

Special Collector's Issue

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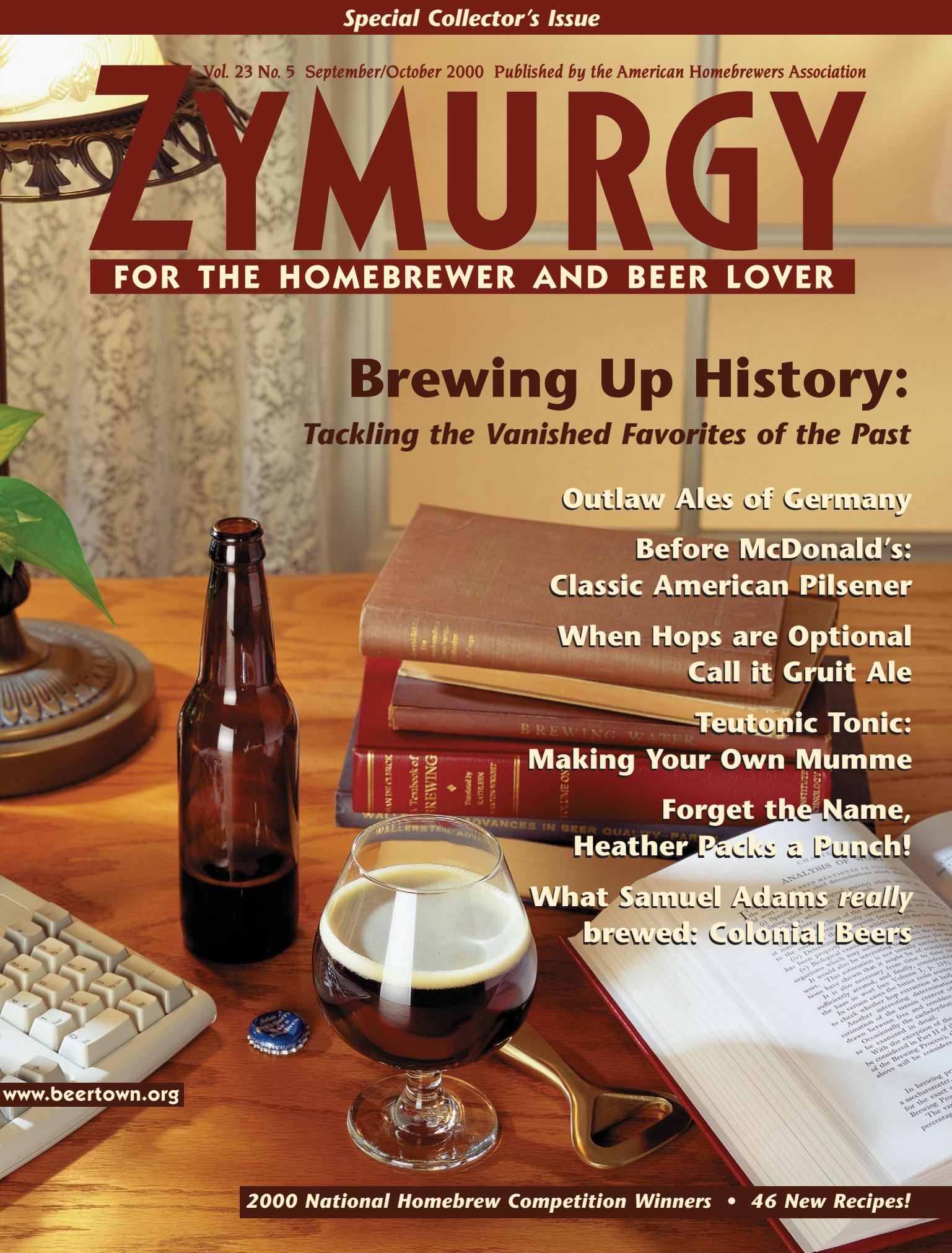
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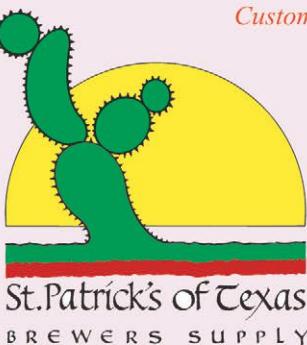
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To promote public awareness and appreciation of the quality and variety of beer through education, research and the collection and dissemination of information; to serve as a forum for the technological and cross-cultural aspects of the art of brewing;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

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ZYMURGY®

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

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*Pix from Livonia: Good people
having a good time. (Don't miss the
next one!)*

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Although much abused by modern-day dilutions, America's most famous style has noble and tasty origins. **Jeff Renner**'s exhaustive review tells it like it used to be.

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WHEN SPICE AND HISTORY COLLIDE IN A BREWPOT, YOU GET GRUIT ALE

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Before hops, gruit was used to balance the sweetness of malt. Now modern brewers are following suit as a druid-like **Tony Forder** shows.

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This Scots classic enjoys a minor commercial revival that may even bring it to your local store. Find out how it's made and how to make your own.

RECREATING BEERS FROM THE PAST

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Keith Thomas has personally cultured yeast from beers bottled more than 100 years ago, but that's not the end of his old beer sleuthing. Check it out as he tells how and where to hunt for historic brews.

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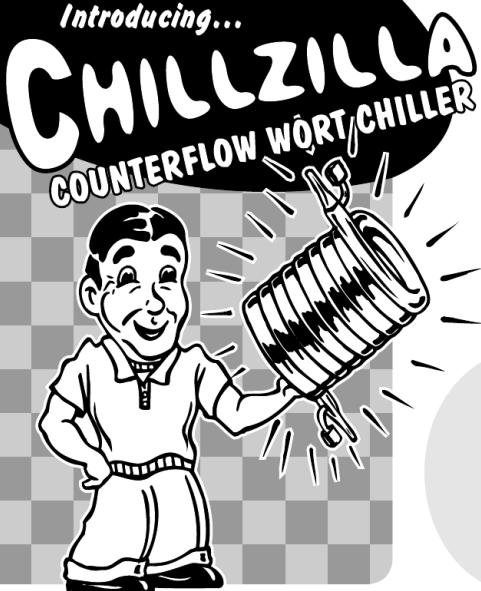
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BY PAUL GATZA

The further away I get from my college education, the fuzzier those memories are. I think one of my history professors said "Those who ignore the lessons of history are bound to rebrew them."

The focus of the 2000 *Zymurgy* Special Issue is historical beer styles. We are not going to go all the way back to the first likely accidental discovery of beer or the inspiring beers of Ku-Baba, a brewster in Sumeria around 2500 B.C., whose patrons followed her relocation, resulting in the founding of the city of Kish. Much rediscovery of ancient brewing techniques has already been written about in *Zymurgy* and other publications. Instead, we will scratch the surface of some of the historical styles that have drifted away from our beer culture during the previous millennium.



Two particular styles we feature here appear to be on their way back to our beer culture through homebrewers and craftbrewers: Classic American Pilsner and Gruit Ale. I see that craft beer culture has evolved from a countercultural beer revolution into a beer subculture. In an effort to establish new mar-

kets for craft-brewed products, there has been some movement towards some of the lighter styles, such as Kölsch. Just four blocks from the AOB office I can get a Classic American Pilsner (CAP), marketed under the banner of Pre-Prohibition Pils. I applaud Jeff Renner for his efforts to research and revitalized this style. I believe that CAP will be the beer style that opens up craftbrewing to the more sustainable mass market in this country.

The history of beer styles has, of course, been shaped by what has been available to brewers. Before hops were used as a standard brewing ingredient, there was a combination of herbs known as gruit. Although I have not made a gruit ale at home, I will one day. I have been inspired by the Brewers Publications book *Sacred and Herbal Healing Beers* by Stephen Harrod Buhner, which combined historical and experimental beer recipes with the knowledge of an herbalist. This book has successfully crossed over into mainstream book markets, getting many new people interested in beer and brewing. I see it as a return to our roots in brewing. I understand that at least one gruit ale is being made commercially now. I expect more will come later. Where homebrewers lead, craftbrewers will follow.

Because of the different flora around the world, there are thousands of beer styles that developed over our history. This issue of *Zymurgy* cannot cover them all, or even one-tenth of one percent. Hopefully though, it will inspire you to try to brew some of our ancestors' brews listed herein or do some research on your own to find out what we used to drink tasted like and how it was made.

In keeping with the theme of history, I think I'll start with the future and work my way backwards with this issue's update for AHA members.

Teach A Friend to Homebrew Day

The AHA and the Home Wine and Beer Trade Association (HWBTA) have again

AHA Financials for 1999



Revenues	Actual	Budget
Membership	\$ 360,187.00	\$ 351,500.00
Advertising	89,449.60	93,600.00
Magazine Listing	17,627.69	32,000.00
Magazine Sales	27,393.07	78,000.00
BP Merchandise	608.04	100.00
HBSC Membership	0.00	0.00
Conference	27,063.80	18,500.00
NHC	29,492.00	37,000.00
Sponsorship	2,372.00	3,250.00
Clubs	625.00	1,750.00
Big Brew	1,055.00	2,000.00
Sanctioned Comp. Prog.	5,140.09	6,000.00
Miscellaneous	(6,342.76)	5,150.00
TOTAL	\$554,670.53	\$. 628,850.00
Expenses	Actual	Budget
Marketing	\$ 49,848.50	\$ 65,722.00
Zymurgy	218,183.07	308,369.00
Conference	23,992.37	17,412.00
NHC	26,809.92	23,633.00
Retailers	915.11	6,008.00
Clubs	4,712.45	12,425.00
TechTalk	1,404.09	2,160.00
Maps On Tap	14.44	3,000.00
Sanctioned Comp. Prog.	4,708.91	4,784.00
AHA Judging	470.38	5,500.00
Legalization	344.19	2,188.00
Big Brew	822.07	2,136.00
Overhead	53,095.87	41,421.00
TOTAL	\$385,321.37	\$. 494,758.00
SURPLUS	\$169,349.16	\$. 134,092.00

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agreed to conduct Teach a Friend to Homebrew Day in November. We have decided to standardize the date as the first Saturday in November, which balances nicely opposite the first Saturday of May when we do the AHA Big Brew. The HWBTA will be encouraging its member manufacturers, wholesalers and retailers to develop media, motivate their customers to participate and get a whole new group of brewers involved in the hobby.

I encourage all AHA members to teach at least one person to brew on November 4th. If you are a regular down at your local supply shop, start mentioning the event to your homebrew supply retailer to gather their participation and encouragement to other customers. I ask each of you to find a friend who is interested in brewing, take them down the local shop and select the ingredients together. Introduce them to your local shopkeeper. If you introduce them to the AHA and the benefits of membership and we get more members, we can make a better AHA together.

Oh wait. I found a soapbox here. Let me climb up on it. Oops, almost spilled my Kentucky Common Beer. Okay, that's better. It saddens me to see our hobby so male-dominated. If we look at the history of brewing, we see the opposite. Brewing was a women-dominated industry/chore until men persecuted professional brewsters and took over the trade. Women stand as a relatively untapped constituency for beer and homebrewing. We are all responsible for the success of our hobby and we have indicators that it is on the rise again, which means better businesses, fresher ingredients, greater selection, more brewing knowledge, new blood for clubs and more, better homebrew. Let's all do what we can to make homebrewing a more attractive hobby for women and new brewers. I think Teach a Friend to Homebrew Day would be a great place to start. Check www.beertown.org for Teach a Friend to Homebrew Day updates.

AHA National Homebrewers Conference

What a great time the 350 or so of us had at the AHA National Homebrewers Conference in Livonia, Michigan at the end of June. The theme was a Prohibition-era speakeasy, which fits right in with our historical year at the AHA. The Purple Gang, which kept the beer flowing in Prohibition Michigan, resurfaced as the name of the core committee of volunteers who planned and ran this great event. The highlight for me was again Beers Without Borders—an evening of homebrew club hospitality and great socializing. To me, this one event symbolizes the best of what the AHA is—great homebrews and people having a really fun time around the hobby we love. That atmosphere stayed constant throughout the entire conference, as homebrew clubs took shifts staffing and supplying the hospitality in the hutzpah-tality suite.

Other highlights were the Blind Pig Roast, in which Mike O'Brien led a team of homebrewers in the all-day cooking and carving. To wash it down, we had representatives of the Michigan Brewers Guild serve the best commercial beers in Michigan for attendees. The speakers list was impressive, and we were bulging at the seams for some of the 14 presentations, such as Jeff Renner's talk on CAP, and Dan McConnell and Ken Schramm's presentation on mead. The father of the flavor wheel, Morton Melgaard, discussed beer flavors, Peter Blum gave us the history of Detroit-area brewing and Fred Eckhardt talked about the new Prohibition.

We will again be following the successful model of an AHA member-driven club coalition coordinated conference for June 2001. As of this deadline, we have a few groups being formed to attempt to bring the conference to their regions, but no firm bids or decision from the AHA Board of Advisors Conference Committee.

Board of Advisors Update

Although the advisors and staff correspond almost daily via email, the National Homebrewers Conference is the site where we all get together in person for the annual AHA Board of Advisors meeting. With the greater involvement of the Board of Advisors than ever before, we found it necessary to double the amount of meeting time than we had used in

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previous meetings. To coordinate our efforts efficiently and effectively, the board has developed committees to focus on issues related to clubs, competitions, awards, electronic communications, the conference, the business of homebrewing, marketing and membership, nominations, publications and bylaws. I thank the board for their commitment.

The number of AHA board members who represent us on the Association of Brewers (AOB) Board of Directors has increased from one to three. The AHA Board elected Alberta Rager and David Logsdon to join AHA Board Chair Charlie Olchowski on the AOB Board of Directors. The board meeting minutes and board member e-mail addresses are posted on www.beertown.org in the AHA Board of Advisors section.

National Homebrew Competition

The conference also included the second round judging of the National Homebrew Competition. Rex Halfpenny and Gary Glass did a great job of conducting the second round in a professional, efficient manner. We had a great turnout of stewards and judges, including over 20 BJCP National judges, and we had great beers to judge. The quality of homebrews and judging in this competition continues to improve with every year.

During the Brewin' Beagle Grand Banquet at the AHA Conference, we announced the second round winners of the National Homebrew Competition. Presenting medals to hopeful attendees is one of the many pleasures in this job. I was quite surprised when we called up Carl Melissas from Atlanta's Covert Hops Society and he brought up his winning beer to the stage. I have to concur with the judges of the category—the beer was excellent. I hope this idea catches on next year. At the request of several members, we have returned the big edition of Winners Circle in this issue, with every gold medal recipe from the 2000 National Homebrew Competition, to this special issue.

AHA Members Meeting

Another feature of the AHA Conference is the members meeting, which allows members to sound off on what has and hasn't been working, and allows members the chance to share some creative ideas in a large group of other passionate homebrewers. The biggest

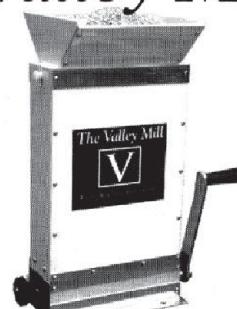
difference I saw to this year's members meeting was that the membership is really starting to take ownership of the AHA. The comments did not start with "the AHA should..." the comments started with "we should..." This step is great to hear and continues us on our path to becoming a membership-driven association. Thanks to all who participated and shared their ideas.

One of the requests at the members meeting was for the previous year's AHA financials to appear in *Zymurgy*. Nineteen ninety-eight was a difficult year for the AOB financially, and exceeding the budgeted surplus to the larger organization has helped the AOB upgrade the membership database and computer systems and offset other expenses. The sidebar gives a broad-brush version of what revenue came to AHA in 1999 and how it was spent.

I'm at the end of yet another glass. Time to sign off and wish you well on your journey through the past of our brewing ancestry. Sherman, set the way-back machine...

Homebrewer and former homebrew shop owner Paul Gatz is the director of the AHA.

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That HBU ThingDear *Zymurgy*

I've noticed, in a number of *Zymurgy* articles, the continued use of HBUs instead of (or with—which is at least not as bad) IBUs. I have yet to figure out the value of its use as a measure of hop bitterness. One question that always comes to mind is how, exactly, anyone can use HBUs, when HBUs completely ignore hop utilization, such that a batch with (borrowing from my most recent brew, a German pils) the following hop schedule:

0.75 oz Hallertau Mittelfruh (4.9%AA)
first wort hopping, 22.6 IBU (58%)

0.75 oz Hallertau Mittelfruh (4.9%AA)
60 minutes

1.50 oz Hallertau Mittelfruh (4.0%AA)
30 minutes, 12.5 IBU (32%)

1.00 oz Hallertau Mittelfruh (4.0%AA)
15 minutes, 4.02 IBU (10%)

2.00 oz Hallertau Mittelfruh (4.9%AA)
end of boil, 0.00 IBU

Would be considered equivalent to:

3.50 oz Hallertau Mittelfruh (4.9%AA)
5 minutes

2.50 oz Hallertau Mittelfruh (4.0%AA)
end of boil

Somehow, I suspect the results for the latter are not exactly going to be ideal...yet, they're both the same bitterness (in HBUs, that is).

Honestly, I just don't understand the point of even having this unit of "bitterness" around. Personally, I'll stick with using IBUs, which are *MUCH* easier to work with.

Thanks,
Jim Graham
Ft. Walton, FL

Dear Jim:
We're glad you asked this question as it



raises some issues about how to use HBUs as well as the topic of why we use them at all.

We run a box in every issue explaining HBUs, (see page 72) but apparently it doesn't do a very good job, because your example above misses a very important point. Unlike IBUs, which quantify the amount of isomerized alpha acid present in the finished beer, HBUs only quantify the amount of raw alpha acid added at a specific point during the boil.

Thus, a recipe might appropriately call for "30 IBUs" of bitterness with no further specifications. But one cannot simply specify the addition of "3.0 HBUs" without giving further directions for when this would be added—it is quite simply an incomplete instruction.

In proper use, the HBU unit conveys both the quantity and alpha acid information, but it still requires a time component. In this respect, it is a technique for simplifying recipes. Instead of saying, "1.25 oz Tettnanger (3.85% alpha acid) for 60 minutes," we fold two numbers into one and say "4.8 HBUs of Tettnanger for 60 minutes."

Even advanced brewers who calculate finished beer bitterness as IBUs can make good use of HBUs. Let's say you formulate a

recipe that calls for 1.5 oz of Northern Brewer hops at 7.5 percent alpha acid to be boiled for 75 minutes. Based on your assumptions about utilization, you calculate that this will produce 28 IBUs of bitterness in the finished beer, which is perfect for the recipe in question. The problem comes when you find that the store only has 6.3% alpha acid Northern Brewers, so you have to use those instead.

Now you could start with your 28 IBUs of bitterness and work through all the calculations backwards to figure out what weight of less-potent hops to add. But an easier method would be to simply do the conversion using HBUs. Originally you needed 1.5 oz x 7.5% aa or 11.25 HBUs for the 75 minute boil. Just divide that by the new alpha acid number to get the new weight: $11.25 / 6.3 = 1.78$ oz. Because the amount of alpha acid you are adding to the kettle at that point in the boil hasn't changed, your IBU numbers won't vary either.

From this example, I hope you can see why we include HBUs with many recipes. It is just a way to concisely and accurately convey information about the amount of alpha acid added to a recipe at a specific time. When properly used, HBUs would present your pilsener hop schedule as follows:

3.67 HBU Hallertau Mittelfruh
first wort hopping

3.67 HBU Hallertau Mittelfruh
60 minutes

6.0 HBU Hallertau Mittelfruh
30 minutes

4.0 HBU Hallertau Mittelfruh
15 minutes

9.8 HBU Hallertau Mittelfruh
end of boil

This way, both the bitterness goals and the flavor and aroma impacts would be essentially preserved.



We believe that most competent home-brewers who were given this pilsener hopping prescription would have a chance at matching your results.

Perhaps the only exception to this is that we actually prefer the use of straight ounces rather than HBUs or IBUs for late additions (last 20 minutes) where oil content is more important than alpha acids.

One final thought: the use of HBUs in recipes actually makes your IBU calculations easier. When you plug 3.67 HBUs into your IBU formula, it simply becomes 1 ounce x 3.67% alpha acid. But there is no need to separate these. You can simply multiply HBUs by utilization to get the numerator of the IBU equation (See page 72 for a simplified IBU formula). If you are doing it by hand, multiplying two numbers is a bit easier than having to multiply three!

So, we believe HBUs are a useful tool whether you calculate IBUs or not. When properly used, they help brewers make beer more simply and more consistently. We plan to continue their use for the foreseeable future.

Editor

Kvassing Rye and Barley

Dear Zymurgy:

In the July/August issue of **Zymurgy**, Kvass is a recommended beer to make during the summer. I am having some difficulty finding any recipes for making a batch. Could you point me in the right direction?

Thanks,
David Curington

Dear David:

Here's one that we have brewed with success. Just remember, this is intended to be drunk fresh—two or three days after pitching, it will be ready for consumption.

Editor

Basic Kvass

3 gallons (11.36 L)

- OG: 1.017
- TG: 1.005
- 1 lb American 6-row malt (.45 kg)
- 0.5 lb flaked rye (.23 kg)
- 1 oz rice hulls (as an aid to sparging—not required) (28 g)
- .5 tsp of gypsum (2.5 mL)

Mash at 144° F (62° C) with 2.5 quarts of water (2.37 L). Sparge with about 2 gallons of water (7.57 L) at 167° F (75° C) treated with .5 tsp of citric acid powder (2.5 mL).

Ferment with a dry ale yeast of your choice.

Fermentation takes about 24 hours, so this will be ready to serve a couple days after you make it. It can be served flat or—if you force carbonate in a keg—sparkling. Add .5 to 1 tsp citric acid (2.5 to 4.9 mL) to the finished product (less for carbonated, more for flat) to taste.

Uncivilized Language

Dear Editor:

I am a lifetime AHA member and subscriber to **Zymurgy** since 1984. I have seen the magazine grow and always look forward to receiving it. But you hit an unexpected low in the July/August 2000 issue.

Hank Stewart's article "Maibock, Libation of the Gods" was a reminder of the same kind of uninspiring mediocrity we saw in the 1988 special issue profiling Kathy Ireland. Worse, his use of the classic f-word was a shock to see in **Zymurgy**, reminiscent of the old vaudeville saw that if you can't get a legitimate laugh, drop your pants.

Jim Fariss
Columbia, South Carolina

Dear Editor:

The content of the Maibock article was beneath the level of civilized discourse. I was

disgusted by the language and tone of the article. **Zymurgy** should be able to conduct itself in crude and offensive language. (sic)

Philip McCurdy

Dear Jim and Philip:

We're very sorry to offend you. Had we foreseen your discomfort, we would have altered the text accordingly. Meanwhile, we've made an example of Mr. Stewart by having him drawn and quartered, tarred and feathered and flogged to within an inch of his life. Then just to make sure that he would actually remember the experience, we deprived him of beer for several hours. Rest assured that his future writings for **Zymurgy** will be free of vulgar language.

Editor

A Binding Situation

Dear **Zymurgy**:

Last night I received my VERY FIRST **Zymurgy**. Unfortunately I cannot say it was a pleasant experience. Upon starting to read the magazine I discovered that a "few" pages were duplicated. I have duplicate pages of 17-24 with corresponding pages of 41-48 on the "opposite" side. Due to this it also appears that I am missing 16 pages where these were duplicated (these would be 9-16 and 49-56).

I am curious as to if these pages do indeed exist, and what can be done to correct this error.

Thanks in advance,

Karl D. Loeffler,
AABG, HBD, AHA

Dear Karl:

*Yikes! Looks like somebody was asleep at the bindery that morning, as you and about 50 other subscribers got this "special" edition of the July/August **Zymurgy**. (Hey, maybe it will become a valuable collector's item!)*

You should have a replacement copy by now and others who had the same problem can contact membership service to get things straightened out. Membership services can be reached toll-free at (888) 822-6273.

Editor

BY RAY DANIELS

Midnight in the Garden of Beer History

All right, don't expect too much from me today, I had a rough night last night.

And it's not what you think. I drank but modestly, imbibing just one beer each from the local Goose Island and Kalamazoo breweries (observing American beer month, of course, since it is July as I write this).

No, the source of my discomfort and the proximate cause of my ill temper comes not from the beery spirits that I grabbed from the 'fridge, but rather from those beery spirits who reached out to grab me from the past. I'm talking about the human—or rather formerly human—kind here. You know, the chain-dragging, flesh-rotted, scary-noise-making sort of spirit from the beyond.

Go ahead. Laugh. Scoff. Just tell me it wouldn't ruin your night to come face-to-face with a life-like vision of Louis Pasteur delivering a thunderous (and, for me at least, incomprehensible) oratory about yeasts at 3 a.m. Maybe it has something to do with that rabies stuff he did later, but this one actually foams at the mouth as he rants. Truly frightening.

Ok, I'll admit that I don't really believe in spirits—at least not the disembodied-wandering-the-night-in-search-of-their-souls type. In truth, I know that these visions are all in my head—mere inventions of my too-active imagination. Yet their psychic impact is real and their visits all too frequent.

I am sorry to say that the French-babbling Pasteur is one of the regulars amongst my midnight visitors. Another is Daniel Wheeler, inventor of the malt roasting drum first used to make black patent malt. Like many of the others, he comes to see me because he has an axe—or rather a malt—to grind. In this case, Wheeler is still ticked off that the term "Wheeler's malt" didn't stick to designate that black stuff that goes into making robust porters. Seems that dead



inventors have little to worry about except their legacy.

I keep trying to send Wheeler to a good public relations rep, but he doesn't seem to be going for that. I've also given him the names of a few maltsters to work on. I figure maybe one of them could change the name of their black malt as a marketing gimmick. Besides which, maltsters sleep too well anyway.

Pasteur and Wheeler, like most of the ethereal visitors I get, seem to have something bugging them. George Hodgson of London comes through from time to time complaining that the Burton brewers stole his market for India ale. Of course he was the first to combine a highly-hopped, well-attenuated pale ale with cheap shipping rates to create an export market for beer in India in the 1790s. Only problem was that he then ran it as a ruthless monopoly for nearly forty years. Eventually he ruined so many of his business partners that no one would support him anymore. (Hey, maybe I should send this guy to chat with Bill Gates!)

Somehow these midnight visitations never bring the guys that I really want to

talk to. For instance, I'd love to get a few minutes with the brewer who cranked up the first batch at the then-new brewhouse in Pilsen in 1842, Felix Groll. I wonder if he knows just how profoundly his combination of Bavarian lager yeast with pale Moravian malt and Saaz hops has influenced the history of beer? Perhaps if he did, he'd be here every night trying to rename all the pilseners in the world after him. Just imagine heading into your local bar and asking for a nice authentic Felix-style beer.

Another guy I'd love to pass some time with is W. L. Tizard, the eloquent 19th century brewing author. His most popular work, "The Theory and Practice of Brewing Illustrated," saw print in four editions over more than 20 years and it included some wonderful phrases. One which I often quote is his observation on the effects of the narcotic *cocculus indicus*—a common additive in porter in the early 1800s. He described the fact that true porter had disappeared: "...in many houses a black sulky beverage being substituted in its stead, on the taste of which the stranger experiences a shake as sudden and electrical as that which seizes a spaniel when quitting the water." Now there's some beer writing!

Tizard also offered up commentary on India Pale Ale—which was regarded as a sort of medication when first adopted for domestic consumption in Britain—saying: "Hence the medicamentous properties of this beer of physicians may be in part attributed to the absence of saccharine, mucilaginous, and general amylaceous superfluity, but principally to the highly tonic property derived from the quantity and quality of its hop, which corrects unwholesome nutriment, promotes digestion, and, in a singularly powerful manner,

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increases the nutritive virtue of all food united with it, without undergoing any perceptible change while thus officiating in its passage through the animal system."

But alas, Tizzard's words don't come to me through the beer-soaked ether of my midnight world. Instead, I get the cranky ruminations of a Tizzard contemporary, one William Black. "It has long been familiarly known that thunder sours beer," Black started in most recently. I tried to ignore him, but it is hard to sleep through such statements.

"A very short time after a thunder-storm begins, the usual healthy character of the fermentation disappears. Instead it is attended with a hissing noise and frothy head. When samples are drawn and examined, the gravity is found to have risen many degrees instead of fallen and to contain five percent or more of acid," he opined.

Odd notions about thunder—or electricity in general—are not the end to Black's false expertise on brewing. Other "facts" that he has put forward include the following:

"It is a generally received opinion that the stronger the worts, the less yeast is necessary." (He is dumbfounded that we believe the opposite.)

"Another useless process is that of drenching the malt with great additional quantities of water, at high temperatures for the purpose of squeezing a little more extract out of it." (Sparging, by any name, is deemed a waste by Black—and indeed by many British brewers of the 1850s.)

Yet despite all of Mr. Black's odd notions—most of them based on science that no one understood at the time—he does come up with the occasional insight. One such tidbit relates to the use of wooden barrels.

Few brewers alive today really understand how wood barrels were used and what flavors they might or might not have imparted to the beer. In Black's time of course, this was a rather mundane subject. Wood barrels had been in use for hundreds of years and were the only practical means by which to transport many items, including beer.

Black makes clear that new wood barrels required treatment before use. "As new oak

staves contain a considerable quantity of gallic acid and tannin, it is advisable to remove these acids from new casks, lest they should impart a disagreeable flavor to any beer with which they may be at first filled. Many methods have been resorted to for seasoning, as it is technically called..."

He goes on to detail a process that begins with quick lime and boiling water and ends—after three or four days—with several more rinsings with boiling water. The process bears a striking resemblance to that used even today by Anheuser-Busch to remove all flavor from their beechwood chips before tossing them in the lagering tanks.

As dawn begins to pour into my nightly fermenter of fun, Mr. Black begins to fade. As he goes, he tosses off a disparaging comment about wood flavor in beer: "To be avoided at all costs" Suddenly I am staring not at the withered face of William Black but at the tattered volume of his words that I was reading as I lapsed into sleep the previous evening.

As I rise for the morning's modern rituals—showering, microwaving breakfast and checking e-mails—I wonder how our legacy of brewing will read a century and a half from now. No doubt decoction mashing will be seen as quaint. I suspect that even mash tuns will be a thing of the past. Raw hops, with their mass of unneeded vegetation, will probably never be seen in a brewery. And all of our struggles to understand and quantify hop bitterness, malt color and yeast esters will all be seen as little more than simple high school chemistry.

In 2150, our descendants in the traditions of brewing will laugh and shake their heads as they think of how we brewed. They will wonder how we ever made good beer with such misguided ways. As I think of this, I suppose that what is true for us now was just as true in the 18th and 19th centuries: we use what we know to our best advantage—and as a result, we make some damn fine beer. And as we raise a glass of our latest brew, we can rest assured that our fellow brewers, both past and future, would be only too happy to share our toast—and our beer.

Ray Daniels surfs the history of beer from his home and office in Chicago.

BY PAUL GATZA



The Kansas City Bier Meisters take possession of the Homebrew Club of the Year trophy.

Kansas City Bier Meisters are 2000 AHA Homebrew Club of the Year

The Kansas City Bier Meisters are goal-oriented folks. In 1999, they redesigned how the AHA National Homebrewers Conference is planned and conducted, creating a model built upon by the Michigan clubs in June of 2000. The Bier Meisters' goal for 2000 was to win AHA Homebrew Club of the Year. Cooper's Malt Products sponsors the award for the club that wins the most points on a six for first, three for second and one for third basis for the two rounds of the AHA National Homebrew Competition and the six AHA club-only competitions. The traveling chrome-plated trophy returns to Kansas (Derby Brew Club won in 1997) after a brief hiatus in Oregon and Illinois.

When Gary and I went out to the Kansas City Bier Meisters Regional Homebrew Competition (and mini-conference) in February, we caught rumors that Jackie Rager had developed a strategy to motivate the club's brewers to achieve the goal. One built-in disadvantage for the Bier Meisters

was the annual realignment of the NHC regions, so that three of last year's top nine homebrew clubs would all be sending their entries to the Kansas City first round site. The KC Bier Meisters finished with 137 points in the Homebrew Club of the Year Competition.

The defenders also had big challenges to overcome—The Urban Knaves of Grain were in the largest region for number of entries and the Oregon Brew Crew had to contend with renewal of effort inspired by four straight awards in the club-only competitions put in by the 1998 Homebrew Club of the Year, the Capitol Brewers of Salem, Oregon. A strong run by QUAFF from California also added to the high level of competition this year. No fewer than 4 clubs met or surpassed last year's winning total of 77 points.

I don't know what tricks Jackie Rager used to inspire such outstanding performances by 19 different Bier Meisters, but the large group of successful brewers was key to the success. Winning brews were submitted by Rob Beck, Donald Bing, Tim

2000 AHA Homebrew Club of the Year

109 AHA-registered homebrew clubs out of 1246 clubs in our database scored points for first, second, or third place in the six AHA Club-Only Competitions and the first and second rounds of the 2000 AHA National Homebrew Competition. Here are the top twenty in terms of points.

Points	Club
1. 137	Kansas City Bier Meisters, Kansas
2. 114	Urban Knaves of Grain, Illinois
3. 108	Quality Ale & Fermentation Fraternity (QUAFF), California
4. 77	Oregon Brew Crew, Oregon
5. 59	Central Florida Homebrewers, Florida
6. 44	Prairie Homebrewing Companions, North Dakota
7. 42	Capitol Brewers, Oregon
8. 41	Edmonton Homebrewers Guild, Alberta, Canada
9. 37	Tampa Bay BEERS (Beer Enthusiasts Enjoying Real Suds), Florida
10. 36	Great Northern Brewers, Alaska
11. 34	Ale & Lager Enthusiasts of Saskatchewan (ALES), Saskatchewan, Canada
12. 33	Covert Hops Society, Canada
13. 26	Collingwood Brew Club, Ontario, Canada
14. 24	Cowtown Cappers, Texas
15. 23	Derby Brew Club, Kansas
16. 21	Prime Time Brewers, Michigan
16. 21	St. Louis Brews, Missouri
18. 20	Chicago Beer Society, Illinois
18. 20	Mountain Ale & Lager Tasters (MALT), North Carolina
18. 20	Washoe Zephyr Zymurgists

Brown, Charlie Burry, Kenny Butler, Rob Clucas, Steve Ford, Marc Gaspard, Tim Hamilton, Jim and Karla Holiday, George Huhtanen, Pamela Klifar, Philip Leonard, Grant Manning, Mike Porter, Jackie Rager, Michael Robertson and Jack Sykes.

One of the pleasures of the past two winters has been bowling across Kansas on our way to attend the KCBM Regional Homebrew Competition. With Superchef Dan Turner providing meals for judges and stewards, a growing technical conference component, which has seen George Fix, Louis Bonham, Charlie Olchowski, Paul Farnsworth and Fred Eckhardt present in the last two years, and a sampling of Kansas City-area brews, I strongly recommend adding a trip to Kansas City to your February 2001 calendar. The Bier Meisters also do a beds for brewers program for out-of-towners. For a list of bowling alleys on the way, please contact the Kansas Convention and Visitors Bureau.

2000 Weiss is Nice Club-Only Competition

The AHA would like to thank Bruce Thomas, Bill Hobbs and the Dead Yeast Society for hosting the Weiss is Nice Club-Only Competition on May 20. This was the sixth and final competition in the August to May cycle with points going toward the

Homebrew Club of the Year trophy. Thanks to the club representative brewers who participated. There were 30 entries.

Congratulations to the following winners:

First Place:

Jack Baty of St. Louis, Missouri, representing the St. Louis Brews, with his Bavarian Weizen called "Jackstraw Weizen."

Second Place:

Peter Zien of San Diego, California, representing the Quality Ale and Fermentation Fraternity (QUAFF), with his Wheat Beer/Berliner Weisse called "Berliner-Style Weisse."

Third Place:

Mike Porter of Lenexa, Kansas, representing the Kansas City Bier Meisters, with his Bavarian Weizen.

Best of Fest Club-Only Competition

The October AHA Club-Only Competition brings the return of Best of Fest, hosted

by Leo Vitt and the Minnesota Timberworts. One entry per club of two bottles of AHA/BJCP Category 9, German Amber Lager. Please specify whether the entry is Subcategory 9A, Oktoberfest/Maerzen, or 9B, Vienna Lager.

Entries are required to have a \$5 check made out to AHA and an entry/recipe form and bottle id forms. More information on the club-only competitions is available at <http://beertown.org/AHA/clubcomp.htm>.

Please send your entry to:

Lakeview Technology
C/O James White
3535 40th Avenue NW
Suite 200
Rochester, MN 55901

The entry arrival window is October 16-31, 2000. Judging is tentatively slated for November 4, 2000.

Homebrewer Paul Gatza is the softball coach for Hop Barley and the Alers, a Boulder, CO homebrew club.



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Palm Readings

Dear Professor Surfeit,

I have been homebrewing for about five years and have tried every method and style I could find from extract to all grain, and mead to country wine. Inspired and guided by the wide ranging information and enthusiasm I found in *Zymurgy* and other homebrew publications, I thought I had tried or at least heard of all the fermentation possibilities until a Doctor friend of mine who grew up in the state of Kerala in Southwestern India told me about a local brew they make where he was born. He calls it "Toddy," which is probably a recent name that reflects British occupation. He claims, however, that the drink dates back to the furthest reaches of antiquity and has always been a main staple of the indigenous people's diet, which consists only of "Toddy" and the fish they catch. He also maintains that, although lacking the wealth and benefits of more technologically advanced cultures, they are among the healthiest of people and have a natural life expectancy that equals that of developed nations like the United States. He describes "Toddy" as naturally fermented fresh coconut milk; with an alcohol content similar to beer, but a sweet/sour flavor that I'm guessing probably involves some lactic fermentation from open fermentation.

Have you ever heard of this coconut beer? Any plans to travel, try, or write about it? Any ideas on how one might try to make it at home or suggestions on references for learning more about it? Thanks for all your shared information and good spirits over the years.

Relaxed, definitely not worried, but thinking I might be interested in trying this new to me but very old form of homebrew.

Rick Dingus
Lubbock, TX

ILLUSTRATION BY JOHN MARTIN

Dear Rick

Yep, I know exactly what you are talking about, though I think a few things may have been scrambled in the translation. I experienced the very same stuff about 22 years ago when traveling in Indonesia. The locals chuckled at me when I accepted their offer to try this milky white brew that had them smiling the afternoon away. The aroma was sweetish and fruity and reminiscent of coconut. But derived from coconut it was not. Actually this "toddy" is fermented sap from a particular palm tree that grows in very tropical areas. Its sugar content is quite adequate to ferment up a mildly intoxicating "brew." The sap is tapped and collected much the same way the sugar bush folk of America collect maple tree sap for boiling down to syrup, but the toddy has enough sugar that you really don't need to evaporate it.

So if you are in the southern part of Asia or parts of Africa, you will find toddy.

Palms down,
The Professor, Hb.D.

Dear Professor Surfeit,

I am making 5 gallons of mead. I always use corn sugar for bottle conditioning. I would like to substitute honey for the corn sugar. Can you make any suggestions as to the amount of honey I should use? Thank you.

Larry E. Fuller
U.S.A.

Dear Larry,
Let's cut the shuck and jive and just get on with it: 7/8 cup of honey will do fine instead of 3/4 cup of corn sugar.

Short and Sweet,
The Professor, Hb.D.

Don't Die Before You Read This

Dear Professor Surfeit,

I just read your reply to the person ready to bottle some Eisbock. You said that you have to reintroduce yeast to create carbonation. My question after reading the reply is this. I have a triple decocted Maibock that has lagered now for six weeks. My lagering is taking place in a tertiary vessel and I'm afraid all or most of the yeast has settled out. (I have had this happen to a barley wine that aged in a tertiary for two and a half months. The stuff still hasn't carbonated after four years.) Your response said to use hydrated dried lager yeast. Since the yeast is for carbonating purposes only couldn't I just use dry ale yeast that is lying around in my fridge? The only lager yeast laying around is in liquid form and the local shop is out of stock on dry lager



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yeast. I plan to bottle tomorrow night cause the wait is killing me.

Dave Persenaire
Tinley Park, IL

Dear Dave,

Sure you can use rehydrated dried ale yeast. But you'll have to let the beer condition at room temperatures preferably above 65° F for a few weeks or until carbonated. Once you get your beer chilled again for storage (that is, if you have that luxury) the ale yeast will be good as dormant.

Quickly responding
The Professor, Hb.D.

p.s. Dear reader, I responded to Dave within minutes of receiving his email, so don't worry, no wait killed him.

Dear Professor Surfeit,

Many of the nations of the world have a beer style that they can call their own. The British have ESB, the Germans boast Oktoberfest, the Belgians claim Lambic, et cetera. Some nations have an obscure style. Duckstein is a German example. In an effort to research Hungarian beer styles, I draw a stylistic blank. The **Zymurgy** readers may be able to provide an insight or assist in your continuing search for endemic beers. Please consider preparing an article on a Hungarian beer style. I would appreciate a recipe to accompany the article.

Eric Galamb
TRUB Member
AHA Member

Dear Eric,

Consider the Professor on alert. Let's see what we can find out from our readers in the next year.

The Professor, Hb.D.

The Professor stands ready to answer your beery questions. Stuck on a problem? Can't find an answer? Just write The Professor, Hb.D. and your question will be answered. Send your homebrewing questions to "Dear Professor", PO Box 1679, Boulder, CO 80306-1679; FAX (303) 447-2825 or professor@aob.org via email.

CALENDAR

AMERICAN HOMEBREWERS ASSOCIATION

SEPTEMBER

9 6th Annual Brewer's Dream Homebrew Competition, **AHA SCP**, Libertyville, IL. Entries due 8/19/00 - 9/2/00 with \$5 fee, \$4 each for 4 or more, \$3 for club members. Contact Roger Grum at 847-234-5809 (h) or 847-295-6000 (w), email: roger@iconnect.net, www.clubbob.org.

23 Cactus Challenge, **AHA SCP**, Lubbock, TX. Entries due 8/18/00-9/15/00 with \$7 per entry, \$9 for late entries. Contact Ale-ian Society (Larry Pyeatt as Supreme Dalek) at 806-763-0577, email: larry.pyeatt@ttu.edu, www.door.net/homebrew.

23 Pacific Brewers Cup, **AHA SCP**, South Bay L.A. County (location tbd), CA. Entries due 8/28/00 - 9/9/00 with \$6 fee. Judging will take place 9/23/00. Contact Steven E. Fafard at 310-373-1724 (h) or 310-727-4261 (w), email: sfa-fard@compuserve.com, www.strandbrewers.org/p.c.

23 Third Annual Barley Literate Octoberfest, **AHA SCP**, San Marcos, CA. Entries due 9/1/00 - 9/15/00 with \$5 fee. Contact Don Bennett at 760-471-5255, email: dbennett@utm.net, www.bonesbeer.com/blweb/index.html.

23 West Hundred Open, **AHA SCP**, Chester, VA. Entries due 9/4/00 - 9/16/00 with \$6 for the first entry and \$5 for each additional entry. Contact Paul Grinter at 804-748-0360 (h) or 804-763-2136 (w), email: westhundredopen@beer.com, http://weekendbrewer.com/clubpage.html.

26-30 Mid South Fair, **AHA SCP**, Memphis, TN. Entries due 9/15/00 - 9/22/00, no entry fee. Contact John Mornaville at 901-682-5042 (h) or 901-495-8733 (w), email: john.mornaville @autozone.com, www.memphisbrews.com.

30 Northern New England Regional Homebrew Competition, **AHA SCP**, Rockport, ME. Entries due 9/28/00 with \$5 fee. Contact Thomas J. O'Connor III MD at 207-236-3527, email: toconnor@nehealth.org, http://mail.symuli.com/NEHBOTY.

OCTOBER

7 Heritage Days Fish & Brew Contest, **AHA SCP**, Forks, WA. Entries due 6/30/00 - 9/15/00, no entry fee. Contact Al Barr at 360-374-6310 (h) or 360-374-3141 (w), email: akbarr@olympen.com.

12 Arizona State Fair, **AHA SCP**, Phoenix, AZ. Entries due 9/15/00 with \$3 fee. Contact Sherry Pew at 602-252-6771, email: smdl@home.com, www.azstatefair.com.

15 Kansas City Renaissance Festival Homebrew Competition, **AHA SCP**, Bonner Springs, KS. Entries due 10/7/00, there is no entry fee. Contact Carol Keller at 816-373-0907, email: renfestse@aol.com.

20-21 17th Annual Dixie Cup, **AHA SCP**, Houston, TX. Entries due 10/6/00 with \$6 per entry; entries received between 10/7/00 and 10/13/00 will be charged \$10 per entry. Contact Bev Blackwood at 713-432-1248 (h) or 713-348-5925 (w), email: bdb2@bdb2.com, www.crunchyfrog.net/di/icecup/.

28 The Hoppy Halloween Challenge, **AHA SCP**, Fargo, ND. Entries will be accepted from Sept. 25 - Oct. 13. The entry fee is \$7.50 each for the 1st 4 entries and \$6.00 each for each additional entry. Contact Susan Ruud at (701) 231-8445, email: sruid@badlands.nodak.edu, www.linkup.net/users/dtrautmann/phc.html.

NOVEMBER

4-5 Brews Brothers NOVEMBEER-FEST 2000, **AHA SCP**, Kent, WA. Entries due 9/18/00 through 10/27/00 with \$5 fee. Contact Rick Star at 425-821-9388 (h) or 206-655-8485 (w), email: we_stars@msn.com, www.brewsbrothers.org/nbf_top.htm.

4-18 The Derby Brew Club 7th Annual Homebrew Competition, **AHA SCP**, Derby, KS. Entries due 10/23/00 - 11/1/00 with \$6 for the first 6 entries, \$5 for each additional entry. Contact Kip Innes at 316-788-4787, email: kbinnes@aol.com, http://home.kscable.com/derbyjones/dbc.

AHA SCP = American Homebrewers Association Sanctioned Competition 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 November/December 2000 Issue (Vol. 23, No. 6), information must be received by September 7, 2000. Competition organizers wishing to apply for AHA Sanctioning must do so at least two months prior to the event. Contact Gary Glass at gary@aob.org; (303) 447-0816 ext. 121; FAX (303) 447-2825; PO Box 1679, Boulder, CO 80306-1679.

• KUDOS •

AHA SANCTIONED COMPETITION PROGRAM

• JANUARY 2000 •

Big Bend Brew-Off 2000

Tallahassee, FL, 151 entries — Claude Hendon of Tallahassee, FL won best of show.

• APRIL 2000 •

4th Annual B.E.E.R. Brew-Off

Nesconset, NY, 180 entries — William Breidenbach, of Copiague, NY won best of show.

• MAY 2000 •

7th Annual Sin City Sudzers Homebrew Competition

Sheboygan, WI, 25 entries — Michael Garcia of St. Louis, MO won best of show.

7th Annual Peach State Brewoff

Atlanta, GA, 177 entries — Vance Barnes of Cumming, GA won best of show.

Ice Harbor Brewery's 1st Annual Homebrewers' Competition

Pasco, WA, 24 entries — Tom Barnes of Walla Walla, WA won best of show.

Western New York Homebrew Competition

Buffalo, NY, 243 entries — Paul M. Jackson of West Seneca, NY won best of show.

UNYHA 22nd Annual/11th Annual Empire State Open

Rochester, NY, 120 Entries — Andrew Jones of Rochester, NY won best of show.

Sunshine Challenge XI

Orlando, FL, 602 entries — Jeff Gladish of Tampa, FL won best of show.

Oregon Homebrew Festival

Corvallis, OR, 292 entries — Curt Hausam of Salem, OR won best of show.

Elizabethan Homebrew Competition

San Bernardino, CA, 91 entries — David Welch of Long Beach, CA won best of show.

Hops Mayfest III

Tacoma, WA, 28 entries — Grace Nilsson won best of show.

NetWort V

U.S.-Totally Online, 54 entries — Steve Gale of Landing, NJ won best of show.

New England Brewing 4th Annual Homebrew Competition

So. Norwalk, CT, 110 entries — Tess & Mark Szamatalski won best of show.

• JUNE 2000 •

Stanislaus Hoppy Cappers' Summer Cap-Off 2000

Ceres, CA, 76 entries — Robert Arguello of Davis, CA won best of show.

Boneyard Brew-Off

Urbana, IL, 165 entries — Ed Seaman of Streamwood, IL won best of show.

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The Outlaw Beers of Germany



Top Fermenting Oddities from the North of Germany

Spinmeisters for German brewers have done a pretty good job of convincing us of the immutability and omnipotence of that most venerated of all beer documents, the *Reinheitsgebot*. This impressive jotting, which dates from 1516, forbade brewers from using anything other than malt, water and hops in their beer (yeast was unknown at the time.) At least in bottom-fermented beers. But only in Bavaria. And because of a sort of royal side-deal, wheat beers don't count.

You may or may not know that Bavaria didn't join the German union in 1871, after Mad King Ludwig shamelessly spent the national treasury building what would become fanciful tourist castles a century later. So the strictures didn't apply to the larger part of Germany, which already had a long and proud brewing tradition.

And now, since Europe has become one, and the whole ancient legal force of it is now just so much trub, it seems like the perfect time to bring some of the crusty curiosities which are exceptions to the revered *Reinheitsgebot* to light. Not only are they surprising in their variety, the ones I have actually brewed are quite delicious, confirming my firm belief that those old-time brewers and drinkers really knew what they were doing, even without high-tech modern conveniences like the thermometer and the Internet.

Going Way Back There

The history lesson starts in the early medieval period, around 1100. This marked the birth of the Hansa, the powerful international trading organization that dominated commerce for 500 years. By this time Lower Saxony (the area south of Berlin today) was exporting beer to England and Flanders, as well as east to the Baltics.

During this period, brewers were divided into separate guilds according to whether they brewed "white" or "red" beers. Cities would often become famous for one or the other, rarely both. Until around 1500, the red beers were mainly the spiced, unhopped variety known as *gruit*. While gruit beers have an interesting history all their own, this article will be focusing on the white beers of this period.

According to what we know about them, these early white beers might well be recognizable to us as such today: pale, light-gravity beers, often cloudy, usually seasoned with hops as well as other spices, usually with some degree of sourness.

It is ironic that a style now not noted for its hoppiness should, in fact, be among the earliest popular hopped beers. Many early white beer brewing centers—Hamburg, for example—were also early hop markets.

Hamburg was the first big international success story in beer. The beer business was booming; fully half of all its master artisans of *any trade* were brewers. With 527 houses licensed to brew in 1540, it must have been a great-smelling town.

Hamburg beer was described as the "queen of all white beers," and was brewed from a mix of barley and wheat malts, and seasoned with hops. Its color was pale, usually described as "yellow," and by 1698, 14 different kinds of beer were being brewed there.

By Randy Mosher

A 1363 text describes a beer from Lübeck, called *Israel*, as containing 7 parts wheat or barley malt, one part oats, with a color a little lighter than Hamburg beer. By 1462, a solid two-tier system had been set in place there, forbidding brewers to own pubs or sell their beer directly to the public.

Hanover became celebrated for a beer called *Broyhan*, invented in 1526 according to tradition, by a brewmaster called Cord *Broyhan*. It was described as very pale in color, lighter than Hamburg beer, with "the more wheat the better."

Cities in the North were justly famous for their white beers, but had no real monopoly on them. In Vienna, a type of oat beer was popular. It was a sort of greenish-yellow, similar to *Berliner weisse*, very frothy, known under the name of *Hornerbier*, named after Horn—a small town in the northern part of lower Austria.

Of course white beer thrives today in Berlin, where it is still consumed in great quantities. *Berliner weisse* shares much in common with the other beers we'll be discussing, the defunct and obscure members of this family of beers.

A Bump in the Road

Things were going along swimmingly until the Thirty Years War, which ran from 1618 to 1648. This calamity destroyed much

of the populace and industry of Northern Germany. The area took a century or more to rebuild, and in the meantime cheap distilled products like gin and schnapps became available for serious drinkers, and at the same time healthful alternatives like tea, coffee, and chocolate gained popularity. Wine became the drink of the upper classes. Napoleonic conflicts and the disturbances that sent hordes fleeing to our American shores did nothing to improve the situation. Brewing glory, after a short stint in Einbeck, went south to Bavaria, which during the earlier centuries had been a backwater because of its landlocked status. Today of course, Bavaria is widely regarded as the seat of beer culture and brewing knowledge.

In the North, beer styles which had once been superstars of international commerce went back to being merely local curiosities. The Reinheitsgebot became national law across all of Germany in 1906.

Notes on the Recipes

Before we go any further and start getting into the individual beers and their recipes, let me inject a few notes about the formulations that I will be presenting.

All are derived from original source material, but all have been adapted for modern homebrew equipment and ingredients.

Many of the old brewing procedures are frivolously complex, as well as being nearly impossible to translate from the old texts. In any event, much of the bizarre shuffling of ingredients seems to be either blind tradition or the necessities of dealing with ingredients back then, and as far as I can tell, have little to do with beer flavor or texture. For the most part, I recommend using a simple step-mash procedure; exceptions will be noted in the recipes. I heartily encourage a "mash out" at 175° F (79° C), then keeping the mash temperature high throughout the sparge. Wheat and especially oats become very sludgy at lower temperatures, making sparging maddeningly slow.

Mash yields are figured at about 85% of laboratory hot water extract figures. Your mileage may vary. If you are not an all-grain brewer, I have included one or two recipes that specify extract, but you can always substitute pale and wheat malts by their respective extracts. Of course, the flavor will be a bit different than it would be with grain—not better or worse, just different.

Shortly before the end of the nineteenth century, many of these everyday beers were in the 10-12° P / 1.040-48 range. By the end of World War I, the ones that were still being brewed had dropped to 7-9° P / 1.028-36. I've chalked this up to wartime shortages, and gone back to the beefier gravities.

Hop quantities are based on whole hops. Decrease by 20% if using pellets.

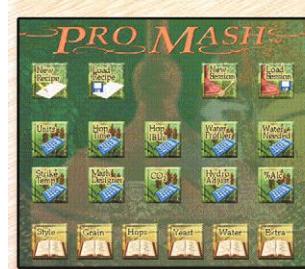
I have a strong dislike for ordinary grocery store coriander. I feel it has a strong celery-seed vegetable aroma completely out of place in beer. If you can locate an Indian market, buy your coriander there. The bigger, paler seeds of this variety provide a lush, citric spiciness that's just great in these recipes.

Maybe it's just me, but I find the dried "Curacao" oranges sold in homebrew shops to be rather flavorless except for a strong nagging pith bitterness. I've had good luck with regular oranges, tangerines and other citrus. For orange peel in the boil, I just take a potato peeler to the outer layer of the skin, and throw the zesty stuff into the kettle at the very end of the boil.

Spice quantities in the old recipes are surprisingly small; perhaps there's a scale-up issue like there is with hops in bigger



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batches. I have increased spice quantities a bit (+50%) in all these recipes.

The closer to Berlin the recipe comes from, the more likely it is to have been sour. Period recipes called for no boiling at all, or the addition of 10-20% unboiled wort to the rest of the boiled wort. If you know anything at all about brewery sanitation and modern thinking about bacterial contamination, this is an engraved invitation to disaster, but this was the way things were done.

Remember, these sour beers were brewed and consumed within just a few weeks, so there was no concern for long-term stability. I have been unwilling to put one of my hard-won batches at such risk, so I usually add a quantity of food-grade lactic acid, which gives a nice yogurt edge. German sour malt can be used for a more complex taste, maybe two or three pounds per batch, swapped out with the pils malt.

Yeast is the really big unknown, although none of the old books makes a big deal out of yeast choice. I have used German and Danish ale strains in my own brews to good effect. If you could find the yeast (not the *lactobacillus*) from a Berliner weisse brewer, it would probably be spot on.

For the wheat beers here, carbonation was quite high, as it still is with wheat beers. I recommend 6 oz by weight (170 g) or 9/10 cup by volume of priming sugar for the gose, graetzer, and lichtenhainer. For the others, I have found no description of this aspect, but their higher strength would dictate a more normal carbonation level.

Ok, now on to the beers and the recipes!

Gose

We'll start our beer tour with Gose, a rather simple wheat beer now being brewed again commercially after a short absence, but still virtually impossible to find without traveling to its source. Gose is a top-fermented pale wheat beer traditionally brewed in Saxony and Thuringia, and espe-

cially in and around Leipzig, where it is today being brewed. Named for the river from which water it is brewed, it is served, like Berliner weisse, with a syrup, in this instance of kØmmel (caraway) or cassis. "Sour and fizzy" is how the taste is described in the old books. A key ingredient is table salt (NaCl), which in small amounts can add to the mouthfeel and impression of strength in this very light beer.

This was traditionally bottled in long-neck bottles, which were sealed, in part, by thick plugs of dried yeast (yuchh!). Carbonation should be high.

Gose

Recipe for 5 gallons (19 L)

- O.G.: 1.036 OG (9° P)
- T.G.: 1.013 OG (3.3° P)
- 64% Apparent Attenuation
- 3.2% Alc/vol

- 2 lb Pilsner malt (38% of grist)
(.9 kg)
3.5 lb Wheat malt (62% of grist)
(1.59 kg)

Mash procedure: Use 2 quarts (1.89 L) of strike water per 1 pound (.45 kg) of grain. Use a step infusion with rests at 113° F (45° C) and 153° F (67° C). Mash out at 170° F (77° C).

Boil for 45 min. (historically described as short boil—often unboiled.)

- 1 oz Tettnang, (28 g) mixed with
mash (common technique in old
wheat beers)
.5 oz Tettnang, (14 g) 45 min.
.5 oz Saaz or Tettnang, (14 g) last
5 min. of boil
1 lb rice hulls (28 g) (aids sparging)
1 tsp salt, (4.9 mL) added to kettle
Irish moss as usual
1 oz coriander (28 g) at end of boil
.5 oz freshly crushed Indian (see
text) coriander (14 g) soaked in
1 cup (237 mL) vodka, strained,
added at bottling

- 1 tsp (4.9 mL) 80% lactic acid added
at bottling
Wyeast Danish ale yeast

Ferment at 61-63° F (17-18° C).

A variation on Gose

"There is brewed in Potsdam and also Berlin a wheat beer of great clarity with a nuance of amber. This beer is spiced with a mélange of clove, coriander, and cinnamon, that one adds pulverized with the yeast at the beginning of fermentation."

Kotbusser

Named after a town (sometimes spelled "Cotbuss") in Saxony, near Brandenburg, this is a special type of German ale, a cousin to the grand family of white beers that includes Berliner weisse, witbier, and many now-dead styles. Both single (O.G. 1.032 or 8° P) and double (O.G. 1.054 or 13.5° P) versions were brewed. The recipe below is for five gallons (19 L) of the double, which better suits our homebrew palates.

This beer has a passing similarity with Broyhan, one of the most popular Northern barley-malt ales, but Kotbusser is made with a mixture of barley and wheat malt.

Kotbusser is a crisp beer, deep gold in color, moderately hopped, with just a hint of sugary complexity from the honey and molasses. Wheat and oats give it a monumental, near-permanent head, and contribute to the soft, almost creamy texture.

You could bump up the flavor level of the honey and molasses by adding them to the beer as a sort of krausen, after primary fermentation is complete.

Kotbusser

All-grain recipe

Recipe for 5 gallons (19 L)

- O.G.: 1.054 (13.5° P)
- 6 lb German or Belgian Pils
malt (2.72 kg)

(continued on page 64)

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AMERICA'S FIRST *Golden* *Age* OF HOMEBREWS

BY GREGG SMITH

At one time nearly every American brewed. Imagine that, all your relatives, friends, and neighbors making beer. If you needed advice or help with a recipe you could ask anyone. It was the country's golden age of homebrew, and it lasted more than 300 years, all through the colonial period.

Beer had of course been an inseparable part of European's lives. Firmly entrenched in the continent's culture, it touched every facet of life. It was consumed at church holidays, enjoyed at taverns, and served as a vehicle to a healthy life. Beer provided a source of carbohydrates in an all too often unbalanced diet, and it was an attractive alternative to drinking from another polluted water supply. Beer was the staff of life.

In the colonies settlers also craved their beer, and homebrewing became commonplace for two reasons: a thirst for beer, and a lack of cash.

Colonial America was a farming society with an economy short on currency and suffocating under the heavy cost of imports. If a colonial family could avoid purchasing necessities, including beer, they did, and brewing started from almost the moment settlers came ashore.

New settlements built brewhouses soon after arrival, and in a communal effort they brewed with vigor. Following the construction of permanent homes, brewing shifted to their kitchens. It was all done with hardly a second thought. Brewing was as much a part of their household life as cleaning and cooking.

In a time when homebrew shops were non-existent, colonial families either grew

their own barley or bartered for a supply. Failing in that, many were forced to make substitutes. Robert Beverly, an early colonial historian wrote the following passage.

"The richer sort generally brew their small beer with malt...The poorer sort brew their beer with molasses and bran; with Indian corn malted with drying in a stove; with persimmons dried in a cake and baked; with potatoes with the green stalks of Indian corn cut small and bruised, with pompons, with the Jerusalem artichoke which some people plant purposely for that use, but this is the least esteemed."

Brewing with adjuncts in place of malt, though often thought of as a recent practice, actually began with colonists who used corn as a substitute from 1584 on. Four years later, Englishman Thomas Hariot wrote about corn in his 'Narrative of the First English Plantation of Virginia', published in 1588. His essay thoroughly detailed the preparation of corn, and its use in brewing.

Throughout the new world malt was scarce and corn ably filled the void. Almost two centuries after Hariot's description of home brew, on February 14, 1775, London Carter described brewing with corn in the Virginia Gazette.

"The stalks, green as they were, as soon as pulled up, were carried to a convenient trough, then chopped and pounded so much, that, by boiling, all the juice could be extracted out of them; which juice every planter almost knows is of as saccharine a quantity almost as any thing can be, and that any thing of a luxuriant corn stalk is very full of it... After...the stalks and all were put into a large copper, there lowered

down in its sweetness with water, to an equality with common observations in malt wort, and then boiled, till the liquor in a glass is seen to break, as the brewers term it; after that it is strained, and boiled again with hops. The beer I drank had been made above twenty days, and bottled off about four days."

Articles like those by Carter were not only common, they were often supplemented by pamphlets. One from that period had a title so long it was nearly a book in itself: "Every Man His Own Brewer, a practical treatise, explaining the art and mystery of brewing porter, ale, two-penney and table beer, intended to reduce the expense of families, by Samuel Child, brewer."

Child outlined an explanation of the process and provided recipes of his own formulation. Concentrating on the popular beer styles of the day, his booklet focused on ales and featured instructions on making porter, saying in part: "One quarter of malt, 8 lbs. hops, 9 lbs. treacle, 8 lbs. licorice root, 8 lbs. essentia bina, 8 lbs. color; capsicum, 1/2 oz.; Spanish Liquorice, 2 oz.; coccus indicus, 1/4 oz.; ginger, 3 oz.; lime 4 oz., slackened; linseed, 1 oz.; cinnamon, 2 drachms."

All up and down the coast home brewers followed similar instructions. In Connecticut brewing was documented from the mid 1630s, when a party dispatched from the colony of Massachusetts settled in the area that became present day New Haven.

Settlers in Providence, Rhode Island were also brewing. Most famous among them was Major Thomas Fenner, well known for his skill in beer making. He must

have indeed been skillful, because his recipe was a classic example of substitution. Fenner suggested using the following:

"One ounce of Sentry Suckery or Sulindine one handful Red Sage or Large 1/4 Pound Shells of Iron Brused fine, take 10 quarts of Water Steep it away to Seven and a quart of Molasses Wheat Bran Baked

Hard. One quart of Malt one handful Sweat Balm Take it as Soone as it is worked."

Another case of substitution came from Maryland. A British writer there described that colony's homebrewing as a model of successful improvisation.

"The beer they brew is excellent, which they make in great Quantities, of Prsimmons,

&c., of Molasses; for few of them are Come to malting their corn, of any kind, at which I was much surprized; [sic] as even the Indian Grain, as I have found experimentally, will produce an wholesome and generous Liquor."

Georgia was settled much later than other colonies, but the new inhabitants lost no time in establishing their homebreweries. In 1751, Johann Martin Bolzius observed both the need for brewers and the practice of homebrewing.

"A brewer is not needed for as yet too little barley is grown; and the inhabitants who have the ability cook a healthy beer for themselves out of syrup, Indian corn and hops, or the tops of the white water firs, which is very cheap. Strong barley comes from New York, at times also from England..."

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BREW KING

Small B E E R

Table (or common) beers throughout the colonial period were low in alcohol and lightly hopped. Called *Small Beers*, they served as a form of nourishment and at the same time made the water used in preparing the beer 'safe' for drinking. Recipes were often corrupted, based upon what the settlers had available for brewing. Molasses and other fermentables frequently substituted for malt.

A modern recipe for Small Beer might use the second runnings of a Barley Wine or other high alcohol beer, but this recipe follows the original approach by using less malt.

**3 lb (1.36 kg) light malt extract
1 lb (.45 kg) molasses
1 1/2 oz (43 g) Northern Brewer hops
Ale yeast**

Add 1 gallon (3.8 L) of warm water to brewpot. Pour in malt extract and molasses, stirring until dissolved. Add water to usual brewing depth. Bring to a boil, add hops and continue boiling for a total of 60 minutes. Cool wort and add water as necessary to make 5 gallons (19 L). Ferment with ale yeast at 68° F (20° C). Prime and bottle, or keg in usual manner.

NOTE: Although this recipe can be modified to use a full mash of 2-row malts, these were often not available to colonials and the extract and molasses mixture will recreate a more authentic version of the beer.

Spruce

B E E R

As the economy grew, commercial brewing finally emerged, but during the war for independence homebrewing grew stronger again, as boycotts and embargoes cut off supplies. Attitudes and tastes formed during the war years prevailed for decades. Simply put, homebrewing was patriotic.

Throughout the hostilities homebrewers continued to explore substitutes and their research went well beyond a replacement for malt. They needed an alternative for hops as well.

Initially, colonists found that hops grew naturally in the woods, but as the population swelled the wild vines were picked clean. Lacking a reliable supply, what they eventually turned to was both appealing and plentiful. It was the buds of Spruce trees. Almost everyone seemed to have a Spruce beer recipe. Ben Franklin was an enthusiastic supporter, and contributed a recipe he acquired while serving on the peace treaty commission in Paris. On his return, Franklin shared it with his fellow Americans.

"For a Cask containing 80 bottles, take one Pot of Essence [of spruce] and 13 pounds of Molasses—or the same amount of unrefined Loaf Sugar; mix them well together in 20 pints of hot Water: Stir together until they make a Foam, then pour it into the Cask you will then fill with Water: add a Pint of good Yeast, stir it well together and let it stand 2 or 3 Days to ferment, after which close the Cask, and after a few days it will be ready to be put into Bottles, that must be tightly corked. Leave them 10 or 12 Days in a cool Cellar, after which the Beer will be good to drink."

Another Spruce beer, and perhaps the most famous, was designed by General Jeffrey Amherst, governor-general of British North America.

"Take 7 Pounds of good Spruce & boil it well till the bark peels off, then take the Spruce out & put three Gallons of Molasses to the Liquor & boil it again, scum it well as it boils, then take it out the kettle & put it into a cooler, boil the remained of the water sufficient for a Barrel of thirty Gallons, if the ket-

If you plan on taking part in a Revolutionary War re-enactment, or simply get the urge to make a colonial Spruce Beer, you have two options. You can either remain a 'purist' (and make your own Spruce Essence) or buy it prepackaged from a store.

In his book titled *Wines and Beers of Old New England* Sanborn C. Brown suggested picking a handful of black spruce buds in the spring. Rather than boiling the buds into a concentrate he added them directly to the fermenting wort.

On the other hand Stanley F. Anderson and Raymond Hull in *The Art of Making Beer* offered the following recipe. They recommended purchasing Spruce Essence from a health food store. Their recipe (slightly modified) reads

- 1 vial (perhaps 2 tsp or 10 ml) of Spruce Essence
- 4 lb (1.8 kg) pale malt extract
- 1 oz (28 g) of Cascade hops
- water to 5 gallons (19 L)
- ale yeast

Boil 1/3 of the water mixed with the malt extract.

Add the Cascade hops and continue boiling for 45 minutes.

Pour into Primary fermenter and add the remaining water

Pitch the Ale Yeast

Ferment at 68° F (20° C)

Prime in the bottle or keg in the accepted fashion.

NOTE: this recipe obviously was developed in the fashion of a "Small Beer", the beer of choice in colonial days. You may, of course, easily adjust the formula upward to produce a version with more alcohol.

In the same manner colonials found a plentiful substitute for hops, they also discovered an alternative for malt. It was the pumpkin. Rich in fructose, it fermented easily and made what some called a respectable beer. Members of the American Philosophical Society of Philadelphia published a 1771 formula for Pumpkin Ale.

"The expressed Juice of the [pumpkin] is to be boiled in Copper... that there may be no Remains of the fibrous Part of the Pulp. After that Intention is answered let the Liquor be hopped cooled fermented & c. as Malt Beer."

Unfortunately, Pumpkin Ale of the colonial era was, as a result, said to have a noticeable 'tang' unless aged for a few years.

Whether brewed in either conventional or corrupted form, early Americans were drinking staggering quantities of beer. Everyone drank it, from cradle to grave, and working adults drank with zeal, reportedly consuming up to eight pints a day. Those numbers may seem shocking, but the countryside was hardly littered with drunkards. People drank beer as a replacement for water, which no one trusted, and they were able to consume great amounts because of the type of beer they were drinking.

'Small Beer' was table beer, the everyday style. Lower in alcohol than the other favorites of the period, it was an inexpensive alternative to water, and was consumed instead of water throughout the day. Not surprisingly, small beer recipes were plentiful, and everyone brewed it.

George Washington was among those drinking small beer and developed a version made with molasses. Recorded while on duty with the British in the French and Indian War, his homebrewed small beer was easily reproduced, following these directions:

"Take a large Siffer full of Bran Hops to your taste - Boil these 3 hours then strain out 30 Gallons into a cooler put in 3 Gallons molasses while the beer is scalding hot or rather draw the molasses into the cooler & strain the beer on it while boiling hot. Let this stand till it is little more than Blood warm then put in a (continued on page 67)

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ERE Revival

Scene: Noon in a tavern in any city or town in America in 1900. A long mahogany bar, behind which a mustached bartender with striped shirt and sleeve garters is drawing five cent mugs of foaming golden beer as fast as he can for the crowd of working and businessmen crowding the bar. The end of the bar groans under a huge spread of thick sliced rye bread, cold meats, cheese, pickled eggs, pickles, mustard, radishes—all fixings for a free lunch to wash down with that nickel beer. And what was that beer? It was a new world version of the famous Bohemian Pilsner, a pale, sparkling, rich, flavorful lager, brewed by the millions of barrels for the thirsty masses with American ingredients and methods.

Cool fermented, cold aged lager beers, no doubt dark as were most beers historically, began to spread from their Bavarian origins to the rest of Europe during the first half of the nineteenth century. John Wagner of Philadelphia is generally credited with brewing the first lager in America in 1840. However, these weren't the golden lagers that were to become most famous. The first clear, pale lager was brewed in Plzen (Pilsen), Bohemia (now in the Czech Republic) in 1842, and its fame quickly spread.

In the next thirty years the lager revolution swept most of the beer world, and America was no exception. According to brewing historian Stanley Baron, “By the 1870s the American drinking public had made a clear choice for lager beer over ale, porter and the other English beers. What was more, the Americans preferred a lager closer to

the Pilsen than the Munich type: i.e., a pale, light bodied, clear and effervescent beer, relatively low in alcoholic content.” By the late nineteenth century, artificial refrigeration allowed brewers anywhere in the country to brew throughout the year.

Before you lament that something like Miller Lite had displaced Sierra Nevada Pale Ale or Anchor Porter, let me assure you that this pilsner was light bodied and low in alcohol only compared to the earlier pre-lager beers, which Baron quotes a “scientific writer” as describing as “half sour, muddy and intoxicating.”

A classic American pilsner of one hundred years ago, which we can document from Wahl and Henius’ 1902 classic *American Handy Book of the Brewing, Malting and Allied Trades*, would have had a gravity of 1.048-1.052 for draft “city beer,” and 1.052 to 1.060 for the bottled version, suitable for shipping. Hopping was at the rate of a pound per barrel for the city beer of 1.052 OG, more for stronger or bottled beer, or 2.6 ounces per five gallons (3.8 g per liter). Using their reported addition sched-

ule and their analysis of 4.7% alpha “resins,” this would yield an IBU bitterness in the upper 30s IBU.

This beer was brewed in the style of European Pilsners of the time, but with some important differences made necessary by the differences in domestic malt and hops. While Europeans brewed an all malt beer using low protein

of the classic



two-row barley malt, U.S. grown six-row malt was higher in protein. This could result in turbid or cloudy beer. However, corn and rice are largely starch with very low soluble protein levels, and six-row malt has more enzymes than are needed to convert its own starch. They seem made for each other.

Brewers had been experimenting with corn as an ingredient as early as the 1850s,

but without success. Then in the 1870s, Anton Schwartz and others, using newly acquired scientific insight into the problem, developed the American “double mash” method of incorporating these raw cereals into the mash. This method is used to this day in American breweries.

The use of corn or rice eliminated the problems associated with six-row malt and had several side benefits. A beer with a portion of adjuncts (Wahl and Henius recommend no more than one-third) is less satiating and lighter in body

American Pilsner

TRADITIONAL AMERICAN “DOUBLE MASH”

American brewers more than a hundred years ago realized that domestic barley had an excess of protein and that corn and rice, with their low protein levels, could be used to advantage. However, corn and rice starches don't gelatinize at mash temperatures, and so aren't available for conversion. Boiling the cereal gelatinizes the starch, but then they are hard to handle. The secret turned out to be malt. By adding a small amount of malt to the cereal and mashing a short time before cooking, the cereals become quite thin and stay that way.

I mash about five ounces of malt for every pound of adjunct. Use about a quart and a half of treated mash water per pound of corn, two quarts for rice. Rest at about 153°F for 20 minutes, then bring to a boil.

Rice and corn meal should be cooked covered about 30 minutes; grits or polenta 45 minutes to an hour. Stir as you bring them up to a boil and occasionally during the boil, adding more water if necessary. It's best not to overcook rice, but corn can be cooked longer for more flavor and color reactions to take place in the cooker if you want these.

Meanwhile, you have started the main, or malt mash, and timed it so that just as the cereal mash is done, it is time to boost the temperature of the main mash. It's best to plan this ahead on paper.

and color than an all malt beer. This may have been especially attractive to beer drinkers in the hot American summers. Still, this beer was not “lite;” it was richly fla-

vored, but had “süffigkeit,” an untranslatable German word beer chemist Robert Wahl said meant “you can drink it all afternoon and still not have enough.” An added benefit is that unmalted cereals are cheaper than barley malt, at least for large commercial brewers, so it has been a temptation for brewers to save costs by increasing their use. Modern examples of this school may employ as much as 50% adjunct. While brewers of these beers may argue that the resulting light beers are what the consumer wants, most homebrewers and craft beer fans would disagree.

American prohibition, from 1919-1933, permanently closed most American breweries and severely weakened the financial position of the rest, which stayed in business by producing near beer, ice cream, soda pop, or malt extract. Some brewed bootleg beer, most famously in Chicago under the control of Al Capone's gang and others. Bootleg beer was often of questionable quality. When brewing was again legal in March, 1933, beer could at first have a maximum alcohol content of only 3.2% by weight (4.0% by volume). Even when strong beer again became legal at the end of 1933 with repeal of the Twenty-first Amendment, beer was being brewed lighter and sweeter, with less hops and more adjuncts, perhaps to appeal to drinkers accustomed to sweeter drinks of prohibition, and especially women.

Chicago beer historian Bob Skilnik writes, “Beer had become a light, bubbly drink, quite different in taste from the richer, pre-prohibition brew.” This didn't happen all at once, but rather over several decades. In his 1948 *Brewers Manual*, A.L. Nugey recommended hopping rates of half to two-thirds by weight of those of Wahl & Henius, but hops had by now increased in alpha content to 5.5%-7.5%. This would still have been perhaps two to three times the bitterness of modern lagers.

But smaller breweries, perhaps as a result of advertising on the new medium of television, saw invading premium, less bitter regional and national beers eat into their market. During the 1950s and 1960s, the market share of at least one major regional brewery rose dramatically every time it lowered its beer's bitterness. Beer was on its way from enticing süffigkeit to unsatisfying tastelessness—a beer that when swallowed left no aftertaste, so you drank more, perhaps to try to capture a fleeting beery something, or perhaps because it just really didn't taste like much.

The Modern Classic American Pilsner

Several things mark a classic American pilsner, but most fundamental is the use of raw corn (maize) and/or rice adjunct.

The last thing the average homebrewer probably wants to put in his beer is corn or rice. That's the mark of the pale, fizzy, bland beers that drove him to start brewing in the first place. The first beer a homebrewer makes is probably dark, strong, bitter, and definitely all malt. We swear by Reinheitsgebot, yet we happily brew a Belgian witbier with 50% raw wheat and oats. So get that prejudice out of your mind and repeat after me, “Corn is good.”

Corn or rice use should be kept between 20% and 30% so the malt character isn't lost but so it doesn't predominate too much, either. I generally use about 22-25%, but go to 30% for light, crisp beers.

Corn adds more than simple fermentables. It contributes a grainy sweetness and a subtle but distinctive flavor (not to be confused with the sometimes corny flavor dimethyl sulfide, or DMS, which comes from malt). Rice, on the other hand, is neutral in



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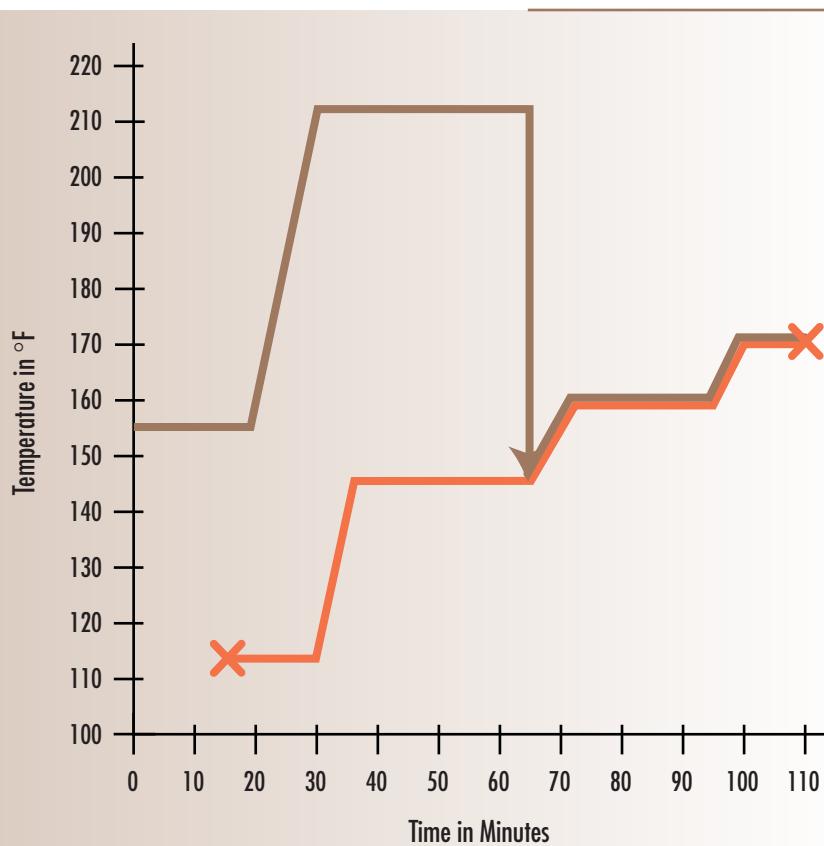
FIGURE 1: TRADITIONAL AMERICAN DOUBLE MASH

flavor and adds no sweetness, producing a crisper, drier beer. Both are good, but my strong personal preference is for corn, especially when reproducing the rich pre-prohibition style. Corn has always been more widely used than rice, and especially after the 1890s, when corn grits' quality had greatly improved. There are still several breweries that use rice, most notably Anheuser-Busch. It contributes to Budweiser's clean, crisp character. I have made very nice, drier CAPs with rice and relatively low mash temperatures, as well as ones using both corn and rice, as is used in Rolling Rock.

Strangely, in at least one case, the use of corn or rice was apparently interchangeable. Ed Westmeier has reported an old Cincinnati post-prohibition set of instructions for brewery workers that told how to handle rice or corn, depending on which was available.

The brewer has several choices of forms of corn to use. The easiest to use is flaked corn, because flakes have been pregelatinized so they can be used directly in the mash. Flakes are made from large chunks (flaking grits) of the starchy corn endosperm, about 3 mm in size, that are steamed and passed through heated rollers to gelatinize the starch and flatten into flakes. These must be fresh and treated gently. Old, dry, brittle flakes may lead to mash and lautering problems.

Other forms of raw corn must be mashed separately with a little malt, boiled, then added to the main mash. Commercial breweries most often use yellow brewer's grits, coarse pieces of the corn endosperm averaging 1 mm in size. These are hard for the amateur brewer to obtain, but degermed corn meal works very well and is what I use. Coarser meal is better than the very fine grocery store kind that comes in cardboard cartons. Polenta is very similar to grits and works well. While home brewers have reported success with whole corn meal, its use can be problematic. The oils in the germ can cause problems with head retention, as well as fermentation and flavor problems.



The American double mash is similar to a decoction except that the boiled portion (brown line) contains all of the adjunct (rice or corn product) along with a small portion of malt. This is mashed in at saccharification temperature and held for 20 minutes before the heat is increased to bring it to a boil. Meanwhile, the main mash (orange line) containing the remainder of the malt for the recipe is mashed in at protein rest temperatures then heated up to a low-level saccharification temperature. At the end of the adjunct boil, the adjunct portion is added to the main mash, raising its temperature to the upper end of the saccharification range.

Rice is available in flaked form, again for use directly in the mash tun, or as raw rice. Short grain or medium grain is preferred over long grain, which can cause gelatinization and viscosity problems in the cereal cooker. This may be of little concern to the home brewer, however. Rice should be ground to small pieces averaging about 1 mm before cooking. Corona-type mills work best for this; roller mills must be adjusted tight to work, and non-adjustable roller mills will not work at all.

Other characteristics of a CAP are more flexible, depending on whether you want to make an historically accurate beer or a modified one to your tastes.

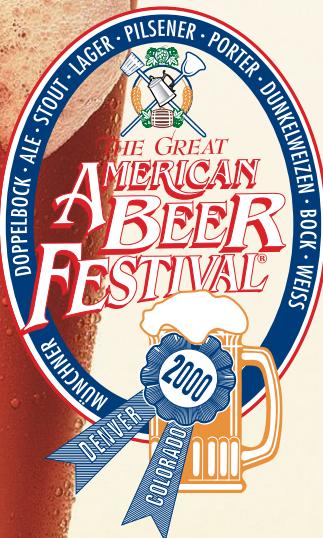
Malt

Six-row malt seems an historic necessity, and I prefer it for the results as well. George Fix writes that he is "constantly struck by how well six-row pale malt does in a formulation like this." Nevertheless, he prefers the (continued on page 68)

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What is this beverage we call mum? According to tradition, mum (German Mumme) was first brewed in 1492 by Christian Mumme of Brunswick (Braunschweig). However, the archives of this city indicate that the earliest known reference to mum occurred over 100 years previously in 1390. In the broadest sense, mum is a kind of wheat beer. It is brewed with beans, and contains a plethora of herbs, but no hops. Its consumption was believed to have great medicinal value, especially in fighting scurvy and kidney and gallstones. One of its main ingredients is fir bark. The fir tree was said to be a particularly potent remedy for scurvy.

This concoction first came to my attention in the spring of 1998. I was browsing through a bookstore in Berlin, when I came across a reprint of a book on brewing from 1784. The book contains numerous recipes, but the one for mum jumped right out at me. Here was a beer brewed with seven parts wheat malt, one part barley malt, and one part beans! Among the 19 additional ingredients were herbs I had never heard of before, fresh uncracked eggs, and sundew – a carnivorous plant!

This was the oddest beer recipe I had ever seen, hands down. Right away I knew I would try my hand at brewing it some day, just for curiosity's sake. Needless to say, I purchased the book. Soon afterwards I had made a rough translation of the text into English. I wanted to share this curiosity with the English-speaking world. At about that time I repatriated to the United States from my home in Germany. In the chaos of packing, I had left the book behind. It wasn't until a year later that I arranged to have the book sent to me so I could finish the translation.

The main problem with the rough translation was that I did not know what many of the ingredients were. My task now was to find their English names. This posed more of a problem than I had anticipated. Many of the German names were themselves antiquated or regional dialectal terms, and could not be found in a German language dictionary. I solved this in part by searching the Internet for herbalists in German-speaking countries. They were able to offer me the modern German equivalents. These were sometimes still too rare to be found in a dictionary. However, I was then able to search the Internet for the modern German names to discover their Latin names. I then repeated the process with the Latin names to learn the English ones.

Having the English names brought me one step closer to actually acquiring the ingredients. But I soon learned that you can't just walk into your local health food store and expect to find bishopswort or blessed thistle. A salesperson referred me to an unlikely source—a local shop that caters to witches. They carry many obscure herbs for use in magic spells. Then there was only one last ingredient, laurel berries, which I was unable to obtain from the witches, a nursery, a supermarket, or on my own from the wild. I located them and had them sent from an herbalist in British Columbia.

Iter mentis ad mummem – The Mind's Road to Mum or How I Came to Brew Mum

mum

by Peter Brancato

My acquisition of the sundew was a mini adventure. I happened to know of a standing bog about one and a half hours from my home, where this plant grows. So one day I hopped into my car and drove out there. I was disappointed to see that the bog had a steady stream of visitors that day. I did not wish to be observed, since the plant is protected by law. I waited until I thought no one was watching me and surreptitiously picked a small handful. (I hope I haven't offended the conservationists among you, but I'll deny it in a court of law!)

So I set about brewing. My recipe was intended to make 63 "Stübchen" of mum. My research into old German units of measure-

ment revealed that this amount was very close to 94.5 US gallons. For the most part, I simply divided the recipe by 15 to brew five gallons. However, it struck me that the amount of malt and beans called for in the mash was extremely high. I attributed this fact to the mashing techniques of the day, which I assumed were not as efficient as ours. I reduced the amount to the maximum I could handle with my equipment—7 lbs. wheat malt, 1 lb. barley malt, and 1 lb. fava beans. Not really knowing what effect the high proportion of wheat malt and the addition of beans would have on the mash, I was hoping to achieve a full body. I did a step mash, and used Wyeast #1007 German Ale Yeast. I did

not rack, since all of the other ingredients were in the primary fermentation.

The result was an only slightly cloudy, almost luminescent yellow drink. It is very tart, and fir dominates its flavor. As the original recipe indicates, it is more palatable when diluted with water. But if you like sour drinks you can also drink it straight. I have variously described it as a weird kind of lemonade or an alcoholic sports drink. Interestingly enough, there is one company in Brunswick, Bohmanns, which produces a nonalcoholic version of mum. In their ads they claim that their drink is a favorite among athletes.

Wouldn't the beer world be a lot richer if homebrewers revived this drink of the past? 

The Way to Brew Mum Translated from Der Vollkomene Bierbrauer published in 1784

Translation by Peter Brancato

Its preparation has been recorded in Brunswick, and sent to General Monk of Brunswick.

To make a keg of 63 "Stübchen," a third of the water must first be boiled, then brewed according to the craft with seven bushels of wheat malt, one of barley malt, and one bushel of broad beans, and when it is kegged the cask must not be filled too full at first.

When it then begins to work add three pounds of the inner bark of the fir tree, one pound each of fir and birch tips.

Three handfuls of dried blessed thistle, two handfuls of sundew flowers, one and a half handfuls each of aniseed, betony, marjoram, herb bennet, pennyroyal, elder flowers, thyme, three ounces of pounded cardamom, and about one ounce pounded laurel berries. Put the seeds in the vessel when the moisture has fermented with the herbs for a while, and after they have been added, let the moisture ferment over the vessel as little as possible. Finally, fill it up, and when it is bunged, add to the cask ten freshly laid eggs, the shells not crushed, or unbroken, stop everything up tightly, and drink of it when it is two years old; if the mum is poured over water, so is it better. Dr. Aegidius Hofmann adds to each keg watercress,

speedwell, wild parsley and six handfuls of grated horseradish.

It has been noted that mum made with horseradish is fresher to drink than that without it.

From the preparation of mum one can judge its qualities and properties. One finds a good amount of fir bark and tips; on account of which the mum brewers in London (as the author of the Treasury of Rare and New Curiosities thus cites at the end of this book) were supposedly so careful and honest that they prepared this drink according to the Brunswick method, which is the correct original way, so could it not be anything but very powerful against the generation of stones and all scurvy illnesses. When the Swedes were waging war against the Muscovites, scurvy circulated amongst them to such a degree that their army diminished almost to nothing, until they once came to lie by a large number of fir trees, there they began to boil the tips in their drink, which miraculously brought the army back to health. The Swedes have therefore been calling the fir tree the "scurvy tree" up to this present day.

The most famous Doctor Walther Needham has noted the great benefit of these tips against scurvy, as Monsieur Ray reports,

which is no great wonder if we consider the balsam of turpentine, of which this tree has a great abundance, which is so powerful, even in keeping the dead corpse itself from putrefaction and rotting, for as M. Boyle is supposed to have said with certainty, turpentine oil protects bodies from decomposition much better than spiritus vini [rectified ethyl alcohol].

The fir tree, which is one of the most important ingredients in this drink, is so famous among considerably many contemporary writers that it alone could be enough to bring the mum trade into a boom.

Simon Pauli, a Danish scholar, tells of the great effects of the tips of this tree in freeing a large man in Germany from chronic scurvy; any doctor can himself bear witness as to how powerful they are against gravel and stones. But one must also be careful to break these tips off at the right time, when they are most full of turpentine and balsamic parts, and then they can make the mum especially useful for the flow of semen.

In addition, the eggs may also promote the same power in this case, however, the remark of a learned and excellent man from Weinen is not to be dismissed, when he says that these drinks, in which the chips of fir are placed, can cause headaches, but he also admits that fir can certainly contribute a lot to the power and preservation of this drink.

From the various malt and broad beans one can conclude that mum is a very

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speedwell her

healthy and strengthening drink. Quite a few people drink it a lot because they do not have any hops, which (these are the words of the aforementioned author's) as they imagine, spoils our English ale and beer, and rouses contagious diseases, even the plague itself.

Thomas Bartholinus writes so cruelly against the hop that he would rather mix everything else with our drink than the hop; he recommends rather sage, tamarisk; spruce or fir tips instead of hops, whose daily use in our English drinks is, it is said, a reason why stones have become such a common problem amongst us Englishmen. However, Captain Graunt observes in his useful remarks on the writings on mortality that fewer are plagued with the stone at present than in former times, although more hops are being used nowadays in this city than ever before.

In reference to the eggs in the preparation of mum, they can help it not become sour, as their shells also make wine vinegar sweet, and destroy sour things, on account of which cause they can be very useful in bringing quite a lot of flat drinks in good order again, if they are put into the keg whole.

Doctor Stubs, who observes many particular remarks on his journey to Jamaica, assures us that when the eggs are placed whole in the keg, astonishingly, many drinks are preserved well over prolonged journeys. The shells and the white get damaged, but the egg yolk remains undamaged or unaffected.

Doctor Willis prescribes mum for different prolonged illnesses, as scurvy, dropsy, and more consuming weaknesses of that kind.

The Germans, especially those who live in Saxony, treasure this drink greatly, that they imagine their body could never wane or become invalid as long as they are wetted and balsamed with this powerful potion, and in truth, if we view the form and complexion of the Germans on the whole, they may (writes this Englishman) be looked upon as living mummies. But to conclude everything in a word, if this drink, which is called mum, is made properly with diligence according to the above instructions, it must necessarily be an excellent altering medication, as the added things are very good and choice bits, and there is almost no illness in the world against which a lot of them are not powerful, as betony, marjoram, thyme, in illnesses of the head. Birch, aniseed, watercress, speedwell, horseradish, in the most established scurvy, shivering fits, diminishing of the body, and all blockages; but it is a concern that various of our Londoners are not so honest and careful that they make their mum faithfully and loyally; when they do they are so happy that they supply and provide their country with one of the most useful drinks under the sun, as it is so useful and powerful in different prolonged illnesses, in which there is a pollution and weakness of the blood and innards. Hactenus, the author of the Treasury of Rare and New Curiosities.

Peter Brancato has taught English as a Foreign Language in Germany and currently teaches English as a Second Language in the United States. He has been an avid homebrewer for the past four years.

Braunschweiger Mumme

Notes on translations of quantities shown at the end of the recipe.

Ingredients

water

7 "bushels" wheat malt

1 bu. barley malt

1 bu. broad beans/fava beans

3 "pounds" inner bark of fir

1 lb. tips of fir

1 lb. tips of birch

3 handfuls blessed thistle

cnicus benedictus/carduus b./centaurea benedictus

2 handfuls sundew flowers

1 1/2 handfuls anise/aniseed

pimpinella anisum

1 1/2 handfuls betony/bishopswort

betonica officinalis/stachys off

1 1/2 handfuls marjoram

1 1/2 handfuls geum urbanum

wood avens/common avens/colewort/herb ben
net/city avens/wild rye/way bennet/goldy star/
clove root

1 1/2 handfuls pennyroyal

mentha pulegium

1 1/2 handfuls elder flowers

1 1/2 handfuls thyme

3 "ounces" pounded cardamon

1 oz. pounded laurel berries

10 uncracked freshly laid eggs

optional à la Dr. Egidius Hofmann

watercress

speedwell/veronica

veronica beccabung

wild parsley

6 handfuls grated horseradish

aged 2 years, best when served with water makes 63
Stübchen (226.8 liters)

Note: The units of volume and weight varied (sometimes greatly) according to time and location. Below are my best guesses according to information at my disposal. Where I could not find information on the city Braunschweig, I used values associated with nearby cities or areas. I can provide some of the sources used. It seems to be an awful lot of malt to me. Perhaps their mashing techniques back then required more malt? 5 gallons is almost precisely 1/12 of this recipe.

1 Stübchen = 3.6 liters

1 Scheffel (bushel) = 55-74 liters

1 Pfund (pound) = 498.5 grams

1 Unze (ounce) = 29.2 grams



WHEN Spice and History

When Tom Baker asked me what kind of beer I wanted to brew, I pondered for a second, then replied, "gruit." Baker is the brewer/owner of Heavyweight Brewing Co. in New Jersey. Opened for only a year, he is making a name for himself brewing small batches of, as the name suggests, big beers. He came up with an idea to invite beer writers in as guest brewers, for two reasons: first, because he figured they might have some good ideas; second, no doubt, for the publicity it would generate.

Tom at least knew what I was talking about, even if he wasn't quite familiar with the recipes. Indeed, a good many more people have come into contact with the word gruit since author Stephen Buhner published his book *Sacred and Herbal Healing Beers* two years ago.

Gruit was the name given to herbal beers brewed in the Middle Ages. Before the advent of hops, these were the beers of choice; gruit was really the only ale available. Every brewer had her own proprietary recipes (most of the brews were made by women, or brewsters, in those days) with a whole range of secret herbal ingredients. There were, however, three basic herbs used in gruit: yarrow (*Achillea millefolium*), bog myrtle or sweet gale (*Myrica gale*) and wild or marsh rosemary (*Ledum palustre*).

Collide In a BREWPOT, YOU GET Gruit Ale

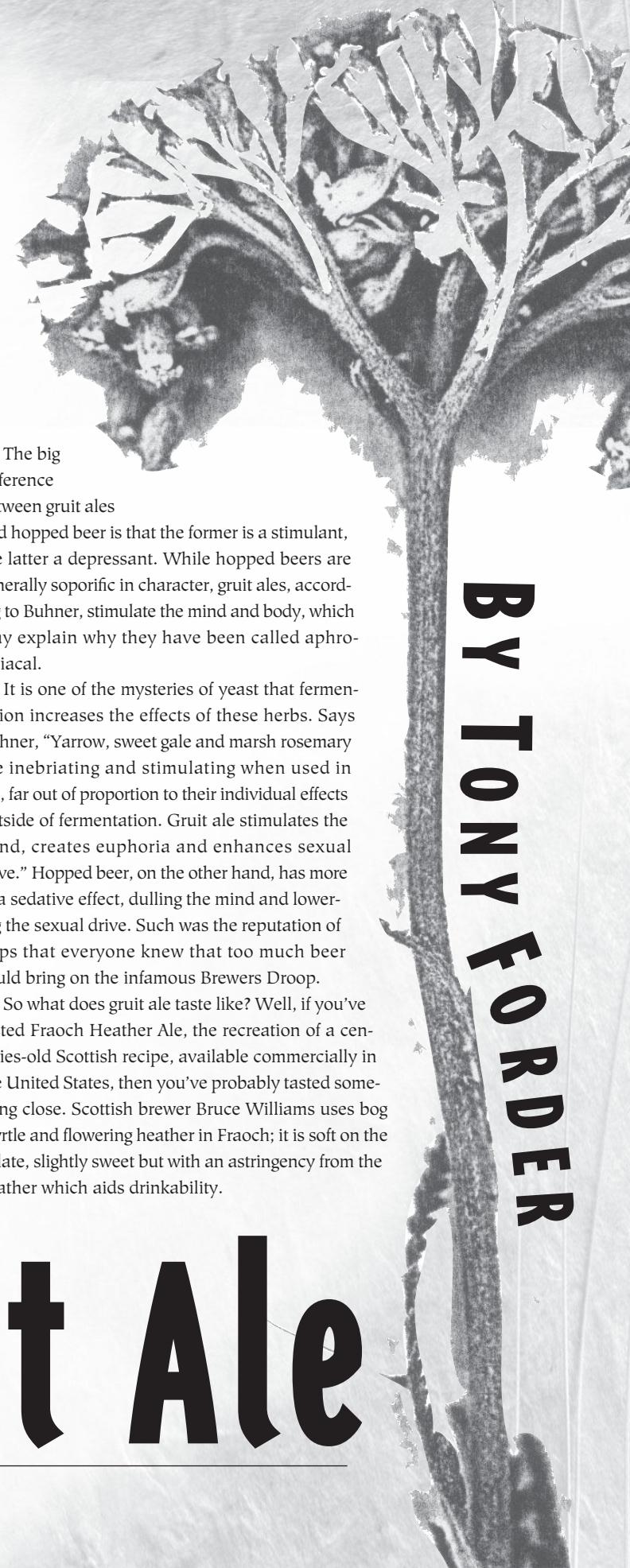
The big difference between gruit ales

and hopped beer is that the former is a stimulant, the latter a depressant. While hopped beers are generally soporific in character, gruit ales, according to Buhner, stimulate the mind and body, which may explain why they have been called aphrodisiacal.

It is one of the mysteries of yeast that fermentation increases the effects of these herbs. Says Buhner, "Yarrow, sweet gale and marsh rosemary are inebriating and stimulating when used in ale, far out of proportion to their individual effects outside of fermentation. Gruit ale stimulates the mind, creates euphoria and enhances sexual drive." Hopped beer, on the other hand, has more of a sedative effect, dulling the mind and lowering the sexual drive. Such was the reputation of hops that everyone knew that too much beer could bring on the infamous Brewers Droop.

So what does gruit ale taste like? Well, if you've tasted Fraoch Heather Ale, the recreation of a centuries-old Scottish recipe, available commercially in the United States, then you've probably tasted something close. Scottish brewer Bruce Williams uses bog myrtle and flowering heather in Fraoch; it is soft on the palate, slightly sweet but with an astringency from the heather which aids drinkability.

BY TONY FORDER



Recipe for Gruit Ale

5 gallons (19 L)

- 8 pounds pale malt (3.6 kg)
- 5 pounds crystal malt (2.3 kg)
- 1 oz Myrica Gale (bog myrtle) (28 g)
- 1 oz wild rosemary or Labrador tea (28 g)
- 1 oz yarrow (28 g)
- Yeast

In the past six months, I have tried two gruit ales brewed at brewpubs on the East Coast, one home-brewed Yarrow Ale and the Heavyweight brew mentioned previously. As beer historian Alan Eames notes, beers that are available today, recreations of medieval or ancient herbal recipes, benefit from modern hygiene and brewing techniques. The clear gruit ales I have tried are a far cry from the supposedly non-clarified, chunky liquids served in days of old. Also, most of the aforementioned gruit ales contain small amounts of hops to satisfy federal requirements for beer.

The key to the handling the herbs in most of the recipes I have seen is to throw half the herbs into the kettle and to hang the other half in a muslin bag in the fermenter where the herbs can be infused during fermentation.

On a trip to the Smugglers Notch Beer Festival early last December, I was fortunate to catch two examples of gruit ale on tap at the Vermont Pub & Brewery in

Burlington. Concocted by owner Greg Noonan and brewer Andre Blaise, both ales were brewed with yarrow and bog myrtle, to the profile of a lightish American or golden ale at about 4.5% abv. Served on the hand pump, the first had a gingery, peppery taste, not unpleasant.

The second gruit ale was the same as the first, with the addition of cranberries. While the color was a little strange, salmon-like, it also had a gingery taste, a little sweeter than the first. It was named after the house band, Band With No Name, who reportedly found the elixir extremely beneficial to their musical efforts. Noonan said that next time they may try to make their gruit ale stronger in alcohol, which would be more in keeping with medieval times. On the other hand, the lower alcohol may have given the herbs more prominence.

Sitting at the bar, a couple of pints had me feeling quite mellow with a decidedly warm feeling in my belly, as well as the usual beery feeling in the brain. Later I found I wasn't tired at all and stayed up far into the night at Smugglers.

My Yarrow Ale was brewed with home-brewing friend Karl Mende at the Brewer's Apprentice brew-on-premise in Freehold, NJ. We made a 15-gallon (58 L) batch using 6 lbs (2.7 kg) of malted grains—pale, crystal and Vienna—and 7 lbs. (3.2 kg) of extract malt, mostly pale with a little wheat thrown in. Our 6 ozs. (170 g) of yarrow were split between kettle and fermenter. We used Nottingham Ale yeast and one oz. (28 g)

Recipe for Yarrow Beer

15 gallons (58 L)

Grains:

- 1 lb pale malt (.45 kg)
- 2 lbs crystal malt (.9 kg)
- 2 lbs Vienna malt (.9 kg)

Malt Extract:

- 6 qts pale malt extract (5.68 L)
- 1 qt wheat malt extract (.95 L)

Hops (optional; as boiling hops)

- 1 oz Saaz (28 g) (3.5-5% alpha acid)
- 1 oz Brewers Gold (28 g) (5.5-8% alpha acid)
- 1 oz Hallertau (28 g) (4-5% alpha acid)
- 1 oz Tettnang (28 g) (3.5-5% alpha acid)
- 8 ozs dried yarrow (227 g)
Half in boil, half in fermenter
Nottingham Ale yeast

each of Saaz, Brewer's Gold, Hallertau and Tettnang hops.

It was ready for Christmas. It came out at about 6% abv., again with a gingery taste, and a little dry and bitter, but with a good body. Being the holiday season I had the opportunity to collect many tasting opinions at various holiday gatherings. I noticed that people usually came back for more than one taste and that the animation of those gathered seemed to increase markedly—true of any alcoholic beverage, perhaps.

One night I popped a 22-ouncer with the idea of sharing it with my wife. But I had to drink it myself as she retired early, perhaps divining a secret intention to test the aphrodesiacal nature of the beer. When I found myself regROUTING the bathtub at 3 o'clock in the morning, I began to think there might be something to the yarrow. My brewing partner, Karl, reported satisfaction with the beer, but no lack of sleep or other side effects.

Tom Stevenson at Triumph Brewing Co. in New Jersey called his gruit "Gothic Ale." It may be the most authentic gruit ale I have tried thus far, since he also used all



Karl Meade and author Tony Forder making yarrow beer



Tom Baker, left, of Heavyweight Brewing Company, and Tony Forder, editor of Ale Street News launch Solstice Ale Mid Summers Night in New Jersey with Andy's Corner Bar owner Gorge Gray, and friends

three traditional gruit herbs—the wild rosemary as well as the sweet gale and yarrow. It was quite malty, with a silky texture and a more rounded flavor than the homebrew, quite delicious with the same perky effects as the other gruit ales I had tasted. However, the two additional herbs did seem to take the edge off the yarrow, both in flavor and effect.

Stevenson noted that when he first put the ale on tap, it was such a radical departure that people didn't know what to make of it, but it finally found its public. He said the real beer fans were pretty excited about it, because this was the kind of thing they had read about, but never got a chance to see and taste. Stevenson said that while the ale did not give him the desire to go out and plunder and pillage, he did find missing the soporific effects of a couple of regular beers after a day's work. He reported no unusually rowdy behavior from the clientele.

For the gruit ale we brewed at Heavyweight, which became known as "2 Druid's Solstice Ale," Baker prepared a malt bill of mostly pale English malt combined with some Belgian crystal and biscuit malt and a little English chocolate malt. Twenty lbs (9 kg) of oatmeal was thrown in to help the texture. A small amount of hops were used to satisfy beer labeling requirements. Unable to procure wild rosemary, we used yarrow,

bog myrtle and mugwort, a fairly pungent, bitter herb, used in many ancient recipes. Half of the herbs were thrown into the boil, the remainder, hung in the fermenter.

It is easy to see why mugwort was popular for flavoring. It is bitter tasting, yet fruity, similar perhaps, though more heavy-handed than the hop, which prompted Baker to use "Medieval IPA" as a descriptor to wary retailers. Wisely, we had used only half the amount of the mugwort than the other herbs in the 8-bbl batch. As with most Heavyweight brews, this gruit ale packed a punch at 7.3% abv. It was scheduled for release midsummer's night, a few days from this writing, but Tom told me it was tasting good, even "perilously good," when he hooked it up to a nitrogen dispense.

Conventional brewing lore used to assume that herbal beers were used only until the superior flavoring and preservative powers of hops were discovered. Buhner says that in fact, herbs were used for their intrinsic euphoric and medicinal qualities and have a long history, beyond the medieval name of gruit. In his book, he puts forward a different hypothesis for the dominance of hopped beers. In what he says was really the genesis of the modern temperance movement, the Puritans objected to Catholic self-indulgence in food and drink, especially in some of the wild gruit

ales. It is also true that many factions were interesting in breaking the monopoly that the Catholic Church had come to hold over the production of gruit by the 16th century. Buhner states, "The Protestant reformists were joined by merchants and competing royals to break the financial monopoly of the Church. The result was ultimately, the end of a many-thousand-years' tradition of herbal beermaking in Europe."

Beer historian Alan Eames says that while it is true that the church had control of much of the brewing, he sees other factors, such as the move to industrialization and standardization as the reason for the dominance of hopped beers. Outlawing of ingredients other than hops was as much to do with taxation as anything else, Eames said.

Four hundred years later, there is a resurgence of interest in herbal medicines. This interest has coincided with the tremendous revival of small-scale brewing in this country. Maybe gruit ale is the perfect beverage to help reestablish a link to our plants and planet that has been obscured by the industrial era.

Brewing Gruit Beer

Any one of your basic homebrewing recipes can be adapted to make 5 gallons of gruit ale. Pale or crystal malt is probably the best to use to allow the herbs to register. A total of 3 oz (85 g) of Yarrow, Myrica Gale and Wild Rosemary (or Labrador tea) is a good guideline. If only one or two of the herbs is used, keep to the total of 3 ozs and split the herbs between the boil and the fermenter.

Herbs can be obtained from:

Trinity Herbs: P.O. Box 1001, Graton, CA 95444 707-824-2040 Richter's: www.richters.com 905-640-6677 L.D. Carlson 800-321-0315 www.planetherbs.net

Wild rosemary (*Ledum palustre*) is very difficult to obtain. Its close relative (*Ledum latifolium*) known as Labrador tea can be ordered from www.farmonline.com/taiga/lab-tea.htm

Tony Forder is editor of *Ale Street News*. His interest in gruit stems from his roots as a native Englishman. Contrary to recent rumors, he is not a druid.

From the Picts to the Highlands: The Secrets of Heather Ale

BY GREG KITSOCK

*From the bonny bells of heather
They brewed a drink long-syne,
Was sweeter far than honey,
Was stronger far than wine.
They brewed it and they drank it,
And lay in a blessed swound
For days and days together.
In their dwellings underground.*

—Robert Louis Stevenson, *Heather Ale*

Heather is a hardy shrub whose blossoms in summer form a pinkish-purple carpet over 18 million acres of Scotland. While the hop plant was unknown in Scotland until relatively recent times, heather has been used as a flavoring in alcoholic beverages since prehistory. Pottery shards dating from 2,000 BC, unearthed by archaeologists on the Isle of Rheum, were found to bear the residue of a beverage containing barley, oats and heather.

Edward Emerson, in his 1908 magnum opus *Beverages Past and Present*, assert-

ed that the ruins of Pictish breweries were still in existence, particularly in Wigton and Kirkcudbright Counties. He described them:

“They are pear-shaped enclosures resting on southern hillslopes near clear, swift-running streams and are about sixteen feet in length, by eight at greatest breadth, the side wall being about three feet in height. It can be readily seen that when the Picts brewed their liquor they made a great quantity...”

Through the centuries countless methods have been employed for brewing heather ale. Some Scottish homebrewers would boil the wort in a flat tub, then strain it through a sieve lined with freshly picked heather flowers. A different recipe calls for putting the heather underneath stones at the bottom of the brewing vessel. One source, Neil McCallum’s book *It’s an Old Scottish Custom*, suggests that there was a spring brew as well as an autumn brew, the former being brewed with green heather shoots.



For many centuries, the art of brewing heather ale survived in the rocky Highlands and the northern islands. Oddly, this 4,000-year-old beverage was never brewed commercially until 1991.

Bruce Williams' family owned two shops in west Glasgow as well as a wholesale business offering homebrew supplies. Over the years, Williams amassed a database of traditionalist recipes predating the use of hops. Perhaps the most important contact he made was a woman who in 1986 walked into his shop with an old recipe written in Gaelic. She explained that she would be attending a family reunion, and wanted to recreate this generations-old ale—titled Leann Fraoch—to surprise her grandfather.

Essentially, admits Williams, this recipe became the basis for his Fraoch Heather Ale. ("Fraoch" is the Gaelic word for heather and, leaping off Bruce's tongue, sounds something like "fruuuuu-ach.") The major change that Williams made was to add hops. Consequently, to prevent the ale from becoming unpleasantly bitter, he greatly reduced the amount of bog myrtle (a brewing herb, also called sweet gale, whose leaves and berries were once widely used throughout Europe) and to a lesser degree cut back on the heather. "Heather flowers are very astringent. If you were to chew them, you wouldn't be able to salivate for a while."

Fraoch Heather Ale (5% abv) is a honey-colored beverage with a perfumy, floral aroma that combines elements of rose, hyacinth and iris. It has a hint of green-apple fruitiness and a dry, wine-like finish. In 1995, the Baltimore-based importer Legends Ltd. introduced the beverage to the American market. According to Legends' president Pat Casey, Heather Ale is available in 27 states, in 11.2 oz. (330 ml) and 16.9 oz. (500 ml) bottles.

The label for Fraoch Heather Ale features a Pictish cross, one of numerous stone monuments that this vanished tribe left behind. Archaeologists have yet to decipher the intricately carved symbols that appear on these stones. In fact, we don't even know what the Picts called themselves: the ancient Romans referred to them as "Picti," from the Latin word for "colored" or "tattooed," a reference to their practice of body ornamentation. Our word "picture" is from the same root.

ARTWORK COURTESY
OF LEGENDS, LTD.



Bruce Williams, brewer of
Fraoch Heather Ale and a
partner in Heather Ale, Ltd.



The Picts flourished in the north of Scotland from about 100 BC to the ninth century AD. Robert Louis Stevenson, in his poem, suggests a violent and sudden end to the tribe. He writes of an invading king who "smote the Picts in battle, [and] hunted them like roes." After slaughtering most of the population, the king belatedly realized that no one was left to instruct him how to brew the heather ale. Finally, he located an old Pictish chieftain and his son hiding under a stone. The king offered to let them live for the secret of the ale.

How much truth is in the legend? An Irish king named Niall of the Nine Hostages did bedevil the Picts in Galloway in the fifth century AD, and may have served as a model for the ruthless conqueror. By no means did he annihilate the Picts, however. Most likely, the Picts were gradually assimilated by the more numerous Scots. Even Stevenson, in a note to his poem, terms the story a "wild legend," and speculates that the events described herein may have happened to some other unknown tribe and were later ascribed by storytellers to the Picts.

At any rate, the art of brewing heather ale was not limited to the Picts, suggests John Bickerdyke in his book *The Curiosities of Beer and Ale*. He mentions a beverage called beoir-lochlannach ("strong at sea"), which Danish raiders allegedly prepared from heather bells, and also notes that a heather ale was brewed in many parts of Ireland as recently as the early nineteenth century.

Indeed, the wild abandon of the Pict in Stevenson's poem suggests that the secret of heather ale lay not so much in the blossoms as in a powdery, white moss that grows on the stems of the heather. In the Scottish dialect, this moss is called "fog" or "fogg." Williams asserts that this moss holds a kinship to the ergot fungus that occasionally infects grain crops, and can have an effect on the human nervous system similar to LSD. Apparently, the moss was used as an ingredient in some recipes to make the brew even more intoxicating. The *Scottish National Dictionary* cites an 1877 literary source: "They brewed some awful grand kind of drink they ca't Heather Yill out of Heather and some Unknown kind of Fogg."

The modern-day version of heather ale does not incorporate fog. Williams uses only the top five centimeters of the plant, and washes it well before adding it to the brewkettle.

There are several varieties of the heather plant, but Williams uses *Calluna vulgaris*, commonly known as ling or broom heather. The harvest takes place over a 3-4 week period in late August and early September. Originally, Williams hired college students to pluck the flowers, but today he employs professional pickers as a quality control measure. It's important not to mix in too many leaves or stems with the blossoms, he notes, because the chlorophyll can cause the blossoms to degrade. Time is also of the essence. The delicate flowers have to be loaded into a refrigerated truck and placed in a freezer within 12 hours after picking. This year, Williams expects to gather 600 sacks of heather, each sack having a volume approximately equal to an English firkin (40.9 liters). This amount will suffice for brewing about 1,000 barrels of Fraoch Heather Ale.

For a base, Williams uses a pale ale brewed with Scotch ale malt. This variety is kilned at a higher temperature than ordinary pale malt, resulting in a slight caramelization. Brewers can achieve the same color and flavor, he recommends, from a grist of 90% pale malt and 10% carapils.

The mash takes place for 1-1/2 hours at a temperature of 147-149° F (64-65° C). The wort is then transferred to the brewkettle, which has been prefilled with one sack of heather blossoms and half a sack of bog myrtle. The 12-1/2 barrel kettle was specially built for brewing with heather, and incorporates a mesh covering on the bottom to prevent the flowers from clogging the pump, as well as a device for recirculating the wort through the heather. Seventy-five minutes into the 90-minute boil, Williams shuts off the burner and adds a fresh batch of heather. This is the equivalent of late-addition hopping, and gives the ale its aromatic qualities.

For hopping, Williams uses First Gold, a standard bittering variety. "It's there for product stability more than anything else," he admits.

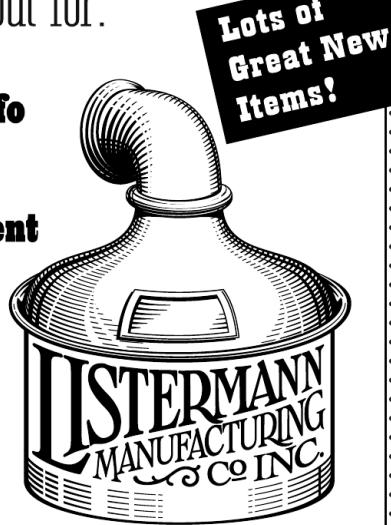
The original heather ale was spontaneously fermented, notes Williams. He ferments with a proprietary strain of yeast that was isolated from the microflora found

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growing on the heather flowers. Primary fermentation takes place at a temperature of (66-70° F (19-21° C) in relatively shallow, rectangular open fermenters, and lasts for five days. The temperature is then lowered to 36-38° F (2-3° C) over a twelve-hour period, and the beer transferred to storage tanks where it mellows for 7-10 days before being racked into casks. The bottled version is allowed an extra ten days in cold storage to allow the proteins to drop out, then is filtered through sand and run through a tunnel pasteurizer.

Bottling takes place at the Forth Brewery in Alloa. This facility, which has about four times the capacity of Williams' plant, also assists in the production of Fraoch Heather Ale. The beer brewed there "is a replica in all practical senses," insists Williams.

Every year during the holidays, Williams brews a special Pictish Ale, which contains no hops and is brewed to a higher gravity, since it's not diluted by sparging. Pictish Ale is available in cask only and is not sold in the United States.

A few American brewers have tried their hand at this Scottish specialty. Last year at the Great American Beer Festival, Burghead Pict Heather Ale from the Alameda Brewing Co. in Portland, OR won a bronze medal in the Experimental Beer category. The name Burghead, explains brewer Craig Nicholls, comes from an old Pictish fort that dates back to the ninth century. Nicholls used three additions of dried heather tips imported from Belgium, as well as some star thistle honey at the beginning of the boil, although no hops found their way into the beer. The grain bill consisted mostly of organic Golden Promise malt from Scotland. In comparing Burghead with Fraoch, Nicholls said that "ours is a little drier, a little more champagne-like." He's since left Alameda Brewing, but hopes to open his own brewery in the near future and recreate his heather ale.

The success of Heather Ale has allowed Williams to experiment with other traditional ingredients. Grozet is a wheat ale flavored with gooseberries, meadowsweet and bog myrtle. The beer is based on the famous "Green Grozet" once sold at Tibbie Shiels Tavern (still operating in St. Mary's Loch 45 miles southeast of Strathaven), and celebrated in literature by men of letters such as

Sir Walter Scott. Alba is a strong ale brewed with fresh shoots of spruce and pine, based on old Viking recipes. Ebulum is described by Williams as "a roasted oat malt stout," flavored with elderberries...a Druidic specialty. All three of these ales are imported by Legends Ltd.

Williams continues to experiment with specialty brews. To celebrate the 400th anniversary of the borough of Falkirk, Williams formulated Falkirk 400, an ale brewed with pale malt, oats, dandelions and dock leaf. Later this year, Williams intends to make a traditional gruit ale flavored with yarrow, bog myrtle and wild rosemarie. "I don't expect to bottle it until we have the demand," says Williams.

Heather Ale fans in the United States, however, may get a treat as early as this fall. Importer Pat Casey and Williams are working on bringing the cask version of Heather Ale to the East Coast on a regular basis. Rather than ship the cask Fraoch in English firkins, Williams will rack it into 20-liter Cornelius kegs normally used for holding soda. These vessels, explains Casey, can be vented like a normal keg, an important factor in America where skilled cellarmen are in short supply. The smaller volume, Casey hopes, will ensure that no ale will linger past its shelf life. "Cask ale for dummies" is what he calls the plan.

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Greg Kitsock is a regular contributor to Zymurgy.

Burghead Pict Heather Ale

By Craig Nicholls

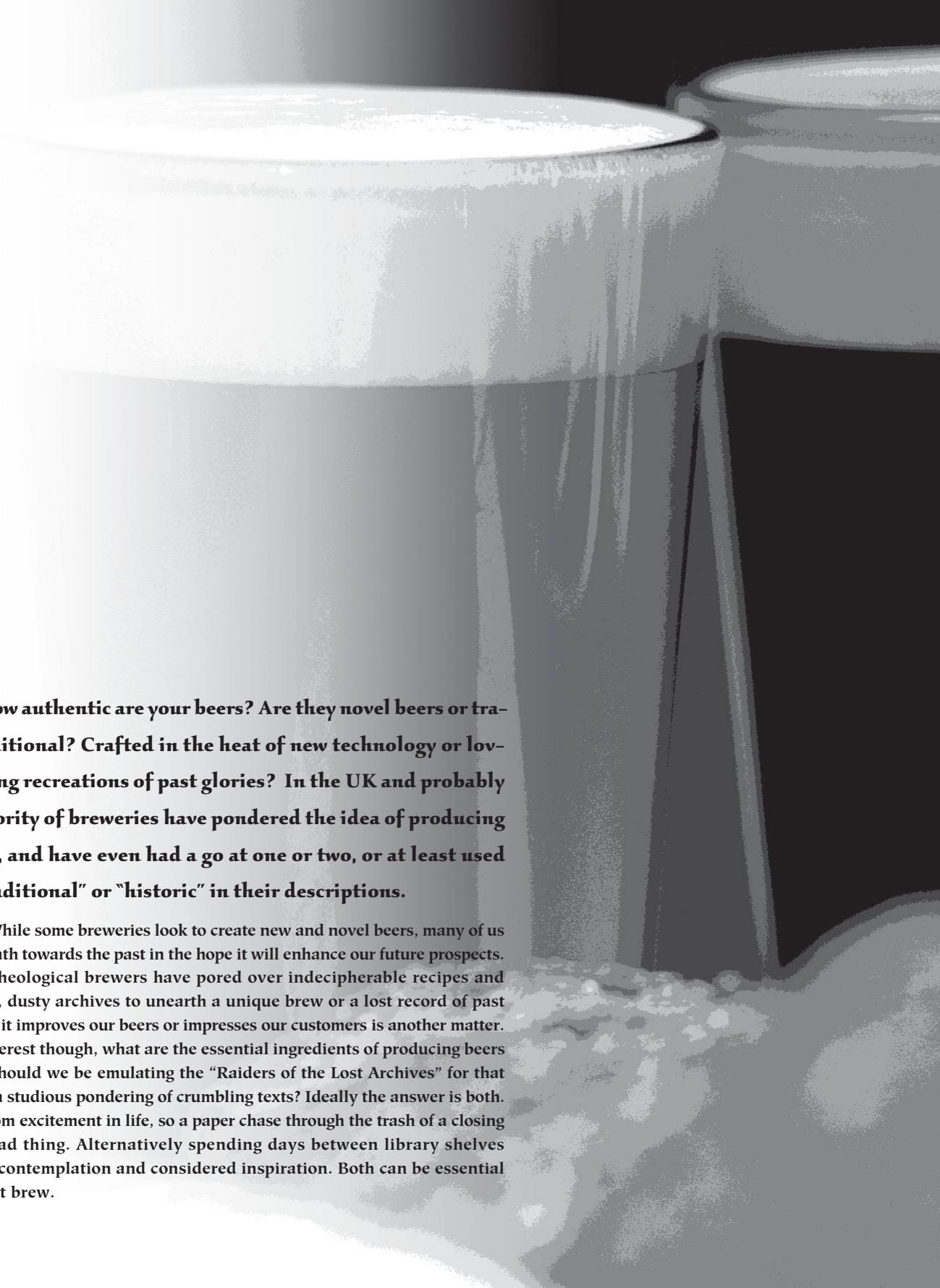
Recipe for 5 gallons (19 L)

• Starting gravity 1.055
• Final gravity 1.010-1.012
8 lb organic Scotmalt pale (3.6 kg)
13 oz organic cara-pils malt (368 g)
10.5 oz organic 60-L crystal malt (298 g)
8.5 oz organic Munich malt (241 g)
5-8 oz wild, unpasteurized star thistle honey (142-227 g)
14-18 c. dried heather tips (3.3-4.2 L) If you can get fresh, use 10-14 cups (2.4-3.3) pressed flowering heather tips. This is an open amount so as to adjust to one's palate.
.2 oz Irish moss (5 g)
Wyeast No. 1728 Scottish ale yeast

Mash in at 151° F (66° C) and hold for 90 minutes. Sparge at 151° to get 5 gallons (19 L). Water treatment should be: calcium, 100-150 ppm; sulfate, 200-300 ppm. At boil, add half of the heather tips and the star thistle honey. Add the remaining half at the end of the boil. Ferment at 65° F (18° C) for 5-8 days. When gravity hits 1.015, remove 1 gallon of ale (3.79 L) in a stock pot, bring it to a simmer and steep 3 cups heather tips for 30 min. Let it cool to 100° F and return it to the fermenter to finish out.



Recreating Beers



How authentic are your beers? Are they novel beers or traditional? Crafted in the heat of new technology or loving recreations of past glories? In the UK and probably the US, a majority of breweries have pondered the idea of producing ancient beers, and have even had a go at one or two, or at least used the words "traditional" or "historic" in their descriptions.

Why do so? While some breweries look to create new and novel beers, many of us have taken the path towards the past in the hope it will enhance our future prospects. To this end, archeological brewers have pored over indecipherable recipes and shivered in cold, dusty archives to unearth a unique brew or a lost record of past secrets. Whether it improves our beers or impresses our customers is another matter.

Given this interest though, what are the essential ingredients of producing beers from the past? Should we be emulating the "Raiders of the Lost Archives" for that elusive scroll or a studious pondering of crumbling texts? Ideally the answer is both. We all benefit from excitement in life, so a paper chase through the trash of a closing brewery is no bad thing. Alternatively spending days between library shelves allows for quiet contemplation and considered inspiration. Both can be essential in rescuing a lost brew.

from the Past

B Y K E I T H
T H O M A S

Whatever your luck, three ingredients seem to feature in most attempts to recreate a beer: recipes, artifacts and contemporary beers. Luck may be necessary for the first two, dedicated practical work for the latter.

Recipes

All beers start with a recipe. The trouble is that historically, few were recorded. Many relied on memory and word of mouth, particularly for provincial breweries and particularly for beers in the early 1800s.

Moreover, those that were recorded rarely were kept or survived, particularly if the brewery was taken over by another. How many recipe and brewing books ended up as trash or in fireplaces is unsure but it must be a large majority of those produced.

This isn't to say that new sources don't appear. Undocumented archives undoubtedly exist in personal and institutional collections. Accidental discovery is rare but possible. I once discussed the architecture of a country house with a builder who casually stated that he possessed the complete plans and brewing books for his family brewery from 1840, but had never judged them to have any value. In fact, some pages were so moldy they required bleaching to read the text. Once deciphered, however, they led to a unique recipe for a Lincolnshire ale.

In other cases, speed can be essential. A discussion in 1997 with a family acquaintance on the Isle of Wight brought out the information that a brother carried all the family records for the Sprake brewery, which closed in 1934 after 101 years of brewing. Unfortunately, on contacting the brother this January it transpired that all had been destroyed in a fire in 1999. Besides chastising myself for the delay I learnt a further lesson in the transient value of artifacts

and in the need for owners to make copies as soon as possible.

One difficulty in using recipes is the degree of detail available. Old recipes represent the innermost secrets of past brewing, the intimate diaries of brewers. In a time when oral traditions were most commonly used, brewery recipes were rarely detailed.

In their best condition, original recipes can provide considerable help in producing a recreated beer true to type, although you cannot be sure to get the exact character. They can certainly give essential information on ingredients and even processing. Unfortunately, beyond a basic analysis for features such as original and, less com-

monly, final gravity, detail is rarely found on taste or descriptions.

In fact, many beers were produced to general style titles and relied on common knowledge of these to further their sales. The beers produced by the Hammond's brewery in Bradford in 1902 are a case in point, ranging through X, XX, XXX, XXXX to XXXXX. Oh, and the occasional best bitter and porter for special occasions. Apart from the gradual increase in original gravity, these aren't the easy descriptions you could develop a marketing strategy on today.

Other independent documents may be needed to provide descriptions. Sadly, these are often lacking for specific breweries and need sourcing from more general documents

of the time: letters, personal diaries, newspapers, travelogues and so on. The sort of thing often passed over in other historical research.

Besides original brewery records, more detailed sources of production and recipes are to be found in many of the dedicated brewing instruction books produced in the Victorian period by authors such as Black, Child and Herbert.

Despite the lack of sources, specific recipes can give essential authenticity and certification to a beer, particularly if coupled with production on the existing plant. Daleside Brewery in Yorkshire confirms this for the success of their "Morocco" and "Crack Shot" ales. Based on recipes from the late 1600s, both beers have developed interest by highlighting their historical basis. Brewer Craig Whitty is sure that "without a historical connection few drinkers would consider tasting the rich ginger and spice characteristics."

Does having a historic recipe guarantee success? Unfortunately not. Having a recipe doesn't mean that a beer is instantly available. Two difficulties immediately arise: firstly interpretation and secondly the inevitable differences in ingredients and processing.

Flag Porter: A Beer from the Depths

In the mid-1980s few British brewers were aware of porter as a beer style. Besides home brewers, few living brewers had any experience brewing it. While working with the Pitfield brewery in London, I worked with the brewing staff to try brewing a version, partly because of novelty, and partly because it was first ever brewed at the Old Blue Last pub only 200 yards away in Shoreditch.

Our brewing produced a fine and interesting beer, but lacking historic samples for comparison we were unsure of its authenticity. Soon after the initial trials, one of our technicians was diving in the English Channel and was told of a shipwreck called the Bottle Wreck which contained bottles of Porter beer from 1825. Having sampled our earlier beers and knowing our interest, he arranged for a dive and retrieved two intact bottles 163 years after the ship went down.

We opened one bottle at a brewer's symposium, expecting to use the contents for chemical analysis, but noticed a sediment containing yeast cells. The second bottle we opened in the laboratory and isolated a yeast—along with five bacteria and two moulds. After some effort we purified and cultivated the yeast and have used it in our brewing ever since. While this added a spice character, we enhanced the brew further by interpreting the chemical analyses to develop the ingredients and recipe to produce a brown porter which we believe is a reasonable example of the style. [Editor's Note: This beer, now produced commercially, is found in Britain and the US under the label of "Flag Porter."] That said, I am sure that there is no single example of such a widely brewed beer. Only if we can recreate a few dozen might we be able to define this in full detail. There is plenty of work out there to extend our current knowledge. Prospective brewers might wish to check their diving kit before starting their next brew.

—Keith Thomas

Interpreting recipes is possible but difficult. It carries inherent limitations which the brewer must address and must be undertaken with caution to avoid producing a version of the many "foxy and putrid" beers which were commonly reviled in the past. These limitations center most often around ingredient sources, although some processing information can be equally obscure. Detail of information correlates negatively with age. Older records show relatively little information, with crude indication of malt and hop quantities and casual references to times and activities. Records before 1800 are commonly very difficult to gauge, whilst ones of the twentieth century are more accessible.

Despite this, most recipes of any age require some linguistic and forensic skill in interpretation. All use historical units such as brewers' pounds and bushels, and many include code for common procedures. Whether this is a result of subterfuge in case of theft or shorthand for a busy brewer is unsure, but either way deciphering may take serious work.

Valuable examples of recipes and processing are discussed in the book *Country House Brewing* by Pamela Seabrook, although many of the recipes given are limited in their ingredient detail and directions. Take this example for Lord Granby's beer from the early 1800s.

"Five bushels of good well cleaned coarse ground malt – sixteen quarts of White Oats, ground coarse. Sixteen quarts of Clean Wheat, neither malted nor ground. Mash all together with Boiling water, let it stand four hours, draw off five London Barrell – put two pounds & half of hops boiling it half an hour. It will be fit to drink in six weeks and will keep four years."

It would be interesting to give this recipe to six different brewers and see how varied the resulting beers were. Probably as different as the beer Lord Granby would endure from month to month.

Ingredients are the second unknown in recipe interpretation. What exactly is the "Clean Wheat" or "White Oats" used for Lord Granby's Ale? Few specifications were made on malts or hops before 1900. Varieties were generally unknown and sources referred to are the names of farms or mer-

Handling old beers for analysis is a delicate process. The best-preserved beers have been kept cold and stable for years. Submerged bottles in the ocean are suitable if closures are intact, and cellar-stored bottles may be similar.

chants. Recipes from Hammonds Bradford brewery in 1903 cite malt from Yorkshire and Chile and hops from "Smith" and Bavaria. No possibility here of matching the bitterness or co-humulone balance.

While it is true that Fuggles and Goldings are the earliest named UK hop varieties, it is not essential to use these. Other hops would have been used in traditional beers and a range of character obtained. More important is to match hop features to

the beer style as indicated by malt profiles, starting gravity and attenuation.

Unconventional ingredients must also be considered—and often rejected. Daleside Brewery's recipe for Crack Shot Ale from Ripley Hall in Yorkshire included the addition of a substantial quantity of fresh eggs. Craig Whitty comments that "In the interests of food hygiene and customer appreciation we decided that authentication had its limits". Other recipes included even less palatable



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and possibly toxic ingredients which the modern brewer would do well to avoid.

Can current brewplant be used? Results will be different, but not necessarily to the detriment of the beer. Open wort cooling in troughs is worth avoiding, as is channeling beer through lead pipes.

Processing is often an unknown feature, although some examples of breweries using original vessels do survive along with some working breweries, such as the Traquair, Blue Anchor and Sarah Hughes micro-breweries in the UK. Many of the surviving regional UK breweries still use original vessels, including Caladonian, Elgoods, Hook Norton and Marston's breweries to name only four. Major differences between historic and contemporary practices exist, particularly the open cooling of wort and use of wooden fermenting vessels, not to mention general hygiene and yeast handling.

Having trialed a number of recipes with different materials and following typical procedures I believe that the main help recipes provide is a guide to the strength, colour and bitterness of original beers. In addition, information on body and mineral composition may be elucidated in some cases where salt additions are mentioned. Beyond these you are looking to provide your own signature from hops and yeast and using the historical information to direct malt composition and strength. Considering the variation in hops and yeast years ago, this is probably what happened on a seasonal basis anyway.

Analyse artifacts

If no recipe exists, can a beer be recreated from a historical sample? A number of

examples of this endeavor exist, so let's have a look at how much a crusted bottle of beer can tell you about its production.

Historical beers are treasures. Rarely found and very delicate once disturbed. Nevertheless they can contain useful contents and, in exceptional cases, even the living remains of their brewery—the yeast.

Finding an intact bottle of authentically ancient beer is difficult. Like all natural searches, luck is as important as a search plan and targeted investigations.

Old beer bottles themselves are not uncommon. One hundred-year-old empty bottles are commonly paraded in second hand shops in the UK, but full bottles are one in a million. Perhaps people drink them for the excitement of their vintage despite deteriorated flavour. Perhaps tops leak. Crown corks certainly corrode with time but plenty of empty screw and corked bottles have survived. Few though with contents.

Word of mouth sometimes brings results. At Brewlab we once obtained a 1928 bottle of barley wine from a cellar on the North York Moors after the finder casually asked for an analysis of an "old wine" just for interest. Analysis confirmed it to be beer rather than wine and that the yeast was still viable and usable. From this we brewed a recreation and added a novel strong ale to our production list.

Handling old beers for analysis is a delicate process. The best-preserved beers have been kept cold and stable for years. Submerged bottles in the ocean are suitable if closures are intact, and cellar-stored bottles may be similar. Our 1825 Flag Porter bottles were corked and tightly wax sealed to keep

out seawater while the cold and darkness preserved a few hardy microorganisms.

How can microbes survive such a time? It is certainly true that the population of viable organisms will progressively decline, but at a rate proportional to temperature. Under low temperature, yeast populations will slowly cannibalize their elders, leaving a dwindling number surviving. Catching these yeasts becomes a race against extinction.

Once released from their storage, any temperature shocks can seriously affect a population giving limited time to reconstitute the survivors. Beware, too, of leakage and damage. Recently retrieved bottles of an 1894 IPA from a shipwreck off Wales were encrusted in rust and other deposits, leading to some cracking on release with likely contamination of the contents.

Less valuable for research are bottles kept as part of a public bar collection. Many pubs in the UK carry such dusty relics on their shelves. Typically dating from the 1960s or 70s, these bottles are poor sources of material. Many contain beer which has been filtered and pasteurized and most are nondescript beers such as the reviled Watney's Red Barrel, Double Diamond or other mass-produced brands. Hardly the brands to enhance your beer range.

Occasionally it may be possible to isolate a yeast from an antique bottle. Often, though, samples are full of bacteria and yield little of value. Beware too of being too eager if you do spot a likely sample. Over enthusiasm in front of the bar may lead a publican to open a bottle for you there and then. Having compromised the beer, you may well be obliged to drink a sample, often with disturbing consequences.

Chemical analysis of beer can produce useful details, ranging from colour spectra to iso alpha acid and ester profiles. From these analyses, suggestions may be made of malt and hop choice, yeast strain and fermentation management. However, it can be difficult to work out the effects of age, deterioration and contamination, which will all tend to reduce the levels of important beer characteristics.

Some features are more stable than others. The proportion of co-iso-humulone can suggest the hop variety used, while ester and volatile flavour (continued on page 71)

BY CHARLIE PAPAZIAN

Poetic Justice in Italy

Agostino Arioli is a craft brewer and is now continuing to serve time as an accused criminal. At first this may be of passive interest to most of you, but his customers aren't likely to dismiss Agostino's crimes against Italian beer drinkers. As a result his brewpub, *Birrificio Italiano*, in Lurago Marinone (a suburban area of Como) produced over 700 hl of craft brewed lagers for his packed brewpub last year. His customers directly accuse him of his crime, "You are a criminal Agostino. I can not drink any other beer but yours now."

Italy, a country that seems forever planted with vineyards, enjoys a beverage culture deeply immersed in its wine and food. However, Italians are drinking a lot more beer these days than what one would imagine. 25% of the beer consumption in Italy is imported from all over the world. Brewpubs and microbrewery numbers have increased from 6 to over 50 in less than two years. Two principal distributing supply companies indicate a small but growing interest in homebrewing. On a trip I made earlier this year I discovered a new world of beer and small but growing number of Italian craft brewers romancing the notion that Italian culture and cuisine is an absolutely perfect complement to specialty craft brewed beers.

Fiera di Rimini, a trade fair company (and producers of Pianeta Birra [Planet Beer]) and the Italian Microbrewers Association (*Unionbirrai Microbirrifici*—<http://www.unionbirrai.com/>) sponsored and hosted my intensive 8 day immersion into the world of Italian beer culture and craft brewing earlier this year. I was only a little aware of the emergence of their beer enthusiasm before I embarked on this journey.

After my presentations at the trade show on behalf of American and Italian Craft Brewers, I traveled with members of *Unionbirrai Microbirrifici* (Italy's Microbrewery



Agostino Arioli tapping a special keg of German style pils for special guests and beer enthusiasts at Birrificio Italiano.

Association) through north-central Italy to visit 5 microbreweries and brewpubs. There I learned that the poets of the beer world had emerged, expressing the traditions of Italian food and beverage through their creative combination of American, German, Belgian and British beer traditions, all combining to express themselves as uniquely Italian beers worthy of discussion in this World of Worts.

La Baladin

The beers I tasted at *La Baladin* (<http://www.birreria.com>) in the tiny hilltop medieval village of Piozzo were nothing short of magnificent. Teo Musso, owner, troubadour, world music producer and brewmaster blends his knowledge of Belgian brewing techniques with Italian creativity to skillfully brew a balanced selection of top fermented beers.

La Baladin opened in 1985 as a non-brewing café. The brewery, Teo's brainchild was installed in 1997 and beer sales increased 40% once his beer was on tap. Current production level is 500 hl per year with his 5 hl brewhouse.

Isaac—Birra Bianca, a Belgian style wheat beer made with unmalted wheat grown by his mother and father with the unique addition of whole sweet oranges and coriander. Well balanced, low hop flavor with a refreshing lemon-orange-citrus theme complimented with a lively yet subtle coriander-spice aroma and flavor. Bottle conditioned in uniquely styled champagne bottles, Isaac is named after 2-year old son Isaac. What made this beer uniquely Teo's was homegrown family unmalted wheat, whole sweet oranges, English ale yeast and bottle conditioning.

Super Baladin—The brewpub's strongest seller. Beer sales jumped 300% after its



Teo Musso, brewer at La Baladin with his uniquely brewed and bottle conditioned top fermented beers.

introduction. At 8% alcohol, this bottle-conditioned ale is reminiscent of a Belgian style Dubbel, but as all Teo's beers are made with English style ale yeasts, Belgian fruitiness is minimal, resulting in a smooth, clean taste with accents on malt and hops rather than on fermentation esters and fruity alcohols.

Niña—On draft this brew has a similar profile to an English style bitter with a twist—the hop aroma is floral and German! It is dispensed with nitrogen. An extraordinary combination of traditions.

La Blonde du Baladin—A well-attenuated golden ale with high drinkability and the inviting floral character of German Hersbrucker Hallertau and Spalt hops. The wort is caramelized by a very long boiling time, resulting in a rich caramel-like malt character that is suggestive of butterscotch, but is rather toffee-like. A beer judge could easily mistake this toffee character for diacetyl, but it isn't so. A light ale with German hops along with a toffee character. Travel the world and you'd be hard pressed to find its equal.

Brune du Baladin—Actually what I might call "Italian Stout." It has a profile similar to Guinness but as Teo emphasized, having milder intentions. Deep, dark and complex, brewed with a combination of five different malts yet with no roasted barley. You think stout, but then who cares—it goes down smoothly.

Noel—Teo's wonderfully complex creation that defies categorizing. Bottle-conditioned at 9% alcohol it presents a complex and interwoven balance of cocoa and fruitiness, while maintaining its relative dryness on the palate. A very special brew with very special packaging. Remember, this is strong brown ale with English ale yeast.

Birrificio Italiano

Just east of *Torino* (Turin), in Marinone outside of *Como*, Agostino Arioli and his brother Stefano founded *Birrificio Italiano* brewpub and restaurant in 1997 with 8 other partners. In two years production has grown from 400 hl to 700 hl where all beer sales are from the premises—all beers sold on premises are house beers and most are bottom fermented. Agostino designed and had his 3 hl brewhouse built locally. A new 6 hl system will be installed later this year. All his beers are uniquely Italian—they are variations on traditional themes. Most beers at *Birrificio Italiano* are lager beers with nicknames and a story, served on draft or bottled (some bottle-conditioned).

Prima—(*L' ingannatrice*—The cheater; "who is like a woman who is a liar—beware"; it is a milder taste—you think it is light, but it is 6%). A soft caramel personality dominates this popular brown lager. You might begin by thinking "German Dunkel" style, but a sweet twist of crème caramel is often used to describe the qualities, so close to butterscotch but most definitely not. The beer does have caramel malts but Agostino knows that it is the extra boil time that gives this heady lager its special character.

Amber Shock—(*L' impevedibile*—"That which is unexpected") At 7% alcohol Amber Shock is lager fermented and lager bottle-conditioned. Only available in elegant 1 liter bottle-conditioned packages for the customer who comes to the brewery. It is considered the brewery's most "special" beer and the most "mythical" because it isn't always available. A full malt and toffee-like flavor creates the overture to flavor followed with a complimenting fruity rose, apricot and cherry aroma and flavor. The beer has a slight sulfur note in the aroma, but with a few minutes of breathing after opening the sulfur notes dissipate. The result is a

remarkably playful and complex beer that is light on the palate.

Tip Pils—(*Autoconoscenza*—"The self consciousness; when you finish drinking it you will have reached a state of self consciousness") With a rich dense head this is every bit the clean, crisp, refreshing and flavorful tradition of a Bavarian-style Pilsener—south of the Alps! Nothing too unusual about this, except that it is brewed south of the Alps, leaving you wondering if you've gone to another heaven.

Bibock—(*La Prepotenza*—) An Italian creation; an amber "Italian bock." 6.2% with more hops than a traditional bock, along with the rich maltiness usually evident in the stronger German version. Aroma is reminiscent of fresh rising bread dough and its maltiness is complimented with a unique apricot character in flavor and aroma. German Hallertau and Perle hops are used for aroma. It is also available in take-away 2 liter bottles.

2000—(*La Birra Terzo Millennio*—The beer of the third millennium)—At 6.5% alcohol this is currently *Birrificio Italiano*'s only ale, though, similar to Bavarian Weizenbier traditions (though using English ale yeast), it is bottle conditioned with lager yeast. A light brown ale, plum-like and dry with a balanced soft, well balanced cocoa and roasted malt character. Served in a special large robust glass requiring two hands to carry the precious liquid to the mouth. It was most definitely a glass with purpose; to drink deliberately with depth and balance... this is Italian beer poetry and "moves towards the new millennium for Italian beer," proclaimed Agostino.

Agostino's departing wisdom: "Semel in Anno Licit Insanire"—Once a year it is okay to be crazy—"at least once a year," he emphasized again.

Birrificio Lambrate

East of the city center of Milan (*Milano*) lays a jewel that sparkles as a brewpub featuring absolutely top quality beers along with regional specialty foods that are purchased fresh from the producers. Fresh beer is brewed in the adjacent building; The Skunk Brewpub serves fresh beers brewed by partner-owners Davide Sangiorgi and Rosa Gravina. *Birrificio Lambrate* brewing

For More Information

- **Unionbirrai Microbirrifici**
(Italian Microbrewers Association)
For a list of member Italian Craft Brewers
<http://www.unionbirrai.com/>

- **La Baladin Brewery**
P.zza 5 Luglio, 15
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www.birreria.com

- **Birrificio Italiano**
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www.birrificio.it

- **Birrificio Lambrate**—founded in 1996
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Pub: +39.02.70.63.86.78
Skunk Pub open 1-3 and 6 p.m.—2 a.m.

hops. Excellent, well balanced with suggestions of fruitiness.

Santambroeus—A pale 7% ale brewed with 5% wheat malt and the balance with Pils malt. A strong malty aroma and flavor dominate.

Porpora—Referred to as a red beer, but more indicative of a brown ale at 6.3% alcohol. Evident malty and roast malt characters without any astringency. Good balance and relatively dry. Hop flavors are notable but not assertive.

Ghisa—(Milanese slang for street police) A unique, dark, smoke-flavored beer using 30% German beechwood smoked malt, Munich, melanoidan, caramel and (black huskless) carafla malts. With 6.2% alcohol this beer is surprisingly smooth in body and flavor. The smoke flavor is well balanced; the dark and toasted malts offer a velvet-like texture. Not assertively hopped.

Brighella—Birrificio Lambrate's Christmas beer at 8% alcohol. A golden, very fruity ale reminiscent of (continued on page 72)

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Here are this year's best—the gold-medal-winning recipes of the AHA 2000 National Homebrew Competition. Of 2,668 entries, these were judged the best in each of the 29 NHC categories—24 beer, 3 mead, 1 cider, and 1 new entrants. Give them a try next time you brew one of these styles.

The National Homebrew Competition's success depends on the gracious help of many volunteers. Special recognition goes out to the site directors and their assistants: at the Southwest site, Tyce Heldenbrand, Tod Fitzsimmons, Harold Gulbransen, and the QUAFF Homebrew Club; at the Northwest site, Michael Rasmussen; at the Midwest site, Alberta Rager, Jackie Rager, Steve Ford, and Marc Gaspard; at the Great Lakes site, Jeffrey Sparrow, Jim Hodge, and Ron Philips; at the Northeast site Nancy Rigberg, George Hummel, and David Houseman; at the Southeast site, Sarah Bridegroom, John Larson, and Kari Pichard; at the Canada site, Dennis Kinvig and Michael Dugan; at the Cider site, Gloria Franconi; and in Livonia for the finals, Rex Halfpenny, Danielle Casavant, Dennis Helwig, Kevin Kutskill, and Richard Oluszak. Thanks also to all of the site sponsors, sorters, stewards, and judges, and to the BJCP for judge support. The competition sponsors make the event financially possible. Please support the businesses that support the AHA.

Congratulations to all of the winners.
—Gary Glass

American Lager



GOLD MEDAL

AHA 2000
NATIONAL
HOMEBREW
COMPETITION

*Category award sponsored by
Jacob Leinenkugel's Brewing Co.*

GREG BURNS, REGINA, SK, CANADA
"LATECOMER"
CLASSIC AMERICAN PILSNER

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

- 8 lb pale malt (3.6 kg)
 - 2.2 lb flaked maize (1 kg)
 - .75 lb Cara-Pils malt (.34 kg)
 - 2 oz Saaz whole hops, 2.2% alpha acid (62 g) (60 min.)
 - .5 oz Willamette whole hops, 4.2% alpha acid (116 g) (60 min.)
 - .75 oz Saaz pellet hops, 2% alpha acid (21 g) (dry)
- Wyeast No. 2042 Danish lager yeast
Forced CO₂ to carbonate

- Original specific gravity: 1.055
- Final specific gravity: 1.014
- Boiling time: 120 min.
- Primary fermentation: seven days at 68° F (20° C) in steel
- Secondary fermentation: six months at 65-72° F (18-22° C) in steel
- Tertiary fermentation: two months at 65° F (18°C) in steel

Brewer's Specifics

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

Judges' Comments

"Very nice, enjoyable Pils. Nothing out of place. Could use that crisp, noble hop nose. Otherwise, good job."

"Wonderful. Big hop flavor, out of balance with aroma. The lack of aroma hops makes me wonder if you boiled out your aroma."

Runners-Up

Silver: Shane Coombs, Warrenville, IL
Bronze: Curt Hausam, Salem, OR

European Pale Lager



GOLD MEDAL

HOMEBREWERS OF THE YEAR
AHA 2000
NATIONAL
HOMEBREW
COMPETITION

*Category award sponsored by
Briess Malting Co.*

MICKEY & VI WALKER, FARGO, ND
"MILLENNIUM PILS"
NORTHERN GERMAN PILSNER

Ingredients for 10 U.S. gal (37.8 L)

- 15 lb 2-row pils malt (6.8 kg)
 - 1 lb caramel pils malt (.45 kg)
 - 3 oz Hallertauer whole hops, 5.4% alpha acid (85 g) (60 min.)
 - 1 oz Hallertauer whole hops, 5.4% alpha acid (28 g) (20 min.)
 - 1.5 oz Saaz pellet hops, 3.1% alpha acid (43 g) (2 min.)
- Wyeast No. 2007 Pilsen lager yeast
forced CO₂ to carbonate

- Original specific gravity: 1.050
- Final specific gravity: 1.012
- Boiling time: 60 min.
- Primary fermentation: 25 days at 46° F (8° C) in glass
- Secondary fermentation: 18 days at 46° F (8° C) in glass
- Tertiary fermentation: 60 days at 32° F (0° C) in steel

Brewer's Specifics

Employ a triple decoction mash.

Judges' Comments

"A very well-made beer with no technical flaws."

"Excellent effort. The smack of malt sweetness is just enough to entertain the palate with the noble hops."

Runners-Up

Silver: David Lane, Santa Cruz, CA

Bronze: John Aitchison, Northridge, CA

Light Ale



GOLD MEDAL

AHA 2000
NATIONAL
HOMEBREW
COMPETITION

*Category award sponsored by
Redhook Ale Brewery*

STEPHEN ROSE, TAUNTON, MA
"SEGREGANSETT ALE"
CREAM ALE

Ingredients for 3.3 U.S. gal (13 L)

- 5 lb American 2-row pale malt (2.3 kg)
- 1 lb flaked maize (.45 kg)
- .25 oz Kent Goldings pellet hops, 5.3% alpha acid (7 g) (60 min.)
- 1 oz Saaz whole hops, 3.9% alpha acid (28 g) (30 min.)
- RTP Chico ale yeast
- .75 c. light dry malt extract (177 mL) (to prime)
- Original specific gravity: 1.047

- Final specific gravity: 1.019
- Boiling time: 65 min.
- Primary fermentation: 7 days at 65° F (18° C) in plastic
- Secondary fermentation: 7 days at 59° F (15° C) in glass

Brewer's Specifics

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

Judges' Comments

"Well-made, very drinkable."

"Nice job! Very clean, well-balanced."

Runners-Up

Silver: William Reis & Kevin Hodkiewicz, Oconto Falls, WI

Bronze: Peter Zien, San Diego, CA

- 1 oz Styrian Goldings pellet hops (28 g) (2 min.)
- 2 oz Styrian Goldings pellet hops (57 g) (dry)
- .75 c. corn sugar (177 mL) to prime

- Original specific gravity: 1.055
- Final specific gravity: 1.018
- Boiling time: 90 min.
- Primary fermentation: 6 days at 67° F (19° C) in glass
- Secondary fermentation: 14 days at 67° F (16° C) in glass

Brewer's Specifics

Mash grain at 154° F (68° C) for one hour.

Judges' Comments

"Nice beer. Good balance in flavor. Needs a little malt aroma."

"Well-balanced beer. Bitterness overtakes malt—just right."

Runners-Up

Silver: Ken Brown, Fremont, CA

Bronze: Bruce Stott, Rockville, CT

Bitter and English Pale Ale



GOLD MEDAL

AHA 2000
NATIONAL
HOMEBREW
COMPETITION

*Category award sponsored by
Wynkoop Brewing Co.*

**STEVE BAGELY AND MILAN MCVAY,
MEDINA, OH**
"MILO'S ESB"
SPECIAL OR BEST BITTER

Ingredients for 10 U.S. gal (41.6 L)

- 13 lb Munton & Fison pale malt (5.9 kg)
- lb Belgian aromatic malt (.9 kg)
- lb Belgian Cara-Vienne malt (.9 kg)
- 1 lb Belgian Cara-Munich malt (.45 kg)
- 1 lb Durst wheat malt (.45 kg)
- 1 lb Belgian biscuit malt (.45 kg)
- 1 lb dextrin malt (.45 kg)
- 4 oz Belgian chocolate (.113 g)
- 2 oz Perle pellet hops, 6.5% alpha acid (57 g) (60 min.)
- 1 oz Hallertauer pellet hops, 4% alpha acid (28 g) (60 min.)
- 2 oz Willamette pellet hops (57 g) (15 min.)

Scottish Ale



GOLD MEDAL

AHA 2000
NATIONAL
HOMEBREW
COMPETITION

*Category award sponsored by
Bert Grant's Ales*

KEN JOHNSON, BORING, OR
"FEARLESS SCOTTISH EXPORT"
EXPORT 80/-

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

- 5 lb Munich malt (2.3 kg)
- 4 lb Scotmalt Golden Promise malt (1.8 kg)
- lb carastan malt (1.36 kg)
- 1 lb cara-Munich malt (.45 kg)

2 oz Willamette whole hops, 4% alpha acid (57 g) (30 min.)
Wyeast No. 1338 European ale yeast
.75 c. corn sugar (177 mL) to prime

- Original specific gravity: 1.054
- Final specific gravity: 1.012
- Boiling time: 3 hrs.
- Primary fermentation: 21 days at 66° F (19° C) in glass

Brewer's Specifics

Mash grains for 60 minutes at 150° F (66° C)

Judges' Comments

"Nice, drinkable beer—good balance and nice, slightly toasty malt character."

"Very good. Complex and interesting. Very close to style."

Runners-Up

Silver: Don Darst, Salem, OR

Bronze: Harrison Gibbs, Los Angeles, CA

.5 oz Amarillo whole hops, 8.8% alpha acid (.14 g) (30 min.)
.5 oz Cascade plug hops, 5.5% alpha acid (14 g) (30 min.)
3 oz Cascade whole hops, 5.5% alpha acid (85 g) (5 min.)
2 oz Cascade hops, 5.5% alpha acid (57 g) (dry, 2 wks.)
Wyeast No. 1056 American ale yeast
.75 cup corn sugar (177 mL) (to prime)

- Original specific gravity: 1.053
- Final specific gravity: 1.008
- Boiling time: 60 minutes
- Primary fermentation: 13 days at 60-72° F (16-22° C) in glass
- Secondary fermentation: 17 days at 60-72° F (16-22° C) in glass

Brewer's Specifics

Mash grains at 153° F (67° C) for 60 minutes in 1.5 gallons (5.68 L) brewing liquor. Add extract to boil. Add dry hops to secondary fermenter.

Judges' Comments

"This is a quintessential APA—drinkable with lots of flavor. Perfectly balanced. I finished this—no dumping. Send recipe!"

"Great beer. Great balance."

American Pale Ale



GOLD MEDAL

AHA 2000
NATIONAL
HOMEBREW
COMPETITION

*Category award sponsored by
Northwestern Extract*

CHRIS LAVOIE, ALBANY, NY
"DONNER PARTY PALE ALE #16"
AMERICAN-STYLE PALE ALE

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

- 7 lb, 6 oz super light pale malt extract (3.18 kg, 170 g)
- 2 lb Klages pale malt (.9 kg)
- .5 lb Cara-Pils malt (.23 kg)
- .5 lb crystal malt (.23 kg)
- .25 lb wheat malt (.11 kg)
- .5 oz Yakima Magnum whole hops, 14% alpha acid (14 g) (60 min.)

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

5 lb Beestons Maris Otter 2-row pale malt (2.3 kg)
3 lb Beestons pale 2-row malt (1.36 kg)
1 lb SMC Special pale malt (.45 kg)
1 lb Briess Munich malt (.45 kg)
1 lb DWC wheat malt (.45 kg)
.5 lb DWC aromatic malt (.23 kg)
.5 lb DWC cara-Pils malt (.23 kg)
.5 lb DWC biscuit malt (.23 kg)
2 oz Centennial whole hops, 10.5% alpha acid (57 g) (60 min.)
1.5 oz Willamette whole hops, 4.7% alpha acid (43 g) (10 min.)
1 oz Cascade whole hops, 5.8% alpha acid (28 g) (10 min.)
1.5 oz Centennial whole hops, 10.5% alpha acid (43 g) (10 min.)
.75 oz Northern Brewer whole hops, 6% alpha acid (21 g) (10 min.)
1 oz Willamette whole hops, 4.7% alpha acid (28 g) (dry)
1 oz Centennial whole hops, 10.5% alpha acid (28 g) (dry)
.75 oz Northern Brewer whole hops, 6% alpha acid (21 g) (dry)
Wyeast No. 1272 American ale II yeast
.5 c. dextrose (177 mL) to prime

- Original specific gravity: 1.068
- Final specific gravity: 1.018
- Boiling time: 75 minutes
- Primary fermentation: 8 days at 65° F (18° C) in glass
- Secondary fermentation: 14 days at 65° F (18° C) in glass

Brewer's Specifics

Mash grains at 156° F (69° C) for 45 minutes. Raise mash temperature to 175° F (79° C) and sparge.

Judges' Comments

"Great two-hearted clone! Send more."

Runners-Up

Silver: Erik Vanthilt, El Cajon, CA

Bronze: Bill Wright, Juneau, AK

India Pale Ale



GOLD MEDAL

NINKASI AWARD WINNER
AHA 2000
NATIONAL
HOMEBREW
COMPETITION

*Category award sponsored by
Deschutes Brewing Co.*

JOE FORMANEK, BOLINGBROOK, IL
"NECTAR IPA"
INDIA PALE ALE

Koelsch and Altbier



GOLD MEDAL

AHA 2000
NATIONAL
HOMEBREW
COMPETITION

*Category award sponsored by
BJ's Pizza Grill and Brewery*

JOHN TYLER, TORONTO, ON, CANADA
"KLASSIC KOLSCH"
KOLSCH

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

8.7 lb German Pilsner malt (3.9 kg)
1 lb wheat malt (.45 kg)
.5 oz Perle pellet hops, 6.75% alpha acid (14 g) (90 min.)
.4 oz Perle pellet hops, 6.75% alpha acid (12 g) (50 min.)
.5 oz Spalt pellet hops, 4% alpha acid (14 g) (15 min.)
Lallemand Nottingham ale yeast
Forced CO2 to carbonate

- Original specific gravity: 1.044
- Final specific gravity: 1.003
- Boiling time: 90 minutes
- Primary fermentation: 14 days at 68° F (20° C) in glass
- Secondary fermentation: 4 days at 40° F (4° C) in glass

Brewer's Specifics

Mash grains at 144° F (62° C) for 60 minutes.

Judges' Comments

"Good effort! Watch mash temps—alcohol finish. I'll have another!"

Runners-Up

Silver: Bruce Francis, Vienna, VA

Bronze: Robert Neubauer, Trenton, MI

German Amber Lager



GOLD MEDAL

CIDERMAKER OF THE YEAR

AHA 2000
NATIONAL
HOMEBREW
COMPETITION

JEFF CARLSON, GRAND RAPIDS, MI
"BLIZZARD IN VIENNA"
VIENNA

Ingredients for 5.75 U.S. gal (21.7 L)

5 lb DWC Vienna malt (2.27 kg)
4 lb DWC Pilsner malt (1.8 kg)
12 oz Belgian cara-pils (.340 g)
6 oz DWC 90L crystal malt (170 g)
oz DWC 20L crystal malt (113 g)
2 oz black malt (57 g)
1 oz Styrian Goldings plug hops,
5.2% alpha acid (28 g) (60 min.)
.5 oz Styrian Goldings plug hops,
5.2% alpha acid (14 g) (45 min.)
.5 oz Saaz whole hops, 3.5% alpha acid (14 g) (15 min.)
.5 oz Saaz whole hops, 3.5% alpha acid (14 g) (5 min.)
Wyeast No. 2206 Bavarian lager yeast
Forced CO2 to carbonate

- Original specific gravity: 1.052
- Final specific gravity: 1.014
- Boiling time: 75 minutes
- Primary fermentation: 12 days at 50° F (10° C) in glass
- Secondary fermentation: 30 days at 34° F (1° C) in glass

Brewer's Specifics

Mash in at 124° F (51° C) for 20 minutes. Raise mash temperature to 140° F (60° C) and hold for 20 minutes. Raise mash temperature to 154° F (68° C) and hold for 60 minutes.

Judges' Comments

"Nice beer! A bit on the sweet/caramely side. Bittering and flavor hops are nice."

"Really nice beer. Malt and hop flavors blend well."

Runners-Up

Silver: Mike Porter, Lenexa, KS

Bronze: Susan Ruud, Harwood, ND

Brown Ale



GOLD MEDAL

AHA 2000
NATIONAL
HOMEBREW
COMPETITION

Category award sponsored by Premier Malt Products

WES & NANCY SAMPSON, OCOEE, FL
"MAD COW MILD ALE"
MILD ALE

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

8 lb pale malt (3.6 kg)
.5 lb crystal malt (.23 kg)
.5 lb Cara-Munich malt (.23 kg)
.5 lb wheat malt (.23 kg)
2 oz chocolate malt (57 g)
.5 oz Kent Goldings hops,
6.1% alpha acid, (14 g) (60 min.)
.5 oz Kent Goldings hops,
6.1% alpha acid, (14 g) (20 min.)
.5 oz Kent Goldings hops,
6.1% alpha acid, (14 g) (5 min.)
Wyeast No. 1028 London ale yeast
1 c. light dry malt extract, to prime

- Original specific gravity: 1.040
- Final specific gravity: 1.010
- Boiling time: 60 minutes
- Primary fermentation: 7 days at 65° F (18° C) in glass
- Secondary fermentation: 7 days at 65° F (18° C) in glass

Brewer's Specifics

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

Judges' Comments

"Clean, malty, light beer—I like it."

"Nice example of style. Good, rich flavor for a low-gravity beer."

Runners-Up

Silver: Joe Formanek, Bolingbrook, IL

Bronze: Steve Jones, Johnson City, TN

English and Scottish Strong Ale



GOLD MEDAL

AHA 2000
NATIONAL
HOMEBREW
COMPETITION

Category award sponsored by The Pike Brewing Company

RON SMITH, INDIANAPOLIS, IN
"PARK AVENUE'S FINALE"
OLD ALE

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

- 14 lb Briess pale malt (6.36 kg)
 - 2 lb crystal malt (.9 kg)
 - 2 oz DWC chocolate malt (57 g)
 - 3 lb Laaglander light dry malt extract (1.36 kg)
 - 2 oz Hallertauer whole hops, 4.7% alpha acid (57 g) (50 min.)
 - 1 oz Northern Brewer whole hops, 7.1% alpha acid (28 g) (50 min.)
 - 1 oz Hallertauer whole hops, 4.7% alpha acid (28 g) (5 min.)
 - .5 oz Centennial whole hops (14 g) (5 min.)
 - .5 oz Styrian Goldings whole hops (14 g) (dry)
 - White Labs East Coast ale yeast
 - .75 cup corn sugar (177 mL) to prime
- Original specific gravity: 1.087
 - Final specific gravity: 1.024
 - Boiling time: 120 minutes
 - Primary fermentation: 5 days at 73° F (23° C) in glass
 - Secondary fermentation: 11 days at 73° F (23° C) in glass

Brewer's Specifics

Mash grains for 2.5 hrs. at 153° F (67° C). Sparge at 168° F (76° C) for 60 min. Add extract and commence boil.

Judges' Comments

- "Very good for style."
- "Nice example. A little more hop character than should be."

Runners-Up

Silver: Noel Blake, Portland, OR

Bronze: Thomas A. Miklinevich, West Redding, CT

Brewer's Specifics

Mash grains for 90 min. at 158° F (70° C). Add extract and boil.

Judges' Comments

"Nice everything. I can't tell you how to improve this beer—no faults."

"Would love to have more of this beer."

Barleywine



GOLD MEDAL

AHA 2000
NATIONAL
HOMEBREW
COMPETITION

Category award sponsored by Anchor Brewing Co.

RON THOMAS, SILVERTON, OR
"KIDNEY KILLER"
AMERICAN-STYLE BARLEYWINE

Ingredients for 12 U.S. gal (45.4 L)

- 50 lb H. Bairds pale 2-row malt (22.7 kg)
- 2 lb cara-pils malt (.9 kg)
- 2 lb 135-165L crystal malt (.9 kg)
- 5 lb extra-light dry malt extract (2.27 kg)
- 4 oz Columbus whole hops, 14.1% alpha acid (113 g) (60 min.)
- 4 oz Centennial whole hops, 10.7% alpha acid (113 g) (30 min.)
- 4 oz Columbus whole hops, 14.1% alpha acid (113 g) (20 min.)
- 2 oz Centennial whole hops, 10.7% alpha acid (57 g) (10 min.)
- 2 oz Tettnanger whole hops, 4.7% alpha acid (57 g) (steep)
- 2 oz Columbus whole hops, 10.7% alpha acid (57 g) (dry)
- Wyeast No. 1056 Bavarian lager yeast
- Forced CO₂ to carbonate

- Original specific gravity: 1.114
- Final specific gravity: 1.034
- Boiling time: 3 hrs.
- Primary fermentation: 20 days in glass
- Secondary fermentation: 24 days in glass

European Dark Lager



GOLD MEDAL

AHA 2000
NATIONAL
HOMEBREW
COMPETITION

STEVE & DEBBIE SEVERTSON
"DEBBIE'S DUNKEL DU"
SCHWARZBIER

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

- 4 lb Durst Pils malt (1.8 kg)
 - 3 lb Durst Munich malt (1.36 kg)
 - 3 lb Durst Vienna malt (1.36 kg)
 - 1 lb DWC Cara-Munich malt (.45 kg)
 - .5 lb DWC biscuit malt (.23 kg)
 - .5 lb Paul's English chocolate malt (.23 kg)
 - 1 oz H. Mittelfruh plug hops, 4.8% alpha acid (28 g) (60 min.)
 - .5 oz Tettnanger plug hops, 4.5% alpha acid (14 g) (30 min.)
 - 5 oz Mittelfruh plug hops, 4.8% alpha acid (14 g) (30 min.)
 - .5 oz H. Mittelfruh plug hops, 4.8% alpha acid (14 g) (5 min.)
 - White Labs German lager yeast
 - 1 c. corn sugar (237 mL) to prime
- Original specific gravity: 1.046
 - Final specific gravity: 1.013
 - Boiling time: 60 minutes
 - Primary fermentation: 19 days at 50° F (10° C) in glass
 - Secondary fermentation: 29 days at 40° F (4° C) in glass

Brewer's Specifics

Mash grains at 150° F (66° C) for 60 minutes.

Judges' Comments

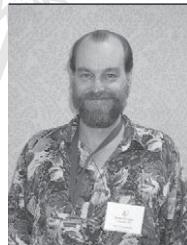
"Could push up the sweetness a little with more Munich."

"Very good beer."

Runners-Up

Silver: Bob Thompson, Murrieta, CA
Bronze: Ted Hausotter, Dundee, OR

Bock



GOLD MEDAL

AHA 2000
NATIONAL
HOMEBREW
COMPETITION

Category award sponsored by Washington Hop Commission

BRIAN ST. CLAIR, CINCINNATI, OH
"HELLES FOR CERTAIN"
HELLESBOCK/MAIBOCK

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

8 lb Pils malt (3.6 kg)
1 lb Munich malt (.45 kg)
1 oz Tettnanger pellet hops,
4.8% alpha acid (28 g) (1st wort)
1 oz Saaz whole hops, 4% alpha
acid (28 g) (45 min.)
1 oz New Zealand Hallertauer hops,
10% alpha acid (28 g) (knockout)
Wyeast No. 2206 Bavarian lager yeast
forced CO₂ to carbonate

- Original specific gravity: 1.082
- Final specific gravity: 1.023
- Boiling time: 60 minutes
- Primary fermentation: 25 days at 48° F (9° C) in glass
- Secondary fermentation: 54 days at 48° F (9° C) in glass

Judges' Comments

"I'm afraid I can't offer any suggestions for improvement—this is an outstanding beer!"

Runners-Up

Silver: Joe Formanek, Bolingbrook, IL
Bronze: Guy Burgess, Villa Hills, KY

Porter



GOLD MEDAL

AHA 2000
NATIONAL
HOMEBREW
COMPETITION

Category award sponsored by Lefthand/Tabernash Brewing Co.

GARY CORBIN, PORTLAND, OR
"PRO-AM PORTER"
ROBUST PORTER

Ingredients for 10 U.S. gal (37.8 L)

19 lb 2-row Maris Otter pale malt
(8.5 kg)
3 lb Hugh Baird brown malt (1.36 kg)
3 lb British crystal malt (1.36 kg)
1 lb British chocolate malt (.45 kg)
1.5 lb British black patent malt
(.68 kg)
1 lb light dry malt extract (.45 kg)
2 oz Horizon whole hops,
12.5% alpha acid (57 g) (60)
3 oz Willamette pellet hops,
3.8% alpha acid (85 g) (30)
2 oz Kent Goldings whole hops,
6.6% alpha acid (57 g) (10 min.)
1 oz Kent Goldings whole hops,
6.6% alpha acid (28 g) (0 min.)
1.1 c. Chico American ale yeast (250
mL) from Lucky Lab brewpub
1 c. dry malt extract (237 mL) to
prime

- Original specific gravity: 1.070
- Final specific gravity: 1.024
- Boiling time: 95 minutes
- Primary fermentation: 12 days at 58° F (14° C) in glass

Brewer's Specifics

Mash grains at 152° F (67° C) for 80 minutes. Raise temperature to 158° F (70° C) and hold for 15 minutes. Raise temperature to 168° F (76° C) and hold for 11 minutes.

Add .25 tsp. (1.2 mL) lactic acid to 6.5 gal. (24.6 L) sparge water. Sparge at 170° F (77° C) to collect 12.5 gal. (47.3 L) wort. Add malt extract and boil.

Judges' Comments

"Very nice porter. Nice balance & complexity. Good job, very drinkable."

"Really nice chocolate and sweet notes."

Runners-Up

Silver: Chris Kaufman, Derby, KS
Bronze: Cindy Goldstein & Wayne Borth,
Aiea, HI

Stout



GOLD MEDAL

MEADMAKERS OF THE YEAR
AHA 2000
NATIONAL
HOMEBREW
COMPETITION

Category award sponsored by Brew & Grow

SUE & STU THURMOND, KENNESAW, GA
"AWFULY GOOD STOUT"
OATMEAL STOUT

Ingredients for 6.5 U.S. gal (24.6 L)

1 lb Munton's extra-dark dry malt
extract (4.5 kg)
1 lb black patent malt (.45 kg)
.5 lb chocolate malt (.23 kg)
.5 lb rolled oats (.23 kg)
.5 lb biscuit malt (.23 kg)
.25 lb roasted barley (.11 kg)
.5 lb Domino dark brown sugar
(.23 kg)
2 oz N. Brewer whole hops,
8% alpha acid (57 g) (60 min.)
.5 oz Cluster plug hops, 8% alpha
acid (14 g) (45 min.)
1 oz N. Brewer whole hops,
8% alpha acid (28 g) (30 min.)
1 oz Cluster plug hops, 8% alpha
acid (28 g) (15 min.)
1 oz N. Brewer whole hops,
8% alpha acid (28 g) (5 min.)
.5 oz Cluster plug hops, 8% alpha
acid (14 g) (5 min.)

- White Labs Irish ale yeast
- 1 c. corn sugar (237 mL) to prime
- Original specific gravity: 1.085
- Final specific gravity: (unknown)
- Boiling time: 60 minutes
- Primary fermentation: (unknown) in glass
- Secondary fermentation: (unknown) in glass

Brewer's Specifics

Steep grains in 2 gal. (7.57 L) 155° F (68° C) water for 30 minutes. Remove grains and sparge with .75 gal. (2.8 L) water. Bring wort to boil and add dry malt extract and brown sugar.

Judges' Comments

- "Inviting—good session beer."
- "Very clean and drinkable. Nice example of the style!"

Runners-Up

Silver: Jon Peterson, Poway, CA
Bronze: Curt Hausam, Salem, OR

Wheat Beer



GOLD MEDAL

AHA 2000
NATIONAL
HOMEBREW
COMPETITION

*Category award sponsored by
Lefthand/Tabernash Brewing Co.*

HAROLD GULBRANSEN, SAN DIEGO, CA
"SUPER BOWL HEFE"
BAVARIAN WHEAT

Ingredients for 6.5 U.S. gal (24.6 L)

- 7.5 lb German wheat malt (3.4 kg)
- 5 lb German Pilsner malt (2.27 kg)
- .75 oz Northern Brewer pellet hops, 8.8% alpha acid (20 g) (45 min.)
- .75 oz Hallertauer Mittelfruh pellet hops, 8.8% alpha acid (20 g) (45 min.)
- Wyeast No. 3068 Weihenstephan Wheat ale yeast
- 1 c. corn sugar (237 mL) to prime

- Original specific gravity: 1.054
- Final specific gravity: 1.010
- Boiling time: 60 minutes
- Primary fermentation: 7 days at 62° F (17° C) in glass
- Secondary fermentation: 14 days at 62° F (17° C) in glass

Brewer's Specifics

Employ a two-hour decoction mash with a saccharification rest at 152° F (67° C).

Judges' Comments

- "A very well-made beer—easy drinking."
- "This is a great wheat beer. All flavors meld well together."

Runners-Up

Silver: Wes & Nancy Sampson, Ocoee, FL
Bronze: Mickey & Vi Walker, Fargo, ND

Strong Belgian Ale



GOLD MEDAL

AHA 2000
NATIONAL
HOMEBREW
COMPETITION

*Category award sponsored by
New Belgium Brewing Co.*

**OLIVIER LAPORTE, ST-NICOLAS,
QUEBEC, CANADA**
[UNTITLED]
BELGIAN GOLDEN STRONG ALE

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

- 6.61 lb Ireks Pilsner malt (3 kg)
- 4.41 lb Canada Malt 2-row pale malt (2 kg)
- 1 lb Hugh Baird pale malt (1 kg)
- 18 oz amber candi sugar (510 g)
- .88 oz Styrian Golding pellet hops, 7% alpha acid (25 g) (60 min.)
- .46 oz Hallertauer whole hops, 5.3% alpha acid (13 g) (15 min.)
- .88 oz Saaz pellet hops, 4.4% alpha acid (25 g) (5 min.)
- .42 oz Hallertauer whole hops, 5.3% alpha acid (12 g) (2 min.)
- .7 oz coriander seeds (18 g)

Wyeast No. 3522 Belgian Ardenne ale yeast
corn sugar (to prime)

- Original specific gravity: 1.066
- Final specific gravity: 1.013
- Boiling time: 90 minutes
- Primary fermentation: 7 days at 70° F (21° C) in plastic
- Secondary fermentation: 24 days at 75° F (24° C) in glass

Brewer's Specifics

Mash grains for 2 hrs. at 145° F (63° C). Add candi sugar at end of boil.

Judges' Comments

- "Very nice beer. Could use more body—with more spicing, could be a saison."
- "Nice beer. I love the spiciness."

Runners-Up

Silver: Carl Melissas, Woodstock, GA
Bronze: Bob Thompson, Murrieta, CA

Belgian and French Ale



GOLD MEDAL

AHA 2000
NATIONAL
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COMPETITION

*Category award sponsored by
Manneken-Brussels Imports, Inc.*

PHILIP M. BOCK, WHEATON, IL
"KATERINA WIT"
WITBIER

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

- 4 lb German wheat malt (1.8 kg)
- 4 lb American 2-row pale malt (1.8 kg)
- 1 lb flaked wheat (.45 kg)
- 1 lb flaked oats (.45 kg)
- 1 lb extra light dry malt extract (.45 kg)
- 1.5 oz Saaz pellet hops (43 g) (60 min.)
- .5 oz Saaz pellet hops (14 g) (5 min.)
- White Labs Belgian Wit ale yeast
- Forced CO₂ to carbonate

- Original specific gravity: 1.049
- Final specific gravity: [unknown]
- Boiling time: 90 minutes
- Primary fermentation: 7 days at 68° F (20° C) in glass
- Secondary fermentation: 8 days at 68° F (20° C) in glass

Brewer's Specifics

"I ended up with very low initial gravity from the initial mash and sparge (about 1.042). So I boiled 1 lb (.45 kg) of extra light dry malt extract in 3 cups of water (710 mL) and added it to the primary. This brought the initial gravity to 1.049. When I racked the beer to secondary, I boiled 2 cups of water (473 mL) with 1 oz (28 g) cracked coriander and .66 oz (20 g) dried curacao orange peel for five minutes. Once cooled, I added the strained mixture to the secondary and finished fermentation around 8 days later."

Judges' Comments

"Refreshing drink! Good effort. Nice sourness."

"Yum! I would buy this beer. Citrus is perfect. Very light & refreshing."

Runners-Up

Silver: Carl Melissas, Woodstock, GA
Bronze: Joanne Anderson, Collingwood, Ontario, CANADA

Lambic



GOLD MEDAL

AHA 2000
NATIONAL
HOMEBREW
COMPETITION

*Category award sponsored by F.H.
Steinbart Co.*

DOUGLAS FAYNOR, WOODBURN, OR "FRAMBOYSEN POISON LAMBIC" FRAMBOISE

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

- 6 lb pils malt (2.7 kg)
- 1 lb cara-pils malt (.45 kg)

- | | |
|--|---|
| 4 lb flaked wheat (1.8 kg) | 4 lb 6-row pale malt (1.8 kg) |
| 4 oz aged (3 yrs) Goldings whole hops (2.5 hrs.) | 3 lb wheat malt (1.36 kg) |
| HeadStart Brettanomyces Anomalous | 2 lb flaked wheat (.9 kg) |
| HeadStart Brettanomyces Bruxellensis | 1 lb 10L crystal malt (.45 kg) |
| HeadStart Brettanomyces Lambicus | 10 lb peaches (4.54 kg) frozen, in secondary |
| HeadStart Kloekera Apicalata | 1 oz Perle pellet hops (28 g) (60 min.) |
| Yeast Lab Pediococcus Cerevesiae | 1 oz Hallertauer pellet hops (28 g) (10 min.) |
| 8 lb raspberries | Wyeast No. 3056 Bavarian Wheat ale yeast |
| 5 lb boysenberries | Wyeast No. 3787 Trappist High Gravity ale yeast |
| Wyeast ale yeast | forced CO ₂ to carbonate |
| 13 Tbs corn sugar (192 mL) to prime | |
| | • Original specific gravity: 1.055 |
| | • Final specific gravity: 1.002 |
| | • Boiling time: 2.3 hrs |
| | • Primary fermentation: 18-24 months (ambient temp.) in oak |
| | • Secondary fermentation: 8 months (ambient temp.) in glass |

Brewer's Specifics

Mash grains at 150° F (66° C) for 75 min.

Judges' Comments

"Well done! The complexities of fruit, sourness and brettanomyces character blend to produce a well-balanced lambic. Damn nice beer."

Runners-Up

Silver: Jim Post, Newtown, CT
Bronze: Marc Gaspard, Kansas City, MO

- | | |
|---|---|
| 4 lb flaked wheat (1.8 kg) | 4 lb 6-row pale malt (1.8 kg) |
| 3 lb wheat malt (1.36 kg) | 3 lb 6-row pale malt (1.8 kg) |
| 2 lb flaked wheat (.9 kg) | 2 lb 6-row pale malt (1.8 kg) |
| 1 lb 10L crystal malt (.45 kg) | 1 lb 10L crystal malt (.45 kg) |
| 10 lb peaches (4.54 kg) frozen, in secondary | 10 lb peaches (4.54 kg) frozen, in secondary |
| 1 oz Perle pellet hops (28 g) (60 min.) | 1 oz Perle pellet hops (28 g) (60 min.) |
| 1 oz Hallertauer pellet hops (28 g) (10 min.) | 1 oz Hallertauer pellet hops (28 g) (10 min.) |
| Wyeast No. 3056 Bavarian Wheat ale yeast | Wyeast No. 3056 Bavarian Wheat ale yeast |
| Wyeast No. 3787 Trappist High Gravity ale yeast | Wyeast No. 3787 Trappist High Gravity ale yeast |
| forced CO ₂ to carbonate | forced CO ₂ to carbonate |
| | • Original specific gravity: 1.055 |
| | • Final specific gravity: 1.008 |
| | • Boiling time: 120 minutes |
| | • Primary fermentation: 10 days at 63° F (17° C) in glass |
| | • Secondary fermentation: 14 days at 63° F (17° C) in glass |
| | • Tertiary fermentation: 10 days at 45° F (7° C) in glass |

Brewer's Specifics

"The base beer was made by split fermentations of Bavarian wheat and Trappist yeasts. These were then blended into a secondary fermentation and mixed with the frozen peaches, which started fermentation again. Upon settling, the beer was transferred and chilled at 45° F (7° C) to clarify. The clear beer was then stored in a straight-sided keg at 45° for a month to condition prior to counter-pressure bottling."

Judges' Comments

"Very enjoyable. Peach flavor dominates."
 "Very nice beer from a difficult fruit. Crisp acidity, perfectly balanced."

Runners-Up

Silver: Patrick O'Kane, Silverdale, WA
Bronze: Grant Manning, Kansas City, KS

Fruit Beer



GOLD MEDAL

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JOHN ADKISSON, TUCSON, AZ "PEACH PASSION" BELGIAN WHEAT ALE WITH PEACHES

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

- 6.4 lb Weizenbier malt extract (2.9 kg)
- 4 lb Belgian pale malt (1.8 kg)

Herb/Spice/Vegetable Beer



GOLD MEDAL

AHA 2000
NATIONAL
HOMEBREW
COMPETITION

Category award sponsored by Marin Brewing Co.

JOHN WATSON, SOUTHBURY, CT
"COREY-ANN"
SPICE BEER (CORIANDER)

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

- 8 lb Belgian 2-row pale malt (3.6 kg)
 - 2 lb Briess 2-row pale malt (.9 kg)
 - 1 lb Belgian wheat malt (.45 kg)
 - .75 oz Styrian Goldings whole hops, 5% alpha acid (21 g) (60 min.)
 - .5 oz Fuggle whole hops (14 g) (20 min.)
 - 1 oz coriander (28 g) (20 min.)
 - .5 oz coriander (14 g) (dry, in secondary)
- Wyeast Belgian Wit ale yeast
Forced CO₂ to carbonate

- Original specific gravity: 1.060
- Final specific gravity: 1.010
- Boiling time: 60 minutes
- Primary fermentation: 14 days at 60° F (16° C) in glass
- Secondary fermentation: 40 days at 50° F (10° C) in glass

Brewer's Specifics

Mash grains for 60 minutes at 153° F (67° C).

Judges' Comments

"Good example—base beer is evident as well as spice."

"Well done. Light & refreshing. Good balance of flavors."

Runners-Up

Silver: Jackie Rager, Lenexa, KS

Bronze: Brad Reeg, Chicago, IL

Smoked Flavored Beer



GOLD MEDAL

AHA 2000
NATIONAL
HOMEBREW
COMPETITION

Category award sponsored by Alaskan Brewing and Bottling Co.

DEAN FIKAR, FT. WORTH, TX
"SMOKED WEE HEAVY #3"
PECAN WOOD-SMOKED STRONG SCOTCH ALE

Ingredients for 6.5 U.S. gal (24.6 L)

- 12.5 lb British pale malt (5.67 kg)
 - 6 lb smoked malt (2.7 kg)
 - 2 lb Belgian Munich malt (.9 kg)
 - 1 lb Belgian Cara-Vienne malt (.45 kg)
 - 1 lb Belgian aromatic malt (.45 kg)
 - 1 lb Belgian Cara-Munich malt (.45 kg)
 - .38 lb Belgian Special B malt (12 g)
 - .13 lb roasted barley (3 g)
 - 1.4 oz E. Kent Goldings hops, 6.8% alpha acid (40 g) (75 min.)
- Wyeast No. 1084 Irish ale yeast
Forced CO₂ to carbonate

- Original specific gravity: 1.094
- Final specific gravity: 1.029
- Boiling time: 120 minutes
- Primary fermentation: 16 days at 65° F (18° C) in steel
- Secondary fermentation: 120 days at 32-58° F (0-14° C) in steel

Brewer's Specifics

Mash grains at 156° F (69° C) for 75 minutes. Raise temperature to 165° F (74° C) and hold for 10 min.

Judges' Comments

"Great integration of smoke and sweet malt."

"Very nice beer. Hits strong Scotch dead on. Save me some for next year."

Runners-Up

Silver: Joanne Anderson, Collingwood, Ontario, CANADA

Bronze: Kip Innes, Derby, KS

Specialty, Experimental and Historical Beer



GOLD MEDAL

AHA 2000
NATIONAL
HOMEBREW
COMPETITION

Category award sponsored by Rogue Ales/Oregon Brewing Co.

STEVE SCHMITT, ANCHORAGE, AK
"RYE P.A."
IPA WITH RYE

Ingredients for 10 U.S. gal (37.8 L)

- 19 lb 2-row pale malt (8.6 kg)
 - 2 lb Munich malt (.9 kg)
 - 2 lb flaked rye (.91 kg)
 - 1 lb 45° L crystal malt (.45 kg)
 - 1 lb flaked barley (.45 kg)
 - 2 oz Cascade whole hops, 5.2% alpha acid (57 g) (1st wort)
 - 2 oz Perle whole hops, 7.3% alpha acid (57 g) (60 min.)
 - 1 oz Perle whole hops, 7.3% alpha acid (28 g) (30 min.)
 - 1 oz Cascade whole hops, 5.2% alpha acid (28 g) (15)
 - 1 oz Centennial pellet hops, 9.8% alpha acid (28 g) (dry)
 - 1 oz Liberty pellet hops, 3% alpha acid (28 g) (dry)
- Wyeast No. 1318 London ale yeast
Forced CO₂ to carbonate

- Original specific gravity: 1.052
- Final specific gravity: 1.010
- Boiling time: 90 minutes
- Primary fermentation: 7 days at 70° F (21° C) in glass
- Secondary fermentation: 10 days at 70° F (21° C) in glass

Brewer's Specifics

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

Judges' Comments

"The rye and hops really go together well. In fact, the hops take the sweet edge off the rye."

"The beer reflects bready notes from the yeast. Overall, the beer is very drinkable. Very nice job."

Runners-Up

Silver: Al Rose, Howell, MI
Bronze: Brad Reeg, Chicago, IL

Traditional Mead



GOLD MEDAL

AHA 2000
NATIONAL
HOMEBREW
COMPETITION

Category award sponsored by Bacchus & Barleycorn Ltd.

ROB BATES, RENO, NV "CASK MEAD" OAK CASK-CONDITIONED DRY MEAD

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

24 lb crimson clover honey (10.8 kg)
2 oz acid blend (57 g)
3 oz yeast nutrient (85 g)
3 oz diammonium phosphate (85 g)
(2 oz primary, 1 oz secondary)
Lalvin 1118 and 1122 wine yeasts

- Original specific gravity: 1.135
- Final specific gravity: 1.035
- Boiling time: 15 min
- Primary fermentation: 60 days at 60° F (16° C) in plastic
- Secondary fermentation: 60 days at 65° F (18° C) in glass
- Tertiary fermentation: 60 days at 35° F (2° C) in oak

Brewer's Specifics

Boil must for 15 minutes.

Judges' Comments

"Very well-made dry mead with the oak aging actually adding something a little like Southern Comfort."

Runners-Up

Silver: Leo Vitt, Rochester, MN
Bronze: Michael R. White, Gales Ferry, CT

Fruit Mead



GOLD MEDAL

AHA 2000
NATIONAL
HOMEBREW
COMPETITION

Category award sponsored by
The Purple Foot

BOB GROSSMAN, HADDONFIELD, NJ "ELDER'S MEAD" SWEET MELOMEL WITH ELDERBERRIES AND RASPBERRIES

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

16 lb orange blossom honey (7.8 kg)
7 lb wild elderberries (3.2 kg)
2 lb frozen raspberries (.9 kg)
1 tsp Oakmore oak chips (4.9 mL)
.5 oz Beverage People mead yeast
nutrient (14 g)
Wyeast No. 1056 American ale
yeast

- Original specific gravity: 1.100 (+ fruit)
- Final specific gravity: 1.026
- Boiling time: n/a
- Primary fermentation: 14 days at 65-70° F (18-21° C) in glass

- Secondary fermentation: 5 months at 65-70° F (18-21° C) in glass
- Tertiary fermentation: 6 months at 65-70° F (18-21° C) in glass

Brewer's Specifics

"Bring 4 gal. (15 L) filtered water to a boil. Turn off heat and add honey. Steep dissolved honey at 170° (77° C) for 15 minutes and then add rinsed frozen fruit. (Elderberries were stored frozen after picking during summer hiking trip in New York.) Steep fruit for 15 minutes at 150° (66° C) to pasteurize. Cool to 70° (21° C) with chiller. Oxygenate with O2 tank for 2 minutes at 5 psi. Ladle all fruit/must into glass fermentors and pitch 2 cups (473 mL) Wyeast 1056 slurry. Ferment on the fruit for 2 weeks. Rack into a secondary by attaching a nylon strainer ball to the end of the racking cane. Fine with Sparkolloid before racking into tertiary to age."

Judges' Comments

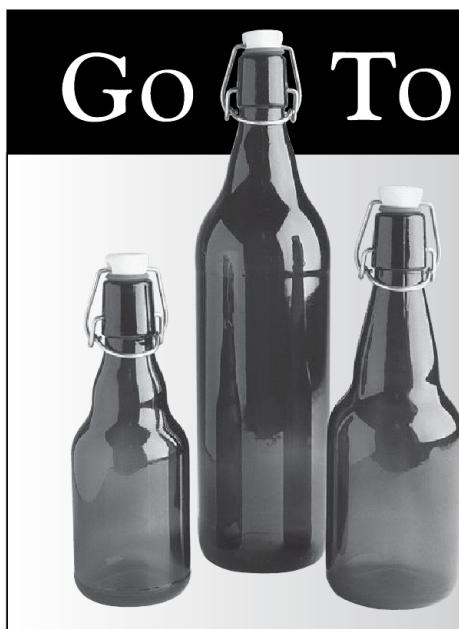
"Nice, work on balance. Great color! Well done!"

"Looks great—slight fruit astringency. Nice overall."

Runners-Up

Silver: John Carlson, Jr., Louisville, CO
Bronze: Jackie Rager, Lenexa, KS

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Herb/Spice Mead & Braggot



GOLD MEDAL

MEADMAKERS OF THE YEAR

AHA 2000
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Category sponsored by St. Patrick's of Texas Brewer's Supply

SUE & STU THURMOND, KENNESAW, GA
"CHOCOLATE CINNAMON MEAD"
SWEET MEAD WITH CHOCOLATE MALT & CINNAMON STICKS

Ingredients for 3 U.S. gal (11.36 L)

3 lb clover honey (1.36 kg)
3 lb wildflower honey (1.36 kg)
2.5 lb galberry honey (1.1 kg)
6 oz chocolate malt (170 g)
4 cinnamon sticks
2 tsp gypsum (9.9 mL)
4 tsp acid blend (19.7 mL)
White Labs sweet mead yeast

- Original specific gravity: [unknown]
- Final specific gravity: 1.046
- Boiling time: 15 min.
- Primary fermentation: 31 days at 72° F (22° C) in plastic
- Secondary fermentation: 185 days at 72° F (22° C) in glass

Brewer's Specifics

"Steep grains in 1 gal. (3.79 L) 156° F (69° C) water for 30 min. Remove grains and sparge with hot water. Add honey and gypsum and bring to a boil. Add cinnamon sticks. Boil 5 min. Add Irish moss, acid blend and yeast nutrient. Boil 10 min. more, cool down, and add to fermenter with 1.5 gal. (5.7 L) cooled water. Add yeast and ferment. Add remaining 2 cinnamon sticks in secondary."

Judges' Comments

"Quite an interesting mead; darkest ever tasted. Does sweetness mask exact flavor?"

"A little syrupy but a nice sipper. Good balance with the acid levels."

Runners-Up

Silver: Bob Grossman, Haddonfield, NJ
Bronze: Jeff Gladish & John Nanci, Tampa, FL

New Entrant



GOLD MEDAL

AHA 2000
NATIONAL
HOMEBREW
COMPETITION

Category award sponsored by California Concentrates

S. ZEMO HOLAT, BATAVIA, IL
"DOWNY WEIZENPECKER"
BAVARIAN WEIZEN

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

6 lb Belgian wheat malt (2.7 kg)
4 lb Belgian Pilsner malt (1.8 kg)
4 oz Belgian aromatic malt (113 g)
.75 oz Hallertauer whole hops, (5 AA) (20 g) (90 min.)
White Labs Hefeweizen ale yeast
1.3 c. wheat dry malt extract (300 mL) to prime

- Original specific gravity: 1.050
- Final specific gravity: 1.012
- Boiling time: 90 minutes
- Primary fermentation: 21 days at 68° F (20° C) in glass

Brewer's Specifics

Employ a single decoction mash with rests at 134° F (57° C), 150° F (66° C) held for 30 minutes, 153° F (67° C) held for 75 minutes, and 170° F (77° C).

Judges' Comments

"Good representation—perhaps just a bit soft. Carbonation level may help a little, but a good example."

"This is very good beer. I love it. Nice job."

Runners-Up

Silver: Richard Michaelson, Reno, NV
Bronze: Robert Neubauer, Trenton, MI

Amahl Turczyn is the associate editor of Zymurgy magazine. Gary Glass is the AHA administrator.



2000 AHA NATIONAL HOMEBREW COMPETITION WINNERS

Mickey & Vi Walker, Fargo, ND



With their Bohemian Pilsner, Mickey & Vi Walker claimed Best of Show at the 2000 NHC in Livonia, MI. "We had always looked at it before as getting a gold medal was just about as hard as winning the lottery," says Mickey, a pilot by trade. "To win Homebrewers of the Year was unobtainable almost. It was such a shock that we won." The prospect of the Walkers winning in the NHC finals wasn't much of a surprise to fellow Prairie Homebrewing Companion club member Ray Taylor, however. "Mick and Vi are not average homebrewers. They routinely brew beers of this quality," said Taylor. "It is safe to say that the national finals haven't heard the last from Mickey and Vi."

Homebrewers of the Year

The Walkers feel the main reason for their success is their ability to play off each others' strengths. Mickey designs the recipes, and is responsible for the mechanical side of the brewing process. "He's the brains behind the operation," says Vi. For her part, she monitors the details of the operation, making sure weights and amounts are correct, and keeps an eye on the brew in case Mickey gets distracted with another project. "She's saved my bacon every time," Mickey laughs.

It's evidently a winning combination. In the early 90s, the Walkers' pilsners finished second at the nationals two years in a row, and in 1995 they won best of show at the Minnesota Brewfest. With this latest victory, Mickey & Vi have proven they still have what it takes to win.

Joe Formanek, Bolingbrook, IL



Joe has been a homebrewer for 12 years. "My brewing season usually runs from September to April", Joe says, "and during that time I often brew at least once a week." He also makes some very good product, as his gold medal in IPA and silver medals for his American brown and traditional bock at the 2000 NHC can attest.

Joe brewed his first batch in 1988 while attending the University of Minnesota, where he received his B.S. in Microbiology. After starting graduate studies at the University of Illinois in 1991, he helped found the Boneyard Union of Zymurgical Zealots (BUZZ) homebrew club in 1993 and served as president through 1996.

Upon finishing his doctoral studies in 1997, Joe accepted a job offer as a research scientist at Griffith Laboratories, in Alsip, IL, and he and his wife, Cathy, moved to the Chicago area. There they hooked up with the Urban

Ninkasi Award

Knaves of Grain homebrew club. The friendly competition between members of this 1999 AHA Co-Homebrew Club of the Year helps drive Joe to improve his recipes to a point where his name is consistently among the winners in various Midwest homebrew competitions. He has nearly 200 ribbons and awards on display, and was recently honored with the title of 1999 Midwest Homebrewer of the Year. Joe also currently holds a National ranking in the BJCP.

His favorite styles to brew are UK in origin — IPA, Porter, Stout, Scottish ales and the like. He is looking forward to trying out the beer engine that he won as a prize for the Ninkasi Award with some of these beers.

Joe and his wife Cathy are expecting their first child in August. Though many people have suggested the name Ninkasi if the baby is a girl, the potential names had already been picked out before the conference, and, regrettably, Ninkasi is not one of them.

Sue & Stuart Thurmond, Kennesaw, GA



Sue & Stuart have been brewing together every week since 1995, and brew a favorite mead recipe each year on their anniversary. But although that one won at the Peach State brew-off, it wasn't the mead that brought home the NHC meadmaker's chalice this year — the nationals winner was an experiment. "We only brewed three gallons of it, since we weren't sure how it would come out," Sue remarked.

While Sue works at a pharmacy, Stuart hold two jobs, one at a bank and one at a homebrew supply shop. "People say that between our jobs and our hobby, we have it all — drugs, beer and money," Sue laughs. Aside from brew-

Meadmakers of the Year

ing, the Kennesaws keep a lot of animals around the house: two dogs, two snakes, a bird and an iguana. They are meticulous about keeping the hobbies separate however, noting that one of the keys to their success is a spotless brewing area. Sue also says they spend a lot of time researching raw materials before they use them.

But brewing is soon to be much more than a hobby for Stuart; as of this writing, he is just finishing a professional brewing course with the American Brewers Guild, and has already gotten a few job offers from breweries.

Sue's advice to homebrewers? "Make your husband do all the cleaning."

Jeff Carlson, Grand Rapids, MI



Jeff Carlson has been making cider for about the last 4 years, at the rate of 3 or 4 five-gallon batches per year. A homebrewer since 1992, Carlson hadn't entered any contests until about 1996, but since then has won over 100 awards. His first national place was last year for an American brown ale, when he won a bronze medal. At the "Over The Mill" competition in Rochester, MI the cider featured in this edition of Winners Circle won the cider category and was named 2nd runner-up best of show.

Carlson gets his juice from a local orchard called Robinette's. They change their blend year to year, but this early season blend included MacIntosh, Gala, Ginger Gold and Cortland apples. Carlson says there's noth-

Cidermaker of the Year

ing unusual about the recipe. Over the years he's used the same source of cider, but has varied the sugars and acids. He started out using wine yeasts, but for the last couple of years he's preferred to just let the natural yeasts take over. Since then, the ciders have always finished on the sweet side but that's the way he and his friends like it. He also used to use sulfites, but quit using them too.

Asked to pick his favorite tipple, Carlson replied, "I like 'em all, but if I had to pick a favorite, it would a good, quaffable bitter, or a dark mild. What would make it even better would be a hand pull." True to this issue's theme, Carlson is a great brewer with a sense of tradition.

Outlaw Beers (from page 21)

- 3.5 lb wheat malt (1.6 kg)
- 13 oz oatmeal (368 g)
- 2 oz light molasses (57 g)
- 2 oz honey (57 g)

The traditional mash is a triple decoction. Use two rests: a protein rest at 122° F (50° C) for one hour, then step up to 152° F (67° C) for one hour—this would be adequate, combined with 2-hour boil. Sparge to collect 6-7 gallons and boil down to just over 5.

Kotbusser

Malt extract recipe

Recipe for 5 gallons (19 L)

- 4 lb pale malt extract syrup (1.8 kg)
- 3.5 lb wheat malt extract syrup (1.6 kg)
- 1 lb cara-pils malt (.45 kg)
- .5 lb pale crystal malt (.23 kg)
- 13 oz oatmeal (368 g)
- 2 oz light molasses (57 g)
- 2 oz honey (57 g)

Crush crystal malts and steep them in hot (150-160° F) water for half an hour or so, drain, rinse with more hot water, then add all the liquid to the kettle. Add malt extracts, molasses and honey, and boil for 2 hours.

Hops:

- 1 oz Tettnang (28 g) (2 hrs)
- .5 oz Tettnang (14 g) (30 min.)
- 1 oz Tettnang (28 g) (5 min.)
- .5 oz Saaz or Ultra (14 g) (5 min.)

Yeast and fermentation: I recommend a European or German-style ale yeast. These are fruity without being spicy, and would likely have been not that different from those used a century ago. Primary fermentation should be held at 62-67° F (17-19° C), secondary/lagering at 40-45° F (4-7° C) for three weeks or longer. Bottle normally, using 3/4 cup of corn sugar (177 mL) or dry malt extract for priming.

To brew an absolutely authentic 1884 version, you would make a 1.057 wort from 93 percent pale, oak-smoked wheat malt, plus 7 percent of the same stuff which had been roasted to a pale copper color. Hopping would be pretty heavy, at an ounce per gallon of traditional German or Czech varieties. Ferment with whatever you like. Yeast was unspecified in the older recipes; by 1939, lager yeast was the norm. Like most wheat beer, carbonate highly and package in thick crockery bottles. If this sounds a bit much for you, I have devised a more sensible recipe for a five gallon batch.

At about the turn of the century the tax laws were changed in Germany to favor production of Schenkbiers, or very low-gravity beers. After this time Graetzer slipped into this category, at about 1.032 original gravity.

Graetzer has long been extinct in Germany, but a similar beer lived on in Poland and was brewed until recent times under the name Grodzisk. The word from Michael Jackson is that this brewery, under new ownership, has abandoned this idiosyncratic treasure in favor of, you guessed it, international pils. It's up to us to keep it alive.

Graetzer

Recipe for 5 gallons (19 L)

- O.G.: 1.051 OG (12.5° P)

- 6.5 lb smoked wheat malt (home-smoked on red oak) (2.95 kg)
76% of grist
- 2 lb smoked wheat malt toasted 40 min @ 350° F (.91 kg) 24% of grist
(do this at least a week or two in advance to allow to mellow)
- 1 lb US 6-row malt (.45 kg) (12% of grist) This is not traditional, just extra security!
- 2 lb rice hulls (.91 kg) Aids sparging.
- 5 oz Saaz (142 g) 2 hrs (Target of 44 IBUs)
Use German or another European ale yeast, fermented at about 61-63° F (16-17° C)

Traditional mash procedure: described simply as "infusion." Rests at 122° F (50° C), 148° F (64° C); then mash out at 175° F (79° C). Sparge to collect 6-7 gallons, boil down to a little over 5 gallons final volume.

YOU DON'T NEED TO BE A BELGIAN MONK TO BREW A PIECE OF HEAVEN.

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Smoke malt in kettle barbecue with very small fire (four briquettes), with chunks of soaked red oak on top of coals, for 30 min, replacing wood as it burns. Keep malt in basket made of window-screen, as far away from heat as possible.

*Oh, beer will slap,
And wine gives gout,
The coppery brandy is a sight.
Porter does the blood make thick,
And Champagne makes one fold with cramps.
The grog makes dumb,
The coffee blind,
The tea makes just adds its strength to wind.
But, when you from the tankard drink,
Good Graetzer beer, that succors man,
Makes loose the stiff,
The gut goes pure.
Then clears the head,
And quicks the leg.*

Danziger Zeitung (my apologies to the German writer of this ditty. I have taken serious liberties—intentional, and I'm sure, unintentional—with the translation.)

Lichtenhainer

This is a beer with much in common with Graetzer, being made with a great deal of smoked malt. But in this brew, it's barley rather than wheat malt that's smoked.

Mash is described as a *dickmaisch*, a traditional three-mash decoction normally used for dark beers, with rests at 96° F (35° C), 122° F (50° C), 149° F (65° C) and 164° F (73° C). Fermentation temperature was high, with a 72° F (22° C) primary, and a 60° F (15° C) secondary. This beer was said to have a sourish character, although the wort was apparently boiled.

Lichtenhainer

Recipe for 5 gallons (19 L)

- O.G.: 1.044 (11° P)

- 3 lb wheat malt (1.36 kg)
- 5 lb Rauch malt (2.27 kg) (commercially available, or use the procedure given above)
- .66 oz hops, (18 g) German or Czech, your choice, 1.5 hrs

- .5 tsp 80% lactic acid added at bottling (2.5 mL)

Fermented warm, @ 64° F (17.5° C)

Bière de Mersebourg

This recipe came from a French book (*Fabrication de la Bière*, P. Boulin), of about 1875. Other than a pretty detailed recipe, I don't really know much about this one, and have never seen it mentioned elsewhere.

Gentian has a very clean, pure bitterness, and was highly regarded as a hop bittering substitute. It is soothing to the stomach and is one of the main components of bitters like Jagermeister® and Unterburg®. The text says: "The beer of Mersebourg is very brown, very alcoholic, with a bitterness due to Gentian being used in addition to the hops.

"The malt employed is a mix of pale and colored malt. On mashing-in, the tun contains water already at 100° F (37.5° C); mashing is accomplished with a mash mixer. The copper contains more water; when it is boiling, it is directed to the tun to raise the temperature of the mash to approximately 163° F (56° C). One conducts a decoction of the thick portion of the mash for 15 minutes, then it is returned to the tun where a vigorous stirring accelerates saccharification.

"Conversion/clarification takes an hour. During the time of runoff, the clear wort is conveyed to a special tun; during this time, a new quantity of water is set to heating in the kettle, and, when the wort is nearly gone from the tun, it is replaced with boiling water by means of a Scotch cross, with holes in the bottoms of the arms. This new wort is racked off in little portions and added to the first wort.

"The two worts are assembled to be set to evaporate at the same time mixed with Bavarian hops and Gentian root. The boiling lasts 1 1/5 hours; the wort is chilled to 70-77° F (21-25° C).

"Fermentation is done with top-fermenting yeast [in] which one has placed several drops of birch oil."

Bière de Mersebourg

Recipe for 5 gallons (19 L)

- O.G.: 1.080 (19.3° P)

- 8 lb pils malt (3.63 kg)

- 7 lb Munich malt (3.18 kg)

- .25 lb black malt (.11 kg)

Extract and adjunct recipe:

- 9 lb amber malt extract syrup (4.08 kg)

- 1 lb dark crystal malt (.45 kg)

- .25 lb black malt (.11 kg)

Hops and spices:

- .75 oz (21 g) your choice of any German noble-type (Hallertau, Spalt, Tettnang, Crystal, Perle) (Estimated 20 IBU at 6% Alpha, at 30% utilization), for the full 90 minute boil.

- .25 oz Gentian root (7 g) for the full 90 minute boil (or equivalent extract, added at priming/kegging).

- Birch oil (a wintergreen-like flavor; just use 1-3 wintergreen Life Savers®), added to secondary fermenter. If you get hold of some birch oil, be careful. One drop just about ruined a batch for me.

Rational mash procedure: Mash-in at 100° F (38° C), rest for 15 min, then raise with boiling water to 122° F (50° C); hold for 15 min, then draw off 1/3 of the mash (the thick portion) and in a separate kettle, raise to boiling and hold 15 minutes. Return to main mash and adjust with hot water if needed to get temperature up to 160° F (71° C). Hold for an hour, then raise to 175° F (79° C) and sparge as usual.

Cool and ferment with your choice of ale yeast at 70-75° F (21-24° C). Add Life Savers® and bottle or keg as usual.

Engisher-Kostritzer

Described by Wagner as a "beloved strong beer of North-Germany," this one is definitely not the inky, near-porter lager we associate today with Kostritz.

The recipe was given as a party-gyle method, where multiple mashes are performed in sequence, then the wort run off and separately boiled and fermented.

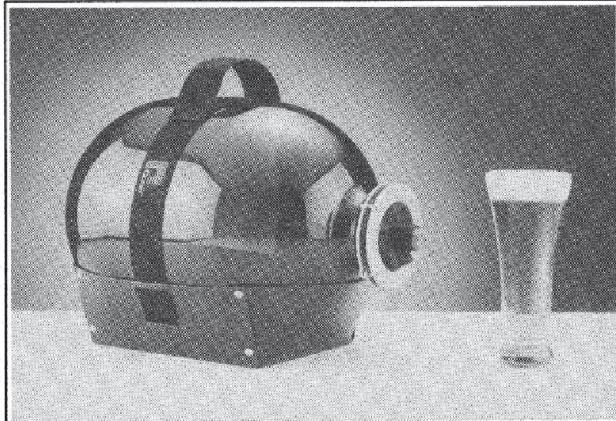
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**Englisher-Kostritzer
Recipe for two 5-gal (19 L) batches
First one at 1.079 (19.2° P)
The second at 1.032 (8° P)**

14 lb pils malt (6.36 kg) 80% of grist
3.25 lb wheat malt (1.47 kg) 20% of grist

Mix all with 7 gallons (26.5 L) hot water and stabilize the temperature at around 145° F (63° C). The mash tun was covered and left to mash; time was unspecified, but a couple of hours were probably necessary at that low temperature. Reinfuse with additional hot water and stabilize at 155° F (68° C). Hold for an hour, run off for second batch.

You can vary the strengths of the two batches by mixing some of the strong wort into the weaker, and vice versa. One gallon switched between gyles will yield a 1.068 (16.6° P), and a 1.048 (11.8° P) beer.

The recipe states that a handful of malt meal was thrown into the fermenter for the weaker batch. This would produce a strong lactic fermentation. You may decide not to

risk this step, but instead use some lactic acid or substitute some sour malt (see text).

For main batch:

4 oz best hops (113 g) German or Czech, your choice
.25 tsp finely crushed orange peel (1.2 mL)
.13 tsp mace (.6 mL)
.7 tsp nutmeg, ground (.3 mL)

For second runnings:

1 oz hops (28 g) German or Czech, your choice
.13 tsp mace (.6 mL)
1 tsp coriander, (4.9 mL) freshly crushed (see text)

Wirtemburg Ale, Saxony, c. 1875

We can only assume that this is a corruption or older spelling of Wittenburg (aka Würtemburg), a town just a short hop south of Berlin, in the heart of wacky beer country.

Recipe for 5 gallons (19 L)

• O.G.: 1.087 (21.2° P)

9.5 lb pale or pils malt (4.31 kg)
6 lb amber or biscuit malt (35-50° L) (2.72 kg); make it yourself if you can't find it. Roast whole pale malt for 35 minutes at 300° F (148° C). Allow a week or two for malt to mellow before using.
2.5 oz hops, (71 g) German or Czech, your choice, 1.5 hrs
4 oz hops, (113 g) German or Czech, your choice, 5 mins
2 lb hartshorn shaving (coagulant; use irish moss)
.13 oz coriander seed, (3 g) freshly crushed (see text), 5 mins
.07 oz caraway seed, (1.5 g) freshly ground, 5 mins
2 oz honey (57 g), added to secondary
2 oz brown sugar (57 g), added to secondary

Randy Mosher is a longtime Chicago homebrewer and is an avid recreator of lost beer styles. In real life he runs a design and brand development company specializing in craft beer.

Golden Age of Homebrews (from page 25)
 quart of yeast if the weather is very cold
 cover it over with a blanket & let it work in
 the Cooler 24 hours then put it into the
 Cask - leave it the Bung open till it is almost
 don[e] Working - Bottle it that day [the next]
 Week [after] it was Brewed."

Washington's interest in beer illustrates the degree to which homebrewing was instilled in every walk of life. Joseph Clarke, general treasurer of the Rhode Island colony also took time from official duties to maintain his supply of homebrew. Clarke described his method of brewing in 1775. Parallels between Clarke's technique and present day homebrewing jump to life with only a little imagination.

"You are first to have ready the following Implements, a mash Vat, to put your malt in; a Vessel under this to receive the Wort in; a Copper to boil it in; a Rudder to stir your malt with, and Vessels to cool your Liquor in;

"First then fill your Copper with water, take then 6 Bushels of Malt and put into your mash Vat, leaving about a Peck to sprinkle over the Liquor when in, Let your water simper, and be in the next degree of boiling but not boil; lay it on upon the Malt well ground, and when you have laid on such a quantity as you can draw off a Barrel sprinkle the remaining Peck of Malt over all covering it up with Cloths and draw off a pail full or two; and lay it on again to clear your tap hole.

"This done the next Business is to boil a Copper of Water, to scald your other Vessels with; always taking care to have a Copper of Liquor hot to lay on, upon the malt when you draw off the first Wort, and this will be for small Beer.

"The three hours now expired; let go (as the Term is) which is let the first wort run off, putting into Vessel which receives it a pound of Hops; when all drawn off lay on the hot Liquor for your small Beer, clean out your Copper and put the wort, Hops and all into the Copper and boil it for two hours; strain it then off thro: a Sieve into your Vessels to cool it; and put your small Beer into Copper and the same hops that come out of the first Beer and boil it an hour.

"When both are almost cool add Yeast to them; to set it to work, breaking the head in every time it rises; till it works itself clear and tun it; Bung it up with Clay and keep it

in your Cellar, in three months you may bottle the Strong Beer, the other in a weeks time will be fit to drink."

Then, as now, magazine articles provided additional advice on brewing techniques, materials, and equipment that improved the quality of homebrew. Equipment of the era wasn't all crude makeshift tubs and barrels. In fact, some manufacturers constructed devices specifically for homebrewing.

At the turn of the century I.E. Boardley published a pamphlet titled *Essays and Notes on Husbandry and Rural Affairs*. One section was devoted to homebrewing, in which Boardley explained the construction and operation of the 'Tripartite' brewery.

Tripartite systems were a type of wooden mash tun built forty inches long and twenty inches wide. A false bottom was fitted two inches from the top, and nine inches below the first false bottom was a second. The lower false bottom was the equivalent of a screen at the bottom of a commercial mash tun. Below the lower screen was a void of thirteen inches at the bottom of the tun.

Americans continued brewing with various techniques, equipment and ingredients as they sat back with a homebrew to watch and measure the growth of their new nation. To them homebrewing seemed as secure as their new independence. Then, as supplies of barley and hops became more plentiful through domestic farming, commercial breweries began to emerge.

City dwellers, living close to breweries, were quick to abandon homebrewing, but their country cousins hung on for decades. Commercial beer was slow to appear outside population centers. In part, its development was restricted by limited transportation, and by beer's short shelf life in the time before pasteurization. Thus, homebrewing was a way of life in rural areas well through the 1800s.

Conditions changed rapidly in the latter half of the 19th century when technological advances gave brewers rapid, reliable transportation, mass production of glass, and pasteurization to stabilize beer during shipping. With these the brewers could reach every corner of the country, and the once ubiquitous practice of homebrewing slowly faded. Year-by-year, commercial

Forced by malt shortages to find a substitute, many colonial homebrewers turned to the pumpkin as a substitute. Producing a true recreation requires cleaning a pumpkin of its seeds, baking, removing the skin, and boiling, while skimming away any remaining oil from the surface.

A modern version can replace baking a pumpkin with 2 cans of pumpkin meat for pies. This recipe however, imitates the traditional method described above.

- 8 lb (3.63 kg) pumpkin
- 4 lb (1.8 kg) light malt extract
- 2 lb (.9 kg) amber malt extract
- 1 lb (.45 kg) light dry malt extract
- .5 lb (.23 kg) Crystal malt
- .5 lb (.23 kg) Munich malt
- 2.5 oz (71 g) Northern Brewer hops
- 1 oz (28 g) Mt Hood Hops
- 1.5 (7.4 mL) tsp nutmeg
- 1.5 (7.4 mL) tsp cinnamon
- Ale yeast

Clean pumpkin, removing stem and seeds; cut into six pieces along the axis. Place pumpkin wedges in a baking pan and cover with tin foil. Bake in oven at 375° F (190° C) for 30 minutes. Puree pumpkin in a food processor. In 1 gallon of water steep the milled Munich and Crystal malts at 154° F (68° C) for 20 minutes. Strain sweet liquor from malts into brewpot then add malt extracts and pureed pumpkin. Add water to usual brewing depth. Bring water, malt and pumpkin mixture to a boil and add hops. Continue boiling for a total of 60 minutes. Add nutmeg and cinnamon in final 20 minutes. Cool wort, strain into fermenter, and add water as necessary to make 5 gallons (19 L). Ferment with ale yeast at 70° F (21° C). Prime and bottle, or keg in traditional manner.

beers became ever more affordable, and advances in brewing science guaranteed a well made beer. Commercial brewing's triumph brought with it the end of homebrewing's first golden age. However, none of that was within remote view of colonials. To them homebrewing was almost as natural as breathing—everyone homebrewed.

Gregg Smith was named Beer Writer of the Year in 1997. His last two books, *The Beer Drinkers Bible* and *Beer in America*, were each named Beer Book of the Year in 1998 and 1999. Both books are available from Brewers Publications.

American Pilsner (from page 29)

somewhat more refined result he gets from using two-row, especially a Moravian type that is no longer cultivated. I find that CAPs brewed with six-row seem to have more character, and that some two-row brews seem somewhat soft. However, two-row domestic lager-type malts work well, and even continental pils malts have been used by some brewers without problems.

Hops

Hopping presents the brewer with more choices. Pre-prohibition domestic hops were virtually entirely of the Cluster type, as were most in the post-prohibition period through perhaps the 1950s. Cluster is even today the classic American bittering hop, and an important component of the "old-fashioned beer taste" that old timers remember. They are sometimes described as having a coarse flavor, with black-currant character. However, after a full boil their flavor is subtle. I can't always identify their use, but I miss the flavor when I don't use them in my beers. Fix has said that he dislikes Cluster hops, especially at the high hopping levels of a century ago. However, he very graciously told this year's MCAB conference audience, as we all were tasting a recent "Your Father's Mustache," that I was making a liar of him. This is likely due to the fact that my bittering is somewhat short of that very high rate.

Wahl and Henius in 1902 advised using "best quality" hops for late addition, and this may well have implied imported ones. They do not discuss hop origins, but 100 Years of Brewing a year later does mention both domestic and imported hops, the best of the latter being Bohemian "Saazer," then Bavarian "Spalter," and then "Hollestan" (Hallertauer?). Other hops that were imported include English Fuggles and Styrian Goldings, which are Fuggles grown in Yugoslavia. Clearly, imported hops were used, especially for late additions in premium beers. Fix notes that Budweiser labels of one hundred years ago proudly noted the use of Saaz. Nugent in 1948 is explicit about using imported hops for late additions in his recipes.

For flavor and aroma hops, I prefer top quality imported Saaz, Hallertauer, Tet-

tnanger or sometimes Styrian Golding, and I have been very pleased recently with domestic Ultra. Some use of "noble" hops adds greatly to the quality of this style. Some brewers, eschewing possible historic accuracy for their personal taste, use all noble hops in the style of continental pilsners. This will make a fine pilsner, although perhaps not typical of most historic beers.

Yeast

Any lager yeast should work, but avoid ones prone to diacetyl. It seems nice to try American yeasts. I used New Ulm from Yeast Culture Kit Co. in my original (also Wyeast American, 2035) and despite Wyeast's note that it is not a pilsner yeast, I liked it fine. Wyeast 2272 is reputedly from the old Christian Schmidt brewery in Philadelphia. Some brewers have reported diacetyl with Wyeast 2007 (reputedly Anheuser-Busch) and Wyeast 2112 (California Common, reputedly Anchor Steam). I really like Weihenstephan 34/70 (Wyeast 2124) as a good general purpose lager. I used Danish (Wyeast 2042) years ago for all malt Northern European lagers and very much liked the crisp, hop emphasized profile it gave. I think it would do well for a drier CAP style.

My regular lager yeast for several years has been Ayinger from Yeast Culture Kit Co. This is a fine all purpose lager yeast that was the clear favorite of six yeasts of a taste panel that I sat on along with a local brewpub's brewing staff and other judges. It produces clean, rich beers.

Water

Brewing water is of some importance in a pilsner. Indeed, Jankowski writes that brewing with well water in Bushwick gave "dubious results" until soft lake water was piped in around 1859, after which brewing began to thrive as German settlers moved in. It seems likely that it was this water and the resulting smooth hop bitterness that allowed higher hopping levels in Bushwick than was acceptable in other areas of the country, where "Just a kiss of the hops" became popular.

While water in Pilsen is dead soft, it is not necessary or even desirable to brew with water that is totally devoid of mineral con-

tent. The most important consideration is that brewing water for this style be low in total alkalinity (bicarbonate/carbonate) lest harshness result. Miller recommends pilsner brewing water be ideally under 50 ppm total alkalinity, and not over 75 ppm and this can be achieved by a variety of means which are well documented in brewing texts.

If you have or acquire soft water for brewing this beer, some treatment will be required to achieve the proper mash pH, in the range of 5.2 to 5.5. Generally this can be done by bringing the total calcium ion (Ca^{+2}) content up to at least 50 ppm. In this style, calcium sulfate (gypsum) is an acceptable salt for calcium supplementation, but you can only add about 40 ppm of calcium this way before the added sulfate concentration exceeds 100 ppm and you run the risk of producing a dry harshness to the hop bitterness. Calcium chloride is a better choice as the chloride helps emphasize sweetness, but this salt can be rather hard for homebrewers to find. When using calcium chloride you should try to keep the added chloride level under 150 ppm, but this still would allow you to add about 75 ppm of calcium without any problems.

Brewing

Brewing a classic American pilsner can be as easy as is brewing an English ale or as complicated as you want to make it.

NO BREW FRIDGE? BREW A CACA!

That's HBDer Paul Shick's "unfortunate acronym" for what he calls Classic American Cream Ale. Nineteenth century ale brewers, seeing their sales drop as the public's taste changed to pale, clear, effervescent lagers, but lacking refrigeration and aging facilities, developed a beer brewed like a pilsner, but fermented as an ale. These were called "present use" or cream ales, and they have evolved into today's cream ales just as pilsners evolved, but the few remaining cream ales today bear only a fleeting resemblance to their ancestors.

A CACA is a fine, enjoyable beer, and you'll be partaking of history. Ferment the beer with ale yeast at cellar temperatures and age it as cool as you can manage. This is an ale that can be served at 45° F, where chill haze can be a problem, so if that bothers you, consider using Polyclar® at the end of fermentation.

While traditional brewing requires multiple temperature rests, modern malts make this unnecessary, and possibly undesirable in some cases. Likewise, the traditional American "double mash" method can be avoided by using flaked adjuncts. (See recipe for details)

The simplest method is to use about 25% flaked maize with the balance six-row malt, perhaps with 5% Munich and/or Carapils. The Munich gives a bit of maltiness and color and Carapils adds some body and head retention. These might be especially appropriate for a lower gravity beer. Mash in with appropriate brewing water to get from 148° F (64° C) to 156° F (69° C), depending on the degree of attenuation you want.

You can use a simple infusion mash to produce this style of beer, with the rest temperature anywhere in this same temperature range.

A more complex mash uses multiple steps with a separate cereal mash using corn or rice. In this procedure, the corn or rice is first mashed with a bit of malt, then boiled, and added to the main all-malt mash. The cereal addition steps up the temperature of the malt mash.

We have a choice of rests in a step mash. A mash-in at around 100° F (38° C) allows hydrolysis of enzymes and can help to bring the mash pH into range if calcium is low. A protein rest in the range of 122° F (50° C) to 135° F (57° C) was important with malts in the past, but rests in this range should be kept short with modern malts. In nearly all cases, the maltster has already modified the proteins appropriately, and long protein rests can break them down too much, resulting in poor body and head retention. I will sometimes mash in at temperatures below those suitable for a protein rest and simply ramp through this range.

Mash temperatures can be chosen for degree of fermentability. Budweiser is mashed in at 119° F (48° C) and held there while the cereal mash is boiled, then the two are combined for an extended rest at 148° F (64° C), resulting in a very fermentable mash and a well attenuated, dry beer. I have used this schedule with success. If the main rest were at higher temperatures, up to 156° F (69° C),

Recipe for 5 gallons (19 L)

- O.G. 1.051
- 7.25 lb (3.3 kg) six-row malt
- 2 lb (.9 kg) corn meal*

*Or grits, polenta or coarsely ground rice, or combination of rice and corn

First Wort Hops: 3 HBU Saaz or other noble hops (3.2 HBU for pellets)

Bittering hops: (60 minutes) 5.3 HBU whole Cluster (4.8 HBU for pellets)

Flavor hops: (15 minutes) 1.5 HBU whole noble hops or Styrian Goldings (1.2 HBU for pellets)

Yeast: Any clean lager yeast

Water: low alkalinity, low sulfate water

See sidebar **TRADITIONAL AMERICAN "DOUBLE MASH"** for additional details.

Schedule for American Double Mash for cornmeal or rice

(grits and polenta must be boiled longer):

Time 00: In a kitchen pot, mash in corn or rice and 10 ounces (283 g) of malt with 1.5 to 2 quarts (1.4 to 1.9 L) of water to hit 153° F (67° C)

Time 15: Mash in main mash 104° F (40° C)

Time 20: Bring cereal mash to boil

Time 30: Cereal mash boiling

Time 35: Add boiling water and/or burner with recirculation to ramp main mash to 144-146° F (62-63° C)

Time 65: Add cereal mash to main mash yield, adjust temperature as needed to 158° F (70° C)

Time 95: Ramp to 170° F (76° C) mashout

Time 105: Begin sparge and lauter

As soon as kettle bottom is covered add first wort hops and maintain wort temperature at approximately 170° F (76° C) during lautering. Collect enough wort to yield 5.25 gallons (20 L) finished wort.

Boil uncovered at least 60 minutes, longer to reduce DMS.

Chill to 48° F (9° C), aerate or oxygenate well, pitch yeast from large starter.

Ferment at 48° F (9° C) until fermentation nearly stops, about 10 to 14 days, rack to secondary and reduce temperature 4° F per day to 32° F (0° C). Lager six to seven weeks.

To brew with a simple infusion mash, substitute flaked maize or rice for the raw cereal and mash between 148° F (65° C) (for a very well attenuated, dry beer) to 157° F (70° C) (for a richer, less well attenuated beer).

For all extract beer, use six pounds (2.7 kg) of Alexander's or William's light liquid malt extract and 1.5 lbs (.68 kg) rice syrup. Steep the first wort hops in wort at 170° F (76° C) for 60 minutes before bringing to a boil and adding remaining hops. Increase hopping rate if boiling less than full volume.

the resulting beer would be less attenuated and less dry.

My current favorite RIMS mash schedule is a mash-in at either 104° F (40° C) with a rest of 30 minutes followed by a ramp up to 144° F (62° C), or a mash-in at 144° F (62° C). In either case, I hold 144° F (62° C) for 30 minutes, then add the cereal mash and aim for 158° F (70° C) for the combined mash, which I hold for another 30 min-

utes, followed by a mashout at 170° F (77° C). I often miss these marks, but the beer always turns out wonderfully.

Since I brew for fun, not simplicity, I like this traditional mash. It puts me in touch with American brewers of a hundred years ago. Besides, I think that boiling the cereal mash, especially using corn, produces a depth of flavor that is missing with flakes (and why I suggest using a bit of Munich

malt with flakes). A diagram of this mash is shown in Figure 1.

The Extract Approach

Extract brewing presents more of a challenge. I am aware of no extracts produced from a mash that includes corn grits, only ones that have corn syrup added, although one has been produced and packaged for the homebrew trade in the past, and I am hopeful it will be again. That leaves two choices. First, choose the lightest all-malt liquid extract you can find, such as Alexander's or William's, and add about 25-30% brewer's corn syrup or rice syrup, or 20-25% dextrose (don't use baking corn syrup as it may have flavorings you don't want, and its degree of fermentability is unknown). All are flavor neutral, but corn and rice syrup, like malt, are not 100% fermentable. Dextrose is, and will produce a drier beer, but if you hop with Cluster and noble hops and ferment properly, you will have a closer approximation than you would with all malt. Rice syrup is available in homebrew sizes, but I am unaware of small packages of corn syrup. Another route is to do a mini-mash with flaked corn and six-row malt where the malt represents at least 50% of the grist.

Fermentation

Wort should be chilled to fermentation temperatures before pitching yeast. Many brewers are tempted to pitch warm to get fermentation off to a quick start, but ale-like flavors can develop in this early, warm fermentation. Cleaner flavors are obtained by pitching ample yeast into chilled, well oxygenated wort. One fluid ounce of thick, sedimented yeast per gallon of wort is ideal. This means repitching from a previous brew or using the yeast from a big starter—at least two quarts, four is better, for a five gallon brew (2 to 3.7 liters per 19 liter batch). You can discard the starter liquid. Underpitching is not disastrous, but be sure to make at least a quart starter.

I like to ferment at 48° F (9° C), although some commercial American breweries ferment as high as 57° F (14° C). Fermentation should be evident in 12 to 24 hours. Oxygenation or aeration at 14 hours can be beneficial to the yeast, as this is just when it has depleted reserves that oxygen will restore.

When fermentation has nearly stopped, typically in 10 to 14 days, check for diacetyl. It can be detected by its buttery or butterscotch aroma, and a CAP shouldn't have very high levels. Yeast selection can avoid this, but if is present, allow the temperature to rise to 60° F (16° C) for a day near the end of fermentation. Rack to a carboy or keg, but leave the airlock in place. It's best to have a little residual fermentable extract remaining going into lagering. The yeast will remain very slowly active. Reduce the temperature 4° F (2° C) per day to 32° F (0° C) for lagering. Lager for one week for each four degrees original gravity, or six to seven weeks for a typical pilsner. During this time, protein haze will precipitate and settle out, along with yeast and other haze, and your beer should be clear, and the flavor will become wonderfully clean and mellow as well.

Packaging

Kegging with artificial carbonation from CO₂ pressure is easiest. It makes adjustment of carbonation easy, and by racking to a clean keg, you will have sediment-free beer. After kegging, you can carbonate in a half hour or less by setting CO₂ pressure to 30 psi and rocking the keg. Listen for the gas flowing in, and gradually reduce the pressure to target pressure (consult carbonation charts). If no more gas flows at this pressure, you have reached the proper carbonation. With practice, you can carbonate perfectly, and if it is over carbonated, just bleed pressure until it's right.

If you choose to bottle or keg with priming sugar, there will still be enough yeast, even after lagering for weeks, to carbonate the beer—especially if you make sure to pick up a little extra with the end of the racking cane. Also, there will be a higher level of dissolved CO₂ at the cold lagering temperature, so you'll need to reduce priming sugar accordingly. Two-thirds of a cup of corn sugar (dextrose) is about right. Allow the beer to condition at cool temperatures, 60° F (16° C) to 68° F (20° C), for two weeks, then store cold if possible.

An alternate method is to prime before lagering and allow the bottles to condition for two weeks, then lager in the bottles. This results in more bottle sediment, however.

Serve no colder than 45° F (7° C), and not too highly carbonated, as this makes the beer seem thin and sharp. Lower carbonation is much mellower, and contributes to süffigkeit.

Conclusion

It is up to us homebrewers to recapture and keep this most important American beer, and this can be a labor of love. A well made classic American pilsner can become your favorite beer, and the favorite of your friends and guests, from beer geeks to Joe Sixpack. I know it's my favorite.

Have fun brewing it, and spread the word. Classic American Pilsner is back!

Jeff Renner, an AHA member since 1980, a founding member of the Ann Arbor Brewers Guild, and a long time regular contributor to *Homebrew Digest*, has been brewing since 1973 and first brewed an all grain beer in 1979. His favorite styles are Classic American Pilsner, German lagers and low gravity British real ales. Now the owner of a small wholesale bakery, he is a former chemical engineering student and history and science teacher, all of which have shaped his interest in brewing.

FIRST WORT HOPPING

A lost and recently rediscovered German hopping technique from a hundred years ago, first wort hopping (FWH), works very well in CAPs. While I have found no direct evidence of this technique being used in the United States, American brewers of this time were largely German born or educated, or at least strongly German influenced, and it seems likely that it was used here. George Fix first reported the German research, which was published in *Brauwelt* in 1995, to the homebrewing community on HBD in 1996.

In this procedure, normal late addition or aroma hops are instead added to the first wort as soon as the kettle bottom is covered, and kept at runoff temperature (about 176° F [80° C]) during the entire time of runoff. These hops are then left in the kettle for the entire boil along with normal bittering hops. Hop oil constituents are bound in a complex manner with other wort constituents resulting in "a fine, unobtrusive hop aroma; a more harmonic beer; a more uniform bitterness" than control pilsners with conventional aroma hop additions, according to the professional taste panels, which preferred the FWH beer overwhelmingly. I feel it gives enhanced hop flavor as well.

Recreating Beers (from page 48)
profiles can suggest features of the yeast strains used.

Isolating a yeast strain is no easy matter, and may need months of careful coaxing let alone purification. Normal laboratory agar may be too strong, too hard and too unforgiving. Diluted broths are less likely to shock and may be necessary to encourage a yeast from its slumber. Microscopy gives no assurances beyond indicating the presence of yeast and other microbes. Ancient cells are likely to be stressed and show distortions. Most will be dead, and viability stains can be misleading, suggesting that life may be raised from the remains when in fact all you have are hollow shells. However, some cells may have sporulated and it is these which may offer an avenue of success if germination can be encouraged.

Even then beware of contamination from your handling. To validate your authenticity, you must observe aseptic procedures, open samples under laminar flow and repeat samplings to demonstrate the predominance of any microorganisms. Ideally, have witnesses observe and record the event.

When testing your organism, check for standard *Saccharomyces* yeast features and test for wild yeasts, particularly by looking for phenolic off-flavours. After all this, success is still by no means guaranteed. Recovered yeasts rarely perform well, often have attenuation problems and can produce the strangest flavours. Moreover, many would have worked as dual or multiple strains, relying on each other for sharing tasks. At the end of all your endeavors, you may find that you only have half the story.

Base beers on contemporary brands

Failing access to recipes or artifacts, why not create a beer as the best of style according to examples from current production? Many of these still exist in the UK, and many are close to their original character and rightfully boast authenticity as classic examples of styles.

Analysis of these beers can provide guidance as to how style characteristics are balanced and allow you to develop your own version. The Real Ale Drinkers Almanac by Roger Protz is an excellent source of detail

on these, and more extensive analyses on styles are available from Brewlab as part of the Campaign for Real Ale style analysis programme. Ray Daniels' *Designing Great Beers* book also contains historical analysis while *Old British Beers* and *How to Master Them* is essential reading for the analysis of much of the British brewery archives by the Durden Park beer club in London.

It is perhaps this area of development which is the most interesting for the modern brewer looking to develop novel beers based in the past. Brewers do need to expand their sales into areas traditionally resistant to beer drinking. In the UK, the mere title "Historical beers" implies "old man's drink". Without wishing to offend the older generation, it is hardly an image we would wish to apply to modern products when so much depends on attracting new drinkers.

Coupling your innovations to specialist issues seems to be a profitable option. Dale-side brewery targets their markets as much on novelty as on history. Morocco ale is "a powerful, dark brew with malt and spice in

the taste and in which ginger predominates." More than just a bitter or old ale, it has the potential to sell into the restaurant and food markets, into Levens Hall from which it originated, and, critically, into drinkers who don't like the bitterness of standard beer.

Some of our recreations will give us beer as it was, rich, powerful and pungent. Other recreations will give us beer as has never been seen. Both offer a way to use history for future sales.

Keith Thomas graduated from York and Sheffield Universities in the UK studying applied microbiology. His doctorate study investigated the possibility of fermenting paper waste to fuel and led to work in the brewing industry. He established the Brewlab company in 1986 and has developed this whilst teaching food and brewing studies at the University of Sunderland. He currently researches topics relevant to the small brewing industry and still aims to produce a beer from a newspaper—although he is undecided which style would suit Zymurgy.



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Poetic Justice in Italy (from page 51)

Belgian old brown ales. Now here is expressed the epitome of Italian beer poetry and creativity. Using 10% German made "Sauer" malt uniquely creates Brighella. I have never heard of this being done anywhere else. The "sauer" malt contributes remarkably soft acidity without the often overpowering complexity of bacterially fermented Belgian ales, from which this beer's pedigree emerged. Dried English ale yeast is used in this brew as it is used in all of their beers.

Indeed the craft brewers of Italy to which I was introduced were unlike any other craft brewers in the world. The com-

bination of their romantic culture, exquisite regional cuisine, respect for their wine heritage, creative brewing techniques give them the distinction of being the poets of the brewing industry. Currently they are few. The world will be a far better place when the Brewing Poets of Italy emerge in numbers and offer their quality creations with all the other wonderful things Italy has to offer.

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

Though I admit not having brewed this beer, this is my shot at recreating one of the more unusual beers (see above) I experienced during my tour de Italia.

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Zymurgific Brighella

For a 5.5 gallon (21 liters)—Partial mash and malt extract recipe:

Malt

- 4 lb. (1.8 kg) 2-Row Pilsener malt (grain)
- 4 lb. (1.8 kg) Munich malt
- 1.5 lb. (0.7 g) German Sauer Malt
- .25 lb. (114 g) German Carafe (black) malt
- 3 lb. (1.4 kg) extra light dried malt extract

Hops

- 1.5 oz. (42 g) Hallertauer (7.5 HBU/213 MBU) whole hops—60 minutes boiling
- .5 oz. (14 g) Perle (as a substitute) (4 HBU/114 MBU) whole hops—60 minutes boiling

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: $(2 \times 9) + (3 \times 5) = 18 + 15$. Bittering units per gallon would be 3.3 in a 10-gallon batch or 6.6 in a five-gallon batch, so it is important to note volumes whenever expressing bitterness 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:

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

Tare equal to the number of grams of hops multiplied by the percent alpha acid.

.25 tsp powdered Irish moss
 .75 cup 180 ml measure) corn sugar/glucose (priming)
 Ale Yeast—Birrificio Lambrate used SafAle dried Yeast. A well attenuating English type yeast can also be used.

- Original gravity 1.072-1.076 (18-19° B)
- Final gravity 1.014-1.020 (3.5-5° B)
- IBU's—about 27
- Approximate color: 16 SRM (32 EBC)
- Alcohol: 8% by volume
- Apparent Yeast Attenuation: about 74%

HBU = % alpha acid rating of hops multiplied by ounces = Homebrew Bittering Units

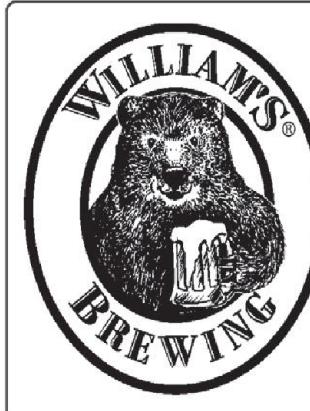
MBU = % alpha acid rating of hops multiplied by grams = Metric Bittering Units

A simple one-step infusion mash is employed to mash the grains. Add 10 quarts (9 liters) of 170° F (77° C) water to the crushed grain, stir, stabilize and hold the temperature at 152° F (67° C) for 60 minutes. Then raise temperature to 167° F (75° C), lauter and sparge with 4 gallons (15 l) of 170° F (77° C) water. Collect about 5.5 gallons (20 l) of runoff. Add the malt extract and hops and bring to a full and vigorous boil.

The total boil time will be 60 to 90 minutes. When 10 minutes remain, add Irish moss. After this final 10 minutes, cool all of the wort to about 80° F (27° C). This can be done simply by immersing the brewpot (with lid on) in a bath of cold running water for about 30-45 minutes. Other means of chilling can be used if desired.

Final primary batch size is 5.5 gallons (20 l). Add 1.5 gallons (5.5 l) of ice cold water to your sanitized fermenter. Then strain and sparge the approximately 4 gallons (15 l) of cooled wort. Top off with additional cold water to make 5.5 gallons (20 l).

Pitch one package of Saf Ale or a good dose of healthy active ale yeast and primary ferment at temperatures at about 70° F (21° C). Rack from the primary to the sec-



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ondary after primary fermentation is completed. Your net yield will be 5 gallons (19 l) to the secondary. If possible, chill to 55-60° F (13-15.5° C) and "cellar" for one to two weeks.

Prime with sugar and bottle when fermentation is complete.

World traveler Charlie Papazian is the founding president of the Association of Brewers and the author of numerous best-selling books on homebrewing. His most recent books are *Home Brewers Gold* (Avon,

1977), a collection of prize-winning recipes from the 1966 World Beer Cup Competition, and *The Best of Zymurgy* (Avon, 1998) a collection of the best articles and advice from 20 years of *Zymurgy*.

Helles in Paradise Recipe Correction

In the July/August 2000 issue, Charlie Papazian's recipe called for .5 lbs extra-light dry malt extract, when it in fact should have read 3.5 lbs or 1.6 kg. As a few savvy readers pointed out, 0.5 lbs of extract was a bit light for a 6 gallon (22.7 L) batch.

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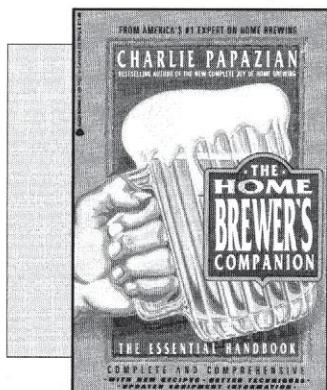
The first Lallemand Scholarship for an AHA member to attend the Siebel Institute of Technology was awarded at the AHA Conference in Michigan. The winner is

Richard Sieben and he will attend the Short Course in Brewing Technology at Siebel this Fall. The scholarship includes the \$2,500 tuition for the course as well as a \$1000 cash stipend to help defray living expenses. Every AHA member can has a chance to win this

award through the annual Lallemand Scholarship program. The next scholarship will be awarded at the AHA Conference in 2001. AHA members receive multiple chances to win by helping to sign-up new AHA members. Watch the pages of *Zymurgy* or contact the AHA for further details.

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Charlie Papazian, America's leading authority on home brewing, offers readers two comprehensive, in-depth guides to brewing everything from the lightest lager to the darkest stout.

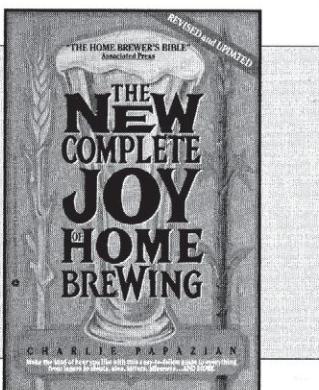


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Brewers Helping Brewers

On May 22, 2000 the AHA Board of Advisors for the AHA received an alert from fellow Board member Mike Hall, who had spent 11 days as an evacuee from the fires that swept through the Los Alamos, New Mexico area, destroying hundreds of homes and affecting thousands of people. While Mike was fortunate to find his home intact upon his return, he advised that he had knowledge of 3 home-brewers in the local club, the Los Alamos Atom Mashers, who had lost everything.

Upon hearing this bad news an effort was initiated to help provide some small measure of brewing comfort to those afflicted, and on June 17th an informal party was convened to present the victims with donations of brewing equipment and ingredients to help get them back on their brewing feet again.

Donations were graciously provided by Automatic Manufacturing (3 roller mills), BrewPack (6 carboys, 6 cases 12 oz bottles, 6 cases 22 oz bottles, bottle caps) Fromm-Mayer-Bass (27 half-pound samples of hop pellets), Schreier Malts (300 lbs malt), Listermann Manufacturing (3 Phil's Phillers) and Jack Schmidling Enterprises (3 Easy Mashers). Local club members donated other items necessary to get started again including kegs, chest coolers, and that universal aid, cash! Further aid was also forthcoming from other clubs in the region. But perhaps the most important donation to these burned out brewers was the spirit of camaraderie provided by their fellow brewers at the party held in their honor. As Michael Hall said, "Homebrewing isn't one of the essentials in life, but sometimes it is the small pleasures that restore our sanity."

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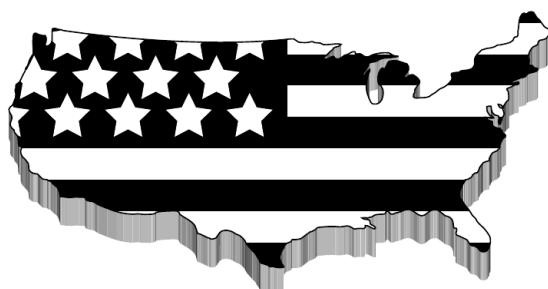
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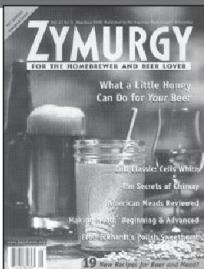
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All that, plus the return of our regular columns (they needed a little break so that we could fit all the features into this issue!) coming to you in early November.

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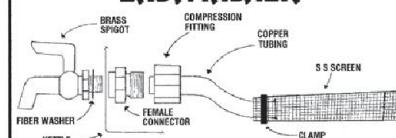
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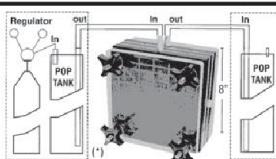
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Oh man, did we have fun in Livonia! Good beer, good talks and good folks from all over. If you were there, you'll appreciate these memories; if you weren't you can just imagine all the fun you missed.

1) Captain Homebrew (aka Kevin Kutsill of Clinton River, Michigan) kept the world safe for good beer during the "Beers Without Borders" club night festivities.

2) Ken Schramm, who helped lead organization of the conference, raises a glass to the late Bill Pfieffer—a Michigan brewer who inspired and educated so many of those present at the conference.

3) AHA Board of Advisors member Rob Moline announces the winner of the Lallemand scholarship—an all-expenses paid two-week journey to beer school!

4) Brewmaster Fred Scheer of Boscos in Nashville shares his wisdom on brewing and malting.

5) Giddy homebrewers take the pledge. That's right, they are agreeing not to drink any beer during the month of July...at least not unless that beer was made in America.

6) Morten Meilgaard, creator of the "Beer Flavor Wheel," spoke at the conference, telling how the wheel came into existence and showing data that led to its creation.

7) Roger Deschner of the Chicago Beer Society held forth on his favorite topic: Altbier. Great photos of Dusseldorf and lots of detailed brewing info. Good stuff, Rog!

8) The Mob corners Charlie for a little chat. Led by Chrispy Frey, the fedora-clad, plastic-machine-gun-toting Fermentable Order of Renaissance Draughtsmen lent an air of class and drama to the weekend's events.

9) Although benignly dubbed "The Hospitality Suite," this room drew both good beers and great people all weekend. Homebrew rules!

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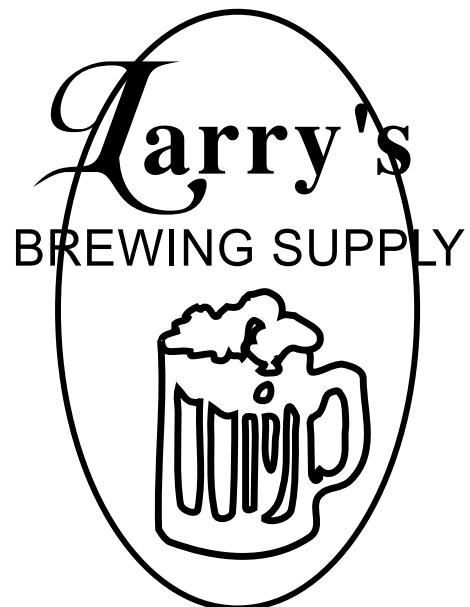
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