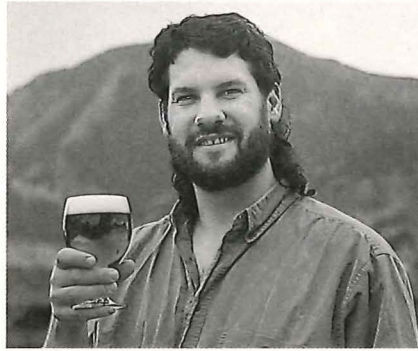
Hi everyone. Association of Brewers project coordinator Gary Glass has done a fabulous job directing the American Homebrewers Association (AHA) National Homebrew Competition. The competition has grown by more than 500 entries over the last three years. The first-round judging sites are maxed out and Gary has successfully addressed the infrastructure issues needed to manage the continued expected growth. A new first-round judging site has been added to Denver, Colo., with the Keg Ran Out Club's Scott Jackson serving as site director.

Entrants will face even more competition this year, as we have done a small degree of outside advertising to attract more entrants in the competition and into the ranks of AHA membership.

It is simple to enter. Package your finest homebrews, figure out what category fits the beer best, and send one bottle of each and your entry form and check to your regional site. There is a site map and entry form on pages 16-18 of this issue of *Zymurgy*. If your beer is advanced to the second round by the judges, you will need three more—one for the second-round judging, one for the final-round judging in each category and a bottle for the Best of Show round used to determine the Homebrewer of the Year. Full competition details are available at www.beertown.org.

One great brewer will be crowned as the queen or king of homebrewing for the year, and will go down in history as a great brewer.

Thanks to all of the volun-



teers who help with the site coordination, judging, stewarding, sorting and unpacking. It is a monumental project, as anyone who has been involved in the past knows. Our thanks go out to the companies who sponsor the major awards, categories, entry receiving sites, judging sites and other various components. As of this writing, Boston Beer Company has returned to sponsor the Ninkasi Award—check out the Sam Adams Double Bock if you get a chance this year; it has long been one of my favorites. Munton's is again sponsor of the Homebrewer of the Year, as they have been for many years. Cooper's Malt is back as

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sponsor of the Homebrew Club of the Year. Will a new club be able to unseat the Quality Ale and Fermentation Fraternity (QUAFF)?

Beer and Loafing in Las Vegas

AHA member Tyce Heldenbrand has done a great job with the planning of the 26th AHA National Homebrewers Conference, set for the Riviera on the famous Las Vegas Strip June 17-19. There will be a pre-conference beer and food event the night before (June 16) at the University of Nevada-Las Vegas (UNLV) campus in coordination with UNLV's Food and Beverage Department of the William F. Harrah College of Hotel Administration and local breweries.

UNLV is building a résumé in teaching people to brew and will have Andy Feinstein and one or more others on the speaker roster. Other confirmed speakers as of early January include Rich Link, John Curtis, Steve McMillan and David Houseman. Teaching us from the ranks of professional craft brewers will be Geoff Larson of Alaskan Brewing Co., Michael Ferguson of Barley's Casino and Brewery, the

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Honey Run Winery
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SILVER Spurgeon Vineyards Mead
Spurgeon Vineyards & Winery
Highland, WI, USA

BRONZE Rabbit's Foot Meadery Varietal
Rabbit's Foot Meadery, Sunnyvale, CA, USA

TRADITIONAL

GOLD Traditional Mountain Honey Wine
Redstone Meadery, Boulder, CO, USA

SILVER Ambrosia by Kristy Mead
Ambrosia by Kristy, Seattle, WA, USA

BRONZE Pirtle Sparkling Mead
Pirtle Winery, Weston, MO, USA

HYDROMEL & BRAGGOT

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SILVER Verge D'Ore
Intermiel Inc., Mirabel, Canada

BRONZE Black Raspberry Nectar
Redstone Meadery
Boulder, CO, USA

2003 Great American Beer Festival's Small Brewpub Brewmaster of the Year Tomme Arthur of Pizza Port Solana Beach, Tom Nickel of Oggi's, Left Coast Brewing, O'Brien's (one of the best bars in the world) and the 1999 Great American Beer Festival's Small Brewing Company Brewmaster of the Year Vinnie Cilurzo of Russian River Brewing Co. Vinnie revolutionized big beers in the United States when he was with Blind Pig Brewing Co. and has been doing fabulous things with

Americanized versions of Belgian-inspired traditions.

Topics include Trappist breweries, smoked beers, saisons, scotch, the Beer Judge

Certification Program, optimizing extract brews, mission beers, double IPA and mead. The committee is also working on recruiting a congressperson who has shown some interest in changing the laws on mailing homebrew.

There will be a Pro Brewers Night, Club Night and Grand Banquet the evenings of the conference and round-the-clock hospitality. See Gary Glass's Homebrew Clubs column on page 11 for a list of clubs participating in Club Night and Hospitality Suite activities.

Las Vegas is the entertainment capital of the world. It has fun opportunities for adults, couples and families, so come en masse for a memorable time. Conference registration, as well as an updated speakers and events listing, is available through the Web site www.beerandloafing.org, or you can fill out the form on page 41 and send it in.

Jim Parker New Editor-In-Chief of Zymurgy

The *Zymurgy* magazine team has more help. Jim Parker—former AHA director, newspaper columnist, *Rocky Mountain Brews* publisher and current head of the Oregon Brewers Guild—has taken over the day-to-day responsibilities of editor-in-chief. Ray Daniels has taken newly created positions of director of craft beer marketing for the Association of Brewers and executive editor for *Zymurgy* and *The New Brewer*. Ray maintains his role as director of Brewers Publications, the AOB's book publishing division. Ray, Jim and I will serve as the main three-person group that makes final decisions on *Zymurgy* content. The three of us are working with AHA board of advisers member (and AOB board of directors director) Randy Mosher, graphics manager Stephanie Johnson and art director Kelli McPhail on a project to bring *Zymurgy* up-to-date with some new design ideas and hopefully more color.

Paul Gatz is director of the American Homebrewers Association.

Important Dates for 2004

April 1	AHA Board of Advisers Election Ballot Deadline
April 7-16	AHA National Homebrew Competition Entry Window
April 13-14	World Beer Cup Judging, San Diego
April 15-17	AOB Craft Brewers Conference, San Diego
April 17	World Beer Cup Gala Awards Dinner, San Diego
April 23-May 9	First Round National Homebrew Competition Judging at regional sites
May 1	National Homebrew Day/AHA Big Brew, worldwide
June 17-19	AHA National Homebrewers Conference, Las Vegas
August 7	Mead Day, worldwide
Sept 30-Oct 2	AOB Great American Beer Festival, Denver
November 6	Teach a Friend to Homebrew Day, worldwide

See www.beertown.org for club-only competitions, dates and mailing addresses.



BY RAY DANIELS

Sick and Tired of Hops



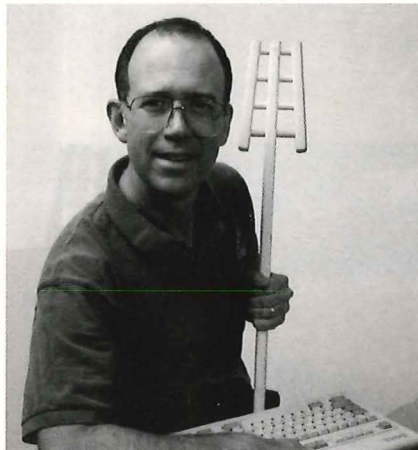
I'm sick and tired of hops! Week after week I drink hoppy beer after hoppy beer, pummeling my gullet with humulones. I love the flavor, really I do. But when someone asks me what the beer tastes like, I most often say simply that it is "hoppy." And it's that little over-simplification I'm tired of.

Now for my brethren (and sistren) brewers I might have something more insightful to say. For instance, I might tell you that one of my favorite beers, Bell's Two-Hearted Ale, is a single hop beer made with Centennial hops. That might do you some good if you know Centennial hops, but if you don't that's where things get sticky. If I'm forced to tell you—in the terms of common language that any adult English speaker could understand—what sort of flavors I get from Centennial hops, that's where things break down.

In the case of Two-Hearted, I would probably tell you that it is somewhat spicy, maybe even citrusy. If I really cheat, I'll tell you that it is an American hop, somewhat similar to Cascade. Most likely, that will bring out a nod of recognition from any brewer as Cascade is, has been and will be the cornerstone of small brewer hopping in this country.

But how sad if the only agreed-upon descriptor of organoleptic character we can find for a whole host of hops native to America revolves around the name of a single well-known variety. Sheesh.

Hop flavors derive from some of the most diverse chemistries of beer. Together with yeast metabolism and malt melanoidin formation, hop chemistry stands as one of the three great biochemical systems of brewing. Of course the bittering



There are more than 600 compounds derived from hop oil that may have a flavor influence on beer.

properties of hops, based on isomerization of alpha acids, is the simple part of the equation. When you count all the players and isomers, we're not dealing with more than two dozen compounds altogether.

When we move over to the flavor and aroma side of the equation, things get sticky fast. Overviews of hop flavor chemistry generally focus on the four common and well-characterized oils: humulene, myrcene, farnescene and caryophyllene. The amounts of these oils and their relative proportions to each other are believed to have a big influence on the character of hops. But these core constituents are only the beginning. For starters, each transforms into other compounds through oxidation over time. And then there are other even fewer com-

mon oils that play a role. Given all this, it should be no surprise that there are more than 600 compounds derived from hop oil that may have a flavor influence on beer.

So it seems evident that our simple descriptions of hops as being "spicy," "citrusy," "herbal" or "floral" simply aren't adequate. We need better descriptors for hops and hop varieties.

The professional brewers haven't come up with a good system for describing these things and I haven't seen anything good in the brewing literature I've read over the past 15 years. The bottom line is that it is time for us as homebrewers to do something about it.

So here's what I propose: nothing less than a nationwide hop flavor and aroma poll using our own brewing capabilities and our own beer-knowledgeable palates. We'll pick, say, three similar hop varieties, brew single hop beers from each and then do blind tastings.

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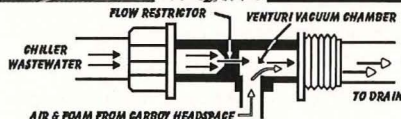


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The goal of these tastings won't be to judge the beers so much as to describe them carefully. During tasting, we'll ask each person to push their own descriptions of the flavors they perceive well beyond the first level descriptions. If you are tempted to describe a hop as "citrus" then we'll want to know just what type of citrus. Is it "orange," or more like "grapefruit"? And once we've gotten that, we'll wonder if there are any other distinctive characteristics of that "citrus" flavor: is it fresh or stale, bright or dull, perfumy or subtle? In other words we'll push to get a full and exacting description of the character of each hop.

This is where the "nationwide" part comes into play. By collecting descriptions from brewers and tasters from across the country, we can look for the similarities and differences in these detailed descriptions, winnow them down to the key attributes and produce what should be a useful snapshot of each hop with regard to its flavor and aroma characteristics. Then, when you go to decide between Cascade and Centennial, for example, you'll have some idea of the likely differences in the flavor impact of the two—not just in an ethereal, gut-feel kind of way, but from the perspective of real flavor perceptions from hundreds of people.

So that's the plan I'd like to see us tackle. Given that we're in North America and that most of us brew with, and drink, North American hops on a regular basis, I would propose that we focus our attention on domestic hops to start with. Clearly we need to include Cascade as a starting point and I would also personally be in favor of Centennial. But I don't want to make the decision on my own. I want all of you to decide because I want all of you to brew and taste and contribute to this effort. So drop me a note and let me know which three hop varieties you would like to see included in this program. I'll keep track and let you know in the next issue.

In the meantime, brew well and drink well.

Ray Daniels is executive editor of *Zymurgy* and director of craft beer marketing for the Association of Brewers. Contact him at ray@aob.org.

BY JIM PARKER

Big Plans, Big Beers, Big Fun

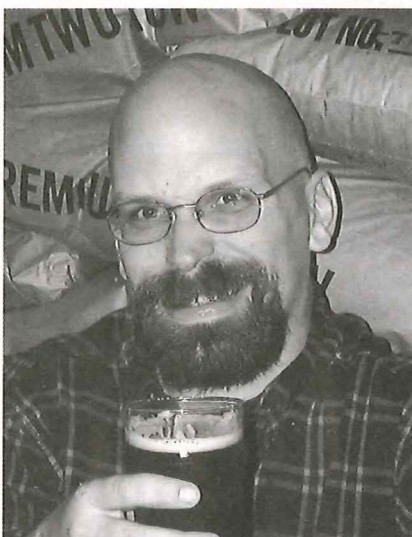
Yes, folks, here it is: the dreaded "It's the new guy" column. As long as I've been involved in publications—about 20 years—I've hated the "new guy" column. You know, the one where the new editor drones on and on about how hard it will be to fill the old editor's shoes ... yadda, yadda, yadda ... getting to know you... yadda, yadda, yadda ... Big Plans ... yadda, yadda, yadda ... promise to do my best.

Well, this column will be a little different. Because as much as I'd like to say I'm going to miss my predecessor, Ray Daniels, I'm not.

Now don't get me wrong. Ray has done a bang-up job in his four years as editor of *Zymurgy* and *The New Brewer*. And Ray is one of the most knowledgeable people in the beer industry. He's also one of the greatest guys I know (even though he continually swears he will never drink with me again). But I'm not going to miss him. Not one bit.

That is because, ladies and gentlemen, Ray has not left the building. He is merely changing roles. And in addition to his positions of director of craft beer marketing and director of Brewers Publications, Ray will retain the title of executive director of both *Zymurgy* and *The New Brewer*—making him the incredible three-headed monster.

So we can dispense with raving about how hard it will be to replace Ray (since he's still here and we don't want him becoming the incredible three big-headed monster). Let's skip to the getting to know me part. That isn't necessary for many of you, who remember back when I was writing in this magazine as director of the American Homebrewers Association in 1997-98. Anyone who attended the 1997 National Homebrewers Conference in Cleveland and was subjected to seeing me in a grass skirt and coconuts on the Luau Cruise knows my approach to homebrewing.



Homebrewing is a hobby; it's supposed to be fun. Sure, you can take the brewing and enjoyment of great beer seriously, but at the end of the day, it's the fun and the enjoyment that keeps us brewing and drinking great beer.

It's that fun and enjoyment I hope to convey in these pages. That's right, my Big Plans equate to Big Fun. For the beginning brewer and beer enthusiast, I want *Zymurgy* to be a window to the kinds of Big Fun possible as they get more involved in this crazy community of brewers and beer lovers. For the experienced brewers and well-worn palates who think they've "been there, brewed that," I want the magazine to prove there are ways to have Big Fun they haven't tried yet. And for those who have yet to be bitten by the homebrewing or good beer drinking bug, but just happened to stumble across a copy of *Zymurgy* on the back of the toilet at a devoted reader's house, I want to show them the Big Fun they are missing out on and try to bring them on board.

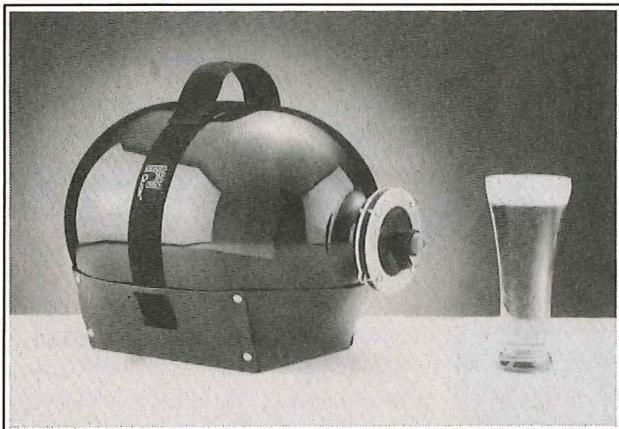
So it seems serendipitous that the focus of this first issue is big beers. Because

nowhere is the fun and freedom of homebrewing more evident than when it comes to making really big beers. As a former professional brewer, I can't tell you how nice it is not to have an owner/bean counter looking over your shoulder when you calculate the grain bill and hop load for an Imperial IPA. As you will read in my story on that subject on page 26, economics is one factor taken into consideration when commercial brewers make these popular hop monsters. (Thank goodness for brewers brave enough to put flavor ahead of the bottom line.) There is also a sidebar on other super-sized beers that brewers across the country are producing.

Keeping with the big beer theme, Bob Capshew explores ways to turn discarded commercial steam kettles into monster mash tuns on page 42. And we print an excerpt from Steven Holle's new book, *A Handbook of Basic Brewing Calculations* published by the Master Brewers Association of the Americas on page 34, to help you formulate your own big beers. Even Charlie Papazian is in the big beer mood in this issue, exploring the big daddy of beer styles, barley wine, in his World of Worts column on page 47.

The popular For Geeks Only column returns with the results of Ron Cooper and the Strand Brewers' experimentation into various methods of aerating wort on page 45. And Lawrence McCartin takes the concept of beer and food pairing to an illogical extreme with his adventures in Skittlebrau in Last Drop, page 64.

Building an issue of a magazine is much like formulating a beer recipe: you have to balance the sweet malt (fun copy) with the bitterness of hops (technical content). Too sweet (too much fun) and you will turn off the serious beer drinker (advanced brewer); too bitter (too geeky) and the less sophisticated drinker (beginning brewer) is lost.



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That is one of the main considerations for the team working on ways to revamp the look and the feel of *Zymurgy*. We want a more colorful, fun, exciting magazine, but we don't want to alienate those brewers who continue to grow in sophistication. So look for a careful blend of fun brewing topics—such as crazy club collaborations, homebrew horror stories and tales of established brewers' first brews—and more meaty subjects such as yeast propagation, recipe formulation and judging.

We also have to be mindful of the fact that not everyone brews as much as they used to. Many members of the traditional homebrewing community still drink as much great beer as ever, but they don't necessarily brew it themselves. So we need to look at ways to incorporate copy that appeals to the beer enthusiast—beer style exploration, beer travel, and beer and food.


Much like recipe formulation, a magazine is continually a work in progress. We don't always get everything right. Such was the case in the January/February issue, as you can see from the e-mail below:

Hello. I'm a new AHA member and subscriber to Zymurgy. This is my third e-mail to you so maybe I can get a response this time. In the latest Zymurgy is an article on Irish Red Ales containing the recipe for Red Irish Eyes Are Smiling. It indicates crystal malt as one of the malts, but does not indicate a Lovibond. It also indicates chocolate malt in the brewing instructions, but doesn't account for it in the grain bill, i.e., no quantity is indicated. I'd like to brew this ale if I had all the info.

*Thanks,
Jim O'Conner*

We contacted the author of the story, Jeff Sparrow. He recommends a mid-range crystal in the 40 Lovibond range and explains that the mention of chocolate malt was "residue from development that never made it to the actual recipe and, apparently, wasn't caught during editing. Perhaps the new editor will pay more attention to detail."

I promise to do my best.

Jim Parker is editor-in-chief of *Zymurgy*. 

BY GARY GLASS

All Roads Lead to Vegas

Are you ready to load up the minivan (or like the Maltose Falcons, a chartered bus) with kegs of homebrew and head out to the Nevada



desert? This June all roads lead to Vegas—at least for homebrew clubs. By now you and your club members should be gearing up for some “Beer and Loafing in Las Vegas,” the theme for this year’s AHA National Homebrewers Conference. For those of you who have attended previous AHA conferences, you know that this is the best damn time that can be had with homebrew! That’s why the same faces keep showing up year after year. For those who have never been, start planning now to attend. The dates are June 17-19. See www.beerandloafing.org for details.

Why is the National Homebrewers Conference such a great event? Well, it’s the clubs, of course! It’s the local clubs that organize the conference, the clubs that take shifts hosting the hospitality suite, the clubs that set up booths at Club Night, and the clubs that compete for Homebrew Club of the Year. The camaraderie and friendly rivalry that occur when homebrewers from across the continent and beyond get together to show off their brewing, culinary and creative talents are truly something to look forward to year after year.

This year’s conference is being organized by Southern Nevada Ale Fermenters Union (SNAFU) of Las Vegas, Quality Ale and Fermentation Fraternity (QUAFF) of San Diego, and the Maltose Falcons of Woodland Hills, Calif. As of this writing, Harvest Moon, Pacific Gravity, Rillito Creek Homebrewers, LA Fermenters, Foam on the Brain, Strand Brewers, Inland Empire Brewers, Alpine Brewers, Tulare County Homebrewers and Hop Headzz are all confirmed to participate, and I’m sure several others will be added to

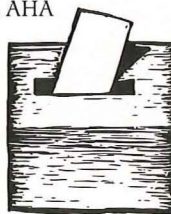
the list by the time this issue hits mailboxes. What, you don’t see your club listed? Better get on that! Clubs wishing to participate in Club Night or interested in hosting a hospitality suite shift should contact John Curtis at jc@beerandloafing.org.

Don’t forget to submit your entries to the National Homebrew Competition to give your club a shot at the Homebrew Club of the Year trophy. The NHC entry deadline is April 7-16. See www.beertown.org for complete details, or contact gary@aob.org or 888-822-6273 x 121.

See ya in Vegas!

Get Out the Vote!

It is time for the 2004 AHA Board of Advisers election. Your vote is very important, so be sure to submit a completed ballot by the April 1 deadline. The AHA Board of Advisers plays a major role in developing new member benefits, such as the Pub Discount Program and the Lallemand Scholarship, improving upon AHA events and programs such as the National Homebrewers Conference, the National Homebrew Competition and more. Board members directly serve the members who elect them and act as a conduit between the members and the staff. Also,



three members of the AHA Board of Advisers serve on the Association Board of Directors, which sets policy and budgets for the entire Association of Brewers. As you can see, the members of the AHA Board of Advisers play a significant role in how your organization is run.

This year is particularly important as six of the 15 seats are open to election. We have an outstanding lineup of 10 candidates nominated by the membership, the Board and the AHA staff. See the ballot on page 12, as well as at www.beertown.org where you will find more detailed candidate statements and an online ballot.

Don’t forget that by voting in the AHA Board of Advisers election, you can earn an additional entry for the 2004 AHA Lallemand Scholarship, which offers one lucky AHA member the opportunity to attend the legendary Siebel Institute in Chicago for the Concise Course in Brewing Technology. See www.beertown.org/homebrewing/scholarship.html for details on the scholarship and be sure to check out the excellent description of the course written by 2003 winner Tony Simmons—it made me want to go!

Beertown Club Locator

We need your help to keep our online club locator up-to-date. Please check out your club’s list- (continued on page 14)

2003-2004 AHA Club-Only Competitions Sponsored By Coopers Brew Products

Month	Style or Name	Cat.#	Host
April	Mead	25	Great Northern Brewers
May	Extract Beers-50% or more of the fermentables must come from extract	1-24	Bluff City Brewers
August	Wheat Beer	17	Maltose Falcons
Sept/Oct	Smoke-Flavored Beer	23	Mountain Ale & Lager Tasters
Nov/Dec	IPA	7	James River Brewers

AHA BOARD OF ADVISERS ELECTION



Your AHA Board representatives have a very direct impact on the direction of your Association. Please vote today!

Brief Candidate Statements (please see www.beertown.org for full candidate statements)

Jeff Donovan **Santa Barbara, CA**

Greeting homebrewers. I wish to thank those who elected me to my last term on the AHA Board of Advisers and ask that you vote for me in this election so that I may continue to support and communicate your views, goals and desires through the AHA. Many of you know me as the author of the brewing software program "ProMash". As such, I am in constant communication with brewers throughout the USA and feel I can offer unique feedback and direction to the AHA regarding your needs. I, like you, am an active brewer and should I be re-elected I will continue to push for programs that are meaningful to you (as a brewer) and see to it that your voice is heard at the AHA. While the AHA has undergone numerous changes in recent years, all to your benefit, there is still much work to be done. I am asking for your vote so that I may continue working with the Board of Advisers in helping the AHA to better serve your needs. Thank you and Cheers!

Dave Draper **Albuquerque, NM**

I'm delighted to stand for election to the board of advisers, having watched the AHA's steady efforts to become a better organization at all levels. I began brewing while living in the UK in 1991, and shortly thereafter joined the Homebrew Digest and became a regular contributor. From 1993 to 1996 I lived in Sydney, Australia, and became a member of the Eastern Suburbs Brewmakers where I entered some competitions and helped judge some more. The ESB group ran several judge-training sessions in which I took part; these were modeled largely on the BJCP approach. Returning to the US in 1996, I joined the North Texas Homebrewers Association in Dallas, Texas, and learned further from a wonderful group of great brewers. In 1999 I moved to Houston, and for a variety of reasons faded out of the organized homebrew community, although I remained actively brewing. Relocating to New Mexico last year, I decided to become more active and give back to the community some of the great things it's given me. So although I may lack many of the high qualifications of some of the distinguished brewers on the BOA past and present, I feel I have plenty to offer.

Steve Ford **Overland Park, KS**

It is a great honor to be nominated for a position on the Board of Advisers of the American Homebrewers Association. I'm a dedicated worker who has spent many hours helping our hobby grow at a local level. I would bring that same attitude and devotion to the national level if elected to the board. I began brewing about 12 years ago and became a member of the Kansas City Bier Meisters and the AHA shortly after. It didn't take long for me to become immersed in the hobby and have served the Kansas City Bier Meisters in many capacities including president, vice president, secretary and am currently making my fourth tour as competition chairman. I'm a Master judge in the Beer Judge Certification Program, have led local review sessions for those interested in taking the exam and have recently began scoring tests for the BJCP. The true power of any volunteer organization belongs with the membership and it is only a strong association with input from those members. I would appreciate your vote but, even if that is not the case, I hope you will take the time to vote.

Chris Frey **Saline, MI**

I have been an avid homebrewer for 9 years. I gravitate more toward promoting the "art" of brewing, while grateful for those who focus on the "science." I started this hobby when I moved to Michigan and it has been instrumental for me meeting most of my circle of friends.

I have been active in several homebrew clubs in my area, acting as treasurer, librarian, equipment manager and president. I have been active in building community between and among the clubs with my annual National Homebrew Day festivities, joint club meetings and National meetings where we have pooled our talents and knowledge to contribute our share of fun and knowledge, both in 2000 (Livonia) and 2003 (Chicago). For Chicago I contributed with a Bel-

gian Ale experiment that combined the wonderful geekiness of this hobby with what is really cool about it — imparting knowledge while having fun. This is the best of both worlds.

I have 17 years of Sales and Marketing experience — I see a need for this sort of talent within the board — god knows there is a ton of brewing talent there already!

Second, my drive to build community among brewers is my passion — as an AHA Liaison I have spread the gospel of beer, its flavors, complexities, history and merits, recruiting or re-enlisting dozens of fellow homebrewers to the AHA.

Chris Graham **Berkeley, CA**

I consider it an honor to be nominated for the AHA Board of Advisers. As an owner of Beer, Beer & More Beer I have a strong passion for homebrewing and the brewing community. I also have a strong interest in the future success of the industry, and as the AHA is the predominate community within the industry, I want to work with the board to help promote its growth.

I am excited to help the AHA work on expanding its membership, thus its overall position in the industry. I believe that this can be accomplished through different promotions that have been successful for our company and I believe can be successful for others. I have many ideas to capture new brewers, and get them to be a part of the community that is the AHA.

Experiences: Degree in entrepreneurship from the University Of Oregon, Brewing for 10 years, Worked in 4 homebrew shops, Owner of Beer, Beer & More Beer, Teaching Homebrew Classes, Teaching Beer Appreciation Classes, Heavily involved with local brew clubs.

Mike Hall **Los Alamos, NM**

I welcome the opportunity for re-election to the AHA Board. My first board term focus was AHA survival while maintaining homebrewer service. Major accomplishments I encouraged: individual homebrewer input via a grassroots AHA, completely member-elected board and local-volunteer-supported National Homebrewers Conferences.

Second term, I concentrated on AHA membership value. I envisioned a coupon program to connect homebrew suppliers with AHA member buying power. With board member feedback, this morphed into the Pub Discount program — had a beer on your AHA membership yet?

I am a homebrewer. On the AHA Board, I represent homebrewers, not commercial interests. Homebrewing since 1989, not long after getting my Ph.D. in nuclear engineering/mathematics, I am an all-grain brewer, mead-maker, and Honorary Master BJCP judge. As current BJCP President, I will continue to foster congenial AHA-BJCP relations — past successes include AHA adoption of BJCP style guidelines.

I have held every office in the Atom Mashers homebrew club, written brewing articles, served on style committees, archived JudgeNet, and taught classes.

Looking forward, I believe the AHA can harness the potential of homebrewers everywhere to accomplish great things. Books written by 100 people? Complete course notes for homebrewing classes? Nationwide brewing experiments? What are your ideas?

Bob Kauffman **Lafayette, CO**

I am Bob Kauffman, and I am running for the AHA Board of Advisers. I live in Boulder County, Colorado, with my wife Caroline, who shares my appreciation for all things fermented. I have been homebrewing since 1989, and I have brewed almost 400 batches of beer and mead. I have been an active member of Hop Barley and The Ales since 1992. I have served as an officer several times and have been Organizer or Co-Organizer of our homebrew competition, the Reggale and Dredhop, since 1999. I am an active BJCP judge. I've also been a 1st round organizer of the National Homebrew Competition, and have attended all but one National Homebrew Conference since 1994.

The main reason I am running for the Board of Advisers is to share my passion and love for homebrewing with others, with the hope that they might share their passion for it with

me. I believe that a strong and vital AHA is beneficial to all who love beer, mead and cider. My goal will be to bring more people into homebrewing (and the AHA) by sharing the great benefits that come with active participation. Thank you for your consideration.

Susan RuudHarwood, ND

I am honored to run for re-election to the Board of Advisers of the AHA and would like to thank the AHA for this opportunity. Homebrewing is more than merely a hobby to me but a way of life. I thoroughly enjoy homebrewing but also attending events and meeting other people who have the same intense interest in the hobby that I have.

I have a Masters in Microbiology and currently am employed at NDSU in Fargo, ND. I began homebrewing in 1996, although my appreciation of craft beer began several years before. I am now an avid homebrewer and meadmaker. I belong to the local homebrew club, The Prairie Homebrewing Companions, and have held the office of secretary and president of this club. I am currently active in maintaining our yeast bank and distributing our newsletter and running our homebrew competition, The Hoppy Halloween Challenge. I am a National level BJCP judge and have helped proctor and grade exams for the BJCP.

I believe that my enthusiasm for this hobby is an asset to the Board of Advisers and welcome the opportunity to represent the members of the AHA for another 3 years if you choose to re-elect me.

Tony SimmonsPagosa Springs, CO

I welcome the opportunity to serve on the AHA Board of Advisers. I feel that I understand both the importance and the responsibilities of the position. Part of my agenda as a board member will be to encourage new memberships and to continue to develop enthusiasm with current members. Furthermore, having worked with a large number of breweries, brewers, suppliers and brewing-related organizations, I feel that these groups can be developed to function almost like an extension of the existing liaison program to help spread the word and support our exciting hobby.

As a homebrewer for eight years, brewing has become my passion. The AHA has become an integral part of that. When asked, I immediately volunteered to be a Brewing Liaison. In that role, I generate interest in the AHA, build memberships, as well as create and pro-

mote many beer-themed festivals, tastings and competitions. I also own and operate the last two remaining homebrew shops in Southwest Colorado.

Ultimately, I would like to give back to the organization that has helped me evolve into an award-winning brewer, competent homebrew judge and avid beer connoisseur.

It is an honor and privilege to be nominated to serve on the AHA Board.

Mark TumarkinGainesville, FL

I've been privileged to be on the BoA since you elected me three years ago, and to be Vice-Chair the past two years. I'm asking you to re-elect me for a second term so I can continue working to make the AHA the best possible organization for homebrewers.

I'm involved in the leadership of my club, the Hogtown Brewers. I was instrumental in the successful campaign to change Florida's bottle laws, creating an e-mail list on the HBD server to facilitate communication for that effort. I'm an active judge at Florida competitions and at the NHC each year. This year I helped organize the 1st Annual Hogtown Brew-Off. I am a BJCP Certified Judge and active in the BJCP. I've served on the Continuing Education Committee, and am currently on the committee to update the BJCP Style Guidelines. Beer is not just a hobby for me, it's a passion. I'm proud to be on the AHA Board of Advisers and I'd like to continue to bring my passion to the BOA, to provide some of the effort and leadership needed. Please give me one of your votes, but more importantly; be sure to vote. We have a great slate of candidates and this is your chance to help steer the AHA. Thank you.

Election Guidelines:

Read the statements, see www.beertown.org for full candidate statements. Vote online at www.beertown.org or photocopy the ballot (that way you don't have to cut your Zymurgy). Vote for up to six (6) candidates by marking the box next to the candidates' names. Fill in your name and membership number in the appropriate place. If you do not know your member number, or would like to become a member, call us at 888-822-6273 or email info@aob.org. Sign your ballot.

Mail completed ballots to: AHA Election, Attn: Rob Moline, 1332 Arizona Avenue, Ames, IA, 50014; or fill out the online ballot at www.beertown.org. Ballots must be postmarked no later than April 1, 2004. Only one ballot per member will be accepted.

All AHA members voting in the election are eligible for an additional entry in the Lallemand Scholarship drawing for Siebel Institute's two-week Concise Course or two-week Microbiology Course. Check the "Enter Me" box on the ballot to submit your entry. The drawing will take place June 20, 2004 at the AHA National Homebrewers Conference.

**BALLOTS MUST BE
POSTMARKED NO
LATER THAN
APRIL 1, 2004**

Vote Now!

American Homebrewers Association 2004 Board of Advisers Election OFFICIAL BALLOT

Select up to six (6) candidates you feel are best qualified to serve on the AHA Board of Advisers.



☐ Jeff Donovan

☐ Mike Hall

☐ Dave Draper

☐ Bob Kauffman

☐ Steve Ford

☐ Susan Ruud

☐ Chris Frey

☐ Tony Simmons

☐ Chris Graham

☐ Mark Tumarkin

☐ Enter Me in the Lallemand Scholarship Drawing

Name _____

Membership Number _____

Signature _____

Mail completed ballot to:
AHA Election; Attn: Rob Moline; 1332 Arizona Ave.,
Ames, IA 50014
or submit your ballot online at www.beertown.org.

Homebrew Clubs (from page 11)

ing on www.beertown.org by selecting Homebrew Clubs from the Locator drop down box on the right side of the beertown pages. Homebrew clubs are listed by state and arranged alphabetically by city. If your club is not listed (many club records were eliminated when the new locator went up last year) use the online form to add it. You can also make corrections to listed clubs or delete clubs that no longer exist via the online form. Thanks for your help!

Rhumble on the Rhine Competition

The AHA thanks Tim Bardet and Pacific Gravity Home Brewers of Culver City, Calif. for hosting the Rhumble on the Rhine Club-Only Competition November 22. The competition covered BJCP Category 8, Koelsch & Altbier. This was the third of six competitions in the August to May 2003-2004 cycle, with points going toward the Homebrew Club of the Year trophy. Points are awarded on a 12-8-4 basis for first, second and third place in the club-only competitions. First, second and third place in the first and second rounds of the AHA National Homebrew Competition earn points on a 6-4-2 basis.

Of 43 entries, the winners were:

First Place

John Blichmann of Lafayette, Ind.

2003-2004 Club-Only Competition Standings after 4 of 6 Competitions

Points	Club
12	Prairie Homebrewing Companions
12	Quality Ale and Fermentation Fraternity
12	Tippecanoe Homebrewers Circle
12	Urban Knaves of Grain (UKG)
8	Beer Barons of Milwaukee
8	Heart of the Valley Homebrewers (HOTV)
8	Niagara Association of Homebrewers
8	Rillito Creek Brew Club
4	Alcohol Through Fermentation (ATF)
4	Clinton River Association of Fermenting Trendsetters (CRAFT)
4	Dunedin Brewers Guild
4	Maltose Falcons

Representing the Tippecanoe Homebrewers Circle with a Koelsch

Second Place

Dan Cassetta of Buffalo, N.Y.

Representing the Niagara Association of Homebrewers with a Northern German Altbier

Third Place

Bill Gornicki of Clinton Township, Mich.

Representing the Clinton River Association of Fermenting Trendsetters (CRAFT) with a Koelsch

Walk the Line on Barleywine Competition

The AHA thanks Ken "KK" Koenig, Jeff Gladish and the Dunedin Brewers Guild of Dunedin, Fla. for hosting the Walk the Line on Barleywine Club-Only Competition December 6-7. The competition covered BJCP category 12, Barleywine and Imperial Stout. This was the fourth of six competitions in the August to May 2003-2004 cycle, with points going toward the Homebrew Club of the Year trophy. Points are awarded on a 12-8-4 basis for first, second and third place in the club-only competitions. First, second and third place in the first and second rounds of the AHA National Homebrew Competition earn points on a 6-4-2 basis.

Of 36 entries, the winners were:

First Place

Antoinette Hodges of Carlsbad, Calif.

Representing Quality Ale Fermentation Fraternity (QUAFF) with an Imperial Stout

Second Place

Wally Doherty and Chris Mullen of Tucson, Ariz.

Representing the Rillito Creek Brew Club with an English Barleywine

Third Place

Phil O'Regan of Tampa, Fla.

Representing the Dunedin Brewers Guild with an American Barleywine

Congratulations to all of the winners, and thanks to all of the club representative brewers who entered these competitions!

Mead AHA Club-Only Competition


The April AHA Club-Only Competition is Mead, covering BJCP category 25. Pete Devaris and the Great Northern Brewers of Anchorage, Alaska host the competition. The Great Northern Brewers are well suited to take on this competition, as their judging staff will include several AHA National Homebrew Competition mead gold medalists, many BJCP national judges and at least one former AHA National Homebrew Competition Mead Maker of the Year. The Great Northern Brewers Club will provide fabulous prizes. First, second and third place winners of the BOS round will receive gold plated and engraved gold pans. Additionally, the first place winner of the BOS round will receive a tap handle made from an Oosik (look it up).

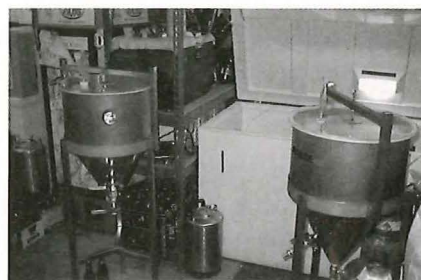
One entry of two bottles is accepted per AHA registered homebrew club. Entries require a \$5 check made out to AHA and an entry/recipe form and bottle ID forms. More information on the Club-Only Competitions and forms are available at www.beertown.org. Please send your entry to:

Shipping Address:

Arctic Brewing Supply
ATTN: GNBC AHA COC
5915 Lake Otis Pkwy, Ste #3
Anchorage, AK 99507

Entries are due March 22 to April 8. Judging will be held April 10. E-mail for questions or those interested in judging is pdevaris@gci.net.

Gary Glass is project coordinator for the Association of Brewers. 



The fermenters shown in the picture were part of the awards won by Curt Hausam of Salem, Ore., who has won the Ninkasi award in the National Homebrew Competition the last two years.



Braggot

www.cascadiabrew.com

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

- 2 cans Coopers Amber Malt Extract
- 9.0 lb (4.08 kg) Orange Blossom Honey
- 3.0 oz (85 g) Cascade (60 min)
- 1.0 oz (28 g) Cascade (30 min)
- 1.0 oz (28 g) Cascade (2 min)
- 2.0 tsp yeast energizer
- 2.0 tsp yeast nutrient
- 10.0 g Lalvin D-47 yeast, rehydrated
- 1.25 C (180 ml) Coopers Light Dry Malt Extract for bottling

- Original specific gravity: 1.100
- Final specific gravity: 1.018
- IBU: 33
- ABV: 10.9%

Stir malt extract into 2 gallons of water and bring to a boil. Add 3 ounces of Cascade hops and boil 30 minutes. Add 1 ounce of Cascade hops and boil for 28 minutes. Add 1 ounce of Cascade hops and boil another two minutes. Turn off burner and add yeast energizer, yeast nutrient and honey and stir. Add to fermenter with enough cold water to make 5 gallons. Aerate vigorously and pitch yeast when temperature reaches 70° F. When fermentation is complete, prime with 1.25 cups of light dry malt extract and bottle. Can be aged for two years or more.

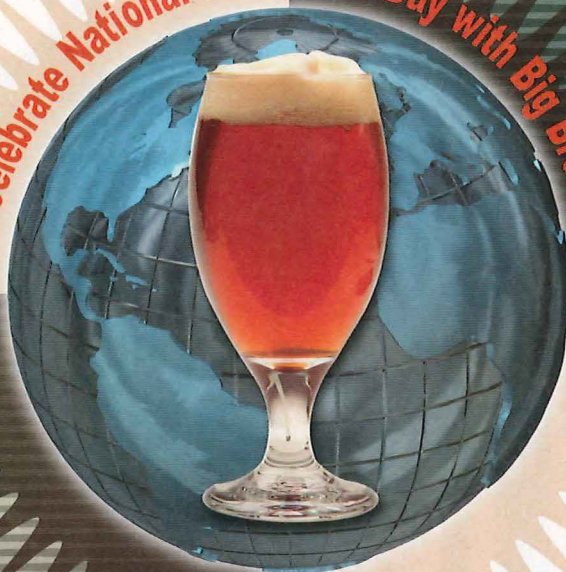
American Homebrewers Association's 7th Annual

BIG BREW

Saturday, May 1, 2004



Celebrate National Homebrew Day with Big Brew!



Visit www.beertown.org:

- Download Big Brew artwork to promote event
- Register your brewing site
- Receive this year's Big Brew recipe

Ways to Celebrate:

- Bring brewers, non-brewers together and brew beer
- Participate in the Simultaneous Toasting at 12pm (CST)
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American Homebrewers Association's 26th Annual
National Homebrew Competition 2004
Entries due April 7-16, 2004

Entries must be submitted to the proper regional site for your state.*
*Competition site organizers and judge coordinators are required to send their entries to a site other than their own.

NHC 2004
F.H. Steinbart Inc.
234 S. E. 12th
Portland, OR 97214

NHC 2004
Breckenridge Brewery
471 Kalamath Street
Denver, CO 80204

NHC CANADA 2004
Entries due April 26-30, 2004
The Bushwakker
2206 Dewdney Avenue
Regina, SK S4R 1H3
See www.alesclub.com for entry details.

NHC 2004
Goose Island-Wrigleyville
3535 N. Clark Street
Chicago, IL 60657

CIDER

All cider entries should include 3 bottles and should be sent to Red Hook regardless of where you live:

NHC 2004 Party Creations

345 Rokeby Road
Red Hook, NY 12571

**DO NOT SEND BEER OR MEAD
ENTRIES TO RED HOOK, NEW YORK!**

International Entries

Please send all international beer and mead (but not cider) entries other than Canadian entries, to:

NHC 2004 F.H. Steinbart

234 E. 12th
Portland, OR 97214

NHC 2004
AleSmith Brewing Co.
9368 Cabot Drive
San Diego, CA 92126

NHC 2004
Bacchus & Barleycorn
6633 Nieman Road
Shawnee, KS 66203

NHC 2004
Defalcos
8715 Stella Link Road
Houston, TX 77025

NHC 2004
J.W. Dover
24945 Detroit Road
Westlake, OH 44145

NHC 2004
Rohrbach Brewing Co
3859 Buffalo Road
Rochester, NY 14624

Contact: Gary Glass • 1.888.822.6273 • +1.303.447.0816 ext. 121 • gary@aob.org • www.beertown.org

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American Homebrewers Association's 26th Annual

NATIONAL HOMEBREW COMPETITION

Entries Due: April 7-16, 2004

First Round: Judging at regional sites from April 23-May 2, 2004

Second Round & Awards Ceremony: June 17-19, 2004

AHA National Homebrewers Conference, Las Vegas, NV

For complete rules and regulations visit www.beertown.org,
call 1.888.822.6273 (U.S. and Canada only) or +1.303.447.0816.

See the Site Locator Map on page 16 for your entry site.

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receive entry-fee discounts.



JOIN THE FUN!

See entry form on next page

American Homebrewers Association
A Division of the Association of Brewers
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American Homebrewers Association's 26th Annual

NATIONAL HOMEBREW COMPETITION



Entry Form

Send this filled-out form with your entry to your regional site. Entries submitted to the wrong site will be disqualified. Check the Locator Map in the March/April 2004 issue of *Zymurgy* or online at www.beertown.org. Questions? Contact Gary Glass, NHC Director, at gary@aob.org or call (888) 822-6273 or (303) 447-0816 x121. Please read the instructions in PART II of the rules and regulations found on www.beertown.org.

Section A: Brewer Information

See page 16 for the Site Locator Map.

1. Name _____
2. Additional Brewer(s) _____
3. Address _____
4. City _____ State/Province _____ Zip/Postal Code _____
5. Country _____ Phone (H) (_____) _____ (W) (_____) _____
6. E-mail _____
7. Homebrew Club (Please spell out full name of the club. Do not abbreviate.) _____
8. AHA Membership Number (if you are already a member) _____
9. Join the AHA and save on entry fees! Or renew your membership (enclose a separate \$38 check) ☐ New Membership ☐ Renewal
10. Entry Fees Enclosed.
→ ☐ AHA Member AHA members pay \$8 per entry : _____ no. of entries x \$8 = \$ _____ total
☐ Non-member Non-members pay \$12 per entry: _____ no. of entries x \$12 = \$ _____ total
11. If you are a BJCP judge, please include your BJCP Number here _____



Section B: Entry Information

12. Name of Brew (optional) _____
13. Category and Subcategory (Print full names) _____
14. Category Number (1-29) _____
15. Subcategory Letter (a-e) _____
16. For Mead and Cider (check one): ☐ Dry ☐ Medium ☐ Sweet
17. For Mead and Cider (check one): ☐ Sparkling ☐ Still
18. SPECIAL INGREDIENTS:

If you have entered in any of the following categories 19e, 20c, 21, 22, 23b, 24, 25, 26, 27, 28b, 28c, 29 refer to part II of the Rules and Regulations and the NHC Style Guidelines at www.beertown.org for instructions on filling out the spaces below. The judges will use this important information for evaluating entries in these categories. **Leave these spaces blank if you have not entered the above categories.** Entrants of Historical Beers are asked to provide the historical beer style and information on the style profile and history as an aid to judges.

Classic Style _____

Special Ingredient(s) _____

American Homebrewers Association
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FEBRUARY

27-28 America's Finest City 11th Annual Homebrew. San Diego, CA. AHA/BJCP SCP. Sponsored by QUAFF. BJCP style guidelines will be followed for beer and ciders; AHA guidelines for mead. Entry Fee: \$6 with 2 bottles submitted (1st round & BOS). Entry Deadline: 2/9-2/20. Contact: Bob Mac Kay, Phone: 760-476-2534, E-mail: bmackay1@adelphia.net Web: www.quaff.org

28 BABBLE Leap Beer Brew Off. Lake Barrington, IL. AHA/BJCP SCP. The first annual BABBLE Leap Beer Brew Off hosted by the BABBLE Homebrew Club at The Onion Pub & Brewery. All beer, mead and cider categories will be accepted, except for s  ke. \$6 for first entry, \$5 for each additional entry. Entry Deadline: 2/7-2/21. Contact: Scott Lasky, Phone: 312-603-0263, E-mail: scottlasky@hotmail.com Web: www.hbd.org/babble

29 Montreal Mead Meet & Bardic. Montreal, Quebec. BJCP SCP. Contact: David Renwick, Phone: 514-772-0163, E-mail: lairddaver@aol.com

29 Washoe Zephyr Zymurgists Homebrew Competition. Reno, NV. AHA/BJCP SCP. An excellent warm-up for the AHA National Homebrew Competition and other events in the West. Entries for 2003 topped 100. Entry Fee: \$6. Contact: John C. Tull. Phone: 775-329-2537, E-mail: johntull@fastmail.fm Web: http://134.197.55.114/wzz

MARCH

2 6th Annual Main Street Brewery Masters Homebrew Competition. Corona, CA. AHA/BJCP SCP. Entry Deadline: 2/28. Entry Fee: \$5. Contact: Christy Elshof. Phone: 909-798-0860. E-mail: brewchick@hotmail.com

6 15th Annual Reggale and Dredhop Homebrew Competition. Denver, CO. AHA/BJCP SCP. See Web site for details. Entry deadline: 2/27. Contact: Bob Kauffman, E-mail: dredhop@hopbarley.org Web: www.hopbarley.org/dredhop

13 Great Arizona Homebrew Competition. Buckeye, AZ. AHA/BJCP SCP. Contact: Gregory Naff, Phone: 602-421-0917, E-mail: gregory.naff@starband.net Web: www.brewarizona.org/

14 St. Patrick's Cascadia Cup Homebrew Competition. Monroe, WA. AHA/BJCP SCP. The 8th annual PNW St. Pat's Cascadia Cup is the largest homebrew competition in Washington State! Top three beers from BOS will get brewed! BOS winner receives \$250 cash award, in addition to more prizes for winners. Sponsored by the Washington Brewers Guild. Entry Fee: \$6. Contact: Alan Hord, Phone: 425-844-8473, E-mail: Organizer@CascadeBrewersGuild.Org Web: www.cascade-brewersguild.org

19-20 Bluebonnet Brewoff. Dallas/Fort Worth, TX. AHA/BJCP SCP. The Bluebonnet Stein for category winners is one of the most prized awards in homebrewing. Speakers are Tess and Mark Szamatulski, authors of *Clone Brews*. Sponsored by five North Texas Homebrew Clubs. Sponsoring Club for 2004: North Texas Homebrewers. Check Web page for entry shipping address. Entry Deadline: 2/16-2/22. Judging: 3/6-3/16. Contact: Steve Hacker, E-mail: steve4beer@aol.com Web: www.bluebonnetbrewoff.com/

19-20 Drunk Monk Challenge 2004. Aurora, IL. AHA/BJCP SCP. Sponsoring Club: The Urban Knaves of Grain. A qualifying event for the Masters Championship of Amateur Brewing. The first leg of the Midwest Homebrewer of the Year and also featuring the Menace of the Monastery. Entry Deadline: 3/1-3/13. Contact: Rodney Kibzey and Liz Lerch, Phone: 630-205-8229, E-mail: RJKChicago@aol.com Web: http://knaves.org/dmc

AMERICAN HOMEBREWERS ASSOCIATION

• KUDOS •

SANCTIONED COMPETITION PROGRAM BEST OF SHOW

• NOVEMBER 2003 •

10th Annual ALES Homebrew Open Competition—BOS Beer: David Neilly of Weyburn, Saskatchewan; Cider BOS: Russ Temple of Regina, Canada; BOS Mead: Russ Temple of Regina, Canada.
20th Annual Dixie Cup Homebrew Competition, 1,013 entries—BOS Beer: Jim Johnson & John Schmaltz of Houston, TX; BOS Mead: Leroy Gibbons of Houston, TX; Templeton Award: Michael Heniff of Pearlman, TX.
Hoppy Halloween, 218 entries—Steve Fletty of Falcon Heights, MN.
San Diego Mead Festival, 55 entries—John Curtis of Las Vegas, NV.
THIRSTY Homebrew Competition, 54 entries—Eric Ware of Davenport, IA.

• DECEMBER 2003 •

Humpy's Big Fish Homebrew Competition, 104 entries—Pete Devaris of Anchorage, AK.
2003 S.O.B. Big Beers, 29 entries—Steve Olson & Steve Payne of Menasha, WI.

AHA SCP = American Homebrewers Association Sanctioned Competition Program. **BJCP** = Beer Judge Certification Program. The Calendar of Events is updated weekly and is available from the Association of Brewers: info@aob.org or www.beertown.org on the Web. To list events, send information to **Zymurgy** Calendar of Events. To be listed in the May/June Issue (Vol. 27, No.2), information must be received by March 1. Competition organizers wishing to apply for AHA Sanctioning must do so at least two months prior to the event. Contact Kate Porter at kate@aob.org; (303) 447-0816 ext.123; FAX (303) 447-2825; PO Box 1679, Boulder, CO 80306-1679.

20 7th Annual Eastern Connecticut Homebrew Competition. Willimantic, CT. AHA/BJCP SCP. Entry deadline is noon on March 13, 2004. All classes of beer, mead and cider will be judged. See Web for all details. Entry Deadline: 3/01 - 3/14. Contact: Paul T Zocco, Phone: 860-456-7704, E-mail: zoks.homebrewing@snet.net Web: www.homemadebrew.net

APRIL

3 World Cup of Beer. Berkeley, CA. AHA/BJCP SCP. Contact: Steve Jensen, Phone: 650-474-7668, E-mail: sjensen@tycothermal.com

17 Crescent City Competition & Crawfish Boil. New Orleans, LA. BJCP SCP. Contact: Chris Day, Phone: 504-391-6584, E-mail: ciday@bellsouth.net Web: http://hbd.org/crescent/

24 U.S. Open. Charlotte, NC. AHA/BJCP SCP. Contact: Gary Cathey, Phone: 704-634-7648, E-mail: garyc3@aol.com Web: http://hbd.org/cbm/

MAY

3 ALES Homebrew Open. Regina, Saskatchewan. AHA/BJCP SCP. Contact: Barry Bremner, Phone: 306-721-5666, E-mail: bbremnr@accesscomm.ca Web: www.alesclub.com

5 Midwest Homebrewer of the Year Contest. Champaign, IL. Beer and Mead will be judged from all BJCP categories. Special categories: No one gets out alive high gravity brewoff; and West Coast Stout. \$6 first entry, \$4 additional entries. Entry Deadline: 5/24-6/2. Entry Fee: \$6 for 1st, \$4 additional. Contact: Britt Weiser, Phone: 217-352-7441, E-mail: weiser@net66.com Web: www2.uiuc.edu/ro/BUZZ/brewoff.html

14 Sunshine Challenge 2004. Winter Park, FL. AHA/BJCP SCP. Contact: Ed Measom, Phone: 407-493-9940, E-mail: ed_measom@earthlink.net

15 May Mead Madness. New Bern, NC. BJCP SCP. Contact: Richard Weiss, Phone: 252-636-8970, E-mail: brewinbruin@hotmail.com Web: www.homebrewhaus.biz/

15 2004 Mayfaire Homebrew Competition. Canoga Park, CA. BJCP SCP. Contact: Steve Cook, Phone: 818-903-5211, E-mail: scook4208@msn.com

22 The 8th Annual Celtic Brew-Off. Bedford, TX. AHA/BJCP SCP. Sponsored by the Knights of the Brown Bottle Homebrew Club in Arlington, Texas. Coincides with the Texas Scottish Festival and Highland Games. Put on your kilts, inflate those bagpipes, heat up the brew kettle and join us. Entry deadline: 5/14. Entry Fee: \$6. Contact: Richard Graham, Phone: 817 545-5818, E-mail: rrgraham@flash.net Web: http://hbd.org/kobb/celtic

22 3rd Annual Upper Mississippi Mash-Out. Minneapolis, MN. AHA/BJCP SCP. (Formerly the Northern Brewer competition) All BJCP categories, including beer, mead and cider. Special category in 2004 celebrating eis-beer. Online registration will be available at the MhBA Web site. More than 300 entries expected. Awards ceremony held at Summit Brewing in St. Paul. Entry Fee: \$7 first entry, \$5 additional. Contact: Al Boyce, Phone: 651-205-0471, Fax: 651-205-1573, E-mail: alboyce@bigfoot.com Web: www.mnbrewers.com

JUNE

2 North American Beer Awards. Idaho Falls, ID. BJCP SCP. Contact: Gregg Smith, Phone: 208-524-0970, E-mail: gsmithbeer@aol.com

3 Edmonton Homebrewers Guild 2004 Aurora Brewing Challenge. Edmonton, Alberta. BJCP SCP. Contact: Glen Hannah, Phone: 780-417-3695, E-mail: glhannah@telusplanet.net Web: www.ehg.ca/

17-19 AHA National Homebrewers Conference. Las Vegas, NV. Phone: 888-U-CAN-BREW, Fax: 303-447-2825, E-mail: aha@aob.org Web: www.beertown.org/events/hbc/index.html

17-18 AHA National Homebrew Competition. Las Vegas, NV. AHA/BJCP SCP. Contact: Gary Glass, Phone: 888-U-CAN-BREW x 121; 303-447-0816 x 121, Fax: 303-447-2825, E-mail: gary@aob.org Web: www.beertown.org/events/nhc/index.html

19 10th Annual Eight Seconds of Froth. Cheyenne, WY. BJCP SCP. Contact: Brian Mertz, Phone: 307-777-4082, E-mail: windywy@aol.com

30 16th Annual Southern California Homebrew Championships. Corona, CA. AHA/BJCP SCP. Entry Deadline: 6/28. Entry Fee: \$5. Contact: Christy Elshof, Phone: 909-798-0860. E-mail: brewchick@hotmail.com

JULY

1-31 American Beer Month. All across the USA. Discover the Flavors of Independence! For a listing of local and national events, check out the American Beer Month calendar online. Contact: Monica Tall, Phone: 303-447-0816, Fax: 303-447-2825, E-mail: monica@aob.org Web: www.americanbeer-month.com/

SEPTEMBER

30-October 2 Association of Brewers' Great American Beer Festival®. Denver, CO. AHA/BJCP SCP. Contact: Nancy Johnson, Phone: 888-U-CAN-BREW x 131, Fax: 303-447-2825, E-mail: Nancy@aob.org Web: www.beertown.org

Association of Brewers goes On The Road



**April 6, 2004
San Diego, CA**


**May 15, 2004
St. Louis, MO**

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want to meet enthusiastic
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For specific times and locations : Visit www.beertown.org
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Paul Gatz

Director, American Homebrewers Association

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			Kerry Skelton Santa Rosa, CA	

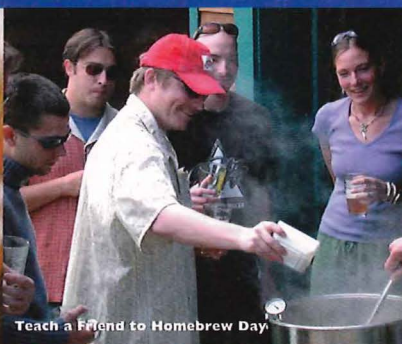
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For Office Only Zym 04



Armenian Oghi

Dear Professor,

I came across your name and Web site while searching for recipes and methods related to the distillation of Armenian oghi (aka oozo, raki, arak). I thought that someone with your unique professional and cultural background might be able to point me in the right direction.

My father recently inherited a rather large and complex still that was handcrafted by my uncles in the 1920s. He's done a fairly good job of piecing the parts together, and he's got a master's degree in chemistry, but he has almost no information about the precise recipes, methods and techniques required to actually make oghi.

Any suggestions you might offer would be greatly appreciated. Thank you very much for your time.

Sincerely,
Sevan Simonian

Dear Sevan,

While oghi has nothing to do with making or enjoying beer, your question intrigued me enough to dwell upon it for several months before I was able to figure out an answer. I'd never heard of oghi until your inquiry, but I have heard of oozo (ouzo), raki and arak. They are all distilled from the fermentation of the leftover skins of grapes pressed for making wine. Similar to Italian grappa, Greek ouzo or, better put, Middle Eastern raki and arak, oghi is distilled alcohol from the meager and astringent natural fermentation of grape skins. Ouzo, or oozo as you have written, is flavored with fennel seed and has a licorice flavor. Raki is not flavored, and arak is flavored with aniseed. There is good stuff and bad stuff. The difference is attributable to the skill of the distiller, avoiding the

inclusion of undesirable types of alcohol during the distillation process.

The relation to beer is best accounted for by enjoying lots of well made hand crafted beer during the course of a meal and finishing off with a shot of oghi, arak or raki. My preference for ouzo is best indulged before the meal, only when a good IPA is not available.

Good luck,
The Professor, Hb.D.

Bourbon Braggot

Hi and Howdy,

The magic of homebrew for me is as much about experimenting as it is about duplicating past favorites, and a new idea occurred to me recently. Although I don't care much for corn as a flavor in American lager, I do like its flavor as the main grain in bourbon. I thought it would be interesting to

mash a similar grain bill as that used for bourbon, add honey, and make a "Bourbon Braggot" with toasted oak chip extract added at the end. (Even if the final product doesn't taste much like bourbon, it might be good.)

I've read that the grain bill for bourbon is often 60 to 75 percent corn, with the remainder being made up of malted barley and either wheat or rye. I know that two-row malted barley can provide extra enzymes for the conversion of other boiled grains like corn and rice when making lagers, but a large ratio of corn like this would seem to require extra enzymes. I suspect that in commercial operations the enzymes are added directly to the mash, or that a proportion of the corn itself is malted beforehand to promote the conversion of starch to fermentable sugar.

Any suggestions for options or references? Are enzymes available that would allow me to use corn grits or milled or flaked corn instead of malting the corn myself?

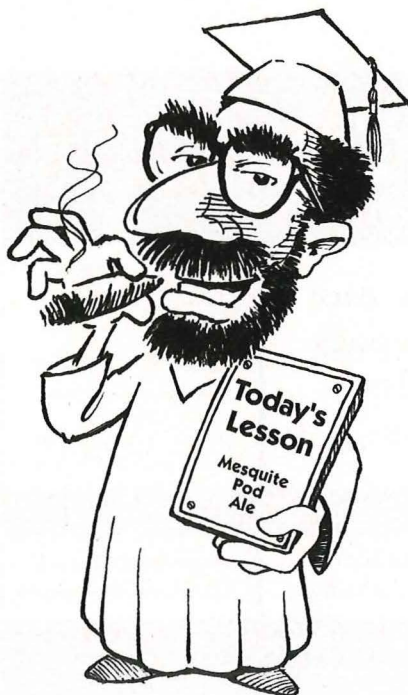
What kind of corn would give the best flavor? Would it be better to ferment awhile on the grains or to sparge and lauter before fermentation?

Thanks for any information you might provide,
Rick Dingus

Dear Rick,

Corn braggot, or as you've put it, bourbon braggot? Sounds very intriguing. I've never done it nor am I inclined to, simply because I'm not too fond of bourbon. One time I put a still mead in a new French oak barrel for three weeks. The resulting character was very similar to a bourbon-flavored mead. I am going to imagine that a lot of the character you are seeking has to do with the aging in the appropriate type of oak barrel.

My recommendation based on my experience is to try aging in new oak for a few weeks and then bottle and age out until appropriately to your liking. An alternative would be to chip



the mead with new oak for several weeks until it acquires the character you are looking for.

If you wish you are certainly welcome to mash in corn grits or corn meal (ground corn) with some malted barley. Go through a liquification process with the corn and malt, using standard mashing processes if the corn content is not over 30 percent. Above that you will have to employ the use of enzymes called alpha amylase. These enzymes are often found in homebrew supply stores (they can certainly special order it if you wish). They are available in different enzymatic strengths, so you will have to inquire at the time of purchase as to the strength and appropriate dosage. I personally wouldn't go over 20 percent in a brewer's mash, simply because when distillers mash corn and other grains they know that they are going to eventually distill the alcohol from the final fermented brew. They don't care much about appearance, protein haze, clarity, unfermented starch, etc. They will use nutrients, lots of enzymes and high powered yeast to absolutely maximize the conversion of all starches and fermentation of all sugars. All they really care about is getting as much alcohol production as possible, then distilling it out.

I think what you want will be achieved by a combination of moderately well made corn-adjunct beer and playing around with aging in or with oak.

Claiming braggot rights,
The Professor, Hb.D.

Mesquite Pod Ale

Dear Professor,

I read a letter in a past issue of *Zymurgy* about brewing a beer primarily from mesquite pods. I was wondering how many I would need and how I would have to go about it. I live in Arizona and the trees are full of pods in July and I could easily harvest enough for any amount of brew. Also I would like to know what kind of taste it would produce and bitterness it would contain so I can adjust with other ingredients as needed. Please help.

Tony

Yo, Tony,

I live in Wurruphree, Colo. and we ain't got no mesquite pods a growin' here, so I haven't had the pleasure of indulging in those succulent pods. I'm going to imagine that they are a bit pasty, somewhat sweet and sour. The only thing I have to imagine it being like is Tamarind pods that are imported from the tropics and used in cooking or eaten as a snack; gooeey, sweet and sour, with substantial sugar content.

So what to do with your mesquite pods. If I were you, I'd be separating the paste from the seeds and pod. This might take a bit of warm water, mixing and sparging out the good stuff with hot water. How many pods do you need? I imagine this will vary from harvest to harvest and even from tree to tree.

Pick a bucket full (your choice of bucket size), open them up, mix with hot water, agitate and dissolve, then strain and sparge. Taste the gallon or so of juice you've produced. How much sugar is in that juice? You could always cool the juice to 60° F (15.5° C) and take a hydrometer reading on the Brix scale (percentage of sugar in the juice).

Taste the juice. What does it taste like? Sour? Sourness will carry through to beer. Bitter? Bitterness will carry through to the beer. Sweet? Sweetness is not likely going to carry through because sugars will be fermented, though there may be some character of flavor and unfermentable sugars that may contribute to the final brew.

If the idea intrigued me and I liked the raw taste of mesquite pods, I'd be inclined to pick about 3 or 4 pounds and extract the juice/flavor into a 5-gallon (19 L) batch of amber ale to which I had added at least one pound of crystal malt (in order to accent residual sweetness in the brew). Go easy on the hops, perhaps an amber ale that has a bittering level of about 20 IBUs.

Sounds like mesquite pods might be a great addition to mead.

Pick a bucket,
The Professor, Hb.D.

Clone Turned Bomb revisited

Dear Professor,

Regarding Brother Buck's forwarded letter to you (September/October 2003): "I made a Bass clone from a malt extract kit. Either the barley wine I was drinking or my thick skull prevented me from realizing that it was ale and not a lager while fermenting! I fermented at a cool temp, around 52 degrees," I have the same scenario save one exception—my carbonated beer is not exploding, even though it has been stored at room temperature for four months now. Great head, aroma, color, but it tastes very sweet.

Since I pinch a penny until Lincoln whimpers, I was wondering if I could resurrect the brew by reboiling with some additional malt and water and then fermenting as usual. I hate to waste this brew as I used my favorite Moravian dried malt extract.

Cheers,
David Gilbreath
Make Mine Mild



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Dear David,

Simple answer. Nope. Reboiling your finished beer would not be to your liking and there's no telling what a little additional fermentation might do to your brew. Your very best bet would be to make a light bodied ale and blend at serving time.

Chalk this one up,
The Professor, Hb.D.

Mash Temps Okeydokey

Dear Professor,

I don't know what I was thinking—maybe it was the sampling of the last batch of honey porter—but when I added my 3 gallons (57 L) of 170° F (76° C) water to my grains for the first infusion, my mash temperature ended up at 160° F (71° C). I added cold water to bring it down and got it down to 155° F (68° C). After 60 minutes' rest the temperature was 150° F (65.5° C), what I was looking for. I added 2 teaspoons of amylase enzyme powder to the mash for the last 30 minutes just to be sure.

My question is this: at what temperature does the amylase enzyme powder work? Looking through various articles and recipes I've found it used at 150° F (65.5° C) all the way down to 50° F (10° C) added to the secondary fermenter.

Thanks,
Harry Boddels

Dear Harry,

First things first. Mashing at a temperature of 160° F (71° C) would have resulted in complete and healthy conversion of starches to sugars. Many microbrewers regularly mash at these temperatures in order to develop the desired body in their brews. You didn't really need to mess around with enzymes. But you did and I haven't answered your question yet.

Second things second. Generally fungal produced alpha-amylase enzymes (those are the kinds you want to use) become denatured at temperatures above 140° F (60° C), so you didn't really add nor contribute any enzyme action through your own actions. You mention a reference that they can be used at 50° F (10° C). This is true and brewers can add them to the secondary fermenters to "clean

up" by converting starches to sugars for eventual fermentation, but at those temperatures the process will take days rather than hours.

Third things third,
The Professor, Hb.D.

Metallic Aftertaste in Chocolate Porter

Dear Professor,

I am a Norwegian homebrewer from the town of Florø. I have been brewing all-grain for some years and since I am a big fan of your books, I tried one of your recipes from *The Homebrewers Companion*: Slanting Annie's Chocolate Porter. I scaled it up to 27 liters and added 500 grams of dark chocolate (with 70 percent cocoa solids) and boiled it for 30 minutes. Before I added the yeast I tasted it and the aftertaste was very metallic. Now, after eight days in the bottle, it still is. I use an aluminum brewpot (as I have done for years with excellent results).

Can it be dangerous to drink the beer (the metallic taste is quite powerful)? Why did I get that taste (I have never had anything like it before)? Can it be because of some reactions with the cocoa fat?

Best regards,
Espen Lothe

Dear Espen,

I imagine that what you are experiencing is the additional character of bitterness from the cocoa/chocolate. I find that too much cocoa can add an unbalanced bitterness, so I always reduce my hop rate whenever I use cocoa. The cocoa will not react with the aluminum and I don't think you are picking up any toxic metals as a result of adding chocolate. See if the beer mellows out with carbonation. If not serve as a blend with some other sweeter, dark beers and use fewer hops next time.

There is one more thing I could suspect. You mention 70 percent cocoa solids. This is not the same as 70 percent cacao. Perhaps the cocoa/chocolate you used was processed with additives that contributed to residual bitterness. I don't know for sure, but one thing I do know is that one should always use the best ingredients one can find and afford.

Cocoa nuts,
The Professor, Hb.D.

Hey homebrewers! If you have a brewing-related question for Professor Surfeit, send it to "Dear Professor," PO Box 1679, Boulder CO 80306-1679; fax 303-447-2825; or e-mail professor@nab.org.

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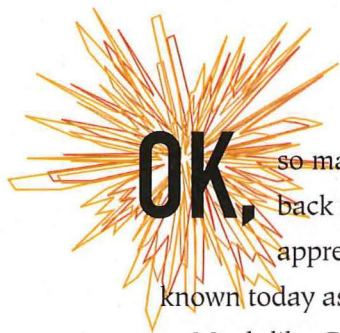
"Necessity is the mother of invention."

Plato, 360 B.C.

Double IPAs

Create a Whole New Category in the Humulone Derby

By Jim Parker



OK, so maybe Vinnie Cilurzo didn't really set out to amend Plato's age-old axiom back in 1994 when he opened Blind Pig Brewing Co. in Temecula, Calif. But his apprehension over his secondhand brew system helped launch the beer style known today as Imperial or Double India Pale Ale.

Much like George Hodgson, who brewed the original IPA back in the 1790s, Cilurzo found himself faced with a challenge. Hodgson's challenge was to brew a beer that would survive the voyage from London to Bombay. His answer: more hops.

Cilurzo sought to make a salable product on his first attempt at commercial brewing with a brew system he'd never used. His answer: more malt and even more hops.

"The honest to God truth is, I wasn't real sure how my equipment would perform," he says, recalling the 7-barrel system, complete with plastic fermenters and "every conceivable type of Grundy tank" that he bought from Electric Dave's Brewing Co. in Bisbee, Ariz. "I didn't know what my mash efficiencies would be or anything." So he took his IPA recipe, added "40 percent more malt" to account for any mash inefficiencies and doubled the hops, "figuring that if there were any off flavors that would cover it."

The result, which he dubbed Inaugural Ale, turned out to be a surprising hit, both at the brewery and at the following year's Great American Beer Festival®. So each year thereafter, until Cilurzo left for Russian River Brewing in 1997, he brewed a Double IPA as his Anniversary Ale. At Russian River, which he recently purchased from the Korbelt family and will reopen in downtown Santa Rosa, he renamed the beer Pliny the Elder after the Roman naturalist who helped give hops its botanical name. The beer has undergone refinements over the years—"I imagine that first one was fairly undrinkable for all but a hardy few"—but the principle has remained the same: 40 percent more malt and twice the hops.

"Trepidation is the father of beer-style invention."

Vinnie Cilurzo, 1994 A.D.

Farther up the coast in Newport, Ore., Rogue Ales brewer John Maier had a slightly different reason for brewing his first Double IPA. Each year Maier concocts a special beer to debut at the Oregon Brewers Festival. For 1996, his plan was simple: "I'm always looking for any excuse to use a (boat)load of malt and hops." The result was dubbed I2PA or "I-squared."

These new, bigger, bolder beers struck a chord on the hop-crazy West Coast and soon brewers from Seattle to San Diego were brewing their own hop monsters. In Eugene, Ore., where each brewer produces a similar beer to compete against each other in the local spring beer festival, the "Collaboration Beer" style for 1998 was Imperial IPA. The friendly competition spawned beers with names like Hopasaurus Rex and Hopzilla. In the 2001 GABF, Hopasaurus Rex, brewed by Jamie Floyd of Steelhead Brewery and Café, won the gold medal in Other Strong Ales and Lagers, the first medal for an Imperial IPA. Hopasaurus Rex followed with a bronze in the same category the next year.

By 2003, Imperial or Double IPA merited its own category in the Great American Beer Festival competition and drew 39 entries—more than German-style Doppelbock, Bohemian-style Pilsener or English-style India Pale Ale. Each of the winners was from west of the Rockies, but the Imperial IPA

craze had spread across the country with entries from the Midwest and eastern outposts such as Illinois, Virginia and Delaware.

Even though these weapons of mass hop-extraction carry names like "Double Trouble," "Dreadnaught" and "Ruination," talk to the people who brew them and you will hear words like "subtlety," "balance" and "nuance" bandied about.

"You want a beer that is on the extreme hoppy edge, but you don't want it to taste like you're licking the rust off a tin can," Cilurzo says, adding, "Not that I've ever done that."

When it comes to kettle hops for these brutes, the higher alpha varieties are your friends.

Equally important is that the beer be distinguishable from a barleywine, he says. And that takes a balance between hop and malt, technique and time.

Malt is the Key

For a beer that makes its name with hop character, Double IPAs owe much of their success to their malt bill—both the amount of malt and the varieties used.

"Malt is the key," Cilurzo says. "I like to say it needs a sturdy malt base. If not, it's hop tea and it's pretty undrinkable. But there's a balance—you don't want to go overboard and make it too sweet. You want something with more subtlety and finesse."

Initial gravities of Imperial IPAs should fall between 1.080 and 1.100 (19.5 to 23.5° P), according to the GABF style guidelines, with alcohol contents of 6.4 to 8.4 percent by volume. And while some Imperials edge toward 10 percent alcohol or higher, Cilurzo keeps Pliny the Elder at about 8 percent or lower. "I want a drinkable beer, something that I can reasonably have a couple of pints of. I don't want this to be a beer that's served in a 10-ounce glass."

Equally important is the type of malts used. "You don't want too much crystal or caramel malt or you will end up with a barleywine or something that's too sweet," Cilurzo says. He sticks with about 5 percent of a light crystal in the 30 to 40 Lovibond range and 5 percent Carapils to add dextrins for body. "The only malt I increase over my regular IPA is the base malt."

Steelhead's Floyd skips the crystal altogether and opts for Munich as his only specialty malt. "I have people argue with me that there must be crystal in it because it's darker than our regular IPA, but it's darker because there's so much malt in it."

Maier's malt bill is even simpler: one variety of pale 2-row malt from Canada.

Tom Nickel of Oggi's in San Diego will give a style talk on Imperial IPAs at the 2004 Craft Brewers Conference. He brews a couple of Double IPAs and has studied dozens more. "You don't need much in the way of specialty malts to get color or body," he says. "Any time you're approaching 8 percent alcohol you are going to get a lot of body no matter what."

THE HUMULONE PATCH: GET THE BIGGER BUS YOU AND YOUR FRIENDS ARE BEGGING FOR

"So, how big is yours?"

I'm talking IBUs, of course: International Bitterness Units, that index of milligrams of isomerized iso-alpha acid per liter that seems to be the measure of a man's (or woman's) beer on the West Coast these days. As India Pale Ales have spawned Imperial India Pale Ales and advertised IBU counts have reached into triple digits, there seems to be an IBU arms race gripping brewers and beer drinkers alike.

Even pubsters who couldn't tell you what IBU stands for, much less how to calculate or measure it, are getting caught up in the IBU-phoria and demanding bigger, bolder beers.

"We have a term for that," says Vinnie Cilurzo, the father of the Imperial IPA. "We call it the Lupulin Threshold Shift. It's when an IPA isn't enough; when a once-hoppy beer is perceived as pedestrian."

But when it comes to IBU ratings, is bigger necessarily better?

"It becomes ludicrous at a certain point," says Tom Nickel of Oggi's in San Diego. "IBUs are a very misleading number, like horsepower with cars. It's not how many horsepower your engine has, it's how fast it moves your car."

More important, he says, is the perception of bitterness and hop flavor. "The bigger the beer, the more IBUs it takes to give that perception of bitterness. I can give you a lighter beer with fewer IBUs that tastes a lot more bitter and hoppy than a big beer with more IBUs."

Then there's the issue of the IBU numbers themselves. Many of the numbers that get thrown around are grossly inaccurate because they are based on calculations rather than laboratory analysis. At best, IBU calculations are an educated guess based upon standard formulas that account for contact time with the wort and approximate kettle utilization rates. But no formula can precisely account for the score of variables that affect the actual arrival of isomerized alpha acids in finished beer. Still, many people quote figures based on their calculations rather than getting a laboratory analysis to find out what their actual BU level is.

"(Comparing IBUs) is typical of other things us guys do. It's the ultimate guy thing," jokes Nickel. "Women, if they are into drinking beers, aren't into IBUs. They want to know what the beer tastes like, how bitter it feels."

—Jim Parker

And because you are likely to boil these beers longer to extract more hop bitterness, you are going to get color from kettle caramelization and the fact that these beers are more viscous."

Nickel even uses some sugar in one of his doubles to keep the body under control and make the beer finish drier. "I use brown sugar, not much, maybe 5 percent. But you can use Belgian candy sugar, too. I know Frank Double IPA from Pizza Port Carlsbad (the 2003 GABF gold medal-winning beer) has some sugar in it."

Another way to keep the body in check is with mash temperature. Most Double IPA brewers keep their mash temperatures in the low 150s so they are not building a lot of dextrins. The GABF guidelines for the style call for a final gravity of 1.020 to 1.028 (5 to 7° P), but Cilurzo aims even lower. His Pliny the Elder finishes at 1.014.

"This is a beer that is meant to be drunk fresh, but I know some people are going to age it," he says. "After a while, the hops will drop out and at that point, I still want it to be a predominantly hoppy beer."

Hops, Hops and More Hops

Clearly, hops are important in Double IPA, but it's not just the sheer bulk of hops—it's what kinds of hops and when you add them.

Just about everyone who has brewed these beers for more than a couple of years has

mixed and matched the hop varieties they use.

"I definitely don't use the same exact hops now as I did the first time I brewed 90 Minute," says Sam Calagione of Dogfish Head in Delaware. In addition to his 60 Minute IPA, which is a standard 6 percent alcohol, 60 IBU

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IPA, he brews a 90 Minute (9 percent and 90 IBU) and 120 Minute, which is off the scale at a calculated 120 IBU and 20 percent alcohol. "You find what works for you."

And while brewers will debate the merits of whether to stick to low co-humulone hops such as Simcoe and Horizon to minimize coarse bitterness, all agree that when it comes to kettle hops for these brutes the higher alpha varieties are your friends.

"You have to look at the amount of hops you are adding and the amount of loss in your kettle," says Cilurzo, who has settled on a blend of Warrior (15 to 17 percent alpha) and Chinook (12 to 14 percent

alpha) for bittering; Columbus (14 to 16 percent alpha), Simcoe (12 to 14 percent alpha) and Centennial (9.5 to 11.5 percent alpha) for flavor; and Columbus, Centennial, Chinook and Simcoe for dry hopping.

"I think blending varieties is the way to go, to get that balance of hop flavors," he says.

Maier, who uses 140 pounds of Newport (13.5 to 17 percent alpha) and a touch of Cascade (4.5 to 7 percent alpha) in the kettle, yields 35 to 36 barrels out of the kettle of his I2PA, compared to 42 to 44 barrels per batch of his most lightly-hopped beer, Dead Guy Ale. He then dry hops with 44 pounds of Sterling (6 to 9

percent alpha) and Amarillo (8 to 11 percent alpha).

Floyd breaks the high-alpha mold with Hopasaurus Rex, using Centennial and Crystal (3.5 to 5.5 percent alpha). "I just use a whole lot more," he says.

Cilurzo has dropped Cascade from his Pliny because the amount he needed to get the hop bitterness he was seeking added what he calls a "chlorophyll, tomato-plant" character. And he's cut down the Columbus, which has the highest co-humulone level of his hops, to a level where it complements, rather than overpowers, the others.

When he first brewed 90 Minute IPA, Calagione used a vibrating electric football game table to continually shake hops into the wort during the entire 90-minute boil. He has refined the continuous hopping technique and uses it on the 60, 90 and 120 Minute IPAs. The result, he says, is an explosion of hop flavor without too much bitterness. He then dry hops for aroma.

Nickel employs every hopping technique possible to pull nuance from his hops and excite the senses as much as possible. "I like to describe these beers as being really hoppy—not just tasting hoppy, but smelling and feeling hoppy. The first thing is you should smell a massive hop aroma that hits you before the beer even touches your lips. Then you should taste the hoppiness on the tip of your tongue before you even notice the malt. As it rolls over your tongue you should feel the bitterness and as you swallow, you should feel a blend of the warmth and sweetness from the malt and the bitterness from the hops, and then it should finish dry and hoppy. The hops should be the last thing you taste."

To achieve this total hop experience, Nickel approaches Double IPAs differently than any other beer. "You change more than the recipe; it's not just doubling everything. You change the way you brew an IPA. You change the length of your boil, when you add the hops. It's the procedural changes that really make this beer different."

Nickel first adds hops in the mashtun before adding water. He covers the mash screen with whole leaf hops, then covers that with water to make a hop tea before adding his grain. This method of mash hop-

BIG DIPPER DOUBLE IPA

This recipe is based on conversations with several professional brewers, including Tom Nickel, Jamie Floyd, Vinnie Cilurzo and John Maier. It employs a number of techniques they recommend for brewing Double IPAs.

Big Dipper Double IPA

Ingredients for 10 U.S. gallons

All Grain

28.0	lb (12.6 kg) two-row malt
2.0	lb (.9 kg) Munich Malt 15L malt
1.5	oz (42 g) Chinook hops (whole), 13% alpha acid mash hops
1.0	oz (28 g) Chinook hops (pellets), 13% alpha acid first wort hopping
1.0	oz (28 g) Centennial hops (pellets), 10.5% alpha acid (75 min.)
1.0	oz (28 g) Centennial hops (pellets), 10.5% alpha acid (60 min.)
1.0	oz (28 g) Centennial hops (pellets), 10.5% alpha acid (10 min.)
1.0	oz (28 g) Horizon hops (whole), 13% alpha acid, in hop back
2.0	oz (56 g) Horizon hops (whole), 13% alpha acid, dry hop in secondary

Wyeast 1056 yeast (large starter)

- Original specific gravity: 1.081
- Final specific gravity: 1.016
- Estimated IBU: 90
- Boiling time: 90 minutes
- Primary fermentation: 68° F (20° C), one week
- Secondary fermentation: two weeks

Brewer's Specifics

Single infusion mash at 152° F. Cover mash screen with whole Chinook hops (or steep hops in nylon bag if using other mashing device), add first 2 gallons of mash water, let steep for 10 minutes before adding grains and rest of mash water. Add pellet Chinook hops as first wort runnings enter kettle. At the end of the brew, cover mash screen with whole Horizon hops (or put hops in large metal strainer) and run wort through hops on the way to the wort chiller. If you use an immersion wort chiller, add the hops to a hop bag and steep at the end of the boil.

ping has been shown to extract some mild bitterness to beers.

Then, as the wort runs off into the kettle, Nickel begins adding his kettle hops. Dr. George Fix in *Analysis of Brewing Techniques* (Brewers Publications, 1997) credits this first-wort hopping technique with contributing improved hop flavor and aroma.

Nickel also boils his Double IPAs longer than regular IPAs. "You want every bit of utilization you can get," he says. "You may boil your regular IPA 60 to 90 minutes, but these beers you'll boil 90 to 120 minutes. That extra hour boil changes the beer, gives it 5 to 10 more IBU and a different character."

After the boil, Nickel uses his mash tun as a "glorified hop back," spreading another layer of whole leaf hops over the screen and running the wort over that on its way to the heat exchanger.

He then dry hops at the end of primary fermentation before dropping the temperature, and then again in the serving tank.

"I want to squeeze every last bit of hop character out of the hops," he says, but that doesn't necessarily mean every last bittering unit. "I think it's less important, the actual BUs. What's more important is the flavor. I don't brew by numbers, I brew by flavor," Cilurzo says. "Counting BUs is like being in a pissing match." (See sidebar.)

Not to be overlooked in the quest to accentuate the positive side of hoppiness is the role water chemistry plays. Like traditional pale ales and IPAs, Double IPAs require water low in bicarbonate with significant calcium and sulfate. A little gypsum should do the trick. You don't need to try to match the traditional Burton profile, because these beers are more American than English in character.

Patience is a Virtue

When it comes to yeast for Imperial IPAs, you don't need to get fancy. "You want a straight-ahead yeast that will rip through the beer and leave the hops," Nickel says, recommending highly attenuating American and California yeast strains. "The beer is all about hops, not the yeast."

But, because of those hops, and the extra alcohol, you will have a slightly prolonged fermentation and aging period.

Cilurzo usually doesn't like to release Pliny the Elder for at least six weeks after brewing. "The first six weeks, it is a very harsh and clumsy beer. It has none of the personality and complexity I'm looking for. From eight to 16 weeks, it's at the prettiest spot. That's when the hop flavors start to meld and you get all of the subtleties."

The longer aging also gives the beer a chance to clear, dropping some of the haze that accompanies the heavy hop load. It also allows for the dry hopping necessary for the explosive hop aroma that characterizes the style.

"Again, it's a balancing act," Cilurzo says. "You don't want the beer to sit on the hops too long. And in a brewpub setting, you are inevitably going to have to turn the beer out and sell it."

All the extra time, attention and expense pays off.

"This isn't a cheap beer to make, when you look at all of the hops you use, the amount of volume you lose in the kettle, the extra time you're tying up a tank," Cilurzo emphasizes. "People who like these beers—and it is a small niche—are fanatical about them. This is a totally consumer-driven style."

Nickel, who also owns O'Brien's, a San Diego beer bar, says he has to keep at least one Double IPA on at all times to keep his customers happy. A cask of the gold

medal-winning Frank Double IPA from Carlsbad's Port Brewing sold out in an hour and 40 minutes.

The style has even spawned its own mini-fest, the annual Double IPA Festival at the Bistro in Hayward, Calif. Bistro owner Vic Kralj spends the weeks before the fest driving up and down the coast collecting beers that fit his criteria: 7.5 to 9 percent alcohol, around 100 IBU and "that sweet, gorgeous hop aroma and taste."

Kralj launched the fest in 2001 when he noticed a number of local breweries making Double IPAs as their holiday beers. A few more phone calls and light arm-twisting convinced more brewers to try the style and he had 12 Double IPAs for his first festival. The number grew to 18 the next year and 25 in 2003. This year's fest, which took place February 7-8, had more than 35 beers that will be judged by a professional panel, as well as throngs of hop heads.

"It's not just a local thing any more. We have people fly out here from the East Coast," he says.

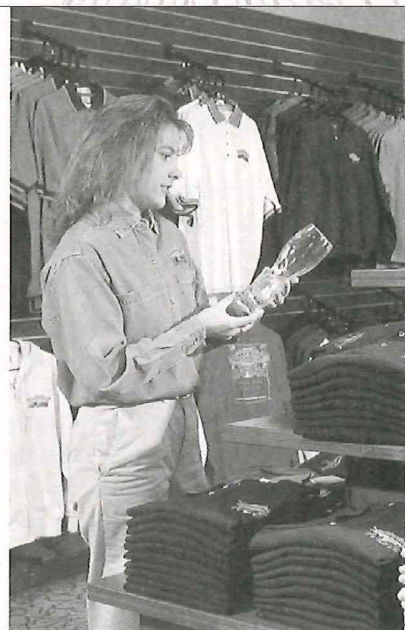
And while the popularity has seemingly skyrocketed in the past nine years since Cilurzo innocently stumbled across the style, Double IPAs definitely aren't for everyone. Maier chuckles as he recalls a review of I2PA he once read in which the reviewer called it "an obscene beer with a boozy palate."



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DOUBLE YOUR PLEASURE

In the land of biggie-size fries and super-size combo meals, it's no wonder American brewers — professional and amateur alike — tend to double their pleasure when brewing some of their favorite beer styles.

Imperial, or double, beers are nothing new. Doppelbock, although it was not designed as a double bock, dates back to the 1600s, and imperial stout to the 1700s. But brewers today are super-sizing all manner of beer styles in the quest for bigger, bolder brews.

When a simple pilsener won't do, how about a double or imperial pils? John Harris of Oregon's Full Sail Brewing Co. took a silver medal in the 2003 Great American Beer Festival Other Strong Ales and Lagers category for Capsize Double Pilsener. He first brewed the beer in the spring of 2002 as the first new bottled beer in his Brewmaster's Reserve series. He didn't simply double his regular pilsener recipe, but carefully increased his pale malt bill, ramped up his dosage of Saaz hops and pitched with more yeast to yield a crisp, hoppy lager that weighs in at a bit over 7 percent alcohol by volume and 60 IBU.

"I wanted it to maintain its pils character and finish nice and dry. I wasn't looking to make a bock," he says.

When he submitted his label for approval by the Bureau of Alcohol, Tobacco & Firearms (now the Tax and Trade Bureau), he had to supply additional information justifying the name. The style, the BATF assured him, didn't exist.

Try telling that to his fellow Oregon brewers John Maier of Rogue Ales or Darron Welch of Pelican Pub. Maier brewed an Imperial Pilsener as his 1999 Oregon Brewers Festival beer. Maier used 100 percent French two-row malt and 100 percent Sterling hops (a Mt. Hood-Saaz cross), then dry-hopped it with a pound per barrel of Sterling. The beer started at about 18° P and finished at about 8.8 percent alcohol by volume and 78 IBU. Today, Maier brews another version called Morimoto Imperial Pilsener.

Welch's Millennium Madness was part of a multi-gyle brewing session in which one mash yielded two brews. The first runnings became a 7.4-percent alcohol by volume pilsener, brewed with "huge helpings" of Ultra hops, Welch said. The second runnings got an extra helping of crystal malt and water salts and were brewed with Fuggles hops to produce Mt. Hebo mild, a session beer.

Harris and Maier are no strangers to imperial beers. Both have brewed imperial India Pale Ales. Harris also brews an annual batch or two of Full Sail Imperial Porter, a beer based on an old homebrew recipe by Dave Logsdon, former Full Sail brewer and owner of Wyeast Labs.

"The original was Full Sail Topsail Porter. It was in the 1.080s and out of control on hops. The first time he brewed it in Hood River, it took about six months before it was drinkable," Harris said. The recipe has undergone refinements over the years and its annual arrival is highly anticipated. This year's limited release of 100 cases of 22-ounce bottles aged for a year in bourbon barrels.

Maier's double-dealing seems to coincide with Oregon Brewers Festivals or other in-house promotions. For the 2003 OBF, he brewed Skullsplitter, which he called a "double schwarzbier." And in December of 2003, as part of Rogue's 15th anniversary 15-beer series, he released Brewer, a recreation of the 1994 OBF beer "Doppel Mogul." It is a double version of Rogue's dearly departed cult classic Mogul Madness.

Even the folks at Widmer Brothers Brewing in Portland got into the double play, releasing Double Alt, a double version of their original beer, for the 2001 OBF.

This double vision extends beyond Oregon, however. Tomme Arther of Pizza Port in Solana Beach, Calif. has been known to beef up his flagship Sharkbite Red and release Shark Bitten Red, a hefty holiday brew.

And the folks at Stone Brewing in San Diego annually treat their "unworthy" faithful to a limited release of Double Bastard, a 10-percent alcohol by volume, 100-plus IBU big brother of its wildly successful Arrogant Bastard.

At Sonora Brewing Co. in Phoenix, Ariz., Two Tons Double Amber packs 8.2 percent alcohol by volume and 62 IBU.

Weizenbocks are nothing new to craft and homebrewers, but Minneapolis Town Hall Brewing bills its 6.8 percent Bavarian weissbier as Double Hefe. The limited release has won rave reviews on the Beer Advocate Web site.

Not to be outdone, Phil Markowski of Southampton Public House on Long Island — winner of the Russell Schehrer Award for Innovation in Craft Brewing — makes a Double White Ale. The beer captured a silver medal in the Belgian and Specialty Ales category of the 2003 Real Ale Festival. Markowski's Imperial Baltic Porter won the gold.

And it's not just professional brewers who get the urge to go imperial. For the 2000 Dixie Cup, the Houston, Texas-based Foam Rangers selected Imperial Beer as the specialty category. Inspired, they said, by Maier and the brewers at Full Sail, the Rangers' criteria was, "These beers go to 11." They required entries to exceed the maximum original gravity stated for the style in the BJCP guidelines by 20 points. First place went to an imperial IPA, but second went to David Cato's Texas Imperial Brown. The beer was a souped-up version of an American brown ale — a style originally called Texas brown ale after rising to prominence in the Lone Star State.

"It's just a natural progression," Full Sail's Harris says. "When a brewer brews a style and gets comfortable with it, you tend to want to push it and see what new style you can come up with."

That was the case back in 1995 when I was brewing at Dimmer's Brewpub in Fort Collins, Colo. Faced with the prospect of formulating a special holiday beer right after a failed romance, I answered my pub owner's question of "What are you spicing the Christmas beer with?" by saying "My two favorite spices: bitterness and alcohol." I took my favorite beer, an ESB called Jim's Bitter, and pushed it as far as my mashtun would allow. The result was Old Bald Fart, which I described alternately as an imperial ESB or ESB on steroids. It proved to be the most popular beer in the short lifespan of Dimmer's and ended up winning a gold medal in a local competition later as a homebrew recipe.

Texas Imperial Brown Ale

by David Cato

Ingredients for 10 gallons (38 liters)

36.0	lb (16.2 kg)	Maris Otter malt
2.0	lb (.9 kg)	Aromatic malt
2.0	lb (.9 kg)	Biscuit Malt
1.0	lb (.45 kg)	British Medium Crystal
1.0	lb (.45 kg)	Chocolate Malt
4.0	oz (112 g)	Amarillo hops, 8.3% alpha acid (60 min.)
2.0	oz (56 g)	Amarillo hops, 8.3% alpha acid (30 min.)
2.0	oz (56 g)	Amarillo hops, 8.3% alpha acid (10 min.)
2.0	oz (56g)	Amarillo hops 8.3% alpha acid at knockout
3.0	oz (84g)	Cascade hops, 5.75% alpha acid dry-hopped for three weeks in secondary
		Wyeast 1272 (American Ale II) yeast

- Original specific gravity: 1.080
- Final specific gravity: 1.021
- Estimated IBU: 78
- Boiling time: 90 minutes
- Primary fermentation: 66° F (18° C)
- Secondary fermentation: Unknown

Brewer's Specifics

Single infusion mash at 154° F. The Amarillo hops were pellets; the Cascades were leaf hops. I had originally intended for this to be a 1.090+ beer but my extraction that day was not up to par so it barely squeaked its way into the Imperial Beer category that we designated that year for the Dixie Cup.

Old Bald Fart

by Jim Parker

Ingredients for 10 U.S. gallons (38 liters)

All Grain

- 28.0 lb (12.6 kg) Briess two-row malt
- 1.5 lb (.675 kg) Briess 40L crystal malt
- 0.5 lb (.225 kg) Briess Special Roast malt
- 0.5 lb (.225 kg) Briess 80L crystal malt
- 0.25 lb (.113 kg) chocolate malt
- 1.0 oz (28 g) Columbus hops, 15% alpha acid (60 min)
- 0.5 oz (14 g) Columbus hops, 15% alpha acid (45 min)
- 0.5 oz (14 g) Centennial hops, 10.5% alpha acid (45 min)
- 1.0 oz (28 g) Centennial hops, 10.5% alpha acid (30 min)
- 1.0 oz (28 g) Centennial hops, 10.5% alpha acid (15 min)
- 1.5 oz (42 g) Cascade hops, 5.75% alpha acid at knockout
- 2.0 oz (56 g) Cascade hops, 5.75% alpha acid dry-hopped in secondary
- Wyeast 1056 yeast

- Original specific gravity: 1.082
- Final specific gravity: 1.016
- Estimated IBU: 80
- Boiling time: 90 minutes
- Primary fermentation: 68° F (20° C), one week
- Secondary fermentation: 38° F (3° C), two weeks

Brewer's Specifics

Single infusion mash at 154° F (67° C).

Ingredients for 10 U.S. gallons

Partial Mash

- 22.0 lb (9.9 kg) Briess Brewers Gold liquid malt extract
- 1.5 lb (.675 kg) Briess 40L crystal malt
- 0.5 lb (.225 kg) Briess Special Roast malt
- 0.5 lb (.225 kg) Briess 80L crystal malt
- 0.25 lb (.113 kg) chocolate malt
- 1.0 oz (28 g) Columbus hops, 15% alpha acid (60 min)
- 0.5 oz (14 g) Columbus hops, 15% alpha acid (45 min)
- 0.5 oz (14 g) Centennial hops, 10.5% alpha acid (45 min)
- 1.0 oz (28 g) Centennial hops, 10.5% alpha acid (30 min)
- 1.0 oz (28 g) Centennial hops, 10.5% alpha acid (15 min)
- 1.5 oz (42 g) Cascade hops, 5.75% alpha acid at knockout
- 2.0 oz (56 g) Cascade hops, 5.75% alpha acid dry-hopped in secondary
- Wyeast 1056 yeast

- Original specific gravity: 1.082
- Final specific gravity: 1.016
- Estimated IBU: 80

- Boiling time: 90 minutes
- Primary fermentation: 68° F (20° C)
- Secondary fermentation: 38° F (3° C)

Brewer's Specifics

Steep grains in nylon grain bag for 20 minutes in 11 gallons of water at 154° F (67° C) before adding malt extract.

Other reviews, excerpted from Rate Beer (www.ratebeer.com) are peppered with phrases like "seemed like this beer was made to try and hurt your mouth" (Pliny the Elder) and "creepy crawly mouthfeel like it's alive and squirming" (Oggi's Big Guy).

And Jim Anderson, on his Beer Philadelphia Web site (www.beerphiladelphia.com), offers this "haiku review" of Rogue's 12PA:

*a mangled body
lay bleeding on the highway
yet my eyes won't close*

Jim Parker has recently been appointed as editor-in-chief of *Zymurgy* and is a former brewer and pub owner. Some would say that he has never been described as "balanced" or "subtle."

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Lager pitch

Mash volume = mash tun volume x 0.70

Ale pitching rate

oz of yeast slurry

Total lbs of grain = mash volume

40 88

98363100
06710J

480046
711443
5781YH71
W49775
0396934UG

W586Y01 43J06
492372U
3984714 Y7

3488EY11H

3821YH01

06710J

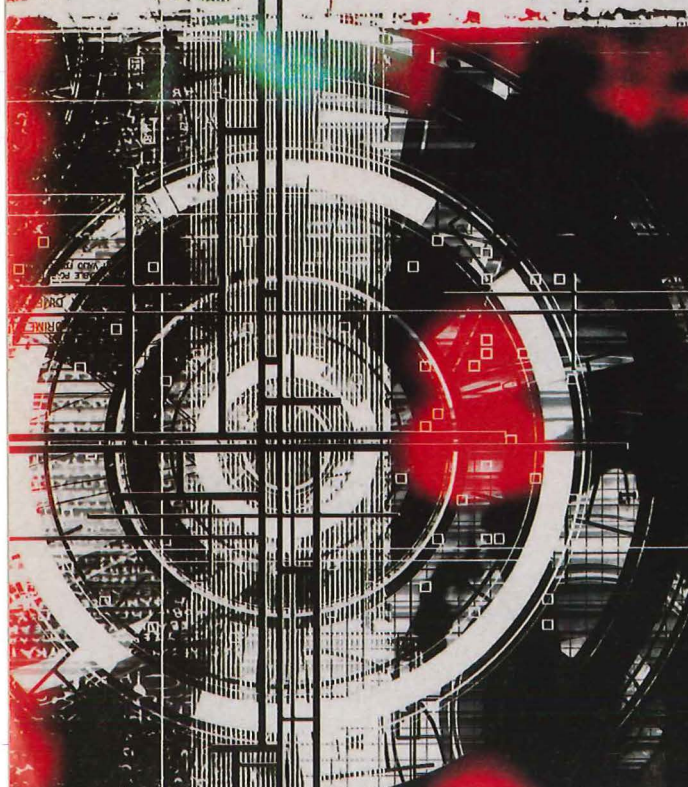
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Basic Calculations for

Brewing

Volume D
Big

Beers

Editor's note: The following is adapted from
Steve Holle's *A Handbook of Basic Brewing
Calculations*, published by the Master
Brewers Association of the Americas.

By Steve Holle

volume

The allure of homebrewing has much to do with the adventure of experimenting with different beer styles. Because each style presents its own unique set of mashing, hopping and fermentation parameters, an adventurous brewer must possess a broad knowledge of brewing techniques.

Brewing strong (or big) beers like barley wines or doppelbocks requires a different set of parameters than brewing normal strength beers (e.g. 12° Plato). Even if instructions are available from recipe programs or other brewers, these instructions cannot anticipate the unforeseen developments that will occur while brewing. Since homebrewing frequently involves exploring new ingredients and procedures without the benefit of prior experience, brewers must be able to think on their feet and deal with the unexpected. The brewer that understands the science on which the recipe was based is able to make adjustments when certain steps don't turn out as planned.

The following discussion presents a quantitative approach to dealing with unique circumstances in brewing strong beers.

Overview

Before looking at the finer points, let's get an overview of the process by using data from Table 1 to formulate a recipe for a strong beer. Table 1 provides a summary of

{ Table 1 }

A	B	C	D
° Plato	lbs of water	Gallons of water	Volume of 1 lb
of	per	per	of
first runnings	1 lb of grain	1 lb of grain	Mashed grain (gal)
12	5.50	0.67	0.76
13	5.02	0.61	0.70
14	4.61	0.56	0.65
15	4.25	0.52	0.60
16	3.94	0.48	0.57
17	3.66	0.45	0.53
18	3.42	0.42	0.50
19	3.20	0.39	0.47
20	3.00	0.37	0.45
21	2.82	0.34	0.43
22	2.66	0.33	0.41
23	2.51	0.31	0.39

Table 1. Various Mash Water Weights (B) and Mash Water Volumes (C) that Will Produce First Runnings of the Desired ° Plato (A) when Mashed with 1 lb of Malt (extract efficiency of 75%) and the Combined Volume of Water and Grain when Mashed (D)

results derived from calculations that explain the theory behind the production of high gravity wort.

First, we need to determine the kettle-full wort gravity that will be concentrated by boiling to the desired original gravity for the selected beer style. Since a strong beer requires a high OG, the wort is produced with little or no sparging. Using Table 1, we

estimate what water to grist ratio will produce first runnings that match the desired kettle full wort gravity. Table 1 also provides information that will determine how much grain and water will fit in the mash tun. While steps 1 through 5 deal specifically with mashing and boiling strong worts, steps 6 through 10 are applicable to any strength beer and include techniques for hitting the target knockout wort gravity, timing hop additions and pitching the correct yeast quantity.

Steps to Brew a Strong Beer

1. Determine the original gravity (OG) for the beer style.
2. Determine the desired ° Plato of the first runnings by multiplying the OG by 1 (minus) % wort evaporated during the boil. This calculation assumes that there is no sparging.
 $\text{° Plato of first runnings} = \text{OG} \times (1 - \% \text{ wort evaporated})$
3. Determine the maximum mash volume for the mash tun.
 $\text{Mash volume}^b = \text{mash tun volume} \times 0.70^c$
4. Determine the total pounds of grain that correspond to the mash volume in Step 3.
 $\text{Total lbs of grain} = \text{mash volume} \div D \text{ (volume of 1 lb of mashed grain)}$



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- Determine the mash water volume based on the total pounds of grain.

$\text{Mash water volume} = \text{total lbs of grain} \times C$
(*mash water per lb of grain*)

- Determine the starting wort volume to be collected in the kettle. Use this volume estimate to make a rough estimate of the quantity of hops and yeast to have available. The result in Step 8 will determine the actual volume, which will determine the quantities of hops and yeast.

$\text{Wort volume} = \text{mash water volume} - (\text{total lbs of grain} \times 0.115) - \text{system losses}$

- Determine the ending wort volume after boiling that achieves the target OG after collecting the first runnings in the kettle via the mixing formula:

$\text{Wort volume}_{\text{start}} \times \text{Plato}_{\text{start}} = \text{wort volume}_{\text{end}} \times \text{Plato}_{\text{end}}$

- Determine the cool ending wort volume by multiplying ending wort volume (hot) in Step 7 by 0.96. Use the cool volume to estimate the quantity of hops.

$\text{Volume}_{\text{end}} (\text{hot}) \times 0.96 = \text{volume}_{\text{end}} (\text{cool})$

- Estimate the duration of the boil to achieve the final kettle volume and OG and time the addition of hops accordingly.

- The amount of pitching yeast should increase directly with increasing wort gravity.

a. *Ale pitching rate: 0.4 to 0.8 million cells/mL/1° Plato*

Lager pitching rate: 1.25 million cells/mL/1° Plato

b. *oz of yeast slurry = 0.5 oz/gal x (pitching rate ÷ 12 million cells/mL) x gallon*

If you are now totally confused, the following discussion will hopefully provide an explanation of how the preceding steps were derived.

Predicted Gravity of First Runnings

When brewing a strong beer, it is first necessary to produce a high gravity wort. This can be accomplished by using little or

no sparge water, concentrating the wort by evaporation, adding sugar to the kettle, or any combination of the three. Because the addition of malt or corn syrups to the kettle requires no special techniques, we will only focus on the production of high gravity wort through collecting first runnings without sparging and concentrating the wort sugars further by evaporation in the kettle.

Since we are increasing the wort gravity in the kettle, the starting kettle wort after lautering can be lower than the desired OG of the beer. For example, if we collect first runnings of 15° P, and concentrate the sugars by evaporating 25 percent of the volume, we end up with 20° Plato knockout wort (15° Plato / [1-0.25]).

The gravity of the first runnings is dependent on the extract yield of the malt and the thickness of the mash, since a thicker mash produces higher gravity first runnings. We can estimate the weight of water per pound of malt that will produce the desired gravity of the first runnings if we define the thickness of the mash as the ratio of water weight to malt weight via Formula 1.

Malt extract yield is the estimated percentage of grain weight that can be converted to extract. Extract includes dissolved sugars and lesser quantities of other soluble carbohydrates, proteins and minerals. Husks and other insoluble constituents are what remain as spent grains. Malt extract yield is best expressed by the specification known as the "percentage extract

coarse-grind, as is." If this specification is not available from your malt supplier, Table 2 is a list of typical "coarse grind, as is" malt extract yields for several common malts and roasted barley.

Assuming we use 95 percent Munich malt (yield of 76 percent) and 5 percent dark crystal (yield of 68 percent) for the production of a doppelbock, we first find the weighted average malt yield for the total grain bill:

$$95\% \times 76\% = 72\%$$

$$5\% \times 68\% = 3\%$$

75% weighted average
yield of combined malts

We then solve Formula 1, representing ° Plato as a decimal, since ° Plato is actually the percentage of sugar by weight in wort, i.e. a 15° Plato wort contains 15 percent extract by weight.

$$\begin{aligned} \text{Pounds of water per 1 pound of malt} &= \\ (0.75 / 0.15) - 0.75 &= 5.00 - 0.75 = \\ 4.25 \text{ pounds of water} \end{aligned}$$

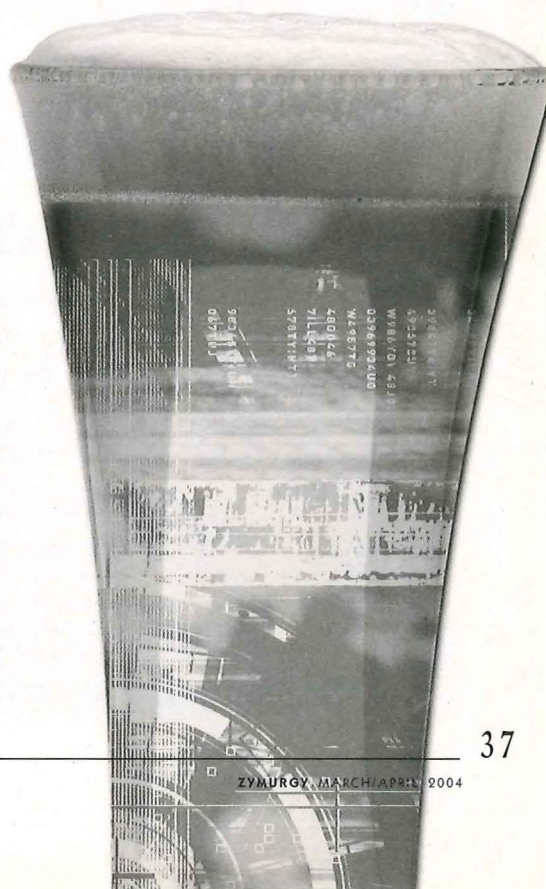
Since 1 gallon of water at mashing temperature (≈ 150° F) weighs 8.18 pounds, we need to mash 1 pound of malt with 0.52 gallon of water (4.25 lb / 8.18 lb per gal) to pro-

{ Table 2.
Typical Malt Extract Yields }

Wheat malt	80 to 77%
Pale barley malt	77 to 74%
Amber/Munich malt	77 to 74%
Light crystal	75 to 71%
Dark crystal	70 to 66%
Dark roasted malt/barley	65 to 61%

{ Formula 1. Pounds of Water per Pound of Malt to Achieve the Desired Gravity of First Runnings }

$$\begin{array}{c} \text{lbs of water} \\ \text{per} \\ \text{lb of malt} \end{array} = \left\{ \frac{\text{malt extract yield}}{\text{desired } ^\circ\text{Plato of first runnings}} \right\} - \text{malt extract yield}$$



duce first runnings of 15° Plato. Therefore, we simply drain and collect all the wort in the kettle (after first re-circulating to clarify) and concentrate it by 25 percent through boiling to end up with a 20° Plato wort in the fermenter.

Because producing high gravity wort allows little or no sparging, the volume of wort that can be collected is less than with a normal gravity brew. For this reason, it may be desirable to produce the largest volume of mash that the mash tun will hold. A rule of thumb indicates that 1 pound of grain occupies a volume of about 0.084 gallon when hydrated. Using this assumption, we can calculate the volume of the mash and the minimum mash tun volume to hold the mash:

Water volume
 + Grain volume (0.084 gallon per pound of malt)
 Mash volume
 + Excess volume (30 percent excess volume for mixing)
 Minimum mash tun volume

If we have a 15-gallon mash tun and need 30 percent excess volume to allow for mixing the mash, the maximum mash volume that will fit in our mash tun is 10.5 gallons (15 gal x [1 - 0.30]).

Since 1 pound of grain, when mixed with 4.25 pounds of water (0.52 gal), will occupy 0.60 gallons (0.52 gal of water + [1 pound grain x 0.084 gallon per pound of grain]), dividing the maximum mash vol-

ume of 10.5 gallons by 0.60 indicates that the maximum amount of grain that can be mashed is 17.5 pounds (10.5 gallon / 0.60 gallon of mash per pound of malt). Therefore, the volume of mash water is 9.1 gallons (17.5 pounds of malt x 0.52 gallon of water per pound of malt).

Another important variable is how much wort will be collected from the 10.5-gallon mash. Another rule of thumb is 1 pound of malt will absorb and retain 0.115 gallon of water in the spent grains. Since we used 17.5 pounds of grain, the spent grain will retain 2.0 gallons (17.5 pounds grain x 0.115 gallon of water absorbed by 1 pound). Consequently, the maximum amount of wort that can be collected is 7.1 gal (9.1 gal of mash water - 2.0 gal of water absorbed by grain). Since some wort will likely be left in hoses or vessel bottoms, let's say the collected wort volume is an even 7.0 gallons.


Modified Mashing Method to Increase the Volume of Collected Wort

The mash for a strong beer under the previously described procedure with no sparging may be thinner than a normal mash (i.e. normal = 2.5 to 3.0 parts water per one part grain) since a portion of the sparge water is actually being added with the mash water. For this reason, it would be possible to increase the volume of strong wort that can be collected by estimating the maximum volume of mash that will fit in the mash tun without deducting the 30 percent excess volume factor (i.e. 4.5 gallons in our example). This would increase the weight of grain in the mash tun and provide more potential extract to create greater wort volume. The excess volume of 4.5 gallons can be accounted for by withholding 4.5 gallons from the mash water. (If infusion mashing, make sure the strike water temperature is based on the lesser volume of water and the excess water temperature is equal to the mash rest temperature.) After the mash has been mixed, it will be possible to add a portion of the remaining water to the top of the mash bed. What excess water won't fit initially in the mash tun can be added to the mash bed after a portion of the first runnings has been removed.

Slow lautering will improve the extraction of sugars, especially if lautering is stopped

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for a while after the final charge of excess mash water has been added and flowed into the mash bed. This pause will allow the water to better penetrate the malt and leach out more extract. Also, remember that viscosity increases directly with wort gravity and viscous liquids flow more slowly, so be patient when lautering and don't rush.

How to Aim for and Hit the Target Gravity

After collecting the 7.0 gallons of hot 15° Plato wort, we are ready to boil. But first we must determine how much concentration of the wort through evaporation must occur to reach the target gravity of 20° Plato. A simple mixing equation provides the answer:

$$\begin{aligned} \text{Wort volume}_{\text{start}} \times \text{Plato}_{\text{start}} &= \text{wort volume}_{\text{end}} \times \text{Plato}_{\text{end}} \\ 7.0 \times 15 &= \text{Wort Volume}_{\text{end}} \times 20 \quad (7.0 \times 15) / 20 = 5.25 \text{ gal} \end{aligned}$$

However, the wort is boiling, and water at 20° C (68° F) occupies only 96 percent of the volume of boiling water. So, the boiling wort will only occupy 5.0 gallons when cooled (5.25 gal x 0.96).

Why do we care what the hot and cool volumes of wort are? First, the hot volume indicates that we have hit our target gravity when the kettle volume is 5.25 gallons. Second, the hop charge should be based on the cool ending volume of 5.0 gallons.

The preceding methods obviously require an accurate measurement of kettle volume. If the kettle doesn't have graduated volume markings stamped into its side, it will be necessary to calibrate a measuring stick prior to filling the kettle in known increments (e.g. 1 gallon, 2 gallons, etc. until it's full) and marking the dip stick with the corresponding volume after each increment of water is added.

Evaporation Rates and Timing Hop Additions

In order to know when to add the bittering hops, we first need to determine how long it will take to concentrate the wort from 7.0 to 5.25 gallons, or in other words, evaporate 1.75 gallons, which is 25 percent of the original volume (1.75 gallons / 7.0 gallons). From past experience, we know that the kettle and

burners achieve an evaporation rate of 12.5 percent per hour. Therefore, we estimate that the total length of the boil is 2.0 hours (25 percent / 12.5 percent). If we want to boil the bittering hops for one hour, the hops should be added one hour after the wort commences boiling. If our hop utilization rate is based on a one-hour boil and the wort hasn't been concentrated to the desired gravity after one hour, the IBU content of the beer may be greater than desired if we continue to boil until we reach the target OG. For this reason, if we err in estimating the boiling time, it is preferable to reach the final gravity before the hops have been boiled the desired time rather than after. If continued boiling over-concentrates the wort to achieve the correct IBU content,

Remember that viscosity increases directly with wort gravity and viscous liquids flow more slowly, so be patient when lautering and don't rush.

the wort can be easily diluted with water to the desired volume and gravity. (Note: alpha acid isomerization is a complex reaction and some thermal degradation of iso-alpha-acids may actually occur after one hour of boiling that may offset isomerization.)

If you are unsure of the evaporation rate, you can allow the kettle to boil for 20 minutes, measure the volume, and estimate the volume that will evaporate each hour. In our example, 0.3 gallons can be expected to evaporate after 20 minutes. Since 20 minutes is only 33 percent of one hour, we divide 0.30 gallons by 33 percent to determine the volume evaporated in one hour, which is 0.9 gallons (0.30 gallon / 0.33), or 12.5 percent per hour (0.9 gallon evaporated / 7.0 gallon starting wort volume).

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Yeast Pitching Rates

More often than not, homebrewers pitch their brews with insufficient quantities of yeast. Under-pitching can lead to an increased risk of bacteria or wild yeast infection, incomplete fermentation and incomplete reduction of green beer flavors, particularly diacetyl.

Ale yeast is typically pitched at a rate of 5 to 10 million cells/mL of wort for beers with a normal wort gravity of 12° Plato. Lager yeast is pitched at a higher rate of about 15 million cells/mL. The difference in pitching rates is due primarily to the difference in fermentation temperatures for the two types of yeast. Colder lager fermentation temperatures slow the yeast's metabolism, including reproduction, for which the higher initial inoculum of yeast compensates.

In addition to adjustments based on yeast type, the pitching rate should also increase as the gravity of the wort increases because yeast have to work harder and longer to ferment the additional sugar. Stronger worts also put greater osmotic pressure on the yeast and create higher

{ Table 3. Yeast Cell Pitching Rates based on Wort Gravity }

Type of beer	Cells/mL/1° Plato (in millions)
Ales	0.40 to 0.80
Lagers	1.25

{ Formula 2. }

Yeast Slurry Volume to Achieve Desired Pitching Rates Based on 0.5 oz of Slurry in 1 Gallon providing 12 million cells/mL:

$$\text{oz of Yeast Slurry} = 0.5 \text{ oz/gal} \times (\text{pitching rate} \div 12 \text{ million cells/mL}) \times \text{gal}$$

alcohol levels, both of which are inhibitory to yeast metabolism. A standard rule of thumb indicates that 1 million cells should be pitched for each 1° of wort Plato. Since the rule indicates that 12 million yeast cells should be pitched into a 12° Plato wort, the rule appears to be a maximum pitching rate for ales and a minimum rate for lagers. Therefore, we could reason that the pitching rate should be increased by 0.40 million cells/mL (5 million cells per mL ÷ 12 million cells per mL) to 0.80 million cells/mL (10 million cells per mL ÷ 12 million cells per mL) for each 1° Plato of ale wort gravity. The same logic would indicate that lager worts would be pitched with 1.25 million cells/mL/1° Plato (15 million cells per mL ÷ 12 million cells per mL). These pitching rates based on wort gravity for ales and lagers are summarized in Table 3.

For a 20° Plato doppelbock lager wort, a reasonable pitching rate would be 25 million cells/mL (20° Plato x 1.25 million cells per mL). If we were producing a barley wine ale, the pitching rate would be less, say 16 million cells/mL (20° Plato x 0.8 million cells per mL).

When brewing strong beers, it may be impractical to use a yeast starter to inoculate the wort, since a lager yeast starter volume could be as much as 25 percent of the wort volume. Because yeast propagates best in a starter of normal gravity, the starter would also dilute our OG. Consequently, the brew should probably be inoculated with yeast slurry.

Yeast slurry can be obtained by first brewing a normal gravity beer and using yeast collected from the primary fermenter or purchasing yeast slurry directly from the yeast lab. Since 0.50 ounce of slurry pitched into 1 gallon provides roughly 12 million cells/mL, we would need a little over 1 ounce of slurry for each gallon of wort (0.5 oz per gal x [25 million cells per mL ÷ 12 million cells per oz of slurry]), so our 5-gallon batch of doppelbock would require 5 ounces of slurry (1 oz/gal x 5 gal) to achieve a pitching rate of 25 million cells/mL.

The pitching rates in Table 3 are applicable when the pitching yeast are vital (healthy) and viable (alive). Since the vitality and viability of slurry will diminish over time, the slurry should be pitched as soon

as possible after it flocculates and kept cold during storage.

Also be aware that the solubility of oxygen decreases with increasing wort gravity. (Another reason for increasing the pitching rate for strong worts!) For this reason, aerating the wort thoroughly is beneficial. Although a controversial practice that may not be supported by all brewers, the wort may be aerated a second time a few hours after the yeast have been pitched and before fermentation starts, especially if less than the optimal pitching rate was employed. If you are not using a sterile air filter or sterile oxygen, this practice could also increase the risk of infection.

Steve Holle is a homebrewer living in Plano, Texas, and is a member of the North Texas Homebrewers Association.

Footnotes

^a Evaporation rates typically range from 10 to 15 percent per hour. The normal duration for boiling standard worts is about 1.5 hours. Since boiling concentrates the wort, brewers may boil high gravity worts for as long as two hours. Consequently, over a two-hour boil, the total evaporation that will occur is likely to be between 20 and 30 percent, depending on the system. However, be aware that the wort color will deepen and wort flavor will change as boil times increase, and changes may be quite severe when boiling times exceed two hours.

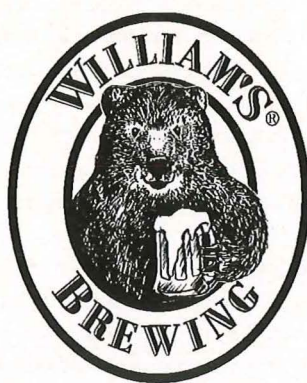
^b See the section "Modified Mashing Method to Increase the Volume of Collected Wort" for a modification to this procedure.

^c Multiplying by 0.70 provides 30 percent excess capacity for mixing.

^d SG can be used in this equation, but the numbers to the right of the decimal point must be treated as whole numbers, e.g. 15° Plato that equals SG 1.060 would be represented as 60, and 20° Plato that equals SG 1.080 would be represented as 80.

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Monster Mash

Want to leap beyond a 10-gallon mash into big-time mashing? Ever wanted to make an all-grain, high-gravity Belgian beer or a barley wine? Do you want to brew enough beer to last several months?

Used, commercial steam kettles are a great way to step up your brewing. Steam kettles, commonly known as soup kettles, are natural mash tuns with an inner and outer wall of stainless steel. Soup kettles are used commercially to quickly boil large quantities of liquid by steam heat.

This article will discuss finding, converting and using a soup kettle as a mash tun, lauter tun or fermenter. We will not use the pressurized properties of the kettle since it presents additional equipment and safety issues.

American businesses discard tons of high quality, stainless steel equipment every year. New commercial soup kettles may cost thousands of dollars, but used kettles are often available at scrap prices. Some used kettles are worn out or damaged but many may be converted into valuable brewing equipment.

DISCARDED
SOUP
KETTLES
CAN BRING
NEW LIFE
TO YOUR
BREWING
SETUP

By Bob
Cappshaw

Illustration by
Michael Moran



Locating Equipment

Restaurant equipment auctions, high volume cafeterias, scrap yards and hospitals are excellent sources for low cost or even free equipment. Online auctions such as eBay may also be a source of a kettle if shipping is not too much.

Soup kettles are manufactured as small as 5 gallons and as large as 100 gallons. Soup kettles with 30- to 60-gallon capacities should fit most homebrewers' needs. A good rule of thumb is that 50 pounds of malt takes 20 gallons of mashing capacity. A 60-gallon kettle should be able to hold 150 pounds of malt. The capacity of the vessel is usually stamped into the kettle below the manufacturer's name. Often the capacity is stamped on the front of the kettle or on a plate.

Common soup kettle problems are dents, ill fitting lids, leaky valves and dirt. Most defects do not pose serious problems for conversion. (Defects may be used as a price bargaining tool when making the purchase.) A few small dents are fine unless there is a break in the stainless steel. Lids need to fit well enough to maintain temperature. Valves often leak but may be easily replaced. Dirt and grime may be extreme but can be overcome with hard scrubbing. Other problems include pinhole leaks that develop in the outer jacket due to corrosion. Although this may doom the steam jacket for pressurized use, the vessel is still usable for mashing since the space between the walls serves as insulation.

Conversion

The first conversion step is to remove the steam fittings since most homebrewers don't have a steam generator. The fittings consist of an inlet, outlet and relief valve. After removal of the fittings, each threaded opening should be resealed (hand tight is enough) with an appropriate sized copper, brass or stainless steel plug to seal the air wall. The composition of the plug is not critical since wort will not contact the fittings.

Commercial soup kettles may come with or without a lid. The types with lids are usually hinged. If you don't have a lid, you might see if your local sheet metal shop can make one. Another choice is to cut one from Plexiglass.



Soup kettles generally have a slotted bottom drain or a dumping mechanism. If you get a dumping-style kettle, you will need to have a drain installed. Have a 0.5-inch or 0.75-inch nipple welded through the inner and outer walls in the bottom of



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the kettle. Screw a 90-degree elbow, a long nipple and a ball valve to bring the drain to the front of the kettle. Your local keg craftsman should be able to weld the drain nipple. Dumping types are very easy to clean since the bowl tilts so that malt may be shoveled out easily.

Many of the older soup kettles have gate valves operated by a wheel. These valves



Homebrewer Bob Capshew has salvaged several commercial kettles of various sizes and configurations that he uses for everything from mash tuns to fermenters.

are slow and often leak. If you are lucky, you can add reducers to convert to a 0.5-inch or 0.75-inch ball valve. If there is no usable connection then you may need to have a machine shop weld a threaded connector to the drain. Screw a nipple into the connector, add a ball valve with a barbed brass or stainless fitting then attach a plastic hose to drain into a carboy.

Soup kettles generally have either adjustable legs or a fixed pedestal base. Regardless of the style, you should consider adding casters to make moving and cleaning easier. Be sure to get casters that can support the weight of a full soup kettle at 8 pounds per gallon plus the weight of the soup kettle. The casters must be attached to wooden supports then bolted to the soup kettle. The wooden supports may be increased to enable gravity drainage of the mash kettle into a boiling kettle.

If you plan to use the soup kettle as a lauter tun (to rinse grains) then you will need a false bottom. One of the best materials for this purpose is a perforated stainless steel sheet. The perforated sheet should be cut into an 8- to 12-inch circle to fit over the drain in the vessel. There is no need to secure the circular sheet since it will stay in place within the bowl-shaped bottom of the soup kettle. Other false bottom choices include polyethylene materials such as cutting boards, HDPE or UHMW materials since these materials are food grade and may be cut and drilled easily.

After the conversion is complete, the soup kettle must be thoroughly cleaned inside and out. Remember not to use bleach because it may pit the stainless steel. Even the worst blackened

(continued on page 54)

For Geeks Only

Reader Advisory: Warning! These pages are rated XG (eXtra Geeky) by the Bureau of Magazine Mucktymucks. Items in this section may contain raw data, graphic functions, full statistics and undiluted biochemistry. Keep away from poets, squeamish novices and others who may find the joyously technical nature of this prose to be mindbendingly conceptual or socially offensive. Also, because of the complex nature of brewing science, there is no guarantee that you will live longer, brew better or win any awards in the next homebrew competition based upon the conclusions presented here.

Oxygen and Hydrogen Peroxide in Beer

By Ron Cooper

Along with other members of the Strand Brewers Club, I've long been interested in the interaction between oxygen in all its forms and our beloved beverage. The literature is full of references to many aspects of this topic, but several gaps and differences of opinion exist. We've spent much time and made many batches experimenting with this confusing subject. It looks as though we've reached some clarifications that might be interesting.

Literature

Most discussions deal with aeration methods, ranging from simply splashing the wort into the fermenter, to the use of an air pump and diffusion stone, to the use of pure oxygen. Although oxygen was generally regarded as the best method, results were not consistent. Many brewers reported short lag times and vigorous fermentation with the splash method alone.

There is a small amount of information regarding the use of hydrogen peroxide (H_2O_2) as a sterilizing agent and as an aeration method. Theoretically, it should be a good sterilizer, but there has not been much experimentation. It is generally felt that other methods were adequate, leaving little incentive to explore peroxide.

On the use of peroxide for aeration, only the famous experiment of the late George Fix was found. As reported by Dave Miller

in his "Ask the Troubleshooter" column in the November/December 1996 issue of *Brewing Techniques*, Dr. Fix found that peroxide added to the batch killed off most of the yeast, causing a long lag period, slow fermentation and poor attenuation. Unfortunately, it is not known how much peroxide he used.

Questions of Interest

Was oxygen better than air, with or without diffusion pumping?

What, if any, were the effects of the aeration method on the taste and other aspects of beer?

If too much peroxide kills off yeast, was there a lesser amount that would work? (Peroxide could be the simplest, safest and cheapest method of aeration).

We experimented by making 23 batches of beer. We oxygenated six with splash aeration, four with an air pump, eight with oxygen and two with hydrogen peroxide. We later brewed three more batches that were aerated with an air pump.

As a basic reference, we used a short monograph by Dr. Maribeth Raines of the Maltose Falcons homebrew club that was included with the packaging of the BrewTek Wort Aeration System. In it, she describes experiments with dissolved oxygen levels in wort after aeration by the system for up to three hours. She concluded that oxygen

concentration leveled off at about 7 to 8 parts per million after about one to two hours aeration. For lower gravity beers, 6 ppm was reached in about 20 minutes. Generally, 8 to 14 ppm has been regarded as optimum. Informal aeration methods such as shaking or spraying were estimated to provide 2 to 4 ppm at most.

The first six batches were aerated only by splashing and stirring. The first four air pump batches were aerated for 20 minutes and had excessive foaming. Yeast starters were used for all batches. For these four batches, the starters were also aerated for 10 minutes. The last three batches, we resumed use of the air pump. The first had eight minutes aeration, the second five minutes and the third three minutes.

Since pure oxygen is roughly five times the concentration of oxygen in air, we used approximately one-fifth the aeration time with oxygen—about five to 10 minutes. The same stainless steel aeration stone was used as for previous batches with air.



A target concentration of 8 ppm was used to calculate the volume of hydrogen peroxide needed. This turned out to be surprisingly small—only 5 milliliters of 3-percent H_2O_2 for a 5-gallon batch. The volume was added to the batch using a hypodermic syringe. (The small quantity needed gave us an insight into why Dr. Fix's batch might have been over-oxygenated)

All beers were extract brews, supplemented by mini-mash grains. Beers were mostly English styles, bitters, pale ales and stouts with some American pale ales and one Dunkelweizen.

Results

Lag Time, Fermentation and Attenuation: All batches had lag times of a few hours. Yeast was generally pitched in late afternoon. By the next morning, all batches were in vigorous activity. Many had 3 or more inches of foam on top by that time. The shortest lag time was recorded on the final air pump batch, which had only three minutes of aeration.

The flow of CO_2 was almost continuous (bubbles coming through the blow-off tube in a continuous stream so that intervals between bubbles could not be measured). This was the case for both oxygen and peroxide batches.

Control batches, which had informal agitation, were slightly slower, often with smaller foam layers. Yeast starters of about 700 milliliters were used with all batches.

Vigorous fermentation continued for several days, depending on the starting gravity of the wort. Most batches were allowed to ferment for 10 days to two weeks to ensure completion. No secondary fermentation was used, except for one peroxide batch. Control batches (air) seemed to ferment slightly slower, but ending gravities were equal to the oxygen batches. No differences were seen between oxygen and peroxide batches.

Beer Quality: Effects on beer quality were pronounced. Beers brewed with oxygen tasted much more attenuated than aerated beers. This was the case even when both beers had the identical final gravity! The oxygen-treated beers seemed thinner or washed-out, like smaller beers. Not only were malt flavors reduced, but also hop bitterness, flavor and aroma. This effect was so

strong that recipes needed considerable revision to retrieve appropriate amounts of body, mouthfeel, malt and hop flavor and bitterness. Judges' comments from competition entries included "disjointed," "light body," "did you use sugar?" "estery," "no malt or hop flavor" and "two-dimensional."

The beers brewed using hydrogen peroxide took this effect to an extreme. A 47-IBU APA got comments of "not much hop," "thin and estery," "sweet and insipid" and "tropical fruit." Informal comments were that the beers were barely drinkable. Note: all peroxide batches fermented well with short lag times. Attenuation averaged 72 percent.

Competition Results: Four groups of homebrews were entered into competitions, including Mayfaire, the Los Angeles County Fair and the Pacific Brewing Cup. A total of 22 beers were entered: the previous 10 batches with air aeration, eight beers using oxygen, one using hydrogen peroxide and three brewed with air pump aeration after completion of the experimental batches. See the table for results.

Competition Results

Method	Number of beers	First place	Second Place	Third Place
Previous air aeration	10	2	3	1
Oxygen	8	1	0	2
Hydrogen Peroxide	1	0	0	0
Final air pump	3	1	0	1

The sample size is probably too small to draw firm conclusions, but there seems to be a slight advantage to the air batches. The peroxide beer scored only 19.5.

Conclusions

It's difficult to make the case that oxygen is better than air diffusion for homebrewing. It certainly is more convenient because it takes much less time to reach adequate oxygen concentrations, and its attractiveness for commercial brewing is clear. In addition, there is probably less chance of contamination. Peroxide can be used to oxygenate the wort without killing the yeast, if the appropriate quantity is used (5 milliliters of 3 per-

cent peroxide for 5 gallons). However, it emasculates the beer, robbing it of maltiness and hop aroma, flavor and bitterness. It's possible that massive reformulation could compensate for this effect, but none of us is interested in trying.

Oxygen is one of the most reactive elements. Even when mixed with four parts inert gas in air it combines readily with any combustible material, as southern Californians relearned this past fall. In its pure form it must be handled with extreme care; some materials ignite spontaneously when in contact with pure oxygen. The most reactive form of all is nascent oxygen—that is, oxygen just formed, such as from the dissociation of hydrogen peroxide. Such oxygen will attack almost anything.

Many of the flavor and taste elements of malt and hops are destroyed by too-active oxygen. When peroxide is used, almost nothing is left of the finer beer flavors. Pure oxygen is not as bad, but still punishes the beer. For my personal brewing, I'm back with air.

I'd like to thank the members of the Strand Brewers Club for brewing some of the beers with me and for enduring my experimental beers and for many suggestions, questions and discussions along the way. Special thanks go to co-brewers Jay Ankeney, Tom Empey, Steve Fafard, Tom Janousek, Phil Kim, Brian McGovney and Jim Wilson.

Ron Cooper is a retired chemical engineer and a member of the Strand Brewers since 1991. He is a certified BJCP and AHA liaison. Unlike most engineers he prefers simple solutions and almost always does extract brewing. He lives in Manhattan Beach, Calif.

BY CHARLIE PAPA ZIAN



Heaven Waits Barley Wine Ale

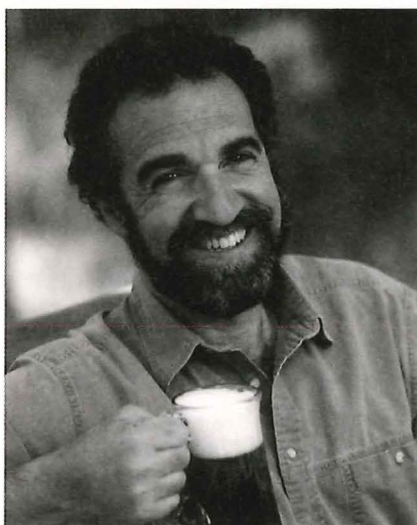
It's that time of year again, when the Association of Brewers' Beer Style Guidelines are reviewed and revised based on the suggestions of professional brewers, amateur brewers and other experts. Once again, dozens of suggested revisions were made to the guidelines

and can be viewed on www.beertown.org. A few styles have been added such as Bernsteinfarbenes (amber) Weizen/Weissbier, Baltic-style porter, German-style Kellerbier, gluten-free beer and a clear distinction has been made between the century old tradition of English-style Barley Wine Ale and American-style Barley Wine Ale.

It is almost springtime and it's time to brew a fresh batch of barley wine for the short days of winter ahead of us.

Over the last 20 years we have seen the emergence of American-style barley wine ales. Anchor Brewing Company began the journey with its release of Old Foghorn. It was modeled after the English tradition of barley wine ales, but its hop character and overall balance of malt and hops were distinctly a variation of a style. Later, Sierra Nevada took it the distance with its release of Big Foot Barley Wine Ale in the early 80s.

Countless homebrewers were concocting successful barley wines that were winning the favor of American craft beer enthusiasts. Hoppy, fresh, aggressively bitter, fragrant, fruity and potentially strong in alcohol, American barley wine ales reshaped our minds in more ways than one here in America. They age with grace, yet are forever American



**Certainly
you must**

**promise yourself to save
several bottles for the
good years to come.**

in character—one might even consider renaming it "Yakima-style" barley wine, for it was the distinctly citrusy and floral character of hops such as Cascade and Centennial that caught American craft brewers' fancies. Now the style is determined by lots of hops in the bitterness, flavor and aroma profile. But I'd like to pause here and transgress.

This style is perhaps 20 to 25 years old at best.

It was the English, after all, who inspired us with their barley wine ales and they were not nearly as hoppy. Rather

their character is often vinous and fruity with a soft hop character that is not at all aggressive. Malt sweetness surrenders to the grace of time often personified with fruity caramel character. While founded on its alcoholic strength, the English tradition doesn't always require maximizing alcohol during fermentation. Its flavor and aroma profile emerges as both complex and distinctly unique: often amber to garnet red in color, accented with malt aroma and sherrified malt flavors. Vinous as previously mentioned, yet often complemented with a symphonic acidity (fruitiness) with careful aging.

Lest we forget the original inspirational barley wine ale style from the British Isles, here is a recipe that will mellow and develop extreme complexity with years of age. Certainly you must promise yourself to save several bottles for the good years to come. The recipe is for 6 gallons (23 L) rather than a more typical 5 gallons (19 L), only because you'll want extras to stash away.

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

Heaven Waits Barley Wine Ale

All Malt Extract Recipe

Ingredients for 6 U.S. gallons (23 L)

- 15.0 lb. (6.8 kg) light malt extract syrup or 12 lb. (5.5 kg) light DRIED malt extract
- 3.3 lb. (1.5 kg) amber malt extract syrup
- 2.0 oz. (56 g) 13% alpha Magnum whole hops (26 HBU/728 MBU) 60 minute boiling
- 1.5 oz. (42 g) 5% alpha Santiam hop pellets hops (7.5 HBU/210 MBU) 15 minute boiling
- 1.5 oz. (42 g) Cascade whole hops, 1 minute steep

- 0.25 tsp powdered Irish moss
- 0.5 cup lightly home-toasted oak chips
- 0.75 cup (180 ml) corn sugar (priming bottles) or 0.33 cup (80 ml) corn sugar for keggling
- English or American high performance ale yeast

- Target original gravity: 1.110 (27.5 B)
- Approximate final gravity: 1.024 – 1.032 (6-8 B)
- IBUs: about 65
- Approximate color: 14 SRM (28 EBC)
- Alcohol: 10 to 10.5 percent by volume

Add malt extract and Magnum hops to 3 gallons (11.5 L) of water. Heat to boiling. After 45 minutes of boiling add the Santiam hop pellets. After another 5 minutes of

boiling add Irish moss. After a final 10 minutes of boiling add the Cascade hops and turn off the heat.

Immerse the covered pot of wort in a cold water bath and let sit for 20 minutes or the time it takes to have a couple of homebrews.

Strain out and sparge hops and direct the hot wort into a sanitized fermenter to which 2.5 gallons (9.5 L) of cold water has been added. If necessary add cold water to achieve a 6-gallon (23 L) batch size.

Pitch the yeast when temperature of wort is about 70° F (21° C). Ferment at about 70° F for about one to two weeks or when fermentation shows signs of calm and stopping. Rack from your primary to a secondary fermenter. Add lightly toasted oak chips and if you can, hold the ale at "cellar" temperatures of about 55° F (13° C) for about two to three weeks.

Prime with sugar and bottle or keg when complete.

Partial-Mash and Malt Extract Recipe Ingredients for 6 U.S. gallons (23 L)

- 8.0 lb. (3.6 kg) English pale 2-row malt
- 2.0 lb. (0.9 kg) Munich malt
- 1.0 lb. (450 g) Belgian Aromatic malt
- 1.0 lb. (450 g) Crystal (10 degrees lovibond) malt

- 2.0 oz. (56 g) 13% alpha Magnum whole hops (26 HBU/728 MBU) 60 minute boiling
- 1.5 oz. (42 g) 5% alpha Santiam hop pellets hops (7.5 HBU/210 MBU) 15 minute boiling
- 1.5 oz. (42 g) Cascade whole hops, 1 minute steep
- 0.25 tsp powdered Irish moss
- 0.5 cup lightly home-toasted oak chips
- 0.75 cup (180 ml) corn sugar (priming bottles) or 0.33 cup (80 ml) corn sugar for keggling
- English or American high performance ale yeast

- Target original gravity: 1.110 (27.5 B)
- Approximate final gravity: 1.024 – 1.032 (6-8 B)
- IBUs: about 65
- Approximate color: 14 SRM (28 EBC)
- Alcohol: 10 to 10.5 percent by volume

A step infusion mash is employed to mash the grains. Add 12 quarts (11.5 L) of 145° F (63° C) water to the crushed grain, stir, stabilize and hold the temperature at 132° F (53° C) for 30 minutes. Add 6 quarts (5.7 L) of boiling water and bring temperature up to 155° F (68° C) and hold for about

30 minutes. Raise temperature to 167° F (75° C), laut and sparge with 4 gallons (15 L) of 170° F (77° C) water. Collect about 4 gallons (11.5 L) of runoff. Add malt extract and Magnum hops and bring to a full and vigorous boil.



The total boil time will be 60 minutes. When 15 minutes remain add the Santiam hops. When 10 minutes

remain add Irish moss. When one minute remains add the Cascade hops. After a total wort boil of 60 minutes turn off the heat and place the pot (with cover on) in a running cold-water bath for 20 minutes. Continue to chill in the immersion or use other methods to chill your wort. Strain and sparge the wort into a sanitized fermenter. Bring the total volume to 6 gallons (23 L) with additional cold water if necessary.

Pitch the yeast when temperature of wort is about 70° F (21° C). Ferment at about 70° F for about one to two weeks or when fermentation shows signs of calm and stopping. Rack from your primary to a secondary fermenter. Add lightly toasted oak chips and if you can, hold the ale at "cellar" temperatures of about 55° F (13° C) for about two to three weeks.

Prime with sugar and bottle or keg when complete.

Charlie Papazian is founding president of the Association of Brewers.



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

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

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

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

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

METRIC BITTERNESS UNITS (MBUs) are equal to the number of grams of hops multiplied by the percent alpha acid.

BY JIM PARKER

The Governor

The name and label may be tongue-in-cheek, but the latest beer from MacTarnahan's Brewing Co. is no joke. The Portland, Ore. brewery began offering "The Governor," a special ESB in 22-ounce bottles, just before Christmas. The beer commemorates the Golden State's 38th governor, movie star Arnold Schwarzenegger.

MacTarnahan's created a new "dba" called Pumping Iron Brewing Co. to produce the beer whose label features a flexing hunk, paying homage to the Austrian-born bodybuilder turned actor turned governor. "Once we designed the label with the bodybuilder designed to tickle the funny bones of Californians, we decided it was worth the hassle to create a dba called Pumping Iron Brewing," said Jerome Chicvara, CEO of MacTarnahan's. "We rolled it out in California as a stocking stuffer 10 days before Christmas," he added.

Chicvara said the idea came after he heard his college-age children joking about the new governor and blending the words "governor" and "Terminator," one of Schwarzenegger's most popular roles, into "governator." When he found out no California brewery had taken advantage of the marketing opportunity, he couldn't resist.

But while the packaging is just for fun, the beer is the real deal, Chicvara promises. "It's no 'girly-man' beer," he said.

The Governor is available throughout California through the end of spring for approximately \$2.99 a bottle. Chic-

vara said that if the brew proves popular, it will stay on the shelves longer. He also said that although it's not currently available in Oregon, the company will make it available to all its distributors who are interested.

Dark Beers Keep Blood Flowing

Stouts may be great at preventing blood clots, but too many could make you... well... stout. That's the conclusion of a University of Wisconsin researcher.

Dark beer will prevent the formation of blood clots better than pale lager beers, says professor John Folts, but it is richer in calories, and obesity is also a risk factor in heart failure.

Folts first conducted his experiments on eight dogs with constricted arteries. They were sometimes given brown beer and sometimes lager. The dark brew was found to be twice as effective in preventing the platelets from coagulating and forming blood clots.

The researcher points to the greater quantity of flavonoids in dark beer. The difference between brown and golden-yellow was also observed in wine and grape juice, and even in chocolate. The more flavonoids, the darker your drink. Beer has hundreds of flavonoids that are also active in preventing the oxidation of cholesterol, believed to be instrumental in atherosclerosis, the degenerative hardening of the arteries.

The best possible anti-clot effect is obtained if you drink two 12-ounce bottles of beer—preferably with your meal, when the metabolism of the food begins. Folts has met with opposition from fellow professor Alice Lichtenstein, vice-

chairperson of the Nutrition Committee of the American Heart Association. She points to the risk of obesity, since dark beer has a higher caloric value than pale lager beers. Beer contains all manner of useful components, says Lichtenstein, but as long as the properties of the active components remain unknown, it is difficult to recommend one type of beverage over another.

Professor Folts aims to isolate the active components of beer and process them into pill form, so as to offer an alternative to aspirin without involving any risk of obesity.

After the tests on dogs, clinical trials with human volunteers are in progress. The preliminary results seem to suggest a similar effect.



Eugene's Wild Duck Closes

There will be no "three-peat" in the Barley Wine Style Ale category at the 2004 Great American Beer Festival. The Wild Duck Brewery and Restaurant, which claimed the barley wine gold in 2002 and 2003, closed its doors Jan. 1, a victim of the state's lagging economy.

The Wild Duck was a popular brewpub and music venue in Eugene since it opened in 1996. Founding brewer Glen "Sasquatch" Falconer was a well-known and popular figure on the local and national brewing scene. His untimely death in 2002 in an auto-related accident shocked the brewing community and led to the founding of the Sasquatch Brewfest, which raises money for local youth sports and to help brewers continue their education. Organizers say the brewfest will continue.

Ironically, the Wild Duck never won a Great American Beer Festival medal during Falconer's life. But his final batch of

Old Gnarleyhead claimed gold in both 2002 and 2003.

Owner Bob Jensen said three straight years of "significant" losses forced him to close the restaurant, putting 66 people out of work.

"My biggest concern is displacing people" in a weak economy, Jensen said. "We're just grateful that we can make their last paycheck."

Jensen said his business began to feel pressure in the recession that was exacerbated by the 2001 terrorist attacks. While the catering and events management parts of his business were growing, sales in the restaurant, brewpub and music venue did not keep pace with dramatically rising expenses, including insurance, food and grain for brewing beer.

Also, with the state's minimum wage increasing 40 percent since the Wild Duck opened, and another 15-cent-an-hour hike slated to take effect on Jan. 1, Jensen said, he opted to call it quits.

"This is a high-octane business that has been operating in a low-grade economy," he said. "This business demands a lot of fuel."

Jensen and former University of Oregon and NFL quarterback Chris Miller, partners in the business, own the building. Jensen said he will seek a tenant, perhaps a brewpub operator or a chain that wants a Eugene location. "I know that we will hear from people," he said.

This Beer's for the Turtles

Save the turtles—drink more beer.

That's the message from the makers of Honu Beer, a newly created beer named after the endangered green sea turtle. They are donating 20 percent of their profits to the World Turtle Trust, a Hawaiian nonprofit group that helps pay for projects to protect turtles around the world.

The beer debuted in liquor stores on Oahu in January. The idea came to Brett



Porter, Honu Brewing's head brewer, in 1999 during a Maui vacation after his father insisted that he snorkel out to look at the turtles living offshore from the family condo.

"The moment you see a sea turtle face to face is the moment you commit yourself to their preservation," said Porter, a brewer at MacTarnahan's Brewing in Portland, Ore. "I returned from my Hawaiian vacation knowing I had to do something. And since I'm a brewer, I figured I could make the greatest impact through beer."

Honu Beer is made at MacTarnahan's under contract by Honu Brewing. Paradise Beverages is distributing the beer and is also a partner in the conservation project, donating part of its profits to the cause.

In all, the World Turtle Trust will receive 50 cents per case of beer sold, which could total \$700 if just the initial shipment sells out.

Paradise Beverages is looking into the prospects of placing the beer in several grocery stores, restaurants and bars as well as mom-and-pop markets.

The beer is golden ale, made with 100 percent malted barley, he said, describing it as an easy-drinking beer. It comes in a clear bottle that shows a swimming sea turtle and fish on a Hawaiian reef.

"It's great beer, a great package and a good cause," Porter said. "We didn't want it to be a token gesture. We wanted it to be a real chunk of our profits, not just a nod to a charity. We want this to do some good work."

Aussie Town Goes Dry for a Week

Australia's hottest town went dry for six days at the start of the new year—the peak summer Down Under.



Iron Clad Hotel, the only watering hole in Marble Bar, popu-

lation 300, was closed for six days when the temporary manager walked out. Marble Bar became known as the hottest town in Australia when, in 1923-24, it experienced a world-record 161 consecutive days when the temperature was at least 37.8° C (100° F).

With temperatures hovering around 40° C (104° F) and the licensees of the pub on holiday, the interim manager walked out, leaving residents, tourists and road crews with a 200-kilometer (322-mile) trek to the nearest pub.

The closure made national news in Australia and was picked up by wire services around the world. So the licensees, who arrived back from their vacation in Ireland a week early, opened the pub as soon as they returned.

"Everyone was delighted to see us back," owner Mary Madden said. "We got back to Marble Bar at 8 a.m. and opened up at 10. A lot of people were unaware until they walked past the pub and said 'Thank God it's open.'"

Madden said trade was brisk and was showing no signs of abating.

No More Free Beer at Pilsner Urquell

Employees at Plzensky Prazdroj, the largest Czech brewer and makers of Pilsner Urquell, have less to celebrate in the new year.

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Workers at the company's three breweries had been used to enjoying an unlimited amount of free beer in its on-site bars once their shifts had ended. However, the Financial Office in Plzen has decided to clamp down on the practice.



The office ruled that the brewery can no longer give workers beer for free, arguing that it counts as taxable income. Now all employees will have to pay 4 Kc (16 cents) for each beer consumed.

Of course some workers are not very happy about it, as they enjoyed being able to drink for free. "Even if this is out of the company's hands and the price is low, there is still a difference between paying for something and getting it for free," said one employee who asked not to be named.

Prazdroj spokesman Alexej Bechtin said workers will now have the number of beers they drink recorded on a swipe card. The bill will be added up at the end of the month and the cost deducted from their pay.

"Most employees understand why we have had to stop giving away beer for free—because the tax office ruled that this was taxable income. But charging 4 Kc for a beer is still a very good price."

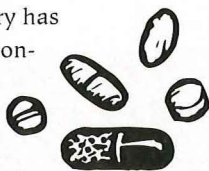
In addition to Pilsner Urquell, the brewer produces the Gambrinus, Radegast, Velkopopovicky Kozel, Klasik and Primus brands.

Drink and Stay Young?

A German brewery has developed a beer containing vitamins and minerals it says are designed to slow the aging process. The Neuzeller Kloster Brewery plans to introduce its "Anti-Aging Bier" this year and sell it in grocery and drug stores, a spokesman for the company said.

"It tastes like beer more than it tastes like anything else," the spokesman told the Reuters news service.

The brewery said the beer contained a host of added ingredients that promote good health.



The German government may object to the brewery calling the drink "beer" as the Reinheitsgebot Purity of Beer Law of 1516 says beer brewed in Germany can only be made from barley, hops, yeast and water.

We're Still No.1—Sort Of

The United States may produce more beer than any other country in the world, but the Czechs drink more beer per capita by far than anyone on the planet.



Czech drinkers downed an average of 42 gallons (162 liters) of beer in 2003.

"This means that the average citizen of our country drinks daily a minimum half-liter mug of this utmosty popular Czech drink," said Jan Vesely, chairman of the Czech Union of Breweries.


Irish drinkers averaged 38 gallons (146 liters), with Germany and Austria following at 32 gallons (123 liters) and 29 gallons (112 liters) respectively.

When it comes to total consumption, however, the United States still comes out on top, draining 6.3 billion gallons (23.82 million kiloliters) of beer per year. China is second with consumption of 3.25 billion gallons (12.35 million kiloliters) per year. But with the U.S. population at 292 million, that works out to only 21.5 gallons (81 liters) per year — half what the average Czech consumes.

China, with a population of 1.2 billion, has a per capita consumption of just 2.7 gallons (10.26 liters) per year.

By region, Europe remained the biggest beer-drinking area, accounting for 33 percent of global beer consumption. But Asia including China and Japan came in at second place, taking up over 26 percent of world market share of beer-drinking, while North America ranked third with 18.3 percent of the overall market. Still, the biggest jump in beer consumption was seen in the Middle East, which soared 5.3 percent from the previous year, even though it still accounts for only 0.6 percent of the overall world beer market.

But despite keeping their top position as beer drinkers, countries in western



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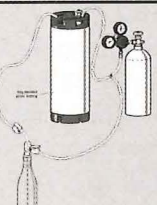
We invite you to join Byron Burch,
author of *Brewing Quality Beer*, and
owner of **The Beverage People**
to attend the conference and
celebrate 26 years of homebrewing.

"Starting in 1992 and extending to 1994
and 2002, Byron won Meadmaker of the
Year three times. Add this to his
Homebrewer of the Year from 1986 and he
rules as the holder of the most "of the year"
awards in National Homebrewers
Conference history."
(Ray Daniels, *Zymurgy* Nov/Dec 2003)

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share in the history of homebrewing.

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Europe where beer-making originated in the first place are finding that their population is turning more toward wine and hard liquor than beer. Ireland, Denmark, Belgium, Luxembourg, France and Germany all saw beer drinking decline over the past few years.

One key factor for the traditionally beer-drinking nations turning toward other alcoholic beverages could be the sheer number of alternatives in both location and beverages that are on offer in those markets. From wine bars to ready-mixed bottles of spirits such as vodka and tonic water, the variety of places and the sheer number of options available other than beer pubs have crowded out the beer market from years past.

Let There Be Light in Michigan

Michigan bar owners can finally plug in their beer neons after the state attorney general struck down a 70-year-old ban on illuminated alcoholic beverage signs.


Attorney General Mike Cox ruled that the ban on illuminated signage in Michigan bars, restaurants and retailers — in place since the fall of Prohibition — was a constitutional free speech violation. The opinion affects signs for all alcoholic beverages, though most are for beer.

Bar and restaurant owners toasted the decision, saying the Michigan Liquor Control Commission ban on lighted signs, clocks and other beer-related knick-knacks was an unreasonable restriction on commercial speech and advertising freedom.

Louis Adado, executive director of the Michigan Licensed Beverage Association, said the rule was arbitrary. Michigan was one of only a few states with such a ban.

"It's just one less regulation that our members have to put up with," Adado said. Over time, he said, the rule became pointless.

A Michigan bar could hang a beer-related mirror on the wall, but couldn't hang a lighted clock that advertised a particular brand. Neon signs for non-alcoholic drinks were allowed under the old rule. Cox's opinion noted another incon-



What's in a name?

That which we call a beer by any other name would taste as hoppy.

With all due apologies to Willy the Shake, names do matter in the world of beers. Do you really think people would have given Audacious Cad by Stone Brewing a first sip to discover what a fine beer it is? Would Corpulent Rubber Wheel Cover be the fastest growing brand in the land?

Methinks not.

But just what are the best beer names out there? We've already asked you to tell us your favorite commercial beers for drinking, but what beers do you really love to order?

As a companion to our Best Commercial Beers in America Survey, we're asking you to tell us your favorite beer names. We're talking commercial beers here, because everyone knows homebrewers can put words on their label that we can't print in the magazine without investing heavily in brown paper wrappers.

Simply jot down your favorite beer names in an e-mail or on the back of a bar coaster and send them to jim@aob.org or P.O. Box 1069 Gresham, OR 97030. We'll print the results in our July/August issue along with the results of our other poll. Get them in by May 15, please.

Don't forget: there's still time to vote in Zymurgy's Best Commercial Beers in America Survey. You have until **March 15** to let us know which American beers you'd want to take with you if you knew that three-hour tour you booked would turn out to be five years on a deserted desert isle with Gilligan and crew.

You can vote for up to 20 beers. Any votes above that number will be rolled up, slipped into a Bud Light bottle and tossed out to sea with your address on the paper. You can vote by e-mail or snail mail. Just write the name of the beer along with your name and address or AHA member number. Send e-mails to bestbeer-vote@aob.org or via U.S. Postal Service to Zymurgy's Best Beer Vote, Association of Brewers, P.O. Box 1679, Boulder, CO 80306-1679.

The winning beers will be tabulated and the results will run in the July/August Zymurgy, along with tips on how to brew your favorites.

sistency: beer-serving sports stadiums have illuminated signage.

The opinion does not throw out another old rule, one that prohibits breweries and beer wholesalers from providing free merchandise to licensed retailers and bar owners.

Michael Lashbrook of the Michigan Beer and Wine Wholesalers Association,

which has long supported the ban on lighted signs, says free distribution of the signs would give larger producers of alcoholic beverages an unfair advantage over smaller brewers and wineries.

Adado said historically in Michigan, wholesalers have objected to the expense of buying and maintaining such signs. He said bar and restaurant owners

who want to put up signs can buy them on the Internet for less than \$200. Others who have been collecting them over the years can now plug them in. He said one bar owner was reprimanded by the state for displaying an antique, lighted Budweiser sign.

Lashbrook countered that owners should be judicious in hanging brightly lit signs visible from the street, so as not to "trigger a backlash from those who have a more temperance attitude."

Beer Keeps Darts Champ on Target

When it comes to curing pre-match jitters, nothing does the trick like a cold beer — or 15.

That's the ticket for newly crowned world darts champion Andy Fordham — as much as he hates to talk about it. "Everyone asks me about my drinking, no one asks me about darts," he says, perching his frame of some 290 pounds or so on a bar stool in The Rose, the pub he runs in Dartford, east of London.

"It should be taken more seriously as a sport. Players have to cope with a lot of pressure. You're up there on that stage, everybody watching — four million people watched the championship on TV."

The secret of his success? "It's about concentration and the old hand-eye coordination," says Fordham, who does not practice between matches.

Fordham started playing darts because it went naturally with his other hobby, drinking.

"I do drink quite a bit," he says, adding that he would be too nervous to play in a sober state. He imbibes a couple of brandies and 15 bottles of lager to steady his nerves before every match.

"It's a happy sport. You enjoy yourself and have a bit of fun," he says.

Groups Seek New Beer Labels

If a coalition of advocacy groups gets its way, beer labels will soon more closely resemble food labels, with a standard "Alcohol Facts" label that would give consumers information about alcohol content, serving sizes, calories and ingredients.

Nutrition Facts	
Serving Size 12oz. Serving Per Container 1	
Amount Per Serving	
Calories 110	Calories from Alcohol 100
Total Fat 0g	
Total Carbohydrate 3g	
Sugars 13g	
Alcohol Content 5.5%	
Ingredients: Hops, Hops, & More Hops	
* U.S. Dietary Guidelines' definition of moderate drinking as no more than one drink per day for women or two drinks per day for men.	

ers in a petition to the Alcohol and Tobacco Tax and Trade Bureau.

Reaction from the beer industry was cautious.

The Beer Institute said it is analyzing the proposal. "Beer labeling has been regulated for decades by a balance of federal and state interests and authorities. Any proposed changes must be carefully considered," said Jeff Becker, president of the Beer Institute, in a written statement. "If TTB decides to consider these very broad proposals, we look forward to providing our views to them."

Label proponents say that "Alcohol Facts" labels will do for alcoholic beverages what Nutrition Facts labels have done for packaged food: provide readable information that would empower consumers to make informed decisions about the products they consume.

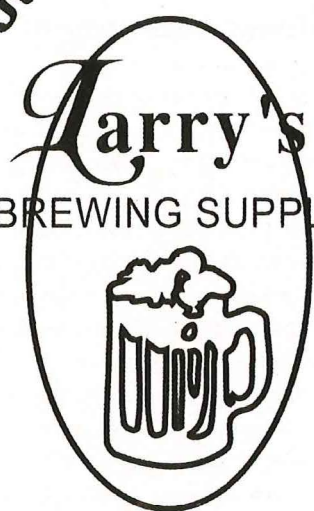
Right now, label approval is primarily the jurisdiction of the Treasury Department's Alcohol and Tobacco Tax and Trade Bureau (TTB, formerly known as the Bureau of Alcohol, Tobacco and Firearms). The Food and Drug Administration has some oversight and the Department of Agriculture oversees adherence to the National Organic Program for all beers making claims of organic ingredients.

"Existing labeling rules are inconsistent, confusing and don't help consumers compare beverages' alcohol or calorie content," NCL president Linda Golodner said. "While wine and hard liquor list alcohol content, beer doesn't. And while 'light' beer and low-alcohol wines list calories, regular beer, wine and hard liquor don't."

"Consumers who are trying to maintain a healthful weight have very little information about how many calories alcoholic beverages are contributing to their diet," said George Hacker, director of CSPI's Alcohol Policies Project. "Given America's concern over the epidemic of overweight and obesi-

The proposal was submitted by the National Consumers League (NCL), the Center for Science in the Public Interest (CSPI), and oth-

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ty, it makes no sense that such a significant source of calories goes undisclosed on labels."

The Alcohol Facts label would disclose:

- Alcohol content and standard servings. Labels would list the number of drinks per container and the amount of alcohol in a standard serving. The label would also state the U.S. Dietary Guidelines' definition of moderate drinking as no more than one drink per day for women or two drinks per day for men.
- Calorie information. Labels would list calories per serving so consumers concerned about excess weight or obesity could put alcoholic beverages in the context of their diet.
- Ingredients. Labels would list ingredients so consumers can compare beverages, and so the seven million Americans with food allergies can know if an alcoholic beverage contains milk, eggs, gluten or other allergens.

Currently, sulfites and Yellow Dye No. 5 are the only ingredients that are required to be listed.

Monster Mash (from page 44)

boil-overs may be cleaned with oven cleaner and scrub pads until the original shine of the stainless steel is restored.

Optional Equipment

Most plastic and metal spoons are designed for much smaller mash tuns. Large rakes or paddles are more useful for this scale and are sold by homebrew suppliers. Another option is to buy a solid maple or oak board (1 x 6 inches) and cut your own.

You may also want to consider a food-grade pump to move sparge water or wort. Some kettles may already have a pipe that can be used as a sparge arm.

If you make larger batches you may want to scale up with a larger boiling kettle and wort chiller although large batches may be divided into several manageable 10-gallon batches.

When dealing with such large volumes, it is useful to have a refractometer to quickly monitor the specific gravity of the runnings and to avoid astringency when the runnings drop below 1.010.

Recipes

When you brew more than a 10-gallon batch, you will find significant differences between the specific gravities of the first and subsequent runnings. Recipes may simply be doubled or tripled if you blend all of the runnings together. Another option is to split the batch into beers with different beginning gravities (see recipe). There should be at least 8 to 10 inches of malt in the mash tun for an effective grain bed.

Brewing large batches lends itself to group brew-ins. If you don't have a large scale brew pot, you can divide a 30-gallon batch into three 10-gallon batches with commonly used 15.5-gallon converted kegs. Soup kettle cleanup is easy since the grain naturally slides down the sides of the kettle to the drain.

Fermenters

Soup kettles also make great primary fermenters. Ales may be fermented in a soup kettle to get an English-style open fermentation method.

Large batches of wine, cider or mead are also easy to make in the converted soup kettle. Making wine in a soup kettle allows you to easily "punch down" the fruit in the primary fermenter. The fruit may be caught in the kettle if you leave the false bottom intact when draining into a secondary fermenter. Cider fermentation often creates a "chapeau brun" (brown cap) that is visible in a soup kettle but not usually in a smaller carboy.

With some easy modifications, a used soup kettle can be converted into an extremely useful mash tun, lauter tun or primary fermenter that will allow you to reach higher gravities and produce larger volumes of beer.

Bob Capshew, a certified BJCP judge, has been fermenting beer, parries, cider and wine for 18 years. He is a member of the LAGERS and FOSSILS homebrew clubs in the Louisville, Ky. area and is a CPA in the bargaining industry. He last wrote for *Zymurgy* about parries in the November/December 2001 issue.

Monster Mash

60 gallon converted soup kettle

Ingredients for 38 U.S. gallons

(3 different beers):

87.0 lb (39.15 kg) pre-cracked

2-row malt

5.0 lb (2.25 kg) 80 crystal malt

0.25 lb (.113 kg) roast unmalted barley

White Labs Chico Yeast (liquid yeast from local brewpub)

Barley Wine (10 U.S. gal)

Original gravity: 1.092

2.0 oz. (56 g) Centennial hops,

9.4% alpha acid (60 min)

1.0 oz. (28 g) Chinook hops,

12.5% alpha acid (60 min)

2.0 oz. (56 g) Columbus hops,

15% alpha acid (30 min)

1.0 oz. (28 g) Chinook hops,

12.5% alpha acid (5 min)

1.0 oz. (28 g) Chinook hops,

12.5% alpha acid (1 min)

English Bitter (10 U.S. gal)

Original gravity: 1.048

1.0 oz. (28 g) Chinook hops, 12.5% alpha acid (60 min)

3.0 oz. (84 g) Kent Goldings, 5.1% alpha acid (20 min)

American Pale Ale (18 U.S. gal)

Original gravity: 1.052

6.0 oz. (168 g) Centennial hops, 10.4% alpha acid (60 min)

2.0 oz. (56 g) Amarillo hops,

7.3% alpha acid (10 min)

Brewer's Specifics

Mash grains for 75 minutes at 153° F. Use first runnings for barley wine then blend to get higher gravity in American pale ale by using a refractometer to test gravity. Boil each batch for one hour. Ferment the two 10-gallon batches in glass carboys and the 18-gallon batch in a 35-gallon converted soup kettle.



In this edition of Winners Circle, you may notice something missing...where are the extract recipes? We assure you this was not intentional, brewers and brewers. Had there been any in this issue's scheduled categories, we would have included them just out of fairness to the extract enthusiasts out there.

We wholly support the convenience of extract brewing, and there have been some fabulous extract recipes over the history of the NHC and Winners Circle. And needless to say, they were every bit as good as their all-grain counterparts. But for whatever reason, we seem to be seeing fewer and fewer extract recipes entered in the nationals. Is this the natural evolution of homebrewing, or merely a trend? Do homebrewers just want to spend more time puttering around with extra brewing equipment and slaving away those extra hours when they could be at the driving range? Could that insidiously popular "Geeks" column be the root cause of all this mashing mania? We'll keep you posted. Meanwhile, enjoy these medal-winning recipes.

Scottish Ales



SILVER MEDAL

AHA 2003 NATIONAL HOMEBREW COMPETITION

Jamil Zainasheff, Elk Grove, Calif.; QUAFF

"Scottish Export 80"

Scottish Export 80/-

Ingredients for 6 U.S. gal (22.7 L)

- 8.0 lb (3.62 kg) UK 2-row pale malt
- 0.5 lb (0.22 kg) German Munich malt
- 0.5 lb (0.22 kg) Canadian honey malt
- 0.25 lb (0.11 kg) German Carafo
- 1.0 lb (0.45 kg) UK 25° L crystal malt
- 1.0 lb (0.45 kg) dextrine malt
- 1.25 oz (35 g) Fuggle pellet hops,
- 4.3% alpha acid (60 min)
- White Labs WLP004 Irish stout yeast

- Original specific gravity: 1.048
- Final specific gravity: Unknown
- Boiling time: 90 minutes
- Primary fermentation: Unknown
- Secondary fermentation: Unknown

Brewer's Specifics

Conduct a step mash beginning at 158° F (70° C) for 60 minutes. Mash out at 168° F (76° C) for 15 minutes.

Judges' Comments

"A fine effort—I think you've really nailed it. Thank you for restraining the smoke. I want more, but the steward says we only have three bottles."

"Very drinkable; fits style but minor adjustment might help—slightly increase body for a richer mouthfeel. Good job—enjoyed this one."

Fruit Mead



BRONZE MEDAL

AHA 2003 NATIONAL HOMEBREW COMPETITION

Steve Schmitt, Anchorage, Alaska; Great Northern Brewers

"Liquid Testosterone"

Still, Sweet, Other Fruit Melomel

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

- 16.0 lb (7.25 kg) clover honey
- 10.0 lb (4.53 kg) strawberries, in primary
- 0.5 gal (1.89 L) crab apple juice, in secondary
- 1.5 oz (42.5 g) Wyeast yeast nutrient
- Laivin KV1116 wine yeast

- Original specific gravity: 1.100
- Final specific gravity: 1.026
- Boiling time: 0 minutes
- Primary fermentation: 27 days at 70° F (21° C) in glass
- Secondary fermentation: 60 days at 70° F (21° C) in glass
- Tertiary fermentation: 82 days at 70° F (21° C) in glass

Judges' Comments

"Very drinkable. Not cloying. Even though it's clover honey, it is present. I like it."

"A nice mead, with all aspects present. A little dry for a sweet mead."

Kölsch & Altbier



BRONZE MEDAL

AHA 2003 NATIONAL HOMEBREW COMPETITION

Michael Rupp, Nixa, Mo.

"Kölsch"

Kölsch-Style Ale

Ingredients for 5.5 U.S. gal (20.8 L)

- 7.7 lb (3.5 kg) Pilsener malt
- 0.83 lb (0.38 kg) wheat malt
- 0.33 oz (9.4 g) Perle pellet hops,
5.6 % alpha acid (90 min)
- 0.22 oz (6.2 g) Perle pellet hops,
5.6 % alpha acid (50 min)
- 0.22 oz (6.2 g) Hersbrucker pellet hops,
3.4 % alpha acid (15 min)
- Wyeast No. 2565 Kölsch ale yeast
- 0.75 cup (177 mL) corn sugar to prime

- Original specific gravity: 1.044
- Final specific gravity: 1.012
- Boiling time: 90 minutes
- Primary fermentation: 10 days at
68° F (20° C) in glass
- Secondary fermentation: 14 days
at 68° F (20° C) in glass

Brewer's Specifics

Mash in with an acid rest at 117° F (47° C) for 15 minutes. Raise to 143° F (62° C) and hold for 30 minutes. Raise to 159° F (71° C) and hold for 15 minutes.

Judges' Comments

"Very well balanced and clean. An excellent effort! Could use a little more hop presence."

"Nicely brewed, clean beer. But I'd like more hop flavor and aroma."

"Very nice job — good beer with no major flaws — well balanced and very true to style."

European Pale Lager



BRONZE MEDAL

AHA 2003 NATIONAL HOMEBREW COMPETITION

Greg Brown, Auburn Hills, Mich.

Untitled

Northern German Pilsener

Ingredients for 6 U.S. gal (22.7 L)

- 11.0 lb (4.98 kg) German Pils malt
- 0.5 lb (0.23 kg) 8° L Munich malt
- 0.41 lb (186 g) 10° L crystal malt
- 1.0 oz (28 g) Northern Brewer pellet
hops, 8% alpha acid (60 min)
- 1.5 oz (42 g) Saaz pellet hops,
3% alpha acid (20 min)
- 1.5 oz (42 g) Saaz pellet hops,
3% alpha acid (2 min)
- Wyeast No. 2278 Czech Pils lager
yeast
- 4.75 oz (135 g) corn sugar to prime

- Original specific gravity: 1.050
- Final specific gravity: 1.012
- Boiling time: 75 minutes
- Primary fermentation: 14 days at
52° F (11° C) in glass
- Secondary fermentation: 14 days
at 40° F (4° C) in glass

Brewer's Specifics

Mash in at 122° F (50° C) for 30 minutes. Raise to 151° F (66° C) and hold for 75 minutes. Mash out at 172° F (78° C) for 15 minutes.

Judges' Comments

"Really enjoyed this beer. Could have more bitterness; needs more aroma."

"This sample shows a little age, but is a very good example of the style. Bump up the hops."

"Time may have faded the hops—well designed grain bill/fermentation. Well done! Crisp, dry and refreshing."

American Pale Ale



BRONZE MEDAL

AHA 2003 NATIONAL HOMEBREW COMPETITION

Bill Wright, Juneau, Alaska

"Hop Garden Pale Ale"

American Pale Ale

Ingredients for 11 U.S. gal (41.6 L)

- 22.5 lb (10.2 kg) two Pilsner malt
- 1.0 lb (0.45 kg) 40° L crystal malt
- 2.0 lb (0.9 kg) dextrine malt
- 1.5 oz (42.5 g) Chinook whole hops,
16% alpha acid (FWH)
- 2.0 oz (57 g) Cascade whole hops,
8.3% alpha acid (30 min)
- 2.0 oz (57 g) Cascade whole hops,
8.3% alpha acid (15 min)
- 4.0 oz (113 g) Cascade whole hops,
8.3% alpha acid (0 min)
- 1.0 oz (28 g) Centennial pellet hops,
9.1% alpha acid (dry, secondary)
- 0.5 oz (14 g) Kent Golding pellet hops,
5.3% alpha acid (dry, secondary)
- Wyeast No. 1056 American ale
yeast
- Forced CO₂ to carbonate

- Original specific gravity: 1.065
- Final specific gravity: 1.009
- Boiling time: 90 min
- Primary fermentation: 7 days at
65° F (18° C) in plastic
- Secondary fermentation: 21 days
at 65° F (18° C) in glass

Brewer's Specifics

Mash grains at 145° F (63° C) for 60 minutes. Raise to 155° F (68° C) and hold for another hour.

Judges' Comments

"The bitterness sneaks up on you after you swallow! Nice job on this beer, great recipe."

"Long, dry hop finish lasts and lasts."

American Lager



SILVER MEDAL

AHA 2003 NATIONAL HOMEBREW COMPETITION

Mike McCluskey, North Bend, Wash.; BrewRats
"Ol' Jalopy CAP"

Classic American Pilsener

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

- 10.0 lb (4.53 kg) lager malt
- 6.0 lb (2.72 kg) six-row malt
- 5.0 lb (2.26 kg) flaked corn
- 1.5 oz (43 g) Santiam whole hops,
7.6% alpha acid (60 min)
- 1.0 oz (28 g) Santiam whole hops,
7.6% alpha acid (30 min)
- 1.5 oz (43 g) Santiam whole hops,
7.6% alpha acid (5 min)
- White Labs San Francisco Lager
yeast
- Forced CO₂ to carbonate

- Original specific gravity: 1.053
- Final specific gravity: 1.012
- Boiling time: 60 min.
- Primary fermentation: 14 days
at 58° F (14° C)
- Secondary fermentation: 7 days
at 58° F (14° C)
- Tertiary Fermentation: 35 days
at 35° F (2° C)

Brewer's Specifics

Mash grains at 152° F (67° C) for 60 minutes.

Judges' Comments

"Nice hop flavor and aroma but needs more malt support for balance. DMS may come from chilling wort too slowly, or not pitching enough yeast to get a quick start. Slightly rough finish may be due to age. Nice beer."

"A nice effort at the style. It could be improved by increasing carbonation and reducing the vegetal component. [This] could be a byproduct of the hop variety combined with age. As always, take care with sanitation and get fermentation under way quick."

"A nice beer. Very well made. Only suggestion would be to increase finishing hops and maybe just a little more early addition hops too."

Amahl Turczyn Scheppach is a veteran commercial and home brewer and brewing author who resides in Lafayette, Colo.

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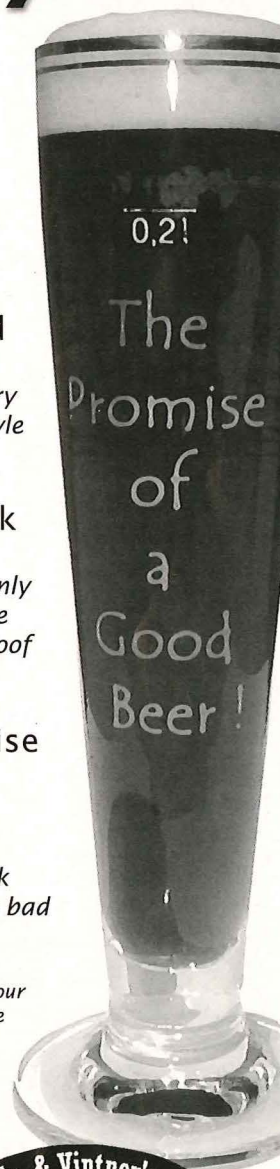
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
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
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
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
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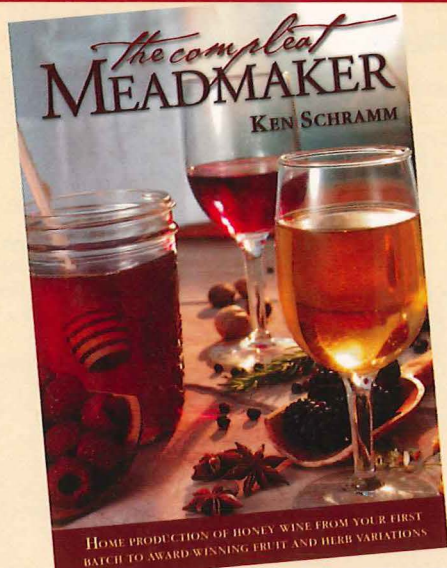
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Skittlebrau

Editor's note: This experiment was conducted on a closed course with a professional beer taster. Please do not attempt this experiment at home. Zymurgy cannot be held responsible for any gastric discomfort or carpet cleaning that may result.

As with most crazy ideas, the Simpsons thought of it first:

Homer: "I'm feelin' low, Apu. You got any of that beer that has candy floating in it, you know, Skittlebrau?"

Apu: "Such a product does not exist, sir! You must have dreamed it."

Homer: "Oh. Well then, just gimme a six-pack and a couple of bags of Skittles."

And so with that, the Skittlebrau project was born.

My years of drinking training had led up to this moment, the first scientific Skittlebrau investigation. I realized that for such a daring experiment, I would have to do the drink tasting myself. Crazy, you say? Crazy like a fox.

I had selected a wide variety of brew to mix with the Skittles, from wussy-man malt beverages to dark beer. The resulting drinks were judged not only on taste, but also on appearance. They would also be tasted immediately, and then allowed to sit for a few minutes so the Skittles could dissolve.

Skoors Light

Coors Light is a relatively decent light beer, definitely needed to be served cold. This was the first Skittle brew we tried, and the initial results were somewhat disappointing. There wasn't much of a reaction between the Skittles and the beer.

The first taste was indiscernible from unadulterated Coors. However, within min-

utes, the color coating of the Skittles had dissolved, giving the beer a deeper color from its normal paleness.

But as the beer drained, the Skittle taste really started to kick in, and that's not a good thing. Part of the problem is that Coors Light really doesn't taste much like anything, so the Skittles quickly became the only taste in the beer. And that last swig is a real face twister.

The interesting thing is what's left at the bottom of the glass: little white pebbles (because the cold beer froze the Skittles). Hard and crunchy, they wipe that beer aftertaste away.

Bacardi Skilver

Bacardi Silver, it turns out, is actually one of the nastier malt beverages I have ever tasted. So, it couldn't be much worse with Skittles. Dropping the Skittles into the drink caused a mountain of fizz.

The taste is hard to describe. It almost tastes like margarita mix. The color matches up pretty well with whatever Skittle you put in. So either do red/purple or the green/yellow/orange to get a nice glow (putting them all in just makes it look brown). Probably the worst part is the floating white pieces of Skittles at the top of the drink

Skitrona

Citrona actually isn't half bad. The only downside to it is that it is fairly cloudy. But with some Skittles, it becomes a cornucopia of color. Skittle induction reaction was minimal, and the color quickly spread throughout the drink. Strangely enough, the Skittles really didn't have any effect on the taste, so perhaps Citrona is made from Skittles. A very unimpressive showing.

Old Skilwaukee

"Don't do it!"

"For science!" Glug glug glug.

"Dear God, what have I done? I have dabbled in things man was not meant to."

Folks, this one is pretty bad. Not that Old Milwaukee is that great to begin with (I believe "ass" is the term most commonly used), but Skittles just make it downright foul. The Skittles dissolve very fast, so almost immediately you have a massive influx of sugar into the mixture. The early sips are bad, but it gets worse the longer you put off drinking it.

Chug it down, move on to the last one.

Skittlebrau

The one, the only, the original Skittlebrau.

I personally am not a big dark beer fan. But the Crazy Engineer household would be remiss if we didn't try the actual Skittlebrau.

Eureka! This isn't half bad.

The sugar cuts the bitter beer taste and leaves you with a mellow sweetness that isn't bad drinking. Now, letting it sit for 30 minutes isn't advised, but some leisurely drinking is OK. There is a slight, odd aftertaste, but no odder than other beers with Skittles.

Now, usually we view foam as a bad thing in beer, and rapid foaming is very bad, but here a slow growth in foam is a sign that the Skittles are reacting well with the beer so you'll soon have a tasty beverage.

Conclusions

Skittlebrauology is a new science. But it certainly shows an intriguing new path in mixology. Malt beverages do not seem to mix well with the fruity candy, but bitter, quality beers seem to mesh well. Obviously, more research needs to be done, but it certainly is nothing to laugh at.

Lawrence McCartin is a graduate of Carnegie Mellon University in Pittsburgh and a software engineer at Intelliseek in Cincinnati. You can see more of his crazy projects on his Web site www.crazyengineer.net.



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Au Clair

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