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The To-Brew Queue

Someone's bucket list might consist of exotic destinations, in-demand Broadway shows, or must-visit breweries. Mine includes travel, language learning, long-distance walks, and petting all the cats. It also has a to-brew queue.

Like the stack of books on my nightstand, my to-brew queue grows more quickly than I deplete it. There's just so much out there, and things get added kind of like this...

When did I last brew a witbier? I can't even remember. Add that to the list. It's so refreshing.

You know what else is refreshing? Berliner weisse. Add that to the list, too. It's a quick turnaround, but if you include the traditional *Brettanomyces* (see Beer School in the Jan/Feb 2020 issue of *Zymurgy*), it will age beautifully to boot.

Cherry Fever Stout from Charlie Papazian's *The Complete Joy of Homebrewing* has been on my list since I first read the book in 2009. I still haven't made it. Add that one.

I acquired a freshly dumped 5-gallon rye whiskey barrel not long ago. It's currently staying hydrated with some Evan Williams, but I need to pull (and enjoy) the whiskey and put an imperial stout or barleywine in there. To the list!

It's time to brew a Märzen that can be ready before the end of March. If I harvest the yeast and brew a Festbier, that can be ready in time for Oktoberfest. Add those to the list. (Note to self: also add *Schweinshaxen* to the list come September.)

It's been a few years since I brewed a Pliny the Elder homage. Vinnie Cilurzo's iconic hop bomb has no doubt changed over the years, but that original recipe is still excellent (see "Brew a Double IPA!" in the Jul/Aug 2009 issue of *Zymurgy*). Need to have a look at what hops I have and put this on the list.

Gotta get a cask ale in there, too, while I'm thinking about it...

And on and on it goes.

If all of that seems too stream-of-consciousness for your tastes, here's something you should definitely put on your to-brew list: a

dry stout for St. Patrick's Day. In this issue, you'll find a treat of a feature that reexamines Irish stout and includes a recipe for a modern craft take on the style. Brew it now and you can have it ready in time for a culturally respectful celebration of the land that gave us Shaw, Wilde, Swift, Joyce, and Yeats.

Once that beer is brewed, it's time to package it. Most of what I brew is not intended for long-term aging, so into a keg it goes. And, certainly, if I'm going nitro, as I would with that stout, a keg it must be. But, I still prefer to package a few things in bottles.

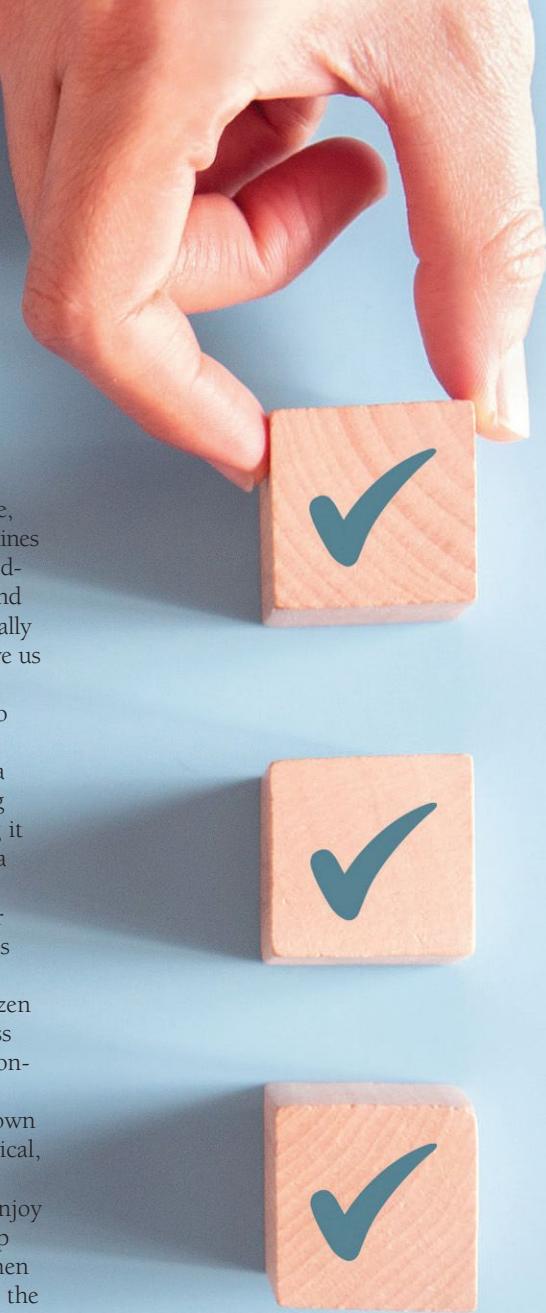
Anything I intend to keep around for more than a few months gets bottled, as does anything above, say, 8% ABV. For tradition's sake, I always bottle hefeweizen and Berliner weisse, and to prevent cross contamination, I bottle anything that contains Brett or bacteria.

Most of my bottles get a standard crown cap, but if I'm feeling especially chimerical, I'll give it the cork-and-cage treatment.

I do love a corked bottle. In part, I enjoy the ceremony. With a can, there's a snap and a hiss and, well, that's about it. When you pry a cap from a bottle, sometimes the crown might fall to the floor in an audibly pleasing manner, which I admit to doing deliberately. But there's nothing like opening a corked bottle.

I suppose it started when I was more of a wine person (see Editor's Desk, Jan/Feb 2023). Opening a corked wine bottle necessarily entails a certain amount of anticipation. There's the peeling back of the foil, the twisting of the corkscrew, and the festive popping of the cork. Then there's the uncomfortable bit where the server pours you a test article and stares at you while you slurp and make faces and try to come up with something cleverer than "Bravo! Tastes of wine to me!"

Corked, caged bottles of beer require more bother to seal up after they're full, but I think they're worth the effort. The truly obsessed might wield a floor corker of the sort used to close Champagne bottles, but I employ a popular hack with a



less expensive countertop capper/corker that gets the job done just as well, if not quite as elegantly. When it comes time to open one of these bottles with dinner, you know it's a celebration.

A personal goal for this year is to package something special for the holidays in a Methuselah, which is what you call those oversized 6-liter bottles (really). St. Bernardus does it for Abt 12 from time to time, which seems like as good an excuse as any to pick one up.

So, yeah, add that to the list, too.

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

Ss
brewtech

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SVBS

SINGLE VESSEL BREWING SYSTEM

The SVBS has become one of the most elusive products in Ss Brewtech history, but we're excited to announce it is finally here. With a clear vision of what we wanted, we had to bend a few rules.

Countless design revisions, and one or two complete restarts, and we now have a product we feel will one day be as iconic as our original Brew Bucket. An all-in-one brewhouse that draws inspiration from every facet of Ss Brewtech, a true passion project for our entire the team, the SVS.
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PULQUE RENAISSANCE

Pulque is simply the fermented nectar of the agave plant, the same plant that gives us tequila and mezcal. This traditional Mexican brew teetered on the brink of extinction for years, but it is now in the midst of a serious comeback.

By David J. Schmidt



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RE-CREATING THE PAST

When a beer historian gets his hands on old brewing logs, he owes it to the world to bring those old beers back to life. Take a trip back to 1904–1905 and discover how porter, IPA, and even American—yes, American!—sparkling ale were brewed.

By Peter Symons



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THE NEW BLACK STUFF

Young Irish breweries have spread IPAs and fruitied sours far and wide, but “the Black Stuff” stood almost unchallenged. In the past two years, though, a wave of new, local, craft-nitro stouts has hit the Irish market. Lovely day for one, don’t you think?

By Richard Lubell



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INCOGNITO HOP EXTRACT: A STICKY, DELICIOUS SITUATION

INCOGNITO is a supercritical-CO₂ hop oil extract. It's sticky and it's messy, but it can deliver powerfully concentrated hop flavor and aroma if you know how to handle it. Learn from the experience of one homebrewer who took the leap.

By Christiana Bockisch

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March/April 2023

zymurgy®

(zī'mərjē) n: the art and science
of fermentation, as in brewing.



ON THE WEB

Find these homebrewing recipes
and more on our website @
[HomebrewersAssociation.org/
homebrew-recipes](http://HomebrewersAssociation.org/homebrew-recipes)

NOW ON Tap

New Products

FERMENTIS SAFBREW BR-8

Brettanomyces has grown increasingly popular among pro brewers and hobbyists alike in recent years. In response to its newfound popularity, Fermentis has launched the first Brett in a dry, microgranular format. Originally sold only in 100-gram packs, this dried Brett is now available in homebrewer-friendly 5-gram sachets.

SafBrew BR-8 offers all the flavorful benefits of *Brettanomyces* with better control and reliability than Brett has historically been able to offer. Selected specifically for secondary fermentation in bottles or casks, SafBrew BR-8 produces phenolic compounds such as 4-ethylguaiacol and 4-ethylphenol, which are responsible for those funky flavor descriptors we all love: sweaty horse blanket, leather, barnyard, and so on. Unlike some other Brett strains, SafBrew BR-8 assimilates mono-, di-, and trisaccharides (glucose, maltose, and maltotriose) but not all sugars. This selectivity offers improved predictability compared to wild Brett strains, as well as greater reliability with reduced risk of oversaturation or gushing after bottling.

Because *Brettanomyces* is a slow-fermenting microorganism, beers made with SafBrew BR-8 require a period of maturation for flavors to develop. The desired profile is normally reached after three months, but it is also possible that the profile will continue to evolve even at six months and beyond.

To learn more, visit fermentis.com.



Ss Brewtech SVBS

The brains over at Ss Brewtech have released their much-anticipated Single Vessel Brewing System (SVBS), and it looks like it was worth the wait. Featuring a 4,600-watt heating element, the SVBS offers enough power to mash and boil batches of up to 10 gallons (37.9 liters). A high-flow, photochemically etched mash basket and intuitive touch-screen user interface ensure that even beginner homebrewers will breeze their way through each batch. And the truly obsessed can export data dumps of the last brew day to fine tune the next. An innovative three-way valve allows a single pump to switch between recirculation, whirlpool, and knockout, while the side-mounted ¾" tri-clamp port makes transferring wort from boiler to fermenter fast and easy. The SVBS can accommodate 12 gallons (45 liters) and plugs into a 240-volt, 30-amp circuit via a NEMA L6-30P plug. The units retail for \$1,229. To learn more, visit ssbrewtech.com.



Homebrew Con™ 2023

The 45th annual National Homebrewers Conference will take place June 22 to 24 at the Town and Country Resort in San Diego, Calif. Registration for Homebrew Con 2023 opens March 7! Sign up by May 1 to receive Early Bird pricing.

Homebrew Con is your fermentation vacation, and you should get to sleep in on vacation. That's why educational sessions will start at 10 a.m. this year instead of 9 a.m. as they have in the past. Enjoy that extra hour. You deserve it.

Speaking of educational sessions, Homebrew Con 2023 will feature 35 of them. Attendees will learn about everything from brewing with fruit to developing sensory skills. And don't forget about Club Night, the most magical night of the year.

Discounted room rates at our host venue, the Town and Country Resort, are available through May 19. All Homebrew Con attendees must be members of the American Homebrewers Association and of legal drinking age (21). [More](#) details can be found at [HomebrewCon.org](#).



BIG BREW



Nearly Nirvana Pale Ale

American pale ale

Recipe by Chris P. Frey

Batch volume: 5 US gal. (18.9 L)

Original gravity: 1.060 (14.7°P)

Final gravity: 1.013 (3.3°P)

Efficiency: 72%

Color: 6 SRM

Bitterness: 45 IBU

Alcohol: 6.2% by volume

MALTS

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

8 oz. (227 g) Simpsons Crystal Light malt

For National Homebrew Day MAY 6, 2022

Big Brew 2023 - Old school rules!

We homebrewers are a promiscuous lot, pushing boundaries and trying new fermentations that are adventurous, unique, sometimes even wacky. We scan the aisles for inspiration and come up with unique beverages. Some of us never attempt to brew the same recipe twice, and that's OK.

When I started brewing almost 30 years ago, a friend suggested that I should clone a beer I loved several times until I could repeat it faithfully. This began my initial quest to clone Sierra Nevada's Pale Ale (SNPA), which in turn begot my Nearly Nirvana Pale Ale (NNPA.)

> Continued on page 69

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HOPS

- 1 oz. [28 g] Cascade, 5.5% a.a. @ 75 min
- 1 oz. [28 g] Cascade, 5.5% a.a. @ 60 min
- 1 oz. [28 g] Cascade, 5.5% a.a. @ 15 min
- 1 oz. [28 g] Cascade, 5.5% a.a. @ 5 min

YEAST

Lallemand LalBrew BRY-97

BREWING NOTES

Mash grains for 1 hour at 156–158°F [69–70°C]. Mash out at 168°F [76°C] for 15 minutes. Boil 75 minutes, adding hops as indicated. Ferment at 65–66°F [19–21°C] for two weeks and then keg or bottle.

EXTRACT VERSION

Steep Simpsons Crystal Light malt in 1 gal. (4 L) of water at 155°F [68°C] for 30 minutes. Remove grains and dissolve 6.25 lb. (2.8 kg) pale dried malt extract in the hot liquid. Top up to boil volume, bring to a boil, and proceed as above.



2022 Homebrew Shop of the Year – Gnome Brew, Chicago, Ill.

Homebrew Shop of the Year Award

The local homebrew shop plays an important role in our community, and not just as suppliers of ingredients and equipment. These small businesses serve as advocates for homebrewing and contributors to their local communities. Of the countless craft beer success stories today, how many started as aspiring homebrewers with a visit to their local shop?

The Homebrew Shop of the Year Award aims to recognize the integral role that homebrew shops play in the homebrewing community. All AHA members are eligible to nominate their favorite shop. If your go-to homebrew supply shop is deserving of recognition, take a few minutes to submit a nomination for the Homebrew Shop of the Year Award at HomebrewersAssociation.org/ShopAward. Members of the AHA Governing Committee evaluate all the nominations and determine a winner.

The winner of the 2023 Homebrew Shop of the Year award will be announced at Homebrew Con in San Diego on June 24.



Homebrew Club Insurance

Goodbye, Guru

All good things must come to an end. Unfortunately, that time has come for the Brew Guru® app, which is no longer available.

Brew Guru was created as a handheld companion to help AHA members search and save recipes, store their membership cards, and locate deals at more than 2,300 breweries, suppli-

ers, and retailers nationwide. Today, all those features are available on the mobile-friendly American Homebrewers Association website. Any recipes you've stored in the app are available online when logged in to the Homebrewers Association website.

Visit HomebrewersAssociation.org on your mobile browser, and find everything you need for inspiration and brewing, as well as nearby AHA Member Deals and breweries! If you have additional questions or concerns, don't hesitate to get in touch with our membership team at info@brewersassociation.org.

Club members, if you are looking for an affordable insurance plan specifically catered toward homebrew clubs, we've got you covered. The AHA works with West's Insurance to provide a general and liquor liability policy to clubs for just \$4.48 per club member per year. March 1 is the deadline to sign up for the half-year policy term (\$2.24 per member) that runs from March to September. The annual policy term enrollment is open July 1 to September 1 and runs from September through August.

The AHA wants your club to be covered and, of course, we want club members to also be AHA members, so we will reimburse any club's insurance premiums if 75 percent or more of club members are AHA members.

More info on this program is available on HomebrewersAssociation.org.



Colorado Pint Day Is April 12

The Colorado Brewers Guild (CBG) has announced the return of Colorado Pint Day on Wednesday, April 12, 2023. Participating member breweries statewide will sell limited-edition Colorado Pint Day glassware, and for each pint glass sold, \$1 will be donated to the Colorado Brewers Guild.

Like last year, the Guild hosted a state-wide competition among member brewery creatives to select this year's featured artist. Anna Long, a repeat winner, provided the winning design that celebrates the great Colorado road trip.

"This hand-drawn design was created with friendship, playfulness, and adventure at the forefront. I think most can agree that road trips are meant to be enjoyed with those you love, and there's really no better way to see just how diverse Colorado is than through a car window (or a convertible!) on an open road," says Anna Long, CEO of Norlo Design. "I want everyone who looks at this design to smile and see themselves within it."

In 2022, 190 Colorado craft breweries participated in Colorado Pint Day and sold more than 25,000 glasses. At press time, a few of this year's participating breweries included Dry Dock Brewing Co., Pikes Peak Brewing Co., Horse & Dragon Brewing Co., Kokopelli Beer Co., Comrade Brewing Co., Ska Brewing, Great Divide Brewing Co., Upslope Brewing Co., and Living the Dream Brewing Co.

Check out coloradobeer.org for the latest.



Hoosier Daddy

Honey amber ale

Recipe by Steve Ruch

For more on this recipe, see Last Drop on page 72 of this issue of *Zymurgy*.

Batch volume: 3.2 US gal (12.1 L)
Original gravity: 1.044 (11°P)
Final gravity: 1.009 (2.3°P)
Color: 11 SRM
Bitterness: 27 IBU
Alcohol: 4.6% by volume

MALTS

3 lb. (1.36 kg) Sugar Creek Ye Olde pale ale malt
 1 lb. (454 g) Sugar Creek white wheat malt
 8 oz. (227 g) Sugar Creek Munich malt
 8 oz. (227 g) Sugar Creek caramel 60 malt

HOPS

0.75 oz. (21 g) Crazy Horse Cascade, 5.6% a.a. @ 30 min
 0.25 oz. (7 g) Crazy Horse Cascade, 5.6% a.a. @ 11 min

YEAST

CellarScience GERMAN Lager or Lallemand Kolsch

ADDITIONAL ITEMS

1 lb. (454 g) local wildflower honey @ 0 min
 3 oz. (84 g) local wildflower honey for priming

BREWING NOTES

Dough in milled grains at 1.5 qt./lb. (3.1 L/kg), and mash at 153°F (67°C) for 45 minutes. Vorlauf until clear, and sparge with enough water to yield 3.5 gal. (13.3 L) in the kettle. Bring to a boil and add hops as indicated. Remove from heat, mix in 1 lb. honey, chill, and pitch yeast. Bottle prime with 3 oz. honey after two weeks.

BREW OVER

The recipe for JB3 Cold IPA that appeared in the Jan/Feb 2023 issue of *Zymurgy* mistakenly indicates that 12 ounces of Galaxy hops should be added at high kräusen. The printed metric value of 57 g should be a clue that the correct quantity is 2 ounces, not

12. If you actually brewed this beer as written, (1) was any beer left after hops absorption and (2) if so, could you please send us a bottle?

We apologize for but do not necessarily regret the error.



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Is Mobile Brewing

a Movement?



You've heard of thinking and drinking outside the box. What about brewing outside the box? As in, brewing outside the physical box of your kitchen and home. In 2022, my favorite brew day was a full-on mobile brew, a 1-gallon, all-grain batch of beer, lovingly made on an in-and-out, two-burner, propane camper stove connected to my Aliner Classic pop-up camper. More on this brew day shortly.

Mobile brewing is nothing new. It's wayyy older than mobile phones. Ha. But a movement, dare I say? Well, when one pursues the merits and regular practice of mobile brewing, I think we can fairly agree that if it's not a movement, it sure should be.



PRO TIP: 1-GALLON ALL-GRAIN BEER

To learn about 1-gallon all-grain brewing from one of the masters, check out Dan Jablow's article "Small-Batch Brewing" in the Jan/Feb 2023 issue of *Zymurgy*.

First, let's discuss the concept of a brewhouse. According to the Oxford Companion to Beer, a brewhouse "is the name used for the room where brewing takes place, but the word is also used for the vessels used in the creation of

hopped wort for fermentation." I take that to mean my brewery (brewhouse) can be anywhere. It does not just have to be in a house.

House is relative. Kinda like wherever you go, there you are, you know? Deep thoughts, I realize, but my point is valid. A brewhouse can be anywhere and often is mobile, especially for us homebrewers. Most of us are not bound by the larger systems bolted to the floor that take six people to move and a semi-truck to transport. We are light and nimble. Score one for homebrewing.

Shining examples of mobile brewing are Chris Graham and Olin Schultz, owners of



Me, my mini-van, dog Bandit, and the camper before I left for Wyoming.



My in-and-out stove (also pictured are my husband Greg Ucker and son Leo Ucker).



Inside stove brew day prep.

MoreBeer!, a well-known online and brick-and-mortar homebrew retailer. In 2021, they hiked 45 miles (72 km) to the summit of Mt. Whitney, the highest point in the continental U.S., to brew a batch of beer at 14,500 feet (4,420 m) above sea level. In 2022, they brewed on a drift boat while fly fishing on the Kenai River in Alaska. Aiming to drink it on the last day of their trip, they fermented this beer hot and fast with kveik yeast to have it ready to drink within six days of brewing.



ON THE WEB

To watch Chris and Olin brew in the great outdoors, head over to HomebrewersAssociation.org/ma23, where we've linked to the videos of their adventures on Mt. Whitney and the Kenai River.

These two brewed at above 14,000 feet. They've also brewed on the nose of a drift boat. They flipping brewed, fermented, and drank that beer during a week-long vacation. Wow. Now that's going mobile.

Now, back to my epic camper mobile brew day. I was in the parking lot of a hotel in Casper, Wyo., to present at the Wyoming Craft Brewers Guild's annual conference. The first day I gave a talk titled "What's Hot in Homebrewing and Why You Should Care," and the next day, I was in the parking lot brewing a Belgian golden session ale with wild plums added to secondary.

Now when one mobile-brews outside, it's obvious that weather can be a variable. In Casper, it was 90°F (32°C) on presentation day. Twenty-four hours later, on brew day, it was cold, rainy, and 40°F (22°C) cooler. Plan B time, people.

My outdoor-parking-lot brew day turned into an inside-the-camper brew day. No matter. Brewers still popped out of the conference center and knocked on my camper door to check it out. I'd politely kick out the current group of brewers sitting inside to make room for the next group (only five can fit at a time).

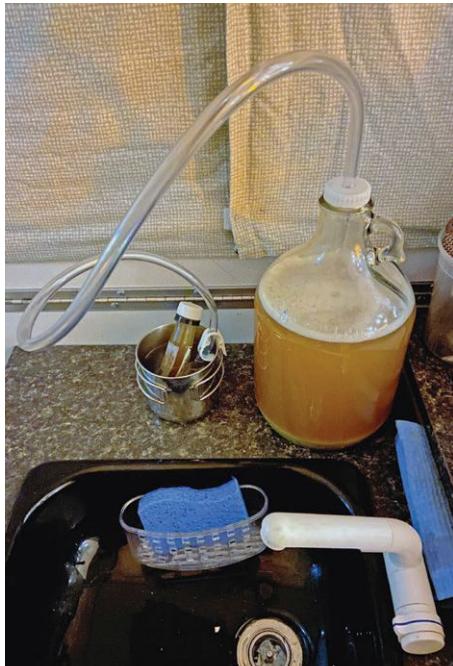
And so it went until the batch of beer was mashed, boiled, and transferred into a 1-gallon cutie jug with a towel around it. Then, off to the passenger seat of my minivan the brew went. Just as any precious passenger should be secured, I wedged it against the dashboard on the front passenger seat floor for safekeeping during the four-hour drive back to my home in Lyons, Colo.

What I love about this batch of beer is all the travel it experienced: temperature changes, sounds, vibrations, shakes and

“
I encourage
your next
batch to
be brewed
mobile.

bumps of the passing highway miles, the music I was playing, and so on. All of that influenced the beer in some cosmic and tangible way. Yes, mobile brewing brings in more variables than does brewing in pristine, controlled, stationary brewhouse conditions, but that is half the fun.

What mobile brews have you made? Has your homebrew club gathered in a field and done simultaneous brewing while everyone camped and had a party? Have you taken your brewing equipment to a family mem-



1-gallon fermenter with pitched yeast on camper countertop

Photo courtesy of MoreBeer! via YouTube

YouTube



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The guys from MoreBeer! brewing on their boat.

ber's house and brewed on their stovetop, on the patio, or in the garage? Have you brewed a demonstration beer at a beer festival or brewed while on vacation? These all count. No matter the approach, if you are game for new experiences, challenges, successes, and opportunities, I encourage your next batch to be brewed mobile.

Here's to firing up the brew kettle and ever more synapses firing too.

Please don't be shy about sharing your mobile experiences on the AHA Forum. Tag

us on social @homebrewassoc, or drop me an email at julia@brewersassociation.org.

Cheers, Julia Herz

Julia Herz is executive director of the American Homebrewers Association.



1-gallon fermenter with pitched yeast almost ready for van ride home



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Your Recent Feedback



Dear Zymurgy,

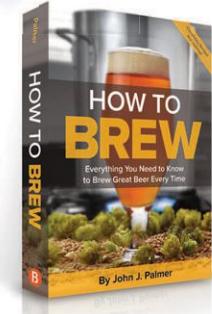
The cover of the Jan/Feb 2023 issue of Zymurgy piqued my interest, and Dan Jablow's story, "Small-Batch Brewing," resonated with me.

I came to homebrewing later in life after getting a bookstore gift card. I decided to read John Palmer's *How To Brew* and was hooked. My first two batches were typical 5-gallon extract brews, which is how I suspect many start the hobby. But, I quickly

learned that my friends and I are just too old to drink that much beer before it goes stale. So, I decided to do 2-gallon batches and have been doing so ever since.

I've found that brew-in-a-bag works great for smaller batches. My wife made me a bag to fit a 5-gallon cooler, which works perfectly for a mash tun. Smaller batches allow me to brew more often and experiment with different recipes. Dan did a terrific job of outlining how easy it can be to brew smaller batches and of describing some of the pitfalls as well. Thanks, Dan.

Sincerely,
Robert E Reneker, Jr.
Grandville, Mich.



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Score the leading book on homebrewing, *How To Brew* by John Palmer at BrewersPublications.com

Dear Zymurgy,

I cannot begin to thank you enough for putting into such succinct lines some of the simple rituals that keep me homebrewing (Editor's Desk, Nov/Dec 2022).

The anticipation and excitement experienced pulling that first "sample" from the fermenter to evaluate if all your hard work has paid off is difficult to clearly describe. As you nose the heady perfume of the yeast, malt, and hop combination that slowly crawls from the airlock of the fermenter, you finally get to see that you have captured the color you were aiming as the sample drops into your glass. Then, you have that first sip and all your anxiety just fades from the moment as you taste success.

I do look forward to the days growing colder and the early morning brew days that are sometimes started in the dark, but I know that they also afford the alchemical treat of a hot Scotchy. I first heard of the legend from Michael Dawson, back in the Brewing TV days, maybe 10 years ago. The first time I tried it was with a couple of brave souls who stopped by on a cold, rainy brew day. I'm happy to say that it is now a tradition for my winter brew sessions. Most of the time I am happy to share this with friends, but sometimes I am just as happy to share it between myself and the angels.

Cheers,
D. Fletcher

STIR PLATE (OR NOT)?

Dear Zymurgy,

From what I've read, the purpose of a stir plate starter is to introduce oxygen to the yeast you are propagating at low, yet constant levels to maximize cell reproduction, and therefore cell count, before pitching. However, if the yeast is respiring, it's producing CO₂, so wouldn't this quickly drive off any remaining oxygen in the flask? Meaning, after a certain point, you're just exposing your starter to pure CO₂, so you are then dependent upon any oxygen in the wort you are adding, until that is driven off too.

Should we be periodically purging the headspace in the flask to replace CO₂ with air (or perhaps with pure oxygen to avoid airborne contaminants)?

—Submitted via a colleague

Zymurgy editor-in-chief Dave Carpenter responds: I conferred with Brewers Association technical brewing projects manager Kaylyn



SEARCHING FOR REMBRANDT'S LOST INGREDIENT

Dear Zymurgy,

The article "Searching for Rembrandt's Lost Beer" in the Nov/Dec 2022 issue was fascinating. So much so, I'm planning to try and brew both the Soet Bier and Bruinbitter Bier recipes.

While planning the latter in my brewing software I noticed the predicted color was less than 10 SRM based on the grain bill, while the recipe indicated an expected SRM of 36. The recipe description also mentions the inclusion of "caramel" malt with no further information; however, this malt is not listed in the recipe. This leads me to believe the recipe is missing one or more important ingredients.

Can you provide some clarity? I really look forward to trying these!

Thanks,
Pete Barker

DEAR ZYMURGY

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

Roel Mulder, author of the article "Searching for Rembrandt's Lost Beer" put us in touch with Duco Dokter, a beer historian and brewer at Het Brouwdok, Harlingen, The Netherlands, who helped develop the recipe. Here's what he had to say:

There is an excellent malt from Thomas Fawcett for this type of beer. The Swaen also produces it. They are the only ones I know of that make a traditional brown malt, but maybe in the US you'll find more brands. It doesn't have any diastatic power, so you can only use it as an adjunct, but it gives a nice brown color and the typical ale flavors. Use around 15 percent, maybe up to 20 percent.

In the good old days, this type was also often brewed using buckwheat, so if you really want to go crazy...

The recipe mentions alkanet root, which indeed gives a beautiful red color to food and drink but has fallen out of grace lately given that it has been found to be carcinogenic. Not everybody cares though, for in Indian cuisine it is still widely used, so I guess for a homebrew it doesn't really matter.

If you can't get your hands on the kind of brown malt Dokter recommends, adding in a small amount of 60–80°L caramel malt along with a little dehusked black malt (such as one of Weyermann's Carafa Special malts) for color should get you close.



Kirkpatrick, and we concluded that a stir plate has three main things going for it.

1. Stirring promotes oxygenation.

Unless your flask is perfectly sealed, there will always be gas exchange between even an undisturbed headspace and the atmosphere. But that diffusion-based process occurs on small time scales. Stirring the wort introduces convection to the headspace because the stirred liquid "drags" the headspace along with it. Convection accelerates the exchange of gases so that even as CO₂ escapes the headspace, air can infiltrate, thus introducing oxygen to the stirring wort.

2. Stirring reduces dissolved carbon dioxide.

Continuous stirring may be as much about pushing CO₂ out of solution as it is getting O₂ into it. Think of it as continuous degassing. Even though yeast creates carbon dioxide, too much of the stuff is toxic. Stirring the fermenting

starter encourages CO₂ to escape to the atmosphere, which creates a healthier environment for our fungal friends.

3. Stirring discourages flocculation.

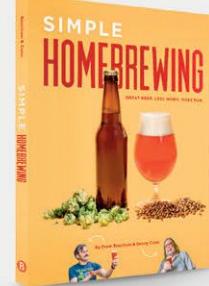
Stirring also encourages yeast to remain active rather than flocculate out. Some English strains in particular have a tendency to drop out if you so much as look at them. A gentle nudge in the form of a stir keeps them suspended.

But a stir plate isn't necessarily for everyone. Friends of the AHA Denny Conn and Drew Beechum are vocal proponents of the so-called "shaken, not stirred" method, which avoids a stir plate altogether. You just place your starter wort into a vessel several times its own volume, seal it up, and then shake the living hell out of it. The two offer a much more helpful description in their Brewers Publications book Simple Homebrewing.

A purported benefit of this method is that fluid shear stress, which a stir plate generates, is bad for yeast health. Kaylyn notes that brewery labs often use shaker tables with baffled flasks

instead of stir plates to reduce the shear stress that a stir plate would introduce. Many labs bubble sterile oxygen into the culture as well to keep it oxygenated.

"If you really want to optimize, you could technically engineer something using sterile oxygen to avoid contamination," she says. "In the spirit of the ongoing pursuit of a perfect beer, I can understand the desire to optimize this process. However, I'd question how much improved the culture would be through the introduction of sterile oxygen, which could introduce other unnecessary risks like contamination and safety hazards."



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YOUR HOMEBREW LABELS



This label is for my first (successful) high-gravity stout. I was inspired to add Earl Grey tea to an imperial stout base after trying Bourbon County Brand Kentucky Fog Stout. I have an appreciation for a good London fog and wanted to recognize a local spice shop where the tea was sourced. Bellingham has been a homestead for some time now, and I think my wife perfectly captured its essence with acrylic paint. Paying tribute to the place that has been an influential part of my life, I'm hoping this beer creates a parallel feeling of comfort and familiarity to those who try it. (Homebrewer 4 years, AHA member 3 years)

Pablo Cardenas
YESCA BREW CO
Providencia, Chile

As a left-hander, I've always liked the term *sinister*, which in Latin means left-handed. So, when I asked my daughter to make a beer label, we came up with this. Now I need to come up with some "sinister" names for my beers!

Mike Patin
The Woodlands, Texas



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YOUR HOMEBREW EXPERIENCE

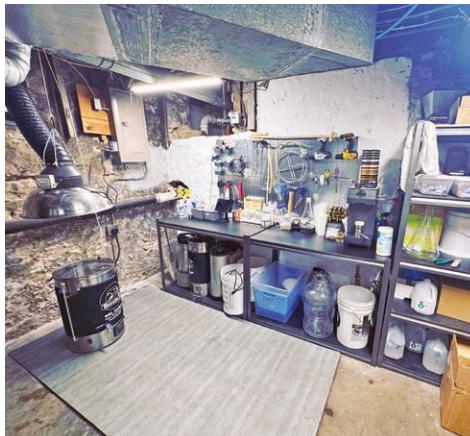
Homebrewing is all about sharing, and we get hoppy when Zymurgy readers share their homebrewing and fermentation experiences with us. We'd love to show the AHA community what *your* experience looks like. From 1-gallon batches on the stovetop to 20-gallon brew days on your custom sculpture, we all have fun with family, friends and pets while we make and enjoy our favorite beverage. Show us your brewing/fermentation day, who you brew with, the ingredients you include, what special processes you use, and how you enjoy the final product of beer and beyond.

Upload photos of your homebrew-related fun at
HomebrewersAssociation.org/your-homebrew-experience



Chase is always by my side in the brewery, overseeing quality control.

Nick White (Homebrewer 8 years, AHA member 6 years)
Toutle, Wash.



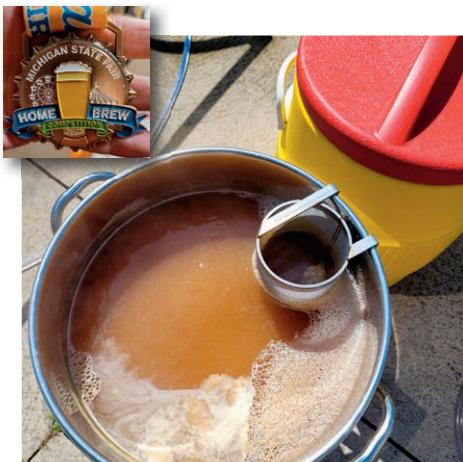
This is my fortress of solitude where I made this Märzen and made my own label.

Jeff Kiefer (Homebrewer 5 years, AHA member 4 years)
La Crosse, Wis.



Fergus the pup supervising a speedy batch of light ale using kveik yeast, grain to glass in four days.

Silvio Barahona (Homebrewer 7 years)
Long Beach, Calif.



Boiling an American pale ale on the same equipment I used to brew a Kölsch that won me a third place in my first homebrew competition at the Michigan State Fair.

Greg Stachnik (Homebrewer 6 years, AHA member 2 years)
Motor City Mashers
Woodhaven, Mich.



This is a picture of Bella the brew dog giving me some last-minute tips just before bottling some Irish red.

Roger Conlin (Homebrewer 10 years, AHA member 5 years)
Haymarket, Va.



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Homebrewing is all about fun and sharing. We would love to show others in the community what your homebrewing/fermentation experiences looks like. Upload photos of your homebrew related fun at HomebrewersAssociation.org/your-homebrew-experience and you may see it in the pages of Zymurgy!

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Bentley Bug the brew dog.

Benjamin Gueck (Homebrewer 3 years, AHA member 1 year)

Motor City Mashers

Thornton, Colo.



Grandson Owen, stirring the mash on the Brew Boss to increase efficiency.

Richard Gast (Homebrewer 8 years, AHA member 3 years)

IBU Indiana Brewers Union

Indianapolis, Ind.



My hand-built, three-tier gravity-fed (upgraded over the years with pumps) brew sculpture, newly upgraded again to brew half-barrel batches. I recently added a mechanical movable hoist to move the mash tun and lift the hop basket.

Floyd Hebbard (Homebrewer 14 years, AHA member 4 years)

Fantastic Floyd's Brewing

Sacramento, Calif.



Ransom always loves brew day because he gets a tasty snack at the end of the mash. Sometimes he just can't wait until then.

Reid Splawn (Homebrewer 2 years, AHA member 1 year)

Ale-ian Society (Lubbock)

Lubbock, Texas



Looks like Lottie is just as stoked to be brewing as I am!

Dylan Brown (Homebrewer 7 years, AHA member 3 years)

Paso Robles, Calif.



It was game day and brew day. So much fun ensued as my son Matt and I made an ESB.

Scott Barnett (Homebrewer 10 years, AHA member 2 years)

Rhode Island Brewing Society

Somerset, Mass.

Brew day with Stanley the cat. He is the stereotypical curious cat and is always hanging out with me any time I brew in my basement "brewhouse." Here we're getting ready to brew a Belgian saison.

Tom Ostreng (Homebrewer 2.5 years, AHA member half a year)

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Gochujang (고추장)

By Amahl Turczyn

As a follow-up to fermenting kimchi at home in the Jul/Aug 2020 issue of *Zymurgy*, this is how to make one of the most popular sauces in Korean cuisine, and a key ingredient in kimchi. Gochujang is as ubiquitous to Korean culture as ketchup is to ours, but it's more of a base seasoning for cooking than a condiment. It is usually either cooked with food or used as a marinade ingredient. As such, it's a building block for soups, stews, chicken wings, seafood, galbi, and bulgogi.

While gochujang is very easy to find at Asian markets, where it is typically sold in bright red plastic tubs, the homemade version has a much more complex flavor, you can tailor the heat level to your liking, and you can avoid the heavy sweeteners (commonly rice or corn syrup) commercial producers use. The bad news is, like home-fermented red miso, it takes time to ferment traditional gochujang—count on two to three months at least, though it will continue to improve beyond that.

Another reason to ferment your own version of this versatile chile paste is that, as a homebrewer, you probably already have one of the key ingredients at home—barley malt. This provides an earthy, grainy base for the ground soybeans and chile peppers used, without getting things too sweet. Coarse-milled malt, husks included, are basically mashed with warm water to convert the starches to a liquid barley wort and then concentrated by boiling the liquid down, reducing it by about half. Sounds familiar, right? And for a faster version, you can skip the all-grain mash and just use unhopped, diastatic pale malt extract. You need those active enzymes intact, since part of the process involves conversion of one of the other main ingredients, namely glutinous rice powder. Also called “sweet rice flour,” glutinous rice powder is easy to find at Asian markets, and goes by the name of *chapssal garu* (찹쌀 가루) in Korean.

Coarse-ground malted barley is called *yeotgireum* (엿기름), and it has several culinary applications in Korea beyond brewing beer. For a 3-quart (2.8-liter) batch of finished gochujang, you will need about 4 liters of fairly thin (SG 1.036) wort. When using milled, malted grain or *yeotgireum*, you would just conduct a one-hour single infusion mash for a highly fermentable wort, and then separate the spent grains from the wort, just as you would for brewing. You may find it easiest to mash in a



mesh bag rather than sparge, but do whatever works for you.

If you are using diastatic pale malt extract rather than grain, you'll want to dilute it to that same strength and volume. To this wort, you'll be adding a little over a pound (500 g) of glutinous rice powder and letting the wort enzymes work on those starches at about 140°F (50°C) for two hours. It's best to maintain this temperature during conversion; since it's a relatively low volume, you can just keep the whole kettle or stockpot in your oven if it can be set that low. Stirring every half an hour helps with conversion but is not strictly necessary.

That's really the most difficult part of the process; the rest of the recipe is just boiling the wort and converted starch mixture down to reduce it from 4 quarts to 2, and cooling it back down to conversion temperature of about 140°F. Then you add the sea salt, stirring to dissolve. The fermented soybean powder, called *meju garu* (매주가루) in Korean, and fine-ground red chile powder or *gochugaru* (고추가루) are added

to the sweet, reduced wort liquid next. This forms a thick, sticky paste that should by now be around 100°F (38°C), and it now must be scooped into an appropriate fermentation vessel and allowed to ferment. How thick? The mixture should be thin enough to slowly drop from a spoon, but thick enough that any peaks that form on the surface stay up. Thicker than ketchup then, but not as thick as miso. Suffice to say, your arms will be getting a pretty good workout stirring those powders into a paste of uniform consistency.

For the chile powder, Korean red chile has the most authentic aroma, flavor and color, and you can buy this *goun gochugaru* (고운 고추가루) in large bags at Asian markets. Make sure to get the fine-grind powdered chile, and you can get a range of heat, from mild to extra spicy. For my batch, I also used homegrown red chiles that I ripened to a full red color, dried in a food dehydrator, and ground to a fine powder with a spice grinder. It's obviously easier to just buy Korean chile powder, but the hot New Mexico chiles I used, specifi-

Milling wheat malt.



Gochujang ingredients.



Making red chile powder.



Ferment This!

Gochujang



cally Lumbre and Rattlesnake varieties, had the spice level I wanted. (Plus, it gave me a good excuse to use my heavy-duty grinder. I'm kind of a kitchen gadget nut.)

As with other fermented products, salt plays a big role in moderating the speed of fermentation, as well as preventing molds and undesirable bacteria from getting a foothold and spoiling the batch. Traditionally, authentic, coarse Korean sea salt called *cheonilyeom* (천일염) is used. It undergoes a special process to make sure minerals in the seawater do not make the salt bitter. Supermarket sea salt is fine to use...salt is basically salt. Brands like Maldon work just as well. When the gochujang is transferred to the fermentation vessel, as with miso, coarse salt is not only mixed into the paste, but also sprinkled liberally on the surface to prevent microbes from growing there over its months of fermentation.

You will also need to make sure your fermentation vessel is clean and sanitized before you fill it with gochujang. Traditionally, an *onggi* (옹기) is used, the same semi-porous pot used to ferment kimchi and makgeolli. The old way of making sure it is sterilized is to fill it with hot coals from a wood fire, which also gives the finished gochujang a subtle smoky flavor. These days, home fermenters can simply invert the vessel over a low gas flame for 5 minutes or so to heat-sanitize it. Once

it's cooled down, you can use a spatula to transfer the gochujang into the vessel, securing the top with a piece of cloth that will allow gas exchange during fermentation while keeping out bugs and dust.

Diehard gochujang traditionalists maintain that the top of the vessel should also be exposed to direct sunlight for extra mold prevention. This, however, isn't practical unless you have a specially made vented glass top for the purpose; the glass top keeps out rain and allows in sunshine, while the vented mesh sides let in air. It's an ingenious invention to be sure, but not strictly necessary. I prefer to ferment indoors in my cool basement, with just the cloth cover secured with a rubber band. It takes longer, but it seems somewhat safer than leaving pots of fermenting chile paste out in the yard.

And speaking of fermentation, exactly how will this stuff ferment without a yeast addition? We've deactivated the barley malt enzymes with the long boil, so what does the fermenting? It just so happens that the funky-smelling *meju garu* is probiotic and enzymatically active, and it's what does the fermentation, although the goal is not to produce alcohol here, but rather to break down starches, lipids, and proteins. Amylase tackles the starches, lipase the lipids, and protease breaks down proteins into umami-rich amino acids such as glutamate and aspartate.

Conversion stage for wort and rice powder.



Malted wort with glutinous rice powder.



Batch Volume:

about 3 qt. (2.84 L)

EQUIPMENT

- 6-liter kettle (for barley wort)
- BIAB mesh brewing bag (optional)
- large mixing bowl
- long wooden spoon (for mixing in powders)
- large *onggi* or similar fermentation vessel (about 3 L capacity)
- mesh or cloth cover, or dedicated gochujang fermentation lid
- oven or other temperature-controlled space

INGREDIENTS

500 g (1.1 lb.)	milled pale barley malt (<i>yeotgireum</i>) OR the equivalent amount of unhopped diastatic pale malt extract
500 g (1.1 lb.)	glutinous rice powder (<i>chapssal garu</i>)
250 g (0.55 lb.)	fermented soybean powder (<i>meju garu</i>)
250 g (0.55 lb.)	coarse sea salt (<i>cheonilyeom</i>)
500 g (1.1 lb.)	fine-ground red Korean chile (<i>gochu garu</i>), divided
250 g (0.55 lb.)	finely milled barley or wheat malt (optional)

PROCESS

Mash enough filtered brewing water with the pale barley malt in a mesh bag to achieve 4 liters of 1.036-gravity wort at 50°C (140°F). [Alternately, use enough pale diastatic malt extract to achieve the same volume and gravity.] Stir in the glutinous rice powder and continue to hold the same temperature until conversion of starches is complete, about two hours. Remove spent grains and bring mash kettle to a boil. Reduce volume to about 2 liters. Cool concentrated wort to below 50°C and dissolve most of the salt into it, reserving a few tablespoons to sprinkle on top of the finished gochujang prior to fermentation.

Wait until the mixture cools to 100°F (38°F) or less, if necessary, and add the fermented soybean powder and ground chile. Add the finely milled malt powder, if using. Blend well. Mixture should be very thick. If peaks fall back into the gochujang, add more chile.

Sanitize the *onggi* or fermentation vessel. Spatula the gochujang in, sprinkle the surface liberally with the remainder of the salt, and cover with a cloth or breathable glass lid. Ferment in a cool place 2 to 6 months, checking occasionally for mold or other microbial growth. As with miso fermentation, if mold forms, scrape it off, wipe with a food-grade ethanol such as Everclear, and sprinkle the area with more salt to prevent regrowth. When gochujang reaches a satisfactory flavor, it should be stored in airtight containers in the fridge for use.

Gochujang ready for fermentation stage.



Gochujang with covered fermenters.



Gochujang after 10 weeks fermentation.



It's very similar to the fermentation process for Japanese miso, which also uses soybeans as a protein base—in that process, koji (*Aspergillus oryzae*, a food-friendly species of mold) provides the necessary enzymes. For gochujang, that's why the cooling step after boiling to reduce the sweet wort is very important—you want to avoid stirring in your meju garu until the wort is cool enough to not deactivate the enzymes in the fermented soybean powder.

That's about it! You should be ready to make your own batch now.

Considering that koji, like barley malt, contains amylase, I decided to take things one step further. As an experiment, I milled about a half a pound of red wheat malt into a fine powder using a Mock Mill Kitchenaid attachment (yep, another kitchen gadget) and added it with the meju garu. Since the barley malt enzymes had been deactivated, I figured this batch of gochujang could use a little extra amylase. It's not traditional, and just realize that there is a slight risk anytime you eat any raw agricultural product*, but I

was happy with how this batch turned out. The recipe accompanies this article. Happy fermenting!

Amahl Turczyn is associate editor of Zymurgy.



*Rodent feces occasionally turn up in bags of brewer's malt—the FDA allows for a small percentage in many food products—but hantavirus, salmonella, leptospirosis, listeriosis, tularemia, and meningitis are just a few diseases that can result from human ingestion. It's rare, but it happens. Something to keep in mind next time you brew that raw, no-boil ale!

A photograph of a stainless steel counter pressure bottle filler attached to a brown glass bottle. The device has a black handle and a blue rubber gasket. To the left, there is a logo for "Tapcooler" and a logo for "GREAT FERMENTATIONS BEER x WINE MAKING Supplies". To the right, there is text advertising the product.

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CANADIAN SPRUCE BEER, EH!

By Dave Cole

In 1535, Jacques Cartier and his crew overwintered at Stadacona, a native village at the present-day site of Québec City. Scurvy had already killed a quarter of his crew, and the rest of his men were very sick. The Stadaconian Iroquois gave Cartier and his crew spruce-bark tea, which, being high in vitamin C, helped the French survive.¹ →



This is often cited as the origin of Europeans' introduction to "spruce beer" in Canada, yet the Stadaconian Iroquois had been making spruce-bark tea long before Cartier and crew arrived. Some spruce beers were also called *annedda*, a native term for the domestic balsam fir tree, the bark of which was a required ingredient. Traditionally, American settlers drank root beer, the British leaned towards ginger beer, and the French preferred spruce beer, which quickly spread across the country.

What does Canadian spruce beer taste like? Like hops, spruce can express a wide variety of flavors that stem from different parts of the tree, different varieties, terroir, and season in which they are harvested. Such factors combine to create flavors ranging from floral, citrus, and fruity to cola-like, resinous, or piney. The later in the season spruce is harvested, or the longer the boil, the more bitter the flavor.

The widest variety of flavors comes in the spring when the buds first pop out of their paper shells. Traditionally, molasses was used in the brew, along with a rich malt base to balance the unique spruce flavors. Most spruce beers are brewed seasonally—late spring and early summer

27A. HISTORICAL BEER: CANADIAN SPRUCE BEER

Draft Style Guidelines

OVERALL IMPRESSION: A traditional Canadian beer made with spruce tips or bark, with a warming medicinal herbal aroma, flavor, and aftertaste. Full bodied with substantial malt character which stops short of being burnt roasted. Lightly hopped without overpowering the medicinal herbal aroma and flavor, low to medium-high alcohol content. Regularly found in Eastern Canada, but can be found across the country usually in the late spring and early summer when the buds are at their prime. There is also a non-alcoholic soda version called Biere d'Epinette, or Spruce Beer, which is kind of confusing, and that also tastes great—kind of like a medicinal ginger beer! This style can use many different base styles, as long as the spruce is predominant without being overpowering.

AROMA: Moderate to intense medicinal herbal spruce character, similar to eucalyptus, not like Pine-Sol cleaner.

Low to moderate notes of toasted malt and caramel sweetness. Often described as citrusy, resinous, and medicinal, sometimes floral and cola-like depending on the species of tree used and time of year harvested. Hops are subtle to moderate, often citrus/resin forward. Possibly some light smokiness as well. May include molasses qualities similar to dark spiced rum, licorice, and tobacco. Well balanced between sweet malt and medicinal herbal spruce. Light alcohol aroma is allowable. No yeast character. Spruce needs to be the feature of the aroma balanced by sweet malt.

APPEARANCE: Gold to dark-brown color; most are medium to dark amber. Typically clear, but often hazy. Moderate creamy, long lasting ivory head.

FLAVOR: Medicinal herbal forward, toasted malt with some caramel sweetness. Low to moderate hop bitterness, low to moderate hop flavor. Moderate to strong spruce warming medicinal spiciness. Fairly sweet finish with lingering medicinal herbal warmth. Different spruce tree species have significantly different flavors, but all have warming medicinal herbal qualities. May also have citrus, floral, fruity, eucalyptus or even cola like notes due to the variety of spruce used and when harvested—more floral in the spring, more resinous-bitter later in the year. Smooth alcohol character is acceptable. Spruce needs to be the feature of the flavor, balanced by sweet malt.

MOUTHFEEL: Medium to full body, light sweet finish, not cloying. Low to medium carbonation. Warmth from the medicinal spruce often lingers, but this is often masked by light sweetness. Slight astringency is allowable. Alcohol warmth is allowable as long as it is not hot or harsh.

COMMENTS: The use of spruce doesn't mean that it should taste like Pine-Sol cleaner, Little Tree car air fresheners or Christmas trees. The spruce acts like hops in the balance and flavor, providing a bitterness counterpoint to the sweet malt. Medicinal, herbal, woody character more common than bitter pine resin West Coast-style hops. Well balanced between spruce and sweet malt while keeping the spruce flavor and aroma the highlight of the beer.

CHARACTERISTIC INGREDIENTS: Often all-malt, though molasses is a common and historically appropriate adjunct. Spruce tips, bark, shoots, and sap may be used. Commonly uses neutral ale yeast strains, but could use lager yeast. Often brewed in the late spring and early summer when the spruce buds are at their prime, similar to fresh-hopped beers in the fall.

STYLE COMPARISON: Passing resemblance to a Finnish Sahti, or a Gruit, but has a unique warming herbal medicinal aroma and flavor from the spruce. Has a similar color and body to a Doppelbock, with a unique warming medicinal herbal aftertaste. This is the only style of beer that uses spruce as a main ingredient, and often doesn't use hops as spruce has similar flavors and aroma.

ENTRY INSTRUCTIONS: Entrant should specify which variety of tree was used (Black, Blue, White, Brewers, Norway, or Sitka Spruce, Douglas, or Grand Fir, etc.) as each species varies significantly in aroma and flavor. Also specify which part of the plant (buds, bark, shoots, or sap) was used, and how they were used in the brewing process. Entrant should also identify any other botanicals, spices, or fruits used if any, including molasses.

VITAL STATISTICS:

OG: 1.045–1.075
IBU: 15–40
FG: 1.010–1.018
SRM: 8–28
ABV: 4–8%

COMMERCIAL EXAMPLES: Biere D'Epinette by La P'tite, Simcoe Spruce by Half Pints Brewing, Spruce Campbell by Malty National Brewing, Spruce Tip Ale by Howl Brewing and Garrison Brewing, and many others across Canada.

Brew
This!



Spruce Beer

Recipe by Michael Deluca

Batch volume:	1.6 US gal. [6.1 L]
Original gravity:	1.061 (15°P)
Final gravity:	1.015 (3.8°P)
Color:	20 SRM
Alcohol:	6.4% by volume

MALTS & ADJUNCTS

- 25 oz. (709 g) light dry malt extract
6.5 oz. (184 g) Briess Carapils malt
6.5 oz. (184 g) 90°L crystal malt
6.25 oz. (177 g) Munich malt
6 oz. (170 g) molasses

ADDITIONAL ITEMS

- 4 oz. (113 g) fresh Norway spruce tips and boughs @ 60 min
2 oz. (57 g) fresh Norway spruce tips and boughs @ 30 min
2 oz. (57 g) fresh Norway spruce tips and boughs @ 10 min

YEAST

1 sachet dry ale yeast

BREWING NOTES

Steep Carapils, crystal malt, and Munich malt in 2 US gal. (7.6 L) water for 30 minutes at 155°F (68°C). Remove steeping grains and dissolve dry malt extract and molasses in the liquid. Bring to a boil and add spruce tips as indicated.



are when buds are at their best—similar to what many brewers do each autumn with fresh-hopped beers.

As of this writing, the Beer Judge Certification Program (BJCP) has roughly 7,800 judges around the world. The United States' population of 332 million supports more than 5,000 judges, and the BJCP recognizes 13 American beer styles in the 2021 Style Guidelines.

Italy has one established style in the BJCP's Style Guidelines—X3. Italian Grape Ale—for a population of 59 million, of which 28 are judges. Finland has five judges in a population of 5.5 million and enjoys a style all its own, 27. Historical Beer: Sahti. New Zealand is home to 5.1 million people, 7 million sheep, 80 judges and Category X5. New Zealand Pilsner.

Canada's population of 38 million includes just over 400 judges (the second largest judge pool after the US) and zero native styles. One brewery in Quebec brews nothing but spruce beers year-round, and at last count, 47 other breweries across Canada sell commercial spruce beers regularly.

I consider Canadian Spruce Beer to be on par with Finland's Sahti, New Zealand's Pilsner, and Italy's Grape Ale. All of these are unique styles that offer their own distinct aromas and flavors, and most are only occasionally brewed outside their countries of origin. Fortunately for those of us who like beer, many Canadian and US breweries also make versions of these styles so that those of us who travel less can still taste what makes such beers unique.

Lucy Corne delivered an incredible presentation at Homebrew Con 2022 in Pittsburgh on *umqombothi*, a traditional beer of South Africa. I hope to inspire readers about Canadian Spruce Beer just as she has inspired many others about her unique local beer.

Homebrewers frequently brew spruce beer, and Dean Kelly of Saskatoon won the 2013 Winnipeg Pro-Am homebrew competition with his version of a Colorado Blue Spruce beer called Simcoe Spruce. Half Pints Brewing brewed his recipe commercially after the competition and has done so again several times since. Kathy Li wrote an article about it for the Canadian Homebrewers Association in 2019.²

Victor North submitted a Spruce Beer category in 2018 as part of his Unofficial Canadian Styles Appendix B Supplementary, which has not been accepted by the BJCP.³ I used parts of his draft and incorporated elements of the Finnish Sahti and Italian Grape Ale descriptions to arrive at the Canadian Spruce Beer draft style guidelines accompanying this article.

Homebrewers and commercial brewers regularly make the style, and nearly every competition I have judged in Canada at has had entries, including Kensington Brewing, which won a silver medal at the 2022 Ontario Beer Awards in the Spiced Beer category with their Spruced Up IPA.

Canadian Spruce Beer will be the featured category at this year's Prairie Beer Awards, May 9–12, 2023, in Regina, Saskatchewan. Members of the BJCP board



ON THE WEB

Get inspired! Find Lucy Corne's Homebrew Con 2022 presentation about *umqombothi* at HomebrewersAssociation.org

Brew
This!



Simcoe Spruce Pale Ale

Recipe by Dean Kelly



I have a large Colorado Blue Spruce in my backyard, and I decided to incorporate it into a beer. I pick the tips when they're nice and fresh, usually around the end of May where I live, probably earlier in warmer climates. When the fresh tips cast off their brown, papery husks and are green, soft, and around 5 cm (2 in.) long, that's the best time to pick them. I usually pick them on brew day during the boil and use them right away, but I've also picked some and frozen them. The frozen ones were still good to use in beer, and I don't notice much of a difference. Spruce tips have a unique citrusy flavor that I really like. I chose Simcoe hops, as I thought they'd work well with the spruce.

This recipe won best of show at the 2013 Winnipeg Homebrew Pro/Am competition. Since then, I've re-brewed it almost every spring, usually using more and more spruce. I read an article once in which a brewer said one can never use too much spruce in a beer, and I think that's pretty true. I've used up to four or five times more spruce than in the original batch, and those batches were all still really good. I've subbed in Citra for some of the Simcoe in the recipe and that was good as well.

I've noticed that the beers I brew with spruce have always aged really well. I think the spruce's vitamin C (ascorbic acid) content acts as a bit of a preservative and keeps the beers from staling. Even old bottles taste good.

Batch volume: 6 US gal. (22.7 L)

Original gravity: 1.048 (11.9°P)

Final gravity: 1.009 (2.3°P)

Efficiency: 70%

Color: 8 SRM

Bitterness: 44 IBU

Alcohol: 5% by volume

MALTS

5 lb. (2.27 kg) pale malt

5 lb. (2.27 kg) Maris Otter malt

1 lb. (454 g) crystal 40 malt

HOPS

1 oz. (28 g) Simcoe, 13% a.a. @ 60 min

1 oz. (28 g) Simcoe, 13% a.a. @ 0 min

1 oz. (28 g) Simcoe, 13% a.a., dry hop in secondary

ADDITIONAL ITEMS

7.6 oz. (216 g) spruce tips @ 5 min

YEAST

1 sachet Fermentis SafAle US-05

BREWING NOTES

Mash for one hour at 153–154°F (67–68°C). Boil 60 minutes, adding hops and spruce tips as indicated.

Note that spruce tips can really clog up a brew system. I just put the tips in a mesh bag and let them steep at the end of the boil and while chilling. A bag or hop spider is a very good, time-saving idea.

ON THE WEB

Discover a spruce beer recipe from Parks Canada by following the link at HomebrewersAssociation.org/ma23



and Zymurgy's editor-in-chief will serve as blind judges and discover the variety of flavors that spruce beers have to offer.

RESOURCES

1. zythophile.co.uk/2016/04/20/a-short-history-of-spruce-beer-part-two-the-north-american-connection
2. canadahomebrews.ca/2019/05/03/brewing-spruce-beer
3. Victor North's Spruce Beer draft from 2018. <https://docs.google.com/document/d/1gIMooIZXYoug626JJL9G3-kn3d0Zi2xJM4LOB42jW84/edit#heading=h.30j0zll>

Dave Cole has been a BJCP beer judge for the past seven years and has judged at all of Canada's major beer competitions, as well as at the Great American Beer Festival, AHA National Homebrew Competition, and the Indiana Brewer's Cup. Dave also runs the Prairie Beer Awards, which rotates between Winnipeg, MB, and Regina, SK, to highlight the best beers in the Canadian Prairies. In 2022, he was honored to be nominated to be the BJCP's North Region Assistant Representative, and his support of the Canadian beer community includes lobbying for recognition of Canadian Spruce Beer as an official style. By day, he is an accountant for DC Accounting Ltd., which specializes in getting late-filing clients caught up on their personal and corporate taxes coast to coast.



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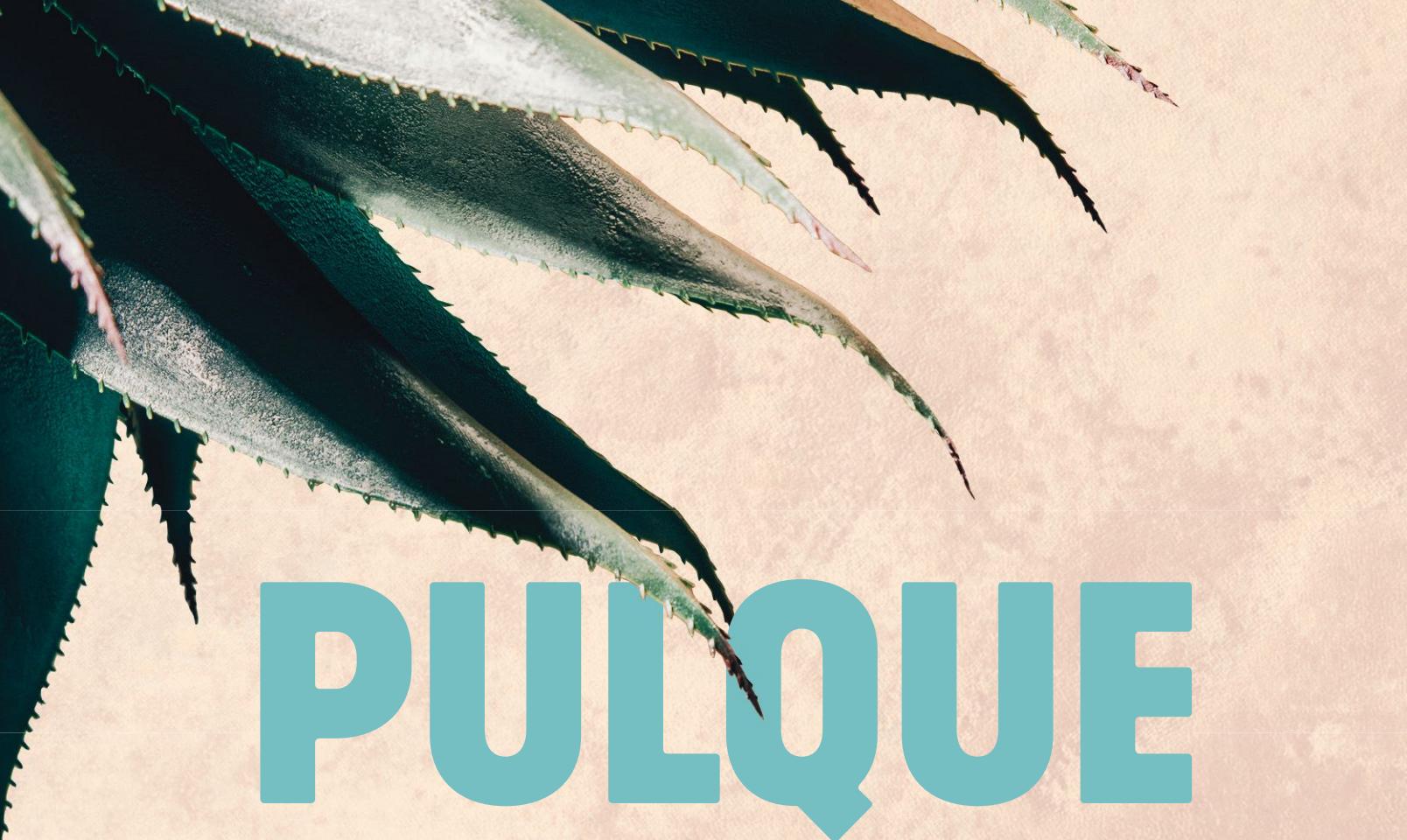
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PULQUE RENAISSANCE

The Rebirth of a Traditional Mexican Brew

By David J. Schmidt

It was a typically cold, rainy August evening in Mexico City. My fiancée and I walked the colonial-era cobblestone streets of the old city center in search of La Risa, one of the city's oldest drinking establishments. We were thirsty for a mug of fresh *pulque*, one of Mexico's oldest and most traditional brews.

When we walked in the door, we found a no-frills interior. Customers sat on wooden benches and metal stools while employees in T-shirts wiped down the Formica counter. The jukebox blared a hit by the Caifanes, a mainstay of *rock en español* from the 1980s and 1990s. "I wish I were alcohol," the singer cried to the

synth-heavy beat, "so that I could evaporate inside of you."

We ordered two mugs of pulque—a thick, viscous, opaque white liquid—and sat at a metal table next to a motley assortment of customers. Next to us sat a well-groomed man in Spandex shorts holding a bicycle helmet. Across from us sat a group of young hipsters, while a possibly homeless man drank at the far end. We all clinked our glasses. Pulque is an unassuming and unpretentious drink, and it does not judge.

Although this traditional brew teetered on the brink of extinction for years, it is in the midst of a serious comeback.



A BRIEF HISTORY OF PULQUE

In its basic form, pulque is simply the fermented nectar of the agave plant. Agave, also known as maguey, is most famous for its distilled liquor products, tequila and mezcal. The pure nectar of the plant, known as aguamiel, is sweet and highly nutritious. When fermented, the nectar produces a simple, mildly alcoholic beverage that averages around 4% ABV. Pulque is viscous and opaque, with a cloudy white appearance.

A word of warning to first timers: you may find that pulque's slimy texture takes some getting used to. The taste is quite agreeable, however—soft and subtly sweet with starchy and sour notes. Some foreigners have compared it to the flavor of buttermilk or kefir yogurt. Like those lactic beverages, pulque is a natural probiotic that's rich in live cultures beneficial for the digestive and immune systems.

This is one of Mexico's most ancient native brews. Records from the Mexica (Aztec) civilization tell of countless varieties of herbal and fruit infusions. Like traditional brews all over the world, it was linked to the Divine. The goddess Mayahuel, guardian of fertility, nutrition, and fermentation, was associated with the agave plant. Some say that you can even find nods to Mayahuel hidden in Catholic depictions of the Virgin of Guadalupe.

Pulque was a sacred drink in pre-Christian times, ritually given to warriors for courage, to women in labor, and used to comfort the elderly and the infirm. Archaeological digs have found ancient skeletons buried alongside jars of the drink.

Following the Spanish invasion, pulque managed to survive constant attempts by authorities and religious leaders to condemn this “pagan” drink. Through centuries of colonial rule up to Mexico's independence in 1821, and long after, pulque remained a national treasure.

Happy customers drinking inside Pulquería Panana.



Agave was grown in countless rural communities across the country's heartland, where people spoke Indigenous languages and remembered the old ways. Special occasions were celebrated with barrels of fresh pulque, drunk from a *jicara*, a simple hollow gourd.

Mexico's oral tradition is full of proverbs and rhyming folk sayings that extol the virtues of pulque. “*No hay amor más puro y sincero que el del pulquero.*” (There is no more pure and sincere form of love than the love of the pulque-brewer.) “*Pulque bendito, dulce tormento, ¿qué haces afuera? ¡Vamos pa' dentro!*” (Blessed pulque, sweet torment... What are you doing outside of my belly? Let's get you inside!)

By the turn of the 20th century, pulque was king in cities across central Mexico: Puebla, Pachuca, Tlaxcala and, of course, Mexico City. By the early 1900s, an average of 460 million liters of pulque were transported by train each year. You could barely

walk twenty paces through a city without running into one of the ubiquitous drinking establishments: the *pulquerías*.

THE RISE AND FALL OF THE PULQUERÍA

Pulquerías were hubs of social activity in urban Mexico. Men conversed, drank, and played cards and dominos. The smoky air was filled with the sound of laughter and the smell of fresh yeast. Sawdust covered the floor, and an altar to the Virgin of Guadalupe almost always stood in the corner. Women often set up stalls outside the door and sold a wide variety of snacks to the hungry patrons inside.

Traditional pulquerías served the drink in pitchers and mugs made of dark green glass, in a variety of shapes and sizes. Each pulque vessel had its own particular name, poetically suited to its shape. The *tornillo* describes the screw-shaped threads rising up its sides; the *piña* mimics the appearance of a pineapple, covered in raised rivulets; a sturdy liter pitcher was named the *ferrocarril*—the railroad.

In light of the pulquería's immense popularity, few could have sensed the shadow looming over this national institution. Over the course of the 20th century, however, the industry was subjected to increasingly restrictive measures. New health codes were implemented, which demanded costly changes to their interior design and imposing strict hours of operation. Gone forever was the homey sawdust on the floors of the pulquería.

Photographs from the 1940s show policemen dumping confiscated barrels of clandestine pulque. In the 1950s, nearly 150 pulquerías were shut down under the administration of Ernesto P. Uruchurtu, Regent of Mexico City. Known as the “Iron Regent,” he was infamous for eliminating distribution points and refusing to renew operation licenses. Broader and stricter regulations were passed throughout the 1970s and 1980s, while production declined in the countryside.

Gender issues played a role in the excessive regulation. Despite Indigenous and Mestiza women having been pulque brewers and pulquería proprietors since the 1600s, conservative forces fought to transform pulque into a man's domain. By the turn of the 20th century, it was common to find a sign above a pulquería's doorway that warned: *SE PROHÍBE LA ENTRADA A MUJERES, NIÑOS Y UNIFORMADOS.* [No women, children, or active servicemen allowed.] From the 1950s to 1970s, walls were built inside to cordon off a separate women's section, the “departamento de mujeres.”

Perhaps the most damning factor, however, was the arrival of European beer brewers.

If you'd like to make traditional pulque, you need two ingredients: fresh agave nectar, recently harvested from the plant, and pre-fermented pulque to use as a “starter” of natural yeast. That's easier said than done. Assuming you don't have access to either, give this simple recipe a try. It's loosely based on 16th-century Spanish documents from Fray Diego Durán, who described an Aztec brew that, in addition to agave and yeast, contained malted barley and *ocpactli*, a bitter plant that added flavor and warded off undesirable microbes. Hops stand in for *ocpactli* here.

INGREDIENTS FOR 5 GALLONS

- 1 lb. (454 g) Carapils dextrin malt
- 4 lb. (1.81 kg) liquid malt extract
- 4 lb. (1.81 kg) light or amber agave nectar
- 2 oz. (57 g) Cascade hops
- California ale yeast

DIRECTIONS

Steep grains for 30 minutes at 160°F (71°C). Remove grains, add agave nectar and malt extract, and bring to a boil. Add hops and boil 30 minutes. Remove from heat, let sit for 5 minutes. Ferment with California Ale yeast.

For centuries, fizzy yellow lager had been foreign to many working-class drinkers in Mexico. German brewers who crossed the Atlantic in the early 20th century faced a quandary: how to muscle their way into a market dominated by a native beverage? Somehow, they would have to convince Mexican consumers to stop drinking pulque.

A smear campaign was launched, which claimed that pulque was unsanitary and unhealthy. Some of their allegations synced with common beliefs of the period. Industrialized production was often extolled as naturally cleaner, and the qualities that we now value in yogurt, kombucha, and kefir—probiotic cultures—were seen as “impurities.” Many of the brewers’ claims were patently absurd and amounted to shameless disinformation. One of their most infamous lies was the myth that pulque was fermented by adding human excrement, euphemistically called the *muñeca* (doll).

Any novice brewer can see how ridiculous this is. A simple starter of live yeast will ferment agave sugars just fine, while feces would do nothing but contaminate the brew. And yet, the smear campaign was successful. The public largely accepted that sterile, foreign lager must be healthier than any native, traditional brew.

Incidentally, Mexico wasn’t the only country in which this sort of technique managed to transform consumer habits. During my recent trip to Ecuador, I heard a nearly identical account of foreign companies who fought to replace a native drink—corn-based *chicha*—with their own beverage. What was the “nutritious, healthy alternative” that replaced chicha? Coca-Cola, of course!



Clockwise from top left:
Folk art and the Virgin of Guadalupe adorn
the walls of La Catedral del Pulque.

Traditional pulque barrels in the Museum
of Pulque and Pulquerías, Mexico City.

Tools for harvesting aguamiel (nectar) from
the agave plant and transporting pulque.

Various traditional pulque drinking
glasses in the Museum of Pulque
and Pulquerías, Mexico City.

Happy customers drinking
inside Pulqueria La Risa.

Harvesting and transportation tools.

By the late 20th century, pulquerías in Mexico were fading into near oblivion. Instead, the country became famous for their German-style lagers—Corona, Modelo, Tecate, and the like—along with distilled agave liquors tequila and mezcal. Pulque had taken a back seat.

When I first decided to write about pulque for this publication back in 2010, I had trouble even tracking down a pulquería in Mexico City. The first one I found—then known as *El Casino*, in the working-class neighborhood of Colonia Obrera—didn't get many new visitors. When I pushed through the saloon-style double doors, I could practically hear the jukebox record scratch to a halt. ("Viva la Fermentación: Ancient Homebrewing in Modern Mexico," May/June 2011)

And yet, the pulquerías never went fully extinct. *El Casino* soldiered on through the years, along with half a dozen others in the Historic Center of Mexico City. In recent years, they've been making a serious comeback, a "pulque renaissance" that is currently sweeping across Mexico.

THE PULQUE RENAISSANCE

Like many other artisanal and traditional brews around the world, pulque is on the rise. Across Mexico, patrons are flocking to the old drinking establishments. Some pulquerías are located in the old, working-class neighborhoods of urban centers, while new ones are popping up in gentrified hipster hotspots.

The newfound popularity of pulque reaches far beyond the "agave belt" where the plants are traditionally grown, in the central states of Hidalgo, Tlaxcala, and Mexico State. Pulque has even gone as far as the northern border city of Tijuana! Tijuana's popular pulquería is located in the hipster shopping center, *la Plaza del Zapato*. In the heart of the swanky Zona Río neighborhood, it sits among popular night clubs, artisanal burger joints, and a Swiss-style bar serving fancy bratwurst.

Even the most barebones, no-frills pulquerías are often adorned with elaborate murals. At least two different pulquerías in Mexico City have a mural that parodies Michaelangelo's masterpiece, *The Creation of Adam*, with God handing Adam a gourd full of delicious pulque. Other murals depict the ancient goddess Mayahuel, guardian of fermentation, and other pre-Hispanic traditions.

Some of them still serve traditional *botanas* to snack on, including a molcajete in the center of the table—a traditional mortar and pestle made from volcanic stone, filled with some sort of salsa or stew. Patrons can

grab a fresh tortilla and make themselves a taco to take the edge off.

Of course, today's pulque connoisseurs don't only drink the natural white form of the beverage, known as *blanco*. Many prefer the flavored varieties, *curados*, which are infused with an infinite variety of flavors. Pulques have been made with nearly every fruit or vegetable imaginable, along with more adventurous varieties: salty tomato Clamato, peanut butter, rose hips, almond—the possibilities are endless. Alongside fashionable young people drinking *curado*, of course, you'll always see a few old-timers who prefer the simple taste of the *blanco*.

To be sure, the days of prohibiting women customers are long gone. However, you can still see the separating wall inside some of Mexico City's older pulquerías, a relic from a bygone era. You may find a few other nods to the past age when only men were allowed—namely, a urinal trough inside the bar itself! I've found myself in pulquerías where I had to relieve myself right in front of all the other patrons, including my laughing female friends.

A PULQUE TOUR THROUGH MEXICO CITY

The best place to see the new face of pulque is right where it all started: Mexico City. For your first taste of pulque, I highly recommend La Panana, a pulquería that also houses an excellent pulque museum on the second floor.

La Panana is located in the part of the Historic City Center that is still decidedly working class. It sits just around the corner from the church of San Judas Tadeo (Saint Jude Thaddaeus), the patron saint of working people and difficult causes, legal and illegal alike. Just outside the doors of the pulquería, you can purchase rosaries, bracelets, and amulets to invoke Saint Jude's blessing.

The drinking hall itself is spacious and well-lit, its walls adorned with photos of agave fields and historic pulquerías from the old days. On the Saturday when I visited with my fiancée and a friend from California, the place was packed. The crowd was mostly young and middle class, primarily locals with a handful of foreign tourists as well. We had to share a table with other patrons, and the waitress seated us next to two boys who looked to be about 20. A skateboard leaned against the leg of the table.

We greeted the boys and clinked glasses. At first, they were politely reserved; the gray in my beard revealed that I was probably as old as their fathers. After a couple of mugs of pulque, however, we all loosened up. The boys introduced themselves as



Top to bottom:
Saloon-style swinging doors at the entrance to an old pulquería.

"His and hers" pulque: the author and his fiancée enjoy mugs of *blanco* and berry-infused *curado*, respectively.

Yordi and Arturo, and said they were from the nearby city of Texcoco. They had come to Mexico City to have some pulque and head to a local skatepark to film videos with their GoPro camera.

I told them how happy I was to see their young generation enjoying a traditional glass of pulque. "We grew up around pulque," Arturo said. "It's really common in Texcoco." Their hometown is famous for its ancient traditions. It was the birthplace of one Mexico's most renowned ancient rulers, the philosopher and poet Nezahualcóyotl. We discussed the gastronomical wonders that have come out of Texcoco, notably *barbacoa*, goat meat wrapped in agave leaves and slowly steamed in underground ovens. In that land steeped in history, pulque is a constant presence.

"I'd rather drink pulque than beer or hard liquor," Yordi said. "We've tried a lot of different pulquerías here in town, but this one's our favorite."

"Also," Arturo added, "It doesn't make you groggy like beer or hard liquor. Pulque is more noble and kind to its drinkers. You can get a buzz from pulque, but it won't give you a hangover."

"Plus, it doesn't make you sleepy," Yordi said. "Just the opposite. It fills you up with energy, and you feel great. I'm ready to go hit the skatepark right now!" We all laughed. As I reflected on their descriptions of pulque, I thought of *kava*, a traditional drink from Polynesia ("Kava: The Calming Pacific Elixir, July/August 2022").

I ordered a mug of natural *blanco*, and we all tried several varieties of the infused *curados*, passing our mugs back and forth for everyone to taste. The savory celery-flavored pulque was especially refreshing on this warm September afternoon. The rim of the mug had even been dusted with spicy Tajín powder, similar to a *michelada* of beer. The fruity guava pulque was subtle and delicious, while the sweet, pink-colored pine nut variety worked as a dessert pulque, nice in small quantities.

After an hour, Arturo ordered a few plastic bottles to take home to his parents. "You have to open it every few minutes, though." He smiled as he unscrewed the cap with a soft psst sound, like a bottle of soda. "Otherwise, it will explode. It's a living thing, after all."

Another of Mexico City's new pulquerías that are oriented towards the hip young crowd is named Pulquería Insurgentes. Located in the upscale Roma neighborhood, it sits right on the major thoroughfare of Avenida Insurgentes. It's an eclectic and dynamic place, an all-purpose hub for local indie culture where a live concert happens nearly every night. The last time I went,

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Clockwise from top:
“And on the eighth day, God created pulque...” Mural inside a pulquería.

The author drinking with new friends Yordi and Arturo inside Pulquería Panana.

Happy customers drinking inside Pulquería Panana.

in August 2022, they were screening short films upstairs for a horror film festival. That same night, an Eastern European fusion band named Kôksal Babah played a noisy and energetic concert downstairs.

The aesthetic of Pulquería Insurgentes is quite different from a conventional pulquería. The lighting is dark and moody, and the walls and floors are made from rough, unvarnished wood panels. Narrow, labyrinthine stairwells lead upward through multiple floors and levels, each with its own bar and seating areas. It often feels like walking through an M.C. Escher painting. Another major difference from other pulquerías is that this one has a full bar that serves a wide variety of beers and cocktails as well.

Of course, Mexico’s pulque renaissance also includes old-school establishments that

have been around for decades. La Risa, the pulquería described at the beginning of this article, has been in business since 1903. Others in the Historic City Center are also longstanding institutions: La Antigua Roma, Los Chupamirtos, Las Duelistas.

El Casino, the first pulquería I ever visited, is still in business, albeit rebranded as La Catedral del Pulque. While the clientele now looks younger and more affluent, it maintains its old school charm. The photos I recalled from my first visit are still there—old, yellowing black-and-white pinup girls and topless models from the 1970s, situated right next to a shrine for the Virgin Mary.

THE PULQUERÍAS OF GUADALAJARA

No discussion of the pulque boom would be complete without mentioning anoth-

er one of Mexico’s most significant cities. Guadalajara is like Mexico City’s younger, laid-back cousin. While it is large, urban, and cosmopolitan, it maintains a touch of country charm. Folks walk more slowly and speak with a touch of a Northern drawl.

Guadalajara is a cultural trend-setter, home to a thriving art and music scene. Some of Mexico’s most ubiquitous craft beers are brewed there, including the popular Minerva brand. Pulquerías have become extremely popular as well, and I visited several of them when I was last there in 2019.

La Última Lucha is a fun, delightfully kitschy nod to the culture of *lucha libre*, the Mexican wrestling tradition. Housed in an old colonial building with high ceilings, each of the cozy rooms is decorated with hundreds of wrestling figurines, toys, and other memorabilia. The aesthetic unity of the arrangements reminded me of the Toy Museum in Mexico City, *El Museo del Juguete*. (Both places are a must-see for any fans of vintage toys and pop-culture curios.)

From there, I walked several blocks to El Amante de Mayahuel, a pulquería with a decidedly “gutter punk” vibe. Thrash metal blared on the speakers, and the cramped room smelled of patchouli, stale weed, and human body odor. The skinny young patrons gave me a few sideways glances when I walked in, likely because my shirt was too buttoned, my haircut too short, and my shoes were too...well, on. I half expected someone to lean over and ask me, “Dude, do you even pocket mulch?”

And yet, the bartender was quite friendly. He offered me two varieties of natural pulque: one from the State of Hidalgo and a local brew from the State of Jalisco. Both tasted sweeter than most pulques, with heavy notes of unfermented aguamiel. I assumed that the gutter punk crowd preferred their pulque on the sweeter side.

The third spot I visited in Guadalajara, La Chuhirruhi, was exactly my style: the perfect balance between old-school pulque traditions and a contemporary look, tasteful yet unpretentious. The crowd was a mix of local 20-somethings in hipster glasses, along with a group of stunningly beautiful Colombian models. The vibe was cozy, with soft lighting, rustic wood furniture and a homemade look to everything.

I headed up to the tables on the second floor, ascending a tiny, rickety spiral staircase adorned with ferns and greenery. The walls were painted with lovely murals of agave fields, where campesino workers harvested nectar from the plants. Even though I was already several mugs deep, I ordered two more to enjoy the vibe of La Chuhirruhi. And, true to the description of

Arturo and Yordi, the following morning was hangover-free.

"PULQUE ES CULTURA"

The recent pulque renaissance has inspired the creation of an official National Association of Pulquerías (Asociación Nacional de Pulquerías, A.C.), which brings together several producers and distributors throughout Mexico City and the surrounding Mexico State. The Association lists seventeen members on their website, just a small handful of the many businesses currently selling pulque.

According to the Association's website, "Pulquería culture has undergone a boom during recent years. What was, up to just a few years ago, a field limited almost exclusively to pre-Hispanic history, is currently undergoing a revitalization, permeating society at large." [Translation mine.]

I thought back to my conversation with the boys at La Panana pulquería in Mexico City. "They say that this whole city used to be full of pulquerías," I said.

"Well, it looks like it's headed that direction again," Yordi replied. "We've been to tons of pulquerías here in Mexico City, in all sorts of different neighborhoods."

I asked him if his hometown of Texcoco had any commercial pulquerías. "Sure," he replied, "but it's much more common to just buy it from a friend. A local family will hang up a sign outside their house—or, more often, you just know about it through word of mouth."

"It's such a deep-rooted part of our communities, our history," Arturo said. "It is more than just a drink. Pulque is culture."

Patricia Cardoso, an online promoter of pulque culture, writes, "The traditional pulquerías [of Mexico City] are museums, places that preserve a certain energy. When I am inside one of them, I feel like I'm traveling back in time. I imagine the loves and losses that took place there, the moments of sadness and joy, the conversations and the tears shed—in some cases, over the course of more than a century."

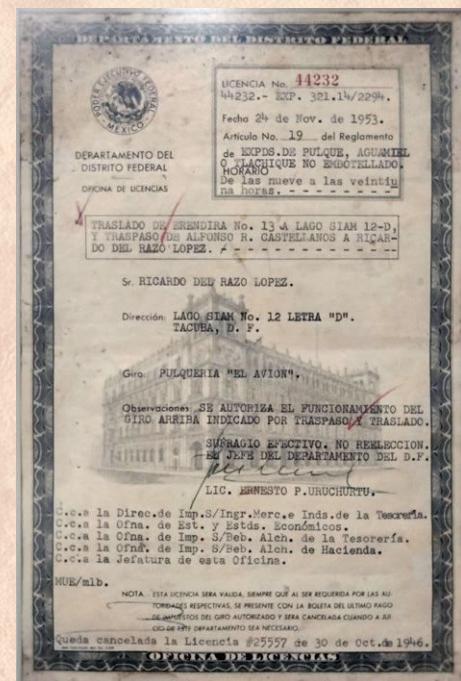
This all sounds very reminiscent of a monologue in the film *Sideways*, when Virginia Madsen's character describes wine as a living, breathing thing. This is even more true with pulque, a drink that can't really be bottled or preserved. Ideally, it should be drunk within three days of fermentation.

Unlike many other brews, there's only one proper way to try pulque: you'll have to come down to Mexico yourself. If you make it to Mexico City, I'll buy the first round. Take your pick between the natural *blanco* or a nice, infused *curado*. Just make sure you have a five-peso coin in your pocket so you can pick the next song on the jukebox.

RESOURCES

1. Website of the National Association of Pulquerías [Asociación Nacional de Pulquerías, A.C.]: pulqueriastradicionales.com/nosotros/
2. Pulquerías tradicionales del Centro Histórico: museos vivos que se beben.: <https://www.centrohistorico.cdmx.gob.mx/rastros/pulquerias-tradicionales-del-centro-historico>
3. Additional historical information comes from the exhibits inside Mexico City's Pulque Museum (Museo del Pulque y las Pulquerías), located inside the pulquería La Panana.

David J. Schmidt is an author, homebrewer, and multilingual translator who splits his time between Mexico City and San Diego, California. Schmidt speaks 12 languages and has spent the past 15 years traveling throughout rural Mexico, Latin America, and Africa in search of ancient folk brews, making him a veritable Indiana Jones of homebrewing. (Think Harrison Ford with a beer gut.) He can be found on Facebook, YouTube, and Twitter with the handle "Holy Ghost Stories," or via the website HolyGhostStories.com.



Official license to distribute pulque in Mexico City, dated November 24, 1953. On display in the Museum of Pulque and Pulquerías, Mexico City.

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RE-CREATING THE PAST

DISCOVERING THE BEERS OF EARLY 20TH CENTURY AMERICA

By Peter Symons

Imagine it is 1904, somewhere in the eastern United States. You are an American of German descent. You have just completed a four-month course at Hantke's Brewing School and Laboratories, in Milwaukee, Wis., and now you have landed your first job in a brewery, making a range of lager (beer), bock, ales—sparkling (lively) ale, dark ale, and stock ale, also known as India pale ale—and the occasional porter. The specter of Prohibition looms, but it is still some way over the horizon.

You have your brand-new *Hantke's Brauer-Manual* and copies of his epic works *Handbuch für den Amerikanischen Brauer und Mälzer*, Vol. 1 and Vol. 2.^{1,2} Over the next year, you record the key parameters for each brew, and eventually this document ends up in the Hagley Library.

Roll forward 117 years to 2022, and through the wonders of the internet, a beer historian happened upon this *Brauer-Manual*. With the help of Linda Gross, reference librarian at the Hagley Museum and Library, the document was scanned and sent to me to decode. Decode is the operative word, as the book was written in German, the default brewing language of the day. →

TABLE 1: 1904-05 BREWS

	Ale		Lager		Bock		Stock Ale	
	6 Sept. 1904		7 Sept. 1904		10 Jan. 1905		5 Dec. 1904	
OG °B [S.G.]	12.3 av [1.050]		12.6 av [1.051]		15.6 [1.062]		16.4 [1.066]	
	lb.	%	lb.	%	lb.	%	lb.	%
Malt	11390	63.5	8000	66.7	16500	94.23	17000	65
Corn	6500	36.25	-	-	800	4.57	9000	35
Rice	-	-	4000	33.3	-	-	-	-
Sugar	-	-	-	-	-	-	-	-
Roast Malt	45	0.25	-	-	210	1.2	-	-
Total	17935	100	12000	100	17510	100	26000	100
Batch size [BBL]*	357		215		365		362	
Hops lb.	100 Olds		20 Olds		50 NY		500 Olds	
			175 Pac		50 Olds		400 State NY	
			180 Pac		250 Pac		360 Pac	
Hop extract lb.	10 lb. extract = 120 lb. cones		No extract		10 lb. extract = 120 lb. cones		No extract	
Total hops	400		195		470		1260	
lb./BBL	1.12		0.9		1.3		3.48	
g/L	4.3		3.5		5		13.45	
FG °B [S.G.]	2.8† [1.011]		3.7‡ [1.015]		Say 5.0§ [1.020]		Say 4.0¶ [1.016]	
ABV %	5.0		4.8		6.5		6.6	

TABLE 2: 1905 BREWS

	Dark Ale		Porter		Sugar Lager		Sugar Ale	
	17 May 1905		3 Aug. 1905		3 May 1905		1 May 1905	
OG °B [S.G.]	12.3 av [1.050]		13.8 [1.056]		12.9 [1.052]		12.2 [1.049]	
	lb.	%	lb.	%	lb.	%	lb.	%
Malt	11390	63	11390	55.9	12240	65.5	11390	63.7
Corn	6500	35.9	6500	31.9	-	-	6000	33.6
Rice	-	-	-	-	6000	32.1	-	-
Sugar	-	-	-	-	448	2.4	448	2.5
Roast Malt	200	1.1	2500	12.2	-	-	45	0.2
Total	18090	100	20390	100	18688	100	17883	100
Batch size BBL*	360 av		340		362		363	
Hops lb.	60 lb. less than ale as less extract used				Same as lager?		Same as ale?	
	No Data		No Data		No Data		No Data	
Hop extract lb.	5 lb. extract = 60 lb. cones		No extract		No extract		10 lb. extract = 120 lb. cones	
Total hops	??		??		??		??	
lb./BBL	??		1.25 §		??		??	
g/L	3.6		4.8		3.5		4.3	
FG °B [S.G.]	2.8† [1.011]		3.9‡ [1.015]		3.7§ [1.015]		2.8† [1.011]	
ABV %	5		5.4		4.9		5.0	

* Hopped wort in fermenter in US barrels (BBL) of 31 gallons.

† FG determined using data from *The Americana* (1906).

Google Translate's attempt at the initial pages did not look promising, as the start of the book was essentially an extended advertorial that offered instructions on how to gather samples of water, malt, hops, and so on, and send them to Hantke's laboratory for analysis. It actively referenced his books *Handbuch für den Amerikanischen Brauer und Mälzer*, Vols. 1 and 2. In the rear of the book were some 24 pages of advertisements. There were numerous blank pages in the Sud Manual, but there were also 15 pages of handwritten brewing data. Woo-hoo, I love a primary source.

The brewer who recorded these brews is unknown, as is the brewery. What can be said is that this brewery produced around 50,000 barrels per year. This would make it a small- to medium-sized brewery. For comparison, the largest brewer in 1905, Anheuser-Busch Brewing Association, was producing 1.3 million barrels.³

Considering the product range, I deduced that this brewery must have produced mostly draught beers. Why? Well, original gravities for bottled beer in those days were typically around 13 degrees Balling (°B), which is higher than what the *Brauer-Manual* data indicated.⁴

The product range of lager, ale, and porter could indicate a location in the eastern United States, perhaps New York or Pennsylvania? Enough speculation: let's get into the data.

BRAUER-MANUAL DATA

The data in the *Brauer-Manual* provided a snapshot in time from September 1904 to October 1905, with a representative sample of the beers as brewed, detailed in Tables 1 and 2.

The tables show the data as recorded (in black), but some information was missing, notably the fermentation details and the racking gravities. In Table 2, an added complication was that the column for hops referred to a separate book that was not part of the archive!

For the sparkling ale and porter, I estimated the final gravities using data from *The Americana: a universal reference library, comprising the arts and sciences, literature, history, biography, geography, commerce, etc., of the world* (1906), which also provided a general sensibility check.¹⁰ As methods of analysis were different back in the day, the figures in the Tables 1 and 2 for original gravity, final gravity, and ABV are necessarily approximate.

I filled in the missing data (in blue) and the necessary process details to recreate the beers, mainly using Hantke's textbooks and his newsletter, *Letters on Brewing*.

SPARKLING ALE

The origins of American sparkling ale, sometimes called *cold sparkling ale* (remember: nothing is new!), around the turn of the 20th century, seem to lie in the need for ale breweries to have a product to compete with lager beers.

The original method was to make a blend of stored and mature ale, with lager kraeusen and so to create a brew that to all appearances was lager beer, but of a decided ale flavour and character. This type of ale was served in bottles as well as on draught.

The requirements for Sparkling Ale included; to brew an ale more palatable, good foam stability, palate-fullness, sparkling to the eye, chill proof, with an appreciable fineness of flavor and aroma of hops and malt, and the characteristic esters of top fermented beers.¹¹

MATERIALS AND PROCESSES

This analysis and projection of the data from the *Brauer-Manual* underpins the accompanying recreated recipes.

Grist

In 1904, “standard American malt” may have been two-row Chevalier from Montana used for ale, porter, and stock ale. Six-row could be appropriate for lager and bock.

The next *Brauer-Manual* column heading was rice or corn. The type used was not stated. I have assumed rice for the lager, or corn in the same beer if it was intended for kegging (references in *Letters on Brewing*), and corn in the ale. Hantke basically said rice was best but that corn had caught up in quality as the oily germ could be removed to avoid rancidity in the beer.

The use of sugar was interesting. US hundredweights were exactly that, 100 pounds, whereas UK imperial hundredweights were 112 pounds. I think that this could signify the use of English sugar, possibly invert or cane sugar.

For the roast malt, “Patent” Black Malt was added to the mash. There was nothing to indicate the use of Rahr Caramalt, and the column for Sugar Colouring was blank.

Mashing Regime

The mash temperatures given in the *Manual* were not very helpful, as these would have been dependent upon the brewery plant, which was unknown. Consequently, turning to the textbook, we assume the American practice of the era, with upwards infusion mashing, no decoction, and a cereal mash.



1904 STANDARD AMERICAN LAGER



Original recipe dated 7th September 1904.
Modern recipe recreated by Peter Symons.

Batch volume: 6 US gal. [23 L]

Original gravity: 1.051 [12.6°P]

Final gravity: 1.015 [3.8°P]

Color: 4.6 SRM [11 EBC]

Bitterness: 33 IBU

Alcohol: 4.8% by volume

MALTS & ADJUNCTS

8.5 lb. [3.86 kg] Briess Vienna malt or Voyager Vienna malt, 3.5°L

4.13 lb. [1.87 kg] Briess flaked rice or supermarket flaked brown rice

HOPS

0.15 oz. [4 g] US Cluster, 7% a.a. @ 75 min

0.75 oz. [21 g] US Cluster, 7% a.a. @ 45 min

0.95 oz. [27 g] US Cluster, 7% a.a. @ 15 min

YEAST

1 sachet Fermentis W-34/70 SafLager

— or —

1 pack liquid lager yeast with around 83% attenuation

WATER

Ca 13 ppm, Mg 6 ppm, Na 8 ppm, SO₄ 37 ppm, Cl 13 ppm, HCO₃ 20 ppm

ADDITIONAL ITEMS

1 tablet Whirlfloc @ 5 min

BREWING NOTES

Mash at 160°F (72°C) for 30 minutes. Sparge at 167°F (75°C). Boil 75 minutes, adding hops and Whirlfloc as indicated.

Pitch yeast at 52°F (11°C) and ferment at 59°F (15°C). Carbonate beer to approximately 2.5 vol. [5 g/L] CO₂.

In order to make the best use of raw rice and grain, it is practical to saccharify the raw material in a special vessel by mixing in malt and to boil the unsweetened starch to make it gelatinous, and to let this raw fruit [cereal] mash flow into a prepared malt mash.¹²

For either rice or corn grits, a cereal mash would include some malt—one-sixth the weight of the corn or one-fifth the weight of the rice.¹³ The rice or corn was gelatinized in the cooker, then added to the main mash.

The main mash controlled the fermentability, using an upwards infusion mash. Mash low, around 140–149°F (60–65°C) for more fermentability, or mash

high, around 158°F (67°C) for lower fermentability. Transferring the boiling cereal mash “fixed” this fermentability by raising the main mash temperature quickly and denaturing the enzymes.

So, although doing a cereal mash would be traditional, pregelatinized flaked rice or corn could be added to the mash instead. Attention, however, would still be needed to manage the mash fermentability.

Cereal Mash

Mash the rice or maize with the indicated amount of malt for 30 minutes at 100°F (37.5°C), gradually heating the mash to around 154°F (67.5°C) by about 1°F (0.6°C) every two minutes. Hold the mash at this temperature for about 30

TABLE 3: HANTKE'S SUGGESTED MASHING REGIMES FOR THE DIFFERENT STYLES OF BEERS.

	Initial Mash In Temperature	Main Mash Temperature	Cooker	Fermentability
Lager, Bock, and Stock	45–50°C, 15–30 minutes	slowly heat to 72.5°C	add the “raw fruit” mash and mash 35–40 minutes	Low
Ale and Porter	60–62.5°C	70°C		High

Brew
This!



1904 AMERICAN SPARKLING ALE

Original recipe dated 6th September 1904.
Modern recipe recreated by Peter Symons.

Batch volume: 6 US gal. [23 L]
Original gravity: 1.050 [12.5°P]
Final gravity: 1.011 [2.8°P]

Color: 4.6 SRM [11 EBC]
Bitterness: 45 IBU
Alcohol: 5% by volume

MALTS & ADJUNCTS

6.5 lb. [2.95 kg] Crisp Chevalier malt
3.7 lb. [1.68 kg] Crisp flaked maize
0.4 oz. [12 g] Bairds black malt

HOPS

0.5 oz. [13 g] US Cluster, 7% a.a. @ 75 min
1 oz. [27 g] US Cluster, 7% a.a. @ 45 min
0.85 oz. [24 g] US Cluster, 7% a.a. @ 15 min
1.1 oz. [32 g] US Cluster, dry hop 5 days [optional]

YEAST

White Labs WLP023 Burton Ale Yeast

WATER

Ca 50 ppm, Mg 10 ppm, Na 15 ppm, SO₄ 75 ppm, Cl 63 ppm, HCO₃ 40 ppm

ADDITIONAL ITEMS

1 tablet Whirlfloc @ 5 min

BREWING NOTES

Mash at 151°F [66°C] for 60 minutes. Sparge at 171°F [77°C]. Boil 75 minutes, adding hops and Whirlfloc as indicated.

Pitch yeast at 59°F [15°C] and let rise to 70°F [21°C]. When terminal gravity is reached, condition and add finings (e.g., Biofine Clear) and store at 34–36°F [1–2°C] for at least 6 days.

Carbonate beer to approximately 2.5 vol. [5 g/L] CO₂.

minutes, and then bring the mash to a boil as quickly as possible and then cook it for 45 to 90 minutes, or until an iodine test indicates conversion.

The mashing times for modern well-modified malts would not need to use the durations from 1904–05. A 30- to 60-minute mash should suffice.

By means of a varying selection of raw products, by means of a change in the proportions of the malt to the raw material and by employing a suitable mashing method, the brewer is enabled, even if only using a malt of a constantly uniform character to produce a beer of any desired character. But since in the United States almost exclusively one malt is used, viz. the American (corresponding most closely to the Vienna malt), the essential point for the making of certain beer lies in the working in the brewhouse.

Probably the character of the yeast might also be influential in practice; the author of this compilation thought it remarkable that in the production of the various beers the character of the

yeast had no influence whatsoever on the beers.¹⁴

A clue! Standard American six-row malt equaled Vienna malt of the period. So, a modern Vienna malt for the base lager malt it is.

BOIL AND HOPPING RATES

As the flavor of beer is directly influenced by the amounts and types of hops used, along with the quantities and timings of the boil additions, I make no concessions for this section being a bit wordy.

HANTKE'S BOIL AND HOPPING RATES

Generally used for American-style lagers without a pronounced hop flavor,
approx. 0.6 - 0.76 pounds per barrel if the wort is below 11.5° Balling.
approx. 0.75 - 1.0 " " " 11.5–13° B
about 1.0 - 1.25 " " " over 13° B.

Pilsner character beers where the hop flavor is to be prominent, use 2-3 tenths of a pound per barrel more than above for regular beer.

For light ales such as present use ale, lively ale, still ale and the like, use approx. 1 1/4 - 1 1/2 per barrel.
For heavy ales like stock ale, pale ale around 2 1/2 pounds per barrel of beer.¹⁵

Hantke gave some overall hopping rates per type of beer, representative of the late 1890s, and the numbers calculated via the *Brauer-Manual*, expressed in pounds per barrel (lb./BBL), are similar, except that the stock ale was much more heavily hopped at 3.5 lb./BBL.

Now, then, we have to solve the thorny issue of the type of hops and the addition times to the kettle for each of the beers. The *Brauer-Manual* hops were listed as Olds—probably about 12 months old, and New York was the major hop-growing area at this time—and Pac, or Pacifics, which probably came from California or Oregon.

Without getting into the weeds, the options for hop varieties in New York State were English Cluster, Humphrey, or Canada, with Cluster in the majority and in California the “Large gray American” hop.^{16,17} For our purposes, modern Cluster would seem the best choice, i.e., US Cluster pellets of about 7 percent alpha acids by weight. Now, as to the timing of the additions to the kettle:

The first method of adding the hops in batches is the general one in our breweries, and it is customary if hops of different quality or different ages are used, to add the poorer or older hops to the first batch, and the nicest and freshest hops for the last batch.¹⁸

Based on this, the Olds would go in first, which seems reasonable. The boil times stated in the *Brauer-Manual* varied from 2 1/2 to 3 hours.

Now the usual way of boiling, whether beginning after the kettle is quite full or only one-third full, is to boil the wort until the “break” has occurred, i.e., the coagulable albumen has separated and agglomerated.

Then add two-fifths of the amount of hops to be used, boil again for about an hour, add two-fifths of the of hops again, and boil for another half hour.¹⁹

AMERICAN STANDARD LAGER

So, let's work out 2½ hours, i.e., 150 minutes, for the lager, without a pronounced hop flavor, hopped at 3.5 g/L. Today, a 75-minute boil, after the hot break has formed, would be the go-to approach. Accordingly, I have scaled the quantities from the 150-minute boil to a 75-minute boil. No apologies for using grams per liter—ounces per gallon is just too weird!

In recreating the lager, the hopping rate was discounted by one-half, to 1.7 g/L, due to the historic use of seeded whole hops and Olds, probably with poorer storage. Today we enjoy ready access to high-quality pellet hops, so we can get away with using less.

Taking a slightly different tack, and let's assume that the hopping in the *Brauer-Manual* was actually the sequence of hopping.

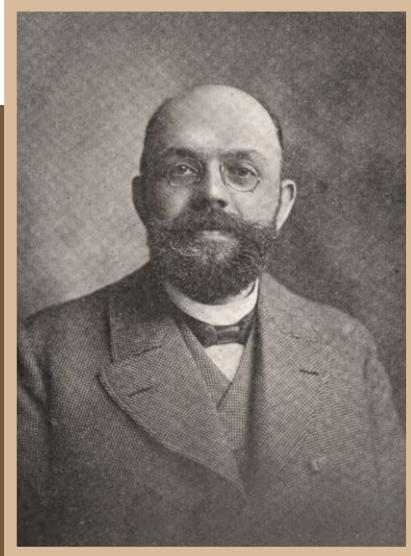
The IBU calculations were similar; however, I suspect the flavor profiles would be different.

TABLE 4(A): HANTKE'S HOP ADDITIONS AND TIMING FOR LAGER.

Type Cluster	For a 150-minute boil	From end of boil	For a 75-minute boil	From end of boil
%	g/L	After hot break formed	g/L	After hot break formed
40%	0.7	150 minutes	0.7	75 minutes
40%	0.7	90 minutes	0.8	45 minutes
20%	0.3	30 minutes	0.4	15 minutes
	1.7		-	
	34	Calculated IBU Tinselt	34	

TABLE 4(B): AN ALTERNATE DERIVATION OF HOP ADDITIONS AND TIMING FOR LAGER.

Type Cluster	For a 150-minute boil	From end of boil	For a 75-minute boil	From end of boil
%	g/L	After hot break formed	g/L	After hot break formed
10%	0.17	150 minutes	0.17	75 minutes
45%	0.77	90 minutes	0.91	45 minutes
45%	0.77	30 minutes	1.17	15 minutes
	1.7		-	
	33	Calculated IBU Tinselt	33	



HANTKE'S OBITUARY

Dr. Ernst Hantke.

In the midst of a successful career, in the prime of life, death put an end to the untiring and noble activity of our revered president, Dr. Ernst Hantke, whose abilities, talents and ambitions seemed destined to promote the interests of all the fermentation industries for many years to come. His untimely and premature death has brought unutterable sorrow to his family and great grief to his friends and associates.

Dr. Ernst Hantke was born June 10th, 1863, in Guhrau, Silesia.

Dr. Ernst Hantke set out to acquire practical experience in his chosen profession of chemistry. He successfully held positions under various renowned German professional men. Thereupon he secured a position as assistant to Dr. Delbrück, director of the "Versuchs- und Lehranstalt für Brauerei" [VLB] and also of the "Verein der Spiritusfabrikanten in Deutschland." It was here under the fostering care of Dr. Delbrück that Dr. Ernst Hantke first turned his special attention to the chemistry of fermentation. Here he was enabled to gain a clear insight into German brewing methods, which was also augmented by the fact that for several years he was brewer's technologist for several large breweries in Germany.

In the summer 1893 he arrived in Chicago, where he accepted a position as instructor with the American Brewing Academy, serving in that capacity one year. Dr. Ernst Hantke then removed to Milwaukee, accepting a position as brewer's technologist with the Val. Blatz Brewing Co., with the concession that he be permitted to do analytical work for others.

During the summer of 1896 Dr. Hantke began to publish his "Handbuch für den amerikanischen Brauer und Mälzer," which is the first book of its kind, bearing directly on American brewing conditions.

From giving private instructions to a few scholars, in the fall of 1897, the opening of regular courses was a necessity, so that in February 1898 the first regular course at Hantke's Brewers' School was begun. Dr. Hantke felt the necessity of having a trade paper wherein he could communicate the results of his experiments to the public, so it was decided to publish a pamphlet entitled "Letters on Brewing." Besides this he was co-worker in the new "Encyclopedia Americana" edited by the "Scientific American."

While he never complained of being sick, he nevertheless never felt fully rested for the last few months, so that he had determined to take a long rest as soon as the next course at the brewers' school had commenced.

It was a fond hope, realized much too soon!

MAY HE REST IN PEACE.²⁵

TABLE 5(A): HANTKE'S HOP ADDITIONS AND TIMING FOR ALE.

Type Cluster	For a 150-minute boil	From end of boil	For a 75-minute boil	From end of boil
%	g/L	After hot break formed	g/L	After hot break formed
40%	0.89	150 minutes	0.91	75 minutes
40%	0.89	90 minutes	1.04	45 minutes
20%*	0.44	30 minutes	0.7	15 minutes
	2.2		-	
	46	Calculated IBU Tinseth	46	

* Assumed to be the 10 lb. hop extract, equivalent to 120 lb. hops, used as a flavor addition.

TABLE 5(B): AN ALTERNATE DERIVATION OF HOP ADDITIONS AND TIMING FOR ALE.

Type Cluster	For a 150-minute boil	From end of boil	For a 75-minute boil	From end of boil
%	g/L	After hot break formed	g/L	After hot break formed
25%	0.55	150 minutes	0.57	75 minutes
45%	0.99	90 minutes	1.17	45 minutes
30%!	0.66	30 minutes	1.04	15 minutes
	2.2		-	
	45	Calculated IBU Tinseth	45	

! Assumed to be the 10 lb. hop extract, equivalent to 120 lb. hops, used as a flavor addition.

TABLE 6: HOPPING PERCENTAGES BASED ON THE WAHL & HENIUS TEXT.

Type Cluster	For a 180-minute boil	from end of boil	For a 75-minute boil	from end of boil
%	g/L	After hot break formed	g/L	After hot break formed
40%	2.7	180 minutes	2.87	75 minutes
32%	2.1	120 minutes	2.96	30 minutes
28%	1.9	10 minutes	3.43	5 minutes
	6.7		-	
	109	Calculated IBU Tinseth	109	

TABLE 7: HOPPING PERCENTAGES BASED ON THE BRAUER-MANUAL DATA.

Type Cluster	For a 180-minute boil	from end of boil	For a 75-minute boil	from end of boil
%	g/L	After hot break formed	g/L	After hot break formed
33.3%	0.8	180 minutes	0.83	75 minutes
33.3%	0.8	120 minutes	1.13	30 minutes
33.3%	0.8	10 minutes	0.83	5 minutes
	2.4		-	
	38	Calculated IBU (Tinseth)	38	

AMERICAN SPARKLING ALE

For some of the beers, including the sparkling ale, the *Brauer-Manual* mentioned hop extract! Hantke stated,

The use of hop extract, for the production of which the New York Hop Extract Works (W A Lawrence is the inventor) own a patented process, following this process, the hops are extracted with petroleum and then evaporated to a thick, black-brown syrup. The hop extract obtained in this way should contain all the active ingredients in the most concentrated form and be equivalent to fresh, good hops in terms of effectiveness, but it can by no means be regarded as a complete substitute for fresh hops.²⁰

That pound of extract was equivalent to 12 pounds of hops. Using a similar rationale to the lager, the ale hopping rate of 4.3 g/L was reduced to 2.2 g/L. Ales were dry hopped.²¹ Now, a big assumption: one-third pound per barrel (1.39 g/L) for dry hops.

The recreated recipes used the alternate interpretation of the hop timings. I am sure, as you are an intrepid homebrewer, and now with the alternatives placed before you, that you will do as you please.

AMERICAN PORTER

The *Brauer-Manual* was silent about the quantity of hops used for the porter. Wahl and Henius stated 1 1/4 lb./BBL, which would be equivalent to 4.8 g/L, again discounted to 2.4 g/L.²²

To be consistent with the Wahl & Henius text, the hopping of the porter was generally the same as stock ale; one-third added at boil, one third after one hour, and the last third 10 minutes before end of boil. No dry hopping.

AMERICAN STOCK ALE

At 13.45 g/L, this was assertively hopped; again, I've discounted it by 50 percent to 6.7 g/L.

FERMENTATION

For the ales and porter, a top-fermenting yeast was used, which expressed a few esters. It may have been multi-strain, as a pure culture was not mentioned for top-fermenting yeast.

Ales, the wort is usually cooled to 58–60°F [14–15°C] and set to ferment with ale yeast at this temperature. Use about 1/2–3/4 pounds of yeast per barrel. During fermentation, the temperature should not rise above 75°F [24°C]. Fermentation usually lasts about 7 days, under certain

circumstances it can be completed in 4 days under the influence of higher temperature.

Porter is fermented in the same way as ale and is often topped with ale.

Ale as it has recently come on the market from eastern ale brewers, is fined, filtered and carbonized like lager beer and is served sparkling clean, so that it looks very much like lager beer, but smells and tastes like lager beer that has ale character.²³

As you may have gathered, the American sparkling ale was a bit of a hybrid. The stock ale would have been stored for an extended period and may well have been considerably more attenuated than the estimate in Table 1.

For the lager and bock, a pure culture of bottom fermenting yeast was used, most likely derived from a Frohberg strain.

Bottom fermenting yeasts are of two different breeds—a high-fermenting Frohberg strain and a low-fermenting Saaz strain—whereby complete fermentation occurred with the first and only partial fermentation with the second.

The wort, cooled to 41–42°F [5–5.6°C] is usually pitched with yeast in separate pitching vats, which often hold the entire brew. Local breweries typically add about a pound per barrel of wort.

The temperature is steadily increasing and reaches the highest stage of ruffle formation 50–52°F [10–11°C] often even 55°F [12.5°C].²⁴

For a recreation beer, I suggest choosing your favorite lager or ale fermentation regime and spund or artificially carbonate. Note that the recipes are nominal homebrew fermentation regimes.

Included are my recreation recipes for a 1904 Lager, 1905 Porter, 1904 Stock Ale, and Sparkling Ale. I will leave it to you to derive the other beers. I hope you have a crack at making these beers and I would love to know how they turn out. All recipes assume 75 percent mash efficiency, and IBU calculations use the Tinseth method.

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1905 AMERICAN PORTER

Original recipe dated 3rd August 1905.
Modern recipe recreated by Peter Symons.



Batch volume: 6 US gal. [23 L]

Original gravity: 1.056 [13.8°P]

Final gravity: 1.015 [3.8°P]

Color: 47 SRM [92 EBC]

38 IBU

5.4% by volume

MALTS & ADJUNCTS

6.7 lb. [3.03 kg] Crisp Chevalier malt

3.8 lb. [1.73 kg] Crisp flaked maize

1.4 lb. [648 g] Bairds black malt

HOPS

0.67 oz. [19 g] US Cluster, 7% a.a. @ 75 min

0.92 oz. [26 g] US Cluster, 7% a.a. @ 30 min

0.67 oz. [19 g] US Cluster, 7% a.a. @ 5 min

YEAST

White Labs WLP023 Burton Ale Yeast

WATER

Ca 50 ppm, Mg 10 ppm, Na 33 ppm, SO₄ 57 ppm, Cl 44 ppm, HCO₃ 142 ppm

ADDITIONAL ITEMS

1 tablet Whirlfloc @ 5 min

BREWING NOTES

Mash at 144°F [62°C] for 60 minutes. Sparge at 171°F [77°C]. Boil 75 minutes, adding hops and Whirlfloc as indicated.

Pitch yeast at 59°F [15°C] and let rise to 70°F [21°C]. Carbonate beer to approximately 2.5 vol. [5 g/L] CO₂.



1904 AMERICAN STOCK ALE (IPA)

Original recipe dated 5th December 1904.
Modern recipe recreated by Peter Symons.



Batch volume: 6 US gal. [23 L]

Original gravity: 1.066 [16.2°P]

Final gravity: 1.016 [4.1°P]

Color: 5 SRM [9 EBC]

109 IBU

6.6% by volume

MALTS & ADJUNCTS

8.8 lb. [4 kg] Crisp Chevalier malt

4.7 lb. [2.15 kg] Crisp flaked maize

HOPS

2.33 oz. [66 g] US Cluster, 7% a.a. @ 75 min

2.4 oz. [68 g] US Cluster, 7% a.a. @ 30 min

2.79 oz. [79 g] US Cluster, 7% a.a. @ 5 min

0.8 oz. [23 g] US Cluster, dry hop 5 days
(optional)

YEAST

White Labs WLP023 Burton Ale Yeast

WATER

Ca 50 ppm, Mg 10 ppm, Na 5 ppm, SO₄ 105 ppm, Cl 45 ppm, HCO₃ 0 ppm

ADDITIONAL ITEMS

1 tablet Whirlfloc @ 5 min

BREWING NOTES

Mash at 154°F [68°C] for 60 minutes. Sparge at 171°F [77°C]. Boil 75 minutes, adding hops and Whirlfloc as indicated.

Pitch yeast at 59°F [15°C] and let rise to 70°F [21°C]. Store for 3 or 4 months before serving.
Carbonate beer to approximately 2.5 vol. [5 g/L] CO₂.

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Peter Symons is a beer historian and author who lives in Sydney, Australia, and has brewed for more than 22 years. He has a graduate certificate in brewing from Ballarat University, has completed the Siebel Institute's WBA Concise Course, and is a BJCP Recognized judge. He has published three books: Bronzed Brews - Homebrewing Old Australian Beers, 6 O'CLOCK Brews, and Guile Brews, all available at lulu.com/spotlight/prsymons. He is currently working on his next tome.





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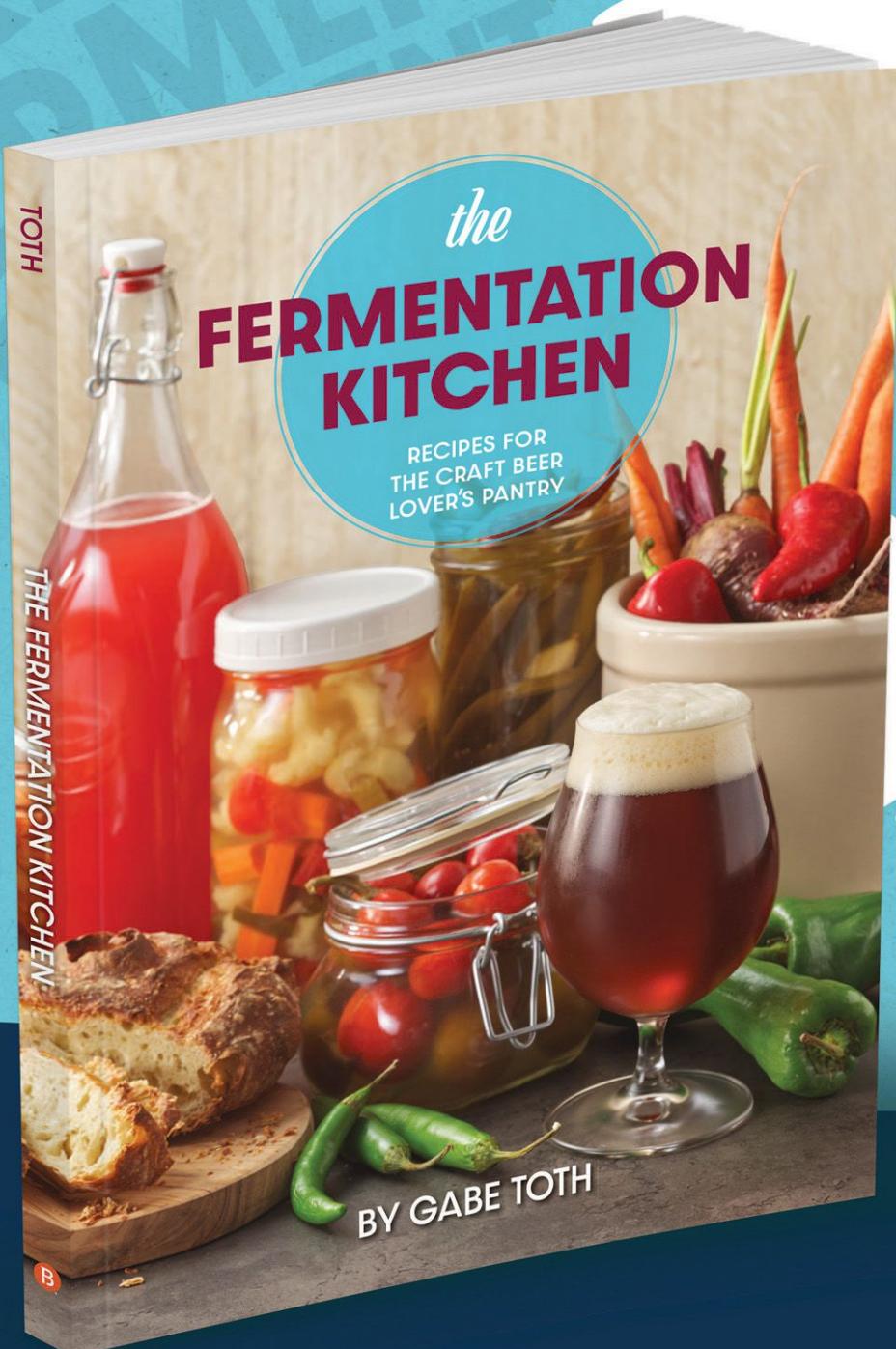
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THE NEW BLACK STUFF

IRELAND'S CRAFT
BREWERS REIMAGINE
THE OLD STANDARD

By Richard Lubell





It's mid-afternoon in early January. This far north, the sun is already going down. Watery winter light reflects off the golden molding above the pub door. Across the road sit the green copper domes of the Four Courts, the heart of Ireland's legal system for generations. The smell of hot malt drifts across the River Liffey from St. James's Gate.

Inside, the pub has just opened. Brass-fitted lights blink to life over a vintage mirror. Some bricks in the walls are stamped "Dolphins Barn", a nearby brickworks gone 80 years now. On the white marble bar, veined like Stilton, the bartender sets down the first beer of the day. It is a pint of dry stout, black with garnet highlights, the veil of nitro bubbles settling into a domed, ivory head.

This scene is not quite as traditional as it seems. The stout is Slow Life, from Whiplash, a seven-year-old brewery better known for its vibrant New England IPAs. And though the building is old, its current resident is Underdog, Dublin's premier craft beer bar. "We knew we wanted a craft nitro stout when we reopened [after lockdown]," said owner Paddy Delahunty, "Once people get to know them, these beers move." →

Not long ago, that pint would've been Guinness Draught. Even after young Irish breweries spread IPAs and fruitied sours far and wide, "the Black Stuff" stood almost unchallenged. If you wanted the cascading sheets of fine carbonation and a creamy ring of foam, there was scarcely another choice. One pub owner tells of a customer who, upon hearing that the bar only poured craft beer, asked, "What's your Guinness like?" In the minds of many Irish drinkers, the style and the brand were synonymous.

And yet, in the past two years, a wave of new local craft nitro stouts has hit the Irish market. What changed?

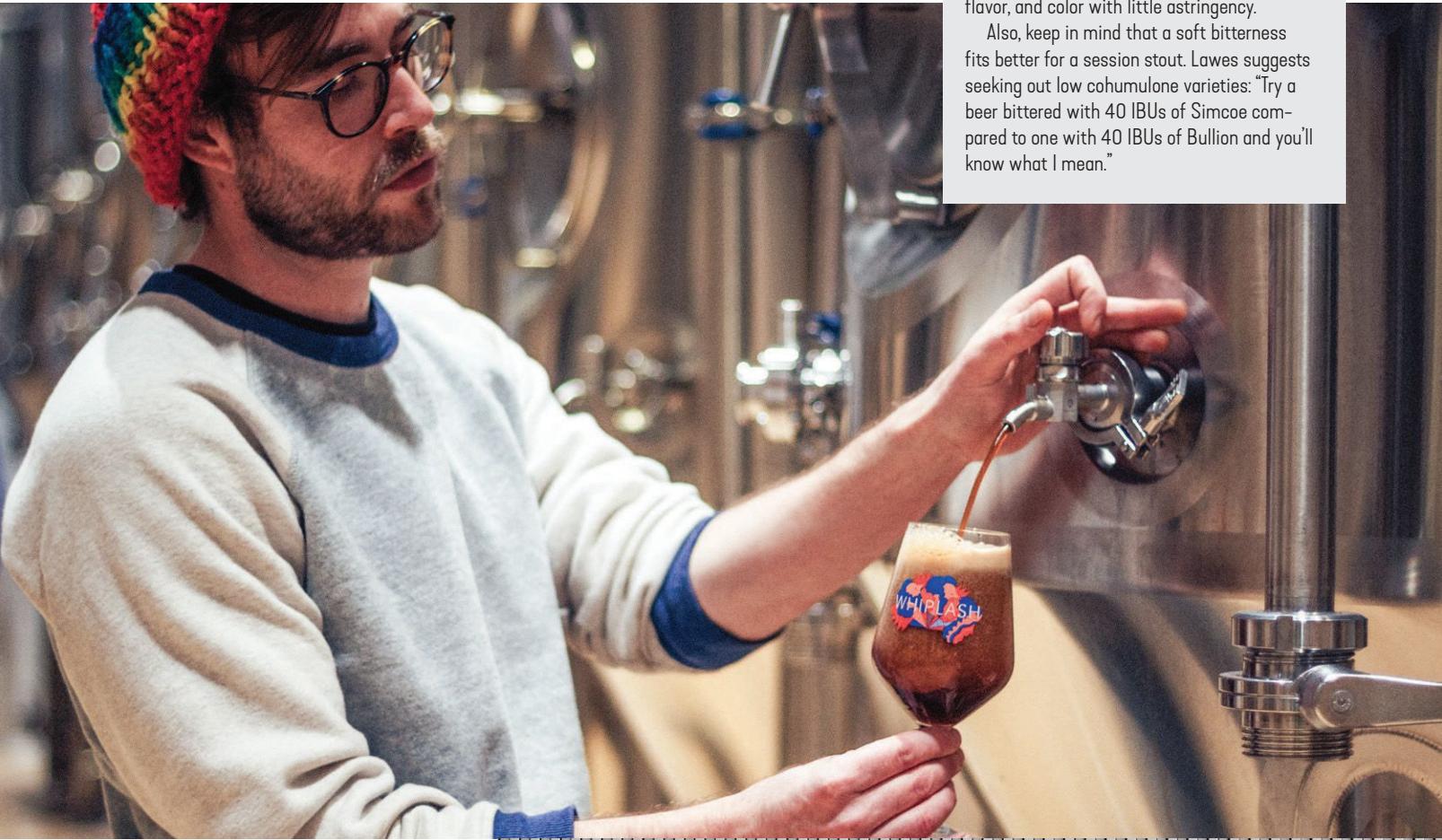
FROM BIRTH TO NOW

Stout holds a deep place in Ireland's cultural heritage. It is, after all, an Irish innovation. When porter was first brewed in Ireland, it was of the London variety, brown and smoky. It stayed that way until a new invention arrived in 1819: the

drum kiln. Roasters could now control the color of malt, and Irish breweries wanted theirs black.

Stronger porters were tagged "stout," a name that stuck. By 1900, St. James's Gate was the biggest brewery in the world. Wartime austerity and changing tastes dropped alcohol content to today's sensible levels. As it evolved, stout became the nation's drink. It represented the majority of beer sales in Ireland as recently as 2006, making the country the last in the world not to prefer lager. Still today, one in four beers served is Guinness.

Much of that is to do with the drinking culture: a warm and chatty atmosphere built on the slow burn of low-strength beers. A sessionable strength is matched by generous servings: the 19.2-ounce imperial pint glass. Drinking in these quantities over hours requires a beer that's flavorful enough to hold your interest but easy enough to quaff.



Alex Lawes of Whiplash pulling a sample of Slow Life.

PLAN YOUR NITRO BREW

Alex Lawes, head brewer and founder of Whiplash, tuned Slow Life especially for nitro.

He cautions that these beers still have CO₂, "usually about 1.0 to 1.4 volumes before you start adding nitrogen. At this low level, carbonic acid will present itself as sweet to your palate. What this means in practice is whatever specialty malts you're incorporating to counteract the drying effect of carbonation—dextrin, crystal, light caramalts—drop them." He recommends dry, toasted malts such as amber and brown. Carafa Special II adds chocolate, roast flavor, and color with little astringency.

Also, keep in mind that a soft bitterness fits better for a session stout. Lawes suggests seeking out low cohumulone varieties: "Try a beer bittered with 40 IBUs of Simcoe compared to one with 40 IBUs of Bullion and you'll know what I mean."

Brew
This!



WHIPLASH SLOW LIFE

Dry Irish stout

Recipe by Alex Lawes

Original gravity: 1.047 (11.7°P)

Final gravity: 1.013 (3.3°P)

Color: 31 SRM

Bitterness: 43 IBU

Alcohol: 4.5% by volume

MALTS

5.6 lb. (65%) Maris Otter

1.3 lb. (15%) Flaked Barley

11 oz. (8%) Carafla Special II

9.5 oz. (7%) Brown Malt

7 oz. (5%) Amber Malt

HOPS

0.75 oz. Hallertau Magnum, 14.5% a.a. @60 min

YEAST

White Labs WLP007 Dry English Ale Yeast or Fermentis SafAle S-04

ADDITIONAL ITEMS

Antifoam agent, optional @ hot break

Kettle finings, optional @ 10 min

Yeast nutrient @ 10 min

BREWING NOTES

Mash at 154°F (68°C) for 60 minutes. When the boil is rolling, add a natural antifoam or minimal hops for hot break. Boil 80 minutes, adding hops, kettle finings, and yeast nutrient as indicated.

Cool to pitching temperature of 66°F (19°C) and pitch yeast at a rate of 0.8M cells/ml/*P. Ferment at 66°F for 7 days. Test for diacetyl and cold crash with finings if possible.

NITROGENATION OPTION

Disclaimer: Gas in any pressurized environment is a dangerous thing. Check the blowoffs of any pressurized equipment with the supplier before attempting anything outside its design spec.

1. Keg beer and build the carbonation level to 1.2 vol. (2.4 g/L) of CO₂.
2. Add nitrogen. The method I would recommend for a home setup is to push nitrogen through a carbonation lid (a special lid with a sintered stone) on a Corny keg. Corny kegs can comfortably take 45 psi of nitrogen.
3. Bring the keg to 2.2 bar (32 psi) or as high as 3 bar (44 psi) if possible and allow the nitrogen to slowly dissolve. This takes some time, and without gas testing equipment, the pour is your only indication.
4. Pour at a top pressure of 38 psi (2.6 bar) through a creamer nozzle, ideally with nitrogen top pressure so as to avoid any further carbonation pickup. A full pint at 4–6°C (39–43°F) will take 2 minutes to settle and will have 10–15 mm (about 0.5") of head depending on the shape of the glassware.
5. Send me a picture of said pint with plenty of details on how it's drinking.

Dry stout fits the bill. The alcohol rarely exceeds 4.5% by volume. It's bone dry (under 1.010, often) so it doesn't cloy. Coffee and chocolate notes are enticingly distinct from lager. Dark roast malts plus solid hopping (up to about 45 IBUs) add up to a bitterness that scrubs down the palate for the next sip. It's light enough to quench, and it never bloats you because, served on nitro, much of the carbonation is in the head.

It's no wonder the nation's pub life grew around stout. Then it all came to a sudden halt. In March 2020, COVID-19 restrictions closed every pub in Ireland. They didn't fully reopen until 2022. The change was seismic. As a rule, the Irish go out for their pints: 80 percent of stout sales are in pubs and restaurants. Yet alcohol consumption rates didn't drop significantly over lockdown. With no place to go, everyone brought the party home.

This switch meant an opportunity for smaller breweries. The Irish Food Board reports 14 percent of craft beer drinkers discovered it over lockdown as something new to do. The rate in rural districts could be twice that, reckons James Ward, founder of Lough Gill Brewery. And that shift looks built to last. "The Irish are very loyal to their Guinness," said Ward, "When people went back [to the pubs], I was skeptical, but we saw keg sales go up, even in local areas. COVID sped up the whole local craft scene." Carlow Brewing Company led the way, debuting cans of O'Hara's Irish Stout Nitro in spring of 2021. Others soon followed.

WHY NITRO?

There's chemistry behind the joy of drinking nitro. Carbon dioxide molecules are large and dissolve well in liquid, so they emerge from a beer as it sits. Tiny, virtually insoluble nitrogen comes out of solution in one rush of minute bubbles. The result is a velvety texture and a luxuriant head. (A 70/30 nitrogen-CO₂ mix keeps the beer from going flat.) Nitrogen also doesn't carry aromatics like CO₂ does, so it mutes the hops of an IPA, but the denser feel is ideal for styles that showcase malt. And, well, nitro pours are pretty.

Guinness long had a lock on nitro stout for good reason: they invented it. Hand-pulled Guinness was a messy affair, requiring tapping two different barrels—a fresh cask to give lively carbonation and an aged one for depth of flavor. Post-war pubs needed something easier to pour and quicker to serve. Enter Guinness researcher Michael Ash and his solution, nitrogen. It produced a handsome pint with a cask-like



Modern Irish stouts: Rascals Brewing Co.'s Nitro Stout (left) and Whiplash's Slow Life (above).

mouthfeel. Bartenders even kept the two-part pour in a nod to tradition. Launched in time for Guinness's 1959 bicentennial, the "bishop's collar" promptly became the signature look of Guinness. A 200-year-old brewery had reinvented itself.

For most of the time since, Guinness had the nitro taps to themselves, but in the past few years that's been transformed. From Founders Breakfast to Old Rasputin, but also Belgians blondes, reds, and IPAs—all are getting the creamy head treatment. "The rise of nitro in Ireland has less to do with O'Hara's than it does with Left Hand Milk Stout," said local beer historian John Duffy. Even corporate-owned producers like Breckenridge and Beavertown in the UK have pushed their own nitro dry stouts.

The style also fits in the back-to-basics trend. Czech Pilsner, altbier, Kolsch, West Coast IPAs: each has found new relevance. "As people come off those juicy pale ales," said Delahunt, "they want something more traditional."

WIDE WORLD OF DRY STOUT

By now, any readers from County Cork are howling, "There are other stouts!" The so-called Rebel County embraces a Texas-like defiance that extends to beer: it's the only part of the country where Guinness is not dominant. Two locally made labels,

sweet Murphy's and grainy Beamish, share about two-thirds of the stout market. Though they have long histories, both brands now fall under the Heineken umbrella. Nevertheless, in 2021, Heineken added a third stout to its portfolio.

Island's Edge came out of Heineken's product development program. The target market was 18- to 35-year-olds, a segment lured by artisanal gin, hard seltzer, and craft cider—just not their grandparents' pint. Heineken's consumer surveys were heresy for style purists. "We asked ourselves, 'What is it about stout that people find difficult?'" Island's Edge Head Brewer PJ Tierney told the *Irish Times*. "The feedback we got was they don't like the bitter aftertaste." Their answer was to add tea and basil extract to the new beer. Sales are solid so far.

Guinness, likewise, all but admitted its canned stout could be better with the release of Nitrosurge. This nozzle fits on specially made cans and creates nitrogen bubbles with ultrasonic waves. Conceived to give tap-quality pints to restaurants without a draught system, it pivoted to an at-home serving device once COVID lockdown extended. It's too soon to tell if the gadget will find a permanent niche.

Both innovations aim to reverse a decades-long decline in domestic sales. The Irish may love their stout but they don't

drink it like they used to. So what keeps it going? In a word: exports. Three-quarters of Irish-brewed stout goes overseas. "Made in Ireland" holds powerful appeal. For a small brewery, foreign sales can mean the difference between commercial viability and shutting down.

"The first dry stout we did was for an export customer," reports Ward of Lough Gill Brewery, "because that's what they expect from an Irish brewery." Meeting these demands also took upgrades. "Very few Irish breweries had canning lines previously, and nitro service wasn't available through third-party packagers," said Dave Guilfoyle, a veteran of several craft breweries who is now consulting. "Massive export opportunities meant that the additional equipment could be justified."

THE DIFFERENCE

Designing dry stouts for a nitro pour presents a paradox: make it bigger yet lighter. Ward warns of the dulling effects of nitro: "You have to be mindful that you're hiding the flavor, you have to make sure it shines through." Lough Gill's own Black Wave ups the roast to give it "a bit more bite." Yet Alex Lawes, founder and head brewer of Whiplash, points out that many breweries make theirs, "too fleshy, there's no balance to make them sessionable." Whiplash's Slow Life drinks with the ease of a café au lait.

A third or more of your grain bill is specialty grains and flaked barley, with big doses of darker roasts. Ensure the requisite dryness with a low mash temperature that creates a more fermentable wort. Avoid the temptation to build out the body. If you want to go large, Irish extra stout draws on historical recipes for something heartier and higher in alcohol.

Irish ale yeast's fruitiness matters more in reds. Anything clean and attenuative like Nottingham can work here. Hop varieties are flexible as long as they deliver the right measure of IBUs. Keep in mind that early hops and dark malts will double up to increase perceived bitterness, so you may not want to sharpen that with gypsum.

Lawes proudly doesn't take shortcuts with his stout: "We don't brew in high gravity and water down at pack, we focus on grists that are 100 percent malt or go easy on the adjunct, we don't sterile filter or pasteurize." Aside from the quality, what's striking about

many craft examples is chocolate. “Guinness is just pale malt and roast,” said Duffy. “In blind taste tests, O’Hara’s stands out a mile for the chocolate malt.”

Visitors to Ireland will find their options depend on location. For the closest thing to a Guinness clone in Dublin, try Porterhouse Plain, which starts with coffee and ends clean. Rascals Brewing Co.’s aptly named Nitro Stout goes darker, delivering licorice, raisins, and a hint of smoke.

On the west coast, Sligo has two choices: Lough Gill Black Wave and The Black Pig from White Hag, which is a sweeter take, reminiscent of malted milk balls. Galway Bay’s Ostara offers a big, bitter finish, cocoa-bean notes, and noticeable hops; at 5% ABV, it verges on being more of an Irish extra stout. In Limerick, Sarsfield Stout from Treaty City stresses drinkability, with a light body and slick mouthfeel.

THE FUTURE

If you’re looking for good beer spots in Dublin, a new player has entered the game. Lawes has just overseen the launch of Fidelity, the de facto brewery tap for Whiplash. It’s a beer geek Mecca, with a slick lightbox menu and individual temperature control on each of the 18 draft lines. Tap number one is Slow Life.

Lawes believes a taste-driven option can win over traditionalists, but is also philosophical: “Guinness drinkers will drink Guinness and Slow Life drinkers will drink Slow Life. Drink whatever you want, but I know which one I prefer.” His peers are similarly realistic. “Domestically, Guinness will always be the superpower for nitro stout,” said Ward. “We go after restaurants and craft beer bars. But selling it next to Guinness? We’re not there yet.”

This is fair. Lots of Irish breweries may have canned a nitro stout, but few have made them core range. On draught, many outlets that pour nitro are also brewery owned. Still, there’s reason for optimism. “You have to understand that the Irish craft beer movement is just coming out of its infancy,” said Guilfoyle, “I do believe that more and more Irish stouts will pop up in nitro cans. There is always room for an alternative.”

Richard Lubell is the president of the National Homebrew Club of Ireland and a BJCP Certified judge. He has written about beer for DRAFT, The Dubliner, and several Irish newspapers. When he's not studying for the Certified Cicerone exam, he can be found boring people about the difference between NEIPAs and hazy IPAs.



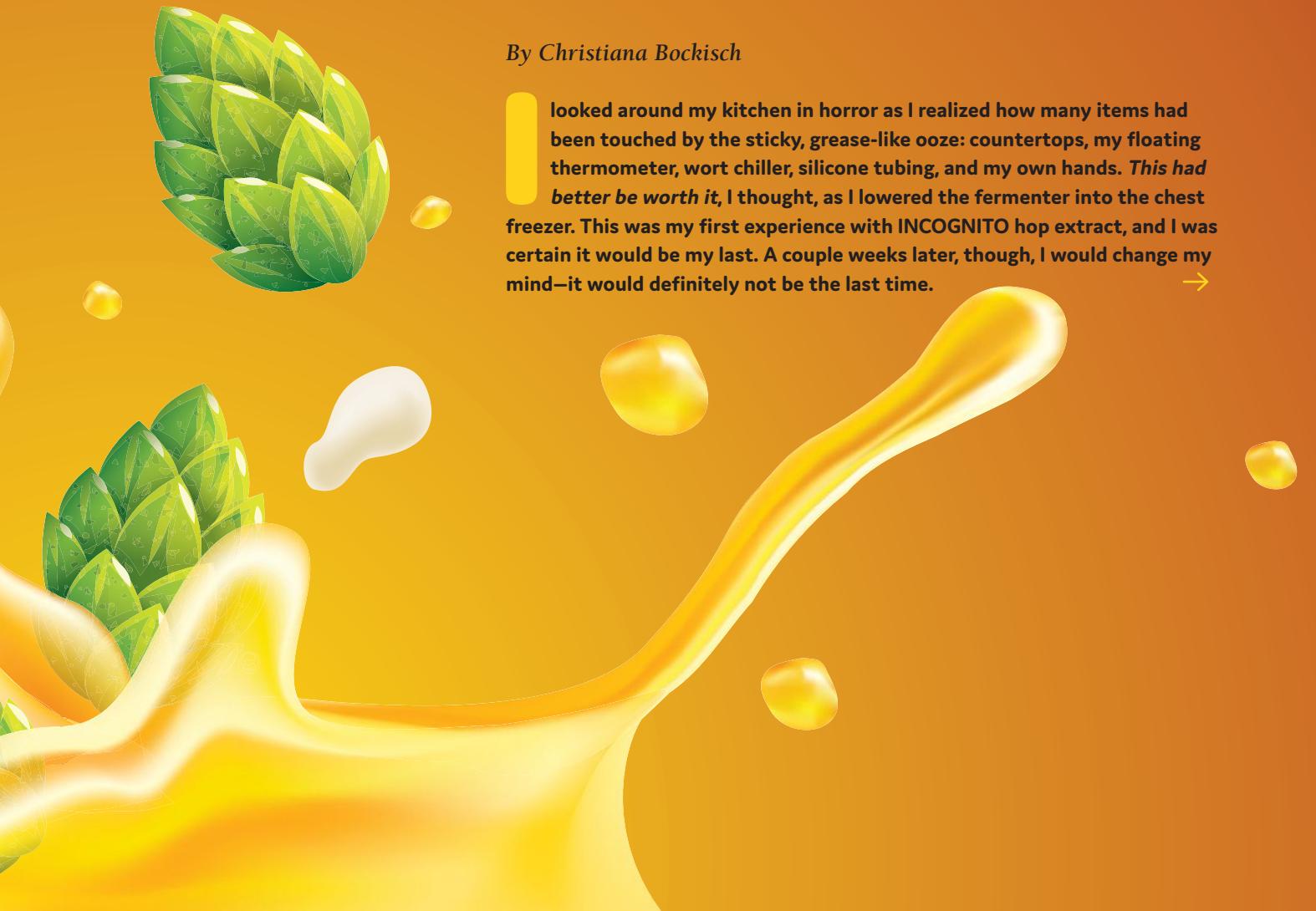


INCOGNITO HOP EXTRACT

A STICKY, DELICIOUS SITUATION

By Christiana Bockisch

I looked around my kitchen in horror as I realized how many items had been touched by the sticky, grease-like ooze: countertops, my floating thermometer, wort chiller, silicone tubing, and my own hands. *This had better be worth it*, I thought, as I lowered the fermenter into the chest freezer. This was my first experience with INCOGNITO hop extract, and I was certain it would be my last. A couple weeks later, though, I would change my mind—it would definitely not be the last time. →



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ADVANTAGES

- You can maximize hop oil in the whirlpool without introducing the vegetal matter from whole-cone or pellet hops.
- INCOGNITO offers excellent, true-to-varietal hop flavor that is even more pronounced than when using hop pellets in the whirlpool.

DISADVANTAGES

- Hop oil is messy and difficult to remove, especially from plastic materials.
- It's difficult to get out of the jar.
- The 20-gram package makes it difficult to use multiple varieties in a typical 5-gallon batch. Two jars are too much, and resealing for later use might have negative flavor impacts.

INCOGNITO is a supercritical-CO₂ hop oil extract produced by John I. Haas, Inc.¹ I recently learned about it this past year and had to give it a try. I am a huge fan of New England Ales (note that I did not call it them IPAs! See my previous *Zymurgy* article, “Rethinking NEIPA” in the Jul/Aug 2020 issue if you’re wondering why), and I’m always looking for new ways to step up my NEA brewing game. The only varietals currently offered as INCOGNITO are Centennial, Chinook, Citra, Ekuanot, El Dorado, Mosaic, and Sabro. They are sold in 20-gram jars, or 1-kilogram jugs. I recommend the smaller jars for the typical homebrewer. I purchased two 20 g jars of INCOGNITO—one Citra and one Mosaic. I chose Mosaic and Citra because I am most familiar with those varieties in NEA.

How is INCOGNITO different from Hop Shot, the CO₂ extract typically used as a bittering addition for big West Coast IPAs? As far as I know, the production method is largely the same in terms of CO₂ extraction, but the difference is in the hop varietals used. Hop Shot contains heavy-bittering varieties like Columbus, rather than juicy, flavorful varieties like Citra and Mosaic.

INCOGNITO USAGE

INCOGNITO is intended to be a whirlpool addition—it should *replace* the hops one would normally add during the whirlpool,

in a 1:6 ratio by mass.² The maximum recommended dose is 2 grams per liter, which is very close to what I used.² This was a bit of a mistake (more on this later).

INCOGNITO should *not* be added as a “dry hop” addition because it will not dissolve at room temperature. In fact, it may not even fully dissolve at temperatures near 180°F (82°C), which are typical for whirlpooling. Remember, hop oil molecules are hydrophobic. If the oil doesn’t fully dissolve, don’t despair. The wort has reached its saturation point, or the maximum concentration of hop oil it can absorb. The rest will aggregate as an oil slick on the surface of the wort, or onto the sides of the kettle.

HOW NOT TO USE INCOGNITO

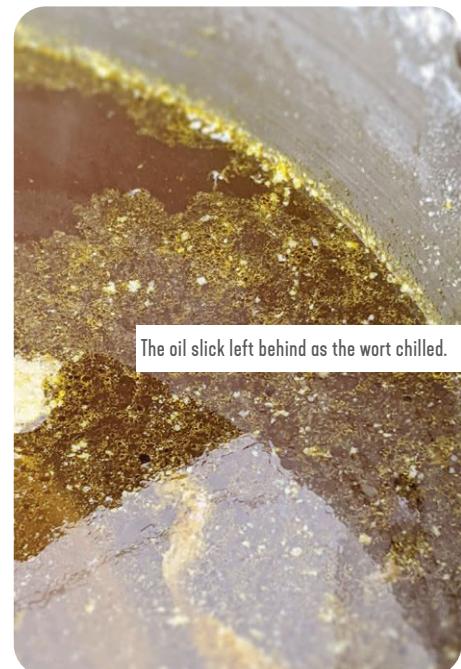
Mistake #1:

Not warming the containers enough

INCOGNITO hop oil is very viscous. Maybe not quite as viscous as honey, but very close, especially if you’re brewing outdoors in the winter, as I was. I thought holding the containers in my pants pocket



Citra INCOGNITO.



The oil slick left behind as the wort chilled.

for about 30 minutes before use would be sufficient. It was not, especially for Citra, which was the stickier of the two.

Mistake #2: Not wearing gloves

There was a lot of hop residue left behind on the sides of the kettle. While cleaning, I got this on my hands, as well as on some plastic tubing. It was virtually impossible to remove from the tubing, even with PBW. I ended up tossing the tubing, and I had to wash my hands three times with concentrated Dawn for them to stop feeling sticky.

Mistake #3: Adding too much hop extract

In the recipe, note how I meant to add half (10 g) of each jar to the whirlpool. As I was doing this, I had the sudden realization that I would either be (1)

storing 10 g of unused hop extract, which would likely oxidize and be ruined by the time I brewed again, or (2) waste the unused extract by tossing it, knowing it would not keep well. I decided, what the heck, go big or go home! I impulsively added the entirety of each jar to the whirlpool. As the wort chilled, there ended up being far too much undissolved hop oil on the surface of the wort and on the surfaces of much of my equipment. I was concerned about head retention, knowing the effect that oily ingredients like peanut butter and chocolate can have on a brew. While transferring to the fermenter, I was careful to leave behind all the undissolved hop oil. I was also worried the beer would taste “over hopped,” like that unpleasantly bitter last drop of beer in the can of some heavily hopped beers.



Brew
This!



CRYO-MESS *(as dubbed by my boyfriend)*

New England IPA ale

I originally intended to only add half jars (10 g) of each of the INCOGNITO hops to the whirlpool. Concerned the leftovers might oxidize, I added the full jars (20 g), and the beer turned out excellent.

Batch volume: 5.5 US gal. (20.8 L)

Original gravity: 1.061 [15°P]

Final gravity: 1.010 [2.6°P]

Efficiency: 75%

Color: 5 SRM

Bitterness: 55 IBU

Alcohol: 6.8% by volume

MALTS & ADJUNCTS

1 lb. (4.99 kg) UK Halcyon malt

1 lb. (454 g) flaked oats

6 oz. (170 g) acidulated malt

HOPS

1 oz. (28 g) Mosaic @ 30 min

1 jar (20 g) Mosaic INCOGNITO, whirlpool 20 min @ 180°F (82°C)

1 jar (20 g) Citra INCOGNITO, whirlpool 20 min @ 180°F (82°C)

1 oz. (28 g) Citra, added at high kräusen and removed after 7 days

1 oz. (28 g) Mosaic, added at high kräusen and removed after 7 days

1 oz. (28 g) Citra, dry hop 5 days before kegging

2 oz. (57 g) Mosaic, dry hop 5 days before kegging

YEAST

Imperial Juice – A38

WATER

Adjust RO water to 50 ppm Ca, 40 ppm Cl, and 70 ppm SO₄

BREWING NOTES

Mash for 60 minutes at 150°F (66°C), targeting a mash pH of 5.3. Ferment at 65°F (18°C).

Add all dry hops under flowing CO₂, if possible, to minimize oxidation. Kegging and air-free transfers are strongly recommended for this beer or any New England style.

THE RESULT

My fears were not realized. The beer was not too bitter, and it had a big, frothy, white head. And the flavor! It was juicy, pillow-y, like drinking a peach, pineapple, and berry cloud. It was not one-dimensional, as I have found beers made with Cryo Hops pellets to be. I was impressed and will certainly be using INCOGNITO in the future.

Next time, I will be more careful about getting the oil on my hands and equipment. I will also consider using only one 20 g jar of a single varietal for a 5-gallon batch, rather than two jars (or maybe I need to step up to 10-gallon batches...).

Feedback to John I. Haas: This stuff is great, but could we get it in a syringe like HopShot? This would make transferring much easier and enable storage of unused oil if the syringe could be capped.

RESOURCES

1. [https://www.johnihaas.com/
wp-content/uploads/2019/03/Haas_
INCOGNITO-GeneralUse_032819.pdf](https://www.johnihaas.com/wp-content/uploads/2019/03/Haas_INCOGNITO-GeneralUse_032819.pdf),
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2. [https://yakimavalleyhops.com/products/
incognito?variant=39835104149637](https://yakimavalleyhops.com/products/incognito?variant=39835104149637),
Retrieved Nov 2022

Dr. Christiana Bockisch works in the tech sector as a chemist. When she isn't brewing, she enjoys hiking, fishing, and skiing.

Relax, Don't Worry, Have a Homebrew!



That mantra rings as true today as it did in 1978 when Charlie Papazian cofounded the American Homebrewers Association with Charlie Matzen. Homebrewing can be as simple or as complex as you want to make it, but the first step is always to relax and not worry.

To aid your relaxation and help you get the most out of Zymurgy, here are some standard assumptions and methods for our recipes. Of course, when a recipe says to do something different, follow the recipe. But you can always fall back on these general tips to brew great beer.



ON THE WEB

For more detailed info, head over to HomebrewersAssociation.org and dive into our How to Brew resources.

might include a water profile. If you can't (or don't want to) deal with water chemistry, don't worry about it: just go ahead and brew! Extract brewers needn't add minerals to water.

Malt Extract Recipes

Making wort from malt extract is easy.

- Crush specialty grains, if any.
- Place milled grains in a mesh bag and tie it off.
- Steep bag of grains in 150–160°F (66–71°C) water for 30 min. in your brew pot.
- Remove bag of grains from the pot.
- Fully dissolve extract in the hot, grain-infused water (if there are no specialty grains in the recipe, you can skip directly to this step).
- Top up with water to your desired boil volume. (Leave some room for foam!)

BREWING WITH ZYMURGY

MAKING WORT

Most recipes in Zymurgy offer an all-grain version and a malt extract or partial-mash alternative. Pick the procedure you prefer and prepare some wort! Some recipes



All-Grain and Partial-Mash Recipes

Unless otherwise specified, all-grain brewers can conduct a single-temperature infusion mash with these parameters:

- Water/grain ratio: 1.25 qt./lb. (2.6 L/kg)
- Mash efficiency: 70%
- Mash temperature: 150–153°F (66.7–67.2°C)
- Mash duration: 60 minutes

Partial-mash recipes make the same assumptions but use a smaller amount of grain and augment the wort with malt extract.

BOILING

No matter how you get here, everyone loves adding hops.



- Boil time is 60 minutes unless otherwise stated.
- Boils are assumed to be the full batch volume, but you can also boil a concentrated wort and top up with water in the fermenter.
- Hop additions are given in minutes before the end of the boil.

Brew Lingo

Every field has specialized language, and homebrewing is no different. Here are some of the key terms, abbreviations, and acronyms you'll find throughout Zymurgy.

AA – alpha acid

ABV – alcohol by volume

AHA – American Homebrewers Association

BBL – US beer barrel (31 US gal or 117.3 L)

BIAB – brew in a bag

BJCP – Beer Judge Certification Program

Chico – American ale yeast, AKA Wyeast 1056, WLP001, SafAle US-05, and others

CTZ – Columbus, Tomahawk, and Zeus: interchangeable high-alpha-acid hops

DME – dry malt extract

DMS – dimethyl sulfide, an off flavor similar to canned corn or cooked vegetables

DO – dissolved oxygen

EBC – European Brewing Convention (beer color)

FG – final gravity

FWH – first wort hops, added to the boil kettle as it fills with sweet wort after mashing

HERMS – heat exchange recirculating mash system

HLT – hot liquor tank

IBU – international bitterness unit

LHBS – local homebrew shop

°L – degrees Lovibond (malt color)

LME – liquid malt extract

LTHD – Learn to Homebrew Day

MLT – mash-lauter tun

NHC – National Homebrew Competition

OG – original gravity

°P – degrees Plato (wort/beer density)

RIMS – recirculating infusion mash system

RO – reverse osmosis, a water purification process that removes most dissolved ions

SG – specific gravity (wort/beer density)

SMaSH – single malt and single hop

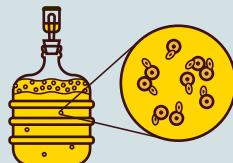
SMM – S-methyl methionine, precursor to dimethyl sulfide (DMS)

SRM – Standard Reference Method (beer color)

FERMENTING & CONDITIONING

Pitch yeast into chilled, aerated or oxygenated wort.

- Use twice as much yeast for lagers as you do for ales.
- Ales ferment at 60–70°F (15–20°C). Lagers ferment at 45–55°F (7–13°C).
- Condition ales at room temperature or colder for a week or two.
- Condition lagers at close to freezing for several weeks if you can (traditional but not required).



BOTTLING & KEGGING

If you bottle,

- Use 1 oz. of dextrose (corn sugar) per gallon of beer (7.5 g/L) for a good, all-purpose level of CO₂.
- Use less sugar for less fizz.
- Take care with higher carbonation levels—many single-use beer bottles aren't designed for high pressure.



If you force carbonate in a keg,

- Use the chart to dial in the gauge pressure on the regulator.



- Add 0.5 psi (35 mbar) for every 1,000 feet (300 meters) you live above sea level.
- To convert psi pressures to mbar, multiply by 69.
- To convert volumes of CO₂ to g/L, multiply by 2.

REGULATOR PRESSURES (PSI) FOR VARIOUS CARBONATION LEVELS AND SERVING TEMPERATURES

TEMP (°F)	VOL. CO ₂										
	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1
33	5.0	6.0	6.9	7.9	8.8	9.8	10.7	11.7	12.6	13.6	14.5
34	5.2	6.2	7.2	8.1	9.1	10.1	11.1	12.0	13.0	14.0	15.0
35	5.6	6.6	7.6	8.6	9.7	10.7	11.7	12.7	13.7	14.8	15.8
36	6.1	7.1	8.2	9.2	10.2	11.3	12.3	13.4	14.4	15.5	16.5
37	6.6	7.6	8.7	9.8	10.8	11.9	12.9	14.0	15.1	16.1	17.2
38	7.0	8.1	9.2	10.3	11.3	12.4	13.5	14.5	15.6	16.7	17.8
39	7.6	8.7	9.8	10.8	11.9	13.0	14.1	15.2	16.3	17.4	18.5
40	8.0	9.1	10.2	11.3	12.4	13.5	14.6	15.7	16.8	17.9	19.0
41	8.3	9.4	10.6	11.7	12.8	13.9	15.1	16.2	17.3	18.4	19.5
42	8.8	9.9	11.0	12.2	13.3	14.4	15.6	16.7	17.8	19.0	20.1

■ = PSI

Source: Brewers Association Draught Beer Quality for Retailers

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BREWING WITH HEMP

THE ESSENTIAL GUIDE



BY ROSS KOENIGS



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How Much Wort

Should You Collect?



By Chris Colby

How much wort should all-grain brewers collect to brew a 5-gallon (18.9-liter) batch of beer? Many homebrewers will advise others to collect between 6 and 6.5 gallons—enough that can be evaporated in a 60- to 90-minute boil. If your goal is convenience, or perhaps standardizing your brew day, that's a good answer. However, if you are concerned with getting all you can from your grain, there's a different answer—the volume of wort you collect should correlate to the weight of your grist. To illustrate why, let's examine two imaginary brewdays. In the example, I'll use fly sparging as the

method of wort collection because that makes the concept easy to understand. I'll discuss batch sparging and brew-in-a-bag (BIAB) procedures later on.

TWO BREWS

Let's say you are brewing two batches of beer over the weekend. On Saturday, you plan to brew your go-to pale ale, with an estimated original gravity (OG) of 1.050, for which you usually achieve 75 percent extract efficiency. On Sunday, you are brewing a barleywine with an estimated OG of 1.100. The grist for your pale ale is 9 pounds—mostly pale malt and a little crystal; the exact details don't matter. After mashing and recirculating, you begin col-

lecting wort. You monitor the pH and the density of the runoff.

As wort collection progresses, the pH of the runoff climbs and its density falls. You stop collecting wort when the pH of the final runnings has climbed to around 5.8 and the specific gravity has dropped to around 1.010 (2.5°P). At this point, the grain bed is fully sparged. Collecting more wort would mean adding high pH runnings to your wort, which would lead to astringency, and these runnings would be very low in sugar. When I do this on my system, I end up with just short of 6 gallons of wort at around 1.040 (10°P). After a 60-minute boil, I have 5 gallons at around 1.050.

“
The volume
of wort
you collect
should
correlate to
the weight
of your
grist.



On Sunday, you start your barleywine brewday by mashing in 18 pounds of grain—twice as much as you used for your pale ale. Now, how much wort should you collect? If you collect roughly 6 gallons again, you will notice that your extract efficiency has fallen considerably. Why? Because the grain bed is not fully sparged. If you were monitoring the runnings, your last would have a pH below 5.8 and a density higher than 2.5°P. How large the differences are would depend on variables such as how often you stirred, your water chemistry, etc. So, let's say you wanted to fully sparge a grain bed that was double the weight of your pale ale grist. How much wort would that be? The math here is simple—twice as much.

Another way to look at it is that you collected 6 gallons from a 9-pound grist. That's 0.66 gallons of wort per pound of grain. To figure out how much wort to collect for any beer recipe, just multiply the weight of your grist times 0.66 gallons per pound. For our imaginary barley wine, we should collect 13 gallons if we wish to fully sparge our grain bed and get the most from our grain.

Note that 0.66 gallons is the figure that I get on my brewing system. If, like me, you get around 75 percent

extract efficiency, yours may differ, but not by much. If you get significantly better extract efficiency, your number will be a little lower. If you get worse extract efficiency, your number will be a little higher. To find out your own number, just brew a few batches of beer and calculate it. Or better yet, if you take good notes every brew day, calculate the number from your brewing notebook. If you do this and you are used to collecting the same amount of wort for every beer, you will notice that your extract efficiency gets progressively worse for higher gravity beers. This is a simple consequence of leaving sugars behind in your grain bed by not fully sparging it.

THE PRICE OF EFFICIENCY

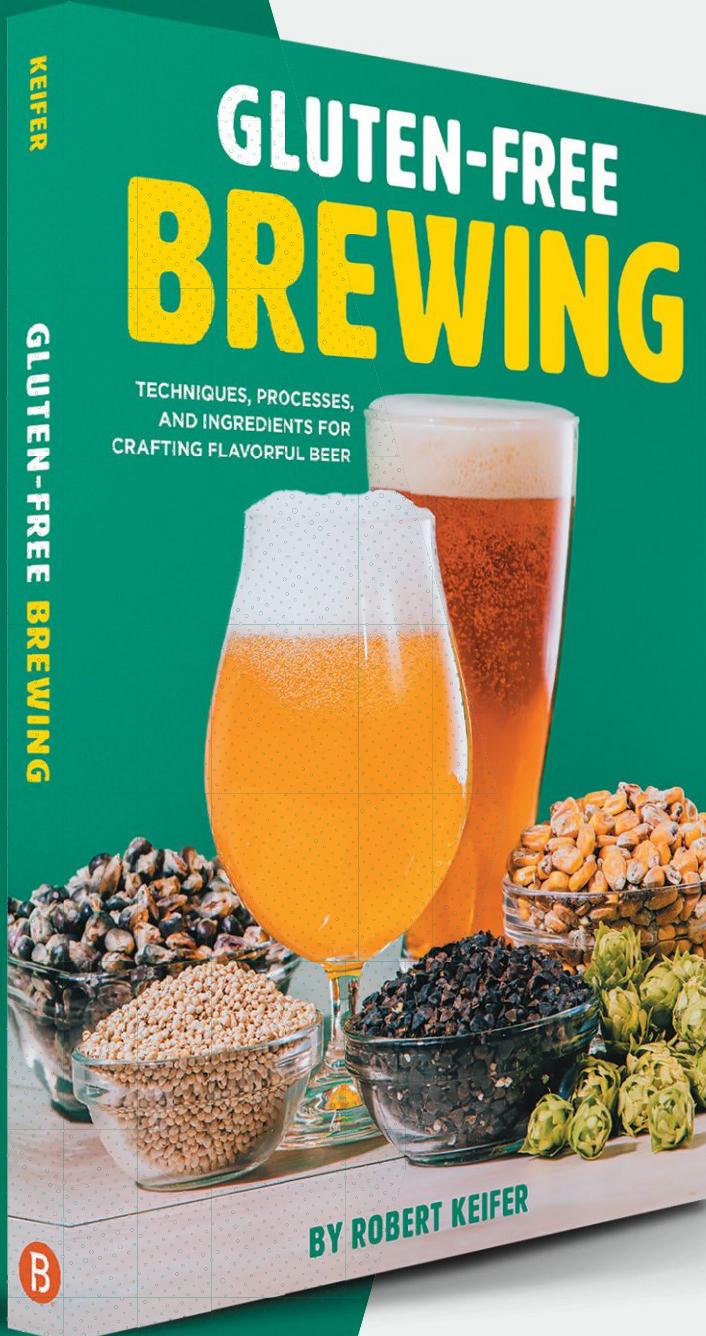
By fully sparging your grain bed, you optimize one variable that contributes to extract efficiency. (Overall, extract efficiency depends on how finely your grain is crushed, how often you stir the mash, your water chemistry, and the amount of wort you collect.) However, for larger beers, maximizing extract efficiency comes at the expense of how long you need to boil and how much fuel you need to maintain a rolling boil during that time.

It's possible your time is more valuable to you than the couple of extra pounds of malt it would take to hit your target OG. If you were a huge commercial brewery, the price of grain, the price of the fuel to boil to wort, and the cost of not quickly clearing the kettle for the next boil would all be fed into a formula to minimize cost. In this situation, you would likely not fully sparge your grain bed.

CONSEQUENCES FOR BIG AND SMALL BEERS

If you're brewing a big beer and don't wish to conduct an extended boil, the easiest fix is to collect your wort and then add a little malt extract near the end of the boil to make up the deficit between your actual wort gravity and your target wort gravity. You can also add more malt to your mash, but figuring out how much more needs to be done by trial and error.

Interestingly, for low-gravity beers, the proper volume of wort to collect may be smaller than your intended pre-boil volume. For example, if I were brewing a dry stout with a target OG of 1.042, for a 4% ABV brew, I would need 7.5 pounds of grain and collect just shy of 5 gallons of wort. In order to boil for 60 minutes, I would need to add between a gallon and a half and a gallon and a half of water. If I simply



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collected 6.5 gallons from my grain bed, I would have overspared, and the beer would likely be astringent.

Often, when I brew dry stout, I double the grist, sparge the grain bed completely, and then boil for 60 minutes. This yields around 8 gallons of wort. I transfer the chilled wort evenly into two carboys and add water to make my desired pre-fermentation volume for two 5-gallon batches.

BATCH SPARGING AND BIAB

If you batch sparge and want to have a fully sparged grain bed, the formula is simple. Multiply the weight of your grain bed in pounds by 0.66 gallons per pound—or the number that works on your system—to get your full pre-boil wort volume. Next, divide that in two to get the volume of your sparge water. To calculate the volume of strike water, take the sparge water volume and add to it the volume of water your grain will absorb. Generally, this is around 0.125 gallons per pound of grain.

So, for a 9-pound grain bill, you would want to collect $(9 \text{ lb.} \times 0.66 \text{ gal./lb.}) = 5.94$ gallons of wort. Your sparge water would be $(5.94 \text{ gal.} \div 2) = 2.97$ gallons, and your strike water would be $2.97 \text{ gal.} + (9 \text{ lb.} \times 0.125 \text{ gal./lb.}) = 4.1$ gallons. Notice

that this gives you a mash thickness of 1.8 quarts of water per pound of grain—a little thinner than the usual homebrew mash thickness, but not so thin as to be problematic. Also, for simplicity, it wouldn't hurt to round your answers off to the nearest quarter pound and quarter gallon.

Brew-in-a-bag (BIAB) brewing is all about simplicity and BIAB brewers will likely not worry about the extent to which their grain bed is sparged. However, if they wanted to, here's how to do it.

Calculate the full pre-boil volume to collect from the grains. Add the amount of water absorbed by the grain to get your full water amount. Add a little over half of that as your strike water. After mashing, add the remaining volume and recirculate until the wort has cleared. For big beers, this will require a large kettle. Remove the bag and proceed to the boil.

MAKE THE MOST OF YOUR MALT

To get the most from your grain, you will need to fully sparge your grain bed. When fully sparged, you will have rinsed as much sugar as you can out of the grains without extracting compounds that will lead to astringency or other off-flavors. If you

use continuous (fly) sparging, one sign of a fully sparged grain bed is that the final runnings have a pH around 5.8 and the density has dropped to around 2.5°P (SG 1.010).

No matter how you collect your wort, two other signs of a fully sparged grain bed are a pre-boil wort volume equal to the weight of the grain times 0.66 (or a similar number you will need to discover for yourself on your own system; it'll be close to 0.66, though). Also, the full volume of wort should have a density of roughly 10°P (right around SG 1.040). If you cut wort collection short of fully sparging your grain bed, your extract efficiency will suffer.

Chris Colby has been a homebrewer since the early '90s, when he studied molecular evolutionary genetics at Boston University. After receiving his PhD in 1997, he briefly worked in educational publishing before becoming a beer writer and editor. He is the author of Methods of Modern Homebrewing (2017), Home Brew Recipe Bible (2016), and the Brewers Publications® title How to Make Hard Seltzer: Refreshing Recipes for Sparkling Libations (September 2020). He lives in Bastrop, Texas, with his wife and many cats.

The advertisement features a central brown glass bottle of "FUSION CITRA" terpenes, with a black cap and a blue label depicting a stylized hop cone. The background is a vibrant blue with abstract white shapes resembling hops and a DNA helix. On the left, the text "OAST HOUSE OILS" is stacked vertically in large blue letters, with "PURE EXTRACTED BREWING Aroma" below it. At the bottom left is a stylized hop cone icon with the text "FUSION PREMIUM TERPENES". On the right, the website "OASTHOUSEOILS.COM" is displayed in large white letters. A QR code is located in the bottom right corner.

BIG BREW



For
National Homebrew Day
MAY 6, 2022

By Chris P. Frey



More than 40 years ago, Sierra Nevada set out to create a new American style, the American pale ale. Once considered crazy hoppy, it fortunately wasn't too far ahead of its time. Ken Grossman, founder of Sierra Nevada Brewing Co., states that "after 42 years Sierra Nevada Pale Ale (SNPA) still resonates as a favorite with brewers and drinkers at all levels. Pale Ale started out in 1980 as an anomaly in a world dominated by light lagers with a hop forward yet balanced style. After all these years it still holds its own in a world now accustomed to a nearly limitless range of hop forward styles, many that can trace their roots back to the original Sierra Pale Ale."

In 2000, a call went out to AHA members for a SNPA homebrew recipe and my Nearly Nirvana Pale Ale (NNPA) was shared with the community for that year's Big Brew recipe. So why bring back this one for Big Brew 2023? Read on and learn...

Oscar Wilde once said that "consistency is the hallmark of the unimaginative." I counter this philosophy and believe that **to master brewing, one must start with a thorough understanding of one's processes, systems, and ingredients, as well as one's own limitations to achieve the desired outcomes.**

I have brewed my NNPA more than 90 times because my friends and I love it. With my multiple iterations, I began a journey of discovery, tweaking the recipe one variable at a time to understand the impact. Change a mash temperature here, base or specialty grain there, water-to-grain ratio, yeast strain or amount, fermentation temperatures, and so on. By keeping all but one variable the same, I was able to truly understand its impact.

Along with NNPA's deliciousness, its beauty lies in its simplicity. My current iteration of NNPA is a tad more malt and hop forward than SNPA, and just a skosh bigger. The recipe has been tweaked many times over the years, but my current iteration is, to me, Goldilocks—just right.

THE RECIPE (SEE PAGE 9 FOR RECIPE)

Two grains, one hop varietal, and single infusion: easy peasy! Start with fresh American pale malt, add a touch of crystal 40, and mash in at around 156–158°F (69–70°C) to obtain that malt balance. Add an ounce of Cascade whole hops (hey, we are talking old school here) at 75, 60, 15, and 5 minutes before the end of the boil. Add your favorite American ale yeast strain. After a couple of weeks, enjoy. Something not up to what you seek? Examine your process, ingredients, and system and try again, tweaking one variable at a time.

I state that one needs 11.5 pounds of grain for a 5-gallon batch to achieve an original gravity of 1.060. This is, of course, based on one's system efficiency. Mine gets 72 percent. This is another teachable point about knowing your system. Do you consistently add 1.25 quarts per of grain? Or perhaps 1.5? I prefer closer to 1.5 and

only use less water per pound of grains when trying to stuff a large amount of grain into my mash for a barleywine, Belgian tripel, or other high-gravity beer. Your mileage may vary.

Similarly, I suggest 4 ounces of whole Cascade hops at various times for this recipe. The most recent cones I obtained were 5.5% alpha acids, but I have seen Cascade pellets with more than 8%. I am targeting mid-40 IBU's, with the bulk of these in the bittering additions. I also suggest boiling for 75 minutes with additions at 75 and 60 minutes. Time is never an issue when I brew, but there is no reason you couldn't add them together at 60 minutes. And if you want to lower the bitterness, just add one ounce at 60 minutes and skip the 75-minute addition. When I started brewing, well, sonny, we didn't know about whirlpool hops (old foggy mode off), so feel free to add that last ounce of hops to your whirlpool if you like.

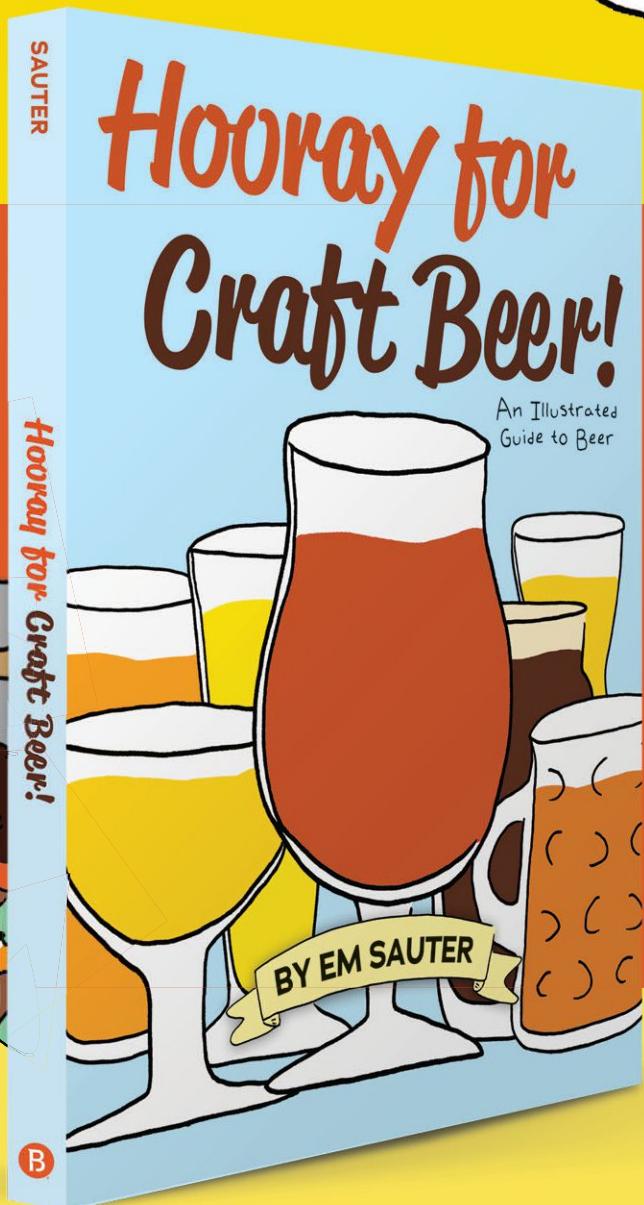
The point is, if you are going to try a recipe multiple times, be consistent with your process. Stick to your standard operating procedure before you go changing anything; after you have developed it into something repeatable and it has virtually become muscle memory, you can tweak as you like. Hey, you are taking careful notes, aren't you?

Water is an intimidating subject, and several excellent water calculators are available. If you don't have an analysis of your water supply, suggesting water additions is somewhat meaningless. Early on someone suggested adding a teaspoon of gypsum (calcium sulfate) to the boil for 5 gallons of hoppy pale ale. This dries the finish, accentuates the bitterness, and tamps down harshness and other benefits, so I do this at a minimum, but my water sources have typically been very soft.

I have used a variety of American and English ale yeasts over the years, but I find a neutral American ale yeast works best—for me. I have brewed split batches to try two or three different yeast strains to understand their differences. Splitting a batch is easy and ensures all other variables are consistent.

If you are like many adventurous homebrewers who veer toward the untried, the unique, the one-off, I applaud your daring, your audacity, and your courage. If you brew without a fully formed recipe in your mind and just wing it, ask yourself if you could brew this masterpiece again if you wanted to. Or have you had your share of messterpieces?

I urge you to consider selecting an easy recipe for a beer style you love. By selecting a proven craft beer that you spend your hard-earned shekels on, or a homebrew recipe that you love, you can enjoy the fruits of your labor while you tinker and learn. Find your recipe, nail it down, and then play with a single variable. You then become viscerally aware of the impact that one variable makes. We can read all we like about ingredients and processes, but by experiencing the entirety of the aromas, flavors, and other dynamics of your finished brew that a single change makes, you are on the road to becoming a better brewer.



Em Sauter's wit, humor, and whimsical illustrations take readers on an entertaining and informative journey through the history and world of craft beer.

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Brewing Local in Indiana

Recently, I was brainstorming my next *Zymurgy* article. When the headache faded, I remembered a premium the AHA had offered for renewing one's membership: *Brewing Local* by Stan Hieronymus. I purchased this book when it was first published and like it a lot.

At this point, my wife and I had been residents of Fort Wayne, Ind., for well over a year and a half. According to an Indiana history book that I'd read, we became official Hoosiers after one year. It was then that I realized I hadn't considered just how local I could be with my brewing ingredients.

I could forage. There's a surprisingly large amount of open space in Fort Wayne, and there's probably a good variety of potential brewing ingredients growing nearby. Alas, foraging is not a good idea for someone who doesn't know a chanterelle from a chandelier, and not being an outdoorsy-type person, I wouldn't know where to look anyway.

The only local ingredient I can readily find in the wild are the grapes that grow along the fence on the south side of our property. They are so small, though, that it would take a massive number to produce any useful amount of juice for wine. That's no biggie; I've never been much of a wine person anyway.

Occasionally, I read about people growing their own grain, such as barley, wheat, and rye. That almost sounds like a possibility until I stop and think about my lack of gardening acumen. I also consider how much work it would be to malt homegrown grain after the harvest, with no guarantee of a usable result.

Growing apples or pears for cider or perry would require years of waiting—not the best choice for someone of my slightly advanced years. Hops, on the other hand, are a good possibility. They don't require much actual care and are basically useful weeds. I did grow two varieties several years ago with some success, but hops alone do not a beer make.

That leaves purchasing local ingredients. In recent years, craft maltsters have been springing up across the country, so I hit the internet and was able to locate more



than 50 craft maltsters from Alabama to Wyoming, plus several in Canada.

The usual suspects of barley, wheat, rye, corn, rice, and oats are readily available, as are less common grains such as millet, buckwheat, quinoa, spelt, triticale, einkorn wheat, and emmer. Some maltsters sell to the homebrew market, and some don't. If you'd like to brew with locally grown grains, your best bet is to contact a maltster near you and ask about availability.

I found Sugar Creek Malting in Lebanon, Ind., who sell their grains to home-brewers through Great Fermentations in Indianapolis. Great Fermentations also carries Seib's Hoosier Honey and Crazy Horse hops—Cascade, Chinook, and Cluster—grown in Knightstown, Ind.

I have quite a few recipes on file that can be brewed using the malts Sugar Creek produces, which are made from several varieties of winter barley. Since Crazy Horse hops are limited to what I consider "ale hops," I decided on an American amber ale (see Hoosier Daddy honey amber ale on page 11).

My fermentation area (the cellar) maintains a steady 49–51°F (9–11°C) in early January, so I had to make a slight adjustment in yeast choice for my local ale. I momentarily considered harvesting some local yeast (I do sometimes experiment—see Last Drop in the Nov/Dec 2022 issue of *Zymurgy*), but capturing wild yeast is a little too daring for me. I reasoned that since many German immigrants settled in Indiana, and I'm half German, CellarScience GERMAN dry lager yeast would be a good choice. That gets me close enough to my goal of an all-Indiana beer.

I used my normal process—brew-in-a-bag and no-chill—on a grain bill of Sugar Creek's Ye Olde Pale Ale malt, white wheat malt, Munich malt, and crystal 60 malt. I ended up with seven gravity points per pound instead of the eight points I usually get. I'm not sure if that was from the variety of barley, the mash length, or that the white wheat malt kernels were smaller than I'm used to and might have been better served by a narrower gap in my mill.

The lower-than-expected original gravity turned out to be no big deal, and the beer ended up slightly more bitter than I'd planned, but I am extremely happy with what I created. I enthusiastically recommend using local grains and hops if they're available in your area: you just have to look for them.

Steve Ruch lives in Fort Wayne, Ind., and is a regular contributor to Zymurgy.

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