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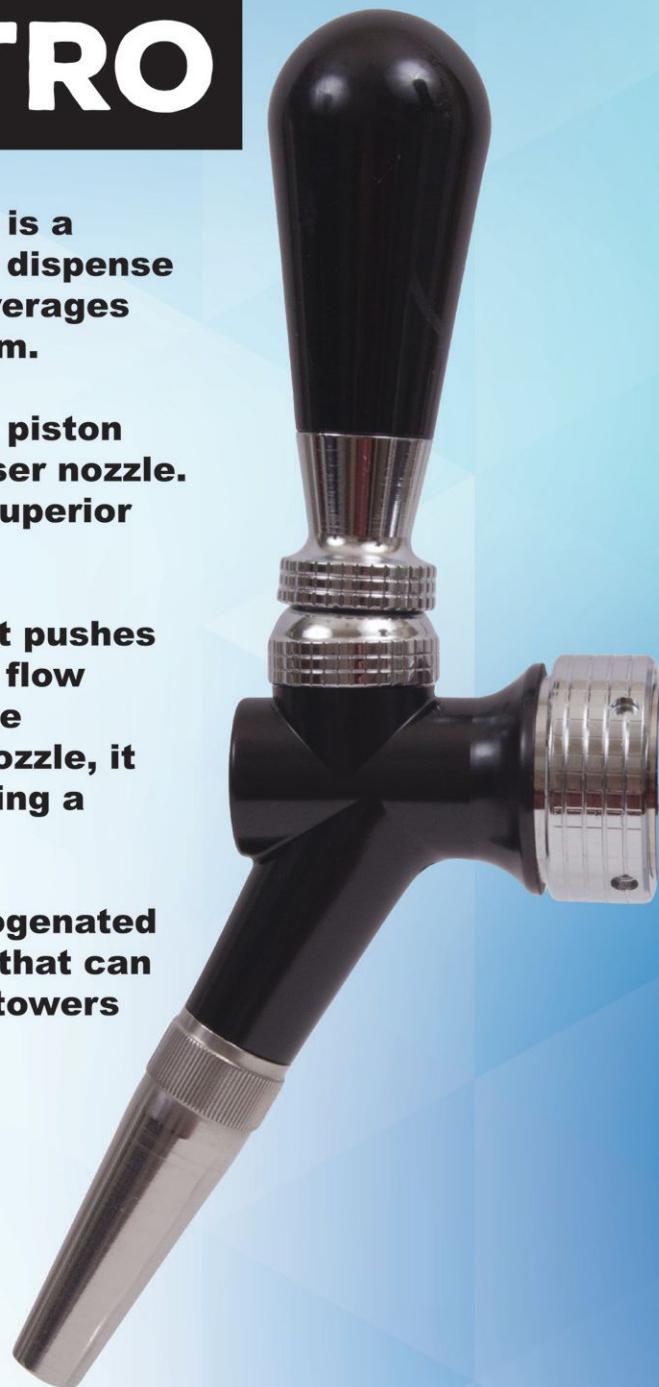
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Associate Editor.....	Amahl Turczyn
Technical Editor	Gordon Strong
Art Director.....	Jason Smith
Graphic Designers.....	Kelli Gomez & Eric LiPuma
Operations Director.....	Stephanie Johnson Martin
Marketing Director.....	Ann Obenchain ann@brewersassociation.org
Sales Director.....	Kevin Doidge kevin@brewersassociation.org
Business Development Manager for Advertising & Sponsorship (East).....	Tom McCrory mccrory@brewersassociation.org
Business Development Manager for Advertising & Sponsorship (West)....	Kari Harrington kari@brewersassociation.org
Advertising & Sponsorship Associate.....	Joe Damgaard
Marketing Managers.....	Jeb Foster & Rachel Staats
Member Services/Circulation Manager	Dan Goloback

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Up and to the Left

I visited Oregon for the first and only time in 2013. My wife and I had just returned from our honeymoon and, having had enough of commercial aviation, decided to use our friends' wedding as an excuse to take a road trip from Colorado, up and to the left to Seattle.

This was back in the dark ages before Brew Guru, so the day before our departure, I pulled up HomebrewersAssociation.org, searched AHA Member Deals, and compiled an index of every free pint, discounted growler fill, and merchandise promo in Colorado, Utah, Idaho, Montana, Oregon, and Washington. It was not a modest list.

Enlisting the help of Google Maps, I then cross-referenced these select Member Deals with our chosen route. This yielded a considerably smaller, but still appreciable, list of breweries. The gauntlet now lay squarely on the ground before us.

Over the next 10 days, we descended upon no fewer than 30 breweries between Fort Collins and Seattle. Sampling was responsibly limited on driving days, which meant we squeezed most of our tasting into about six days. Of those six days, we devoted four to Oregon, whose breweries did not fail to impress.

Countless brewers across America and around the world know how to do amazing things with hops, but the taprooms in Oregon exhibited an across-the-board level of proficiency that I believe must be a product of location. A skilled chef can prepare excellent seafood far from the coast, but a life lived on the water offers an implicit education that transcends technique. Breweries located in the shadow of North America's largest hop fields must certainly enjoy similar advantages of collective knowledge.

Avant-garde startups like Cascade Barrel House, Crux Fermentation Project,



and Boneyard Beer (see Commercial Calibration on page 81) played delightful foil to Pacific Northwest stalwarts like BridgePort, Deschutes, and Hair of the Dog. Hops piled atop other hops, and at FH Steinbart—the oldest homebrew shop in the country, which celebrates its centenary this year (see feature on page 32)—I bought hops to take home just to be safe.

If you are even vaguely on the fence about attending Homebrew Con this June in Portland, just go ahead and slide off those narrow pickets of doubt and let yourself fall into the verdant hop field of resolve. You'll have a wonderful time—I promise. Visit HomebrewCon.org to hook yourself up.

It has been five years since my first trip to Oregon, which is far too long. I can't wait to return. I would be delighted to see you there.

Dave Carpenter is editor-in-chief of *Zymurgy*.

UNITANK

7 gal | 14 gal | Half bbl | 1 bbl



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When national Prohibition became law, Portland's FH Steinbart was two years old. A century later, America's oldest homebrew store is still keeping it independent and local.

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It's tempting to lump grisette in with saison, but this working-class ale from Hainaut is a distinctive style in its own right.

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If you're an all-grain brewer, you may already have everything you need to cook sous vide. Make your mash tun do double duty and create your own haute cuisine at home.

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By *Ron Minkoff***Fringe Brewing in Thailand**

Homebrewing is not yet legal in Thailand, but that hasn't kept local beer enthusiasts from attracting a thirsty crowd.

By *Alex Gearhart*To read this special online feature, go to HomebrewersAssociation.org/mj18**QUICK RECIPE GUIDE**

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Find these homebrewing recipes and more on our website @ HomebrewersAssociation.org/homebrew-recipes



>> GET THERE!

HANGAR 24 10TH ANNIVERSARY AIRFEST

On May 19 and 20, Hangar 24 Craft Brewery celebrates a decade of independent brewing the only way a brewery with a name like Hangar 24 can—with a combination beer festival and airshow.

The beer festival features selections from Hangar 24, of course, in addition to offerings from local and national breweries like Beachwood, Mumford, Pizza Port, Speakeasy, and Sierra Nevada.

Guests will also be treated to aerial shows from the US Air Force F-16 Viper Demo Team, the Royal Canadian Air Force FC-18 Demo Team, Vicki Benzing (who set a 500 mph record at the Reno National Air Races), and Hangar 24's own Jon Melby. Static displays offer a chance to get up close and personal with the aircraft.

Ticket options include everything from a single day pass all the way up to a full VIP treatment with shaded tables. Proceeds benefit Hangar 24 Charities, a 501(c)(3) organization that supports children and military veterans.

The 10th Anniversary AirFest takes place May 19 and 20 in Redlands, Calif. If you miss this one, Hangar 24 is doing it again on October 27 in Lake Havasu City, Ariz.

To learn more, visit hangar24airfest.com.



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May 4

CarbondALE Brew Fest

Carbondale, IL

carbondalebrewfest.com

May 5-12

Bozeman Craft Beer Week

Bozeman, MT

bozemancraftbeerweek.com

May 14-20

American Craft Beer Week

Nationwide

CraftBeer.com

May 19

7th annual Charleston Beer Garden

Charleston, SC

charlestonbeergarden.com

May 19

Lagerville at Figueroa Mountain

Brewing Co.

Buellton, CA

figmtnbrew.com

June 2

Beer City Festival

Asheville, NC

beercityfestival.com

June 7

43rd annual Wolverhampton

Beer & Cider Festival

Wolverhampton, UK

wolverhampton.camra.org.uk

June 16

Lodi Craft Beer Festival

Lodi, CA

lodicraftbeefestival.com

June 23

4th annual Rocky Mountain Beer Festival

Louisville, CO

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June 28-30

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Portland, OR

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For more craft brewing events, go to CraftBeer.com

>> GREAT PAIRING

ANGEL FOOD CAKE + DOGFISH HEAD NAMASTE & AVERY GINGER SOUR

By Jill Redding

Who says beer and dessert pairings have to be a dark, decadent affair? Chef Adam Dulye lightened the mood at the Calibration Dinner—which kicked off the Big

Beers, Belgians & Barleywines Festival in Breckenridge, Colo. on January 4—by pairing a delicate, fluffy angel food cake with two lighter offerings from Avery Brewing and Dogfish Head Craft Brewery.



To top off a menu that included rich, savory courses such as elk tartare and port-braised pork belly paired with high-powered beers like Dogfish Head Oak-Aged Vanilla World Wide Stout (16% ABV) and Avery Tangerine Quad (10% ABV), Dulye, who serves as executive chef of the Brewers Association, shifted the paradigm at the end of the night, presenting an angel food cake with crème fraîche and ginger-candied pears.

"I wanted to showcase that you can have big beer followed by light beer and still get all the flavors," said Dulye.

Each of the five courses was paired with two beers, one from each presenting brewery (Adam Avery of Avery Brewing and Bryan Selders from Dogfish Head served as hosts for the dinner). Dulye opted to pair his dish (for which he graciously shared his recipe, right) with Avery Ginger Sour (6% ABV) and Dogfish Head Namaste White, a Belgian-style witbier (4.8% ABV).

"The angel food cake is a delicate layer on the palate," explained Dulye. "The carbonation of the beers scrubs the palate, letting the cake and pears take first crack at it. The beers add flavor to accent the dish, and the crème fraîche helps keep all the flavors on the palate. This provides a longer finish, letting the flavors of the beer, such as the ginger in the Ginger Sour, shine through."

Dulye has long been spreading the gospel of craft beer and food pairings, as co-author of the CraftBeer.com Beer & Food Course (available as a free PDF from the website, or for purchase as a hard copy). His new book, *The Beer Pantry: Cooking at the Intersection of Craft Beer and Great Food*, was published in March.

>> TEA IPA

By Dick Cantwell

Editor's Note: The following excerpt is adapted from *Brewing Eclectic IPA: Pushing the Boundaries of India Pale Ale* by Dick Cantwell, available June 4, 2018, from Brewers Publications.

What is an herb? What is a spice? Is tea an herb? Is chili pepper a spice? These are the kinds of questions that plague us as we obsessively seek to move forward. Dictionarily speaking, spice is an aromatic vegetable product used to season or flavor foods; the *Oxford English Dictionary* (second edition, 1989) confers an additional, tropical connotation as to origin, as well as mentioning vaguely inherent, vaguely occurrent preservative qualities.

Continued on page 6 >

CHEF ADAM'S ANGEL FOOD CAKE

- 1 1/2 cups egg whites (about 12 eggs)
- 1 cup flour
- 1 1/2 cups sugar
- 1/2 tsp. salt
- 1 tsp. vanilla
- 1 1/2 tsp. cream of tartar

Preheat oven to 325° F (165° C). In a mixing bowl or stand mixer, combine the egg whites, salt, and vanilla. Beat on high until frothy. Add the cream of tartar and continue beating until egg whites are stiff and glossy. Add the sugar in 1/4 cup increments until blended. Add the flour and mix until just combined. Turn mixer off and stir with a spatula to ensure all ingredients are combined.

Grease a bundt pan or 8" cake pan and gently add the batter. Bake at 325° F (165° C) for 35–40 minutes. Serve with macerated berries, or with crème fraîche and ginger-candied pears to recreate the pairing with the Ginger Sour and Namaste.

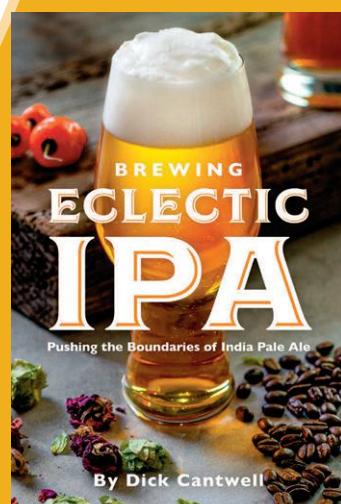
Crème Fraîche

Whip 1 cup of crème fraîche into 1/2 cup of heavy cream and continue mixing until stiff peaks form.

GINGER-CANDIED PEARS

- 6 pears, peeled, cored, and cut into 1/2" thick slices
- 1 cinnamon stick
- 1 2" piece of ginger, scrubbed (not peeled) and cut into small chunks
- 1 cup sugar
- 3 cups water

In a large pot, bring the water and sugar to a boil. Add the cinnamon stick and ginger and boil for five minutes. Remove from heat and add the pears. Allow pears to sit in liquid as it cools. Can be prepared one to two days in advance. Warm before serving.



TUKTUKTEA IPA

Thai Iced Tea IPA

Recipe courtesy Dick Cantwell. Thanks to Alex Violette, Ryan Lemish, and Dave Byrn of Pasteur Street Brewing, Ho Chi Minh City, Vietnam.

Batch size: 5 US gallons (18.9 L)

Original gravity: 1.067 (16.75° P)

Final gravity: 1.019 (4.75° P)

Color: 7.8 SRM

Bitterness: 48 IBU

Alcohol: 6.3% by volume

MALTS

10.5 lb. (4.8 kg) Maris Otter malt (92%)

8 oz. (225 g) Weyermann Munich malt (4%)

4 oz. (112 g) Belgian CaraMunich malt (2%)

4 oz. (112 g) Crisp 30° L crystal malt (2%)

HOPS & TEAS—VERSION 1

5.5 oz. (156 g) Fuggle, 4.5% a.a. @ 90 min

1.5 oz. (42 g) oolong tea (bagged loose tea) @ 2 min

2 oz. (56 g) East Kent Goldings, 5% a.a. @ 2 min

0.5 oz. (14 g) oolong tea, whirlpool

0.5 oz. (14 g) East Kent Goldings, 5% a.a., whirlpool

HOPS & TEAS—VERSION 2

2.4 oz. (68 g) Centennial, 10% a.a. @ 90 min

1.5 oz. (42 g) Cha Dem Yen (Thai black tea), bagged @ 2 min

2 oz. (56 g) Motueka, 7% a.a. @ 2 min

0.5 oz. (14 g) Cha Dem Yen (Thai black tea), bagged, whirlpool

0.5 oz. (14 g) Motueka, 7% a.a., whirlpool

ADDITIONAL INGREDIENTS

8 oz. (225 g) lactose

YEAST

Wyeast 1056

BREWING NOTES

Mash 60 minutes at 153° F (67° C). Add lactose to boil. Boil 90 minutes. Add bagged loose tea to whirlpool and remove before transferring to fermenter. Ferment to terminal gravity, and transfer to secondary. Condition at 35° F (2° C) for 1 week until bright. Carbonate to 2.5 volumes (4.9 g/L) CO₂.

EXTRACT OPTION

Replace Maris Otter and Munich malts with 9 lb. (4.1 kg) Maris Otter liquid malt extract. Steep crushed Caramunich and crystal malts for 30 minutes at 155° F (68° C). Remove grains, dissolve extract, top up to desired boil volume, and continue as above.

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Botanically, herbs come from plants that do not produce woody tissue and instead die down to the ground after producing the leaves and stems that are used by resourceful druids (like us) for their medicinal, savory, or aromatic qualities. A quick reading of these definitions shows that herbs and spices are prized for their general aromatic quality (and associated flavor). Tea plants, since we're on the subject, take a number of years to produce leaves suitable for subsequent drying, fermentation, steeping, and sipping, and so technically no, tea is not an herb, but many "teas" are in fact dried herbal mixtures.

And no, since you've brought it up, chili pepper is not a spice, it's technically a fruit, at least when fresh or roasted. Since dried and powdered chilies are used in the same way as spices, a pinch here, a particular measure there, they are a bit of a hybrid where flavoring treatments are concerned. As long as chilies make it into IPA, when and where and in whatever quantity you

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want, let's not stress too much about where it is they actually belong.

More than most other styles of beer, IPA lends itself well to herbal treatment. Rosemary, thyme, basil, shiso, juniper, and spruce—these are the stuff of the brewer's lazy strut, beguiling accents for the substantial beers we're talking about. But wait. Juniper and spruce? Those are evergreens. I get the terpene connection, but are evergreens an herb? Ask your mother. Spices, on the other hand, must be carefully chosen: peppercorns yes, cinnamon and allspice probably no. That said, I'm not the one coming up with the new and fabulous IPAs you are destined to make, so go ahead, prove me wrong. But why not some of the spices (aside from cinnamon, that is) we associate with curry, for instance, turmeric or cardamom? Let's just say you'll need a subjectively certifiable reason (such as deliciousness) to put them in a boldly hoppy beer of malty fortitude.

Similarly challenging, perhaps, the addition of coffee, chocolate, or vanilla to IPAs (which is happening more and more) is something that must show up in such a way that the result is eye-opening and engagingly tasty. It isn't completely surprising, given the artisanal congruence of craft beer, small-batch coffee roasting, and chocolate manufacture in the United States over the past few decades, that such things would find their way into beer. The association, however, is most often with beers that resemble the color of the products involved, stouts and porters in particular. But origins, roasts, and treatments of coffee vary as widely as the world and its tattooed roasters, giving us new ways to introduce fruitiness and acidity to an IPA already showing elements of either one, or perhaps both.

Chocolate too can become part of a pale and hoppy beer, perhaps its bitterness

combining with well-chosen hopping in a beguiling way. Vanilla, well, a little of that goes a long way in anything; that's one reason it's often sold as a single bean or as an alcoholic extraction. But vanilla has to be considered, because it's so often com-

bined with chocolate. In fact, chocolate often travels with a plus-one, at various times bringing along chilies, cinnamon, or orange, for example, most often in a dark beer, but who knows? We're all about straining credulity, right?



>> ROAD TRIP!

JUNE 28-30
PORTLAND, OR

Heading to Homebrew Con this June in Portland? The following Oregon road trip is excerpted from "5 Epic Craft Beer Road Trips" by Tyra Sutak, which first appeared on CraftBeer.com.

There's nothing quite like road tripping through the beautiful state of Oregon in summer. If you're the outdoorsy type, this drive is for you. Start by spending some time exploring the well-established craft beer scene in Portland, then head south for a more relaxed pace and a tour of Deschutes' original production facility in easy-going Bend.

Brewery, enjoy classic European styles and some of the best mac 'n cheese in town.

For a truly unique Portland experience, pull up a stool at Old Town Pizza & Brewing, the city's well-known haunted brewpub located just around the corner from the start of many of the city's ghost tours. Taste your way through Breakside Brewery's vast draft lineup that includes fresh pours of rotating offerings from the brewery's 100+ unique recipes at their recently opened Portland location.

When you arrive in Bend, make your first stop the Crux Fermentation Project. This family-friendly joint has an excellent out-

Must-Visit Breweries

Start with a beer and a burger at Oregon's oldest craft brewery, the Bridgeport Brewery and Brewpub. Thoughtful beer and food pairings and a top-notch happy hour is what you'll find at Burnside Brewing Company. At The Commons



Pre-order *Brewing Eclectic IPA* during the AHA member pre-sale May 8-15 and get 30% off the cover price! AHA members receive FREE shipping. Visit BrewersPublications.com



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door patio with delicious food trucks, but people are flocking to this place for the clean, flavorful, interesting beers coming out of the brewery.

A stop in Bend wouldn't be complete without checking out Deschutes Brewery's beautiful production facility. This beloved Oregon brewery also serves up free samples and a huge selection of bottles of specialty brews. If hopped-up big beers are your style, you'll find them at Boneyard Brewing, a tiny hidden gem in downtown

Bend. And don't miss out on the chance to visit Worthy Brewing's newly opened Hopservatory—the first observatory operating inside of a brewery.

Road Trip ProTip

For a beer-themed place to rest your head in Bend, book a room at the Bunk + Brew Historic Lucas House, a unique lodging option within walking distance of the majority of the breweries in Bend. They even have a cold beer waiting for you when you check in.

>> GREAT RECIPE

CHRYSANTHEMUM FLOWER TEA KÖLSCH

Kölsch-style ale with herbs

This recipe comes to us courtesy of Wichit Saiklao, founder of the Chitbeer brewery on Ko Kret island north of Bangkok. In this issue's online extra, "Fringe Brewing in Thailand," Alex Gearhart relates the struggles homebrewers and would-be craft brewers face in a country where brewing, though not 100 percent legal, is enjoying a surge in popularity.

To read the May/June 2018 online extra, head over to HomebrewersAssociation.org/mj18.

Batch size: 5.25 US gallons (20 L)

1 Whirlfloc tablet @ 15 min

Original gravity: 1.048 (11.9° P)

Final gravity: 1.012 (3.1° P)

YEAST

Alcohol: 4.7% by volume

Fermentis Saflager S-23

Bitterness: 23 IBU

Color: 2.9 SRM

BREWING NOTES

MALTS

7 lb. (3.18 kg) Pilsner malt

1.5 lb. (680 g) Vienna malt

12 oz. (340 g) wheat malt

Mash at 150° F (66° C) for 60–90 minutes and collect 6.5 gallons (24.6 L) of wort. Boil a total of 60 minutes, adding hops and chrysanthemum flower tea according to the schedule above. When boil is complete, transfer wort to sanitized fermenter. Pitch yeast into cooled wort and ferment at 60° F (16° C) for 7 days. Rack to Secondary for an additional 7–14 days

HOPS

0.78 oz. (22 g) Hallertau pellet hops

@ 60 min

0.5 oz. (14 g) Saaz pellet hops

@ 20 min

0.5 oz. (14 g) Saaz pellet hops

@ 5 min

EXTRACT VERSION

ADDITIONAL ITEMS

1 lb. (454 g) chrysanthemum flower tea @ 5 min

Replace grain malts with 5.25 lb. (2.4 kg) Pilsner liquid malt extract, 1 lb. (454 g) Vienna liquid malt extract, and 0.4 lb. (181 g) wheat dry malt extract. Dissolve extracts in reverse osmosis water, top up to desired boil volume, and continue as above.

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AHA Founder Charlie Papazian Exiting the Brewers Association

On January 23, 2019, American Homebrewers Association cofounder, longtime Brewers Association (BA) president, and current BA past president Charlie Papazian will exit from his employment with the Brewers Association. That date is Charlie's 70th birthday and, not coincidentally, National Pie Day (Charlie is also into pie).

I, like hundreds of thousands of others, got started in homebrewing with a copy of Charlie's *Complete Joy of Homebrewing*. Furthermore, I met my wife Erin at the Brewers Association when she was hired as the membership coordinator a year after I got started with the AHA. So, Charlie wrote the book that got me started in homebrewing and founded the association I direct and the association at which I met my wife—I pretty much owe everything to Charlie.

It has been an honor to work alongside Charlie over the past 18 years. Charlie, who is frequently called the Godfather of Homebrewing, is a true visionary, and I am privileged to have had the opportunity to experience his vision firsthand for nearly two decades.

Charlie will deliver the keynote address at this year's 40th annual Homebrew Con in Portland, Ore., on June 28. I highly recommend taking this opportunity to see Charlie speak; I guarantee you won't regret it. See below for more on Homebrew Con.

Thanks for everything, Charlie!

AHA Governing Committee Election

Congratulations to Jen Blair of Charlotte, N.C., Shawna Cormier of Seattle, Wash., and Elmer "Goose" Steingass of Wooster,



Ohio, your newly elected Governing Committee members. Congrats also to Debbie Cerdá of Austin, Texas, and Sandy Cockerham of Indianapolis, Ind., who were re-elected to the Governing Committee. The new Governing Committee will be seated in June and will participate in the annual in-person meeting at the AHA Homebrew Con in Portland.

The members of the AHA Governing Committee determine the future direction for your association and serve as a conduit between their local homebrewing communities and the AHA. I am grateful for the time and dedication that the volunteer members of the Governing Committee put into serving the AHA. You can find pictures and email addresses for all the Governing

Committee members in the Membership section of HomebrewersAssociation.org.

Thank you to all 14 candidates who ran in this year's Governing Committee election, and thanks to all the AHA members who voted!

AHA Staff Update

We have had some recent changes in AHA staff. AHA assistant director Steve Parr, who has been on the AHA staff since 2011, has taken another position within the Brewers Association as BA export development manager. AHA administrative assistant Millie Shamburger was promoted to business projects coordinator and has taken over most of Steve's professional responsibilities at the AHA. We hired Megan Wabst



Millie Shamburger,
AHA business projects coordinator



Megan Wabst,
AHA administrative assistant

to assume the administrative assistant role. Congrats to Steve and Millie, and Megan, welcome to the team!

American Homebrewers Association® **BIG BREW** 2018

Big Brew

Saturday, May 5 is the 21st annual Big Brew, where we honor (Inter)National Homebrew Day (May 7), which was originally proclaimed by Congress thirty years ago in 1988. Where will you be brewing? Always held on the first Saturday in May, Big Brew is an opportunity for homebrewers from around the world to pay tribute to the hobby we all love—and have fun brewing. At 12 p.m. Central Daylight Time, homebrewers everywhere join in a toast to our shared art form and then launch a new batch.

With Charlie Papazian exiting the Brewers Association, we thought it would be fitting to feature a couple of Charlie's favorite recipes for this year's Big Brew: Rocky Raccoon's Honey Lager and Dusty Mud Irish Stout.

More information on Big Brew, as well as a form to register a Big Brew site, is available in the Events section of HomebrewersAssociation.org.

Go Brew Yourself

The AHA's mission of promoting the community of homebrewers includes introducing new homebrewers to the hobby. For many years, the AHA published *Zymurgy: An Introduction to Homebrewing*, an introductory guide that took new homebrewers through the process of brewing a 5-gallon (18.9-liter) extract batch of beer. That method was once how just about every homebrewer got their start.



These days there are many more ways to get into homebrewing, and batches can be virtually any size. So, to get with the times, we have retired *Zymurgy: An Introduction to Homebrewing* and replaced

it with a fun new flier called "Go Brew Yourself," which inspires newbies to brew and directs them to the vast resources we have for beginning brewers on HomebrewersAssociation.org.

As with *Zymurgy: An Introduction to Homebrewing*, "Go Brew Yourself" fliers are available for free to homebrew supply shops and to homebrewers and homebrew clubs participating in events where they are promoting homebrewing (e.g. Big Brew or Learn to Homebrew Day). You can request copies at HomebrewersAssociation.org/gby-request or by visiting the Business Tools section of HomebrewersAssociation.org.

Homebrew Club Insurance

In 2014, the AHA introduced the first nationwide homebrew club insurance plan, which offers clubs across the United States access to affordable general and liquor liability insurance. The AHA partnered with West's Insurance to provide this policy, and because we want to keep this insurance coverage as affordable as possible, the AHA doesn't receive any revenue from this program. We do, however, think it is important, so the AHA will cover the insurance premium of any club that has 75 percent or more of its membership as AHA members.

The next open enrollment period for club insurance is July 1 through September 1, so you still have time to encourage your club members to join the AHA and get your premium reimbursed. To learn more about the insurance and AHA premium reimbursement, go to the Community section of HomebrewersAssociation.org.

Homebrew Con 2018

Am I going to see you in Beervana (also known as Portland, Ore.) at this year's Homebrew Con? I sure hope so, as this is a Homebrew Con not to be missed.

Why "not to be missed?" Well, you love beer, right? And you've heard that Portland is a beer destination unlike any other, right? It's absolutely true, so getting to Portland has got to be on your bucket list, and what better time than when 3,000 fellow homebrewers are in town?

HOME BREW CON 2018

JUNE 28-30



Homebrew Con 2018 takes place June 28–30 at the Oregon Convention Center in Portland. Registration got off to a brisk pace, but there is still space available.

This year's Homebrew Con features 58 different educational sessions, more than 70 exhibitors, lots of homebrew from clubs far and wide, beer from local craft brewers, a keynote address by Charlie Papazian, commemorative beer by Rogue Ales (brewmaster John Maier was the 1988 AHA Homebrewer of the Year), the crowning of this year's National Homebrew Competition final round winners, and more fun than you can imagine packed into three days.

Check out HomebrewCon.org for event details and to register. See you in Portland!

NATIONAL HOMEBREW COMPETITION

National Homebrew Competition

The AHA National Homebrew Competition, with nearly 8,400 entries submitted by 3,611 AHA members, retains the title of world's largest beer competition. First-round judging will be concluding just as this issue starts to hit mailboxes. All the first-, second-, and third-place entrants in each of the 33 categories judged at the 12 regional judge centers will advance to the final round, which takes place on June 28 at the AHA Homebrew Con in Portland.

at club meetings, competitions, and events like the AHA Homebrew Con. Ohio does not currently have a homebrew law, but Ohio Liquor Control has traditionally defaulted to federal law for matters involving homebrew.

The AHA, members of the North Carolina Homebrewers Alliance, and the North Carolina Craft Brewers Guild are working together to help North Carolina's Alcohol Beverage Commission write reasonable regulations to enforce the homebrew law passed last year.

In February, the AHA sent action alerts to AHA members in Wisconsin, South Dakota, and Massachusetts on behalf of those states' brewers guilds, encouraging members to engage on legislation affecting those states' craft breweries. Thanks to all the members in those states who heeded the call and contacted legislators.

Until next time, happy homebrewing!

Gary Glass is director of the American Homebrewers Association.

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By Our Readers

pH Basics

FOR GEEKS ONLY

By Chris Riddle

Measuring Mash pH

Several factors affect the mash temperature that can be observed during a mash? Variables such as malt type, water profile, enzyme, yeast, hopping rate, degree of grain modification, tons present in the mash, water (calculated and measured), and the amount of yeast added and ends of the miller grain are just a few. Many of these factors are interrelated and influence each other.

One of the most important brewing variables is pH, which affects every step of the brewing process. pH affects extract potential, homebrewing equipment durability, boil stability, hop extraction, hop bitterness, and beer flavorability. pH is also important for yeast health and storage because low pH inhibits bacterial growth.

The pH of the wort is so important that it even dictates the range of optimum temperatures a brewer can use to extract the maximum malt extract (see Figure 1). But what is pH and how can brewers measure it and then control it?

Definition of pH

We all know that water's chemical signature is H_2O , or one hydrogen (H^+) for every oxygen atom. Water does only one of the many water molecules have a single chemical negative ($-OH^-$) that "temporarily steals" a proton from another water molecule. This process of water molecules "stealing" protons is called ionization and is typically expressed as $2H_2O \rightleftharpoons H_3O^+ + OH^-$.

Pure water, thus, contains an equilibrium mixture of "regular" water molecules and hydroxide ions (OH^-). The positive and negative superimposition of these two ions are precisely and negatively charged, having forced and had a "positively charged" hydrogen ion (H^+) to leave the water molecule.

The relative acidity or alkalinity of an aqueous (water-based) solution is determined by whether there are more H_3O^+ ions than OH^- ions present. It is more acidic if $pH < 7$ and more basic if $pH > 7$.

Figure 1: pH controls the best temperatures for mashing

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Photo © Getty/dionisvero (cherries)

Dear *Zymurgy*,

The article on mash pH in the May/June 2017 issue of *Zymurgy* left me confused. It lists optimal pH values for various enzymes at room temperature that are high compared to those in Martin Brungard's discussion of water profiles for New England IPA and Mexican lagers in the same issue. Martin suggests a pH of 5.2 to 5.3 for these styles as measured at room temperature. Which numbers are correct?

I stopped targeting 5.2 to 5.4 as measured at room temperature and began targeting 5.55 to 5.75 instead. The beers I did this with had post-boil and fermented pH values on the high end or out of range. Post-boil pH should be 5.0 to 5.3, and fermented pH 4.1 to 4.7. In these cases, there is no debate that pH is measured at room temperature, especially for fermented beer.

I also have discussed with a local pro brewer and he has the same opinion as I

do. Therefore, I am going back to targeting 5.2 to 5.5 for the mash for future brews.

Cheers,
Jim Dunlap
Woodinville, Wash.

Martin Brungard responds: While there are a few instances in which the cited temperature of pH measurement conflict, Jim cites exactly the "litmus test" (pH pun) that illustrates which measurement is more appropriate. Room-temperature pH measurement means the resulting wort and beer pH are a bit lower, and assuming and using room-temperature pH targets and measurements results in better-tasting beer. My experience, and that of thousands of Bru'n Water users, is that the reduced pH results in a sharper and crisper beer that is more appealing.



Cherry Blast from the Past

Dear *Zymurgy*,

I just brewed a clone of New Glarus Belgian Red based on Amahl Turczyn's recipe (Jul/Aug 2007). I know that it was created over 10 years ago, and I was wondering if any changes have been made to it. Specifically, do I need to pitch additional yeast during secondary fermentation? It seems to me that there may not be enough yeast still in suspension after primary to ferment the cherry juice. Thanks for any insights that you can share. Cheers!

Jim Pence
Harrisburg, N.C.

Zymurgy associate editor Amahl Turczyn responds:

There should be enough yeast still in suspension to ferment the cherry juice, but it never hurts to add a bit of dry yeast at that point. Champagne or premier cuvée wine yeast works great, and you don't even have to add the whole packet; a gram or so rehydrated properly in 80° F (27° C) water and then stirred in well with the cherry juice should do the trick. Just make sure you've hit your terminal gravity, as these yeast strains are very alcohol tolerant and designed to finish very dry; too much residual sugar when they are added may lead to over-carbonation.

One update you might try is using tart cherry concentrate instead of the Knudsen juice; you get a much more intense cherry flavor this way without adding too much volume, but obviously you'd use quite a bit less. I used 16 oz. (473 mL) of "Tart is Smart" concentrate to prime 5 gallons (18.9 L) of Belgian quad recently and it was the perfect amount.



A Dog, a Cat, and a Bird Walk into a Brewery

Dear *Zymurgy*,

You are doing a great job! I've especially liked that you post brew dogs (and cats)

in the magazine, so I wanted to share a picture of my brew assistant Sergeant. He's always there when we brew together, and he looks forward to his spent-grain dog treats.

John Castillo
Mad Zymurgists Homebrewing Club
Livermore, Calif.

Dear *Zymurgy*,
I wanted to add to the cat collection. Max is giving me his thoughts on the Irish coffee stout to come!



Veronica Rindge-Silvas
Port Hueneme, Calif.



Dear *Zymurgy*,
Omelette, a Blue-Headed Pionus, is shown here doing a quality control check of Great Western two-row. It's much tastier than chocolate malt! Omelette has not yet developed a taste for hops.

Dr. Chris Kleber
QUAFF
San Diego, Calif.

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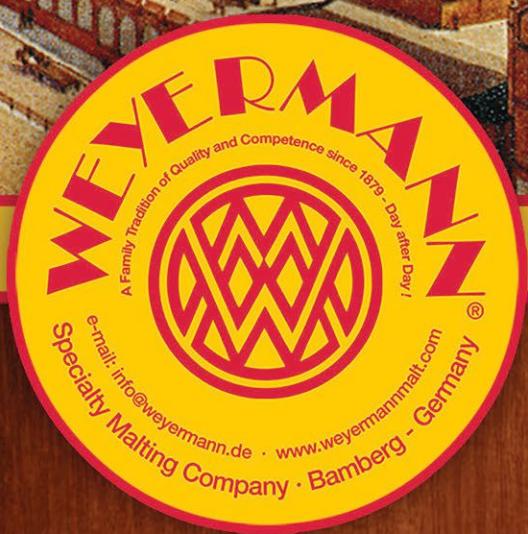
Dear *Zymurgy*,
I am very proud today because after three or four years as an AHA member and *Zymurgy* reader, now I am in the publication and one of my recipes, Psychedelic Weisse, was shared in the magazine (Winners Circle, Jan/Feb 2018). I am so happy today!

Cheers!
Rodrigo Campos Oliveira
Fortaleza, Brazil

Send your Dear *Zymurgy* letters to zymurgy@brewersassociation.org. Letters may be edited for length and/or clarity.

Hey homebrewers! Submit your homebrew label for Dear *Zymurgy* section, at homebrewersassociation.org/magazine/submit-bottle-label.

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By Professor Surfeit



From Professor Surfeit

I began answering homebrewing and beer questions with the second issue of *Zymurgy* in spring of 1979. Since then, I've answered thousands of questions about beer. The world has become a better place as we all improved our homebrewing techniques.

Imagine this: When the Spring 1979 issue of *Zymurgy* was published, homebrewing was still illegal. The beer world took a giant leap forward when legislation was implemented later that year.

Here's one unknown tidbit about the questions and answers that have appeared in my column. In the early 1990s, I provided Charlie Papazian all my notes and answers to questions that had appeared in *Zymurgy* from 1979 to about 1991. Charlie outlined the content of his second book, *The Homebrewers Companion* (now in its second edition), on all of the questions that were asked of me during this period. He figured, why not write a sequel to his *The Complete Joy of Homebrewing* (now in its fourth edition) by answering and expanding knowledge based on all the lingering questions that were being asked in those days? It proved prescient. These were the building blocks of knowledge that helped provide a complete foundation for the advancing homebrewer, even to this day.

The Nov/Dec 2018 issue will be my last appearance in *Zymurgy*. It has been a fun and eventful journey, and it has been a learning experience even for me.

So for now, you might say it's "last call" for questions for me, Professor Surfeit, Hb.D.

Meanwhile, here's a fun look at the first two questions and answers that

ZYMURGY

Journal of the American Homebrewers Association [TM]

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THE AMERICAN HOMEBREWERS ASSOCIATION:
"Homebrewers United—Sharing Ideas and Stories in Various Parts of Canada and the U.S.
Sharing Ideas and Stories with Other Members Around the World

INSIDE

We need your help

Dear Professor Surfeit:
We live in a small cabin in the mountains. When the temperature drops, our carboy sits on a rock pile to keep it warm. We are concerned about too slow fermentation.

Dear Frantic:
First of all relax. You're forgetting your AHA pledge* #4: DON'T WORRY. Remember, too much worrying spoils the taste of homebrew more than anything else ever could. Your brew is happily doing exactly what it wants to do.

Dear George:
Have a beer. Wrap a towel around your brewing pail or carboy on some cinderblocks and place a light bulb underneath. Experiment with temperatures a little warmer and more consistent.

Sincerely,
The Professor

Dear Professor Surfeit:
Help me. Please reply. Urgent. My homebrew has stopped fermenting at a specific gravity of 1.010. I've done everything right. The book says it should go down to 1.000.

Dear Type of Meld:
There are four different types of mashing here are for your advisement. The first is the traditional mashing. Using the grain, water, yeast, and hops, you rack the wort into the secondary, add yeast, and ferment. The second is the decoction mashing. This is a process where you boil a portion of your grain, then add it to the remaining grain. The third is the infusion mashing. This is a process where you add all the grain to the water and let it sit for a few hours. The fourth is the extract mashing. This is a process where you add all the grain to the water and let it sit for a few hours.

Dear Professor Surfeit:
I am a homebrewer and I have a question. I have a 55-gallon stainless steel beer storage tank...." Adrienne Bush denied these allegations, saying, "We are proud of the fact that we are

appeared in the Spring 1979 issue of *Zymurgy*.

Approaching adieus,
The Professor

Dear Professor Surfeit,
We live in a small cabin in the mountains. In the winter, the temperature can fluctuate 30° from day to night. We are concerned that this may hurt our beer. Will it? What can we do? We're also concerned about too slow fermentation.

Not worried,
George McDowell
Fir, Colorado

My Dear George,
Relax. Have a beer. Wrap a towel around the fermenting brew. Suspend your brewing pail or carboy on some cinderblocks and place a light bulb underneath. Experiment and adjust. That should keep temperatures a little warmer and more consistent.

Sincerely, The Professor

Zymurgy Spring 1979

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Frantic mother
Pie, West Virginia

Dear Frantic:
First of all relax. You're forgetting your AHA pledge* #4: DON'T WORRY. Remember, too much worrying spoils the taste of homebrew more than anything else ever could. Your brew is happily doing exactly what it wants to do. Obviously all of the fermentable sugars have been worked over by the yeasts. Why, I've bottled some heavy brews at a final specific gravity of 1.021. And furthermore, for my own personal taste—all of my beers and ales have sufficient body in them that they rarely get near 1.005. So RELAX. Have a beer. Rack your brew and for each



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Love and kisses,
The Professor

*In the first decade of the American Homebrewers Association, the back of every membership card issued reminded members of the AHA's "Ideals." It said:

Dedicated to the ideals that:

1. Homebrewing is easy
2. Homebrew is good for you
3. We can be happier for our efforts
4. We won't worry

Smelly Water Quandary

Dear Professor,

I've run into a question that I haven't been able to answer, so I'm turning to you to add to the list of challenging quandaries you've clarified over the years. I installed a reverse osmosis (RO) system a couple of years ago to improve my water quality. However, to brew 10 to 11 gallons (about 38 to 42 liters), I need to collect about 20 total gallons (40 liters) for mashing and sparging. The RO system is slow, so I start collecting water a day or two beforehand in various kettles so I'm ready when it is time to light the flame.

You know how water that has sat out overnight tastes stale? Well, what happens when you use "stale"-tasting water to brew beer? Research on the internet has given me conflicting possible answers, some of which can't be possible because my water is relatively pure (e.g. it can't be chlorine evaporation). Do you know what is really behind this off flavor? I try to fill vessels as much as I can and keep them covered to reduce interaction with the air, but the water still tastes stale after it has been sitting. Could this be why some of my more hoppy beers have a stale hop taste?

Thanks for helping us all with your column!

Ross Huebel
Houston, Texas

Well, well, well, Ross,
You do have a quandary. Too bad you couldn't just take it to a nearby quandamat and get it quandered and cleaned.

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First, consider whether your RO system needs any maintenance. Maybe there are issues with the system that are causing the water to taste "stale." Look into that.

Does water fresh out of the RO system taste fresh and then later become "stale?" Obviously if it tastes stale fresh out of the system, there's something going on with the RO system.

Water is a great solvent. You say that you cover the water. Do you actually cover it with a tight-fitting lid and hardly any air space, or is it in a large container covered but still exposed to air? If the water is exposed to air, anything that is in the air in the surrounding room could easily migrate into the water. Since the RO water has had so much taken out of it, any minute gases or airborne things that migrate in would affect the flavor.

If your RO system is in a utility room, in a container with a simple loose fitting lid, and it is behind a door leading into the kitchen—you have all kinds of kitchen odors that could cause the issue. The same holds true for any adjacent

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room aromas. Have you ever tasted old ice in your freezer? Yechh. It's amazing to me how quickly clean washed glasses in a closed cupboard or cabinet can take on stale aromas.

This next thought is a stretch, but I'll mention it anyway. Is your RO water storage vessel clean and sanitized? It should be. Does the water splash when entering the RO container? If so, that can accelerate taste changes. If you suspect your storage vessels are causing the issue, replace them with clean 5-gallon plastic water cooler jugs and keep them capped while the water is stored.

RO water in particular doesn't taste great because it theoretically shouldn't have any taste; it's kind of flat tasting (if a two-dimensional descriptor can actually convey taste character!?) because it removes all the minerals and other subtle compounds that give water its good- and bad-tasting qualities. If you suspect the reverse osmosis system, first replace the filters, and if that doesn't work, replace the storage tank.

Now to the big question: Should you use it for brewing? Here's a test. Boil a small amount and then chill it, put it in an immaculately clean glass, and shake it up. Does it taste cleaner than before? If so, you're good to go. If it still tastes "stale," then that will take more pondering. However, I cannot imagine a stale taste surviving a boil, chill, and shake.

Boiling water before and/or during brew day should take care of most water impurities, except for chloramines, heavy metals, pharmaceuticals, etc., which is where your thin-film membrane filtration really shows its worth. Even if the water tastes stale coming out of the RO system—and such systems can become bacterially contaminated inside—the water will still be of better quality than most municipal supplies. Boiling will take care of any bacteria-related off-flavors.

If your water continues to taste stale, then I'd point to the need for RO system maintenance and the need to assess your water containment setup.

Hopefully helpful, *The Professor, Hb.D.*

Have a question for The Professor?
Send it to professor@brewersassociation.org.

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By Amahl Turczyn

Belgian Dark Strong Ale

Some of the world's most delicious and sought-after commercial beers are Belgian dark strong ales (BDSAs). It is, however, a difficult category to classify. The BJCP chooses to list these big browns not in Category 25 Strong Belgian Ale, but in Category 26 Trappist Ale, even though relatively few Trappist monasteries brew the style. Those that do come from the highly regulated and exclusive set of original Cistercian brewing monasteries, which have themselves been around at least as long as Belgium itself.

Thirsty'n Cistercian

In 1830, Belgium gained its independence from the Netherlands. Six years later, most historians agree, the first Trappist monastic orders began brewing beer. The French Revolution had banned Trappist monasteries until the early 1800s, but Westmalle, originally founded in 1802, was the first to reestablish itself in Belgium and resume brewing operations. This started a domino effect of new Trappist breweries opening, as monks from one order assisted others.

Westvleteren followed Westmalle in 1839, with some members of its order founding Chimay shortly afterward in 1850; the first Chimay brewing operations began in 1862. Monks from Westmalle helped Achel fire up its kettles and begin brewing in 1852, and monks from Achel assisted with the foundation of Rochefort in 1887, though brewing did not begin until 1899. The French destroyed the once-proud Orval monastery in 1790, which wasn't rebuilt until 1926; brewing resumed in 1932.

The name Trappist comes from the order of La Trappe, France. This was in fact the original Cistercian congregation, and the strictest; the Abbot of La Trappe introduced new rules of Strict Observance in 1664 that dictated all Cistercian monas-

ters should be self supporting. Brewing beer was one way for Trappists to support themselves and their communities, but it was Chimay that first began selling its beer to the public, establishing a new method for monasteries to remain financially secure. In doing so, it set the stage for Trappist beers to become highly cherished and coveted by beer lovers everywhere; that continues to this day.

French Trappist monks established the Koningshoeven abbey in Berkel-Enschot in the Netherlands in 1881 and founded a brewery at the site of the abbey in 1884. A century later, after two world wars and a licensing agreement with the Artois brewery (now Anheuser-Busch InBev), the



monks resumed brewing operations and introduced the name La Trappe.

La Trappe is one of only two Trappist breweries in the Netherlands. The other, De Kievit, is operated by the Abbey of Maria Toevlucht in the town of Zundert. La Trappe's extensive range of beers is relatively easy to find, but De Kievit's 8% ABV Zundert—an amber tripel and the brewery's only product—is elusive.

Rounding out the eleven breweries currently allowed to display the Authentic Trappist Product logo that the International Trappist Association (ITA) began using in 1929 are Stift Engelszell in Austria, established 2012; St. Joseph's Abbey in Spencer,

Mass., USA, established 2013; and Tre Fontane in Rome, Italy, established 2014.

The Holiest of the Holies

Not all of these breweries produce a strong dark ale, but the ones that do produce Westvleteren 12, Rochefort 10, Chimay Grande Réserve, Achel Extra Bruin, and La Trappe Quadrupel. Engelszell sells bottles of its 9.7% ABV dark strong ale under the name Gregorius.

Spencer, currently the sole American Trappist brewery, only offered its 6.5% ABV pale ale for a long time after it got its brewing operations up to speed. The monastery has since expanded its product line to include Monks' Reserve Ale—a mahogany 10.2% dark strong ale—as well as a spiced, deep red 9% ABV Holiday Ale; an 8.7% Trappist Imperial Stout; a 4.7% Pilsner it calls Trappist Feierabendbier; an orange 7.5% Festive Lager in the German Märzen tradition; and even a 7.2% Trappist IPA that sports Perle, Apollo, and Cascade hops.

The numeric designation seen on Westvleteren, Westmalle, and some abbey beers corresponds to original gravity, not alcohol content. This convention was established by the monks and is still widely used by many secular Belgian and Franco-Belgian brewers. A beer with a specific gravity of 1.030 would be a singel or a 3, usually a pale beer intended for consumption by the monks themselves. A 1.060 ale would be a dubbel, or a 6, and usually a dark beer. The tripel, or 9, has an original gravity of 1.090 and would usually be pale (though both Rochefort and Westvleteren make a dark 8, confusingly called a dubbel).

Finally, 1.100 and 1.120 would be the strongest quadrupel offerings, dark beers named 10 and 12, respectively. That said, the designation quadrupel isn't terribly traditional—La Trappe was the first to use it, and they didn't even coin the term until 1991, which is perhaps why the style is more accurately referred to as Belgian dark strong ale.

The Abbeys

Outside the restrictions of the ITA, Belgian dark strong ale, the strongest Trappist-style beer, was picked up and lovingly recreated by a second tier of breweries inspired by

BLEU RESERVE

Belgian dark strong ale

Batch Volume: 5.5 U.S. gallons (20.8 L)

Original Gravity: 1.077 (18.8° P)

Final Gravity: 1.009 (2.3° P)

Bitterness: 24 IBU

Color: 21 SRM

Alcohol: 9% by volume

Efficiency: 75%

MALTS

12 lb. (5.44 kg) Belgian Pilsner malt

1.75 lb. (794 g) 75° L amber candi sugar

0.5 lb. (227 g) Special B malt

1 lb. (340 g) Caramunich malt

HOPS

0.5 oz. (14 g) Magnum, 14% a.a., FWH @ 90 min (22 IBU)

0.5 oz. (14 g) Hallertauer Hersbrucker, 4% a.a. @ 10 min (2 IBU)

YEAST

White Labs WLP500 Monastery Ale yeast, 2 L stir plate starter

BREWING NOTES

Mash grains at 149° F (65° C) for 75 minutes. Sparge at 168° F (76° C). Add first wort hops as soon as you begin running wort into the kettle. Bring full wort volume to a boil and boil 90 minutes. Chill to 62° F (17° C) and oxygenate. Decant and pitch 62° F (17° C) yeast starter. Fit fermenter with blowoff device, allow at least 5 gal. (18.9 L) of headspace, and/or use Fermcap to control foaming.

Ferment at 62° F (17° C) until you see signs of active fermentation, and then allow temperature to rise to 65° F (18° C) for two days, or until high kräusen. Then allow fermentation temperature to slowly rise to 72° F (22° C) and hold until terminal gravity is reached. Crash to 40° F (4° C), rack to secondary, and store for one month. Verify terminal gravity, rack, prime with 6 oz (170 g) amber candi sugar per 5 gal. (18.9 L), and bottle. Keep bottles at 70° F (21° C) for 2 weeks or until re-fermentation is complete. Store for at least 6 months at cellar temperatures.

EXTRACT VERSION

Substitute 9 lb. (4.08 kg) Pilsner malt extract syrup for Pilsner malt. Steep crushed Caramunich and Special B malts in a grain bag in 160° F (71° C) reverse osmosis (RO) water for 30 minutes. Remove grains, dissolve extract and sugar completely in RO water, and top off to desired boil volume. Proceed as above.

the monks. These are the so-called Abbey breweries, and while they vastly outnumber true Trappist breweries, even they get their own Certified Belgian Abbey logo, along with a qualifying set of restrictions imposed by a trade organization known as The Belgian Brewers. To qualify, the brewery has to have some link to an actual abbey, former or existing; it has to provide financial support for that abbey and/or its designated charities; and the abbey has to maintain control over brewery advertising.

Among others, St. Bernardus (Abt 12), Brouwerij Huyghe (Delirium Nocturnum), Malheur (Dark Brut), and Van Steenberge (Gulden Draak) produce this style. St. Bernardus Abt 12 was once an identical copy of the famed Westvleteren 12—back in the 1940s, Westvleteren's brewmaster brought his recipe and yeast strain to Bernardus as a business partner. It remains one of the best examples of the style and is much more readily available than Westvleteren 12.

Everyone Else

The final tier of quad brewers, and by far the largest, consists of Belgian-style dark strong ales made by secular breweries who pay homage to the style with the sincerest form of flattery—no religious affiliation is (hopefully) claimed or required. This also includes North American craft brewers. Notable examples include Unibroue Trois Pistoles and La Terrible; Alesmith Quad; Lost Abbey Judgment Day; and Ommegang Three Philosophers.

With so many examples to try, one would be hard pressed to find more pleasant research. Alas, these commercial examples come with a hefty price, so crafting your own homage is a logical conclusion. We'll target two of the most authentic examples for this: Westyleteren 12 and Chimay Grande Réserve.

Making Your Own BDSA

There are two schools of thought when it comes to making BDSAs. We all know these beers exhibit glorious complexities of plum, date, fig, caramel, toffee, and dark bread; a malty, rich mouthfeel balanced with warming-but-not-fumy alcohol; loads of off-white, fine-laced foam; and a sugary, toffee-like finish that somehow never finishes too sweet.

One school of thought insists that for all that complexity, the recipes are quite simple and that the yeast adds those nuances, not specialty grains like caramel, Munich, Special B, de-husked black malt, wheat malt, and so on. One base malt, usually Continental Pilsner malt, with 15 to 20 percent amber or dark candi syrup is enough. With careful temperature control, the authentic Belgian yeast strain does the rest.

Considering the simple lifestyle of Trappist monks, there is certainly some merit to this argument. Logic dictates that in any monastery, a monk would make do with as little as he needs and no more. From a historical perspective, there simply wasn't the vast array of specialty malts available when these beers were first brewed.

The other school of thought seeks to design a modern recipe based on today's available ingredients to try to duplicate



Homemade Candi Sugar (At Your Own Risk)

One difference between Belgian-style dark candi and a caramelized invert sugar you'd use for Yorkshire Stingo, imperial stout, or Baltic porter, is the presence of distinctive fruity, plum and raisin flavors. Caramelized invert sugar is easy. Just make a solution of pure cane or beet sugar, say, about 2 pounds of sugar per cup of distilled or reverse osmosis water (3.8 kg/L)—trust me, it will dissolve! Then add an acid in the form of 1/4 teaspoon (1.2 mL) citric acid or cream of tartar, simmer at 240° F (116° C) for 30 minutes (maintaining that temperature with small water additions if necessary), and continue to heat until the "hard crack" stage (300° F or 154° C).

The resulting color is from sugar caramelization. Once all the water is cooked out, you pour the hot sugar into a silicone-lined metal pan, cool, break into pieces, and it's ready to add to the fermenter. You can achieve a really dark caramelized sugar this way, but you are basically doing a controlled burn of the sugar. Those burnt flavors work very well for English strong ales, porters, and stouts, but they won't get you the fruity, estery nuances that typify Belgian dark strong ales.

Monsieur Maillard

Belgian-style dark candi gets most of its color from browning, not burning. The responsible Maillard reactions require the presence of amino acids in the sugar and produce the wonderful date, fig, and plum flavors one expects in a BDSA. The problem is that inverting the sugar requires an acidic environment, while Maillard reactions need a basic environment. So, you'll need to create your invert syrup solution as above, using a minimal amount of acid. It really doesn't take much—1/4 teaspoon for every 2 pounds is even more than you really need. You'll also be adding amino acids to your solution prior to inverting the sugar. Some use diammonium phosphate (DAP), some recommend yeast nutrient, and others rely on dry malt extract. You can also use soy sauce, tamari, or liquid aminos: the small amount of sodium won't affect the end result.

As a beekeeper, I have lots of raw, unfiltered honey around, so I prefer to use that as my amino acid source. Regardless of what you choose, it doesn't take much—I teaspoon per pound (11 mL/kg) for liquid sources should be sufficient, or half that amount for dry. Just realize that the amino acids will cause a lot more foaming as the syrup cooks than it would with just sugar syrup, even at minimal stovetop temperatures. If you value the sanctity of your kitchen range, use a much larger kettle than you think you'll need. Boilovers with this stuff are no fun.

Burn Potential

Once you've reached the end of the inversion stage, you need to shift the syrup from slightly acidic (about 6.8 pH) to slightly basic (about 7.3 pH). It's hard to read the pH of a molten sugar solution, but you can measure a dilution: pull a sample, dilute it with ten times reverse osmosis water by volume (e.g. 10 mL of syrup gets 100 mL of RO water), measure the pH, and subtract 1.0 from the result. That's the pH of your syrup.

Now it's time to add a caustic agent to adjust the pH. Food-grade sodium hydroxide or calcium hydroxide works best. Sodium hydroxide is what gives soft pretzels their deep caramel color and flavor. Brushing a dilute solution onto risen pretzels before baking promotes the same Maillard reactions that you want in your candy kettle.

However, please understand that sodium hydroxide is lye—drain cleaner—and working with it is a huge personal safety risk. If you use lye, gloves and goggles are essential, as is working in a well-ventilated area. Do not inhale the caustic fumes! Calcium hydroxide (pickling lime) is safer, but it may not be quite as readily available, and you need to use more: one teaspoon per pound of sugar (11 mL/kg) for calcium hydroxide, or half a teaspoon per pound (5.5 mL/kg) for sodium hydroxide.

Slowly dissolve either of these in a small amount of distilled water (my lye solution registered a whopping 11.7 pH) and be prepared for the solution to get very hot as the caustic reacts with water. Then dribble about a quarter of the solution carefully into the hot invert sugar.

You should notice a dramatic color change in the sugar solution. Continue cooking, allowing the temperature to rise to 265° F (129° C) for another 30 to 60 minutes. Dribble in the lye solution periodically to maintain a slightly basic pH; multiple additions are needed as the browning reactions gradually acidify the sugar. Once your concoction has reached the desired color, you can pull your syrup off the heat. For very dark candi, let the temperature rise to hard crack (300° F or 148° C). Then pour it into your silicone-lined metal pan, and allow it to cool.

When it's room temperature, break it into pieces with a mallet, weigh it, and bag it. And watch those shards—it seems a bit comical to think you can cut yourself with sugar, but this candi can be glass-like in its sharpness. If all this sounds too dangerous, it probably is. Pick up a pre-packaged syrup at your local brew shop, and not only will you skip the hazards of making your own, but you can pretty much rest assured you will end up with a fantastic quad.

the authentic beers we can purchase from monasteries. Even monks update their equipment to streamline their brewing processes, so it makes sense that they might take a modern approach to their recipes as well. We know Special B malt can add dried-fruit character, wheat malt adds body and foam retention, Munich malt adds malty depth of flavor, and aromatic malt adds breadiness. So why not piece them all together in measured amounts to construct a strong, dark, malty, complex result?

There is some evidence that Westyleteren prefers to take the simple approach, and a few homebrewers, myself included, have gotten fairly close to a beer that has a lot in common with Chimay's famous blue-labeled BDSA, so let's explore both options.

The Candi Question

One thing they have in common is sugar, and while many brewers swear by plain table sugar with specialty malts for color, I tend to agree with those who think many of the dark fruit complexities come from sugar that's been processed into dark candi. Can you make your own? Of course, but it's time consuming and potentially dangerous.

Making your own is much less expensive than buying a dark syrup from the homebrew shop, but it may not taste as good as the real deal from a reputable Belgian company. Authentic dark syrups are available from companies like Candi Syrup Inc. and Dark Candi Inc., and many brewers in Belgium and North America swear that only using one of these or a similar product can achieve the subtle dark and dried fruit flavors of monastery-brewed quads.

Still, while Belgian candi makers jealously guard their proprietary process secrets, homebrewers and brewing scientists have been chipping away and researching the subject. If you do decide to take a crack at making your own dark candi sugar, see the accompanying sidebar to read tips and safety instructions for getting it right.

Hops and Other Fermentables

Most of the grain bill will be base malt. Belgian Pilsner malt is a safe bet:

WESTBOUND QUAD

Belgian dark strong ale

Batch Volume: 5.5 U.S. gallons (20.8 L)

Original Gravity: 1.091 (21.8° P)

Final Gravity: 1.009 (2.3° P)

Bitterness: 30 IBU

Color: 29 SRM

Alcohol: 11% by volume

Efficiency: 75%

MALTS

15 lb. (6.80 kg) Belgian Pilsner malt

2.5 lb. (1.13 kg) 180° L dark candi sugar

HOPS

1 oz. (28 g) Brewer's Gold, 8% a.a., FWH @ 90 min (23 IBU)

1.5 oz. (42 g) Styrian Goldings, 5.4% a.a. @ 10 min (7 IBU)

YEAST

White Labs WLP530 Abbey Ale yeast, 3 L stir plate starter

BREWING NOTES

Mash grains at 149° F (65° C) for 75 minutes. Sparge at 168° F (76° C). Add first wort hops as soon as you begin running into the kettle. Bring full wort volume to a boil and boil 90 minutes. Chill to 67° F (19° C) and oxygenate. Decant and pitch 67° F (19° C) yeast starter. Fit fermenter with blowoff device, allow at least 5 gal. (18.9 L) of headspace, and/or use Fermcap to control foaming.

Ferment at 67° F (19° C) until you see signs of active fermentation. Allow temperature to rise to 72° F (22° C) and hold until terminal gravity is reached. Crash to 50° F (10° C), rack to secondary, and store for one month. Verify terminal gravity, rack, prime with 6 oz. (170 g) amber candi per 5 gal. (18.9 L), and bottle. Keep bottles at 70° F (21° C) for 2 weeks or until re-fermentation is complete. Store for at least 6 months at cellar temperatures.

EXTRACT VERSION

Substitute 11.5 lb. (5.22 kg) Pilsner malt extract syrup for Pilsner malt. Dissolve extract and sugar completely in reverse osmosis water to desired boil volume. Proceed as above.

Dingemans or Chateau work beautifully. For the Chimay quad, small additions of crystal malt can add complexity and body, but since these aren't very hoppy beers, it's important to have a dry finish. The sugary flavors will come through from both candi and malt, with little more than alcohol and carbonic acid for balance, so thorough attenuation is necessary.

Hops should be present but subtle; a meager late addition of a noble German variety will add complexity, but these are beers to cellar and age for years, so hop flavor and aroma are really very minor style components.

Water should be reverse osmosis or distilled with a bit of calcium chloride: 1 gram per gallon (0.25 g/L).

Even if you do decide to try your own candi syrup, perhaps the biggest challenge with this style is resisting the urge to sample it before it reaches maturity. Maintain monastic self control and have the patience and discipline to give it at least six months of aging once it's primed and packaged. You'll be glad you did.

Amahl Turczyn is associate editor of Zymurgy.



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**FH STEINBART:
100 YEARS OF
HOMEBREWED
INDEPENDENCE**



EST 1918

F.H. STEINBART
Company

By Ray Berardinelli

On a cloudy morning in Southeast Portland, Ore., John DeBenedetti walks to work, as he has for decades, to open the United States' oldest brewing supply store, FH Steinbart Co. John stops to pick up an apple, freshly fallen from a neighborhood tree, to enjoy for breakfast.

As the owner of FH Steinbart, John reflects on the company's celebration of its 100th continuous year in operation. As it has since 1918, FH Steinbart remains an independent purveyor of ingredients, equipment, and knowledge to beverage creators and providers. Its comprehensive mix of inventory and expertise taps into an amazing Oregon legacy of brewing and winemaking knowledge. As part of this creative community for 100 years, FH Steinbart has grown up with, and has helped nurture the vibrant Pacific Northwest craft-brewing scene.

Franz Steinbart

The company's founder and namesake, Franz Steinbart, lived many places and worked at several jobs before moving his family to Portland in 1915. Born in 1854 in West Prussia, Franz immigrated to New York at age 25. From there, he moved to Iowa, where he worked on a farm and learned English. He spent several years in various types of employment, and in 1889, he married his wife Henrietta in Cleveland, where they started their family.

After relocating to Milwaukee to manage the affluent Deutsche Club there, Franz

went to work for the Koss Company, a manufacturer of brewing equipment, and traveled throughout the western part of the United States selling equipment and dealing with brewers. In 1912, he moved the family once more, this time to manage a hotel in Barons, Alberta, Canada. Three years later, the Steinbart family relocated to Portland, where Franz founded FH Steinbart Co. in 1918.

Prohibition began in the United States shortly after the store opened. To survive, FH Steinbart sold equipment and ingredients to large commercial breweries that continued to produce "near beer" and

soda pop. The company also sold to wineries that supplied sacramental wines for use in various religious ceremonies.

**EARLY BREWERS
HONED THEIR
CRAFT WITH
EVERY BATCH.
THERE WEREN'T
MANY RECIPES,
SO THEY MADE
THEM UP AS
THEY WENT.**

Enter the DeBenedetti Family

Franz Steinbart hired Joseph DeBenedetti, father of current owner John DeBenedetti, in 1926. Joseph repaired and installed brewing equipment for the company. In 1934, when Franz Steinbart died, Joseph and another employee—Joseph's cousin Angelo Curletto—bought the business from the Steinbart family. Joseph bought the company outright when his partner Angelo died in 1957.

Current owner John DeBenedetti went to work for his dad in 1975. In 2005, John sold the Steinbart wholesale business to the company that is today known as Brewcraft, headquartered in Vancouver, Wash. FH Steinbart Co. continues to thrive at its retail location in deep Southeast Portland, which becomes more trendy by the day as more as more people flock to the city for its laid-back lifestyle and rich cultural amenities.

Leveraging Homebrew Legalization

In 1978, President Jimmy Carter signed HR 1337 into law, which legalized homebrewing at the federal level. Prior to that, homebrewing was technically not permitted unless one paid excise taxes, a holdover from the Prohibition days of the







TWO FLAMINGOES STRAWBERRY MILKSHAKE IPA

American IPA

Batch Volume: 5.5 U.S. gallons (20.8 L)
Original Gravity: 1.070 (16.9° P)
Final Gravity: 1.015 (3.8° P)
Bitterness: 30 IBU
Color: 4 SRM
Alcohol: 6.5% by volume
Boil Time: 60 minutes

MALTS

7.5 lb. (3.40 kg) Pilsner malt extract syrup
 1.25 lb. (577 g) dry wheat malt extract
 8 oz. (227 g) flaked oats (steep)
 8 oz. (227 g) pale 2-row malt (steep)
 8 oz. (227 g) Mecca Grade Shaniko white wheat (steep)

HOPS

1 oz. (28 g) Willamette pellets @ 60 min
 1 oz. (28 g) Calypso pellets @ 0 min (10-20 min steep)
 1 oz. (28 g) Citra Cryo Hops @ 0 min (10-20 min steep)
 1 oz. (28 g) Azacca pellets @ 0 min (10-20 min steep)
 1 oz. (28 g) Calypso pellets, dry hop 7 days
 1 oz. (28 g) Azacca pellets, dry hop 7 days
 1 oz. (28 g) Citra Cryo Hops, dry hop 7 days

YEAST

Imperial Yeast A04 Barbarian

OTHER INGREDIENTS

8 oz. (227 g) lactose
 8 oz. (227 g) freeze-dried strawberries
 1 vanilla bean
 4 oz. (113 g) dextrose to prime

BREWING NOTES

Steep crushed grains in steeping bag for 30 minutes in 150° F (66° C) reverse osmosis (RO) water. Remove grains and discard. Add malt extracts and lactose and stir to dissolve. Top up with RO water to desired boil volume. Add hops at stated intervals and conduct a 10-20 minute hop stand immediately after knockout. After boil and hop stand, chill to 65° F (18° C), aerate, and pitch yeast. After fermentation begins to slow, add fruit and vanilla bean. When fermentation is complete, rack onto dry hops and hold no more than 7 days at 70° F (21° C). Bottle with priming sugar or keg and force carbonate.

ALL-GRAIN VERSION

Omit extracts. Increase pale malt to 9 lb. (4.08 kg); we suggest Mecca Grade Pelton malt. Increase wheat malt to 3.5 lb. (1.59 kg); we suggest Mecca Grade Shaniko wheat. Mash at 150° F (66° C) for one hour.

1920s and 1930s. A couple of years later, in 1980, Cartwright Brewing Company opened in Portland, marking the beginning of the local craft beer industry.

Soon after Cartwright opened its doors, the founders of Portland's modern craft beer movement set up shop around town. Rob and Kurt Widmer opened what was then a small brewery, as did Art Larrance and Fred Bowman (Portland Brewing), Mike and Brian McMenamin (McMenamins), and Dick Ponzi and Karl Ockert (BridgePort Brewing). These early brewers were able to get Oregon laws changed, which allowed microbreweries to brew and sell at the same location.

Portland at that time was starting to grow again after losing many timber jobs. Most of the new residents were young, adventurous, and enthusiastic about local products. Early artisan brewers honed their craft with every batch they brewed. They would read about a beer style in a book and then try to recreate it. There weren't many recipes, so they made them up as they went. Some were hits; some were not. This small community of brewers shared information with each other, and FH Steinbart played a large role. If a brewer had an equipment failure, it wasn't uncommon for someone from another brewery to come by and help out. This still happens today in Portland.

Draught Installation Expertise Shines

The draught department at FH Steinbart has installed beer-dispensing systems at some of the largest sports and entertainment facilities in the Pacific Northwest. For example, at Autzen Stadium on the University of Oregon campus in Eugene, Steinbart installed a Perlick Century Beer System. It is a 395-foot (120-meter), 24-product, glycol-cooled copper system on what is called the Club Floor of the stadium. With that much line from keg to faucet, about 2.5 half-barrel kegs of beer are en route to four product towers at each location at any given time when operating at full capacity.

FH Steinbart has also installed draught systems at some of the Portland area's most iconic breweries, including installations at three Deschutes locations, all three Hopworks

OREGON SUPER DANK

Oregon Native Ingredient American Pale Ale

Batch Volume:	5.5 U.S. gallons (20.8 L)
Original Gravity:	1.048 (11.9° P)
Final Gravity:	1.010 (2.6° P)
Bitterness:	55 IBU
Alcohol:	4.9% by volume
Boil Time:	60 minutes

YEAST

Imperial Yeast A18 Joystick

OTHER INGREDIENTS

1 Whirlfloc tablet @15 min (optional)
4 oz. (113 g) dextrose to prime

BREWING NOTES

Steep crushed grains in steeping bag for 30 min in 150° F (66° C) reverse osmosis (RO) water. Remove grains and discard. Add malt extract and stir to dissolve. Top up with RO water to desired boil volume. Add hops at stated intervals and conduct a 10–20 minute hop stand immediately after knockout. After boil and hop stand, chill to 65–70° F (18–21° C), aerate, and pitch yeast. When fermentation is complete, bottle with priming sugar or keg and force carbonate.

MALTS

7 lb.	(3.18 kg) extra-light malt extract syrup
1 lb.	454 g) Mecca Grade Opal 44 malt

HOPS

1 oz.	(28 g) Nugget pellets @ 60 min
1 oz.	(28 g) Centennial pellets @ 15 min
1 oz.	(28 g) Amarillo pellets @ 1 min
1 oz.	(28 g) Centennial pellets @ 1 min
1 oz.	(28 g) Comet pellets @ 1 min

ALL-GRAIN VERSION

Omit extracts. Mash Opal 44 malt with 4 lb. (1.81 kg) Mecca Grade Pelton malt and 4 lb. (1.81 kg) Mecca Grade Lamonta malt at 152° F (67° C) for one hour.

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Urban Brewing locations, Cascade Brewing, Block 15, Wayfinder, and the Full Sail and Double Mountain breweries in Hood River. In the early days, Steinbart worked with Henry Weinhard/Blitz, Lucky Lager, Olympia, and Rainier Breweries. The company has also installed systems at many other outstanding breweries. Being in business for a century means FHS has had the good fortune to cross paths with quite a few great brewing industry people.

In 2009, FH Steinbart draught guru and department manager Mike Moscarelli was

asked by Christian Ettinger, owner of Hopworks, to join his team of Jamie Nichols and Phillip Ross of Metrofiets and other skilled craftsman to build a rideable beer bike. FH Steinbart has plumbed several other rolling beer systems over the years, including Deschutes' giant keg on wheels Woody, Anheuser-Busch's Marathon motor coach, and one of the Rogue Brewery Tour buses.

Supporting Oregon's Homebrew Community

In 1980, FHS owner John DeBenedetti

helped establish the Oregon Brew Crew, which remains Oregon's largest active homebrew club to this day (see Last Drop on page 96 for more on the Oregon Brew Crew). As it has since its founding, the Brew Crew meets monthly at no charge in the FH Steinbart warehouse. Local homebrewers know FH Steinbart as a drop-off entry location for homebrew competitions in the area, and for years, Steinbart has donated equipment and ingredients to be given away as prizes at local homebrew and winemaking events.

The do-it-yourself ethos has always been a big part of homebrewing, and it's an especially strong part of Portland's culture overall. Steinbart staffers say the interaction they have with customers is the most enjoyable part of what they do. When customers read an article about a new ingredient or piece of equipment in magazines such as *Zymurgy*, customer buzz lets staffers know if it is something they should consider carrying in the store. For example, 1-gallon beer kits, first popular among new brewers with limited space, are increasingly sought by experienced brewers who use them for test batches.

Portland's homebrew scene is unique for many reasons, but a few standout aspects make being part of this community especially enjoyable.

- **Proximity to producers:** The average local homebrewer can visit and tour the farms and facilities that produce their favorite malts, hops, and yeast. Homebrewers can brew with hops picked that same morning.
- **Density:** With so many craft breweries in the region, regular interaction between the local pros and homebrewers helps spread new ideas. The line between pro and amateur is blurred—homebrewers learn from their pro friends, and vice versa.
- **Gender diversity:** The fourth annual SheBrew event, held in Portland earlier this year, brought together a community of female homebrewers and commercial brewers to celebrate a common love of the craft of beermaking. Female beer aficionados in the Pacific Northwest celebrate diversity and spur new ideas and innovation in brewing.

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- Multiple beverage industries:** Famous for its wine grape and apple growing, the Pacific Northwest creates crossovers between hard cider, wine, spirits, and beer. Homebrewers are likely to dabble in wine and cider making, and they employ these ingredients and techniques in their beer brewing.

100th Anniversary Celebration

To celebrate its 100th anniversary, FH Steinbart has a variety of promotions scheduled throughout the year, including in-store and online giveaways and introduction of a new line of new homebrew beer kits that Steinbart staffers are developing in partnership with breweries in the region.

All of us in the Portland area are thrilled to host AHA Homebrew Con this June. For Steinbart, it's especially timely that the conference takes place during the store's 100th anniversary. Staffers are talking to the AHA about hosting a hands-on clinic on how to brew with locally sourced ingredients, and everyone looks forward to visiting with AHA attendees in the store and at the conference.

Homebrew Con's return to Portland in 2018 is both an opportunity and a responsibility. It's a great chance to make connections with the most devout and the most innovative homebrewers in the world of craft beer. Shops like FHS learn so much from these connections about where the community is headed in the future.

But, our Portland homebrew community also has a responsibility to go above and beyond doing our part to host the world of brewing in our little corner of the craft beer world. And this little corner is undeniably a mecca of sorts in that world, and we all want to represent it well.

Looking Ahead

Steinbart has built relationships with countless great customers over the years, many of whom have gone on to become successful commercial brewers. And FHS is honored to have welcomed brewing royalty to the store, including Charlie Papazian, Michael Jackson, and local guru Fred Eckhart, who taught everyone to "listen to their beer."

During its first century in business, FH Steinbart has had to continually evolve to meet the needs of homebrewers. As shopping habits change, Steinbart staff will continue to offer their homebrewing knowledge and advice in new and interesting ways.

FH Steinbart looks forward to getting to know the next generation of food and drink creators and enthusiasts who share a passion for making delicious beverages and foods at home. And all of

us in Portland look forward to getting to know you at Homebrew Con in June. Welcome, homebrewers!

Ray Berardinelli has been a Steinbart customer since 1995, when he and his friends started homebrewing as Bad Dads Brewing. Ray also makes ciders and meads and enjoys experimenting with his recipe for Rocket Fuel fig wine, which he makes from the fruit of the gnarly Desert King fig tree in his backyard.

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GRISETTE

A LOST BEER OF WALLONIAN INDUSTRY

By Dave Janssen

Grisette is one of many historic beers receiving renewed attention from craft and home-brewers. However, judging by the range of products invoking the name, it can be hard to pin down what exactly “grisette” represents. So what is a grisette?

Grisette is often described as a session or table-strength wheat saison. Grisette does share some common ground with saison in origins, and the profiles of these beers have come closer together in modern times. However, while similarities exist (at least in modern iterations of both beers), describing grisette as kind of saison is a poor way to define it. And, framing grisette in this way can be simply inaccurate.

Grisette is better thought of not as a distinct style but as a family of beers with a few attributes in common: they are made from a grist of malted barley and wheat, they have a notable hop bitterness and flavor, and they all finish crisp and refreshing. The grisette family can vary in strength depending on category and brewing season¹, but its fundamental nature remains the same. To take a deeper look at grisette, let’s start with its origin and history.



A GLASS OF STANDARD/ORDINARY GRISETTE



CHITTED WHEAT. NOTE THE ROOTLETS AND SHOOTS JUST POKING OUT OF THE ENDS OF THE GRAINS.



HISTORY

The lore of grisette, much like that of saison, invokes working-class ties. For grisette this speaks to workers from the mining areas of Belgium's Hainaut province. This region was a leader of continental Europe's Industrial Revolution and was home to such activities such as coal mining, cement production, and metal-working. Grisette finds its roots in this same time period, its origin dating at the latest to the beginning of the 19th century.

Stories surrounding the name "grisette" tie it to either a local type of stone or the gray dresses worn by serving women of the time.² Whether or not these tales have any truth to them, it is clear from Belgian brewing literature that they are not necessary. The name "grisette" could simply have derived from terminology used for the beer's color. Gray was used as a descriptor of beer color falling between white and amber, and descriptions of gray beers other than grisette can be found.^{3,4}

Multiple texts from the first half of the 1800s note a paucity of grisette brewers

and the tightness with which they guarded their production methods. However, while the style may have started as a worker's beer in industrial towns, some breweries in the early 1800s became known for their grisettes outside of their local client base. By the late 1800s, grisette could be found, and even brewed, outside of the Hainaut province in cities such as Brussels.^{6,7} Additionally, more expensive versions were advertised at this time, showing that at least some grisettes expanded beyond their working-class origins.

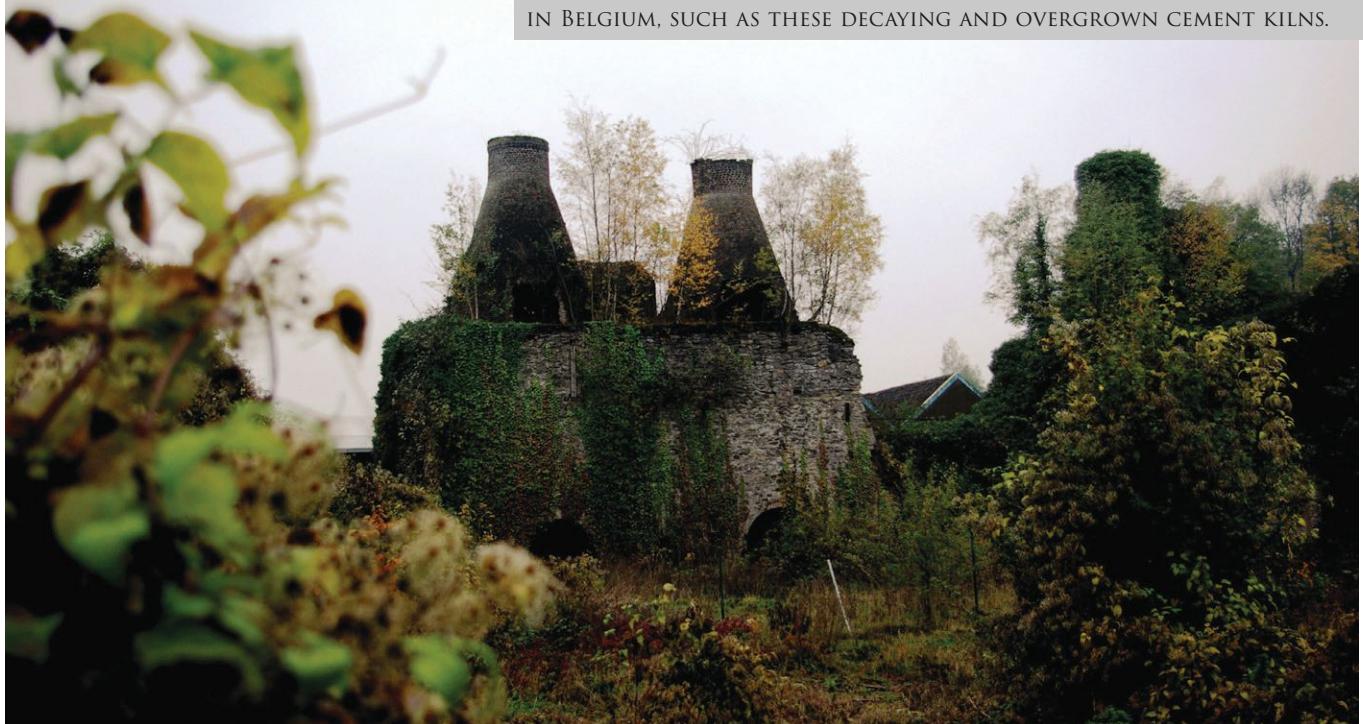
Due to increased competition from imported beer (especially lagers), the consolidation of breweries, and the heavy toll of two world wars, traditional Belgian beers in general saw significant decline in the early to mid-1900s. Hainaut industry also went into a heavy decline at this time. Whether through causation or simply as a correlation, both Hainaut industry and the beer tied to it effectively disappeared in the mid-1900s. The remnants of this industry are still visible as mines—some abandoned, some still functioning—and spoil piles dotting

the Hainaut countryside. Unfortunately, the same cannot be said for grisette or the historic breweries that made it.

CATEGORIES OF GRISETTE

I noted above that grisette is better thought of as a family of beers than one style. Before jumping into recipes and brewing process, I think this deserves more explanation. There are at least three distinct beers within the grisette family: young or ordinary grisette, grisette de saison, and double or supérieure grisette. Historically, the grist composition was kept constant for the three types of grisette, with the total amount of grain and the collection of runnings altered to produce the different categories.¹

Ordinary grisettes were brewed year-round, though in warmer months they were made slightly stronger and with higher hopping rates. These ordinary grisettes are what we typically think of when considering the style. They would have been roughly 4 to 5% ABV and were designed for quick consumption. Grisette de saison was brewed "in the season," or in cool months only, and



RELICS OF PAST INDUSTRY CAN STILL BE FOUND ALONG THE SCHELDT RIVER IN BELGIUM, SUCH AS THESE DECAYING AND OVERGROWN CEMENT KILNS.

had a bit more aging time. These beers were stronger than ordinary grisettes (roughly 5 to 6% ABV) and had higher hopping rates. Stronger still was the double grisette. This was brewed only with the earlier, high-gravity runnings from the mash, with later, weaker wort reserved for table beer.¹ Double grisettes were hopped at higher rates and with higher quality hops, and were likely around 6% ABV or a bit higher.

BREWING GRISETTE

While considered wheat beers, grisettes were mostly barley malt and only around 10 to 15 percent wheat. Spring barley¹, which would have been six-row for Belgium at the time, is mentioned. This contrasts with the sharper, more nitrogen-rich winter six-row (*escourgeon*) used for beers like saison. Kilning temperatures for grisette malt were very low, yielding light-colored malt. Something like Pilsner malt is a good choice for modern brewing. The malted wheat used in grisette gets special attention in Pelset's text on the beer, as it was no ordinary wheat malt.

Instead of the complete germination found with standard malts, germination was stopped very early in the process, just after the chits (the beginnings of the rootlets) emerged from the grain.¹ Malts

kilned at this point are called chitted malts and are undermodified due to the short germination phase. Chitted wheat is not easy to source, so a blend of malted and flaked wheat can be used to approximate the modification and profile of the chitted wheat. The only large commercial supplier I know that offers chitted wheat, and it is only offered as flakes, is Castle Malting, but I have no experience with their product. You may want to try talking with local maltsters if you are interested in sourcing chitted wheat.

The hopping rates of historic grisettes varied depending on the strength, brewing season, and origin of the hops. As a general practice, higher quality (imported) hops were preferred in the stronger (and therefore more special) grisettes, while hops sourced regionally or nationally were used in the more standard grisettes. Ordinary grisettes brewed in warmer months would be hopped at higher rates to better preserve the beer.¹ Traditional Belgian landrace hops have all but disappeared, but other European landrace hops such as Saaz, Strisselspalt, or German varieties work well for all modern-day grisettes. Varietals grown in continental Europe but originating from England such as Styrian Golding would also be fitting,

given the shift in Belgian hop production in the 1900s from traditional Belgian varieties toward English-origin hops.

Historic texts on grisette make mention of the water of the Scheldt river as important to the style.⁵ Unfortunately, this waterway is now polluted and the characteristics of the modern Scheldt are of little use to brewers. The water profile presented in Phil Markowski's *Farmhouse Ales: Culture and Craftsmanship in the Belgian Tradition*, gives some insight into water from Wallonia. These data show high bicarbonate and cation levels as well as an elevated sulfate-to-chloride ratio. You can taste this minerality in Hainaut water, and the high bicarbonate is in line with the cement production of the western end of Hainaut's industrial region. The general water characteristics I use are in the recipes provided. I use these adjustments because of the very low mineral levels in my municipal water, however, so I encourage you to try different profiles and determine the mineral content that works best for you. There are multiple ways to arrive at the best profile for a pale beer like grisette—it is a bit softer than historic saison, with a noticeable hop aroma and bitterness.

There is little to go by for the exact nature of grisette yeast, but a couple things are

ORDINARY GRISETTE

Batch Volume: 5.25 U.S. gallons (20 L)
Original Gravity: 1.038 (9.5° P)

Final Gravity: 1.002–1.007 (0.5–1.8° P),
depending on yeast
choice

Bitterness: 40 IBU (Tinseth)

Color: 13 SRM

Alcohol: 4.0–4.7% by volume,
depending on FG

Total Efficiency: 80%

MALTS

5.5 lb. (2.5 kg) Pilsner malt
1.1 lb. (0.5 kg) chitted wheat

HOPS

1.75 oz. (50 g) Czech Saaz, 4% a.a.
@ 70 min

1.4 oz. (40 g) Czech Saaz, 4% a.a.
@ 15 min

YEAST

Saison or Belgian Ale yeast

WATER

130 ppm Ca^{2+} , 175 ppm SO_4^{2-} , 90 ppm Cl^- ,
10–20 ppm HCO_3^- , <5 ppm Mg^{2+}

BREWING NOTES

Mash:

- 10 minute rest at 42° C (108° F),
1.5 L/kg (0.7 qt./lb.).
- 15 minute rest at 52° C (126° F),
2.4 L/kg (1.15 qt./lb.).
- 50 minute rest at 65° C (149° F),
3.5 L/kg (1.7 qt./lb.).
- 30 minute rest at 72° C (162° F),
4.6 L/kg (2.2 qt./lb.)
- Sparge with 75–80° C
(167–176° F) water

Boil: 90 minutes. Hop with 50 g (1.75 oz.) at
70 min (2.5 g/L, 0.33 oz./gal.) and 40 g (1.4
oz.) at 15 min (2 g/L, 0.27 oz./gal.).

Fermentation: The exact fermentation schedule you chose will depend on the yeast you are using. I use the following for a highly flocculent and moderately attenuative yeast from a saison brewer that works well at cooler temperatures. Pitch at 19–20° C (66–68° F) and raise to around 23° C (73–74° F) over 3 days. Hold for an additional 2–3 days and then let fall to about 15° C (59° F). This will obviously need to be adjusted if final gravity is not reached by around 6 days.

Packaging: Bottle or keg 9–10 days from the start of fermentation (or longer if needed for clarity and complete fermentation). A slight haze is OK and likely would be fitting for the beer. I shoot for around 2.8–3.1 volumes (5.6–6.2 g/L) of CO_2 , depending on when I am packaging and the yeast I am using.

Optional: Dry hop with ≤1 g/L (≤0.13 oz./gal.) Styrian Goldings for 4–5 days, starting at the end of fermentation when the beer would be cooled down.

EXTRACT VERSION

Replace the malts with 3.3 lb. (1.5 kg) extra light DME and 1.21 lb. (0.55 kg) wheat DME and shorten the boil to 75 minutes.

clear. First, grisette was a top-fermenting beer at the height of its popularity, and it is described as such in the historic literature of the time.² Second, in Belgian breweries in the 1800s and early 1900s, “top fermentation” generally meant mixed-culture fermentation.^{3,9} So the “yeast” pitched into grisettes would likely have been a mix of multiple microbes, possibly (but not necessarily) including *Brettanomyces* and lactic acid bacteria.

Although grisette yeast may have contained Brett and/or bacteria, their presence wouldn’t have necessarily influenced the flavor of the beer. To do so, two things would have been necessary: a low enough hopping rate that bacteria were not inhibited, and sufficient time for those bacteria to impact the beer’s flavor. With a turn-

around time of mere weeks, the latter condition would not have been met for standard/ordinary grisette. For stronger grisettes, the hopping rate would have been sufficient to inhibit lactic acid bacteria, at least for a couple of weeks. Therefore, it is unlikely that most grisettes, certainly the ordinary grisettes, displayed much mixed-fermentation character.

For the modern brewer, I prefer going with what you would use for a saison. A mixed culture could be used for a historical approach to higher-strength grisettes de saison or double grisettes, which would have seen some aging and may have had more time to develop *Brettanomyces* character (and possibly light acidity). But, if you wish to modernize grisette the way other beers of the area

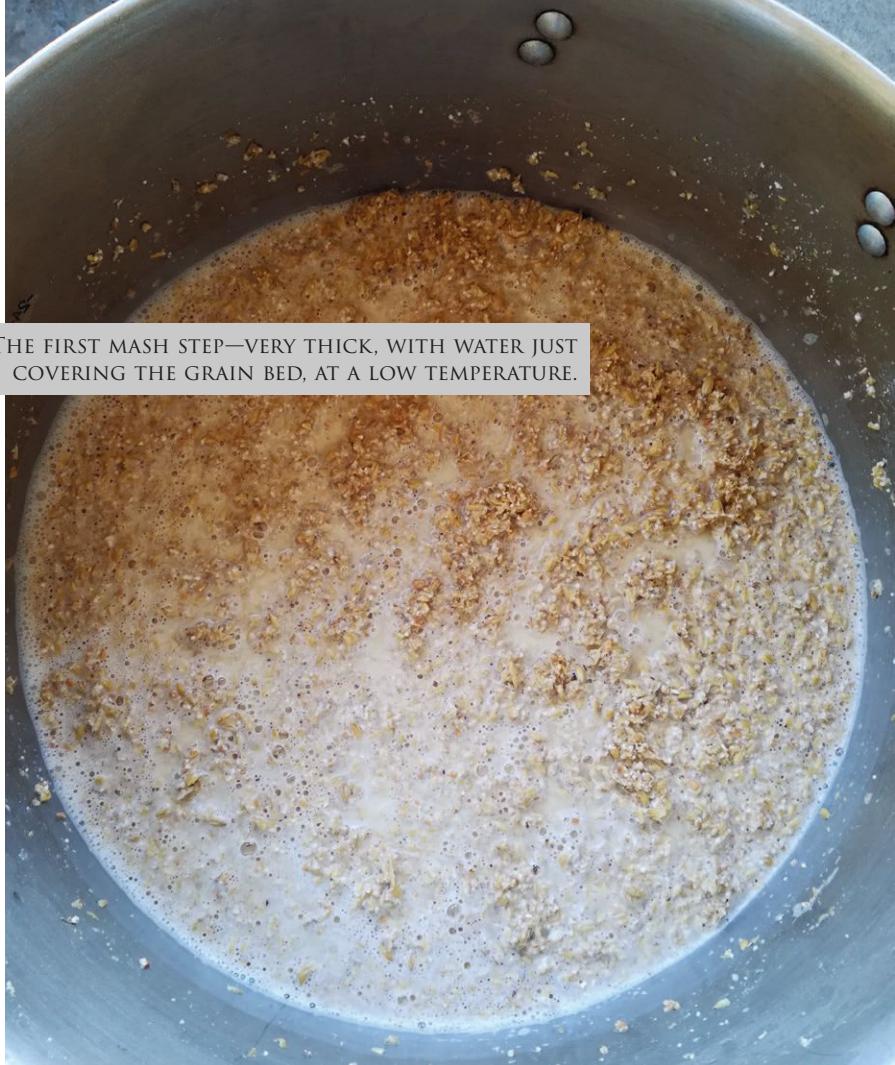
and time have been, all would now also be pure culture beers. Finally, if you wish to go for a grisette with a slightly more restrained fermentation character, I think there could be an argument made for using something like a Belgian ale yeast. But the beer should not come out sweet.

I’ve seen no mention of spicing or fruit in the historic records. I think most of the time a grisette base brewed with such ingredients could probably be described by other style names with at least as much accuracy (if not more), especially if these characteristics are prominent.

PROCESS

Historic Belgian mashing often involved multiple rests with thick, cool starts, and turbid mashing was employed for a wide range of beers.^{1,3,9} This would have been the same for grisette.¹ The specific profile shown in the accompanying recipes is not a turbid mash but uses a multi-rest mash with a cool and thick start. For the modern brewer using highly modified malts, a simpler mash may be sufficient (though, from my experience, this influences efficiency and the flavor of the wort). A starting place for a simplified mash would be the second two steps in the mash schedule provided here. If you choose to follow the low and thick start, note that this may be difficult on certain homebrew setups due to the relatively high amount of dead space below false bottoms. You can add extra water to account for this as needed (though this will influence the temperatures and/or volumes needed for the remaining infusions), or begin your mash in another vessel without a false bottom and transfer over as steps become thinner.

A prolonged boil was thought to be beneficial for many historic Belgian beers, especially those destined for aging. But the boil for historic grisette, which was likely around 2 hours, was still shorter than that of other styles of the time. Hops were added near the start of the boil and, matching descriptions of the hop aroma of historic versions, some of the higher-quality hops were reserved for later in the boil. This was especially the case for the higher-class grisettes. I like to split my hop dose roughly in half, adding the



THE FIRST MASH STEP—VERY THICK, WITH WATER JUST COVERING THE GRAIN BED, AT A LOW TEMPERATURE.



first half near the start and the second half with about 15 minutes left. Hopping rates for grisette were roughly 25 to 75 percent of those used for saison around 1900, depending on the category and brewing season of the grisette.^{1,3,12}

I like to ferment grisettes a bit cooler than I would for saison, but otherwise follow a similar approach for the primary. For ordinary grisette, the fermentation should be quick, and the beer should be packaged without aging. For stronger versions, the primary should still progress quickly but the beer could then be aged at cellar temperatures. A light dry hopping with continental European or English hops toward the end of fermentation (for ordinary grisettes) or shortly before packing (for grisettes de saison and double grisettes) is fine but not necessary.

CONCLUSIONS

The description above and the recipes here outline a refreshing, crisp wheat beer. Many of the considerations for producing

grisette—the use of malted wheat and spring six-row instead of 100 percent winter six-row (*escourgeon*) plus unmalted grains, lower hopping rates, and less bitterness than saison, a noticeable fine hop taste and aroma, and the shorter boil—lead to beers better suited for fresh consumption rather than aging. This exactly contrasts the sort of decisions made in producing historic saison. There are some exceptions for the higher-class grisettes (which had higher gravity and higher hopping rates), but even then many of these base considerations hold true.

Consequently, it is not a gravity difference that sets historic saison and grisette apart, but rather a whole line of decisions throughout the process that make grisette better suited as a quick turnaround beer. Perhaps things become murkier in the modern world, with saison moving in a grisette-like direction in terms of aging before consumption. But given the potential gravity ranges within grisette and saison individually, recipe and pro-

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GRISSETTE DE SAISON

Batch Volume: 5.25 U.S. gallons (20 L)
Original Gravity: 1.047 (11.8° P)
Final Gravity: 1.002–1.007 (0.5–1.8° P), depending on yeast choice
Bitterness: 50 IBU (Tinseth)
Color: 13 SRM
Alcohol: 5.2–5.9% by volume, depending on FG
Total Efficiency: 80%

MALTS

7.06 lb. (3.2 kg) Pilsner malt
1.21 lb. (0.55 kg) chitted wheat

HOPS

2.5 oz. (70 g) Czech Saaz, 4% a.a.
@ 90 min
1.6 oz. (45 g) Czech Saaz, 4% a.a.
@ 15 min

YEAST

Saison or Belgian Ale yeast

WATER

130 ppm Ca^{2+} , 175 ppm SO_4^{2-} , 90 ppm Cl^- ,
10–20 ppm HCO_3^- , <5 ppm Mg^{2+}

BREWING NOTES

Mash:

- 10 minute rest at 42° C (108° F), 1.5 L/kg (0.7 qt./lb.).
- 15 minute rest at 52° C (126° F), 2.4 L/kg (1.15 qt./lb.).
- 50 minute rest at 65° C (149° F), 3.5 L/kg (1.7 qt./lb.).
- 30 minute rest at 72° C (162° F), 4.6 L/kg (2.2 qt./lb.).
- Sparge with approximately 75–80° C (167–176° F) water

Boil: 90 minutes. Hop with 70 g (2.5 oz.) at 90 min (3.5 g/L, 0.47 oz./gal.) and 45 g (1.6 oz.) at 15 min (2.3 g/L, 0.30 oz./gal.).

Fermentation: If using a pure-culture, follow the guidelines for ordinary grisette and allow an extra day or two at warm temperatures if needed. The beer can be packaged at approximately 2 weeks old and consumed fairly fresh. This allows for grisette to modernize as saison has, changing from an aged mixed-culture historic beer into a modern pure-culture beer that is consumed fresh.

If using a mixed culture, ferment with your chosen blend until primary fermentation is complete. At this point, age at cellar temperature for 2–5 months (or longer if the FG is not yet stable) before packaging.

Packaging: Bottle or keg at 9–10 days from the start of fermentation (or longer if needed for clarity and complete fermentation). A slight haze is OK and likely would be fitting for the beer. I shoot for around 2.8–3.1 volumes (5.6–6.2 g/L) of CO_2 , depending on when I am packaging and the yeast I am using.

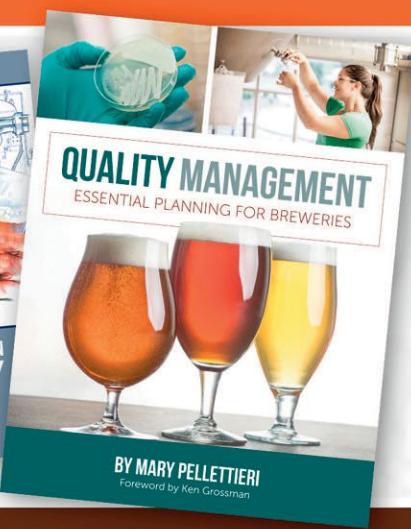
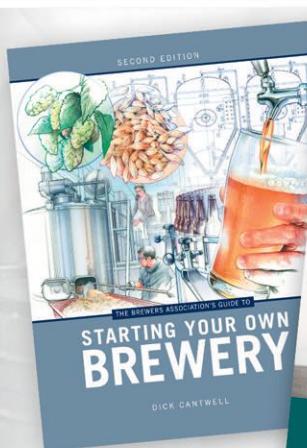
Optional: Dry hop with ≤1 g/L (≤0.13 oz./gal.) Styrian Goldings for approximately 4–5 days, starting at the end of fermentation when the beer would be cooled down.

EXTRACT VERSION

Replace Pilsner malt with 4.19 lb. (1.9 kg) extra light DME and chitted wheat with 1.43 lb. (0.67 kg) wheat DME.



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cess decisions (e.g. using malted wheat) still define the grisette, and this rather than gravity should still differentiate it from saison.

RESOURCES

1. Pelset. *Traité Théorique et Pratique de la Fabrication de la Grisette et des Bières Pâles*. 1874.
2. Markowski. *Farmhouse Ales: Culture and Craftsmanship in the Belgian Tradition*. 2004. Brewers Publications.
3. *Petit Journal du Brasseur*, G.M. Johnson, editor. Various years.
4. Comité Central d'Agriculture de la Côte-d'Or. *Concours International de Houblons et de Bières*. 1866.
5. Le Cocq. *Coup-d'œil sur la Statistique Commerciale de la Ville de Tournay et de son Arrondissement*. 1815.
6. (Author unknown). *Les Memoires de Jef Lambic*. (ca. 1955).
7. Various Belgian Newspapers from the late 1800s and early 1900s (e.g. *La Peuple*, *La Vingtîème Siècle*, *Gazette de Charleroi*).
8. Palmer & Kaminski. *Water: A Comprehensive Guide for Brewers*. 2013. Brewers Publications.
9. Johnson. "Belgian Mashing System Suitable for Light Beers." 1918. *Journal of the Institute of Brewing*.
10. Hieronymus. *Brewing with Wheat: The 'Wit' and 'Weizen' of World Wheat Beer Styles*. 2010. Brewers Publications.
11. Archive of historic Belgian beer labels, compiled by Jacques Treffen. <<http://www.jacquestriffin.be/index.php>>. Accessed June 2016.
12. Hopping Historical Grisettes. Blog post on Hors Catégorie Brewing <<http://www.horscategorybrewing.com/2016/06/hopping-historical-grisettes.html>>.

Dr. Dave Janssen is a postdoctoral researcher in chemical oceanography at the University of Bern in Bern, Switzerland. His favorite beers to brew and drink are saisons, saison-inspired beers, and sour beers with complex fermentation character. Dave's scientific and historic beer research can be found on his blog, *Hors Catégorie Brewing*, as well as in his contributions to *lambic.info* and the *Milk the Funk Wiki*.

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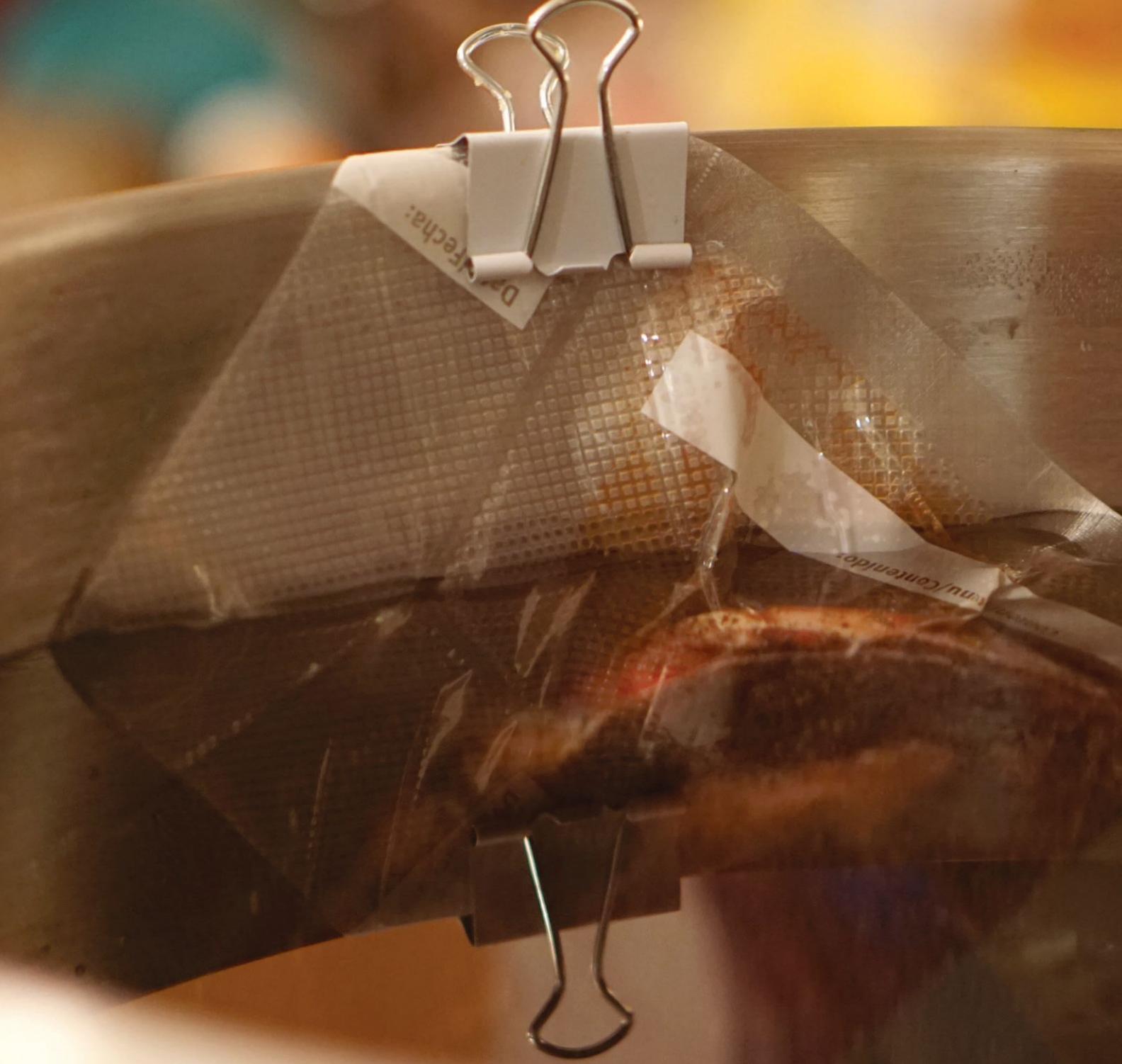
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**Most all-grain
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temperature control.**

Cooking in a Vacuum

By James Naeger





Sous vide, a technique common in many high-end restaurants, involves cooking food in vacuum-sealed plastic bags in a temperature-controlled water bath. The sous vide approach uses a much lower temperature than conventional cooking methods, which means it takes longer, but the results are almost impossible to replicate any other way.

Foods retain their juices and aroma, are evenly and precisely cooked throughout, and have amazing tenderness and luscious flavor. Using the latest sous vide technology and recipes, home chefs can now achieve these amazing results just as easily as the head chef in a Michelin-starred restaurant. And, if you homebrew, there's a very good chance you already have most of the equipment you need to get started.

Why Cook Using Sous Vide?

My first foray into sous vide—which is French for “under vacuum”—was to hack together a high-voltage relay, temperature probe, and Arduino control board in order to control the temperature in my standard two-setting Crock-Pot®. After two hours at 150° F (66° C), I had my first wary bites of the juiciest and most delicious chicken breast that I'd ever had. I was hooked. I was amazed at the thought that you can cook food in a temperature-

regulated water bath—using more science than art—with amazing and repeatable results every time.

Soon thereafter (and coinciding with Starbucks' Sous Vide Egg Bites craze) my wife bought me a dedicated sous vide kitchen gadget from ChefSteps: the \$199 Joule. Since then, our family has enjoyed many fantastic meals prepared using the sous vide technique, from chicken breasts, ribeye steaks, and veggies to many variations on an Egg Bites clone recipe.

However, before you rush off to a fancy kitchen store, you might be surprised to learn that you probably already have what you need right at home to get started with sous vide. Even though the very name of the technique implies a vacuum, you don't even need a vacuum sealer to cook this way (see the “Sous Vide, sans Vide” sidebar). Most all-grain brewers already have equipment that allows them to cook using the sous vide technique: temperature control. Your existing homebrewing gear can do double duty!

The Return of “Old Faithful”

Every all-grain brewer I know started out by mashing in an insulated beverage cooler. Many continue to do so. But if you have relegated “Old Faithful” to the recesses of the basement or garage, it's

time to bring that old cooler back into rotation. In my case, my original 5-gallon (18.9 L) Industrial Igloo insulated cooler has transformed into a sous vide water oven. Although it can't maintain a temperature quite as precisely as a dedicated sous vide appliance, this limitation never stopped anyone from making fantastic beer with one!

To make sure I wasn't going to give myself a foodborne disease, I used a data-logging apparatus that reads the current date, time, and temperature from a digital waterproof temperature sensor and writes it to a Secure Digital (SD) card. Using this device, I discovered that my trusty 5-gallon Igloo container only loses about 1° F (0.6° C) every 30 minutes or so.

As the water in the Igloo cools down, it spends nearly two hours between 130° and 135° F (54° to 57° C). According to “The Food Lab’s Complete Guide to Sous Vide Steak” on SeriousEats.com, this happens to be right in the sweet spot for my favorite: ribeye steak cooked medium rare.

For the inaugural run with my decidedly low-tech sous vide contraption, I acquired a nice-looking, nearly 2-inch-thick ribeye from my local grocer. While the water was heating on a standard propane burner, I seasoned the meat simply with kosher salt and fresh-ground telli-cherry pepper. Then I vacuum sealed the steak with my trusty FoodSaver® V2244, which I've used for many years to keep pellet hops fresh.

After cooking the steak at 130° to 135° F (54–57° C) for two hours in the Igloo, it was time to bring our friend the Maillard reaction onto the scene. Much of the flavor of cooked food is the result of the meeting of amino acids and sugars at high heat, around 300° F (149° C). Homebrewers are familiar with the results of the Maillard reaction thanks to the amazing flavors it creates during kilning of specialty malts. Anyone who has ever brewed a malt-forward old ale or barleywine knows the sublime joys of the Maillard reaction very well, indeed. (For more on the flavor contributions of Maillard reactions, see Style Spotlight in this issue of Zymurgy.)

Sous Vide, sans Vide

If you don't have a FoodSaver or other vacuum sealer, don't stress! You can use the "displacement method" to remove most of the air from a sous vide-friendly plastic bag, such as a Ziploc® marinade bag. Simply place the food to be cooked into the bag, zip it about three-quarters of the way closed, and slowly lower the bag into a pot of water, preferably before you heat it. Air will escape as more of the bag submerges. As you lower the bag, be sure to not let any of the water enter the bag with your food! Get as much air out of the bag as you can before you zip it closed all the way. Make sure the zipper seal is tight, and you're ready to sous vide!

Searing the outside of the steak will get the Maillard reactions we're after. In my opinion as a cook, the best way to do this is with a blazing-hot cast-iron skillet. And in my opinion as a homebrewer, the best way to get said skillet hot and avoid filling your house with smoke is to use the outdoor propane burner that you've used to boil wort since the dawn of time.

Remember, *safety comes first*, but not over-cooking your precious sous vide ribeye comes a very close second. Once the cast-iron skillet is reasonably hot, add a tablespoon of canola oil to the skillet, remove the steak from the vacuum-bag, and place into the skillet with tongs. A tablespoon of butter added at this stage only enhances the delicious crust and lends a slightly charred flavor.

For my tastes, about 45 seconds of searing per side in a blazing-hot cast iron skillet is more than enough to create those wonderful flavors and aromas from the browning reaction without over-cooking the steak. Sear the edges of the steak for about 25 seconds, and then you're ready to take it off the heat and let it rest. I like to let my steak rest for about 4 to 5 minutes, under foil if the ambient temperature is low, so as not to lose all those precious juices when I slice into it.

Once the steak is ready, all that's left is to crack open one of those awesome homebrews that you've been aging for a few years because this will be one of the best home-cooked steaks of your life.

Sous Vide Times and Temperatures

When cooking sous vide, it is important to consult a chart of times and tem-

peratures for your specific food or cut of meat—after all, you're cooking with science here! You can carefully select the temperature and time spent in the water bath to achieve the precise results that you want. I highly recommend ChefSteps.com and SeriousEats.com for recipe ideas and charts of times and temperatures. Douglas Baldwin's excellent reference "Sous vide cooking: A review," published in the *International Journal of Gastronomy and Food Science* in 2011 is also an excellent primer.

peratures for your specific food or cut of meat—after all, you're cooking with science here! You can carefully select the temperature and time spent in the water bath to achieve the precise results that you want. I highly recommend ChefSteps.com and SeriousEats.com for recipe ideas and charts of times and temperatures. Douglas Baldwin's excellent reference "Sous vide cooking: A review," published in the *International Journal of Gastronomy and Food Science* in 2011 is also an excellent primer.

The simplest way to get delicious results and avoid any chance of causing the growth of food pathogens is to maintain a sous vide cooking temperature above 130° F (54° C) and then immediately finish and serve. This is the aptly named

Many advanced sous vide "cook-and-hold" techniques exist whereby through a combination of time and temperature the vacuum-sealed food is actually pasteurized. If that food is then rapidly chilled to below 38° F (3° C), it can be stored for up to a month or frozen. Then, it can be reheated, finished, and served later. This powerful technique can be used to prepare delicious culinary feasts by time-shifting the actual cooking via sous vide. This is how I prefer to make earth-shatteringly delicious honey glazed carrots (see accompanying recipe).

Electric Brewing, Recirculating Systems, and Sous Vide

I've met a surprising number of homebrewers with advanced brewing systems who don't realize they can repurpose this gear for sous vide cookery. An insulated hot-liquor tank (HLT) and mash/lauter tun (MLT) are fundamentally just vessels that control the temperature of their (mostly liquid) contents. More advanced rigs like Heat Exchange Recirculating Mash Systems (HERMS) and Recirculating Infusion Mash Systems (RIMS) control the mash temperature via electronic control and a pump to keep the temperature even.



Honey-Glazed Sous Vide Carrots

This recipe is a riff on the excellent sous vide carrots recipe from J. Kenji López-Alt, the chief culinary consultant of SeriousEats.com and author of *The Food Lab: Better Home Cooking Through Science*. His book is a New York Times bestseller, a James Beard Award recipient, and the International Association of Culinary Professionals 2015 Cookbook of the Year.

I often prepare several batches of this recipe ahead of time, vacuum seal the bags, and freeze them. When I have time, I'll pop the frozen package into the sous vide water bath and add an extra 30 minutes or so to compensate for the temperature difference. After cooking, the bagged contents can last for up to one week in the refrigerator. The carrots can be finished in a skillet to a shiny glaze in minutes and used as a quick and delicious side for the meal of your choosing.

One thing I have consistently found about this recipe is that even with a good vacuum-sealing apparatus like a FoodSaver, a fair amount of air remains between the carrot chunks, which necessitates some kind of weight to keep the bag under the surface of the heated liquid. If you have extra silverware (and if it is particularly heavy), then you can easily put one or two spoons into the vacuum bag with the food.

If you don't have heavy cutlery, or if you don't have extra spoons to spare, you could vacuum seal a large handful of spare change and seal it within a larger bag with the food. Just make sure the coins get their own vacuum bag so you don't introduce a bunch of germs into your food!

A dedicated sous vide gadget controls the temperature of a water bath via electronic control and a pump to keep the temperature even. Sound familiar? For comparison, I've gathered data on the performance of my ChefSteps Joule sous vide stick and the 120-volt Electric BoilerMaker G2 brewing system by Blichmann Engineering.

The ChefSteps Joule provides 1100 watts of heating power, has a stated temperature accuracy of 0.2° F (0.1° C), and a rated

maximum temperature of 208° F (98° C). It also has a maximum "bath volume" of about 10 gallons (37.8 liters) at a maximum water depth of 8 inches (203 mm). The Joule is designed to work only in water, and using it to heat any other liquid will void the warranty.

According to Chris Young, founder and CEO of ChefSteps, the Joule's thick-film heater operates at a super-dense 250 watts per square inch (39 W/cm²)! Using the

Ingredients

1 lb. (454 g) whole baby carrots
2 Tbsp. (30 mL) salted butter
2 Tbsp. (30 mL) orange-blossom honey
1 Tbsp. (15 mL) fresh minced thyme leaves
Coarse sea salt
Fresh-ground tellicherry pepper to taste

Directions

Preheat your sous vide water bath to 183° F (84° C). Place carrots, butter, honey, and about 1/2 Tbsp. coarse sea salt in a vacuum bag with your weights of choice, and seal according to manufacturer's instructions. When the water bath reaches its set temperature, add the bag of carrots and cook until tender, about an hour.

Remove the bag from the water bath, open and remove the weights, and empty the carrots into a large, heavy skillet. Cook over high heat, stirring and swirling constantly, until the liquid reduces to a shiny glaze, about 2–3 minutes. In the last 45 seconds or so of cooking, drizzle a bit more honey onto the carrots to taste.

Season with salt and fresh-ground pepper, stir in fresh minced thyme leaves, serve, and enjoy!



	ChefSteps Joule	120V BoilCoil/Tower of Power
Time to reach 130° F (54° C) from room temperature	48 minutes	23 minutes
Standard deviation at set point of 130° F (54° C)	0.06° F (0.03° C)	0.19° F (0.11° C)

Joule to heat and pump liquids other than water will likely cause scorching, overheat the internal components, and damage the appliance. However, the Joule is made from food-safe materials, and Chris assured me that the water it heats is safe to drink, which means one could potentially use the “spent water” to mash in your next batch of homebrew.

On the other hand, the pre-installed BoilCoil™ on the Blichmann Engineering unit puts out 2250 watts of power at 120 volts and unlike a sous vide gadget can be used to boil wort or water. The Blichmann BoilCoil is powerful, but it has a super-low watt (heat) density of 30 watts per square inch (4.7 W/cm^2). This is almost half that of other ultra-low-watt-density elements on the market, so the chances of scorching your precious wort during a boil or mash are extremely low.

The Tower of Power™ provides precise temperature control for heating strike water or for cooking sous vide. You don’t want vacuum-sealed bags to come in direct contact with the heating elements of the BoilCoil™, so the functional maximum water depth in the 10-gallon G2 Brew Pot is roughly 10 inches (25 cm) from the top of the nearly filled pot. This is more than enough space for a vacuum bag containing a large steak or two, clipped to the side of the pot.

To gather some hard data on these two systems, I used 6 gallons (22.7 L) of room-temperature water (about 75° F or 24° C), brought both sets of gear up to 130° F (54° C), and held that temperature for about an hour to judge how well they could hold the set temperature. I evaluated both systems indoors at ambient temperature.

The Blichmann BoilCoil and Tower of Power, with double the power of the Joule, took approximately half as much time to reach the set point temperature, as shown in the accompanying table. Both systems performed admirably at maintaining the set temperature, with neither straying more than a quarter of a degree Fahrenheit in either direction. Blichmann also sells coils with rated voltages of 240 volts that offer greater power, can accommodate larger water volumes, and can increase the rate at which your water or

wort heats: definitely something to consider if you’d like to scale up your electric brewery and sous vide larger recipes.

If you’re on the fence about a high-quality electric brewing system, consider that it can make more than just awesome beer! It will only take a few home-cooked meals for your significant other to forget all about the money you’ve spent on your homebrewery.

Relax! Don’t worry! Have a ribeye (and a homebrew).

James Naeger has been brewing beer since 2008 and mead since 2010. His interests lie at the intersection of science and technology, and he has a passion for sharing his knowledge and fermented beverages. He lives in Ferndale, Mich., with his wife and two young daughters.



Check out Jim’s recipe for
Sous Vide Chicken Marbella at
HomebrewersAssociation.org/mj18



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ALPHA-ACID %: 13 - 15
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TOTAL OILS (ML/100G): 2.5 - 4
AROMA: PINEAPPLE, PINE, BRIGHT CITRUS



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ALPHA-ACID %: 5 - 7
BETA-ACID %: 4 - 6
TOTAL OILS (ML/100G): 1.5 - 2
AROMA: LEMON, MINT, GREEN TEA, MELON



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ALPHA-ACID %: 17 - 19.9
BETA-ACID %: 4.6 - 6
TOTAL OILS (ML/100G): 2.5 - 4.4
AROMA: BLACK CURRANT, DARK FRUITS,
STRONG HERBAL NOTES, PINE TREE



CALYPSO™

ALPHA-ACID %: 12 - 14
BETA-ACID %: 5 - 6
TOTAL OILS (ML/100G): 1.6 - 2.5
AROMA: PEAR, APPLE, TROPICAL,
FRUIT, MINT

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Spruced Up Homebrew

By Jack Horzempa



Virtually all students in the US learn about European colonization of the Americas. The Spanish were the first, starting in 1492, followed by the French and the English. The first permanent English settlement, Jamestown, was founded in 1607, but more interesting for homebrewers was Plymouth, which was inadvertently established in 1620 when passengers aboard the *Mayflower* ran out of beer and had to stop early.

"For we could not now take time for further search, our victuals being pretty much spent, especially our beer."

—William Bradford

The Dutch came next, and in 1626, they built Fort Amsterdam in present day Manhattan, which became the beginning of the colony of New Netherland. Next up were immigrants from Sweden, which in the 1600s had an expanding empire, part of which was present day Finland.

One thing the Swedes and Finns had in common with the English was a love of beer. The Finns would have been familiar with an old Nordic beer style called sahti, which was (and still is) brewed using juniper branches with berries. It's therefore possible that the Finns and Swedes were the first Europeans to try brewing with the local spruce in North America.



Next-door neighbor's blue spruce tree.

Poor Richard's Spruce Ale

William Penn received his charter for the lands of Pennsylvania from King Charles II in 1681, and he arrived to further settle his deeded lands in 1682. Penn's first settlers were the Swedes and Finns who were already there, but over the years, more and more settlers arrived, including one of Pennsylvania's famous citizens, Ben Franklin. It just so happens he enjoyed drinking beer.

If you've studied Latin, you might remember that Pennsylvania means Penn's Woods. And what are in those Pennsylvania woods? Spruce trees! While Ben Franklin was stationed in France during the Revolutionary War he wrote:

Way of Making Beer with Essence of Spruce:

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

EVERGREEN ALLITERATION

If it's been a while since your last field trip with the Scouts, you might be wondering how to tell one conifer from another. A good rule of thumb is to use alliteration.

- Pine needles pile up into a party. Pine needles grow in clusters of two or more that all sprout from the same point on the branch.
- Spruce needles are sharp, stiff, and square. Grabbing a spruce branch feels slightly better than grabbing a porcupine, but only just. Pluck off a needle and look down the length of it—the cross section is usually square.
- Fir branches are friendly, flat, and flexible. Grabbing a fir branch feels nice. They're soft, and the needles are flat.

Of course, conifers aren't limited to pine, spruce, and fir. There are also cypresses, junipers, cedars, and the larch, perhaps best known for its starring role in episode three of *Monty Python's Flying Circus*, "How to Recognize Different Types of Trees from Quite a Long Way Away."

or 12 Days in a cool Cellar, after which the Beer will be good to drink.¹

Did Ben Franklin learn about brewing with spruce from the Finn settlers to New Sweden, or did he invent this concoction himself? Ben was indeed inventive, but much of his innovation and invention is likely based on the work of others that preceded him.

Fast forward to 2006, when Philadelphians observed the 300th anniversary of the birth of Benjamin Franklin. To celebrate Ben's tercentenary, Yards Brewing Co. created Poor Richard's Tavern Spruce Ale, which it based on Franklin's original recipe. The first batch is said to have included an entire spruce tree, but today the brewery adds blue spruce clippings during the last 20 minutes of the boil. The beer is 5% ABV, has 22 IBUs, and, true to the original, includes molasses and, of course, plenty of spruce.

Poor Richard's Tavern Spruce Ale won bronze medals at the 2013 and 2014 Great American Beer Festival® competitions and is now available year round.

Spruce at Home

I decided to brew my own spruce ale at home, so I began investigating. The red spruce, which is native to the northeastern United States, is likely what Ben Franklin

KATHLEEN'S SPRUCE ALE

American pale ale with spruce

Batch Volume: 5.5 U.S. gallons (20.8 L)
Original Gravity: 1.047 (11.8° P)
Final Gravity: 1.009 (2.3° P)

Bitterness: 20 IBU
Color: 13 SRM
Alcohol: 5% by volume

MALTS

10 lb. (4.54 kg) pale malt
8 oz. (227 g) 20 L crystal malt
4 oz. (113 g) dextrose (if priming bottles)

HOPS

0.5 oz. (14 g) Chinook, 13.4% a.a. @ 60 min
1 oz. (28 g) Simcoe, 12.6% a.a. @ 10 min

YEAST

Wyeast 1056, White Labs WLP001, Fermentis Safale US-05, or similar

OTHER

1/2 tsp. Irish moss or Whirlfloc @ 15 min
4 oz. (113 g) new-growth blue spruce tips, steep 20 minutes

BREWING NOTES

Mill the grains and dough in, targeting a mash thickness of around 1.5 quarts of water per pound of grain (3.1 L/kg) and a temperature of 154° F (68° C). Hold the mash at 154° F (68° C) for one hour. Sparge slowly with 170° F (77° C) water and collect runoff until the pre-boil volume is around 6.5 gal. (25 L). Adjust this volume as needed for your system's boil-off rate.

Boil for a total of 60 minutes, adding hops and Irish moss or other finings as indicated. After the boil is complete, turn off the heat, add the spruce tips, and stir the wort to create a whirlpool. Let spruce tips steep in the wort for 20 minutes. Chill the wort to 65° F (18 °C) and aerate thoroughly. Pitch yeast.

Ferment around 68° F (20° C). With healthy yeast, fermentation should be complete in one week or less, but don't rush it. Bottle or keg after fermentation is complete.

EXTRACT VERSION

Substitute 6.75 lb. (3.06 kg) light dry malt extract for pale malt. Steep crystal malt in 155° F (68° C) reverse osmosis water for 30 minutes, remove grains, dissolve extract completely, and top off with water to desired boil volume. Proceed as above.

used in his beer. But today we have access to spruce varieties that would not have been available in Colonial Pennsylvania, including the blue spruce, which is also known as Colorado Spruce and is easily identified by its hue. Norway spruce is similar in shape to the blue spruce, but it is green.

When I first considered brewing a spruce ale, I had little to no knowledge of where to start, so I searched the internet and

reached out to other homebrewers. One of my first productive hits was a post by another intrepid homebrewer, Shawn Hargreaves, on the HomebrewTalk forum.

Shawn said in a post, "So here's what I did try: find a spruce tree and taste all possible parts of it. Bark, woody twigs, older needles, and sap are all surprisingly similar in flavor, and extremely nasty. Creosote it is, a taste that, once on your tongue, is virtually



Four ounces (113 g) of fresh-growth blue spruce tips.

SPRUCE TIPS CAN BE VIEWED AS A SPICE ADDITION OR AS A SIMPLE HOP ADDITION, AND YOUR PERSPECTIVE MIGHT INFLUENCE THE SORT OF BEER YOU BREW.

impossible to get rid of and not remotely pleasant. The only nice tasting part of the tree is the new growth tips, which appear on the end of branches in the spring."²

Thank you, Shawn, for being adventurous enough to behave like a beaver and taste all of those tree parts. Having been saved from the experience of tasting notes of creosote, I decided to brew with new-growth spruce tips.

I am fortunate that within walking distance of my house is a townhouse community that has used a series of evergreen trees to create a privacy barrier from a heavily traveled street. In early May 2017, I foraged and nibbled from these Norway and blue spruce trees by picking off the growth and chowing down.

To my palate, the Norway spruce tips had a bit of astringency that I was not

too keen on. The blue spruce tips, on the other hand, had no perceptible astringency, so that's what I went with. That my next-door neighbor has a blue spruce tree growing on his front yard, from which he granted me permission to harvest new-growth tips, sealed the deal.

If you do not have the luxury of next-door neighbors with spruce trees, or if you're not keen on foraging in the woods, you can purchase fresh growth spruce tips online. One vendor, SpruceOnTap.com, offers fresh spruce

tips in packages from 4 ounces (113 g) to 5 pounds (2.27 kg). You can also purchase juniper needles and berries if you want to brew sahti.

For those who are willing to forage but would prefer to brew later with fresh-growth spruce tips, you can do what Alaskan Brewing Company does for their Winter Ale: vacuum-pack and freeze them for later brewing.

Additional internet searches revealed all kinds of opinions on how and when to

add spruce tips. Some prefer to do so as early as the beginning of the boil, while others preferred to add it at the end as a kind of hop stand. Amounts used also varied quite significantly.

I asked myself what I wanted the spruce tips to contribute to my beer, and the answer was simple: aroma and flavor. Some aroma and flavor, that is, not a pint of Pine-Sol®.

I decided, then, to add spruce tips at the end of boil with a steep. After bouncing around a bit on the amount, I settled on 4 ounces (113 g).

Brewing the Beer

Spruce tips can be viewed as a spice addition or as a simple hop addition, and your perspective might influence the sort of beer you brew. For example lots of folks like to brew spiced beers for the Christmas holidays, and what could be more Christmassy than a beer brewed with a Christmas tree? I, on the other hand, consider spruce tips more as a substitute for hops, so I went with an American pale ale.

My wife was a huge fan of the original Yards Poor Richards Tavern Spruce Ale from 2005–06, and she had long requested that I brew a spruce beer. So I did, and I named it after her.

Creating an American pale ale (APA) recipe using spruce tips was a fairly easy decision for me because I already brew a harvest APA every year using freshly picked wet hops from my backyard. I simply tailor the hop selection to complement the evergreen tree theme, and instead of going to my yard, I go to my neighbor's.

As an agricultural product, fresh-growth spruce tips can vary wildly in their terroir expression. Variables include, but are not

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limited to, the type of tree, its location, weather conditions that year, the size of the tips, and when they were harvested. So, after brewing Kathleen's Spruce Ale (see accompanying recipe), I assembled a group of friends and family to be my taste testers to offer a broader perspective on the 2017 harvest. Some of the aroma and flavor descriptors they used included "citrus," "grapefruit," "grapefruit pith," and "piney grapefruit." My palate got more of an herbal quality. Thankfully, there was zero creosote.

Overall, I'm happy with my spruce experience, as is my next-door neighbor, who received a six-pack as payment toward my foraging privileges. By the time this issue lands in your hands, it should be prime spruce harvest season across much of North America, so get out there and make a spruce beer.

As Ben Franklin said, "Beer is proof that God loves us and wants us to be happy." Actually, he didn't really say this, but I've seen it on T-shirts, and that's good enough for me.



Spruce beer tasting panel.

Many thanks to Kevin McGee and Larry Rose for their help with this project.

2. <http://www.homebrewtalk.com/showthread.php?t=269751>

Resources

1. Stanley Baron, *Brewed in America*, (Little, Brown & Co., 1962), 97.

Jack Horzempa is an AHA member from King of Prussia, Pa.



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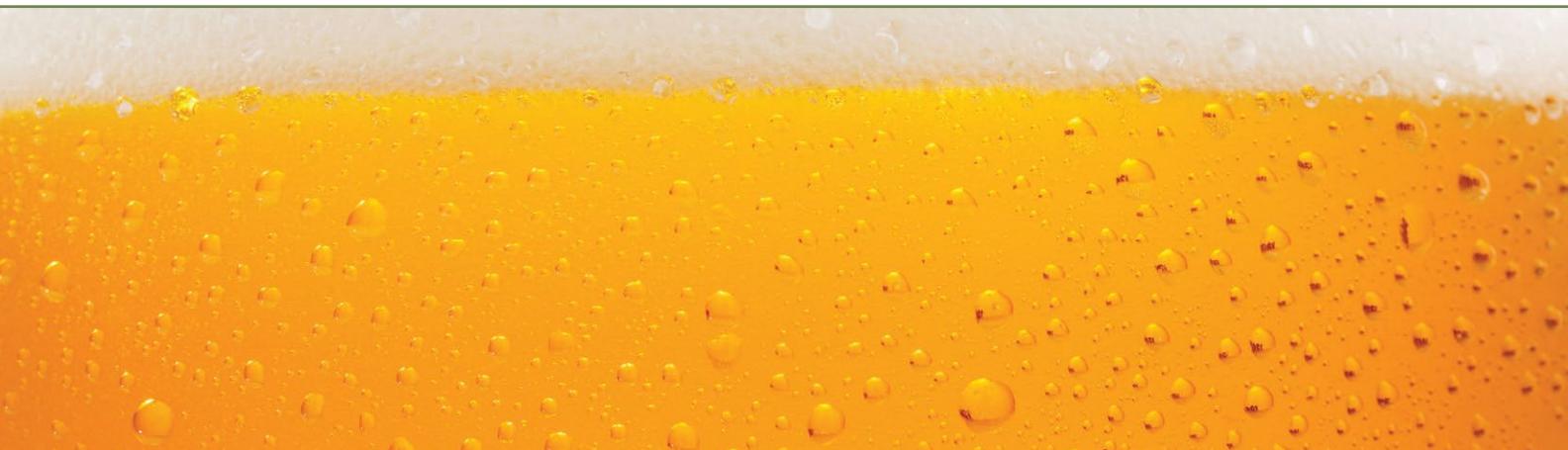



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The Good Life

*Raising Phenomenal Financial Resources
for Your Homebrew Club*

By Ron Minkoff





All day long I'd biddy-biddy-bum, If I were a wealthy man!

Who could blame Tevye, the father and patriarch in *Fiddler on the Roof* for daydreaming and wondering if it would “spoil some vast, eternal plan” if he were a wealthy man? After all, he comes up with quite an interesting list of what he would do if he had a small fortune.

Tevye's musings are not unlike those of homebrewers. We congregate in the affectionate circles of our homebrew clubs and ponder aspirations large and small. There's so much we would do, if only we had the financial resources.

Most homebrew clubs raise modest revenue from member dues, raffles, and the occasional competition. But wouldn't it be nice if your club had the resources to pay for all competition entry fees and shipping, communal brewing ingredients, beer education, new equipment, food, T-shirts, pub crawls, club outings, jockey boxes, tanks, and club insurance, and still have enough left over to donate thousands to local charities? Sounds nice, no?

The Hogtown Brewers, a merry band of beer enthusiasts with a homebrewing problem down in Gainesville, Fla., have been doing

just that thanks to extensive fundraising since the early 2000s. Our approach can serve as a model for homebrew clubs who want to put a little more cha-ching in their pockets—actually, a lot more cha-ching.

Our club has gone from raising a few thousand dollars in the early years to operating on a respectable annual budget in the tens of thousands today. We try to pick only the apples we need, so several thousand dollars from our budget surplus make their way to local charities each year. In fact, the Hogtown Brewers have donated over \$135,000 in the past five years, which con-



tributed to our winning the 2016 Radegast Homebrew Club of the Year.

Today our club has more than 200 members, but when we first started our fundraising efforts in 2000, there were only 50 of us, and we maintained that membership level through about 2010. Even small clubs can generate impressive funds, be successful, and enjoy the good life.

First Things First

You may be thinking, "That's great, but tell me more about how my club can make these phenomenal funds you speak of!" Fair enough, let's get started. If you haven't done it already, get your club a tax ID number from the IRS and register as a 501(c)(7) social and recreational club. Doing so will allow your club to get a bank account and exempt it from paying federal taxes on most income.

Next, go register your club as a nonprofit company with your state. Although having a 501(c)(7) designation exempts you from paying *federal* taxes, it does not necessarily exempt you from paying *state* tax. Setting your club up as a 501(c)(3) rather than a 501(c)(7) can offer more benefits, but the extra paperwork and time required to gain that designation are extensive and probably overkill for what your club truly needs.

Be sure to submit the annual 990-N or 990-EZ form to the IRS to keep your nonprofit status current. If you fail to file this form three years in a row, the IRS will revoke your designation. Obviously, your club will want to elect a competent and trustworthy treasurer. Over time, when your club is enjoying successful fundraising income, I recommend you hire a certified public accountant who specializes in nonprofits to help navigate all the forms.

**If you want your club
to have the good life,
make the IRS happy and
do your paperwork.**

The Right Fundraiser

The next step gets to the heart of it. What kind of fundraiser should you hold? There are many options. You could host a beer run. Or a beer dinner. Or, if you're a glutton for punishment, you could even host a beer festival. Hogtown hosts a festival. It takes effort—a lot of effort—and is rewarding, but I wouldn't recommend you start there.

Instead, for high benefit and low effort, pound for pound, the best bang for earning your buck is to sell beer! Commercial beer of course. You're familiar with the product, and serving it is in your skill set.

It doesn't take many people to organize the effort, so it's a good option for small clubs. Plus, onsite retailing of beloved liquid bread has a respectably high profit margin!

**If you want your club
to have the good life,
sell beer.**

Bean Counting

There are many venues and events where you could sell beer. The Hogtown Brewers sell beer once a year for two weekends at our local Medieval Faire, at which we operate all the beer booths. The event has evolved over the years, and more than 50,000 patrons now visit the faire! Back in 2011 we were going through 65 kegs of beer, but recently we've been kicking at least 100, plus about 45 cases of mead.

Let's do some basic bean counting using numbers from our beer-selling operation. We choose to sell pints of beer for \$5, which is a bargain for our patrons. A half-barrel keg (15.5 gallons) of local craft beer typically costs \$170 and yields about 124 16-ounce (473 mL) pours. At \$5 a pint, each keg should generate \$620 in revenue.

We also sell mead. Each bottle of mead costs us \$9 on average and yields five 5-ounce (148 mL) pours. At \$5 per cup, each bottle should generate \$25 in revenue. These numbers assume perfect pours, perfect kegs, and nobody drinking the profits, but they are certainly worth keeping in mind.

**If you want your club
to have the good life,
know your
numbers.**

The Gig

You may ask, "How do we get a sweet gig like that?" In our case, we made our opportunity. In the 1990s, the Hogtown Brewers participated as a vendor at Medieval Faire selling glassware and giving away beer samples. We suggested to the organizers that we could sell beer, but those suggestions were turned down for a long while.



Photos courtesy of Hogtown Brewers



Eventually, they reconsidered and decided to allow beer sales, but they didn't choose Hogtown Brewers as the vendor. Instead, they opened the opportunity to any organization that met their criteria.

One criterion was that the organization had to be an official nonprofit. Hogtown hustled to do the paperwork, became a 501(c)(7), and were eventually chosen. That's one reason it may pay off for your club to do the paperwork now since many events prefer nonprofits as beer vendors. But, the more important point is that we got the "sweet" gig by networking and

being involved in our town's events.

**If you want your club
to have the good life,
be involved in
your community
and be exposed
to opportunity.**

The Dull Stuff

Before we talk about procuring and selling

beer, let's get some of the dull stuff out of the way. There are certain hoops you must jump through to be a proper vendor. Some of the hoops mentioned here are specific to Florida: your state may vary, so be sure to do your homework.

First, you will likely need vendor insurance since many event organizers require it. This may cost anywhere from just a few dollars to several hundred depending on the size of your operation.

Next, you will need to get an alcohol license from your local office of the appropriate state agency (e.g., Florida Division of Alcoholic Beverages and Tobacco). In Florida, the cost for such a license is only \$25. The license form may require you to get permission from the local sales tax office and the city or county where your event is located.

You may want to get your club a sales tax certificate ahead of time (we were able to get one online), and you might also need to provide a diagram of the beer serving area. In Florida, nonprofits are allowed up to 12 licenses per calendar year. After

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to have the good life,
make your state
**happy and do your
paperwork.**

Getting the Goods

You can't sell beer without procuring some beer, so let's go get it. Talk to and coordinate with a rep from one of your local distributors. How do you decide which distributor? The brands they sell and the beers from breweries that interest you will be the biggest factors. But don't discount the distributor's personnel and ease to work with. You'll find that to be important as well. You will need equipment to pour your pints. If you're starting out, the distributor may be willing to lend you jockey boxes. Ask your distributor to also provide CO₂ cylinders and regulators.



The kegs you order do need to be paid for upfront, including a deposit (typically around \$30–\$40 per keg). The good thing is you can probably return any untapped kegs for a full refund, so don't worry about over-ordering. It would be worse

to run out of beer. Obviously, you'll need some seed money for your first time. If all goes right, you will only need to scrounge for funds once, as a portion of your profits can be used to seed your next beer-pouring venture.

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R0217

If you want your club
to have the good life,
buddy up
with your local
distributor.

Game Day Plan

Fun fact: turns out, chaos doesn't work well when selling beer to the public. Being organized and having a plan is a good thing. To keep the beer flowing on game

day, the Hogtown Brewers use several techniques that you may want to use for your club. The crux is to organize things so the frontline server has as few responsibilities as possible.

To that end, we use dedicated personnel to card and stamp each patron of legal drinking age as they enter the serving area. Next, the patron proceeds to a table and buys drink tokens. Each token can be exchanged for one pint of beer or cup of mead. These initial steps mean the server doesn't need to card the patron, deal with money, or make change.

In the recent past, we thought it would be neat to go all Baskin Robbins and offer a wide range of styles, but we discovered it's more effective and quicker to just provide a few easy choices. This is especially true for high-volume traffic. Also, having nice big menus up front at eye level helps patrons decide before they reach the server.

Each server has a dedicated helper called the runner. The server takes the order and token(s) from the patron and relays the order to the runner. The runner relays what they need to the dedicated tap jockeys pouring beer, freeing the server up to help more patrons. Then the runner brings the pints to the server and the patron goes away happier than when they arrived.

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to have the good life,
make the beer line
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Huzzah to the Tipper

Like a good golf swing, you have to follow through. Earning your club's bread doesn't stop at selling liquid bread. You can reap substantially more by earning tips. We used to put out a tip bucket into which patrons would occasionally add a buck. Income from tips was very modest.

Things changed when we borrowed a shtick from another festival. Now, whenever a patron throws money in the bucket, everyone loudly proclaims, "Huzzah to the tipper!" It's actually quite a spectacle. Patrons now tip just to get their huzzahs.

To further encourage tips, we never give five-dollar bills as change at the token table. Instead, we always hand back five ones, which we have paperclipped together in advance. The proof is in the rich pudding: we have roughly doubled beer sales since 2009, but our tips have quadrupled and now earn us more than \$9,000 a year. Combined with beer sales, that makes a nice income for a humble homebrew club. Huzzah indeed!

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**If you want your club
to have the good life,
give patrons a
reason to tip, and
make it easy for
them to do so.**

The Upsell

Continue the follow through on that golf swing and offer more than just beer while you have your patrons' attention. That includes offering glassware, T-shirts, beer glass lanyards, etc. We offer upsell items at the token table, not at the point of dispense.

Actually, that's a lie. The beer server does offer one upsell called a bee sting. A bee sting is a 1-ounce (30 mL) shot of mead poured into your pint of beer. We sell it for a dollar, which goes in the tip bucket. For whatever reason, people really dig it. Bee stings sell like hotcakes, if hotcakes had alcohol.

**If you want your club
to have the good life,
provide an upsell.**

Come for the Beer.
Stay for the Fun.

Have you noticed that McDonald's® ads never proclaim that McDonald's has the best burgers? Instead, you see happy families smiling, playing, and shoving fries in their pie (fry?) holes! What's the message? Come to McDonald's and you'll have fun.

However, nobody punches up the pleasure meter like Walt Disney World®. Besides the rides, the monorail, and the fantasy, they also take care of the little things. They have hidden Mickeys for you to find and cast members who always stay in character. The railings aren't sticky (they don't sell gum in the park on purpose), and trash cans are always within 30 steps.

At our Hogtown beer booth, they come

for the beer and stay for the fun. We have fiddling musicians, jiggy dancers, and happy servers dressed in period costumes. High-top tables offer convenient resting spots for pint glasses, which we always fill to the top. There are stickers for the kids and bales of hay to sit on. Most of the serving area is covered for protection from sun and rain.

This kind of attention to detail helps the bottom line and offers your patrons an emotional attachment to the event. It's fun for club members to work, and it brings beer fans back again and again, along with their dollars.

**If you want your club to
have the good life,
don't just sell beer—
sell an experience.**

I hope the Hogtown approach inspires you to punch up your homebrew club's

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financial resources so you can have fun, offer big perks to your members, donate to charity, and live the good life! That would be the sweetest thing of all.

Ron Minkoff has been brewing in the comfort of his driveway since 2003. He is the immediate past president of the Hogtown Brewers and a BJCP certified judge. He has cohosted Grow Radio's *Homebrew Talk* podcast, at www.homebrewjockey.com, since 2010, where along with cohost John Denny, they spread the homebrew gospel one carboy at a time.



CLUB CONNECTION

The AHA is proud to support homebrew clubs around the world with a variety of benefits for registered homebrew clubs. Find a club near you or register your club today @ HomebrewersAssociation.org/community/clubs/



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By Amahl Turczyn

Stew's Brew Competition

In September 2017, homebrew club The North Urban Brewing Society (NUBS) of Lake County, Ill., and Kings & Convicts Brewing Company of Highwood, Ill., came together on an idea to release a homebrewer-created beer for charity.

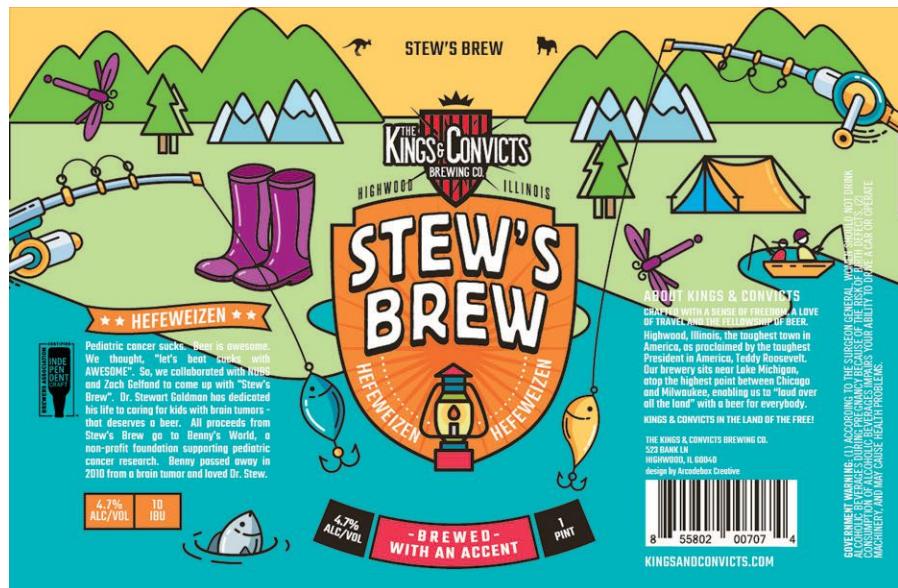
According to NUBS member Zachary Gelfand, who won one of two top prizes for the competition, the brewery was to host the competition, and two best-of-show beers would be awarded. The brewery would then recreate one winner's homebrew recipe on its main production system and brew the other winner's beer on the pilot system for exclusive release in the brewery taproom.

Each beer would be available for purchase by the brewery's loyal patrons, with 100 percent of all revenue going to Benny's World, a 501(c)(3) nonprofit foundation, to fund research to find a cure for pediatric brain stem tumors, specifically targeting diffuse intrinsic pontine glioma (DIPG). The foundation was established in March 2008 by the family of Brendan Watters, cofounder of Kings and Convicts Brewing. Benny Watters, Brendan's son, was diagnosed with a DIPG on January 18, 2008, a few months before his third birthday. On September, 2010, after 33 months battling his tumor, Benny passed away.

The beers are named "Stew's Brew" to honor Dr. Stewart Goldman, one of Chicago's leading pediatric brain tumor specialists. Dr. Goldman was instrumental in Benny's treatment and care when he was diagnosed with the tumor. To honor Goldman and his work, the brewery released 150 cases of Stew's Brew with a live auction for the first 20 cases in early April 2018.



Tony Bena, second from right, with Kings & Convicts brewers and staff.



STEW'S BREW HEFEWEIZEN (ALL-GRAIN)

Bavarian weissbier

Zach Gelfand, first prize, production competition

Batch Size: 5.5 US gallons (20.8 L)

Original Gravity: 1.046 (11.5° P)

Final Gravity: 1.010 (2.5° P)

Bitterness: About 9 IBU

Color: Approximately 4 SRM

Alcohol: 4.7% by volume

MALTS

4.75 lb. (2.15 kg) Weyermann wheat malt

3.75 lb. (1.70 kg) German Pilsner malt

8 oz. (227 g) melanoidin malt

HOPS

0.67 oz. (19 g) East Kent Goldings, 3.9% a.a. @ 60 min

YEAST

White Labs WLP300 Hefeweizen Ale Yeast

ADDITIONAL ITEMS

3/4 cup (175 mL) corn sugar (priming bottles)
or 0.33 cups (80 mL) for kegging

BREWING NOTES

Mash in with a protein rest at 122° F (50° C) for 20 minutes. Raise to 150° F (66° C) and hold for one hour. Mash out at 168° F (76° C).

Boil for 90 minutes, chill, aerate, and pitch the yeast when temperature of the wort is about 65° F (18° C). Ferment for one week or until terminal gravity is reached. Prime with sugar and bottle or force carbonate in a keg when complete.

EXTRACT VERSION

Substitute 7.25 lb. (3.29 kg) wheat malt extract syrup for the melanoidin, wheat, and Pilsner malts. Dissolve extract in reverse osmosis water, top up to desired boil volume, add hops, and proceed as above.

STEW'S BREW IMPERIAL BLACK IPA (ALL-GRAIN)

Imperial black IPA

Tony Bena, first prize, taproom competition

Batch Size: 5.5 US gallons (20.8 L)

Original Gravity: 1.078 (18.8° P)

Final Gravity: 1.016 (4° P)

Bitterness: 103 IBU (calculated)

Color: Approximately 4 SRM

Alcohol: 8.1% by volume

MALTS AND SUGARS

11 lb. (4.99 kg) pale 2-row malt

1 lb. (454 g) dark candi syrup

1 lb. (454 g) Carafa Type 3 malt

1 lb. (454 g) 60° L crystal malt

1 lb. (454 g) red wheat

4 oz. (113 g) pale chocolate malt

YEAST

White Labs WLP001 California Ale Yeast.

ADDITIONAL ITEMS

3/4 cup (175 mL) corn sugar (priming bottles)
or 0.33 cups (80 mL) for kegging

BREWING NOTES

Mash at 150° F (66° C) and hold for one hour. Mash out at 168° F (76° C).

Add first wort hops and boil for 60 minutes. Chill, aerate, and pitch the yeast when temperature of the wort is about 68° F (20° C). Ferment for about one week or until terminal gravity is reached. Prime with sugar and bottle or force carbonate in a keg when complete.

PARTIAL-MASH VERSION

Substitute 8.5 lb. (3.86 kg) pale malt extract syrup for the pale malt. Mash remaining malts in 155° F (68° C) reverse osmosis water for 30 minutes. Drain, rinse grains, dissolve extract and candi syrup, and top up with reverse osmosis water to desired boil volume. Add hops and proceed as above.

HOPS

1 oz. (28 g) Warrior, 15.4% a.a., first wort

1 oz. (28 g) Simcoe, 12.9% a.a. @ 30 min

1 oz. (28 g) Centennial, 9.6% a.a. @ 15 min

1 oz. (28 g) Pacific Jade, 13.2% a.a. @ 5 min

1 oz. (28 g) Pacific Jade, 13.2% a.a. @ 0 min

2 oz. (57 g) Nelson Sauvin, 15.4% a.a.,
dry hop 3 days

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Gelfand went on to explain the distinction between the two top prizes offered to the competition winners. "The first was a chance to brew on the Kings & Convicts pilot system and have the beer released in the taproom," he said. "The second was a chance to brew on their fully automated 16-barrel system and have beer distributed locally."

The competition was held December 7, 2017, and the winners were announced the same day. Tony Bena won the taproom competition with an imperial black IPA, and Gelfand won the production competition with a hefeweizen. (For more on imperial black IPA, see Style Spotlight in the March/April 2018 issue of *Zymurgy*.)

"Stew's Brew was released April 7, with 100 percent of the revenue from both the taproom and production beers going to Benny's World," Gelfand said. "Given the success of the event, NUBS and Kings &

Convicts are planning on expanding the competition to any homebrewer in the northern Illinois area."

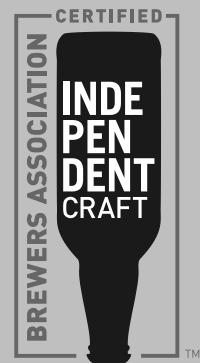
The North Urban Brewing Society (NUBS) is a brew club from Lake County, Ill., and the surrounding areas. They welcome all Northern Illinois homebrewers to attend their meetings, which are held the third Thursday of every month at 6:30 p.m. at Perfect Brewing Supply in Libertyville, Ill. The club can be reached via its website at nubsbrew.com.

Kings & Convicts Brewing Co. is a craft brewery located in Highwood, Ill., a town Teddy Roosevelt once called the "toughest town in America." Its beer is crafted with a sense of freedom, a love of travel and storytelling, and the fellowship of beer. They brew ales and Pilsners with hops and malts from the US, Australia, New Zealand, and England.

Amahl Turczyn is associate editor of *Zymurgy*.

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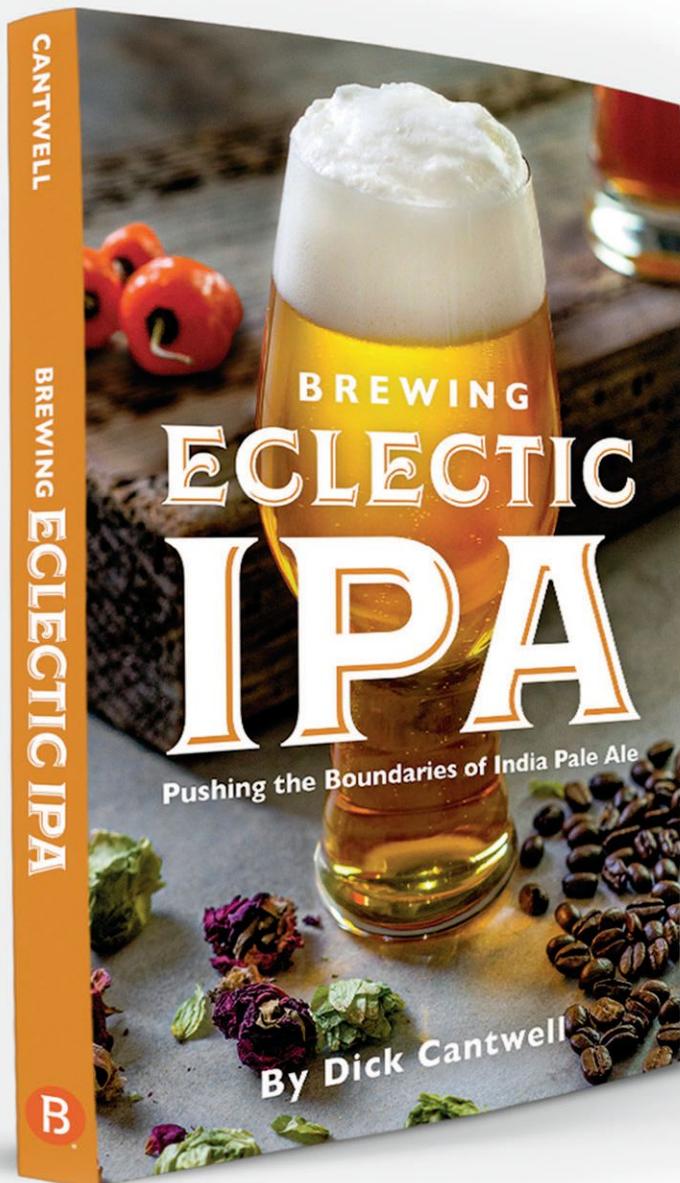
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January 2018

2º Concurso de Cervejas Caseiras Bier Vila, 20 entries—*Eduardo Interlichia Matos, Santos, Brazil.*
KLOB KUP, 18 entries—*Steve Klof, Kalamazoo, MI.*
Concurso do 4º Festival das Confrarias de Cervejeiros Caseiros do Rio de Janeiro, 36 entries—*Fabiana Ruas, Rio de Janeiro, Brazil.*
Missouri Mashers #RISOFF2018 - Club Only, 26 entries—*Michael Wells, Kansas City, MO.*
Copa Fermentados del Sur de Chile 2018, 82 entries—*Viña Raab, Sidra Lo Orozco, Quilpué, Chile.*
Great Alaskan Beer and Barleywine Festival, 64 entries—*Frank Kassik, Kenai, AK.*
St. Cloud Craft Beer Tour Home Brew Competition, 23 entries—*Ryan Stack, Saint Cloud, MN.*
Four Leaf Brewing's 2nd Annual Capture the Tap!, 34 entries—*George Turner, Warren, MI.*
Iº Concurso de Cervejas Caseiras SC Homebrew Festival, 83 entries—*Alison Gomes, Rio do Sul, Brazil.*
Hop Yard 62 HOP Off Homebrew Contest for Russian Imperial Stout, 5 entries—*Scott Cook, Grove City, OH.*
Winterbrew 2018, 254 entries—*Adam Young, Crown Point, IN.*
Archibald's Brew Off, 40 entries—*Joseph Liston, Rocklin, CA.*
BARRILITO DE ORO, 42 entries—*Arjan Piels, Panama City, Panama.*
El Dorado County Fair Homebrew and Commercial Competitions, 149 entries—*Gordon Mauger, Walnut Creek, CA.*

Great Kiwi Beer Fest Home Brew Competition, 49 entries—*Dan Versteeg, Christchurch, New Zealand.*
2018 Doug King Memorial Competition, 67 entries—*Rob Bradfield, Claremont, CA.*
Taste of Buffalo 35th Anniversary Homebrew Competition, 56 entries—*Adam Akers, Buffalo, NY.*
Groundhog Day Homebrew Competition, 93 entries—*Matty Ellis, Providence RI.*
Boss Hop - IPA Championship of New England, 142 entries—*Pete Kenyon, Haverhill, MA.*

February 2018

II Concurso Homebrew Birras Baixas, 47 entries—*Javier Perez Cedres, Las Palmas, Spain.*
All American Homebrew Competition, 350 entries—*Richard Romanko, Pittsburgh, PA.*
Mystery Hop Challenge, 5 entries—*Tom Hadjin, Savannah, GA.*
Domras Cup Mead Competition XX, 150 entries—*Jerzy Kasperski.*
4th Annual HRB Home Brew Competition, 24 entries—*Nick Brinson, Hampton, NB.*
LIBME February Club Pro-Am, 40 entries—*Jim Manganiello.*
Homebrew Alley XII, 593 entries—*Josh Youngman, Poughkeepsie, NY.*
Great Northern Brew Ha Ha, 261 entries—*Mike Beuning, Rice, MN.*
13th Annual Peterson AFB Homebrew Competition, 328 entries—*Bernard Jene, Colorado Springs, CO.*
Wyoming Brewers Festival 6th Annual Homebrew Competition, 58 entries—*James Estes, Evansville, WY.*

PDX Stout Bout, 105 entries—*Charles MacAluso, St. Helens, OR.*

Romancing the Beer, 261 entries—*William Barrett, San Diego, CA.*

KLCC Brewfest Homebrew Competition, 265 entries—*Doug Ballou, Portland, OR.*

Northern Arizona Homebrew Competition, 47 entries—*Mark Pennick, Colorado.*

America's Finest City Homebrew Competition, 548 entries—*Nick & Kandy Corona, San Marcos, CA.*
HOZER Single Strain Showdown, 19 entries—*Megan Roworth, Hamilton, ON.*

KCBM 35th Annual Competition, 529 entries—*Rob Wilmot, Kansas City, MO.*

War of the Worts, 697 entries—*Matt King, Souderton, PA.*

Newcastle Regional Show Brewers Championship, 50 entries—*Daniel Ivey, New South Wales, Australia.*

2018 GEBL IPA Bracket Challenge, 101 entries—*Dave Frombach, Poulsbo, WA.*

Beerfest, 2018, 186 entries—*Hayden Henderson, Melbourne, Australia.*

Bluff City Brewers and Connoisseurs Extravaganza, 293 entries—*Chris Norris, Lebanon, TN.*

Winter Beer Dabbler Homebrew Contest, 70 entries—*Jessica Haverly, St. Paul, MN.*
BRRR Fest Home Brew Competition, 17 entries—*Sam Snyder & Dan Voors, Fort Wayne, IN.*

The Orange County IPA Classic, 27 entries—*Jaime Hayes, Costa Mesa, CA.*

QUAFF COC - English v. American IPA, 8 entries—*Oleg Shpyrko and Matt Barrett, San Diego, CA.*

Great Basin Brewoff, 139 entries—*Todd Leary, Sparks, NV.*

Isra - Brew, 106 entries—*Aleksey Radionov, Beer Sheva, Israel.*

March 2018

Shamrock Open XXIII, 300 entries—*Jesse Newcomer, Chesterfield, VA.*

Winter's Warmers, 58 entries—*Francis Hiller Sr., Eastampton, NJ.*

Bockfest, 66 entries—*Bob Isburgh, Cincinnati, OH.*

BABBLE Brew off, 113 entries—*Jon Weaver, Chicago, IL.*

Fur Rondy Homebrew Competition, 52 entries—*Christophe Venot, Anchorage, AK.*

Lupuleros Spring Challenge, 22 entries—*Ivan Grano, Zapopan, Mexico.*

Lancaster Iron Brewer, 194 entries—*Rob Knighton, Columbia, PA.*

Homebrewers of Western Loudoun Wort Share Competition 2018, 31 entries—*Michael Dinsmore, Sterling, VA.*

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COMPETITION PROGRAM CALENDAR

For complete calendar, competition and judging information go to
HomebrewersAssociation.org/pages/competitions



May 3, 2018

Carbondale Brew Fest

Home Brew Competition

carbondalemainstreet.com

Carbondale, IL

Entry Deadline: 4/20/2018

May 5, 2018

Wales & West Festival

walesandwest.org.uk

Torquay, UK

Entry Deadline: 4/1/2018

May 5, 2018

Lawrence Brewers Guild

Big Brew Day Brew-Off

lawrencebrewers.org/brew-off

Lawrence, KS

Entry Deadline: 4/21/2018

May 5, 2018

Boston Homebrew Competition

bhc.wort.org

Boston, MA

Entry Deadline: 4/20/2018

May 5, 2018

Cascade Brewers Cup

cascadebrewersguild.com/competition

Seattle, WA

Entry Deadline: 4/28/2018

May 5, 2018

Morgan Cup

madzymurgists.com

Tracy, CA

Entry Deadline: 4/13/2018

May 5, 2018

RAZE Second Annual Cinco de Mayo

razecompetition.info

Rochester, MN

Entry Deadline: 4/28/2018

May 5, 2018

Saisonfest

brewfest.daytondraft.org

Middletown, OH

Entry Deadline: 4/30/2018

May 5, 2018

Tamassee Craft Brew Festival

tamasseeraftbrewfestival.com

Seneca, SC

Entry Deadline: 5/4/2018

May 5, 2018

Craft Brewers powwow

Cape Town, South Africa

Entry Deadline: 3/31/2018

May 5, 2018

2018 Greg Noonan Memorial

Homebrew Competition

mashers.org

Essex Jct, VT

Entry Deadline: 4/12/2018

May 5, 2018

Horton Ridge Malt House Open

noblegrape.ca/pages/horton-ridge-malt-open-brewing-competition

Dartmouth, NS

Entry Deadline: 4/20/2018

May 5, 2018

Copa Cerveza Laguna

Torreón, Mexico

May 6, 2018

Iº Concurso Aberto Concervap

concurso.concervap.com.br

Sao Jose Dos Campos, Brazil

Entry Deadline: 4/15/2018

May 6, 2018

Lagerpalooza 4

lagerpalooza-proam.com

Midvale, UT

Entry Deadline: 4/28/2018

May 6, 2018

Fraser Coast Home Brew Comp

frasercoastbrewers.com

Dundowran Beach, Australia

Entry Deadline: 4/16/2018

May 6, 2018

Battle of the Bubbles VIII

bob.brewcomp.com

Frederick, MD

Entry Deadline: 4/28/2018

May 6, 2018

San Diego County Fair

Homebrew Competition

sdfair.com

Del Mar, CA

Entry Deadline: 4/13/2018

May 10, 2018

2018 VanBrewer Awards

vanbrewers.brewcomp.com

Vancouver, BC

May 12, 2018

US Open 2018

usopen.carolinabrewmasters.com

Charlotte, NC

Entry Deadline: 4/30/2018

May 12, 2018

Krausen Cup

imperialyeast.com/krausencup

Portland, OR

Entry Deadline: 4/22/2018

May 12, 2018

2018 Alameda County Fair

Homebrew Competition (BABO)

alamedababo.fairmanager.com

Pleasanton, CA

Entry Deadline: 4/20/2018

May 12, 2018

Copa Nacional de Cerveceros Caseros

Bogota, Colombia

Entry Deadline: 5/8/2018



For an up-to-date calendar
of AHA and BJCP events
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**AHA/BJCP SANCTIONED
COMPETITION PROGRAM CALENDAR**

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May 12, 2018

22nd Annual BEER Brew-Off

beerhbc.org

Bay Shore, NY

Entry Deadline: 4/27/2018

May 18, 2018

**Spring Out to Sunset All-American
Homebrew Competition**

Valparais, IN

Entry Deadline: 5/14/2018

May 19, 2018

**Shanghai 2018 National
Homebrew Competition**

shanghaibrewing.org

Shanghai, China

Entry Deadline: 5/12/2018

May 12, 2018

Wort Transformation Challenge

La Vista, NE

Entry Deadline: 3/9/2018

May 18, 2018

Oregon Homebrew Festival (OHF)

hotv.org/ohf

Corvallis, OR

Entry Deadline: 5/4/2018

May 19, 2018

Lunar Rendezbrew

mashtronauts.com/rendezbrew

Seabrook, TX

Entry Deadline: 3/29/2018

May 12, 2018

**UNYHA Big 40 - UNYHA 40th annual
Home Brew Competition**

unyha.com

Rochester , NY

Entry Deadline: 5/2/2018

Duelo Cerveceros de Occidente

duelocerveceros.com

Guadalajara, Mexico

Entry Deadline: 5/4/2018

May 19, 2018

Heart of Cascadia

hoc.oregonbrewcrew.org

Portland, OR

Entry Deadline: 5/10/2018

May 12, 2018

21st Annual Cactus Challenge

ale-iantsociety.org/cactus

Lubbock, TX

Entry Deadline: 3/30/2018

Njhopz Das Boot - Maifest

njhopz.com

Hackettstown, NJ

Entry Deadline: 5/5/2018

May 19, 2018

Rhinegeist Homie Competition

homie.brewcompetition.com

Cincinnati, OH

Entry Deadline: 5/12/2018

May 12, 2018

Invitational Homebrew Competition

track7brewing.com/homebrew

Sacramento, CA

Entry Deadline: 5/3/2018

**6th Annual Hop Blossom
Homebrew Competition**

shenbrew.org/competitions/hop_blossom_18

Winchester,VA

Entry Deadline: 5/19/2018

May 20, 2018

**Innovation Brew Works Home Brew
Competition**

ibrewworks.com

Pomona, CA

Entry Deadline: 5/7/2018

May 14, 2018

**IV Copa Latinoamericana
de Cervezas Artesanales**

facebook.com/CopalatamCAP

Lima, Peru

Entry Deadline: 5/1/2018

Upland Brewing Co UpCup

uplandbeer.com/events

Bloomington, IN

Entry Deadline: 5/12/2018

May 20, 2018

**London and South East
Craft Brewing Competition**

londonandsoutheast.brewcompetition.com

London, UK

Entry Deadline: 4/22/2018

May 17, 2018

**13th Annual Great Lakes International
Cider and Perry Competition (GLINTCAP)**

glintcap.org

Grand Rapids, MI

Entry Deadline: 4/30/2018

King of the Mountain

kotm.lmhba.org

Willoughby, OH

Entry Deadline: 4/27/2018

May 25, 2018

Aro Rojo

arorojo.com

Tampico, Mexico

Entry Deadline: 4/25/2018

May 18, 2018

BrewMaui Annual Home Brew Contest

brewmaui.com

Kihei, HI

Entry Deadline: 5/11/2018

We Are Not Bitter About Brexit

gcbrewers.wordpress.com

Bray, Ireland

Entry Deadline: 5/12/2018

May 25, 2018

**Great Alaskan Craft Beer and
Home Brew Festival**

seakfair.org/homebrew

Haines, AK

Entry Deadline: 5/22/2018



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May 26, 2018

MoM Hot Summer Brew Off

mashers.talkhops.com

Kansas City, MO

Entry Deadline: 5/5/2018

May 26, 2018

**Hogtoberfest Craft Beer Festival &
Homebrew Competition**

groundhog.org/events/hogtoberfest-craft-beer-festival

Punxsutawney, PA

Entry Deadline: 5/18/2018

May 26, 2018

3° Copa Cervezas de Chile

minicerveceria.cl

Santiago, Chile

Entry Deadline: 5/12/2018

May 26, 2018

2018 Hogtown Brew-Off

hogtownbrewers.org/brewoff

Gainesville, FL

Entry Deadline: 5/15/2018

May 26, 2018

**Copa Cervejeira Concerva -
Regional Maringá**

concervamga.com.br/concurso

Maringá, Brazil

Entry Deadline: 3/30/2018

May 27, 2018

Big Batch Brew Bash (BBBB)

thekgb.org

Houston, TX

Entry Deadline: 5/18/2018

May 31, 2018

XIII Concurso Nacional das ACervAs

acervamineira.com.br

Belo Horizonte, Brazil

Entry Deadline: 5/17/2018

June 1, 2018

Slow Beer Mx Cup

slowfood.mx/slow-beer

Puebla, Mexico

June 2, 2018

Aurora Brewing Challenge

ehg.ca/abc

Edmonton, AB

Entry Deadline: 5/25/2018

June 2, 2018

VII. Hrvatsko Homebrew Prvenstvo

hrvatskohomebrewprvenstvo.beer/competition

Zagreb, Croatia

Entry Deadline: 5/18/2018

June 2, 2018

Ohio State Fair Homebrew Competition

ohiostatefair.com

Columbus, OH

Entry Deadline: 5/15/2018

June 2, 2018

OC Fair Homebrew Competition

ocfair.com/howtoenter/beer-wine

Costa Mesa, CA

Entry Deadline: 4/27/2018

June 2, 2018

Denver International Beer Competition

denverbeercomp.com

Broomfield, CO

Entry Deadline: 5/25/2018

June 2, 2018

JABfest 2018

reggiebeer.com/ReggieEntry.php?CompetitionID=LLGMAB1000341

Jonesboro, AR

Entry Deadline: 4/27/2018

June 2, 2018

Sonoma-Marin Fair Home Brew Contest

sonoma-marinfair.org

Petaluma, CA

Entry Deadline: 5/26/2018

June 4, 2018

Because Beer Homebrew

Competition 2018

becausebeer.ca/competition

Hamilton, ON

Entry Deadline: 5/25/2018

June 4, 2018

La Copa del Procer

Panama City, Panama

Entry Deadline: 5/19/2018

June 8, 2018

Antelope Valley Homebrew Competition

transplantsbrewing.com/competition

Palmdale, CA

Entry Deadline: 6/1/2018

June 9, 2018

The 9th Annual Appalachian Brew Club

IPA Throwdown

abcipathrowdown.brewcompetition.com

Elkins, WV

Entry Deadline: 6/2/2018

June 9, 2018

The Boneyard Brewoff

buzzbrewclub.org/competition

Champaign, IL

Entry Deadline: 6/5/2018

June 9, 2018

Summer Sizzler

downeastalers.com

Greenville, NC

Entry Deadline: 5/25/2018

June 10, 2018

Marin County Fair Amateur

Homebrewing Competition

marinmashers.com/

mcf-2018-homebrew-competition

San Rafael, CA

Entry Deadline: 5/28/2018

June 16, 2018

Belgian Brew Brawl

belgianbrewbrawl.brewcompetition.com

Austin, TX

Entry Deadline: 5/12/2018

June 16, 2018

BUZZ Off 24

buzhomebrewclub.com

West Chester, PA

Entry Deadline: 6/2/2018



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/pages/competitions**

June 18, 2018

Chesty Puller Brew Off

knifehandcup.com

Fort Worth, TX

Entry Deadline: 6/9/2018

June 18, 2018

River's Edge Homebrew Competition

riversedgebrew.com

Milford, MI

Entry Deadline: 6/15/2018

June 23, 2018

Alamo City Cerveza Fest

accf.bexarbrewers.org

San Antonio, TX

June 28, 2018

**2018 AHA National Homebrew
Competition Final Round**

homebrewersassociation.org/national-homebrew-competition

Portland, OR

June 30, 2018

**Drink CRAFT Not Crap -
Copa de Homebrewers**

Quito, Ecuador

Entry Deadline: 6/22/2018

June 30, 2018

Sunshine Challenge 2018

cfhb.org

Orlando, FL

Entry Deadline: 5/22/2018



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COMMERCIAL CALIBRATION

One way beer judges check their palates is by using commercial “calibration beers”—classic versions of the style they represent. Zymurgy has assembled a panel of four judges who have attained the rank of Grand Master in the Beer Judge Certification Program. Each issue, they score two commercial beers (or meads or ciders) using the BJCP scoresheet. We invite you to download your own scoresheets at bjcp.org, pick up a bottle of each of the beverages and judge along with them in our Commercial Calibration.



If you're going to Homebrew Con this June—and you owe it to yourself, your homebrew, and your country to attend—you could do much worse than trace the route between Bend and Portland, Ore., detailed in this issue's installment of Beeroscope (see page 8). Should you pursue this little road trip, be sure to carry a copy of this issue with you and taste test the following Pacific Northwest IPAs that our judges have evaluated just for you.

Breakside Brewery has three Oregon locations: two in Portland and one in

Milwaukie, which is not in Wisconsin, but rather a short drive south of Portland. The brewery's IPA has won a whole bunch of awards, including Gold at the 2014 Great American Beer Festival® (GABF) and GABF Bronze in 2017.

According to Breakside, IPA is brewed with two-row, Munich, caramel 40, and caramel 20 malts, plus Chinook, Citra, Columbus, and Falconer's Flight hops. The beer has 73 IBUs and 6.2% ABV, and the label notes that it “tastes like vinyl sounds.” But whether you're devoted to digital or an analog aficionado, you'll certainly agree that Breakside IPA hits all the right notes.

Next, we turn to Hop Venom, a double IPA from Boneyard Beer in Bend, Ore. Boneyard is a draught-only operation, but the taproom crew is happy to fill growlers and crowlers for thirsty patrons who want beer to go.

OUR EXPERT PANEL includes David Houseman, a Grand Master VI level judge and competition director for the BJCP from Chester Springs, Pa.; Sandy Cockerham, a Grand Master IV level judge from Indianapolis, Ind. and an associate exam director and Midwest Representative for the BJCP; Scott Bickham, a Grand Master III judge from Corning, N.Y., who has been exam director or associate exam director for the BJCP since 1995; and Gordon Strong, a Grand Master IX judge, principal author of the BJCP Style Guidelines, and president of the BJCP board who lives in Beavercreek, Ohio.



The Independent Craft Brewery Seal is your assurance that the beer you're holding was crafted by a small, independent, traditional brewery.

Hop Venom is an alluring beast of an IPA. Simcoe, Centennial, Chinook, and Columbus/Tomahawk/Zeus (CTZ), dosed at an impressive 4.5 pounds of hops per barrel (1.5 kg/hL), deliver 60 IBUs, while a seemingly restrained malt foundation nonetheless manages to generate 9% ABV. The brewery says that double dry hopping yields “flavors and aromas of tangerine and pine” but makes no claims about audio media.

Boneyard Hop Venom is distributed only in Oregon and Washington, though I can confirm from personal experience that occasional kegs do show up here and there at good beer bars, so keep your eyes open. Breakside's beers are currently available in Oregon (duh) as well as Arizona, California, Colorado, Hawaii, Idaho, Maine, Massachusetts, New York, North Carolina, South Carolina, Vermont, Washington, and British Columbia.



Breakside Brewery
breakside.com

Boneyard Beer
boneyardbeer.com

BJCP Style Guidelines
bjcp.org

Commercial Calibration Index
HomebrewersAssociation.org/pages/zymurgy/commercial-calibration

THE SCORES



Breakside IPA—Breakside Brewery, Portland, Ore.
BJCP Category: 21A, American IPA



DAVE HOUSEMAN

THE JUDGES' SCORES FOR BREAKSIDE IPA



SANDY COCKERHAM



SCOTT BICKHAM



GORDON STRONG

Aroma: Fruity tangerine and grapefruit citrus hop aroma with supporting complex malt backbone. Some alcohol in the background, but secondary to the hops and malt. A lingering musty aroma adds to the complexity. No DMS or diacetyl. Very inviting. (10/12)

Appearance: Dark gold color is appropriate to style. Bright clarity. Dense, rocky, beige, long-lasting head. Beautiful. (3/3)

Flavor: The citrus hop flavor and complex, sweet malt are well balanced. An interesting mustiness, oddly, brings complexity to the beer rather than detracting from it. There's some notable alcohol but it's subtle and not hot. Finishes with both malt sweetness and hop flavor and bitterness. A bit of citrus tang in the aftertaste. No DMS or diacetyl. (18/20)

Mouthfeel: Medium body. Smooth, creamy mouthfeel with lots of bitterness but not harsh and no astringency. Alcohol warming within reason for a 6.2% beer. (5/5)

Overall Impression: A classic West Coast IPA. Well balanced is the hallmark. Quite hoppy without being too intense. The musty notes are reminiscent of a corked, aged beer and add to the complexity. A little more malt complexity, like some toasty notes would be welcome. Very drinkable by the pint at least, with a charcuterie board or a plate of calamari. (8/10)

Total Score: (44/50)

Aroma: The aroma starts out with pine, pineapple, a hint of peach, and some spicy floral tones, all medium-high. Moderate malt character is somewhat rich, a blend of biscuit and bread with but a tinge of caramel. I perceive it as most likely having some English malts in the grist. The spicy note in the nose makes me think of cinnamon but it seems to be hop derived. No estery fruity notes outside of hop fruitiness. (10/12)

Appearance: The beer pours dark gold with moderate haze, presumably from dry hopping. The thick, fine, rocky, ivory head has excellent staying power and lasts a very long time. (3/3)

Flavor: Medium-high hop flavor has a tart, tropical fruit character underpinned with resinous notes. Moderate malt is biscuit-like with a rough, grainy aftertaste. Bitterness is medium-high and lingers. The bitterness seems to meld with some of the moderate grainy astringent flavors and make the finish seem bitterer and a bit harsh. Balance is definitely to the hops. Dry finish. (15/20)

Mouthfeel: Medium-bodied with medium to medium-high carbonation. Moderate alcohol warming on the finish seems a bit excessive. Low grainy, husky astringency in the final swallow. (3/5)

Overall Impression: This is an enjoyable IPA, but it comes across as a bit alcoholic for 6.2% ABV. The bitterness has a coarse edge, and the malt has a husky, grainy quality in the finish. Toning both of those down would help to make this beer shine. (7/10)

Total Score: (38/50)

Aroma: Medium-high resinous, earthy hop aroma with dank notes that many IPA fans treasure. There are some pine notes in the background and low citrus. Alcohol is apparent and modest—clean without any solvent character. Light esters of pear and red apple. Malt provides some supportive honey-like sweetness and light toasted notes. I pick up light papery notes as it warms, along with a mild aged-hop character. (8/12)

Appearance: Copper with a finely beaded head that lasts well in spite of the alcohol. Pristine clarity. (3/3)

Flavor: Hop flavor echoes the aroma but musty, slightly cheesy notes may be from aged hops. Moderate citrus and grapefruit notes fade to a bitterness that lingers pleasantly. Low malt provides some support without being overly sweet. Moderately dry finish enhances and complements the bitterness. Low fruity esters take a back seat to the hops. The balance is very good, oxidation mars the profile. (16/20)

Mouthfeel: Moderate carbonation and body with some clean alcohol warmth in balance with the other components. The astringency is on the high side and hurts drinkability. (3/5)

Overall Impression: This is a very nice beer. The malt-hop balance is nearly perfect and tempered by judicious alcohol. Some of the hops may have been a little past their prime: there is fresh hop character in the aroma but unpleasant, cheesy notes in the flavor and harshness in the mouthfeel. The dry finish helps emphasize the bitterness without leaving too much sweetness in the aftertaste. Nicely done! (8/10)

Total Score: (38/50)

Aroma: High hop aroma, primarily pine and resin. Woody, herbal notes emerge along with light fruitiness. Malt in background is neutral but slightly grainy-sweet. Hops dominate. Kind of a rustic presentation. Slightly grassy-fresh. Clean fermentation character. Slight alcohol sharpness. (10/12)

Appearance: Tall head is cream colored and persistent with tight foam. Fairly clear—not brilliant but thankfully not hazy. Very deep gold color, nearly amber. (3/3)

Flavor: High bitterness and hop flavor with background malt. The same hop character is in the flavor as in the aroma—woody, piney, resinous, and sticky. Full-yet-dryish finish with harsh bitterness lingers in the aftertaste along with the fresh, grassy hop flavor. Light alcohol flavor and neutral fermentation character. Neutral, grainy malt flavor has a very light hint of honey-like sweetness. (16/20)

Mouthfeel: High carbonation is a bit much and makes my cheeks puff out. Medium to medium-full body and the carbonation make it seem heavy. Warming alcohol with a slight bite to it. Moderate hoppy astringency. (3/5)

Overall Impression: Kind of full-bodied and heavy, but clean. The hops are aggressive and a bit old-school, but that reminds me of Pacific Northwest beer. Clean fermentation. Might be slightly oxidized, as there are some honey notes and harshness in the aftertaste. The body and carbonation make me drink it more slowly than I want to. I think it would drink better if the bitterness level was about 20 percent lower. (7/10)

Total Score: (39/50)



THE JUDGES' SCORES FOR HOP VENOM



Aroma: Intense tangerine and pine hop aroma along with other fruity fermentation esters. Nice supporting pale-ale malt backbone makes for a balanced aroma. High ethanol aroma brings a bit of a Belgian note to this American style. No DMS or diacetyl. (10/12)

Appearance: Dark gold color appropriate for the style. Some haze to an otherwise clear beer, likely due to hopping. Big, dense, beige, long-lasting head. (3/3)

Flavor: Intense hop bitterness and high ethanol flavors dominate. There is a supporting pale-ale maltiness that's not contributing as much to complexity as the high, primarily resinous, hop flavor. Fairly well balanced. The malt finishes with a bit of sweetness even with the high hop bitterness. High alcohol lends some sweetness to the finish. Good deal of citrus fruity esters from hops as well as fermentation. Malt, hops, and bitterness all carry into the aftertaste. No DMS or diacetyl. (17/20)

Mouthfeel: Medium body. Smooth malt with very high hop bitterness in mouthfeel without hop astringency. The alcohol warming is equally intense. Alcohol and hops result in some harshness. (4/5)

Overall Impression: This is a drinkable, well-made beer, best in small quantities due to the alcohol. The hops coat the tongue but aren't over the top. More malt and hop complexity would be welcome, however. For me, the alcohol could be softer and subtler. Still, this would nicely accompany a sharp, well-aged cheddar, or just enjoy sipping it on a cold night before bed. (7/10)

Total Score: (41/50)

Aroma: This beer's medium-high hop aroma is initially just some piney and resinous notes but as it opens up, a bit of peach and apricot emerge. Some light herbal notes as well. The malt is moderate mostly bready with a light biscuit note plus a slight, sweet accent of caramel. I don't get any esters: fermentation is very clean. (10/12)

Appearance: Deep gold with moderate haze. The thick, rocky ivory head is mostly fine bubbles but includes a few medium-sized ones. Excellent head retention. (3/3)

Flavor: The initial sip is all about the hops. Medium-high hop flavor is a blend of herb and resin, but without as much fruit character as in the aroma—just a tinge of grapefruit. High bitterness has some lingering grassiness. Malt is medium-high, biscuit with a hint of caramel. The caramel note isn't too much, and the beer still finishes off dry, primarily due to the big hop wallop. Some low, fruity, estery notes are fairly generic, but some red apple seems to be in there. (17/20)

Mouthfeel: Medium to medium-full body. Medium-high carbonation gives a little carbonic bite. Some medium-low alcohol warming. Medium-low grassy astringency lingers on the tongue and gives a pleasant dryness. (4/5)

Overall Impression: This beer is an ode to hops. Hop aroma leads the way, and hop flavor and bitterness dominate the palate. There is enough malt character to add support, but it definitely plays second fiddle. This beer was listed as 9% ABV, but it doesn't taste that big! This beer could really sneak up on you. Hopheads, enjoy, but take care! (9/10)

Total Score: (43/50)

Aroma: American hops are prominent, with classic pine, floral, and citrus, along with secondary resinous and woody notes. Alcohol is evident, with bright ethanol notes but no harshness. Some malt exhibits light biscuit and faint caramel. Light fruity esters complement the hop aromas. (11/12)

Appearance: The color of freshly polished copper with excellent clarity. The head forms readily with fine, white, long-lasting bubbles. (3/3)

Flavor: Malt flavor is more assertive than in the aroma, with moderate caramel and toffee, crackers, and lightly toasted breadcrumbs. Hop flavor is medium-high, with pine and resin character rather than floral and citrus. It transitions to a pronounced bitterness that lingers. Initial balance is only slightly towards the hops but shifts more strongly after the hop bittering compounds sink their fangs into the taste buds. Medium-dry finish. (18/20)

Mouthfeel: Moderately high alcohol warmth is pleasant with no burn. Medium astringency gives some bite and is not excessively harsh. Body, carbonation, and creaminess are all medium and on the mark for the style. (4/5)

Overall Impression: This is an enjoyable beer—well done! It's surprisingly smooth and drinkable despite the high bitterness and alcohol. The malt provides almost enough backbone to be an antidote, but in the end, the massive IBU level decidedly tilts the balance to the hops. The interplay of hop and fermentation aromatics with alcohol works particularly well. The finish could be slightly drier, with a little less caramel lingering in the aftertaste. Thanks for sharing! (9/10)

Total Score: (45/50)

Aroma: Strong, fresh hop aroma: grassy, bright, citrus, grapefruit rind, and wood. Moderate alcohol sharpness. Clean fermentation. Light fruitiness. Very neutral malt, almost hidden. Hops have a very fresh character. (11/12)

Appearance: Very tall head is ivory, frothy, and persistent. Medium gold body. Slight haze but mostly clear. (3/3)

Flavor: Strong, fresh hop flavors of grass, citrus, and wood dominate. High bitterness is balanced by neutral-flavored malt. Has a soft finish without a big bite. Fresh hop flavor, light alcohol, and slight grainy-sweet malt linger a bit in the aftertaste. Light fruitiness. Clean and fresh. (18/20)

Mouthfeel: Medium carbonation. Medium to medium-full body. Warming alcohol, all the way down. Smooth on the palate. (4/5)

Overall Impression: Body is a bit big, but the smooth finish and clean flavors enhance drinkability. Big, but the alcohol is smooth. I like that the alcohol doesn't make the bitterness seem too sharp. Very clean fermentation and hop flavor. Quite grassy-fresh. Well balanced and drinkable for a big, hoppy beer. I think the soft finish is the key, along with the super-fresh hop presentation. (8/10)

Total Score: (44/50)



#HomebrewCon



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By Emily Hutto

Pro Brewers Reflect on Their Homebrewing Roots

Brian Peters, Austin Beer Garden Brewing Co.

Editor's Note: Many pro brewers continue to homebrew even after years or decades of brewing commercially. Homebrew Homecoming is a series in which we invite the professionals to reflect upon their early days as homebrewers, offering wisdom and recipes to Zymurgy readers along the way. We hope their stories inspire you to brew eagerly and brew often.

The owner and brewer at Austin Beer Garden Brewing Co. is thumbing through his old spiral notebook of homebrewing recipes remembering the good old days. "I never thought I'd be a godfather of this Austin beer scene—I was just a dude in my kitchen, just a typical homebrewer," says Brian Peters. "I used a different yeast, brewed a different style every time," he regales.

Peters' first entire homebrewing setup "all went down on my stovetop." He boiled in a 2-gallon (7.6-liter) stainless pot that he bought for \$18 at Target and fermented in a glass carboy. "I built one of those plastic lauter tuns with two buckets, one with holes in the bottom, and I built it all for free. I never bought anything from a homebrew store. I'm frugal, and brewing appealed to my frugal side."

Peters, of course, went all-grain, which naturally led him to read Charlie Papazian's *The Complete Joy of Homebrewing*. These were the pale ale days of the late '80s. "We were shooting for those flavors," he says. "We brewed Dog Breath Ale which was a little darker than Sierra Nevada Pale."

As the story goes, the next step for Peters' homebrewing career would be lager brewing. "I was keenly aware that I couldn't do this in Texas without really good temperature control," he says. "The temperature outside can be 75, and the carboy can reach up to 85! We're always temperature challenged."



Lucky for beer drinkers, Peters loves a challenge. "I had a fridge that I converted to hold a fermenter, then added a thermostat to control the temperature," he says. "So I decided to start brewing a spectrum of lagers: Pilsner, dunkel, Oktoberfest."

When he heard that Pilsner Urquell was the best beer in the world, Peters thought, *I want to brew the best beer in the world.*

So then came the Czech Pilsner days. Peters was homebrewing with his buddy Chip McElroy on a system made out of modified kegs. They made 15-gallon

(57-liter) batches and fermented them in plastic food-grade jugs; they racked into soda kegs and served their beer out of a 20-cubic-foot chest freezer that they found free in the classifieds.

"Pretty soon I had two chest freezers and a fermentation fridge in my garage," Peters says. "I was obsessed with making Pilsners and fine tuning the recipe. I took out crystal and Munich malts pretty early on. I concluded, I think they just use Pils Malt. Then I remember fine tuning fermentation and hopping rates. German Magnum hops, then Saaz."

SIMPLE PILS

German-style Pils

"Our passion is Pilsner-driven," says Brian Peters. "Pilsner is simple and refreshing all the way through, with enough hops to make it interesting. All good Pilsner recipes start with German Pilsner malt—and only Pilsner malt—to be authentic. I wouldn't mess with anything else besides maybe a little bit of acid malt," he advises homebrewers. "Water is critical, as Pilsner was not a style originally brewed in places with hard water. It's too hard to get the hops and malt flavor right when you have that alkalinity, so we lower ours a bit. We have a pH of 6 when we mash in and when we sparge. Anything over 7, I can't recommend."

Batch Size: 5.5 US gallons (20.8 L)

Original Gravity: 1.046 (11.5° P)

Final Gravity: 1.012 (3° P)

Color: 3 SRM

Bitterness: 35 IBU

Alcohol: 4.9% by volume

MALTS

9 lb. (4.08 kg) Weyermann Pilsner malt
(any German Pils malt is fine.)

2 oz. (57 g) Weyermann acidulated malt
(if pH is high, use more, up to 1–2%)

HOPS

1 oz. (28 g) Hallertau Tradition @ 60 min
1 oz. (28 g) Hallertau Mittelfruh @ 45 min
1 oz. (28 g) Hallertau Mittelfruh @ 15 min
1 oz. (28 g) Safir @ 0 min
(to create floral rather than spicy flavors)

YEAST

Wyeast 2352PC Munich lager II yeast, 2 qt. starter. This yeast is seasonal, but a good year-round alternative is Wyeast 2042 Danish Lager.

ADDITIONAL ITEMS

1 Whirlfloc tablet or 1 tsp. (5 g) Irish moss @ 15 min

DIRECTIONS

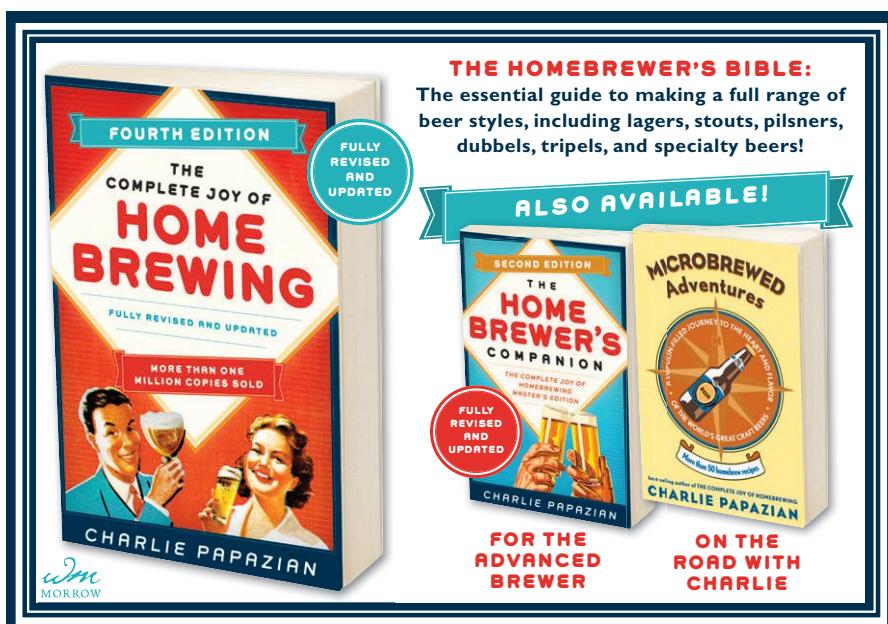
Mash for 30 minutes at 145° F (63° C). Raise mash temperature to 160° F (71° C) over 15–20 minutes and rest for 15 minutes. Recirculate until wort is clear (15–20 minutes). Boil 60 minutes with hop additions mentioned above. Whirlpool and cool wort to 52° F (11° C). Aerate wort and pitch yeast. Ferment at 52° F (11° C) until specific gravity hits 1.016 (4° P), in approximately 10 days, then raise temperature to 58° F (14° C) and hold for four days. Rack beer into a CO₂-purged soda keg and cool by 3° F (1.7° C) a day until beer reaches 32° F (0° C). Hold at 32° F (0° C) for four weeks. Force carbonate and enjoy.

EXTRACT VERSION

Substitute Pilsner and acid malts with 7 lb. (3.18 kg) Pilsner liquid malt extract or 5.75 lb. (2.61 kg) extra-light dry malt extract. Dilute extract with reverse osmosis water, top up to desired boil volume, and proceed as above.

Those Czech Pils days with Chip would be Peters' final homebrewing phase before he went pro. He and McElroy went on to open Live Oak Brewing in East Austin before he brewed at the now defunct The Bitter End and then at Uncle Billy's brewery. He launched Austin Beer Garden Brewing Co. (ABGB) with Amos Lowe, Mark Jensen, and Jill and Curt Knobloch in 2013.

The ABGB made a name for itself with its clean, crisp lagers in no time. In 2015, Rocket 100 (a lager brewed to emulate what German immigrants brewed before Prohibition) won a gold medal in the American-Style or International-Style Pilsener category at the Great American Beer Festival® (GABF). In 2016, Industry Pils won gold at GABF in German-style



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"THE FIRST ADVICE I GIVE HOMEBREWERS IS PICK YOUR FAVORITE STYLE, THEN BREW IT EVERY OTHER TIME TO THE POINT WHEN YOU CAN BREW IT WITH YOUR EYES CLOSED."

- Brian Peters

Pilsner and Hell Yes Munich-style Helles won a bronze; and at the World Beer Cup® Rocket 100 won a bronze medal. In 2017, Rocket won another gold medal at GABF and Velvet Revolution won a gold medal in Bohemian-Style Pilsener category.

Despite extensive accolades (including the prestigious Large Brewpub of the Year Award both in 2016 and 2017) and a seriously upgraded brewhouse compared to his original low-budget system, Peters still operates with a frugal homebrewer's mentality. He's not interested in state-of-the-art equipment. He just wants to make really great lager. "At Live Oak and Bitter End and now the ABGB, we never blame the equipment," he says. "You can brew on a hodgepodge, Frankenbrew setup and still make great beer."

Advice for Homebrewers

That's one of Peters' biggest takeaways from his homebrew days—don't worry about your equipment; focus on the process instead.

"The first advice I give homebrewers is pick your favorite style, then brew it every other time to the point when you can brew it with your eyes closed," Peters says. "Tweak that recipe every time, use a control group. I figured out that you have to settle down to become a good brewer."

He also figured out that "the recipe is not a golden ticket!" He says a recipe is nothing, actually. "Great beer means better fermentation, not better recipes," he explains.

BIG STAR LAGER

American-style Pils

Batch Size: 5.5 US gallons (20.8 L)

Original Gravity: 1.053 (13° P)

Final Gravity: 1.013 (3.3° P)

Color: 3 SRM

27 IBU

Alcohol: 5.6% by volume

MALTS

8.5 lb. (3.86 kg) pale two-row malt

2 lb. (0.9 kg) flaked corn

3 oz. (85 g) Weyermann acidulated malt

HOPS

1 oz. (28 g) Hallertau Tradition @ 60 min

1 oz. (28 g) Hallertau Tradition @ 15 min

1 oz. (28 g) Hallertau Tradition @ 0 min

YEAST

White Labs Munich Helles (WLP 860) yeast, 2 qt starter.

ADDITIONAL ITEMS

1 Whirlfloc tablet or 1 tsp. (5 g) Irish moss @ 15 min

DIRECTIONS

Mash for 30 minutes at 145° F (63° C). Raise mash temperature to 160° F (71° C) over 15–20 minutes and rest for 15 minutes. Recirculate until wort is clear (15–20 minutes). Boil 60 minutes with hop additions mentioned above. Whirlpool and cool wort to 52° F (11° C). Aerate wort and pitch yeast. Ferment at 52° F (11° C) until specific gravity hits 1.016 (4° P), in approximately 10 days, then raise temperature to 58° F (14° C) and hold for 4 days. Rack beer into a CO₂-purged soda keg and cool 3° F (1.7° C) a day until beer reaches 32° F (0° C). Hold at 32° F (0° C) for 4 weeks. Force carbonate and enjoy.

EXTRACT VERSION

Substitute pale and acid malts with 8 lb. (3.63 kg) Pilsner liquid malt extract or 6.5 lb. (2.95 kg) extra-light dry malt extract. Omit flaked corn. Dilute extract with reverse osmosis water, top up to desired boil volume, and proceed as above.



Peters homebrewing with his buddy Chip McElroy.

All About The Yeast

"It all comes down to the yeast," Peters drives home. "The trick with lager brewing is temperature control and having twice as much yeast as you think you need. You're trying to get that yeast count as high as possible so the good yeast outnumber any bad yeast. No matter how clean you are, the good has to outnumber the bad. If you can make that happen, you'll make good lagers."

In Texas, there's a lot of wild yeast in the air. "Yeast counts in the millions outnumber the hundreds, so those low levels of contamination aren't a problem," Peters says.

Peters adds that it's also critical for good lager-making to become adept at making yeast starters.

"Home lager brewers should get comfortable with making starters, probably a half gallon at a time," he says. He suggests starting at least a week before the brew with a 5 percent or lower gravity beer—like a Helles or a Pilsner—and pitching yeast after the temperature reaches 70 degrees. "I start with two packages of yeast. Compared to ale yeast, we put in four times more weight of lager yeast when we brew. That's just our mileage, and it's different for everyone."

Patience Pays Off

If you don't see any signs of fermentation in your lager within 48 hours, don't sweat it," Peters says. "As long as you're super clean, don't be surprised if you have a lag time of three days, which, I know, is excruciatingly long."



Austin Beer Garden Brewing Co.

So Do German Malts & Hops

When he tried using North American ingredients for his Pilsners, they didn't give Peters "the mind transportation into Germany" that he wanted. "If you want to feel like you're drinking in a beer plaza in Munich, I highly recommend using German malts and hops," he says. "If you really want a Czech- or German-style experience, you have to use ingredients from those places. If you're passionate about making authentic German beers, you can't cheat on the ingredients."

Keep It Simple

You can't cheat on ingredients, cleanliness, or fermentation control—but you certainly can brew on a budget with simple, DIY equipment. "The money spent on homebrewing equipment these days is astronomical," Peters says. "I say get comfortable with Craigslist, not to mention the fact that every city has a used appliance store. I'm still of the belief that you can and should buy a used fridge for about \$100 to \$125. Then buy a temperature controller for about 35 bucks, and now you have what you need. That's less than \$200."

Peters has come a long way since those first brews on his kitchen stove, but one thing that hasn't changed is his constant effort to save money and simplify the process.

Emily Hutto is the author of Colorado's *Top Brewers* and a regular *Zymurgy* contributor. She's determined to spontaneously ferment a batch of saké in her garage in Denver, Colo.

FOR THE HOMEBREWER & BEER LOVER

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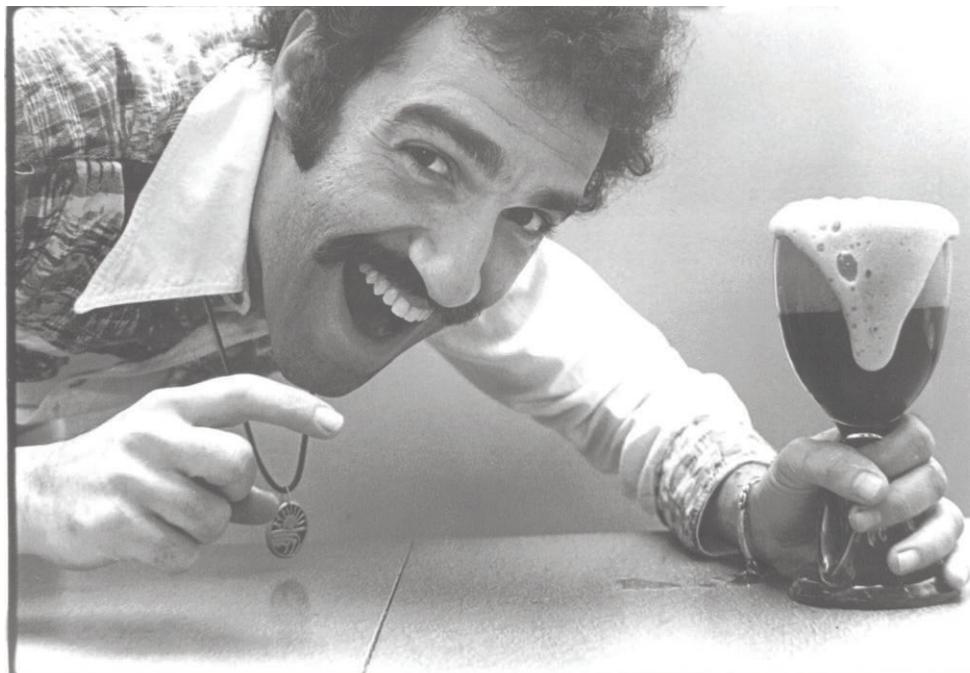
Forward Looking Back

In 1995, I wrote a reflection of microbrewing history as it might have appeared in the 21st century. Well, here we are. It's the 21st century, and there are history books that tell what people think happened in the early days of microbrewing and homebrewing. Here's the never-before-published projection back to our past. Nothing has been changed from the original, written 23 years ago, except now I've titled it "Forward Looking Back (With a Beer in Hand)." What do you think?

Forward Looking Back (With a Beer in Hand)

[1995] These days a lot of what I recall as “current events” is being taught as history. I don’t know for certain, but I suppose the 1960s and all that my generation went through as young adults is now in a textbook. I suppose someday there should be a textbook and a class on the history of microbrewing. There were very few of us there in the beginning, but it was always in our face. Hell, when the first few opened up in California—Anchor, DeBakker, New Albion—we called them breweries. “Hey someone opened up a small brewery.” Homebrewers who were making their own, for lack of choice in the market place, rejoiced. There was a glimmer. But there weren’t any “microbreweries,” remember? Or have you forgotten?

There were only small breweries in the late 1970s. It’s on page 21 in your textbook. Then along came Stuart Harris, a homebrewer, [micro]computer engineer and part-time brew news editor for *Zymurgy*, a homebrewer’s magazine begun in the late 70s. His excitement became real upon discovering that homebrewers were starting small breweries. It was possible! It was happening! In a bid to label this new breed of small breweries, we learned that Stuart himself suggested a word that seemed to encapsulate the time and presence of small brewing in the late 1970s: “Microbreweries.” It was a descriptive term, though in retrospect there may have been a spirit and reason that was never captured in the name.



The description for those little-known, far and wide small breweries meant exactly what it said. It worked. It really did. But skip forward to page 132 in your textbook and see the comparative discussions the authors make regarding similar cultural icons. Long, long ago home cooking was actually cooking done in the home. How many times have you walked past a restaurant, small or large, sleazy or posh, and noted these words written in neon: “home cooking”?

Have you ever bought a home-baked pie at your local bakery? There. Look. It says so on the box.

Gourmet cooking? Gourmet food? Gourmet this and gourmet that. “What you eat is where you’re at...” Or is it, “What you ate is where you eat?” Yes for some, gourmet has real and authentic meaning, yet at the same time it’s so simple to say it, sing it, shout it, eat it and label anything by virtue of a few image-making key strokes, “gourmet.” Voila. Presto. It’s gourmet.

It wasn’t until about a year ago that I discovered fresh-squeezed orange juice wasn’t really fresh-squeezed. “This doesn’t really taste like it was just squeezed,” I told the waitress. “Oh yes it is, sir, I just checked

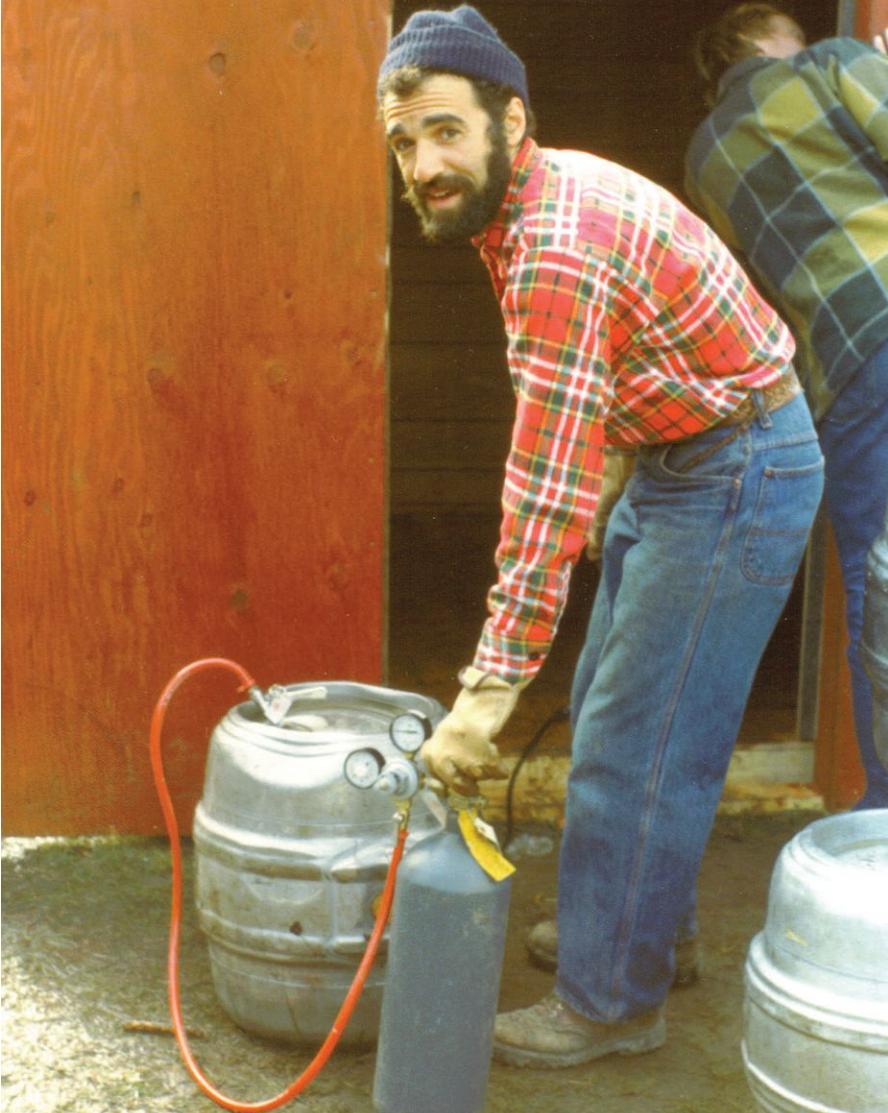
**HIS EXCITEMENT
BECAME REAL UPON
DISCOVERING THAT
HOMEBREWERS
WERE STARTING
SMALL BREWERIES.
IT WAS POSSIBLE!
IT WAS HAPPENING!**

the carton it came in and it says so right on the package: ‘made from freshly squeezed oranges.’” I heard someone say, or maybe read it somewhere, “Why ask why?” I threw up my hands and drank the juice.

People live in houses. When people make beer in their own homes, the beer is called homebrewed. Isn’t it? Well, actually if you skip a few pages forward to page 141 you’ll note that this is not necessarily so. Beer made in a commercial brewery can be labeled “homebrewed.” Sure it can. You better study your lessons.

Let’s return to page 87. There you will note that the terms “microbrewery” and “micro-brewed beers” evolved to describe the size and entrepreneurial spirit of America’s first homebrewers turned pro. They were a success, so now they could be called entrepreneurs and everybody wanted a free beer. Hundreds more continued to do so in the 1990s. In the spirit of the original microbrewery phenomenon, many were true to the notion of microbrewing. But, as your textbook notes, the success and cultural acceptance of the once-special and unique beers of the original microbreweries brought about a new wave of misperception. The unleashing of the micro-tethered products to the wiles of time, culture, and the marketplace provoked mutation. “Home cooking,” “gourmet,” “fresh squeezed,” “homebrewed,” “microbrewed.”

Close your textbook for a moment. We’ll continue with the emergence of national brands of specialty beers in another class.



For now, I prepare myself for the term paper my professor has asked me to write before the semester ends, addressing the questions, “How did emerging small breweries manage to survive in the late 1990s? What classic reactions took place in the beer industry? Compare this to the footwear business. What made the circumstances in the beer industry unique?”

All of this stuff about homebrewed, microbrewed, pub-brewed, and hand-crafted doesn’t really bother me that much. I choose the beers I drink because I expect to enjoy certain characters. I love it. I love it that there is so much more choice available to me as a consumer. I’m able to find those characters so much more easily than I had in the 60s, 70s, and 80s. I recall that’s what the real microbrewery phenomenon was about in the late 1970s: about having access to

choice and different qualities in beer. I hope that this is mentioned somewhere in the textbook.

Now we have it. It’s still microbrewed beer to me. And now I don’t have to necessarily go to a brewpub to find it or buy from a small 2,000-barrel-a-year brewery to experience it. That’s success! Way to go, people.

It’s the beer. It’s the beer. It’s the beer. Any company, large or small, can make it. What are the smallest breweries going to make now? It’s easy for us to ask this question. We have the textbook and on page 242 it explains it all, but can you imagine what the brewers were struggling with in 1995 when they had to figure it out? What was it they had to reinvent? It must have weighed heavily on their minds.

The century is almost over and I'm looking forward to '00, and for now I think I'll have Aztec-style chocolate-chili-honey-corn brown ale, made with American hops of course. But I won't tell you whether I bought it at the local liquor mart or had no choice but to homebrew it myself. But if I had to make it, here's the scoop.

Formulate your recipe to achieve an original gravity of 1.044 to 1.048 (11–12 degrees Plato) and a mild bitterness that would measure about 23 International Bitterness Units.

For a 5-gallon (18.9-liter) batch, the base of the recipe should be about 3.5 lb. (1.6 kg) of light dried malt extract or 4.2 lb. (1.9 kg) of light malt extract syrup, or about 5.5 to 6 lb. (2.5 to 2.7 kg) of pale malt (grain). Specialty malts include 1/4 lb. (113 g) of chocolate malt for color, and 1/4 lb. (113 g) of Belgian Special "B" malt for a touch of caramel-molasses character. The Aztecs must have used corn. With the pale malt, I mashed in about 1.5 lb. (680

g) of pre-gelatinized flaked brewers corn. Into the boil goes one pound (450 g) honey, 6 oz. (170 g) cocoa powder (unsweetened), and 1/2 oz. (14 g) of dried chili pepper pods to achieve an Aztecian character.

Yes, you're correct, the Aztecs probably didn't have hops, but we do, so go easy on the hops (remember, the cocoa is bitter) with an addition of about 1 oz. of (28 g) 5% alpha acid-rated hops (Cascade, Willamette, and others do just fine) for a one-hour boil. Also add a late addition of about 1/2 oz. (14 g) of your favorite aroma hop during the last minute of boiling.

Ferment with Aztec Yeast 2000 or your favorite ale yeast. Prime, bottle, wait, and enjoy the tickle in your throat.

1995 & 2018 Thoughts

It's important to know about history. But the further you move away from historical events, the more history seems to transform itself from real events to something more cultural. When

you live this stuff, it seems to be always in our face; we were always wondering about beer and me. And then you look back and ask, "Why?"

But now, what is beer? What is craft brewing? What is craft beer? Craft or Crafty? These days its origins are not as significant as are our feelings about it. It's about the different things we all see, in retrospect. Everyone considers it. Those who were there, those who weren't. Those born before and those born after.

Back then, I foresaw looking back at microbrewing history. Now we live craft brewing. Sure the beer is delicious. There's a lot of choice. It's fun to be living in beer wonderland. But now the past seems not so much the history of events as much as it is a reflection of our feelings about what was going on and what things might become

Charlie Papazian is founder of the American Homebrewers Association and the author of *The Complete Joy of Homebrewing*.



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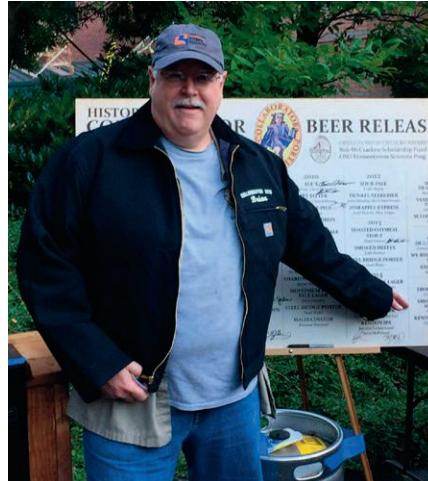
The Collaborator Jacket

If you are an Oregon Brew Crew (OBC) club member, or if you just roam the Portland beer scene, you've seen The Jacket. You might have asked yourself, "How smug are these folks wearing these jackets?" Or maybe you've thought, "Wow, I want to get one of those for myself!" Regardless of your reaction, when it comes to OBC bragging rights, the Collaborator Jacket is it. The Blue Ribbon. The Top Shelf. The Feather in the Cap.

The Collaborator Project began in 1998 when Rob and Kurt Widmer commented to fellow OBC members that the number of available beer styles was too limited. The Widmers proposed that OBC hold an annual competition in which club members could enter any beers they brewed, with winners chosen based on drinkability instead of stylistic criteria. Widmer Brothers Brewing would then brew the winning recipes to serve at their pub, at local festivals, and even at other brewpubs in the area.

The first beer brewed under the Collaborator moniker was a milk stout. Later known as Snow Plow, Widmer has brewed this beer many times since that first release. In the years since, more than 60 other Collaborator beers have been released, and for every Collaborator barrel sold—current and past winners alike—the brewery donates \$4 to the Bob McCracken Scholarship fund at Oregon State University to support fermentation science.

In 2016, after several years of entering multiple beers into this fun competition, I was fortunate that the Collaborator judges chose my American Amber Ale with Honey and Smoked Hops, along with Chuck Macaluso's Strawberry Kolsch and Chris Hummert's Tropical Stout. We brewed our winning Collaborator beers at Widmer in 2017.



Rob Widmer presented the 2016 Collaborator winners with their jackets at OBC's annual summer barbecue, which is held in the Widmer Brothers Beer Garden. July is far too warm to wear a heavy work jacket, but I was so proud that I considered turning on the air conditioner that night and wearing it to bed.

Three more winners—Dwight Monohan, Sean Sanders, and Jeremie Landers (with co-brewer Jenn McPoland)—were announced in 2017 and will brew their beers at Widmer Brothers throughout 2018. The 2018 Collaborator Competition will be judged in May.

At the end of each year during the OBC's annual holiday party, the OBC board gives

out Bung Awards to acknowledge, honor, and occasionally laugh with many members and craft beer industry personalities. We award eight or so bungs each year in such categories as journalism, volunteerism, and entrepreneurship.

As vice president of OBC, I was privileged to present a special one-time Collaborator Bung to Rob Widmer this year. The inscription reads *Honoring 20 years of collaboration with the Oregon Brew Crew, promoting craft beer appreciation and furthering brewing innovation and excellence.*

I also got to present Rob with his first Collaborator Jacket. It was well earned!

Brian Haslip is vice president of the Oregon Brew Crew.

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