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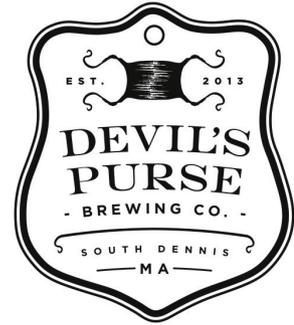
## 10 NORTHEAST REPLICATORS



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**DEAR REPLICATOR,** While on a trip to Cape Cod this summer we tried a beer brewed by Devil's Purse Brewing Co. in South Dennis, Massachusetts called Handline Kölsch. We have had Kölsch in Germany and this was as good as, if not better, than those. The depth of flavor in this 5% ABV beer is remarkable. According to their website it's hopped with Vanguard, but could you further illuminate this beer for me?

Dale Markwardt  
*Strawberry Plains, Tennessee*



**G**reat request Dale! It's not every day that I get a request for a Kölsch let alone one that is comparable to its progenitors from Germany. Confirming your opinion, the more I asked around about Handline, the more praise of the beer I received. Although the recipe is fairly simple, it's a style that will challenge even the best brewer as any error is magnified from a lack of intense flavors and aromas that could mask minor brewing or fermentation flaws.

Devil's Purse opened in 2015 in Massachusetts under the careful planning and watchful eye of Mike Segerson. Mike, a New England native, spent quite a bit of time traveling to Cape Cod in his youth. Maybe it was building sandcastles on the beach, or the access to quality seafood, or the ambience of the Cape that guided Mike to the decision to stay and open . . . a winery. Yes, you read that right; a winery. He started his fermentation career working at Truro Vineyards, a small winery located way up on the outer Cape. According to him, "I wanted to be a winemaker, but also wanted to live on the Cape. Not that it's impossible to make a nice wine here, but I found that brewing seemed like the better choice. You can make beer however you really want and not have to be tied to one ingredient. Obviously, grains and hops can be difficult too, but it's much easier to substitute in my opinion. For example, you can make a Kölsch that resembles the beer that can only be made in Germany, but it would be impossible to make a Nebbiolo-based wine, like a Barolo, in Massachusetts at all, let alone something that resembles the wines made in the Barbaresco region in

Italy." It's tough to argue with that.

Devil's Purse is located in the Mid-Cape region of Cape Cod in a popular summer destination. This location proved to be a challenge since demand for their beer right out of the gate was highly seasonal. Fermentation capacity would be maxed out during the busy warmer months, but could be knocked down to a trickle when colder months arrived since they started on a taproom and draft-only business model. Mike and his partner in the business, Mike Belson, knew they needed to expand their reach to keep their beers flowing year-round.

Their brewery and associated taproom are similar to many local craft breweries in this country in that they're not producing 100,000 BBLs of beer. Currently, the brewery boasts a 7-BBL DME Process Systems brewhouse that put out 1,000 BBLs in 2018. But that's where the similarities may end. In this age of differentiation and market competition, more and more breweries are inclined to produce beers that pay the bills regardless of what the owners and brewers actually desire to brew. Devil's Purse clearly bucks that trend. Their flagship beers are a Kölsch, an ESB, and a classic American IPA. Occasionally on tap you'll also likely find their Intertidal Oyster Stout, which contains locally-harvested oysters, an easy-drinking table beer, an imperial British stout called South Channel, and a handful of IPAs. They brew what they want to drink, all the while being able to keep the lights on.

Handline Kölsch's success was rapid enough that they couldn't keep up with its demand, especially through

the summer months. Through the years distribution has grown through Massachusetts and has since spread into the neighboring New England states of Connecticut, Maine, and Rhode Island. Instead of trying to expand the entire brewery operations to compensate, Mike opted to go the contract brewing route on their mainstay beers like Handline and their ESB instead. During this business venture, he dealt with using different water sources and the myriad of effects it can cause (mash pH, balance of flavors, perception of bitterness) as well as the inherent trust factor of having someone else take care of your proverbial baby. But the brewers at Isle Brewers Guild out of Pawtucket, Rhode Island came through! A quick review of their ratings online show this relationship has proven to be a healthy one.

If you're not one of the fortunate individuals living in New England, then you probably won't have access to this quality Kölsch. For the rest of us, Mike was gracious to provide us mere mortals with the recipe. He prefers using continental malts such as Weyermann to provide as much authenticity as possible. The Vienna malt is present to provide additional malt complexity while still allowing the beer to dry out in the end. As for yeast, Devil's Purse uses strains from Brewers Science Institute (BSI), a yeast provider for commercial brewing operations. But similarly attenuating and flavor generating strains can be commonly found from homebrew-scale yeast providers. For additional information, check out the "Tips for Success" at the end of the recipe.

## DEVIL'S PURSE BREWING CO.'S HANDLINE KÖLSCH CLONE

(5 gallons/19 L, all-grain)  
OG = 1.048 FG = 1.009  
IBU = 20 SRM = 4 ABV = 5.1%

### INGREDIENTS

7.25 lbs. (3.29 kg) Pilsner malt  
2.75 lbs. (1.25 kg) Vienna malt  
5 AAU Vanguard hops (60 min.)  
(1 oz./28 g at 5% alpha acids)  
2.5 AAU Vanguard hops (5 min.)  
(0.5 oz./14 g at 5% alpha acids)  
Wyeast 2565 (Kölsch) or White Labs  
WLP003 (German Ale II) or SafAle  
K-97 yeast  
¾ cup corn sugar (if priming)

### STEP BY STEP

Start with either soft water, reverse osmosis (RO) water, or distilled water. Mill the grains, then mix with strike water at a 1.25 qts./lb. (2.6 L/kg) water-to-grain ratio, or 3.1 gallons (11.8 L) of 165 °F (74 °C) strike water to achieve a single infusion rest temperature of 148 °F (64 °C). Adjust water with calcium salts and 88% lactic acid to stabilize mash pH at 5.3. Hold at this temperature for 60 minutes. Mashout to 170 °F (77 °C) if desired.

Vorlauf until your runnings are clear before directing them to your boil kettle. Batch or fly sparge the mash and run-off to obtain 6.5 gallons (25 L) of wort. Boil for 60 minutes, adding hops at the times indicated in the ingredients list. At 15 minutes left in boil, you may want to add either Irish moss or Whirlfloc as fining agents.

After the boil, rapidly chill the wort to 65 °F (18 °C) then pitch a healthy amount of yeast, higher than your standard ale pitch rate. Maintain this temperature during active fermentation in order to prevent too much yeast character.

Once primary fermentation is complete, and the beer has settled, you can bottle or keg the beer and carbonate to approximately 2.6 volumes. Alternatively, if you can, cold lager the beer for about one month.

## DEVIL'S PURSE BREWING CO.'S HANDLINE KÖLSCH CLONE

(5 gallons/19 L, extract with grains)  
OG = 1.047 FG = 1.009  
IBU = 20 SRM = 5 ABV = 5%

### INGREDIENTS

4 lbs. (1.81 kg) dried malt extract  
1.5 lbs. (0.68 kg) liquid Vienna malt extract  
5 AAU Vanguard hops (60 min.)  
(1 oz./28 g at 5% alpha acids)  
2.5 AAU Vanguard hops (5 min.)  
(0.5 oz./14 g at 5% alpha acids)  
Wyeast 2565 (Kölsch) or White Labs  
WLP003 (German Ale II) or SafAle  
K-97 yeast  
¾ cup corn sugar (if priming)

### STEP BY STEP

Bring 6.5 gallons (25 L) of water to roughly 150 °F (66 °C). Add the malt extracts, with stirring, before heating to a boil. The warmer water will help to dissolve the extracts. Boil for 60 minutes, adding hops at the indicated times left in the boil. At 15 minutes left in boil, you may want to add either Irish moss or Whirlfloc as fining agents.

After the boil, rapidly chill the wort to 65 °F (18 °C). Pitch yeast. Maintain fermentation temperature in order to prevent too colorful of a

fermentation character.

Once primary fermentation is complete, and the beer has settled, you can bottle or keg the beer and carbonate to approximately 2.6 volumes. Alternatively, if you can, cold lager the beer for about one month.

### TIPS FOR SUCCESS:

Although this beer can be brewed using extracts, the best representations will more likely be from all-grain. But, one of the challenges for the all-grain brewer will be in water chemistry management. In the beginning, Devil's Purse used acidulated malt to help control the mash pH (pH = 5.3) but currently is using 88% food-grade lactic acid. This is important as the South Dennis water is soft so without adjustment, the mash pH will be far too high. If you also read into that last bit, you'll notice that the carbonates, residual alkalinity, and calcium concentrations are more than likely on the lower side of the spectrum. You may want to consider starting with RO and building up your brewing water profile or diluting your current profile with distilled water. Finally, in the end, this beer just takes patience, unless you have a centrifuge. Cold lagering for a month should provide you with the clarity and crispness you're looking for. 



**DEAR REPLICATOR,** My love for Dogfish Head (DFH) started while watching their short-lived *Brew Masters* TV mini-series. I loved how they went into the brewery and showed the ins and outs. Living in Minnesota, DFH wasn't available. The closest distribution point was Wisconsin. Next thing I know, I purchased two cases to bring back. One of my buddies only had two on his list: Burton Baton and 120 Minute IPA. So naturally, I had to try both. That was the beginning of my love for Burton Baton. I am lucky enough now to be able to get it in Minnesota, but this beer is one of the greats and everyone should know about it.

Brad Sukut  
Eagan, Minnesota



**C**oming from the Mid-Atlantic region, I've had my fair share of Burton Baton and can affirm how tasty a treat it really is. Dogfish Head (DFH) is the culmination of Founder and Head Brewer Sam Calagione's dreams mixed with a tenacity to create his own path, especially in the face of establishment. When told no, Sam had a history of seeking an alternative route. After developing an appreciation of high-quality craft beer during a stint as a waiter at Nacho Mama's in New York City, Sam became smitten with homebrewing. His first concoction wasn't the prototypical ESB, brown ale, or stout, but rather a pale ale with cherries. It was an immediate success that laid the groundwork for numerous culinary-inspired beers to come.

Having lobbied to change the state liquor laws of Delaware with the help of local lawyer Dick Kirk, DFH became the first brewpub to open in the state. With it came media coverage and notoriety even before DFH opened in 1995. There was only one small problem with such exposure; there were now a lot of thirsty patrons to satisfy and Sam was brewing on a modest 10-gallon (38-L) (yes, not BBL) system. To keep up with demand and ensure that taps never ran dry, he was brewing almost every day.

DFH serves up the typical range of beers that many breweries have, including quite a few high-octane brews that feature the "Dogfish Danger Cap" — a neon yellow-green cap with a Dogfish exclamation point to indicate that the drinker should savor the brew. Their iconic IPAs are known for being continually hopped for the duration of the boil. They've also established several

collaborative brews under the Ancient Ales series with Dr. Patrick McGovern from the University of Pennsylvania, who analyzed ancient earthen-ware to bring ancient brew recipes into a more modern light. More recently DFH has launched SeaQuench and Slightly Mighty, two low-calorie beers, a Gose-ish beer and an IPA respectively, that pack quite the flavor punch.

Another aspect of DFH that I personally find intriguing is their Beer and Benevolence (B&B) program. Every year, the B&B program touches around 200 non-profits. In 2018 alone, the 13th annual Dogfish Dash gathered 3,000 runners from 28 states and raised \$150,000 for The Nature Conservancy, Delaware chapter. Also, the first Dogfish Head I.P.A. (I Pedal A-Lot) attracted nearly 1,000 cyclists to southern Delaware. They raised \$30,000 for bike safety and advocacy by the Urban Bike Project and Sussex Cyclists. The funds allowed for the construction of three cycle service stations along Delaware bike paths.

One can't discuss DFH in 2019 without mentioning their merger with Boston Beer Company, who owns the brands of Sam Adams and Angry Orchard. On May 9, 2019, an announcement was made that shocked the craft beer world. "More than a dozen of our peers have sold to international conglomerates, others have come together through platforms bringing a handful of craft breweries together in rollups," announced Sam and Mariah Calagione in a statement. "While neither of those strategies appealed to us, we did realize that Dogfish Head would be a stronger company with the support of our friends at Boston Beer, and vice-versa." Jim

Koch also reassured the community, "Just as important as our passion for brewing is our commitment to championing and preserving the independent, American craft movement." Each brewery will retain their individual status as independent craft brewers. But back to your request . . .

Mark Sarfarik, Dogfish Head's Brewmaster, provided us with all the juicy details about this beer. "Burton Baton is a 10% ABV imperial IPA that is a blend of 90 Minute IPA with an English old ale that is aged in our 10,000-gallon (380-hL) oak foeders. Since most people don't have the ability to wood-age beers at home, this recipe is more of a composite of the two threads." In addition, Mark conferred several additional tips for the beer, some of which are included in the "Tips for Success" section of the recipe. First off, the dry-hop timeline for the beer should be no more than 3–4 days as extended aging can result in harsh, tannic-type flavors. With the majority of dry hopping protocols, most of the magic is really accomplished in the first 72 hours. Secondly, DFH's oak foeders are fairly neutral so they're more interested in the oxidative character that oak aging brings. To this end, Mark suggested the addition of the honey malt to drive a bit of that toffee sweetness. Finally, the water profile at the brewery is fairly soft with only 20 ppm calcium. Through additions, they arrive at ~70 ppm of calcium and during the mash you should be striving for a pH between 5.3 and 5.4.

With all these tips and tricks, hopefully you'll be able to recreate Burton Baton for enjoyment and sharing at home. Cheers!

## DOG FISH HEAD CRAFT BREWERY'S BURTON BATON CLONE

(5 gallons/19 L, all-grain)  
OG = 1.088 FG = 1.016  
IBU = 65 SRM = 11 ABV = 9.5%



### INGREDIENTS

15 lbs. (6.8 kg) pale ale malt  
0.5 lb. (0.23 kg) crystal malt (60 °L)  
0.5 lb. (0.23 kg) honey malt  
0.2 lb. (90 g) amber malt  
1 lb. (0.45 kg) corn sugar (10 min.)  
15.2 AAU Warrior® hops (60–30 min.)  
(1 oz./28 g at 15.2% alpha acids)  
9.5 AAU Simcoe® hops (30–15 min.)  
(0.75 oz./21 g at 12.6% alpha acids)  
4.1 AAU Palisade® hops (15–0 min.)  
(0.5 oz./14 g at 8.2% alpha acids)  
14.4 AAU Palisade® hops (0 min.)  
(1.75 oz./50 g at 8.2% alpha acids)  
2.1 oz. (60 g) Simcoe® hops (dry hop)  
2.9 oz. (80 g) Amarillo® hops (dry hop)  
1.4 oz. (40 g) Palisade® hops (dry hop)  
1.1 oz. (30 g) American medium-  
toast oak chips (optional)  
Wyeast 1098 (British Ale) or White  
Labs WLP007 (Dry English Ale) or  
Lallemand Nottingham yeast  
¾ cup corn sugar (if priming)

### STEP BY STEP

Mill the grains, then mix with 5.1 gallons (19.2 L) of hot strike water to achieve a single infusion rest temperature of 155 °F (68 °C). Adjust mash pH to 5.3–5.4 using lactic acid, if needed. Hold at this temperature for 60 minutes. Mashout to 170 °F (77 °C) if desired.

Vorlauf until your runnings are clear before directing them to your boil kettle. Batch or fly sparge the mash and run-off to obtain 6.5 gallons (25 L) of wort. Boil for 60 minutes. Add the Warrior® incrementally from 60–30 minutes, then add the Simcoe® incrementally from 30–15 minutes, and finally, add Palisade® incrementally from 15 minutes to the end of the boil. Also, at 15 minutes left in boil, you may want to add either Irish moss or Whirlfloc as fining agents. At 10 minutes left, add the corn sugar.

After the boil, add the flameout

hops indicated and whirlpool for 10 minutes before rapidly chilling the wort to 63 °F (17 °C). Oxygenate with pure oxygen and pitch a healthy count of yeast. Allow the beer to free-rise to 68 °F (20 °C).

Once primary fermentation is complete, dry hop with all three varieties. After 3 days, drop the temperature to 55 °F (13 °C) and after 24 hours, rack the beer to secondary. If oaking, add it now (1.1 oz./30 g of medium-toast American oak) and age for 14 days. Bottle or keg the beer and carbonate to approximately 2.5 volumes.

## DOG FISH HEAD CRAFT BREWERY'S BURTON BATON CLONE

(5 gallons/19 L, extract with grains)  
OG = 1.088 FG = 1.016  
IBU = 65 SRM = 11 ABV = 9.5%



### INGREDIENTS

8.25 lbs (3.74 kg) extra light dried  
malt extract  
0.5 lb. (0.23 kg) crystal malt (60 °L)  
0.5 lb. (0.23 kg) honey malt  
0.2 lb. (90 g) amber malt  
1 lb. (0.45 kg) corn sugar (10 min.)  
15.2 AAU Warrior® hops (60–30 min.)  
(1 oz./28 g at 15.2% alpha acids)  
9.5 AAU Simcoe® hops (30–15 min.)  
(0.75 oz./21 g at 12.6% alpha acids)  
4.1 AAU Palisade® hops (15–0 min.)  
(0.5 oz./14 g at 8.2% alpha acids)  
14.4 AAU Palisade® hops (0 min.)  
(1.75 oz./50 g at 8.2% alpha acids)  
2.1 oz. (60 g) Simcoe® hops (dry hop)  
2.9 oz. (80 g) Amarillo® hops (dry hop)  
1.4 oz. (40 g) Palisade® hops (dry hop)  
1.1 oz. (30 g) American medium-  
toast oak chips (optional)  
Wyeast 1098 (British Ale) or White  
Labs WLP007 (Dry English Ale) or  
Lallemand Nottingham yeast  
¾ cup corn sugar (if priming)

### STEP BY STEP

Bring 6.5 gallons (25 L) of water to roughly 150 °F (66 °C). Steep all the specialty malts 15 minutes before removing and draining. Add the extract, with stirring, before heating to a boil. Boil for 60 minutes following

the all-grain recipe for hopping and fermentation directions.

### TIPS FOR SUCCESS:

Mark adds, “this is a very high-gravity fermentation, so oxygen rather than air is recommended for wort aeration. Pitching double the normal amount of yeast is highly recommended.” If you have trouble finding Palisade®, Willamette is a good substitute, or if Warrior® isn't available, any high alpha-acid bittering hop should suffice. Another unique technique DFH uses is called continually hopping. It means that small charges of hops are added roughly every minute or so. “This can be emulated at home by dividing each variety up into manageable, small quantities and spreading the addition out over the times indicated in the hopping schedule.” 



**DEAR REPLICATOR,** When I tried Drop-In Brewing's Heart of Lothian for the first time, I found exactly what I have been looking for in a malty beer. The Middlebury, Vermont brewery has created the perfectly balanced Scottish ale. The hops are definitely there but they marry the malt exquisitely and with the right amount of sweetness. The 5.6% ABV is the ideal place for this beer to land.

Drinking this beer definitely gave me some brewing goals. This is the beer that I've spent years trying to brew. My malty beers tend to be unbalanced; I can't seem to get hoppiness, sweetness, and ABV to land at the right place. I would love to get some insight on how Drop-In does it.



Michael Burdick  
*Burlington, Vermont*

**T**hanks for the request Michael! Although I'm sorry that your previous attempts have been less successful than you would've hoped. As you've found out, Scottish ales appear simple on the surface but are finely-tuned beers with multiple aspects in perfect harmony. Here's to hoping this column sheds a wee bit of light on your and other's endeavors

One can't mention Drop-In Brewing without uttering the name of Steve Parkes. That said, Drop-In is the culmination of Steve's dreams. After graduating with a BSc in Brewing Science from the prestigious Heriot-Watt University in Edinburgh, Scotland, Steve became responsible for brewing, selling, and delivering cask-conditioned ale at Berrow Brewery in Somerset, England. He later honed his skills as a Head Brewer at several other breweries (Berrow, Tisbury, and Wiltshire) in Great Britain all the while crafting delicious cask ales. From this success, individuals noticed his proclivity for quality and he was subsequently pulled away to the United States in 1988. There, he partnered with two others to found the British Brewing Company in Baltimore, Maryland; the first microbrewery in Maryland since Prohibition. Steve remained Head Brewer there until 1992 when he departed for California.

Over the next 20 years, a common theme weaved its way through Steve's career: An application of innovative techniques with a just-do-it attitude – systematize, but don't cut quality. This resulted in the growth of the

next several breweries where Steve took the helm such as Humboldt Brewing Company and Otter Creek Brewery. This earned him multiple Great American Beer Festival (GABF) awards and additional opportunities.

His knowledge and willingness to teach about brewing and its practices including molecular biology, biochemistry, chemical engineering, off-flavors, and food pairings is what really shines. After a single semester teaching at the American Brewers Guild in California, Steve was offered a full-time teaching position at this prestigious institute. He went on to become a lead instructor until 1999 at which point he was offered the chance to purchase the rights to the Guild. He did and has been the owner for 20 years now.

But why mention the American Brewers Guild in the first place? Simply put, its home location is now Drop-In Brewing Co. There, you can take classes such as "Beer Appreciation," "Grain to Glass," or "Lab Practices for the Small Brewery," and even more importantly for many reading this, "Brewing Science for Advanced Homebrewers." It is a 2-day, intensive course that incorporates "the nation's only full-scale brewing facility dedicated to brewing education," Drop-In Brewing Company.

Just like a phoenix, Drop-In Brewing did indeed rise from the proverbial ashes of an old plumbing supply company in Middlebury, Vermont. With Steve's extensive knowledge, the task of rehabilitating the area into

a brewhouse was as fluid as anyone can get with a remodeling project. The result was a Newlands 15-BBL brewhouse that turns out straight forward, approachable beers that still are innovative. They shipped their first beer in June 2012. Many of the beer names also use pop culture as inspiration like Red Dwarf (an American amber with the twist of a British sci-fi comedy), 6 Holes in My Freezer (a key lime pie beer that even Jimmy Buffett would approve of), and River Song (Doctor Who would do best to stay out of the shadows).

Drop-In Brewing brews several year-round offerings, one of which is the Heart of Lothian. It's named for the city of Edinburgh, where Steve acquired his brewing degree and is also a song title from the band Marillion. In terms of style, the beer is considered a Scottish 90/- or wee heavy and uses, "Scottish Golden Promise barley malt, British floor-malted crystal, and chocolate malts, Fuggle and Kent Golding hops, and British yeast." You'll probably notice several unique attributes about the recipe included. First off, is the use of an English ale yeast, which at 68 °F (20 °C) will probably give you a bit of fruity esters. The other deviation from common practice for the series of modern Scottish ales is the hopping rate of 3 oz. per 5 gallons (85 g per 19 L) of beer. However, this provides a balancing counterpart to the malt and esters. And at 5.6% ABV, Heart of Lothian becomes very drinkable yet boasts loads of flavor and character.

## DROP-IN BREWING CO.'S HEART OF LOTHIAN CLONE

(5 gallons/19 L, all-grain)  
OG = 1.055 FG = 1.012  
IBU = 23 SRM = 22 ABV = 5.6%



### INGREDIENTS

9 lbs. (4.08 kg) Golden Promise malt  
0.75 lb. (0.34 kg) crystal malt (70 °L)  
0.75 lb. (0.34 kg) Simpsons DRC™  
malt (110 °L)  
0.75 lb. (0.34 kg) Weyermann  
Carafoam® malt  
0.2 lb. (0.09 kg) English chocolate  
malt (450 °L)  
3.7 AAU Fuggle hops (60 min.)  
(0.75 oz./21 g at 4.9% alpha acids)  
3.5 AAU East Kent Golding hops  
(30 min.) (0.75 oz./21 g at 4.6%  
alpha acids)  
6.9 AAU East Kent Golding hops  
(0 min.) (1.5 oz./43 g at 4.6%  
alpha acids)  
Wyeast 1968 (London ESB Ale) or  
White Labs WLP002 (English Ale)  
or SafAle S-04 yeast  
¾ cup corn sugar (if priming)

### STEP BY STEP

Mill the grains, then mix with 3.6 gallons (13.5 L) of 164 °F (73 °C) strike water to achieve a single infusion rest temperature of 149 °F (65 °C). Hold at this temperature for 60 minutes. Mashout to 170 °F (77 °C) if desired.

Vorlauf until your runnings are clear before directing them to your boil kettle. Batch or fly sparge the mash and run-off to obtain 6.5 gallons (25 L) of wort. Sparging for this beer takes 2 hours on scale but may be quicker at home. Boil for 60 minutes, adding hops at the times indicated above left in the boil. At 15 minutes left in boil, you may want to add either Irish moss or Whirlfloc as fining agents.

After the boil, add the whirlpool hops indicated and whirlpool for 15 minutes before rapidly chilling the wort to 66 °F (19 °C). Pitch yeast and aerate the wort. Maintain fermentation temperature of 68 °F (20 °C) for this beer.

Once primary fermentation is

complete, and the beer has settled, bottle or keg the beer and carbonate to approximately 2.5 volumes.

## DROP-IN BREWING CO.'S HEART OF LOTHIAN CLONE

(5 gallons/19 L, extract  
with grains)  
OG = 1.055 FG = 1.012  
IBU = 23 SRM = 22 ABV = 5.6%



### INGREDIENTS

5 lbs. (2.27 kg) light dried malt  
extract  
0.75 lb. (0.34 kg) crystal malt (70 °L)  
0.75 lb. (0.34 kg) Simpsons DRC™  
malt (110 °L)  
0.75 lb. (0.34 kg) Weyermann  
Carafoam® malt  
0.2 lb. (0.09 kg) English chocolate  
malt (450 °L)  
3.7 AAU Fuggle hops (60 min.)  
(0.75 oz./21 g at 4.9% alpha acids)  
3.5 AAU East Kent Golding hops  
(30 min.) (0.75 oz./21 g at 4.6%  
alpha acids)  
6.9 AAU East Kent Golding hops  
(0 min.) (1.5 oz./43 g at 4.6%  
alpha acids)  
Wyeast 1968 (London ESB Ale) or  
White Labs WLP002 (English Ale)  
or SafAle S-04 yeast  
¾ cup corn sugar (if priming)

### STEP BY STEP

Bring 6.5 gallons (25 L) of water to roughly 150 °F (66 °C). Steep all the specialty malts 15 minutes before removing and draining. Add the extract, while stirring, before heating to a boil. Boil for 60 minutes, adding hops at the indicated times left in the boil. At 15 minutes left in boil, you may want to add either Irish moss or Whirlfloc as fining agents.

After the boil, add the whirlpool hops indicated and whirlpool for 15 minutes before rapidly chilling the wort to 66 °F (19 °C). Pitch yeast and aerate the wort. Maintain fermentation temperature of 68 °F (20 °C) for this beer.

Once primary fermentation is complete, and the beer has settled, bottle or keg the beer and carbonate to approximately 2.5 volumes.

### TIPS FOR SUCCESS:

First off, use high-quality, fresh ingredients with an emphasis on UK-based malts and hops if possible. Consider Crisp, Thomas Fawcett, and/or Simpsons as your maltsters of choice.

Next, focus on your fermentation. Ensure your pitch is appropriately sized and healthy; the easiest way is to either repitch yeast from a previous batch of beer or create a starter in whatever way you're most comfortable. This yeast strain has been known to struggle to attenuate to this extent, so be sure to provide an ideal environment with proper temperature control to ensure a strong fermentation.

Finally, focus on water chemistry for a malt-forward beer. To this end, ensure you have at least 40 ppm of calcium in the brewing water but more importantly your ratio of chloride-to-sulfate should be in the range of 1:1 to 2:1. With great base ingredients that are well-attenuated and flavored appropriately with the right amount of ions, you should have no trouble brewing an amazing Scottish 90/-. 



**DEAR REPLICATOR,** When I moved from Vermont to California back in 2005, the one beer that I missed right away was Long Trail Ale. It's a beer that has never been available out here and I still feel nostalgic, for this was my first craft beer "love-affair." I've had it a few times since the move, when coming back to visit friends and family, and still enjoy it every time. Now that I've finally got all my gear lined up and ready to brew my first batch of homebrew, I figured this would be the perfect beer to try to mimic. Can you help a nostalgic fan out?

Chase Allstadt  
Truckee, California



**T**hanks for the request Chase! I'm sorry that since your move from the East Coast to California you've only had a few chances to taste the deliciousness that Long Trail Brewing Company provides, but you're in luck while everyone else is in for a treat.

Long Trail Brewing Company had its humble start nearly 30 years ago in the Old Woolen Mill basement, but were called the Mountain Brewers. They were the second craft brewery to open in Vermont after Catamount Brewing Co. Their goal in Bridgewater Corners, Vermont was to brew an affordable, American-made alternative to the expensive European exports that dominated the shelves at that time. Their first response happens to also be their flagship beer: Long Trail Ale, an altbier. To keep the cost of production low and the value of sustainability high in the early days, they choose to recycle and reuse old Beck's and St. Pauli Girl bottles. Although the times have changed, Long Trail still believes in sustainable brewing practices including the use of recyclable aluminum cans and minimizing water consumption to be leaders in environmental stewardship.

Due to the Mountain Brewers success with Long Trail Ale and their connection with hikers of said trail (the original long-distance hiking trail in the United States), they decided to change the brewery's name and Long Trail Brewing Company was born! With continued success and a thirsty customer base (hiking burns a lot of calories after all), Long Trail had to say

good-bye to their 8,000-barrel per year operation in the basement. So, they did what many of their customers did; they took a hike up the road in 1995 to establish a new base of operations where they currently reside.

Long Trail Brewing has been intimately involved with their community from the beginning. As they've grown, so too have their ambitions to give back. Every year they partner with local non-profit organizations to sponsor events like the Century Ride, which is a 100-mile bike ride fundraiser that benefits Vermont Adaptive Ski & Sports – an organization that promotes participation in various recreational activities, such as skiing, for those youth and adults with disabilities. They also created their Summer Fruit Series of beers, which sources the fruit from local, Vermont farmers in a sustainable manner. One example being their 2018 Maple Rhubarb Golden Ale. Finally, they also brew smaller batches of beer as fundraisers for different organizations. One is Trail Karma, a session IPA, which features a special blend of hops. Its proceeds go towards research efforts to find a cure for ALS (Lou Gehrig's disease).

Their brewhouse is also quite unique and has a bit of homebrewing roots in it. First off, it's partly engineered in-house and features a 60-BBL direct-fire propane kettle, unlike many modern brewhouses that feature steam-jacketed kettles. In fact, they do see extra caramelization during the boil akin to what many propane fueled homebrewers will get (my apologies to

the induction and electric brewers out there). The second super interesting aspect of the brewery itself centers on the yeast. While they use a fairly common yeast as noted in the recipe, they've been continually cropping it for close to 30 years!!! According to Ian Harbage, who's one of the head brewers, they've never re-propagated it.

Long Trail Ale, which has won multiple awards at GABF, is considered an altbier with several unique twists to it. First off, you'll notice there is wheat malt in the grist, which helps provide additional body to the beer while maintaining its drinkability. Next up is the use of a relatively neutral English ale yeast in a German style of beer while performing the fermentation at the lower end of its temperature range. Finally, for authenticity, Long Trail ferments the beer under a back pressure of 8 psi (55 kPa). This will further reduce the characterful fermentation compounds such as esters that you get with many English ale yeast strains, but also can create additional diacetyl. Feel free to let the fermentation free rise for the last one-third of the fermentation (if you have a spunding valve that is the time to use it). For the rest of us, including myself, give-it-a-go without it and see what results you get. Alternatively, you could use a relatively clean German strain such as Wyeast German ale (1007) to attempt to mimic the fermentation character. With any luck, you should be able to brew an amazing facsimile of Long Trail Ale that may become a house staple, even in California.



## LONG TRAIL BREWING CO.'S LONG TRAIL ALE CLONE

(5 gallons/19 L, all-grain)  
OG = 1.052 FG = 1.016  
IBU = 30 SRM = 14 ABV = 4.8%



### INGREDIENTS

9 lbs. (4.1 kg) 2-row pale malt  
1 lb. (0.45 kg) crystal malt (80 °L)  
12 oz. (0.34 kg) wheat malt  
1.6 oz. (45 g) chocolate malt  
5.4 AAU Northern Brewer hops  
(60 min.) (0.6 oz./17 g at 9%  
alpha acids)  
2.7 AAU Northern Brewer hops  
(30 min.) (0.3 oz./8.5 g at  
9% alpha acids)  
2.75 AAU Willamette hops (5 min.)  
(0.5 oz./14 g at 5.5% alpha acids)  
Wyeast 1187 (Ringwood Ale) or  
White Labs WLP005 (British Ale)  
or Safale S-04 yeast  
¾ cup corn sugar (if priming)

### STEP BY STEP

Mill the grains, then mix with 3.4 gallons (12.8 L) of 166 °F (74 °C) strike water to achieve a single infusion rest temperature of 151 °F (66 °C). Hold at this temperature for 60 min. Mashout to 170 °F (77 °C).

Vorlauf until your runnings are clear before directing runnings to your boil kettle. Batch or fly sparge the mash to obtain 6.5 gallons (25 L) of wort. Boil for 60 minutes, adding hops at the indicated times left in the boil. At 15 minutes left in boil, add either Irish moss,

Whirlfloc, other kettle fining agent of your choice to the wort.

After the boil, whirlpool for a couple of minutes and allow the wort to settle before rapidly chilling the wort to slightly below fermentation temperature, which is 66 °F (19 °C) for this beer. Pitch yeast.

Maintain fermentation temperature to avoid too many esters, which can easily occur with this strain. You may need a diacetyl rest for this strain so don't hesitate to raise the temperature of the fermentation at least 4 °F (2 °C) during the last third of fermentation. Bottle or keg the beer and carbonate to approximately 2.6 volumes.

## LONG TRAIL BREWING CO.'S LONG TRAIL ALE CLONE

(5 gallons/19 L, extract with grains)  
OG = 1.053 FG = 1.013  
IBU = 30 SRM = 14 ABV = 5.2%



### INGREDIENTS

5 lbs (2.27 kg) light dried malt extract  
12 oz. (0.34 kg) crystal malt (80 °L)  
8 oz. (0.23 kg) maltodextrin powder  
1.6 oz. (45 g) chocolate malt  
5.4 AAU Northern Brewer hops  
(60 min.) (0.6 oz./17 g at  
9% alpha acids)  
2.7 AAU Northern Brewer hops  
(30 min.) (0.3 oz./8.5 g at

9% alpha acids)  
2.75 AAU Willamette hops (5 min.)  
(0.5 oz./14 g at 5.5% alpha acids)  
Wyeast 1187 (Ringwood) yeast or  
White Labs WLP005 (British Ale)  
or Safale S-04 yeast  
¾ cup corn sugar (if priming)

### STEP BY STEP

Bring 6.5 gallons (25 L) of water to roughly 150 °F (66 °C). Steep the chocolate and crystal malts for 15 minutes before removing. Add the DME and maltodextrin, with stirring, before heating to a boil. Boil for 60 minutes, adding hops at the indicated times left in the boil. At 15 minutes left in boil, add either Irish moss, Whirlfloc, other kettle fining agent of your choice to the wort.

After the boil, whirlpool for a couple of minutes before rapidly chilling the wort to slightly below fermentation temperature, which is 66 °F (19 °C) for this beer. Pitch yeast.

Maintain fermentation temperature to avoid producing excess esters. You may need a diacetyl rest for this strain so don't hesitate to raise the temperature of the fermentation at least 4 °F (2 °C) during the last third of fermentation. Bottle or keg the beer and carbonate to approximately 2.6 volumes.

### TIPS FOR SUCCESS:

This amber beer is all about balance without sacrificing either the depth of flavor or drinkability. For the ingredients to really shine, ensure that you're using the freshest versions of them possible. In addition, aim for gypsum and calcium chloride water additions to hit 247 ppm and 100 ppm, respectively. As is the case with most British ale yeasts, you'll probably pick up a bit of diacetyl, so don't be afraid to perform a diacetyl rest. When in doubt, microwave a beer sample for 30 seconds, which will volatilize any aromatics including 2,3-butanedione. (BYO)

**DEAR REPLICATOR,** One of my favorite beers is Croydon is Burning from Neshaminy Creek Brewing in Croydon, Pennsylvania. It is a fantastic Bamberg-style smoked lager that I think the readers of the Replicator would enjoy. It's not quite as assertive as some traditional rauchbiers but has plenty of smoke character and complexity that starts in the aroma and continues through the finish. Would love to get their recipe!

John Putnam  
Exton, Pennsylvania



It's not every day that I receive requests for lagers let alone a smoked one. But the fact is that all beers used to be smoky to some degree, owing their smokiness to the fires that were used for drying malt.

Although Neshaminy Creek Brewing Company (NCBC) doesn't smoke their own malt, they have nonetheless produced top-notch beers across a range of styles on their 22,000-BBL-per-year system located in Croydon, Pennsylvania. Founded in November of 2010, they didn't start production brewing until nearly two years later in 2012, under the leadership/brewership of Jeremy Myers alongside buddies Rob Jahn and Steve Capelli. As Jeremy would tell you, just brew good beer. Cut the crap, the gimmicks, and just execute — and never stop learning. He routinely travels abroad for market research in order to improve the beers that NCBC produces; but he knows there's always room for improvement.

NCBC also seems to be quite comfortable brewing across the gamut of beer styles: Whether it's an intense double IPA like The Shape of Hops to Come, or an English barleywine called Concrete Pillow, or a simple Vienna lager called Churchville Lager, which won a gold at the 2013 Great American Beer Festival (GABF) and a bronze in 2016. They're one of the few breweries in the Philadelphia region to have dedicated horizontal lager tanks, which based on the hardware they've garnered in the lager categories, has been a boon for them. In addition, they've got a barrel program with over 400 barrels alongside multiple foudres. Their 1.5-BBL pilot system allows the

brewers to try new recipes or tweak a few favorites without running the risk of wasting a full batch of beer, as well as time and money, on mediocre product. But they aren't shy when they've missed the mark. If a beer doesn't live up to their expectations or is over-carbonated due to additional refermentation after packaging, they don't hesitate to push the pause button. It's a testament to the brand.

They also are quite active in their community, hosting nearly weekly events while their taproom is both children- and dog-friendly. Some of these events are charity movie nights that have benefited the local watershed partnership (Tookany/Tacony-Frankford Watershed). They also help out by brewing specialty charity beers. One such beer, Bee(r) School, was a wheat pale ale brewed with local orange blossom honey from Fruitwood Orchards and fermented using a Norwegian farmhouse yeast called Kveik. It was released during this past year's Philly Beer Week with the proceeds being donated to the Kutztown-based Rodale Institute, which specializes in organic farming research. They also organize numerous social events to bring the local beer community together, events like Hot Rods & Hops, their yearly Oktoberfest, anniversary parties, as well as executing collaborative beers with other local breweries.

Croydon is Burning is a classic Bamberg-style smoked lager. So, your brewing emphasis should be placed on both the smoked malt character as well as the clean, lager fermentation. According to Jeremy, "One of the things

that makes this beer unique is that you can't be afraid to use A LOT of smoked malt. 85% is low, even by German standards. It doesn't always have to be 100% smoked malt because you don't want to lose some of the complexity that you can get with this beer from the use of other malts. But people tend to get scared using a lot of smoked malt. Don't be shy, go big or go home."

As for the lager portion, that's a bit trickier. For Croydon is Burning, NCBC uses the Andechs Lager strain, which is available only as a commercial strain through Brewing Science Institute (BSI) in the United States. It attenuates well but won't overly dry out a beer either, allowing for the malt to really shine through. The closest comparison available to the homebrew market through White Labs is WLP835, which is named German X Lager yeast. Depending on your own results, you might find that Wyeast 2206 (Bavarian Lager) or White Labs' WLP830 (German Lager) may come close to hitting the mark.

Finally, if we're talking about German lagers then inevitably the conversation will drift towards mashing protocols, specifically single infusion versus decoction. NCBC went the way of experimentation and tried out both. Their results? Both single infusion as well as decocted versions won GABF medals (Bronze in 2016 and 2017). So, they brewed it again using the single infusion mash protocol in 2018 and it supposedly was better than in 2016 and 2017 according to taste testers. What did they win in 2018? Nothing. Here's to hoping that your attempts at crafting this authentic rauchbier are met with success. Prost!

## NESHAMINY CREEK BREWING COMPANY'S CROYDON IS BURNING CLONE

(5 gallons/19 L, all-grain)  
OG = 1.063 FG = 1.016  
IBU = 21 SRM = 16 ABV = 6%

### INGREDIENTS

11 lbs (5 kg) rauch malt  
0.75 lb. (0.34 kg) light Munich malt  
0.75 lb. (0.34 kg) Carapils® malt  
0.5 lb. (0.23 kg) melanoidin malt  
3.2 oz. (91 g) Carafa® III malt  
4.5 AAU Herkules hops (60 min.)  
(0.3 oz./8.5 g at 15% alpha acids)  
3.4 AAU Tettnanger hops (10 min.)  
(0.75 oz./21 g at 4.5% alpha acids)  
White Labs WLP835 (German X Lager) or Wyeast 2206 (Bavarian Lager) or White Labs WLP830 (German Lager) or SafLager W-34/70 yeast  
¾ cup corn sugar (if priming)

### STEP BY STEP

Mill the grains, then mix with 4.1 gallons (15.6 L) of 166 °F (74 °C) strike water to achieve a single infusion rest temperature of 152 °F (67 °C). Hold at this temperature for 60 minutes. Mashout to 170 °F (77 °C). Vorlauf until your runnings are clear before directing them to your boil kettle. Batch or fly sparge the mash to obtain 6.5 gallons (24.6 L) of wort. Boil for 60 minutes, adding hops at the times indicated above left in the boil. At 15 minutes left in the boil, add a kettle fining agent of your choice.

After the boil, rapidly chill the wort to slightly below fermentation temperature, which is 52 °F (11 °C) for this beer. Pitch yeast and aerate well. Ferment cold for about 36 to 48 hours, ramping to 65 °F (18 °C) once the beer is about two thirds of the way through fermentation, about an SG of 1.034 (8.5 °Plato). Hold this temperature until terminal gravity is reached. Cold crash to 35 °F (2 °C) before transferring to lagering vessel for approximately one month. Bottle or keg the beer and carbonate to approximately 2.5 volumes.

## NESHAMINY CREEK BREWING COMPANY'S CROYDON IS BURNING CLONE

(5 gallons/19 L, partial mash)  
OG = 1.063 FG = 1.016  
IBU = 21 SRM = 16 ABV = 6%

### INGREDIENTS

6 lbs. (2.7 kg) rauch malt  
3 lbs. (1.36 kg) extra light dried malt extract  
0.75 lb. (0.34 kg) Carapils® malt  
0.5 lb. (0.23 kg) melanoidin malt  
3.2 oz. (91 g) Carafa® III malt  
4.5 AAU Herkules hops (60 min.)  
(0.3 oz./8.5 g at 15% alpha acids)  
3.4 AAU Tettnanger hops (10 min.)  
(0.75 oz./21 g at 4.5% alpha acids)  
White Labs WLP835 (German X Lager) or Wyeast 2206 (Bavarian Lager) or White Labs WLP830 (German Lager) or SafLager W-34/70 yeast  
¾ cup corn sugar (if priming)

### STEP BY STEP

Bring 2.3 gallons (8.8 L) of water to roughly 166 °F (74 °C). Steep the milled malts in a nylon bag for 45 minutes before removing and allowing the bag to drain. Add enough water to bring the total volume to 6.5 gallons (24.6 L) before adding the dried malt extract. Add extract while stirring. Once fully dissolved, heat wort to a boil. Boil for 60 minutes, adding hops at the indicated times left in the boil. At 15 minutes left in the boil, add a kettle fining agent of your choice.

After the boil, rapidly chill the wort to slightly below fermentation temperature, which is 52 °F (11 °C) for this beer. Pitch yeast and aerate well. Ferment cold for about 36 to 48 hours, ramping to 65 °F (18 °C) once the beer is about two thirds of the way through fermentation, about an SG of 1.034 (8.5 °Plato). Hold this temperature until terminal gravity is reached. Cold crash to 35 °F (2 °C) before transferring to lagering vessel for approximately one month. Bottle or keg the beer and carbonate to approximately 2.5 volumes.

### TIPS FOR SUCCESS:

Croydon is Burning uses traditional German malts including lots of rauch malt. Fear not extract brewers because you can easily perform a partial mash using a medium-sized nylon bag to harness the unique, complex character that comes from rauch malt. Currently, there's no commercial extract versions of the malt and liquid smoke will give you only a shadow of the actual beer.

The second tip is to remember that rauchbiers are lagers; you can't rush them. "Be patient, and let the yeast do the work," as Jeremy mentioned to me. NCBC has been able to go from grain to glass in 42 days but there's no rush. A strong, healthy pitch for a lager and the use of pure oxygen for aeration will go a long way to ensure a fermentation without faults. 



**DEAR REPLICATOR,** We don't really have a homebrew club where I live, but there are about six to eight of us who get together once a month to taste our homebrews. This usually includes a commercial bottle sharing if people have a new beer to sample. Last month a growler of Peekskill (New York) Brewery's Malt Balls Brown Ale was brought by one of the guys who had been down to New York City. None of us had thought much about brown ales before but this one was much different with nice bitterness and great hop aroma too. A couple of us are hoping to try to brew it. Can you get the recipe and give us some pointers?

James Toliver  
*Springfield, Massachusetts*



**D**uring my phone interview with Peekskill Brewery Owner Keith Berardi he told me that his whole brewpub/restaurant odyssey began with a cross country trip he made in 2001. He was only 17 at the time but at well over 6 feet (1.8 m) tall and 200+ lbs. (90+ kg) he appeared much older. This allowed him to purchase a growler of craft beer at a brewpub in Colorado. Needless to say, he discovered beer could have real flavor and he was hooked.

His second epiphany happened at the famous Magnolia Brewpub Bistro in the Haight Ashbury neighborhood of San Francisco. It was there Keith found that along with great craft beer you could have excellent food and great service. All the employees knew every detail about the beers and were well versed on the food preparation too.

The thought of opening his own combination brewery restaurant was always in the back of his mind. His Italian heritage had influenced his desire for cooking and he became what he termed "a real foodie." He said his uncles had always had wine presses in their basements and this prompted him to do some dabbling in homebrewing.

Soon he began to develop a business plan modeled after the Magnolia. His home area of the Hudson Valley in New York seemed to be the ideal location. His sister, Morgan, had been in the restaurant industry in Las Vegas so partnering seemed a good fit. A small building was located in downtown Peekskill. The 3,500-square-foot size wasn't ideal but it would be a start. A 3.5-barrel system was purchased and

shoehorned into a small space next to the kitchen. "People would wonder how we were even able to brew beer in there," Keith recalled. They opened in the summer of 2008 with three house beers and several guest taps. It became apparent that their business model was a success as the first weekend they sold all of the beer they had produced. It only took three years to outgrow the small location. A circa 1920, 14,000-square-foot, four floor field stone building became available and they made the move with an opening just before Christmas of 2012. A regionally famous brewer from Ithaca Brewing, Jeff O'Neil, was hired to develop solid recipes and brew them on a new, custom-designed 15-barrel system. The most unique part of this system was the inclusion of a 25-barrel "coolship" on the third floor.

In March of 2015 Jeff left to work on opening his own brewery in Rockland, New York. He passed the Head Brewer's boots off to a very capable Matt Levy. Matt had been hired in August 2014 and worked closely with Jeff to learn the system. He had previous brewery gigs at Jolly Pumpkin Brewery and 2 1/2 years at Captain Lawrence Brewery. Also an avid homebrewer, he has applied some tweaks to the beers based upon his homebrewing recipes. Matt became exposed to great craft beer when he enrolled at the University of Michigan. Michigan was far ahead of his home state of New York in the number of breweries and brewpubs. His major had been in history but he told me "many times during history classes I would be in the back reading brewing books." It seems that the University of

Michigan library had a very good selection since Michigan had a long history of famous old breweries. Now Matt works closely with his Assistant Brewer Ben Petersen. Ben began working to expand their limited distribution within New York State. Also a homebrewer, he brought in some of his beers for Matt to sample and he was transferred to the brewhouse.

In discussing their brown ale, Matt describes it as a pumped up American brown. It is decidedly hop-forward and darker than your average brown ale. The unique character is developed with a high percentage of Briess Midnight Wheat and lots of late hopping. The coolship is responsible for most of the hopping. It isn't used primarily for its original purpose – wort cooling and spontaneous fermentation. Instead, the boiled wort is pumped up to the third floor coolship, which is loaded with hops. The wort is cooled somewhat during the transfer. When it hits the hops it is far less than boiling. This allows for great extraction of the volatile oils and very little aroma loss. After sitting on the hops for a short period of time it is then routed back downstairs, through the heat exchanger and into a waiting fermenter. His advice for the homebrewed version, with all late hopping, most closely duplicates this technique.

James, you won't have to count on a friend to bring back Malt Balls Brown Ale because now you can "Brew Your Own." For more information about Peekskill Brewing Co. and their other fine beers visit them on the web at [www.peekskillbrewery.com](http://www.peekskillbrewery.com) or call the brewery at 914-734-2337.

## PEEKSKILL BREWERY'S MALT BALLS BROWN ALE CLONE



5 gallons/19 L, all-grain  
OG = 1.064 FG = 1.013  
IBU = 51 SRM = 22 ABV = 6.7 %

### INGREDIENTS

10 lbs. (4.5 kg) Maris Otter pale malt  
2 lbs. (0.91 kg) Briess aromatic malt (20 °L)  
15 oz. (0.42 kg) flaked barley  
5 oz. (0.14 kg) Briess Midnight Wheat malt (550 °L)  
22.4 AAU Centennial hops (15 min.) (2 oz./57 g at 11.2% alpha acids)  
11.2 AAU Centennial hops (5 min.) (1 oz./28 g at 11.2% alpha acids)  
11.2 AAU Centennial hops (0 min.) (1 oz./28 g at 11.2% alpha acids)  
½ tsp. Irish moss (15 min.)  
½ tsp. yeast nutrient (10 min.)  
White Labs WLP001 (California Ale), Wyeast 1056 (American Ale), or SafAle US-05 yeast  
¾ cup corn sugar (if priming)

### STEP BY STEP

This is a single step infusion mash. Mix all of the crushed grains with 4.6 gallons (17.4 L) of 156 °F (69 °C) water to stabilize at 145 °F (63 °C). This is a medium thin mash using 1.4 quarts (2.9 L/kg) of strike water per pound of grain. This ratio will help to increase maximum fermentability. A more fermentable wort is also created by the low mash temperature. After 90 minutes, check to be sure starch conversion is complete. When complete, slowly sparge with 170 °F (77 °C) water.

Collect approximately 6 gallons (22.7 L) of wort runoff. Boil for 60 minutes, adding the hops, Irish moss, and yeast nutrient as per the schedule. During the boil, use this time to thoroughly sanitize your fermentation equipment.

Cool the wort to 75 °F (24 °C). Pitch your yeast and aerate the wort heavily. Allow the beer to cool to 68 °F (20 °C). Hold at that temperature until fermentation



is complete. This may take 6–8 days. Gently transfer to a carboy, avoiding any splashing to prevent aerating the beer. Allow the beer to condition for an additional week. Prime and bottle condition or keg and force carbonate to 2.4 volumes CO<sub>2</sub>. Allow the beer to age for at least 2 more weeks to fully develop the flavors and enjoy your Malt Balls Brown Ale clone.

## PEEKSKILL BREWERY'S MALT BALLS BROWN ALE CLONE



(5 gallons/19 L, partial mash)  
OG = 1.064 FG = 1.013  
IBU = 51 SRM = 22 ABV = 6.7 %

### INGREDIENTS

6.6 lbs. (3 kg) Muntons Maris Otter unhopped liquid malt extract  
1 lb. (0.45 kg) Maris Otter pale malt  
2 lbs. (0.9 kg) Briess aromatic malt (20 °L)  
15 oz. (0.42 kg) flaked barley  
5 oz. (0.14 kg) Briess Midnight Wheat malt (550 °L)  
25.2 AAU Centennial hops (15 min.) (2.25 oz./64 g at 11.2% alpha acids)  
14 AAU Centennial hops (5 min.) (1.25 oz./35 g at 11.2% alpha acids)  
11.2 AAU Centennial hops (0 min.) (1 oz./28 g at 11.2% alpha acids)  
½ tsp. Irish moss (15 min.)  
½ tsp. yeast nutrient (10 min.)  
White Labs WLP001 (California

Ale), Wyeast 1056 (American Ale), or SafAle US-05 yeast  
¾ cup corn sugar (if priming)

### STEP BY STEP

Steep the milled grain in 2 gallons (7.5 L) of water at 145 °F (63 °C) for 90 minutes. Remove grains from the wort and rinse with 1 gallon (3.7 L) of hot water. Top up with 2 quarts (1.8 L) water, add the liquid malt extract, and boil for 60 minutes. While performing the boil, add the hops, Irish moss, and yeast nutrient as per the schedule. During the boil, use this time to thoroughly sanitize your fermentation equipment. When the boil is complete, add the wort to 2 gallons (7.6 L) of cold water in the sanitized fermenter and top off with cold water up to 5 gallons (19 L).

Cool the wort to 75 °F (24 °C). Pitch your yeast and aerate the wort heavily. Allow the beer to cool to 68 °F (20 °C). Hold at that temperature until fermentation is complete. This may take 6–8 days. Gently transfer to a carboy, avoiding any splashing to prevent aerating the beer. Allow the beer to condition for an additional week. Prime and bottle condition or keg and force carbonate to 2.4 volumes CO<sub>2</sub>. Allow the beer to age for at least 2 more weeks to fully develop the flavors and enjoy your Malt Balls Brown Ale clone. 

**DEAR REPLICATOR,** New breweries continue to pop up all over the country and Buffalo, New York is no exception. Resurgence Brewing is one that is climbing quickly in popularity and after ordering a flight on a recent visit, I now have a new beer in my top five list. Their Oktoberfest is by far the best I have ever had. *You had me at the aroma.* Never have I smelled a beer so good and so fresh. I swear it smelled just like I stuck my face in a bag of freshly crushed grains with powder and all. The taste certainly backed up what the nose registered into my brain. I loved it so much that I wrote the brewery a letter of compliment the next day. The Brewmaster, Dave Collins, replied with this: "Hey Bill, thanks for the email! I'm glad you appreciated our Oktoberfest brew! That beer is actually brewed to the *Reinheitsgebot*. It is all-German malt, German hops, and German yeast with no adjunct added at all. Sometimes ya just hit the nail on the head, huh? Thanks again."

I thought that was really cool and I would so much love for you guys to give me a hand in replicating this recipe so I can enjoy this savory brew to have at home for myself.

Bill Serowski  
Hamburg, New York



**W**ell, Bill – you're in luck. It turns out that Resurgence Brewing Company (RBC) owner Jeff Ware and Brewmaster Dave Collins were just as friendly and helpful with us as they were with you! They're happy to offer their advice and assistance to get you from grain to glass, using the recipe on page 19. Resurgence Brewing Co. opened in 2014 in Buffalo, New York as a combination microbrewery and German beer garden. At the time, Buffalo's craft beer market wasn't as robust as in some other cities, but Resurgence and others have turned that around in dramatic fashion: At least seven breweries now call Buffalo home.

Resurgence's name is a reference to the revitalization and renaissance of Buffalo itself, which is now a far cry from the post-industrial image that many might have. The brewery's 3,500-square-foot beer garden boasts the occasional view of the construction cranes that are turning Buffalo into a new destination for visitors from the US and Canada. Owner Jeff Ware tells us that they're now seeing a number of patrons from outside of the Buffalo area who, through very positive word of mouth and social media attention, have heard great things about Resurgence's beer. Their offerings include four to five year-round beers and about a dozen specialty and seasonals. At

any given time (today, in fact) there may be as many as 17 beers on offer in-house! These include barrel-aged and one-off beers that often sell out in as little as a day, a recently released Blood Orange Saison, and of course, the Oktoberfest that you loved. These beers are produced by Brewmaster Dave Collins, a graduate of Niagara College's brewmaster's course in Ontario, who learned his craft first in the college's test brewery and then refined his skills as Head Brewer for Gordon Biersch in Syracuse, New York before hooking up with Ware to start brewing beer for Resurgence Brewing Co. Collins works together with Brewer Eric Greiner to develop and produce a wide range of beers for RBC.

And what fine beer it is. The Oktoberfest in question is absolutely a winner. My tasting notes indicate a wonderful and rich toasted malt aroma (the Munich really coming to the fore), with a hint of biscuit and toffee underneath. The flavor is full but not heavy: This is meant to be a malty beer, but in the German tradition it's also meant to be a beer that can be enjoyed by the liter, and you'd have no problem doing so with Resurgence Oktoberfest. It finishes light and clean, with a lingering touch of bitterness that makes you want to go back in for another sip.

Oktoberfest (Festbier, Märzen) is an

increasingly diverse style in the United States. They range from the paler versions that tend towards a more grainy, bready flavor profile all the way up to the coppery versions that are like small bocks and exhibit a much richer and toastier malt backbone. I found that Resurgence Oktoberfest threads that needle very well. It's certainly not heavy, but it still manages to pull together a diverse range of malty characteristics. All in all, this is a beer that many will be able to wrap their palates around. This recipe produces a solid all-around, all-year lager. It's traditionally released in the fall (of course), but I drank it in the dead of winter with no regrets, and I can easily imagine it as a go-to beer on a summer vacation. Bill, I definitely know what you are saying when you write that it reminds you of the smell of grain by the sack: This is a malt-driven beer, and it lets you know it right out of the gate.

I can personally attest to the fact that the courtesy and kindness that you received, was not a fluke. Jeff and David were immensely helpful in the development of the homebrew recipe for this beer, and I hope that you'll bring them a bottle once you've brewed it! Around here we (obviously) believe that imitation is the sincerest form of flattery, and I'm certain they'd be grateful.

## RESURGENCE BREWING CO.'S OKTOBERFEST CLONE

(5 gallons/19 L, all-grain)

OG = 1.053 FG = 1.014

IBU = 25 SRM = 14 ABV = 5.4%



### INGREDIENTS

5 lbs. (2.3 kg) Pilsner malt  
2.5 lbs. (1.1 kg) light Munich malt (9 °L)  
1.75 lbs. (0.8 kg) dark Munich malt (20 °L)  
1.25 lbs. (0.57 kg) Caramunich® I malt  
0.75 lb. (0.34 kg) biscuit malt  
7 AAU Perle hops (60 min.)  
(1 oz./28 g at 7% alpha acids)  
½ tsp. Irish moss  
White Labs WLP830 (German Lager) or Wyeast 2124 (Bohemian Lager) yeast  
¾ cup corn sugar (if priming)

### STEP BY STEP

Mill the grains and mix with 3.5 gallons (13.3 L) of 164 °F (73 °C) strike water to reach a mash temperature of 152 °F (67 °C). Hold this temperature for 60 minutes. Vorlauf until your runnings are clear. Sparge the grains with 3.8 gallons (14.4 L) of water at 170 °F (77 °C) and top up as necessary to obtain 6 gallons (23 L) of wort. Boil for 60 minutes, adding hops according to the ingredient list and Irish moss as directed.

After the boil, chill the wort to slightly below fermentation temperature, about 55 °F (13 °C). Aerate the wort with pure oxygen or filtered air and pitch yeast.

Ferment at 55 °F (13 °C) until fermentation is complete (about 1.014 specific gravity); you may want to increase temperature by a few degrees at the latter stages of fermentation to aid in diacetyl cleanup. Once the beer completes fermentation, bottle or keg and carbonate to approximately 2.5 volumes. You may want to cold-crash the beer prior to packaging to 35 °F (2 °C) for 48 hours to improve clarity. Store carbonated beer at

near-freezing temperatures for at least four weeks before drinking.

## RESURGENCE BREWING CO.'S OKTOBERFEST CLONE

(5 gallons/19 L, partial mash)

OG = 1.053 FG = 1.014

IBU = 25 SRM = 13 ABV = 5.4%



### INGREDIENTS

3 lbs. (1.4 kg) Pilsner liquid malt extract  
1.9 lbs. (0.86 kg) Munich liquid malt extract  
2 lbs. (0.91 kg) light Munich malt (9 °L)  
1.25 lbs. (0.57 kg) Caramunich® I malt  
0.75 lb. (0.34 kg) biscuit malt  
7 AAU Perle hops (60 min.)  
(1 oz./28 g at 7% alpha acids)  
½ tsp. Irish moss  
White Labs WLP830 (German Lager) or Wyeast 2124 (Bohemian Lager) yeast  
¾ cup corn sugar (if priming)

### STEP BY STEP

Place crushed grains in one or more grain bags. Bring 6 qts. (5.7 L) of water to approximately 164 °F (73 °C) mix grains into the water. Temperature should stabilize around 152 °F (67 °C). Hold for 60 minutes at this temperature. Remove the grain bags, place them in a colander and wash with 6 qts. (5.7 L) hot water then let drain fully. Add liquid extract while stirring, and stir until completely dissolved. Top off to 6 gallons (23 L) then bring the wort to a boil. Boil for 60 minutes, adding hops according to the ingredient list and Irish moss as directed.

After the boil, chill the wort to slightly below fermentation temperature, about 55 °F (13 °C). Aerate the wort with pure oxygen or filtered air and pitch yeast.

Ferment at 55 °F (13 °C) until fermentation is complete (about 1.014 specific gravity); you may want to increase temperature by a few degrees at the latter stages



of fermentation to aid in diacetyl cleanup. Once the beer completes fermentation, bottle or keg and carbonate to approximately 2.5 volumes. You may want to cold-crash the beer prior to packaging to 35 °F (2 °C) for 48 hours to improve clarity. Store carbonated beer at near-freezing temperatures for at least four weeks before drinking.

### TIPS FOR SUCCESS:

Being a lager, patience is really the name of the game. Don't worry if the yeast takes a while to bring you down to terminal gravity (1.014), and don't be in any hurry to drink this one. We're giving you plenty of time to have it ready for your fall festivals! After bottling/kegging, give an appropriate interval and temperature to allow the beer to properly carbonate/condition, and then stick it in a fridge for a while. This beer is relying on its wonderful collection of malts for character, and you don't need to worry about giving it time to let its flavors integrate. Also, don't be too concerned if it seems awfully dark for an Oktoberfest: I can confirm that the recipe still leaves plenty of drinkability. I personally drank a crowler of it during this year's Super Bowl, and I can verify that 32 ounces disappeared pretty easily.

**DEAR REPLICATOR,** I would LOVE a good clone recipe for Southern Tier Warlock. I have brewed several batches trying to come close, but the best grade I can get from my wife is a C-. Any help with this would be awesome!

Craig Vanaken  
*Aloha, Oregon*



**C**raig, I have to say that I'm impressed by your commitment. Your wife is obviously quite the discerning beer drinker, and I admire your willingness to keep swinging for the fences and getting her a great clone of a demanding beer! I'm very happy to report that I have the perfect contact for your request: Matt Dunn, Director of Brewing and Quality at Southern Tier Brewing Company (STBC). If he can't help us, no one can.

In 2002, Phin and Sara DeMink and Allen "Skip" Yahn founded Southern Tier Brewing Company in Lakewood, New York, with the vision of reviving the practice of small batch brewing to a region rich in brewing tradition. Following several expansions from 2009 through 2013 – including brewhouse expansions from 20, to 50, and finally to 110 barrels – Southern Tier now ships over 100,000 barrels annually to 33 states to meet growing demand for Southern Tier's diverse portfolio of innovative beers that embody the spirit of American craft brewing. In 2015 Southern Tier expanded their operation to include Southern Tier Distilling Company, with a similar mission to create innovative small batch spirits using unique local ingredients under a New York farm-distilling license.

Expansion is no easy thing, though. Within the highly-competitive markets in which Southern Tier found itself were a large and growing number of competing craft breweries. In 2014, Southern Tier partnered with Ulysses Management (a private equity firm) to establish Artisanal Brewing Ventures (ABV), a parent company designed to provide opportunities for collaboration and cooperation for craft breweries. In 2016, Southern Tier was joined by Victory Brewing Company of Down-

ingtown, Pennsylvania (another super-regional brewery) in ABV, further increasing the scale advantages that each already enjoyed as significant regional breweries. "This is exactly the kind of alliance we imagined when we created Artisanal Brewing Ventures in 2014," said Phin, founder of Southern Tier Brewing Company and also a major shareholder in ABV. "This is a concept that was specifically designed by and for craft brewers, so we can focus on the things we're best at while creating meaningful scale advantages."

Southern Tier (and Victory, for that matter) is still an entirely independent operation, and produces some remarkably creative and well-made beers. In addition to their dozen year-round offerings and as many seasonals, they add their "Blackwater" series: A range of impressively creative specialty imperial stouts (as Craig can attest) that includes Warlock.

Warlock is a jet-black, high-alcohol, spice beer that seems perfectly suited to its early-fall release date. This is a beer that is perfect for aging through the months as the weather turns colder, but at the same time is released with no rough edges and can, in fact, be enjoyed right out of the gate. It's a rare double-digit-alcohol by volume stout that can go from the shelf to the glass while managing the transition just fine.

Part of the reason for its versatility and age-ability is found in its recipe construction. It's easy to see why it would age well: High alcohol and dark beers tend to have significant advantages in terms of flavor stability. The more interesting part of the story is in its immediate drinkability. The use of pumpkin puree is useful to round off the mouthfeel and prevent the spices

from overwhelming the palate. At the same time, the use of debittered black malt (rather than the sharper traditional roasted barley) means that the beer – though a touch on the sweet side – avoids the kind of palate-scraping roast that can require a lengthier period of maturation before cracking open the bottles.

Matt and Southern Tier were kind enough to ship me two bottles. The first I opened immediately (why not?), and enjoyed immensely. The other I just opened this morning (don't judge – it's when I'm writing) after a five-month lagering period in my fridge, and it is equally (though uniquely) enjoyable.

The rich cocoa flavors are well-balanced by the residual cinnamon and ginger notes, and the vanilla, nutmeg, and clove are highly complementary and give the beer a dense savory background flavor. There's not a hint of adverse oxidation, and the spice additions – always a slippery target – are reserved and appropriate. This is no gimmick beer. And, I might add, the low warmth of the alcohol is about the only sign of it – until you start to feel it shortly thereafter! Take this beer one 12-ounce bottle at a time. Share with a friend or two. Break out the snifters and really enjoy it. Then wait a month, and do the same again!

I hope that this recipe gets you up into the "A" range, Craig! We both owe a debt of thanks to Matt and company at STBC for providing not only the recipe but a great set of inside-the-ropes feedback on how to approach this beer. It may take a bit more trial and error, but at the very least you can feel comfortable knowing you're on the right track. Best of luck, and please let us know how it works out!

## SOUTHERN TIER BREWING CO.'S WARLOCK CLONE

(5 gallons/19 L, all-grain)  
OG = 1.094 FG = 1.023  
IBU = 44 SRM = 37 ABV = 10.1%



*An imperial stout that stands out with spice additions and pumpkin added to bring out a smoothness to the mouthfeel.*

### INGREDIENTS

16.5 lbs. (7.5 kg) 2-row pale malt  
1 lb. (0.45 kg) Munich malt  
1 lb. (0.45 kg) flaked barley  
0.75 lb. (0.34 kg) debittered black malt  
0.5 lb. (0.23 kg) crystal malt (60 °L)  
0.25 lb. (0.11 kg) chocolate malt  
1 lb. (0.45 kg) pumpkin puree  
12 AAU Chinook hops (60 min.)  
(1 oz./28 g at 12% alpha acids)  
Cinnamon, vanilla, nutmeg, ginger, and clove extracts, to taste  
Wyeast 1335 (British Ale II) or White Labs WLP022 (Essex Ale) yeast  
2/3 cup corn sugar (if priming)

### STEP BY STEP

Mill the grains and add the pumpkin puree, then mix with 6.25 gallons (23.7 L) of 163 °F (73 °C) strike water to reach a mash temperature of 152 °F (67 °C). Hold this temperature for 60 minutes. Vorlauf until your runnings are clear, and lauter. Sparge the grains with 1.5 gallons (5.7 L) and top up as necessary to obtain 6 gallons (23 L) of wort. Boil for 60 minutes, adding hops according to the ingredient list and Irish moss if desired.

After the boil, chill the wort to slightly below fermentation temperature, about 66 °F (19 °C). Aerate the wort with pure oxygen or filtered air and pitch yeast.

Ferment at 67 °F (19 °C) until wort reaches 1.028 specific gravity, then free rise to 72 °F (22 °C) until the completion of primary fermentation. Once the beer completes

fermentation, reduce temperature to 32 °F (0 °C) and hold for 10 days. Draw a sample, and add spice extracts to taste, starting with a ratio of approximately 3:1 for the cinnamon to other extracts. Once the desired exact ratio/intensity is determined, scale up and add to the fermenter. Then bottle or keg and carbonate to approximately 2.25 volumes.

## SOUTHERN TIER BREWING CO.'S WARLOCK CLONE

(5 gallons/19 L, extract with grains)  
OG = 1.094 FG = 1.023  
IBU = 44 SRM = 37 ABV = 10.1%



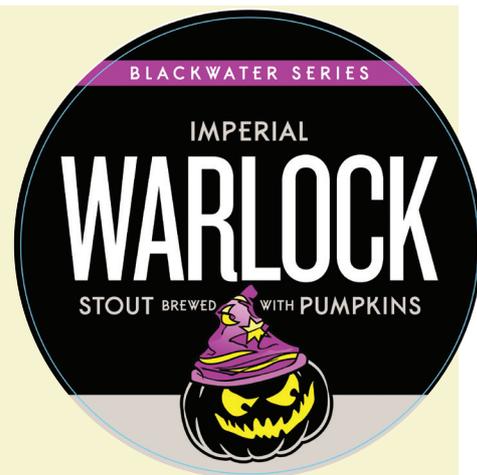
### INGREDIENTS

11 lbs. (5 kg) pale liquid malt extract  
1 lb. (0.45 kg) Munich malt  
1 lb. (0.45 kg) flaked barley  
0.75 lb. (0.34 kg) debittered black malt  
0.5 lb. (0.23 kg) crystal malt (60 °L)  
0.25 lb. (0.11 kg) chocolate malt  
1 lb. (0.45 kg) pumpkin puree  
12 AAU Chinook hops (60 min.)  
(1 oz./28 g at 12% alpha acids)  
Cinnamon, vanilla, nutmeg, ginger, and clove extracts, to taste  
Wyeast 1335 (British Ale II) or White Labs WLP022 (Essex Ale) yeast  
2/3 cup corn sugar (if priming)

### STEP BY STEP

Bring 5.2 gallons (19.7 L) of water to approximately 165 °F (74 °C) and hold there, steeping the specialty malts and pumpkin puree in grain bags for 15 minutes. Remove the grain bags, and let drain fully. Add liquid malt extract while stirring, and stir until completely dissolved. Bring the wort to a boil. Boil for 60 minutes, adding hops according to the ingredient list and Irish moss as desired.

After the boil, chill the wort to slightly below fermentation temperature, about 66 °F (19 °C).



Aerate the wort with pure oxygen or filtered air and pitch yeast.

Ferment at 67 °F (19 °C) until wort reaches 1.028 specific gravity, then free rise to 72 °F (22 °C) until the completion of primary fermentation. Once the beer completes fermentation, reduce temperature to 32 °F (0 °C) and hold for 10 days. Draw a sample, and add spice extracts to taste, starting with a ratio of approximately 3:1 for the cinnamon to other extracts. Once the exact ratio/intensity is determined, scale up and add to the fermenter. Then bottle or keg the beer and carbonate to approximately 2.25 volumes.

### TIPS FOR SUCCESS:

If pumpkin puree is giving you stuck sparges, go ahead and leave it out, Matt says: "This is a spice beer, not a gourd beer, so the puree is not actually critical to the aroma and flavor!" My recommendation would be to increase your flaked barley addition if you go this route, to really bump up the smooth body in the mouthfeel.

Additionally, Southern Tier uses a proprietary strain of yeast, but Matt let me know that the yeast was "a British heritage strain, extremely flocculent, very attenuative, and very alcohol-tolerant." He also indicated that it kicks off some fruity esters. Based on those parameters and my own experience, my best guess is the listed British Ale II from Wyeast, but feel free to experiment. (BYO)

**DEAR REPLICATOR,** A few years ago, in the cold winter months in Vermont, I came across Route of All Evil from Two Roads Brewing Co. It was in one of the coolest and creepiest cans ever, with a clown on a tricycle, outside an asylum. The beer was delicious, hoppy and dark, the perfect companion for Vermont winters. Unfortunately, the beer hasn't been around the last couple years so Replicator can you please help me recreate this amazingly hoppy, dark brew?

Andy Jadrnak  
Colchester, Vermont



**G**reat request Andy! And the thought of sipping this beer with a roaring fire crackling in the hearth and snow falling outside during a winter evening in Vermont certainly has a ring of appeal. Although I'm glad that Two Roads Brewing Co. is located in Stratford, Connecticut and not in Derry, Maine, especially with the presence of a creepy clown on the front of the can; cool but certainly creepy.

Entrepreneurship is about looking behind shabby facades and seeing the potential of a space or idea. For Two Roads, that meant repurposing a chemically-contaminated manufacturing warehouse into a powerhouse brewery. To this end, the brains behind Two Roads, Phil Markowski, Brad Hittle, Peter Doering, and Clem Pellani were awarded a grant from the Department of Economic and Community Development for \$500,000 towards the remediation and refurbishment of the derelict warehouse to convert it into a modern brewhouse. The four credited the Stratford, Connecticut legislative delegation and specifically former Mayor John Harkins for the aid in securing the funds.

Furthermore to their plan, they sought to bring 70+ jobs to the area while providing a space to tour, sample, and buy high-quality craft beer. One of the many obstacles they needed to hurdle was a state law prohibiting breweries from selling pints of beer on-site to patrons who declined a tour. Once again, it was the local politicians on both sides of the proverbial aisle who rose to the challenge to aid Two Roads. And as a result, Two Roads is now situated in Stratford on ten acres featuring the brewing facilities, a

wetland preserve, the Hopyard (which is an open, grassy field for hosting events), and a botanical garden where a variety of fruits are grown to be used in fermented beverages.

One of the hallmarks of Two Roads is their creativity of which their beer is merely a result. Unlike many start-up breweries, they decided against the philosophy of starting small and expanding the business as needed. As Robert Frost penned, "Two roads diverged in a wood, and I, I took the one less traveled by, and that has made all the difference." They indeed took the road less traveled and built brewery operations that far exceeded anything they personally needed (~190,000 BBLs/year), which opened the door for contract brewing by first intent. Evil Twin, Stillwater, and Lawson's Finest Liquids have all brewed beer at Two Roads' facilities. In 2018, Two Roads brewed 63,000 BBLs of their own brand while producing 72,000 BBLs of contracted beer; the venture seems to have paid off.

Another aspect of their inventiveness is wholly centered on their beer. Phil desired to produce sours but didn't want to run the risk of contaminating the brewery while having them take up valuable fermenter space. And voila! The Tanker Truck Sour Series was born. Several kettle-soured Goses are fermented in a repurposed milk tanker truck that resides outside of the brewery's walls, thereby removing the risk of contamination with airborne, souring bacteria.

But the human imagination knows no bounds and Phil wanted to craft sours the Belgian way. With the

campus situated on 10 acres and free space available next door, the next evolution at Two Roads could become a reality. The 25,000-square-foot, \$15 million expansion called Area Two Experimental Brewing opened its doors on March 11, 2019. As Phil succinctly put it, "Area Two will be a brewery of boundless experimentation . . . we will continue to innovate, redefine, and stretch the definition of beer." It features a 50-BBL coolship that will harness the microflora from the wetlands on site, an inventory of 1,500 barrels from wineries and distilleries including tequila, Bourbon, and Calvados barrels, and numerous lambics and other sour beers such as Sour'd Whiskey.

Now onto the beer! Route of All Evil is a hoppy, roasty beer in a similar vein as a black IPA or Cascadian dark ale, depending on your location and persuasion. It is significantly hoppier than an American stout if you're following the 2015 Beer Judge Certification Program (BJCP) guidelines. Production of the beer is currently "On Sabbatical" at Two Roads even though it won a Gold medal at the 2015 Great International Beer Festival (GIBF). The description of the beer direct from Two Roads is, "Neither stout nor porter, this beer is full-bodied, bold and black with flavor characteristics of dark chocolate, mocha, molasses and dark fruits balanced by piney citrusy notes of Pacific Northwest hops." And if you're feeling a bit adventurous like two of Two Roads brewers, Roger and Colin, go ahead and add a dose of chopped chipotle and ghost peppers to this brew followed by aging in a rye whiskey barrel. Happy experimenting!

## TWO ROADS BREWING COMPANY'S ROUTE OF ALL EVIL CLONE



(5 gallons/19 L, all-grain)  
OG = 1.072 FG = 1.012  
IBU = 30 SRM = 37 ABV = 7.9%

### INGREDIENTS

11 lbs. (5 kg) 2-row pale ale malt  
0.75 lb. (0.34 kg) dark Munich malt  
0.75 lb. (0.34 kg) crystal malt (65 °L)  
0.75 lb. (0.34 kg) black malt  
0.38 lb. (0.17 kg) crystal malt (25 °L)  
0.38 lb. (0.17 kg) Special B malt  
0.38 lb. (0.17 kg) flaked barley  
0.38 lb. (0.17 kg) flaked rye  
0.25 lb. (0.11 kg) blackstrap molasses (15 min.)  
6 AAU Magnum hops (60 min.)  
(0.5 oz./14 g at 12% alpha acids)  
4.25 AAU Centennial hops (10 min.)  
(0.5 oz./14 g at 8.5% alpha acids)  
2.25 AAU Crystal hops (10 min.)  
(0.5 oz./14 g at 4.5% alpha acids)  
20 AAU Chinook hops (0 min.)  
(1.5 oz./43 g at 13.3% alpha acids)  
2.25 AAU Crystal hops (0 min.)  
(0.5 oz./14 g at 4.5% alpha acids)  
2.13 AAU Centennial hops (0 min.)  
(0.25 oz./7 g at 8.5% alpha acids)  
1.5 oz. (43 g) Crystal hops (dry hop)  
0.75 oz. (21 g) Cascade hops (dry hop)  
0.75 oz. (21 g) Columbus hops (dry hop)  
Wyeast 1056 (American Ale) or White Labs WLP001 (California Ale) or SafAle US-05 yeast  
¾ cup corn sugar (if priming)

### STEP BY STEP

Mill the grains, then mix with 4.6 gallons (17.5 L) of 169 °F (76 °C) strike water to achieve a single infusion rest temperature of 154 °F (68 °C). Hold at this temperature for 60 minutes. Mashout to 170 °F (77 °C) if desired.

Vorlauf until your runnings are clear before directing them to your boil kettle. Batch or fly sparge the mash to obtain 6.5 gallons (25 L) of wort. Boil for 60 minutes, adding hops at the times indicated above left in the boil. At 15 minutes left in the boil, you can add either Irish

moss or Whirlfloc as fining agents as well as the blackstrap molasses.

After the boil, add the flameout hops into the wort and whirlpool for 15 minutes before rapidly chilling the wort to 66 °F (19 °C). Pitch yeast. Maintain fermentation temperature and do not exceed 70 °F (21 °C) for this beer.

Once primary fermentation is complete, add the dry hops indicated and let them extract for 4 days. Bottle or keg the beer and carbonate to approximately 2.5 volumes.

## TWO ROADS BREWING COMPANY'S ROUTE OF ALL EVIL CLONE



(5 gallons/19 L, extract with grains)  
OG = 1.072 FG = 1.012  
IBU = 30 SRM = 14 ABV = 7.8%

### INGREDIENTS

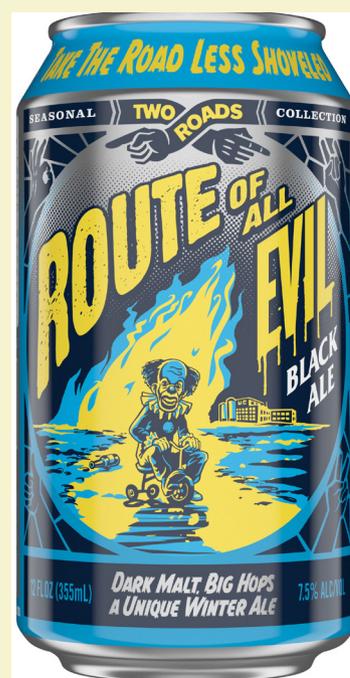
6 lbs. (2.27 kg) extra light dried malt extract  
0.5 lb. (0.23 kg) Munich dried malt extract  
0.75 lb. (0.34 kg) crystal malt (65 °L)  
0.75 lb. (0.34 kg) black malt  
0.38 lb. (0.17 kg) crystal malt (25 °L)  
0.38 lb. (0.17 kg) Special B malt  
0.38 lb. (0.17 kg) flaked barley  
0.38 lb. (0.17 kg) flaked rye  
0.25 lb. (0.11 kg) blackstrap molasses (15 min.)  
6 AAU Magnum hops (60 min.)  
(0.5 oz./14 g at 12% alpha acids)  
4.25 AAU Centennial hops (10 min.)  
(0.5 oz./14 g at 8.5% alpha acids)  
2.25 AAU Crystal hops (10 min.)  
(0.5 oz./14 g at 4.5% alpha acids)  
20 AAU Chinook hops (0 min.)  
(1.5 oz./42 g at 13.3% alpha acids)  
2.25 AAU Crystal hops (0 min.)  
(0.5 oz./14 g at 4.5% alpha acids)  
2.13 AAU Centennial hops (0 min.)  
(0.25 oz./7 g at 8.5% alpha acids)  
1.5 oz. (43 g) Crystal hops (dry hop)  
0.75 oz. (21 g) Cascade hops (dry hop)  
0.75 oz. (21 g) Columbus hops (dry hop)  
Wyeast 1056 (American Ale) or White Labs WLP001 (California Ale) or SafAle US-05 yeast  
¾ cup corn sugar (if priming)

### STEP BY STEP

Bring 6.5 gallons (25 L) of water to roughly 150 °F (66 °C). Steep all the specialty malts for 15 minutes before removing and draining. Add both malt extracts, while stirring, before heating to a boil. Boil for 60 minutes, following the remainder of the all-grain instructions.

### TIPS FOR SUCCESS:

One of the hurdles in crafting this beer will be mash pH management and how you handle the black malt if you're an all-grain brewer. Personally, my well water is a bit on the hard side so the acidity that it brings allows me to hit a proper mash pH of 5.2–5.5 and so I add them right in the beginning of the mash. For others, you may want to consider adding the black malt during the vorlauf process (recirculation). The other sticking point will be dry hopping the beer as oxygen is the enemy of fresh, hoppy beer. Keg-to-keg transfers under CO<sub>2</sub> atmospheres is probably your best bet. Don't let the dry hopping go longer than 4 days for fear of extracting plant matter into the brew. But the option of performing a single, massive dry hop vs. dry hopping with individual varieties sequentially is completely up to you. 



**DEAR REPLICATOR,** Could the Replicator please do an article on Victory Brewing Company's Zeltbier? Thanks!

Seth Clearwater  
Phoenixville, Pennsylvania



**S**eth, I have to say that your brief and specific request is a perfect pairing for this beer, which packs a lot into just a few ingredients! Luckily for us, the good folks at Victory Brewing Company have given us everything we need to make this outstanding beer for ourselves.

Victory is one of the country's most prolific breweries. Founded in 1996 by childhood friends Bill Covaleski and Ron Barchet, Victory is headquartered in Downingtown, Pennsylvania and is the 26th most productive brewery in the United States.

Bill and Ron shared a long and winding road towards opening their own brewery, which began on a school bus in 1973. The two were both new to their school and struck up a friendship on their way to fifth grade one fateful morning. Despite attending colleges on opposite coasts, the friendship survived and Bill, having recently started homebrewing himself, gifted Ron a homebrewing kit for Christmas in 1985. Thus began a friendly competition between the two, and as the years progressed and their skills advanced, both realized they wanted to make beer their life.

They served in back-to-back years in a brewing apprenticeship at the Baltimore Brewing Company, and both subsequently expanded their brewing knowledge at German brewing schools: Bill at the Doemens Institute and Ron at the Technical University of Munich at Weihenstephan. After returning home they continued to work in the industry, and in February 1996 they opened the doors of Victory Brewing Company inside a former Pepperidge Farm factory in Downingtown.

In their first year, they brewed 1,725 barrels of beer. Thanks to robust sales, a great reputation, and a private equity investment that enabled their expansion, last year they brewed over 140,000. That production included beer

produced at the original Downingtown brewery, a new (and massive) brewing facility and brewpub in Parkesburg, Pennsylvania that is capable of producing half a million barrels per year, and at their newly-opened brewpub in Kennett Square, Pennsylvania (which is the first brewery there since the end of Prohibition).

Bill and Ron believe that quality in equals quality out, and as a result they have an almost fanatical devotion to sourcing outstanding ingredients. They are one of the few breweries (especially at their scale) in the US that brews exclusively with whole-flower hops, so as to benefit from the subtle and softer aromatics and flavors that pelletized hops sometimes bowl over.

They also import nearly all of their malt from German and other continental maltsters, and the malt is partially de-husked as part of the conveying and wet-milling process, resulting in a less-tannic and sweeter wort. This commitment to ingredients carries over into yeast as well: They bank and use more than 40 yeast strains to avoid the kind of "everybeer" quality that can come from a brewery that changes recipes but not ingredients in their beers.

They brew more than a dozen year-round offerings, which include beers that have come to embody the modern interpretations of their styles. Whether it's the bright and aggressive hopping of Prima Pils or the soft-on-the-palate but psychedelic-on-the-brain Golden Monkey Tripel, Victory produces beer that manages to be on the cutting edge of craft brewing while also showing great reverence for brewing's most ancient traditions.

Their Zeltbier is a great example of this duality. Conceptually, this is an Oktoberfest: A lager, simple but clear in its flavors, and a step away from the growing trend towards dark and toasty Oktoberfest beers. Instead, Zeltbier is

a return to the lighter and more-floral festbiers that have never gone out of style in Munich but have fallen by the wayside in the States.

Victory still brews their darker and toastier festbier, but they recently introduced Zeltbier as a seasonal offering that is lightly toasty and brightly floral. With a recipe that can be described as almost painfully simple, Zeltbier is a testament to the power of high-quality brewing ingredients to provide a fantastic flavor profile with just a few well-selected options and a traditional brewing process that harkens back to Old World German brewers.

With only two malts and fairly restrained noble hopping, careful brewers can produce one of the best beers they've ever created. To make this beer the "Victory" way requires a multi-step mash and a single decoction, which is a step that most craft breweries eschew these days. The result, though, is a beer that gets the most out of its ingredients, and pairs perfectly with warm fall afternoons that drift into crisp autumn evenings. You can brew this beer as an extract or single-infusion all-grain beer, but to really give the ingredients their due, I'd recommend that you follow the decoction method outlined in the step by step of the recipe. Not only will you really feel like a brewer and come away with an appreciation for how challenging this process used to be, but you'll also add unique flavors that probably can't be mimicked using any other method or ingredient addition (though you may wish to add something with a bit of toast — Victory® malt, perhaps, if you like the poetic symmetry and you're comfortable adding a non-European malt — if you do forego the decoction). And before you file this away as one to come back to later in the summer, be sure to note that this beer demands about two months, at a minimum, of cold conditioning.

## VICTORY BREWING CO.'S ZELTBIER CLONE

(5 gallons/19 L, all-grain)  
OG = 1.056 FG = 1.014  
IBU = 21 SRM = 3 ABV = 5.7%



### INGREDIENTS

11 lbs. (5 kg) Pilsner malt  
0.5 lb. (0.23 kg) Carapils® malt  
2 AAU Hallertau Tradition hops (60 min.) (0.5 oz./14 g at 4% alpha acids)  
2 AAU Hallertau Mittelfrüh hops (30 min.) (0.5 oz./14 g at 4% alpha acids)  
4.5 AAU Tettnang hops (15 min.) (1 oz./28 g at 4.5% alpha acids)  
Wyeast 2124 (Bohemian Lager) or White Labs WLP830 (German Lager) yeast  
½ cup corn sugar (if priming)

### STEP BY STEP

This recipe calls for a decoction mash, which Victory does! Infuse the grains with 3.6 gallons (13.6 L) of water to stabilize the mash at 122 °F (50 °C). Then raise the mash temperature to 145 °F (63 °C) and hold for 10 minutes. Pull ½ of the mash and decoct, going through a 15-minute rest at 158 °F (70 °C) before boiling. Mix back into the main mash, hold for 20 minutes, and then raise to 168 °F (76 °C) for mash-off. Vorlauf until your runnings are clear. Sparge the grains with 3.6 gallons (13.6 L) and top up as necessary to obtain 6 gallons (23 L) of wort.

Boil for 60 minutes, adding hops according to the ingredient list and Irish moss as desired. After the boil, chill the wort to slightly below fermentation temperature, about 48 °F (9 °C). Aerate the wort with pure oxygen or filtered air and pitch yeast.

Ferment at 50 °F (10 °C) until gravity reaches about 1.025, then increase temperature to 54 °F (12 °C) and hold for two days. Once the beer completes fermentation, reduce temperature to 32 °F (0 °C) over the course of

one week, and hold there for at least six weeks. After cold conditioning, bottle or keg the beer and carbonate to approximately 2.25 volumes.

## VICTORY BREWING CO.'S ZELTBIER CLONE

(5 gallons/19 L, extract with grains)  
OG = 1.056 FG = 1.014  
IBU = 21 SRM = 4 ABV = 5.7%



### INGREDIENTS

7.5 lbs. (3.4 kg) Pilsner liquid malt extract  
0.5 lb. (0.23 kg) Carapils® malt  
2 AAU Hallertau Tradition hops (60 min.) (0.5 oz./14 g at 4% alpha acids)  
2 AAU Hallertau Mittelfrüh hops (30 min.) (0.5 oz./14 g at 4% alpha acids)  
4.5 AAU Tettnang hops (15 min.) (1 oz./28 g at 4.5% alpha acids)  
Wyeast 2124 (Bohemian Lager) or White Labs WLP830 (German Lager) yeast  
½ cup corn sugar (if priming)

### STEP BY STEP

Bring 5.4 gallons (20.4 L) of water to approximately 165 °F (74 °C) and hold there, steeping the specialty malt in a grain bag for 15 minutes. Remove the grain bag, and let drain fully. Add liquid extract while stirring, and stir until completely dissolved. Bring the wort to a boil. Boil for 60 minutes, adding hops according to the ingredient list and Irish moss as desired.

After the boil, chill the wort to slightly below fermentation temperature, about 48 °F (9 °C). Aerate the wort with pure oxygen or filtered air and pitch yeast.

Ferment at 50 °F (10 °C) until gravity reaches about 1.025, then increase temperature to 54 °F (12 °C) and hold for two days. Once the beer completes fermentation, reduce temperature to 32 °F (0 °C) over the course of one week, and

hold there for at least six weeks. After cold conditioning, bottle or keg the beer and carbonate to approximately 2.25 volumes.

### TIPS FOR SUCCESS:

Victory Co-Founder Ron Barchet recommends, above and beyond anything else, getting your hands on the best possible ingredients, and to look a little deeper into the composition of those ingredients than you ordinarily would. For example, if you can get German Pils malt that uses Steffi or Barke barley varieties, you will notice a particularly characterful maltiness. He also notes that it is probably a good idea for homebrewers to rack the beer off of its yeast cake before cold conditioning to minimize the risk of yeast autolysis and any loss of foam quality. Finally, be sure to pour vigorously (preferably into a proper Isar Krug mug!) to release all of the wonderful aromatics in this beer. 

