Volume 34 ✻ No. 4 | July/August 2011

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The Journal of the American Homebrewers Association

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by Jill Redding

Homebrewing at Sierra Nevada

Sierra Nevada is the second-largest craft brewer in the nation, with just under 800,000 barrels brewed in 2010. But it is doing its part to stay true to founder Ken Grossman's homebrewing roots. Aware of perceptions that the brewery had gotten "too big" and had forgotten its humble beginnings, Grossman and his older brother, Steve, came up with the concept of Beer Camp in 2008.

"We are still homebrewers at heart," said Steve Grossman, who serves as the brewery's ambassador and the Beer Camp liaison. Steve and Ken learned to brew at an early age from a neighbor who got tired of the neighborhood kids helping themselves to his kegerator. "We are more passionate than ever."

Beer Camp was largely designed for Sierra Nevada distributors, retailers, and other assorted beer industry folks to come to the brewery and get a first-hand look at the passion that comes into play on a daily basis. Once a year, Beer Camp is open to the public via a video contest (as this issue goes to print, the deadline of July 7 will be tight, but stay tuned for the 2012 contest).

In spring 2011, employees of the Brewers Association were fortunate enough to attend Beer Camp. I'm still in awe of the Willy Wonka-like aspects of the brewery. Solar panels are computerized to track the sun. The brewery has its own cattle and vegetable garden for use on the pub's menu. It has its own hop fields and barley fields (estate grown barley was used in the Life and Limb collaboration with Dogfish Head). It has its own rail spur to offload barley from Canada. It will soon be building a floor malting house on the premises. The list goes on.

One of the best aspects of Beer Camp is that campers get to create a new beer, name it, and help brew it on the 10-barrel pilot system. In early discussions before we left for camp, our group was leaning toward a chocolate stout or a hoppy rye, but once we learned that the brewery had just received a shipment of Nelson Sauvin hops from New Zealand, we knew we wanted to use them. (Sierra has never brewed with the variety before). We decided to brew an Extra Pale Ale using Nelson and Sorachi Ace hops, both of which imparted a lemony aroma when we checked them out in the hop storage room. Our hope was that it would be an easy-drinking, refreshing, hoppy summertime beer.

Not long after we put the finishing touches on our recipe, we ran into head brewer Steve Dresler in the hallway, and his eyes lit up when we told him about our plan. "And then you're going to Torpedo the sh*t out of it?" he asked excitedly, referring to Sierra Nevada's revolutionary dry-hopping method. Well, of course!

"The Beer Camp beers are incredible," said Dresler. "And they are being brewed on the best 10-barrel brewhouse in the country."

Some Beer Camp beers will undoubtedly be destined for regular slots in the brewery's lineup, like Hoptimum, and the brewery recently released a Beer Camp variety pack including a double IPA, a weizenbock, a California common, and a juniper black ale.

Beer Camp beers are among the most anticipated at the Sierra Nevada pub, and customers reportedly love them. By the time this issue reaches your mailbox, our creation, Earth Day Extra Pale Ale, will be available. Cheers!

Jill Redding is editor-in-chief of Zymurgy.

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

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Cover photo by Rick Souders/Souders Studios

>> GET THERE!

BRECKENRIDGE BEER FESTIVAL

The "celebration of brews and views" takes place Saturday, July 16 from 1-6 p.m. at Main Street Station in Breckenridge, Colo.

More than 20 breweries from Colorado and beyond will be pouring their beers at the festival that also features live music and food vendors.

For more go to breckenridgebeerfestival.com.

July 1
Louisville Brewfest
Louisville, KY
keeplouisvilleweird.com

July 1-3
Seattle International Beerfest
Seattle, WA
seattlebeerfest.com

July 15-17
Portland International Beerfest
Portland, OR
seattlebeerfest.com

July 16
Brewers of Indiana Guild Microfest
Indianapolis, IN
http://in.worldclassbeverages.com/events/

July 28-31
Oregon Brewers Festival
Portland, OR
oregonbrewfest.com

August 2-6
Great British Beer Festival
London, UK
http://gbbf.camra.org.uk/home

August 27
20th Annual Microbrew Festival
Adamstown, PA
www.stoudtsbeer.com

For more craft brewing events, go to craftbeer.com.

>> YOU'VE GOTTA DRINK THIS

RUSSIAN RIVER'S PLINY THE ELDER

Pliny the Elder pours up sublime with ample carbonation that creates a voluptuous white head, sitting craggily atop the most gorgeous deep golden body you've ever seen! The aroma is alive with zesty, ripe citrus (blood orange, pomelo, tangerine) character that carries some earthiness reminiscent of freshly cut conifer trees. Very floral, pungent, and resiny. Low-moderate maltiness, some warmth, otherwise very clean. The seriously hoppy flavor starts off with a solid maltiness and the underlying graininess shows hints of orange blossom honey, caramel apple, and toasted pine nuts. The sweet graininess is quickly subdued by an absurd hop character with a scorching bitterness that lingers well into the surprisingly balanced, medium-dry, slightly warming finish. Complex, yet simplistically straightforward. In a word... sublime! This is a showcase of brewer's art and love for the hop plant (Humulus lupulus). I'll surely never forget the very first time I tried this one at the 2001 GABF. Here's to Vinnie and his tribute to Pliny the Elder!

Reviewed by Jeff Swearengin, Tulsa, Okla.

If you've had a beer you just have to tell the world about, send your description, in 150 words or fewer, to jill@brewersassociation.org.

Photos © Breckenridge Beer Festival and Kona Brewing Co.

>> BREW NEWS

BOULEVARD, DESCHUTES COLLABORATE

Boulevard Brewing Co. and Deschutes Brewery will release two versions of a new collaboration beer this summer. The style, described by brewmasters Steven Pauwels of Boulevard and Larry Sidor of Deschutes as a White IPA., combines Boulevard's expertise in Belgian-style witbiers with Deschutes' mastery of hop-forward ales. The beers will be made at both breweries and released simultaneously throughout each of their distribution territories.

Pauwels and Sidor began exploring the idea of brewing together after crossing paths several times at craft beer events around the country. The brewers discovered that their brewing philosophies had much in common, both pushing the envelope whenever possible, yet remaining dedicated to time-honored traditions that keep them consistent and grounded.

"It will be interesting to see how similar the brews turn out despite being brewed more than 1,600 miles apart," said Sidor. "That's part of the fun of working with a brewery like Boulevard. We both use the latest technologies but also stay true to traditional brewing ingredients and methods."

While both beers will be characterized as White IPAs, there will be differences in packaging and in how they will ultimately taste. Brewed at its Bend, Ore. facility, Deschutes' version will be the second beer in their new Conflux collaboration series and will be distributed throughout their 18-state region in kegs and 22-ounce bottles. Their first collaboration, brewed with Hair of the Dog Brewing Co., is still aging in wood barrels.

Boulevard's version, christened Collaboration No. 2, will be distributed throughout their 20-state region as part of the Smokestack Series seasonal lineup in kegs and 750ml bottles. The brewery's first collaboration, a partnership with Belgian brewer Jean-Marie Rock, was released in January 2010.

>> GREAT GADGETS

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The Bottle Mate is made out of stainless steel and retails for $7.95. To order or to learn more, go to bottlemateopener.com.

>> THE LIST

5 BEERS FOR SUMMER

HERE ARE FIVE EASY-DRINKING BEERS TO QUENCH YOUR THIRST THIS SUMMER.

1. **Breckenridge SummerBright**

   Available April through August, SummerBright is brewed with 100-percent organic, all natural lemon peel and orange peel to give a hint of citrus. The intention was not to create a fruit beer, but to give this summer ale a refreshing twist.

2. **New Belgium Somersault**

   Described as "the perfect summer lounge-around beer," Somersault replaces Skinny Dip in the brewery's seasonal lineup. Somersault tumbles out with citrus aroma from Centennial hops, a soft apricot fruitiness tucked into the flavor, a full mouthfeel from the addition of oats, and a crisp, dry finish from the subtle addition of ginger.

3. **Samuel Adams East West Kölsch**

   Light and fragrant, East West Kölsch has a floral and herbal character that balances the refreshing German Kölsch style. Alsatian Strisselspalt hops provide a subtle lemon and grassy hop note. The beer was aged on a bed of Jasmine Sambac for a delicate floral aroma and flavor.

4. **Boulder Hoopla Pale Ale**

   A collaboration with musician (and homebrewer) Kyle Hollingsworth, Hoopla is dry-hopped with generous amounts of Glacier hops for a fruity, floral hop aroma and flavor. "We wanted to make a beer that was hoppy, but still appetizing to non-hop-drinkers and drinkable on hot days at summertime festivals," Hollingsworth said.

5. **Kona Wailua Wheat**

   Kona Brewing Co. is bringing a dose of sun to both the East and West Coasts with its limited release Wailua Wheat. Available in bottles and draught through August, this Aloha Series beer is in its fourth year of production on the mainland. Wailua Wheat's distinct flavors come from real passionfruit and generous amounts of Hallertau hops.

99 BEER & FOOD EXPERIENCES

Gastropubs, pairings, recipes, cuisine á la beer and more!

#7 **Stone World Bistro**'s head chef Alex Carballo sources day-of bounty (fish caught and greens picked that day) to provide one of the freshest dining experiences around, topped off with a beer poured straight from the brewery's tanks.

#25 At San Diego's **Pubcakes**, trade your pint glass for pretty colored papers and savor beer in the most whimsical way: as a moist, crumbly cake slathered with creamy frosting and sprinkles on top.

#35 At Eugene, Oregon's modern-French **Rabbit Bistro**, beer mustard and Guinness cookies have both made the menu. Check out the recipe for its best-selling soup made from bananas and parsnips and balanced by the bitter of a Radeberger Pils.

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Funk with Less Fuss

FUNK
WITH LESS FUSS:
A SHORTCUT TO SOUR BEERS
BY MATT LANGE

Dear ***Zymurgy***,
Thanks for the great article on brewing sour beers ("Funk with Less Fuss," March/April 2011). Never having brewed sours before and only having done a few yeast starters, I am looking for more details. Matt talks about a "small amount of malt, solution of warm water and sugar such as malt extract or table sugar."

My question is: can you define exactly the small amount of malt, what type of malt, how much water and how much sugar? If I use honey as Matt suggests, how much should I use? Also, please clarify when Matt says "any sugar could be used, such as malt extract or table sugar." I am confused as I thought malt is used up front—why would any sugar "such as malt" be used for the sugar ingredient? Is Matt using malt, malt extract and honey (for the sugar) in the water solution?

Great article, but not having the experience in brewing sours I am confused over the details of the sour yeast starter. Any clarification would be appreciated. Love the magazine.

Frank Filacchione
Kings Park, N.Y.

Author Matt Lange responds: Thanks for reading the article. This is not a standard method for brewing sour beers, but rather an alternative I discovered that I believe gets great results. It is the method brewmaster Mark Duchow at the Grumpy Troll in Wisconsin uses for his Flanders Ned, a very nice sour beer, and I've had good luck using it to make homebrews.

The reason I didn't define things more specifically is because the exact ingredients and amounts don't make very much difference in the sour starter. The important thing is the amount of time that creates an environment

favorable to the bacteria we want and deadly to the bacteria we don't.

Size of starter: a pint seems to work well. I use a Mason jar. Type and amount of sugar: I've used honey, malt extract, and table sugar mixed with water to a gravity of 1.030 to 1.050, and all sugars and gravities have worked well. Type of malt: Doesn't matter one bit. The malt in the starter will give no flavor as it is not there for the sugar; it is there for us to culture the lactic acid-producing bacteria that are naturally present on the grain. I'd use a tablespoon or two of malt. More would be fine, but it would just be a waste of malt.

I hope you like the beer you make with it. Good luck!

More Funkiness

Dear Zymurgy,

I have a question for Matt Lange on his article "Funk with Less Fuss." In the article, you say to let the starter and wort sit for 12-18 hours to achieve desired sourness. I desire to give a little sourness to an upcoming Saison, but not to the extreme of a Flanders or Berliner Weisse. Would I go less than 12 hours? If so, how short of a contact time is too short? Or am I looking at the 12-hour mark as a good start for a slight tartness? Thanks for the feedback. Looking forward to what it will turn out like.

Justin Bruce

Author Matt Lange responds: Unfortunately I don't have a concrete response as I haven't used the method for anything shorter than 12 hours. But 12 would probably be more sourness than you want. My guess would be that it would work with a bit less time, but perhaps a better method would be to sour a smaller amount of wort for 12 hours, then add this to the main wort before boiling. So maybe make a gallon of wort with malt extract, sour it for 12 hours, then do a mash with the rest of your grains and add the two together to boil. That should give you a subtle twang. I also like my Saisons bottle-conditioned with Brett B, but that's a whole different story. Good luck!

Photo courtesy of Brian Schoolcraft

Too Cool, Schoolcraft

Dear Zymurgy,

I have to know where Brian Schoolcraft got the vinyl wrap for his freezer (Dear Zymurgy, March/April 2011). That is just too cool. Could you please ask him and print where he got it?

Jose Piriz

Brian Schoolcraft responds: Here is a link to the website: www.ltlprints.com. They were great with helping to pick out the photos, figuring out the placement, and measurements. The print fit like a dream. Word of warning—it wasn't cheap. I didn't add it all up, but I would guess I have more money in the upgrades than I paid for the freezer itself.

Send your Dear Zymurgy letters to jill@brewersassociation.org. Hey homebrewers! If you have a homebrew label that you would like to see in our magazine, send it to art director Allison Seymour at allison@brewersassociation.org.

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Beer Meister® The Original

by Professor Surfeit

To Stir or Not to Stir

Dear Professor,
What is your opinion on stirring the mash? Doesn't stirring affect the mash efficiency? What are the problems caused by mash stirring? What's a good source of accurate information on the subject?

Frank Uhl
Brockway, Pa.

Dear Frank,
Everyone has his or her own recommendations, and the conditions of the mash and what you are trying to achieve have a lot to do with answering your question.

Generally speaking, it is better not to stir most mashes. Why? Stirring can introduce oxygen, which can form precursor compounds that will accelerate oxidation in the final beer. Stirring will agitate lipids and tannins and other compounds, releasing them into the wort in quantities that are more than usually desirable in most mashes, particularly all-malt mashes. Stirring can result in a decrease of head/foam quality. There is no real need for stirring the mash if your grain grist is ground properly.

Yes, if you stir you might get a bit more efficiency, but at a cost of less refined quality of the beer. Add an additional 1 to 2 cups of malt to the mash if you are concerned with efficiency.

I'd suspect if you can find a good translated Belgian craft or German traditional brewing techniques text, you will find some good info. But whenever researching this kind of science, always seek the original problem to find out why the research was relevant. Don't take research at face value. Take it into perspective of your world and needs.

Not a creature was stirring,
The Professor, Hb.D.

Fresh vs. Dried: A Cherry Situation

Dear Professor,

I am a longtime reader of *The Complete Joy of Homebrewing*. I have been intrigued with Charlie Papazian's Cherries in the Snow recipe, but have yet to try it. I can't find fresh or frozen tart cherries here in Virginia. I have seen other recipes calling for dried cherries (like 10 pounds fresh, or 7 pounds frozen, or 2 pounds dried tart cherries).

How many pounds of dried cherries would I add to Cherries in the Snow? And most importantly, how much will the dried cherries alter the taste of this recipe?

Frozen sounds great because (a) it's probably the closest thing to fresh, and (b) I wouldn't have to remove the pits. (Sounds like a lot of blood, sweat, and tears).

Shawn Iman

Salute to you Shawn,

Dried cherries will give a different character, but that might be to your liking. Make sure any dried fruit you use doesn't have preservatives in it. Fruits such as apricots are often sulfured to preserve their color, but would inhibit yeast if added to wort.

It's hard to say what the ratio of dried to fresh you should use because it depends on the degree of drying. I would start a guess at 1:5 but I may be way off. If you want to get more accurate, try taking five grapes the size of a cherry and five dried cherries and compare the weights. The ratio of the fresh grapes to dried cherries will give you a suitable ratio to work with and besides, it never hurts to add a bit of extra fruit when making fruit-flavored beers.

Cherries in beer!

The Professor, Hb.D.

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

By Amahl Turczyn Scheppach

Mead: Must We Heat?

AMERICAN HOMEBREWERS ASSOCIATION CLUB ONLY COMPETITION

Mead

Entries are due August 20. Judging will be held August 27. Entry fee is $7.

Make checks payable to American Homebrewers Association.

Hosted by Susan Ruud and the Prairie Homebrewing Companions of Fargo, N.D., this competition covers BJCP categories 24, 25, and 26 styles.

For more information, contact Susan at Susan.Ruud@ndsu.edu.

How much heat do you need in your mead? This is a hotly debated topic, and there are pros and cons to each of the most common methods of meadmaking (boiling, low heat, or no heat). A close look at each method is helpful for deciding which one is best for your needs.

The traditional method calls for bringing the must to a full boil for an extended time, usually at least 15 minutes, skimming any scum that rises, then chilling and proceeding with fermentation. This method was likely used when the quality of the water and/or honey was questionable, as it allows for total sanitation of the must. It is true that botulism spores can survive in honey, and this method is probably the most effective at neutralizing them. Proponents of the traditional boiling method also point to reliable clarity in the finished product, since protein break will form during the boil and fall out of solution. These proteins are the leading cause for haze in mead, though they tend to fall out eventually, especially since it's not uncommon to age mead for years.

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3 Cs & Some Bees Amber Braggot

AMERICAN AMBER ALE BASE

INGREDIENTS

for 5.25 US gallons (19.9 L) with a 3.5 gallon (13.2 L) boil

1 can	(3.3 lb or 1.5 kg) Coopers Light Malt Extract
0.5 lb	(0.23 kg) Coopers Light Dry Malt Extract
0.75 lb	(0.34 kg) Honey Malt
0.5 lb	(0.23 kg) Crystal Malt (120° L)
0.5 lb	(0.23 kg) Victory Malt
5.0 lb	(2.3 kg) Honey
0.5 oz	(14 g) Chinook hop pellets, 13% a.a. (60 min) (19 IBU)
0.25 oz	(7 g) Cascade hop pellets, 5.75% a.a. (15 min) (2 IBU)
0.25 oz	(7 g) Centennial hop pellets, 10.5% a.a. (15 min) (4 IBU)
0.25 oz	(7 g) Cascade hop pellets, 5.75% a.a. (0 min) (1 IBU)
0.25 oz	(7 g) Centennial hop pellets, 10.5% a.a. (0 min) (2 IBU)
0.75 tsp	(3.6 g) Irish moss (15 min)
2 packages	Wyeast 1056 American Ale yeast, or 2 vials White Labs WLP001 California Ale yeast Coopers Brewery Carbonation Drops for bottling

Original Specific Gravity: 1.077
Final Specific Gravity: 1.016-1.021
IBU: 28
ABV: 7-8%

DIRECTIONS

Steep grains in 3 gallons (11.4 L) of water, heat to 154° F (68° C) and hold for 30 minutes. Strain and sparge with 0.5 gallon (1.9 L) hot water. Stir in malt extract, and top up with water to 4.1 gallons (15.5 L). Bring to a boil and add the bittering hops. Boil for 45 minutes and add the Cascade and Centennial hop additions and the rehydrated Irish moss. Continue boiling for 15 minutes. Turn off the heat, and add the last Cascade and Centennial hop additions. As you cool the wort, remove the hops starting with the bittering hops, then the second hop addition, and finally the last hops. When the temperature reaches 120° F, gently stir in the 5 lb (2.3 kg) of honey. Allow to sit for 15 to 20 minutes before continuing to cool the must.

Cool to ~65 to 70° F (18 to 21° C) then pour into fermenter with enough pre-boiled cool water to make 5.25 gallons (19.9 L). Aerate and pitch yeast when the temperature drops to 65 to 70° F (18 to 21° C). Ferment at 67° F (19° C) for approximately 3 weeks or until primary fermentation completes. Fermentation temperature control is crucial for preventing esters and higher alcohols from forming. Age in secondary for 4 to 6 months at 67° F (19° C). Prime with Coopers Brewery carbonation drops at bottling for a carbonation of approximately 2.0-2.5 volumes of CO_2. Allow several weeks to achieve carbonation.

After the braggot is carbonated, store for a couple of weeks at serving temperature of 45-50° F (7-10° C) before serving.

An intermediate method calls for just enough heat to reach pasteurization temperatures, and allows meadmakers to wipe out most of the potentially dangerous microbes without completely driving off all volatile aromatics in the honey. It usually involves bringing the must to 160-170° F (71-77° C), holding it at that temperature for 15 to 20 minutes, skimming if desired, and chilling to pitching temperature. This process is quite similar to boiling the full volume of water and then blending it with unheated honey, so that the two equalize at sub-boiling temperatures.

Another partial heat method allows for warming the honey enough so that it flows easily. The hotter the honey, the more easily it will flow and dissolve. Even small honey producers will heat their honey to around 130° F (54° C) prior to packaging, as this retards granulation. Clear honey, they believe, is attractive honey. Large honey producers often take this a step further by heating their product to pasteurization temperatures. Especially in arid climates where honey water content is especially low, raw, unheated honey tends to solidify and crystallize, making it harder to get back into solution, harder to pour, and not much fun to look at. At least to some!

For the mead making purists who subscribe to no-heat methods, solid, opaque honey is beautiful. Raw honey granulates with very fine crystals, so even though it is solid, it still has a smooth consistency.

Photos © Shutterstock

Honey that's been heated will also form crystals, but these are large, chunky, and usually clear. So how warm can you get raw honey and still call it raw? In summertime, bees keep their hives no warmer than 94° F (34° C). Heating honey past 95° F (35° C) begins to deactivate enzymes and degrade its quality. "No-heat" meadmakers who wish to retain all the raw properties of honey should never heat it past this temperature, even briefly. The raw honey should be diluted with 70 to 95° (21-35° C) water, depending upon the yeast to be pitched. Mead makers will often use a stirring attachment on a drill to get the honey into solution. Water can of course be boiled first and then cooled, but remember that boiling also strips oxygen, so it is best to oxygenate either the cooled brewing water or the must.

Any other impurities are also heat sanitized, so many say that if the honey was purchased from a supermarket, or underwent extensive processing at an unknown facility, this is the best method to guard against infection from unwanted bacteria. Undiluted honey is quite sanitary, and even antiseptic; the water content is so low that bacteria cannot thrive in it. Its hygroscopic properties allow it to absorb moisture, which is why it was used as a poultice for wounds in ancient times. But this same property can cause it to spontaneously ferment if it is left exposed to the atmosphere, particularly in humid climates. Bacteria, wild yeast, and even mold spores are present in and on honey, but as long as it is kept sealed (whether in a honeycomb or a jar) they are prevented from growing. When diluted with water, these microorganisms have a chance to get going, so logically boiling them immediately, chilling and then adding a pure yeast culture guarantees that specific yeast will reach a dominant population very quickly and exclude any competition. Mead boilers also point out that the scum that rises to the surface of the must just prior to reaching a boil contains pollen, wax, and sometimes even bee parts; it's also rather sickly sweet to taste, so why not remove it?

The other side of the camp, those who prefer not to boil, claim this is robbing the end product of delicate aromatics, and while that scum may not taste great, it contains enzymes and nutrients that assist fermentation and make the resulting mead a healthier beverage. Boiling, even pasteurizing, deactivates those enzymes, removes the protein-rich pollen, and drives off volatile aromatics. Some no-heat fans accept the risk of wild yeasts and bacteria in their mead; in fact, there's a contingent that even believes adding yeast is unnecessary. They claim the wild yeasts in raw, unpasteurized honey are sufficient to ferment the mead. Opponents point to the relatively high cost of honey, and are hesitant to risk a full batch, especially when clean-fermenting pure culture mead and wine yeasts can be added as a safeguard against any potential competition. Even among those radical no-pitch folks, it is admitted that going this route is viable only if the honey comes from a small producer or hobbyist beekeeper with minimal processing, straining rather than filtering, and of course, no heat applied.

As a beekeeper, I have the luxury of going the no-heat, no-pitch route, and I do so occasionally at harvest. Honey goes straight from hive to fermenter, with reverse osmosis filtered, mineral-adjusted water, an appropriate yeast nutrient, and

nothing else. While I should mention that the best mead I've ever made was produced this way, unheated and unpitched, even I hesitate to go this route most of the time, simply because it's always a bit of a gamble. To me, unheated honey with a good mead or wine yeast is a viable option, because I'm careful with sanitation from the moment the honey leaves the bees to bottling time; no-pitch is a risk, and not always one I'm willing to take. Some no-pitch batches turn out better than others, and a lot of the reason is because you can never predict exactly what's going to wind up in your honey from year to year. Sometimes you get the right balance of wild yeast, and other times you don't.

For what it's worth, I've never had an infected mead with this method, but some years are definitely better than others. I've found that wild yeast tends not to ferment as completely as pure cultures, the meads tend to take much longer to clear, and that floral aromatics come out much stronger. And while that last point seems like an advantage, it isn't always so. One year, my bees got into something very pungent—wild sage perhaps, or hyssop—and the resulting mead had a menthol quality that was interesting, but quite spicy. Also, please remember that this method is really best for traditional mead. Adding fruit, spices, or other fermentables increases the risk of infection, so pitching your own yeast is a good idea.

Then there are the mead makers who do not use heat or pitch yeast, but do add sulfites post-fermentation. This method is still a bit risky short-term, but mitigates much of the long-term risk. Sulfites are present to some degree anyway, so they reason that increasing the amount enough to scrub out any unwanted yeast and bacteria isn't sacrilege. After all, they argue, hard cider and wine are often made in a similar way—let the natural yeast do its job, then kill it off prior to bottling and aging to prevent any further, unwanted activity.

For reference, I chatted with David Myers, founder of Redstone Meadery in Boulder, Colo. Myers began his career as a homebrewer, and still retains that adventurous approach to mead making, though he admits it is in his best interest to have some consistency from batch to batch and bottle to bottle. Redstone uses the intermediate heat method, finding it to be the best balance between batch consistency, clarity, taste, and aromatics. They bring the must to 160° F (71° C) and hold that temperature for 30 minutes. During this time, dry wine yeast is hydrated with yeast nutrient and then pitched.

But Myers also stressed that homebrewers are not confined by the same things the pros are, and should focus on experimentation and the enjoyment of making mead. He remembered Belgian brewer Peter Bouckaert's response to a question about product consistency. "What an American concept," Bouckaert answered. "In Belgium, we don't worry about good consistency, we worry about being consistently good."

Amahl Turczyn Scheppach is a former craft brewer and associate editor for *Zymurgy*, and now brews at home in Lafayette, Colo.

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ZYMURGY'S BEST BEERS in AMERICA

THE RESULTS ARE IN!

By Jill Redding

Each of the past nine years, we've asked ***Zymurgy*** readers to give us a list of their 20 favorite beers. The only rule is that the beer has to be commercially available somewhere in the United States.

We received a record 3,259 votes for 1,306 different beers from 433 breweries across the United States and beyond.

For 2011, we have a three-peat! Russian River's Pliny the Elder double IPA was the number one beer selected by *Zymurgy* readers for the third straight year, and the beer (and brewer Vinnie Cilurzo) has gained an almost cult-like status. There is even a song (and video) about the beer on YouTube.

"Even with the wave of double and triple IPAs introduced in the past few years, Pliny the Elder remains the gold standard," said *Zymurgy* reader Christopher Burgess of Rocklin, Calif. "It is as drinkable as a session ale. The hops and alcohol blend perfectly to create a one-of-a-kind flavor and experience. There is no other beer I would rather drink."

"We were thrilled to find out that we were named the best beer in America for the third year in a row," said Cilurzo. "It is a real honor, especially coming from the homebrew community. It is particularly flattering in that there is so much great craft beer being produced across the United States."

Finishing second for the second straight year was Bell's Two Hearted Ale. Bell's production manager John Mallett said careful attention to detail and consistency are the hallmarks of Two Hearted, an IPA.

"We actually write our entire brewing and packaging schedule around Two Hearted Ale in order to ensure that we minimize as much variation as possible," said Mallett. "Everything we do is done to brew quality into our beers, and Two Hearted is no exception."

"It is one of the best IPAs in the world and it is consistently so," proclaimed reader Michael Mullins of Lapeer, Mich. "Definitely a keeper!"

Mallett, along with Bell's founder Larry Bell, generously shared the recipe and some background information for Two Hearted Ale (see the sidebar on page 22).

TOP-RANKED BEERS

(T indicates tie)

1. Russian River Pliny the Elder
2. Bell's Two Hearted Ale
T3. Dogfish Head 90 Minute IPA
T3. Founders Kentucky Breakfast Stout
5. Bell's Hopslam
6. Stone Arrogant Bastard
7. Sierra Nevada Celebration
T8. Sierra Nevada Torpedo
T8. Stone Ruination
10. Sierra Nevada Pale Ale
11. Stone Sublimely Self Righteous
12. Sierra Nevada Bigfoot Barleywine
13. Goose Island Bourbon County Stout
T14. Great Lakes Edmund Fitzgerald Porter
T14. Oskar Blues Dale's Pale Ale
T16. Dogfish Head 60 Minute IPA
T16. New Glarus Belgian Red
18. North Coast Old Rasputin
19. Bell's Expedition Stout
T20. Deschutes The Abyss
T20. Left Hand Milk Stout
T20. Odell IPA
T20. Samuel Adams Noble Pils
T20. Surly Furious
T20. Troegs Nugget Nectar
T26. Rogue Dead Guy Ale
T26. Samuel Adams Boston Lager
28. Anchor Steam
T29. Bear Republic Racer 5
T29. Ommegang Three Philosophers
T29. Oskar Blues Ten Fidy
T29. Three Floyds Alpha King
T29. Three Floyds Dark Lord
T34. Avery Maharaja
T34. Dogfish Head Indian Brown
T34. Dogfish Head Palo Santo Marron
T34. Three Floyds Gumballhead
T38. Dogfish Head 120 Minute IPA
T38. Lost Abbey Angel's Share
T38. New Belgium La Folie
T38. New Belgium Ranger
T38. Oskar Blues Old Chub
T43. Ballast Point Sculpin IPA
T43. Great Divide Yeti
T43. New Belgium 1554
T43. Russian River Blind Pig
T43. Ska Modus Hoperandi
T48. Alesmith Speedway Stout
T48. Dark Horse Crooked Tree
T48. Green Flash West Coast IPA
T48. Summit EPA
T48. Victory Prima Pils

With more than 1,700 breweries now in the U.S. and more than 600 breweries in planning, there are more beers than ever for craft lovers to explore.

BREWERY RANKINGS

These rankings are based on total votes received by each brewery's beers.
(T indicates tie)

1. Dogfish Head Craft Brewery, Milton, Del.
2. Bell's Brewery, Kalamazoo, Mich.
3. Sierra Nevada Brewing Co., Chico, Calif.
4. Stone Brewing Co., Escondido, Calif.
5. Russian River Brewing Co., Santa Rosa, Calif.
6. Founders Brewing Co., Grand Rapids, Mich.
7. New Belgium Brewing Co., Fort Collins, Colo.
8. Boston Beer Co. (Samuel Adams), Boston, Mass.
9. Three Floyds Brewing Co., Munster, Ind.
10. Oskar Blues Brewing Co., Longmont, Colo.
11. Goose Island Beer Co., Chicago, Ill.
T12. Lagunitas Brewing Co., Petaluma, Calif.
T12. New Glarus Brewing Co., New Glarus, Wis.
14. Deschutes Brewery, Bend, Ore.
15. Great Lakes Brewing Co., Cleveland, Ohio
16. Odell Brewing Co., Fort Collins, Colo.
17. Avery Brewing Co., Boulder, Colo.
18. Great Divide Brewing Co., Denver, Colo.
19. Victory Brewing Co., Downington, Pa.
20. Surly Brewing Co., Minneapolis, Minn.
21. Rogue Ales, Newport, Ore.
22. Firestone Walker Brewing Co., Paso Robles, Calif.
T23. Brooklyn Brewery, Brooklyn, N.Y.
T23. North Coast Brewing Co., Fort Bragg, Calif.
T24. Bear Republic Brewing Co., Healdsburg, Calif.
T24. Left Hand Brewing Co., Longmont, Colo.

Dogfish Head Craft Brewery

Dogfish Head 90-Minute IPA tied for third in the voting with (gasp! a non-IPA!) Founders Kentucky Breakfast Stout.

Zymurgy reader Tim Augustyn of Royal Oak, Mich. described Kentucky Breakfast Stout as "a massive taste explosion of big malt, coffee, bourbon, and chocolate. Like baseball and the first robin, a reason to look forward to spring."

Another Bell's beer, Hopslam, rounded out the top five.

"I am unable to restrain myself when drinking Hopslam," admitted Bruce Morgan of Chelsea, Ala. "When the bottle hits my lips, I involuntarily gulp until it's gone."

While many of the usual suspects made the top 50 list, there were also some newcomers.

Samuel Adams Noble Pils, introduced in 2009, has quickly become a favorite among readers, surpassing Samuel Adams Boston Lager in the standings. Boston Beer's Jim Koch, who has stayed true to his roots as a homebrewer, readily agreed to provide a 5-gallon recipe.

"Sam Adams has created a Pilsner for the masses!" proclaimed reader Jeff Long of Sterling, Va. "It has brought the tradition of Germany and elevated it to American craft status."

Surly Furious, an IPA, made its second appearance in the top 50.

"I would be happy just drinking a pint of Surly Furious foam, and would love to whip it into a meringue of some sort," wrote Matt Spinler of Rochester, Minn.

Russian River's Pliny the Younger, an elusive triple IPA released each February on draft at select locations, finished just out of the top 50.

"Ahh, Pliny the Younger. It punches you in the face with hoppy goodness," said Gary Edmunds of San Rafael, Calif. "And while you're wondering what hit you, it sneaks up behind you and boots you up the backside. Whatta beer!"

TOP IMPORTS

(T indicates tie)

1. Rodenbach Grand Cru (Belgium)
T2. Fullers ESB (England)
T2. Guinness (Ireland)
T2. Rochefort 10 (Belgium)
T5. Duvel (Belgium)
T5. Saison Dupont (Belgium)
T5. St. Bernardus Abt 12 (Belgium)
T8. Ayinger Celebrator Doppelbock (Germany)
T8. Cantillon Gueuze (Belgium)
T8. Chimay Grande Reserve (Belgium)
T8. Orval (Belgium)
T8. Samuel Smith's Nut Brown (England)
T8. Unibroue La Fin du Monde (Canada)

ROGUE DEAD GUY CLONE

Recipe by Amahl Turczyn Scheppach

INGREDIENTS

for 5.5 U.S. gallons (20.82 L)

10.5 lb	(4.76 kg) pale malt
2.0 lb	(0.9 kg) Munich malt
1.0 lb	(0.45 kg) 40L crystal malt
1.25 oz	(35 g) Perle pellet hops,8% a.a. (90 min)
1.0 oz	(28 g) Saaz pellet hops, 4.3% a.a. (10 min)
Wyeast 1764	Rogue Pacman ale yeast, or California ale yeast

Boil time: 90 min
IBUs: 33
SRM: 9
Specific Gravity: 1.068
Assumed Efficiency: 75%

DIRECTIONS

Infusion mash at 150° F (66° C) for 60 minutes. Ferment at 60° F (16° C) until final gravity is reached.

Extract Version: Substitute 9.375 lb (4.3 kg) pale malt extract syrup for the pale and Munich malts. Crush and steep 1 lb (0.45 kg) 60L crystal malt (not 40L) in 160° F (71° C) brewing water, dissolve extract, and proceed with boil.

Relatively new, innovative breweries such as The Bruery and Cigar City are quickly gaining a following as well.

"Many of my favorites are Cigar City, but the beers that they have been turning out in the past year are just incredible," said Sean Nordquist of St. Petersburg, Fla. "Especially the limited release stuff available in the tasting room."

As well, breweries that are perennial favorites are introducing new beers and drawing new fans in the process.

"The Left Hand Smoked Baltic Porter [Fade to Black] is amazing!" said Jack Scharf of Longmont, Colo. "Since this is a limited run, I prudently stocked up. But that doesn't stop me from visiting them to have more on tap (while it lasts). Even folks who would normally steer clear of a smoked beer might like this one because it's not overdone; rather it's a very nice combination of a flavorful porter with a semi-subtle twist."

Some readers found unexpected bliss in styles they aren't normally drawn to.

BEST PORTFOLIO

(T indicates tie)
Ranked by number of beer brands named in the poll

1. Dogfish Head Craft Brewery (28 beers)
2. Sierra Nevada Brewing Co. (23 beers)
T3. Avery Brewing Co. (18 beers)
T3. Goose Island Beer Co. (18 beers)
T3. Lagunitas Brewing Co. (18 beers)
T3. Boston Beer Co./Samuel Adams (18 beers)
7. Bell's Brewery (17 beers)
T8. Founders Brewing Co. (15 beers)
T8. Great Divide Brewing Co. (15 beers)
T8. Southern Tier Brewing Co. (15 beers)
T11. Brooklyn Brewery (14 beers)
T11. Odell Brewing Co. (14 beers)
T11. Rogue Ales (14 beers)
T14. New Belgium Brewing Co. (13 beers)
T14. Russian River Brewing Co. (13 beers)
T14. Stone Brewing Co. (13 beers)
T17. Deschutes Brewery (12 beers)
T17. Three Floyds Brewing Co. (12 beers)
T19. Boulevard Brewing Co. (11 beers)
T19. Dark Horse Brewing Co. (11 beers)
T19. New Glarus Brewing Co. (11 beers)
T22. Alpine Beer Co. (10 beers)
T22. AleSmith Brewing Co. (10 beers)
T22. Great Lakes Brewing Co. (10 beers)
T25. Cigar City Brewing Co. (9 beers)
T25. Firestone Walker Brewing Co. (9 beers)
T25. Flying Dog Brewing Co. (9 beers)
T25. Harpoon Brewery (9 beers)
T25. The Lost Abbey (9 beers)
T25. Shorts Brewing Co. (9 beers)
T25. Ska Brewing Co. (9 beers)
T25. Sprecher Brewing Co. (9 beers)
T25. Summit Brewing Co. (9 beers)
T25. The Bruery (9 beers)

SPIRIT OF HOMEBREW

This ranking is based on total number of votes received divided by annual production in barrels.

1. Alpine Beer Co., Alpine, Calif.
2. Russian River Brewing Co., Santa Rosa, Calif.
3. AleSmith Brewing Co., San Diego, Calif.
4. The Bruery, Placentia, Calif.
5. Jolly Pumpkin Artisan Ales, Dexter, Mich.

"I can't help but comment on the Two Brothers' Domain Dupage [a farmhouse ale]," said Michael Coward of Minneapolis. "Even a hophead like myself can't help but still tear up a bit over the beauty of this beer."

With more than 1,700 breweries now in the U.S. and more than 600 breweries in planning, according to statistics compiled by the Brewers Association, there are more beers than ever for craft lovers to explore.

"Wow, what a great year for beer," summed up Clay Bell of Dallas, Texas. "So much new stuff that it was impossible to keep up. I would have to live at the distributor and drink all day."

FOREIGN AFFAIRS

There was a decidedly all-American bent to this year's voting. Of the top 50 beers in the poll, not a single one was from a foreign brewery. In fact, it took a lot of combing through the results to find the small handful of foreign beers that received votes.

"One thing is certain: the best beers in the world are brewed in the United States!" said Mary Wicks of Wooster, Ohio.

Rodenbach Grand Cru narrowly earned the top spot among imports, while Fullers ESB, Guinness, and Rochefort 10 tied for second. Eight of the top 13 foreign beers were from Belgium.

STONE ARROGANT BASTARD ALE CLONE

Recipe by Amahl Turczyn Scheppach

INGREDIENTS

for 5.5 U.S. gallons (20.82 L)

12.5 lb	(5.67 kg) pale two-row or Pils malt
1.75 lb	(0.79 kg) Special B malt
8.0 oz	(227 g) 120˚ crystal malt
1.75 oz	(49 g) Chinook pellets, 13% a.a (FWH)
1.0 oz	(28 g) Chinook pellet hops, 13% a.a (0 min)

White Labs WLP007Dry English ale yeast

Boil Time: 90 minutes
IBUs: 67
SRM: 22.8
Original Gravity: 1.070
Assumed Efficiency: 75%

DIRECTIONS

Use 50% reverse osmosis filtered water and 50% tap water. Infusion mash at 150° F (66° C) for 60 minutes.

Extract Version: Substitute 9.375 lb (4.3 kg) light malt extract syrup for the pale malt. Crush and steep specialty grains in 160° F (71° C) brewing water, dissolve extract, and proceed with boil.

DOGFISH HEAD INDIAN BROWN ALE CLONE

Recipe by Amahl Turczyn Scheppach

INGREDIENTS

for 5.5 U.S. gallons (20.82 L)

12.0 lb	(5.4 kg) pale two-row malt
10.0 oz	(283 g) amber malt
10.0 oz	(283 g) 60L crystal malt
2.0 oz	(57 g) roast barley
8.0 oz	(227 g) caramelized or brown sugar in boil
0.5 oz	(14 g) Warrior pellet hops, 16% a.a. (60 min)
1.0 oz	(28 g) Vanguard pellet hops, 4.5% a.a. (0 min)

Ringwood Ale ale yeast

Boil Time: 90 minutes
IBUs: 21
SRM: 22
Original Gravity 1.072
Assumed Efficiency: 75%

DIRECTIONS

Mash at 152° F (67˚ C) for 60 minutes. Mash out at 168° F (76° C) for 10 minutes. Ferment at 70° F (21° C), then condition in secondary at 60° F (16° C) for at least one week.

Extract Version: Substitute 9 lb (4.1 kg) light malt extract syrup for pale malt. Crush and steep specialty grains in 160° F (71° C) brewing water, dissolve extract, and proceed with boil.

AHEAD OF THE PACK

As in years past, we also kept track of which breweries received the most votes. This year's top brewery, by a landslide, is Dogfish Head Craft Brewery in Milton, Del. Dogfish Head also earned top honors for best portfolio, with 28 different beers named in the poll.

"We don't put any more marketing or resources behind our best-selling beers like 90 Minute and our one-off specialties like Red & White and Bitches Brew, so being recognized as top brewery and best portfolio means so much to us," said Dogfish Head's Sam Calagione. "From everyone at Dogfish, thank you. Rest assured that we will keep putting the 'where' in Delaware and the 'mental' in experimental."

Calagione said to expect two new brews from Dogfish Head in 2011. "Look for our first bottling of our newest ancient ale, Ta Henket, in late summer, and Noble Rot—fermented with botrytis-infected grapes—in the late fall."

Ta Henket, another collaboration with archeologist Pat McGovern, incorporates ancient ingredients and techniques described in Egyptian hieroglyphics, including emmer (an ancient form of wheat), loaves of hearth-baked bread, dom-palm fruit, chamomile, and zatar, an Arabic spice.

"The overlap between the homebrewing community and the craft brewing community is very strong," said Calagione. "At Dogfish, we are basically just homebrewing in 600-barrel tanks."

Tying for second in the best breweries votes were Bell's Brewery and Sierra Nevada Brewing Co. Sierra Nevada, which introduced several new beers in 2010 to celebrate its 30th anniversary, also had the second highest number of votes for portfolio.

GREAT BEERS, SMALL BREWERIES

Once again, we raise a glass to those breweries that, though small in production, score high with beer lovers. We determine the Spirit of Homebrew Award by taking a brewery's total number of

votes and dividing it by the brewery's production in number of barrels.

Alpine Beer Co. in Alpine, Calif., is the 2011 Spirit of Homebrew winner. The brewpub produced 1,097 barrels in 2010, according to statistics compiled by the Brewers Association.

"Sometimes overshadowed by breweries like Stone and Ballast Point, Alpine is a favorite among San Diegans and sometimes regarded as the best brewery in San Diego among true beer lovers," said reader Timothy Hall of La Mesa, Calif. "Try a Nelson [Rye IPA] and you'll agree."

Finishing second was Russian River, which brewed 3,070 barrels at its brewpub location and 6,922 barrels at its production facility in 2010.

AleSmith Brewing Co. of San Diego, The Bruery of Placentia, Calif., and Jolly Pumpkin Artisan Ales of Dexter, Mich., rounded out the top five.

RECIPES

As usual, we're providing clone recipes for some of the top vote-getters. As mentioned, Bell's and Samuel Adams answered the call to provide homebrew recipes, and *Zymurgy* contributor Amahl Turczyn Scheppach assembled clone recipes for four more favorites.

The recipe for Pliny the Elder can be found in the July/August 2010 issue of *Zymurgy*, while 90 Minute IPA appeared in the July/August 2005 issue. We've also run clone recipes in the past for many others in the top 50. Search the *Zymurgy* index at HomebrewersAssociation.org to find the specific issues for recipes for some of the other top vote-getters.

Thanks for voting, and thanks to the many of you who provided comments and reviews of your favorite beers. We'll include information about participating in the 2012 poll in future issues and on HomebrewersAssociation.org. It's never too early to start doing your homework for 2012.

Jill Redding is editor-in-chief of *Zymurgy*.

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BELL'S TWO HEARTED ALE

By John Mallett, Bell's Production Manager

BELL'S TWO HEARTED ALE

As brewed by David Curtis and Ryan Kramer, Bell's General Store

INGREDIENTS

for 5 U.S. gallons (19 liters)

10.0 lb	(4.5 kg) Briess Two-row Brewers Malt (1.8L)
2.83 lb	(1.3 kg) Briess Pale Malt (3.5L)
8.0 oz	(227 g) Briess Caramel (40L)
1.2 oz	(34 g) Centennial pellets @ 9.1% a.a. (45 min)
1.2 oz	(34 g) Centennial pellets @ 9.1% a.a. (30 min)
3.5 oz	(99 g) Centennial pellets @ 9.1% a.a. (dry hop)
White Labs WLP001 California Ale Yeast or WLP051 California Ale V Yeast	

Original Gravity: 1.063 (15.5 Plato)
Final Gravity: 1.012 (3.0 Plato)
SRM: 10
IBU: 55
Efficiency: 65%

DIRECTIONS

Use 4.5 gallons (17 liters) carbon filtered water, adjusted with 4 grams gypsum. Step mash: 45 minutes at 150° F (66° C), ramp to 170° F (77° C) over 15 minutes (or ramp by infusing 2.5 gallons boiling water), rest 10 minutes at 170° F (77° C). Vorlauf until clear. Collect 6.6 gallons (25 liters), sparging with 175° F (79° C) water. Boil vigorously for approximately 75 minutes, hopping as in ingredients section. Whirlpool and allow to settle for 15 minutes. Chill wort to 64° F (18° C). Aerate wort and pitch yeast. Ferment warm (ale temperature). Dry hop one week into fermentation. Allow beer to stay warm with hops for a week. Rack beer, crash cool, and cold age for a week. Rack beer, prime with sugar, and bottle.

Extract version: Use 6.6 lb (3 kg) Briess Golden Light Liquid malt extract and 2.5 lb (1.1 kg) Golden Light Dry malt extract instead of the two-row and pale ale malts. Steep the 8 oz caramel malt in 1 gallon (3.8 liters) of 150° F (66° C) water for 20 minutes. Strain and sparge through the grains, topping up to 6.6 gallons (or up to 3.5 gallons for a partial boil) and bring to a boil. Add the malt extracts. Add 2 grams of gypsum to the boil. Continue as per all-grain recipe (unless using partial boil process where water needs to be added to bring post boil volume up to 5.25 gallons/20 liters)).

In the summer of 1993, Rik Dellinger had just started working at Bell's as a keg washer. Now our lead brewer, Rik recalls making a batch of homebrew to bring to a birthday party. Rob Skalla, his roommate/homebrew partner/fellow Bell's employee, wanted to make a good impression on the birthday girl so they decided to make something unique. The "Super IPA" that they created tasted like grapefruit juice because they used an obscene amount of hops, both in the kettle and as dry hop. Although over-the-top for most palates, this beer was the inspiration for the brewery's development of Two Hearted Ale.

Simple and assertive, the hop bill was changed to exclusively use a then-recently released cultivar called Centennial. Not long after the beer became commercially available, Ralph Woodall of HopUnion called to find out how the hop was being used. At the time, it seemed like a strangely large quantity of such a new and distinctive hop. As Larry Bell told him about this new beer, Ralph's reaction was something along the lines of "Over a pound per barrel dry hop? That is just crazy." Most commercially available dry-hopped beers were using much lower hopping rates with recognizable varieties of hops. As crazy as it seemed at the time, sales continued to grow, and Two Hearted Ale became a legend.

The first beers with the Two Hearted Ale name were brewed back in 1988-89 and were completely different from the seminal IPA it was to become. Larry was approached by "a guy named Mike" who grew a couple hundred of pounds of hops in Northern Wisconsin; was Larry interested? You bet! Larry recalls that of the four original batches, all made with English malts, only two were released commercially. They left the brewery packaged in 750ml champagne glass. When asked about the eventual fate of the other two batches, Larry rolls his eyes and simply states "They kissed the sewer" due to quality reasons. Some years later, when "Super IPA" was being modified and adapted for the 15-barrel system at Bell's origi-

nal downtown Kalamazoo facility, the Two Hearted name was resurrected. The label featured fishermen, a visual reference to the legendary trout stream in Michigan's Upper Peninsula that the beer is named for. This label has changed several times over the years, always reaching back to that theme.

Although the beer formulation is relatively straightforward, the flavor of Two Hearted depends on solid brewery procedures and a meticulous attention to detail throughout brewing, fermenting, and packaging. Even simple variables like the geometry of the fermentation tank or beer movement schedule noticeably affect the resultant beer. Several years ago, a new method for getting the dry hops into the fermenting vessels was trialed. A slight difference was noted in the internal brewery flavor panel at the time, so some of the trial batch was sent down to the Bell's Brewery Eccentric Café for additional blind feedback. When the beer went on draft at the pub, a couple of the regulars asked the staff "What changed with the Two Hearted?" That was more than enough to convince us to abandon the trial and remain with our traditional method.

Two Hearted Ale spends its formative time in special fermenting/dry hopping tanks. The effect the low cone angle of these wide and shallow tanks has on the beer has not been analytically characterized, but the resultant beer is identified clearly in flavor panels.

The recipes on page 22 were developed by David Curtis and Ryan Kramer, who work at Bell's General Store dispensing advice and selling homebrew supplies. The efficiencies experienced when brewing 5 gallons at home are a bit different than using a highly engineered 50-barrel brewhouse, so the formulation had to be adjusted to result in a beer that is closer to brewery flavor specifications. Bell's uses a house strain of yeast that can be cultured out of most of our standard (non-lager, non-Belgian) beers, or you can use a cleanly fermenting American ale yeast as an alternative.

ODELL IPA CLONE

Recipe by Amahl Turczyn Scheppach

INGREDIENTS

for 5.5 U.S. gallons (20.82 L)

6.0 lb	(2.72 kg) Gambrinus ESB malt
5.0 lb	(2.27 kg) pale malt
2.0 lb	(0.9 kg) Vienna malt
10.0 oz	(283 g) Thomas Fawcett Caramalt
8.0 oz	(227 g) Weyermann Carafoam®
0.75 oz	(21 g) Horizon pellet hops, 13%a.a.(90 minutes)
0.5 oz	(14 g) Simcoe pellet hops, 13% a.a. (90 minutes)
1.0 oz	(28 g) Columbus whole hops, 15% a.a. (hopback)
1.0 oz	(28 g) Chinook whole hops, 13% a.a. (hopback)
0.5 oz	(14 g) Simcoe whole hops, 13% a.a. (dry)
0.5 oz	(14 g) Horizon whole hops, 13% a.a. (dry)
0.5 oz	(14 g) Amarillo whole hops, 13% a.a. (dry)
0.5 oz	(14 g) Centennial whole hops, 13% a.a. (dry)

Nottingham ale yeast

Boil Time: 90 minutes
IBUs: 47
SRM: 7
Original Gravity 1.067
Assumed Efficiency: 75%

DIRECTIONS

Mash at 154° F (68° C) for 60 minutes. Mash out at 168° F (76° C) for 10 minutes. Use a hopback at runoff for 1 oz Simcoe and Chinook additions, or steep whole flowers at flameout for 10 minutes. Ferment at 68° F (20° C), then condition in secondary on dry hops at 60° F (16° C) for at least one week.

Mini-mash recipe: Substitute 6.7 lb (3 kg) pale malt extract syrup for the pale and most of the ESB malt. Conduct a 60 minute mini mash at 154° F (68° C) with 2 lbs (0.9 kg) ESB malt, 2 lbs (0.9 kg) Vienna malt, and the specialty malts. Please note that the mini-mash version of this beer will be slightly lighter (6 SRM) than the all-grain version.

SAMUEL ADAMS NOBLE PILS

Recipe provided by Boston Beer Co.

INGREDIENTS

for 5 U.S. gallons (19 liters)

7.2 lb (3.3 kg) Pale Two-Row (75%)
2.4 lb (1.1 kg) German Pils (25%)
2.0 oz (56 g) Hallertau 4.6% a.a. (60 min)
0.5 oz (14 g) Saaz 4% a.a. (5 min)
0.25 oz (7 g) Tettnang 4% a.a. (5 min)
0.8 oz (23 g) Tettnang (dry)
0.6 oz (17 g) Saaz (dry)
0.4 oz (11 g) Spalt (dry)
0.2 oz (6 g) Hersbrucker (dry)
Lager yeast such as Wyeast 2206

Target Original Gravity: 1.049 (12.1 °P)
Target Final Gravity: 1.012 (3 °P)
IBU: 34
SRM: 5
Efficiency: 70%

DIRECTIONS

Mash in at 122° F (50° C) for 10 min. Raise to 154° F (68° C) for 15 min. Raise to mash off (170° F/77° C). Boil for 60 minutes. Ferment at 50 °F (10 °C) until complete. Dry hop for 1 week. Rack and lager for 4 weeks at 32 °F (0 °C).

Extract version: Substitute 6.7 lbs (3 kg) extra light liquid malt extract for the malts. Bring to a boil with water and proceed with recipe as indicated.

The Sweet Life:

Making Mead the Easy Way

By Steve Piatz

Making good mead is easy, if you build on Ken Schramm's *The Compleat Meadmaker* methods but update them with his latest recommendations. Using techniques from the commercial winemaking world allows mead to be made faster and require less aging than previously thought possible. Other innovative ideas from award-winning mead makers are also incorporated into the process.

Honey Choices

The dominant aspect of most meads, and the primary fermentable sugar, is honey, which is where the character of a straight honey mead will come from. For metheglins, melomels, and braggots, it is desirable for the honey to complement the characteristics of the other ingredients, so honey choice requires additional thought.

Good beginner honeys include orange blossom, tupelo, raspberry blossom, mesquite, cotton, clover, and some wildflower varieties. The names refer to the floral source the bees visited to collect the nectar. Wildflower honey is a "generic" honey from assorted varieties of flowers—not from a single floral source. Wildflower honey varies significantly based on locale and season of harvest. Honey can have year-to-year variation even from the same beekeeper and floral source. Honey is heavy and thus expensive to ship, so it's desirable to use locally sourced honey if possible. Farmers markets are often a good source. Remember, most honeys are not going to taste like the fruit from the floral source—orange blossom honey does not taste like oranges, for example. Crystallized honey is fine for mead making.

Fruit Meads: Melomel, Pyment, and Cyser

Putting fruit in the primary is my preferred way of making fruit meads. Some mead makers believe that some of the fruit aroma is lost during primary fermentation. However, fruit will typically have additional nutrients not found in honey, aiding in fermentation. Different ester profiles are also attained from exposing the fruit to primary fermentation. Jon Hamilton at White Winter Winery puts the fruit in primary for all of his meads.

A good starting point with most fruits is about 3 pounds of fruit per gallon of mead, though I have been known to use 5 or even 6 pounds of fruit. Fruit blends can produce some great-tasting meads. Use your imagination, or peruse the breakfast juice blends at the grocery store for ideas. Buy fruit when it is fresh and inexpensive; freeze it if you aren't ready to use it right away. Wash/rinse the fruit in warm tap water, and cut up large fruit like peaches and mangos. Spray it lightly with a 50 ppm solution of sulfite before freezing. The sulfite inhibits undesirable bugs and helps prevent oxidation. Freezing will generally help break down the structure of the fruit and make it easier to extract the essential characteristics. Freezing the fruit does not sanitize it, but you can still put it into the primary.

Whole fruit typically floats in the fermenter, so it should be pushed back into the must a couple times a day. The process is roughly like wine making where the skins need to be kept wet. If you stir your must vigorously, beware of pulverizing the fruit to the point of extracting too many tannins and creating puree that you will have to rack off of later. For messy fruit like black currants that have lots of little seeds and pulp after fermentation, use a large fine mesh bag to hold all the fruit. Boil the bag to sanitize it, put the fruit in, tie it shut, and drop it into the primary. The percentage of fermentable sugars in fruit varies significantly; some fruits like strawberries and melons are mostly water. Most homebrew shops sell a number of fruit purees that are readily available even when fresh fruit is not. They provide good fruit character but can leave significant sediment that can cause racking losses. I suggest avoiding the small bottles of fruit flavoring. They can supplement fruit characteristics, but when used exclusively are one-dimensional.

Fruit juice and concentrates work well for making melomels and typically have very little sediment. Check the ingredients and beware of the ones that are sweetened with sugars or even white grape juice. Concentrated fruit juice has a typical concentration of 8 to 1, meaning 1 quart of the concentrate is equivalent of 2 gallons of fresh pressed fruit juice. The first time you use a fruit concentrate, experiment to determine how much to use since most sources don't list the equivalent weight for fresh fruit.

For pyments, I find using unconcentrated fresh grape juice leaves a more delicate character than using concentrates, but fresh wine grape juice is available only for a very short season. Alternatives include using a good wine kit as the source for the grape juice. With either fresh juice or a reconstituted wine kit, the grape juice should be around 1.095 original gravity (OG). Just adding honey to the juice is going to quickly push the OG of the must to sack strength. The addition of water will allow you to lower the OG at the expense of the wine character. A good starting point is about 3 gallons of grape juice in 5 gallons of must, though I frequently make pyments by just adding honey to the grape juice with no addition-

al water. Use a wine yeast appropriate for the type of grapes you use. Subtle additions of spices can work well, taking care not to overwhelm the honey or grapes.

The use of pectic enzyme can help clarify your mead by eliminating pectic haze. Follow the package directions. While post fermentation finings can eventually clarify your mead, the use of pectic enzymes at the start makes clarifying fruit meads easier.

Metheglin

For most metheglins, I don't add spices until the mead is ready to be packaged, with the exception of ginger. Spices vary greatly from batch to batch and with age, so that awesome mead with 3 ounces of dried poblano/ancho peppers may be too hot the next time you try it. For my ginger mead, multiple pounds of sliced ginger go in the primary in a mesh bag, and are treated more like a fruit right at the start. For most other spices, I steep them in a covered glass jar with enough cheap vodka to cover the spices. A week or two is sufficient to extract the essence of the spices into the vodka. Accurately measure some of the mead into a small glass and use a medicine dropper to add few drops of the vodka to the mead (keep track of how much vodka you use). Try a few different tests by increasing or decreasing the amount to taste. Once you have the desired spice level, scale the vodka addition for the size of your batch of mead. Sweetness (more honey) can balance an over-spiced mead. Conversely, hot spices like cinnamon or peppers can balance mead that is otherwise too sweet.

How Much Honey?

The specific gravity of honey will vary slightly based on the floral source and moisture content. Table 1 shows the approximate specific gravity (SG) and equivalent weight per gallon of honey for a range of moisture levels. That variation helps explain why a recipe may yield slightly different OGs even if you measure everything accurately.

Table 1

Water Content (%)	Specific Gravity	Weight per Gallon (pounds)	Points per pound per gallon
13	1.4457	12.0716	40.29
15	1.4350	11.9823	39.35
17	1.4237	11.8879	38.44
19	1.4101	11.7743	37.51
21	1.3950	11.6483	36.58

Table 2 shows how much honey you need to make mead. It graphs the weight of honey needed to reach a target OG in 1 gallon of must. Two lines (one for 13 percent and one for 21 percent moisture content) bracket the range. The horizontal lines estimate the alcohol potential based on OG, assuming the yeast can ferment the honey completely. Reference the alcohol tolerance of your yeast strain to determine what OG you should target to achieve a desired FG. For example, the Lalvin 71B-1122 strain is said to have an alcohol tolerance of 14 percent, so if your OG is below the 14-percent (approximately 1.105) alcohol potential, you are going to get a FG around or even below 1.000, a dry mead.

Water

Brewing water, with no chlorine or off-flavors and a hardness of 250-500 ppm as carbonate, is optimal for most meads. The carbonates help buffer the fermentation and keep the pH in a reasonable range for yeast performance. If your municipal water supply has a carbonate level outside the range, you can still make good mead, though fermentation may be a little slower. Alternatively, you can add carbonates with chalk or neutralize them with acid as appropriate.

Staggered Nutrient Additions

The idea of staggered nutrient additions comes from the commercial wine making world. They give the yeast some just-in-time nutrients to keep it in the growth phase, reduce off-flavors, and produce fewer fusel alcohols.

Table 2

Mead by the Numbers

Original gravity ranges

- Hydromel 1.035 – 1.080
- Standard 1.080 – 1.120
- Sack 1.120 – 1.170

Final gravity ranges

- Dry 0.990 – 1.010
- Semi-sweet 1.010 – 1.025
- Sweet 1.025 – 1.050

Source: 2008 BJCP Style Guidelines. Mead judges don't use a hydrometer, so it all comes down to perception. Even if your mead finished at 1.009, it still might be perceived as semi-sweet. Likewise, even if your OG was in the standard range, your finished mead might be perceived as being sack strength. Meads should be entered into competition based on the perception of the finished product, not the original intent.

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For a typical 5-gallon batch of mead, the suggested staggered nutrients are two teaspoons (8 grams) of diammonium phosphate (DAP) and one teaspoon (4 grams) of Fermaid K. Add one quarter of the mixture initially (with the yeast) and the remainder a quarter at a time, either daily or every other day. A few great mead makers just add all the nutrients right along with the yeast. Regardless of the nutrient addition schedule, the use of nutrients is important since honey has very little of its own.

Dry Yeast Hydration

I use dried yeast almost exclusively, with Lalvin 71B-1122 used most frequently and D-47 as a second choice. If using dried yeast, start with a yeast rehydration nutrient to help it get off to a good start. GoFerm is a relatively widely available version of a yeast rehydration agent. Follow the package directions, mixing the GoFerm into the warm rehydration water (typically104° F/40° C) before adding the yeast.

Process

During the first days of fermentation, it is helpful to ferment in a large open top vessel like a plastic bucket with a lot of head space. For a 5-gallon batch, you will need a 7.5- to 10-gallon fermenter. Pour the approximate weight of honey into the fermenter, then slowly add some of the water (if using fruit juice or concentrate, add it before the water) and stir. Using a sanitized hydrometer, check the specific gravity. Slowly add water until you hit the target OG. Use water near the temperature recommended for fermentation with your yeast strain. I try to keep to the lower half of the recommended temperature range. Fermenting too warm for the yeast will produce more esters and hot alcohols than desired.

Mix the GoFerm into the warm rehydration water, then add the yeast and start a timer for the recommended hydration duration.

While waiting for the yeast to rehydrate, measure out the nutrient addition for the batch and place it in a Ziploc bag near the fermenter. Add the initial quarter of the nutrients to the must. If you are using pectic enzymes, add them to the must now as well. Pour the yeast and GoFerm mixture into the fermenter. Stir the must to get some initial oxygen into it.

At least daily, aggressively stir the must to drive out the CO_2 and allow oxygen to be infused. The yeast are very active and will rapidly consume all the oxygen you are introducing. If you're using a spoon, stir aggressively until bubbles are no longer released. These days I use a stainless steel wine degassing wand and an electric drill. Start slowly, as the first bit of stirring can create a lot of foam quickly. Add the staggered nutrient additions as per your schedule.

Stirring with a wand in the drill when there is a large bag of fruit in the fermenter is a challenge. I suspend the bag of fruit above the bucket with a sanitized spoon through the drawstring while holding the drill in my other hand.

Pyment

INGREDIENTS

for 5 U.S. gallons (19 liters)

For pyment, I've used a couple of variants. The first uses grape juice and water plus honey. The second uses just grape juice and honey. The latter will provide more grape character since you are not diluting the juice, but you are also going to end up with a sack-strength mead with a fair amount of alcohol. With the first technique, you can produce a lower OG and even get a hydromel-type pyment. Given that most wine grape juice is in the range of 1.095 OG, unless you add a lot of water along with the honey, the final must OG is going to be fairly high. The recipe here doesn't add any water to the must.

12.0 lb (5.4 kg) orange blossom honey
4.25 gallons (16 L) Gewürztraminer juice
1 tsp. Fermaid K
2 tsp. diammonium phosphate
1 packet Lalvin 71B-1122 yeast or Lallemand 58W3 yeast
GoFerm for rehydration

Original Gravity: 1.146

This will result in a medium sweet pyment, Gewürztraminer grapes tend to taste slightly sweet even when fermented dry. If you are using juice from a wine kit, consider using the whole kit and increasing the honey slightly to reach the target OG with the slightly large batch size the kit will produce.

DIRECTIONS

Pour the honey into a large plastic fermenter. Start adding grape juice to the fermenter. After just a couple gallons, start stirring the mixture. Once you have a couple gallons of juice and the honey mixed together, place a sanitized hydrometer in the must. Slowly add juice and mix after each addition until you hit the target OG. Add 0.5 teaspoons of Fermaid K and 0.25 teaspoons of diammonium phosphate to the fermenter.

Rehydrate the yeast in GoFerm, following the package directions. Once rehydration has finished, mix the rehydrated yeast and liquid into the fermenter.

Once or twice a day, stir the must. The stirring process will release a lot of CO_2 from the must. I stir until almost no more bubbles are released by additional stirring. If doing the stirring with a spoon, it will take a while to drive out all the CO_2. Using a wand in the drill is faster, but be careful not to release so much CO_2 so fast that the fermenter foams over the top.

Once a day, after a round of stirring, add the dose of nutrients, 0.5 teaspoons of Fermaid K and 0.25 teaspoons of diammonium phosphate.

After three to four weeks, rack the mead into glass and wait for it to drop clear. You can use Super-Kleer K.C. to help the clarification if the mead has finished fermenting. Once clear, keg and carbonate to around 3 volumes of CO_2.

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Sparkling Ginger Mead

INGREDIENTS
for 5 U.S. gallons (19 liters)

18.125 lb (8.2 kg) honey, such as raspberry blossom, orange blossom or clover
3.25 lb (52 oz, 1.5 kg) thinly sliced fresh ginger
1 tsp. Fermaid K
2 tsp. diammonium phosphate
1 packet of Lalvin 71B-1122 yeast a.k.a. Narbonne
GoFerm for rehydration

Original Gravity: 1.145

DIRECTIONS

Wash the ginger with tap water. Do not bother peeling the ginger; a food processor is your best bet to slice it up. Place the ginger in a sanitized mesh bag. I boil the bag for a few minutes to sanitize it since some chemical sanitizers are not effective on fabrics and the sanitizers can be hard to rinse out of the fabric.

Pour the honey into a large plastic fermenter. Start adding water to the fermenter. After just a couple of gallons, start stirring the mixture. Once you have a couple gallons of water and the honey mixed together, place a sanitized hydrometer in the must. Slowly add water and mix after each addition until you hit the target OG. Add 0.5 teaspoons of Fermaid K and 0.25 teaspoons of diammonium phosphate to the fermenter.

Once you have the must mixed up, rehydrate the yeast in GoFerm, following the package directions. Once rehydration is complete, mix the rehydrated yeast and liquid into the fermenter.

Once or twice a day, stir the must and push the bag of ginger back under the liquid. The stirring process will release a lot of CO_2 from the must. I stir until almost no more bubbles are released by additional stirring. If stirring with a spoon, it will take a while to drive out all the CO_2. Using a wand in the drill is faster, but be careful not to release so much CO_2 so fast that the fermenter foams over the top.

Once a day, after a round of stirring, add the dose of nutrients, 0.5 teaspoons of Fermaid K and 0.25 teaspoons of diammonium phosphate.

After three to four weeks, rack the mead into glass and wait for it to drop clear. Use Super-Kleer K.C. to help clarification if the mead has finished fermenting. Once clear, keg and carbonate to around 3 volumes of CO_2.

Typically, within a couple of weeks the fermentation is nearly over and you can rack the mead to a carboy to clarify. Even if fermentation is going slowly, don't leave the mead in plastic for more than a month, as the fermenter will allow too much oxygen in when the yeast are no longer able to consume it.

Finishing the Mead

Time will clear most meads, but Super-Kleer K.C., a two-part liquid clarifier, is very effective. Follow the package instructions.

If you plan to sweeten your mead after fermentation, potassium sorbate can help stabilize it by retarding further yeast reproduction but allowing existing yeast cells to ferment. If you have not reached the alcohol limit for your yeast, adding more fermentables is likely to restart the fermentation. Even a clear mead still has some active yeast cells. Sweeten a mead that is too dry by adding more honey or blending with a sweeter mead. If your mead is still in primary and your SG check shows it is lower than you wanted, add honey to push the final gravity up,

though you will also likely be raising the alcohol level.

Balance an overly sweet mead by adding acid—ascorbic, citric, tartaric, acid blend, malic, or even lactic; sometimes even some tannin. Alternatively, you can blend a sweeter mead with a drier mead. No matter which approach, go slowly so you do not overshoot. Dissolve the acid in water to create a strong solution. Use an accurately measured small amount of the mead in a glass (or in several glasses) and add a few drops of the acid solution to find the appropriate amount. Add a drop or two at a time. Using several glasses allows you to compare the different amounts side by side. Once you have the desired amount, scale the amount up for the whole batch.

For sparking mead, you can keg and force carbonate or bottle condition just like you do for beer. When bottle conditioning a sparkling mead that has already hit the alcohol limit for the yeast strain, you are going to have a hard time creating any CO_2. But adding another yeast strain with a higher alcohol tolerance to get CO_2 can be dangerous—that new yeast might restart fermentation in the mead you thought was finished and could create glass grenades. These days I only make sparkling meads by forced carbonation.

Aging can either improve or degrade mead. It may reduce astringency and will slowly reduce some higher alcohols. But fruity esters may degrade, and acids may drop out as crystals. Overall, the best approach is to avoid higher alcohols to begin with and to treat the yeast well so as to get the alcohol and ester profile you want right out of the fermenter.

While his first fermentation experiments were with cider, these days Steve Piatz mainly makes mead, or brews beer on his all-grain setup. He is a BJCP Grand Master IV judge, a BJCP exam director, and a member of the Saint Paul Homebrewers Club and the Minnesota HomeBrewers Association.

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THE FIRST Pilsner:

Recreating a 19th Century Bohemian Brew Revolution

No other style has had a greater impact on the world of beer than the Bohemian Pilsner. It set definitive standards for the appearance, flavor, ingredients, and brewing techniques of at least 90 percent of all the beers served around the globe today. Created in Plzeň (Pilsen), an obscure city in Czech Bohemia, in 1842, the original Pilsner has been imitated, emulated, and adapted in many brew cultures and has spawned such diverse competitors as the Northern German Pils; the Bavarian Helles; the Dortmund Export; the Scandinavian, Dutch, Swiss, Austrian, and Australian blond lagers—often spelled Pilseners, with a middle "e"—as well as the many, often "adjunctified," light and ultra-light international mass lagers.

Replicating such a seminal brew authentically in a homebrew environment is an awesome challenge, and the only way to understand how the original Pilsner was made and how it might have tasted requires that we transport ourselves back in time to Bohemia.

The 19th century was the Belle Époque of classic beer style evolution. While at the beginning of the century brewers were still trapped by the limitations and microbial hazards of their local circumstances, as the industrial and scientific revolutions got into full swing, brewers gained control for the first time of their brewing ingredients and processes to manipulate them solely in the service of their creative geniuses. This allowed them to literally "invent" new beer styles!

This was certainly the case in the tiny, backwater city of Pilsen, a dark-ale-making center since 1295, when King Wenceslas of Bohemia had given the city's burghers the brew right. In the early 1800s, the local beer culture of Pilsen was in crisis. The city's brew

Josef Groll & Martin Stelzer, Pilsner Urquell, Pilsen, Czech Republic

By Horst Dornbusch

houses were antiquated and many of the local brews had become next to undrinkable—probably from infection. In 1838, Pilsen's city council even had to order 36 casks of local ale to be dumped in public. To quench their thirsts, locals simply went in droves for imported dark brews from neighboring Bavaria and Austria, until finally, in 1842, a group of concerned citizens banded together to defend the local beer. They built a brand new brewery, called the Měštanský Pivovar (Burgher Brewery), and ordered newly appointed brewery manager Martin Stelzer to travel across the border to Bavaria in search of a brewer who could fix the local brew. Stelzer found one who managed to do just that, but in ways that nobody could had predicted! He stumbled upon the 29-year-old Josef Groll, a Bavarian brewmaster who had learned his profession back home in his father's brewery in Vilshofen, a small village on the banks of the Danube, southeast of Munich. Stelzer hired Groll on the spot and offered him a three-year contract to "modernize" the Pilsner brew.

"Modern," in Groll's days, meant that the malt had to be finished the new-fangled English way, by drying it in an indirect-fired kiln, instead of a traditional, direct-fired, smoky one. This revolutionary malting method had been patented by Daniel Wheeler in 1817 as an "Improved Method of Drying and Preparing Malt." It was the first industrial kiln that allowed brewers to make clean-tasting malt predictably of any color, including pale. "Modern" then also meant using cutting-edge Bavarian brewhouse techniques, in which Groll was an expert.

The Mash Copied Around the World

On October 5, 1842, Groll mashed in his first brew. He had floor-malted a local top-quality spring barley called Haná, then kilned it the Wheeler way. He

BOHEMIAN PILSNER URQUELL

Ingredients:

For 5 U.S. gallons (19 liters) with a 90-minute boil

- 8.153 lb (3.878 kg) Weyermann® Bohemian Pilsner Floor Malt (97%) @ (1.6-2.0 ° L)
- 2.8 oz. (80 g) Weyermann® Acidulated Malt (2%) @ (1.7-3.2 ° L)
- 1.4 oz. (40 g) Weyermann® CaraBohemian® (1%) @ (71.8-79.3 ° L)
- 0.45 oz. (13.3 g) Czech Saaz pellets; 3.5% AA (80 min)
- 1.7 oz. (48.1 g) Czech Saaz pellets; 3.5% AA (60 min)
- 0.83 oz. (23.5 g) Czech Saaz pellets; 3.5% AA (15 min)
- Bavarian Lager Yeast such as Wyeast 2206, 2308, or 2633
- Corn sugar for priming if packaged into bottles

Mash Schedule 1: Triple Decoction

(Ramp-up times are approximate and vary with thermal characteristics of equipment)

Step	Temp	Min	Notes
Mash in (hydration)	<100 °F (<38 °C)	30	4 gal (15.25 L) water
Draw 1st decoction			1/3 of mash volume
Heat decoction		10	Might take longer
Rest decoction	149° F (65° C)	30	
Heat decoction		10	Might take longer
Rest decoction	162° F (72° C)	10	
Heat decoction		10	Might take longer
Boil decoction	212° F (100° C)	10	
Reintroduce decoction to main mash		5	
Rest main mash	149° F (65° C)	10	
Draw 2nd decoction			1/3 of mash volume
Heat decoction		5	Might take longer
Rest decoction	162° F (72° C)	10	
Heat decoction		10	Might take longer
Boil decoction	212° F (100° C)	10	
Reintroduce decoction to main mash		5	
Rest main mash	162° F (72° C)	10	
Draw 3rd decoction			1/3 of mash volume
Heat decoction		10	Might take longer
Boil decoction	212° F (100° C)	10	
Reintroduce decoction to main mash			
Rest main mash	171° F (77° C)	15	
Start recirculation		5	
Start lautering slowly		45	Heat sparge water to 171° F (77° C)
1st sparge			Approx. 0.33 gal (1.25 L)
Continue lautering		15	
2nd sparge			Approx. 0.33 gal (1.25 L)
Continue lautering		15	
3rd sparge			At least 0.33 gal (1.25 L)
Continue lautering until kettle is full		15	Kettle full (5 gal or 19 L)

then mashed it with Pilsen's extraordinarily soft, low-mineral water, and took it through its paces in a triple decoction, Bavarian-style. In the kettle, he added generous doses of the local Žatec (Saaz) hop. Finally, he fermented the wort not as an ale, but with bottom-fermenting yeast that had apparently been smuggled into Bohemia by an itinerant Bavarian monk. This subterfuge was necessary because the Bavarian government had slapped a ban on all yeast shipments beyond its borders in an effort to safeguard Bavaria's growing beer exports.

Fermentation at the Měšťanský Pivovar was in wooden vats similar to those employed in London porter breweries; and the beer was aged Bavarian fashion, in wooden casks in cool lagering vaults below the brewery. The result of Groll's labors was a golden-blond lager—one that the world had never seen or tasted! When he served it to the people of Pilsen on November 11, 1842, they knew that their long sojourn through the valley of bad beer was finally over.

The Burgher Brewery jubilantly named this new beer—the world's first ever golden lager—Plzeňský Prazdroj, or Pilsner Urquell. The brew's German name became more prominent than its Czech name simply because Bohemia had been ruled from Vienna, the capital of the Austrian Habsburg Empire, ever since 1526, and German was thus the language of officialdom in Pilsen. "Ur" is German for "original," and "Quell," for "source." Many historical documents indicate that the original Plzeňský Prazdroj was probably slightly deeper golden in color than most modern Czech Pilsners, and it was slightly higher in alcohol content and hop bitterness.

Reconstructing a Classic: Ingredients

The key to reproducing Groll's original Pilsner today is to find brewing ingredi-

Specifications

- Original Gravity: 12.9 °P (1.052)
- Final Gravity: 3.95 °P (1.012)
- Color: 4.5 SRM (10.7 EBC)
- IBU: 40
- ABV: 5.3% (ABW 4.2%)

Wort Boil Schedule (90 min)

- First hop (pellets) 10 min. into boil
- Second hop (pellets) 30 min into the boil
- Third hop (pellets) 75 min into the boil
- Whirlpool: 30 min.

Mash Schedule 2: Multi-Step Infusion

(Ramp-up times are approximate and vary with thermal characteristics of equipment)

Step	Temp	Min	Notes
Mash in (hydration)	<100 °F (<38 °C)	30	Approx. 4 gal or 15.25 l water
Apply heat while stirring to raise temperature	149 °F (65 °C)	10	Might take longer
Rest	149 °F (65 °C)	30	
Apply heat while stirring to raise temperature	162 °F (72 °C)	5	Might take longer
Rest	162° F (72° C)	10	
Apply heat while stirring to raise temperature	171 °F (77 °C)	10	Might take longer
Ladle mash into lautering tun		5	
Start lautering slowly		45	Heat sparge water to 171° F (77° C)
1st sparge			Approx. 0.33 gal (1.25 l)
Continue lautering		15	
2nd sparge			Approx. 0.33 gal (1.25 l)
Continue lautering		15	
3rd sparge			At least 0.33 gal (1.25 l)
Continue lautering until kettle is full		15	Kettle full (5 gal or 19 l)

Cellar Process

Heat exchange the whirlpooled wort to the selected yeast's fermentation temperature, likely around 55 °F (13 °C). Aerate thoroughly. Primary-ferment the brew in an open fermenter or a carboy with a water lock for about 7 days. This is the imitation of the open, wooden fermenter phase of the original mid-1800s Pilsner cellar process. Rack the brew off the debris into a clean, oxygen-evacuated Cornelius keg for secondary fermentation and initial conditioning (pressure buildup).

Rack the conditioned brew under pressure into a second, also clean, oxygen-evacuated Cornelius keg on day 14. In the mid-1880s, all conditioning would have occurred in wooden casks, of course. Lager for four weeks at a cool cellar temperature of perhaps 45 °F (7 °C), or lower. Note that the original 1842 Pilsner would not have been filtered because the beer filter was invented by Lorenz Adalbert Enzinger only in 1878. Dispense the finished, conditioned beer straight from the keg or package it into primed bottles. For priming beer from a pressurized fermenter, use about one-half teaspoon of corn sugar per 12-ounce bottle. If no Cornelius kegs are available for conditioning during secondary fermentation and lagering, use carboys instead. Then prime with perhaps three-quarters of a teaspoon of corn sugar at bottling time.

ents with characteristics that resemble those of the mid-19th century, and to select the correct brewing methods to properly bring out their flavors. Choosing hops is easy: three additions of Saaz for bittering, flavor, and aroma, for a combined alpha-acid level of roughly 40 IBU. As for Pilsen's soft brewing liquor, one easy way to approximate it is to boil your local water before brew day and let it stand undisturbed overnight to cool off. Boil about 6-7 gallons (roughly 23 to 26.5 liters) so that there is enough for both mashing and sparging to reach the target of 5 gallons (19 liters) of net kettle volume at the end of the boil. Boiling the liquor precipitates some of the carbonate hardness, if present. On brew day, carefully rack the cooled, undisturbed liquor, leaving about 10 percent of the water behind at the bottom. This procedure goes a long way toward imitating the soft, low-pH, low-carbonate, low-sulfate water of the Pilsener region. A further simple safeguard to ensure proper mash acidification is the addition to the grain bill of about 2 percent Weyermann® acidulated malt. Selecting the yeast is easy, too, because Groll had used a generic Bavarian lager strain. There is a wide range of such yeasts available in most homebrew shops. Note, however, that the flavor profile of modern Czech lager yeasts would not be appropriate for this historic brew!

Malt in Groll's days was invariably handmade and floor-malted, which means that it was slightly undermodified by modern standards. The mash, therefore, was fairly thin and triple-decocted for optimum protein degradation. Purists among homebrewers may wish to use floor-germinated rather than box-germinated Pilsner malt and try their hands at the laborious process of triple decoction. However, the use of standard Pilsner malt as well as a double or single decoction, a multi-step infusion, or even a continuous ramp-up from a thin mash-in at roughly room-temperature or a bit higher to the mash-out can also give satisfactory results—though perhaps with a slightly less malty aroma. A single-step infusion mash, on the other hand—though it might produce a very drinkable beer—is not likely to deliver the authentic flavor that is the hallmark of a true historical Pilsner reproduction. Both an elaborate triple decoction and a practical step-ramp are described in the recipe.

The old Haná barley that Groll used in his mash, unfortunately, is no longer cultivated. Because of its desirable malting and brewing qualities, however, Haná became a favorite progenitor for many subsequent barley breeding programs in many countries. As a result, Haná passed its favorable genes along to literally scores of modern top-quality, two-row, spring barley varieties, including all the main Czech varieties that are cultivated today. Fortuitously for present-day homebrewers, Weyermann® introduced an artisanal, floor-malted Czech Pilsner malt a few years ago, based entirely on such Haná-derived, Czech-grown barley cultivars as Bojos and Tolar. Because modern Pilsner malts—of both the factory- and floor-malted kind—tend to be subjected to rigorous and sophisticated quality control standards, they also tend to be much more homogeneous than was likely the case with Groll's original malt in the mid-1800s. Therefore, a very small addition of perhaps 1 percent of Weyermann® CaraBohemian® malt to the grist may give the brew some extra complexity, body, maltiness, and head

Bartłomiej K. Kwieciszewski / Shutterstock.com

retention. It may also slightly deepen the brew's golden hue.

Reconstructing a Classic: Process

The malt bill in the recipe is calculated for a 5-gallon (19-liter) batch used in a brew system that yields approximately 65-percent extract efficiency. If your system's extract efficiency is known to be different, all malt quantities should be adjusted upwards or downwards accordingly. You can select between two brewhouse procedures: a classic triple decoction, or a practical, less time- and labor-intensive infusion with a slow temperature ramp-up of the mash to the mash-out. This ramp-up is actually very similar to the mash process practiced by medieval brew monks.

For the decoction process, you need a mash-lauter tun or a similar vessel with a false bottom. You can ladle the decoction portion of the mash—about one-third by volume—into the brew kettle for a mash boil and then reintroduce it to the main mash for a temperature rise. In a commercial brewery, this back-and-forth transfer between the mash tun and the cooker is achieved by slurry pump. For the infusion process, on the other hand, you can mash directly into the brew kettle, with about 80 percent of the desired post-boil, net kettle volume of brewing liquor. Then heat the mash slowly in the kettle, while stirring gently to avoid hot spots. Allow for mash rests at the temperature intervals prescribed in the recipe. Finally ladle the mash into a vessel with a false bottom for lautering. Near the end of lautering, heat the remaining 20 percent of the brewing liquor—or slightly more—to the mash-out temperature and use it incrementally for sparging. This sparge is often referred to by its German term of "Nachguss" (literally: "after pour"). Depending on the thermal characteristics of your brew system, the mash temperature may drop during lautering, in which case the Nachguss temperature ought to be increased beyond the level indicated in the recipe to maintain the proper temperature of the mash for optimum extract values. Be sure to use a thermometer frequently to monitor the mash temperature.

From the boil onward, the wort from both a decoction and an infusion is treated the same way. Hop quantities are calculated pro-forma for Czech Saaz pellets with a nominal alpha-acid content of 3.5 percent, with 30 percent hop utilization each for the first and second hop additions; and 14 percent utilization for the third addition. If your particular bag of Saaz hops is higher or lower in alpha acids, adjust quantities accordingly. The boiling time is 90 minutes. At the end of the boil, add brewing liquor if necessary to adjust for any excessive kettle evaporation.

Horst Dornbusch is the founder of Cerevisia Communications, a consulting company in the international brew industry. He is an award-winning brewer; the author of several technical and historical books on beer; the associate editor of the upcoming *Oxford Companion to Beer* (available in October 2011); and a frequent contributor to European and North American beer-related periodicals, including *Zymurgy* and *The New Brewer*.

CAMPFIRE BEER:

The Bristlecone Brewery

By Steve Callio

In the summer of 2009, we were sitting by our backcountry campfire enjoying a fresh-baked pizza right off the coals. For several years, we had been experimenting with backpacking pizza. Dried mozzarella, tomato paste, and tomato powder sauces, dried veggies, sourdough crust, dried Italian sausage–you name it, we probably tried it. Sitting there enjoying the early evening, Rocky Mountain scenery, and a smoke-tinged fresh pizza several miles from the trailhead, we asked, "What more could you want?" Right! Beer!

Beer on a backpacking trip. Too heavy to carry and the bottles or cans have to be packed out too. All that weight. Impossible, we all agreed. But then I started to think about brewing on a campfire and fermenting in the wilderness. Could it be done?

Through the winter, I tried to think what process to use for a campfire-brewed beer. It would have to be simple—no grains, only dried, lightweight ingredients. It would also have to be a partial boil since the weight of a large brewpot wouldn't work. A lightweight plastic container for fermenting was mandatory. It would require three trips to accomplish, one each for brewing, bottling, and enjoying. It would also require a campsite with adequate wood, water, and seclusion to avoid predation. Fortunately, I knew of such a campsite in the mountains west of Boulder, Colo. I made up my mind to give it a try.

The Adventure Begins

Late in May 2010, my intrepid companions and I hiked in. The next day, we built a good, hot campfire and got some good coals going. I carefully boiled 3 quarts of water in my two old camp pots. I added 1 pound of amber dry malt extract, 6 ounces of light extract and 5 ounces of light brown cane sugar to the pots and brought them carefully to boil on the coals by the edge of the fire. I was expecting to have a lot of trouble with this stage. Surprisingly, the boil was easier to control than I expected with no boilovers. I had an ounce of Cascade hop pellets. I planned to add three-fourths at the boil and save the rest for finishing hops. While adding the boiling hops, some smoke from the campfire blew into my face. I jumped and *all* the hops became boiling hops. I decided to relax and not worry about it, but I had no homebrew to drink at that point. I did a careful boil for about 50 minutes. The pots of hot concentrated wort were force cooled in some convenient late-season snow banks.

Carefully pouring the cooled wort into a 5-gallon polyethylene cubitainer didn't work too well. I lost some of the wort, and most of the trub from boiling went into the wort. If I try backwoods brewing again, I'll make sure to find a lightweight funnel with a

1

2

screen. Then cold stream water was filtered with a backpacker's water pump into the cubitainer to a final volume of about 2 gallons. One package of Munton's Premium Beer Yeast was pitched directly into the fermenter.

The cubie was fitted with a screw-on on/off valve. I didn't think a conventional fermentation lock would work under the conditions I anticipated, so I used the on/off valve instead. This valve was very slightly opened to allow the CO_2 to escape during fermentation. I hoped that the small opening wouldn't allow too much air to enter after fermentation was complete. The cubie was placed inside a resurrected cardboard box. The box had been collapsed for transport and was reassembled with the help of a few pieces of duct tape. The box provided a little bit of rigidness to offset the floppiness of the cubie and some protection from puncturing. To protect the box and fermenter from weather and sun, the box went into a black plastic trash bag. This arrangement was trussed up with a short length of parachute cord.

We searched the area away from the campsite for a branch that would provide pretty constant shade and would place the fermenter about 10 or 15 feet above the ground. A suitable branch was located on the north side of a mature bristlecone pine. One end of a length of parachute cord was tossed over the limb and tied to the trussed-up fermenter. With some support from my companion, the whole shebang was hoisted carefully up into the aerial brewery. The earthward end of the cord was secured and the beer was left to brew or die. We hiked out wondering if we would ever see our beer again.

The Bristlecone Brewery

A few days after we left, it apparently snowed on the brewery. At least that's what the weatherman said. My guess is that during fermentation the beer experienced pretty wide temperature swings. I don't think it ever froze while the beer was brewing, but it probably got close a few times. Most days it probably was exposed to temps from 40 to 75° F (4-24° C). I don't know for sure—I was at home not worrying.

Twenty-four days later, it was time to bottle. The night before driving to the trailhead, bottles were prepared. I had decided to go with 2-liter plastic soda bottles. Weight concerns put glass out of consideration and big bottles would mean fewer bottles. The bottles were cleaned, sanitized, and rinsed. I expected to get 2 gallons so I prepared 4 bottles. One-third of a cup of corn sugar was combined with enough water to make up 8 ounces and then boiled. Two ounces of this solution were added to each bottle and the cap was screwed down. These went into the backpack and were transported to camp the next day. They took up a lot of space, but the weight was minimal.

I have to admit I had begun to worry about the beer a little at this point. Would it still be there? Visions of Yogi and BooBoo passed out under the sheltering bristlecone pine filled my dreams and my friends' jokes. Actually, I was more worried that inquisitive squirrels or raccoons might invade the Bristlecone Brewery. I have learned to respect the intelligence and persistence of raccoons over the years.

Upon reaching camp, I dropped my pack and walked to the Bristlecone. There it was, untouched, in perfect condition, hanging right where we had left it more than three weeks before. Carefully lowering it to the ground, I peered inside the fermenter, and damn! It looked just like beer in there.

After transportation back to camp, the fermenter was placed on a log about two feet off the ground with the valve fully closed and positioned on the lower side of the cubitainer. The brew was allowed to rest while shaded from the sun for a few hours. Lowering the beer and bringing it back to camp had stirred up the brew considerably.

The bottles were filled through the on/off valve and the caps screwed down firmly.

Photos © Brent Truskowski and Steve Callio

1) A 5-gallon polyethylene cubitainer served as a fermenter.

2) The cubitainer was put into a cardboard box, covered with a trash bag, and hoisted into a bristlecone pine tree.

3) The brew was bottled in 2-liter plastic bottles.

4) Finally, it was ready to drink.

The last bottle required some careful tipping of the cubitainer to keep the flow going with minimal sediment. The final yield was three 2-liter bottles, about one-and-a-half pints of still beer, and about a pint of sludge left in the fermenter. The sludge was poured at the base of some shrubs as fertilizer, the yeast set free to live a new life in the wilderness.

The 1.5 pint of excess beer was cooled in the nearby stream and tasted. There was almost no carbonation, of course. The beer was cloudy. My companions thought it tasted fine. I thought it was clean tasting, without off flavors or aromas. The fermentation had apparently gone well. But my impression was that of drinking tea. I thought the beer was tannic and feared it would not be very good when done. I suspected the poor separation of wort from trub had ruined the brew. Nevertheless, we did drink a small amount of homebrew and I was convinced by my friends not to worry. The bottles went back into the cardboard box/plastic bag arrangement and the batch cached in the benevolent Bristlecone Brewery. We hiked out and left the Bristlecone Ale to mature.

Fresh Air and Fresh Beer

Other summer activities and hiking destinations intervened, and we returned to the Bristlecone Brewery six weeks later. As before, the first task after reaching camp was to visit the bristlecone. The bag and box were safely hanging right where they had been left more than a month before. We lowered the contents and returned to camp.

The beer had cleared somewhat but was hazy. A visible yeast sediment and the tautness of the plastic bottles revealed that carbonation had been successful. Being used to drinking homebrews at cellar temperatures, I wanted to open the bottles up immediately. My companions convinced me to cool the bottles down first.

Into the stream they went, not far from where the brew had originally cooled in late spring's last snow and ice.

We would be there two nights so it was decided to drink one bottle the first night and reserve two for a final night's feast. The first bottle was carefully opened. No gushing. A good sign. The beer poured fizzy with a nice head. The taste was better than I had hoped. The tannin taste was much reduced. The beer was dry and crisp with more hop assertiveness than I usually brew into my beers. All in all, not bad. It was icy cold and a rare treat enjoyed in forested mountain splendor. Even though I knew it wasn't the best beer I've ever brewed, I was greatly pleased with the results.

I had been pretty lucky. Think of all the things that should have ruined the brew. A partial boil. No yeast starter. Lightweight polyethylene fermenter. No specific gravity readings. No real fermentation lock. No temperature control. No secondary fermentation. Bottling directly from the primary fermenter. Plastic bottles. The potential of beer-scavenging critters. Bristlecone Ale survived it all.

The last night of our trip, we cooked up pizzas and kept our 4 remaining liters of Bristlecone Ale cold in the creek until dinnertime. As the campfire yielded pizzas, we drank cold Bristlecone Ale. The sky grew dark and last year's questions had been answered. Yes, it was possible to brew a drinkable batch miles from the trailhead. And yes, pizza with beer is better than pizza!

Would I do it again? If so, a better strainer/funnel arrangement will be mandatory and the goal will be 2.5 gallons. However, when all the miles of the three required brewpacks are taken into account, that's pretty far to walk for a couple of beers.

Steve Callio is a retired environmental chemist and *Zymurgy* staff member from the days of yesteryear. He is a longtime homebrewer who is proud to claim that homebrewing was still illegal when he brewed his first batches. He still manages to slowly hike with a backpack.

By Amahl Turczyn Scheppach

18th Annual Peach State Brew Off

The Coverts Hops Society, the homebrew club that sponsored the 18th annual Peach State Brew Off in Atlanta, Ga., is so covert that even the present membership is unsure about the club's origins.

"None of the founders are still members," explained Mike Castagno, the competition organizer. "The founding year is unknown, somewhere around 1990, but we do know that it is the oldest homebrew club in Georgia. It was originally founded as a grassroots attempt to legalize homebrewing, which eventually became successful circa 1995. Today, it is an ever-changing group of fun-loving people who enjoy beer and brewing. We are a socially-oriented club with technical and competition aspects that complement the diverse make up of the club."

Covert Hops is definitely a low-pressure group—in fact, they don't even charge membership dues. The Peach State Brew Off is the club's only source of revenue. Castagno explains, "We feel this encourages homebrewers to get out and meet other hobbyists without financial obligation." However, that doesn't mean they aren't serious about brewing—serious talent has emerged from its ranks. "The club has produced the brewmaster at Nantahala Brewing Co., and the brewer for The Wrecking Bar Brewpub was a past member, too."

The Peach State Brew Off was the first competition in Georgia, and is currently the largest with more than 300 entries. This year, the competition was held March 12 on the construction site of the soon-to-be Wrecking Bar Brewpub in the Little 5 Points neighborhood of Atlanta. The competition was held over seven days and included nine judging sessions, not including Best of Show. The competition has been awarding medals for the past two years.

One Best of Show beer category winner emerged from those marathon judging sessions. Ryan Stansbury, a chemical engineer and member of the Brewmasters of Alpharetta, took top honors with his Baltic Porter.

"My first venture into brewing was in college in the mid-90s in an attempt to cost effectively make something both stronger and more flavorful than Natural Light," said Stansbury. "There wasn't a lot of readily available information on brewing back then like there is today, so my attempts were mostly futile, but it did mark the beginning of a love affair with craft-brewed beer."

Then, about eight years ago, a few months abroad in Germany and Belgium convinced Stansbury to reconsider homebrewing. "Determined to brew beer not readily available in the States and armed

AHA SPECIAL EVENTS

Visit the Events section of HomebrewersAssociation.org for more information.

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AHA Rally - The Pike Brewing Co.
Seattle, WA

July 16
AHA Rally - Ram Restaurant & Brewery
Boise, ID

July 28
AHA Rally - Samuel Adams Boston Brewery
Boston, MA

August 6
AHA Mead Day

September 29-October 1
Great American Beer Festival
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"Storm Surge" Baltic Porter

BEST OF SHOW BEER, 2011 PEACH STATE BREW OFF

Ryan Stansbury, Brewmasters of Alpharetta, Alpharetta, Ga.

INGREDIENTS

for 5.5 U.S. gallons (20.82 L)

13.0 lb	(5.9 kg) light Munich malt
5.0 lb	(2.27 kg) Belgian Pilsner malt
8.0 oz	(227 g) CaraMunich® malt
8.0 oz	(227 g) Special B malt
8.0 oz	(227 g) 60L crystal malt
4.0 oz	(113 g) debittered chocolate malt
4.0 oz	(113 g) Carafa Special II
1.8 oz	(51 g) Styrian Golding pellet hops, 5.2% a.a. (60 min)
1.0 oz	(28 g) Tettnanger pellet hops, 3.2% a.a. (10 min)
1 tablet	Whirlfloc (10 minutes)
300 ml	Wyeast NeoBritannia ale yeast slurry

Original Gravity: 1.089
Final Gravity: 1.015
IBUs: 23
SRM (est): 30
Mash Efficiency: 70%
Boil Time: 90 minutes

BREWER'S NOTES

There are two keys to brewing this beer. The first is the malt bill. It's fairly complex, and for that reason some patience is required. In my experience, the more complex the grain bill, the more conditioning the beer needs for the flavors to meld. I also recommend sourcing the debittered dark malts to keep the roastiness restrained. The other key is fermentation. The strain of yeast is largely unimportant and can be either lager or ale as long as esters are restrained. I used an ale yeast that ferments cleanly at lower temperatures just because it was available. The recipe is also fairly dry for the style, which is a personal preference, so just look for yeast that ferments cleanly, attenuates well, and can handle the higher ABV.

DIRECTIONS

Beginning volume of 7¾ gallons (29.3 L) should boil down to about 6¼ gallons (23.7 L) and yield about 5½ gallons (20.8 L) in the fermenter after racking off the trub. Use a single mash infusion of 148° F (64° C) for 90 minutes. Use brewing salts in your mash to target a fairly high carbonate water and pH in the 5.3 to 5.4 range. Mash out at 162° F (72° C) and sparge at 170° F (77° C). Boil for 90 minutes and chill. Ferment at 64° F (18° C) for a few weeks or until finished. Keg and cold condition at 45° F (7° C) for as long as you can bear to wait (a couple of months minimum). Carbonate to 3 volumes.

Extract version: Substitute 8.6 lb (3.9 kg) liquid Munich malt extract for the Munich malt and 3.5 lb (1.6 kg) liquid Pilsner malt extract for the Pilsner malt. Steep the grains in 158 °F (70 °C) water for 30 minutes, then remove grains, straining. Add the malt extract and bring to a boil. Follow the recipe as indicated.

with a wealth of information, I jumped back into the hobby and quickly realized where I had erred—underpitched fermentations in 80-degree college dorm closets just aren't conditions that tend to produce great beers."

Stansbury started with partial mashes but quickly made the leap to all-grain brewing. Dry Belgians soon became his passion. He began to enter and win competitions, including two best of shows and a bronze medal at the 2009 National Homebrew Competition in the Belgian Strong category. He was also recently awarded the 2010 Georgia Homebrewer of the Year, and is seriously considering the prospect of starting his own brewery one day.

But, he's quick to clarify, much of his recent success has come as a result of joining the Brewmasters of Alpharetta. "They are an outstanding group of brewers with a vast array of knowledge that has had an immeasurable impact on my brewing, and I continue to learn new things and garner new ideas at every meeting," Stansbury said.

As for equipment, Stansbury keeps it simple, but is meticulous about process. "I'm a firm believer that expensive equipment is not a requirement for brewing great beer. I use a plastic cooler as a mash tun, an 8-gallon stainless steel turkey fryer as a boil kettle, and ferment in glass carboys."

He does, however, have a background in chemical engineering and operations, so he has a deep understanding of the science behind all areas of brewing. "Every step is carefully planned in advance. I feel like that has contributed a great deal to my brewing success…not that you need to be a chemist to be a great brewer, but there are innumerable resources today on every step of the process. There is tremendous value in educating yourself as much as possible and using that knowledge to plan a well-thought-out beer. Your palate will thank you!"

Amahl Turczyn Scheppach is a former craft brewer and associate editor for *Zymurgy*, and now brews at home in Lafayette, Colo.

KUDOS—BEST OF SHOW

AHA/BJCP Sanctioned Competition Program

February 2011

13th Annual Domras Cup Mead Competition, 50 entries—*Alfred Trappier Lanthier, Savannah, GA.*
Beerfest, 200 entries—*John Kingston, Melbourne, VIC, Australia.*
Beer Quest Lager Beer, 21 entries—*Jason Davis, Lincoln, NE.*
Cowtown Homebrew Roundup, 273 entries—*Ari Giligson , Delta, BC, Canada.*
Clarens Craft Beer Festival, 18 entries—*Patrick van den Bonne, Van der Bijlpark, South Africa.*

March 2011

Homebrew at the WEB, 894 entries—*Rachael Holland, Rockford, MI.*
Bockfest Cincinnati, 42 entries—*Will Magnuszewski, Cincinnati, OH.*
Sonoma Community Center's Beervana!, 31 entries—*Terrance Novak, Vacaville , CA.*
The Highland Cup, 222 entries—*Alex Buerckholtz, Asheville, NC.*
Brewster's Cup Series: German Beers, 32 entries—*Gus Stathes, Dayton, OH.*
Kona Brewers Festival Homebrew Competition, 219 entries—*Thor McCammon, Pukalani, Maui, HI.*
18th Annual Peach State Brew Off, 518 entries—*Ryan Stansbury, Atlanta, GA.*
Lonerider Brew It Forward III, 125 entries—*Peter Saunders, Cary, NC.*
Fort Wayne Brewfest Homebrew Competition, 37 entries—*Ken Humont, Franklin, WI.*
Lethbridge Werthogs Annual Competition, 120 entries—*Kyle Teichert, Egmondville, ON, Canada.*
Drunk Monk Challenge, 735 entries—*Dave Helt, Germantown, WI.*
IBU Open, 128 entries—*Rob Ware, Des Moines, IA.*
Garrison's Ultimate Brew-off Homebrew Challenge, 29 entries—*Eric Oliver & Adam Comeau, Halifax, NS, Canada.*
Baja Beer Festival, 54 entries—*Damian Morales, Tijuana, Mexico.*
Shamrock, 360 entries—*Philip Morris, Charlotte, NC.*
McChord Brewfest, 76 entries—*Nick Ladd, Seattle, WA.*
Silver Anniversary Bluebonnet Brew-Off - World's #1, 1,776 entries—*Tony Tielli, Edmond, OK.*
Brew Masters Competition, 40 entries—*John Rugotzke & Al Ewan, Rhinelander, WI.*
Hudson Valley Homebrewers Competition, 340 entries—*Michael Reda, NY.*
March Mashness, 159 entries—*Chris Smith, Minneapolis, MN.*
Arizona Mead Cup, 65 entries—*Steve McKellips, Mesa, AZ.*
20th Annual Charlie Orr Memorial Chicago Cup Challenge Homebrew Contest, 325 entries—*Dustin Kirk & Dennis Nee, Munster, IL.*

April 2011

Belgian Beerfest 2011, 26 entries—*Mark Johnstone, Melbourne, VIC, Australia.*
Great Lakes International Cider & Perry Pro-Am Competition, 280 entries—*Gary Awdey, Valparaiso, IN.*
Nebraska Homebrew Club Shootout, 55 entries—*Mitch Larsen, Lincoln, NE.*
RAM Small Ale Competition, 42 entries—*William Tilt, Lafayette, IN.*
Snow Goose Break-up, 46 entries—*Frank Bell & Steve Kunemund, Anchorage, AK.*
World Cup of Beer, 640 entries—*Mike Riddle, Napa, CA.*
South Shore Brewoff, 142 entries—*Bryan Bigda, Norfolk, MA.*
North Shore Brewers Homebrew Competition at The Tap, 154 entries—*Michael Marino, Burlington, MA.*
Homebrewtalk.com Final Round, 76 entries—*Shane Lentini, Amston, CT.*
TRASH XXI, 343 entries—*Brody Nasse, Pittsburgh, PA.*
2011 ALES Home Brew Open/AHA NHC Qualifier Competition, 353 entries—*Ray Duperron, Edmonton, AB, Canada.*
West Coast Brewers Dark and Stormy, 15 entries—*Bob Paniak, Perth, WA, Australia.*
Between the Bluffs Homebrew Contest, 83 entries—*Rod Swerman, La Crosse, WI.*
CAMRA Vancouver "Spring Sessional," 12 entries—*Moon Under Water Bitter, BC, Canada.*
Worthogs Summer Beer Fest, 53 entries—*Nick Dempers, Johannesburg, South Africa.*
23rd St Brewery BrewOff, 16 entries—*Thomas Malowski, Omaha, NE.*
AHA Club-Only Competition, Bock, 64 entries—*Chris & Nick Orton, Longmont, CO.*
6th Annual Iron Brewer Competition, 41 entries—*John Mays, Claymont, DE.*
Black and Tan Homebrew Competition, 43 entries—*Nathan Compton, Indianapolis, IN.*
International Beer Fest, 216 entries—*White Rajah, Jack Kephart, Strongsville, OH.*
2011 Puget Sound Pro-Am, 402 entries—*Travis Nye, Port Orchard, WA.*
Elevator's Procrastinator Homebrew Competition 3, 59 entries—*Sean Dawson, Columbus, OH.*
Organic Brewing Challenge Pro Am Competition, 36 entries—*Richard Lawrence, Saratoga Springs, NY.*
World Expo of Beer Commercial Competition, 554 entries—*Arbor Brewing Company, Ann Arbor, MI.*
THC - TCB ProAm Competition, 16 entries—*Harlan Huelle, Marana, AZ.*

May 2011

Great Basin Brew Off, 110 entries—*Kirk Howell, Sparks, NV.*
Siciliano's Market 8th Annual Homebrew Competition, 185 entries—*Ross Ziegenthaler, Spring Lake, MI.*
Miniconcurso Apertura 2011 "Oktoberfest," 8 entries—*Jorge Gariglio, Buenos Aires, Argentina.*
Miniconcurso Apertura 2011 "Irish Ale," 20 entries—*Oscar Gelves, Buenos Aires, Argentina.*
Miniconcurso Apertura 2011 "Dorada Pampeana," 14 entries—*Andrés Dogliolo, Buenos Aires, Argentina.*
First Annual Bricktowne Beerzilla, 24 entries—*Steve Ferrell & Jeff Clarke, Grants Pass, OR.*
FOAM's Battle of the Bubbles, 78 entries—*Michael Kozar, Monrovia, MD.*

AHA/BJCP SANCTIONED COMPETITION PROGRAM CALENDAR

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

July 2
2011 Wan Cup 2
Hamamatsu-shi, Shizuoka-ken, JP.
Entry Deadline: 6/24/2011. wancup2.org/

July 3
San Diego County Fair Homebrew
Del Mar, CA. Entry Deadline: 5/18/2011.
www.sdfair.com/beer

July 8
Indiana State Fair Brewers' Cup Competition
Indianapolis, IN. www.brewerscup.org

July 9
4th Annual Ohio Brew Week Homebrew Competition
Athens, OH. Entry Deadline: 6/19/2011.
www.ohiobrewweek.com/homebrew.html

July 16
ESB 2011 Homebrew Competition - Winter Warmers
Sydney, NSW, AU. Entry Deadline: 6/09/2011.
esbcomp.com.au

July 16
Amador County Fair Homebrew Competition
Plymouth, CA. Entry Fee: $6. Entry Deadline: 7/02/2011. www.brewangels.com

July 16
Amador Invitational (Commercial Microbrew Competition)
Plymouth, CA. Entry Deadline: 7/08/2011.
www.brewangels.com

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williamsbrewing.com
800-759-6025

July 16
Ohio State Fair Homebrew Competition
Columbus, OH. Entry Deadline: 6/20/2011.
ohiostatefair.com

July 23
Delaware State Fair Battle of the Brews
Harrington, DE. Entry Deadline: 6/01/2011.
battleofthebrews.webs.com/

July 23
All American Brew Off
Fort Smith , AR. Entry Deadline: 7/09/2011.
rivervalleyaleraisers.blogspot.com

July 23
E.T. Barnette Homebrew Competition
Fox, AK. Entry Deadline: 7/20/2011. www.mosquitobytes.com/Den/Beer/Events/Events.html

July 23
2011 Buffalo County Fair Homebrew Competition
Kearney, NE. Entry Deadline: 7/18/2011.
www.kearneyareabrewers.com/?page_id=47

July 27
Brewster's Cup Series: Wood & Smoked Beers
Dayton, OH. Entry Deadline: 7/20/2011.
www.daytondraft.org

July 29
UP State Fair Homebrew Competition
Escanaba, MI. www.baydenocbrewers.org

July 30
24th Annual Southern California Regional Homebrew Championship
Corona, CA. Entry Deadline: 7/15/2011.
www.inlandempirebrewers.com

July 30
Germanfest Homebrew Competition
Milwaukee, WI. Entry Deadline: 7/17/2011.
germanfesthbc.beerbarons.org

July 30
Mead Free or Die
Londonderry, NH. Entry Deadline: 7/16/2011.
www.meadfreeordie.com

July 30
2nd Annual Schmidy's Brewmaster's Homebrewer's Challenge
Palm Desert, CA. Entry Deadline: 7/23/2011.
See Schmidy's at Facebook

July 30
15th Annual NJ State Fair/SCFHS Homebrew Competition
Augusta, NJ. Entry Deadline: 7/10/2011. www.newjerseystatefair.org/documents/11cahhbeer.pdf

July 31
Gnarly Barley Home Brew Competition
Loveland, CO. Entry Deadline: 7/23/2011.
www.gnarlybarleybrewfest.com/homebrewcompetition.html

July 31
MAGMA's Beer Competition Invitational
Youngstown, OH. Entry Fee: $0. Entry Deadline: 7/23/2011. magmahomebrew.net

July 31
Ventura County Fair Amateur Beer Contest
Ventura, CA. Entry Deadline: 7/31/2011.
www.venturacountyfair.org

August 6
16th Annual Montgomery County Agricultural Fair Homebrew Competition
Gaithersburg, MD. Entry Deadline: 7/30/2011.
members.tripod.com/~G_A_B_S/

August 6
Lunar Rendezbrew XVIII
Seabrook , TX. Entry Deadline: 7/09/2011.
mashtronauts.pbworks.com

August 6
2011 Oregon State Fair Homebrew Competiton
Salem, OR. Entry Deadline: 7/28/2011.
www.oregonstatefair.org/competition/beer

August 13
Blues N Brews Homebrew Competition
Hubbardston, MA. Entry Deadline: 8/05/2011.
www.foambrew.com

August 13
Deer River Bar-b-que and Brew Fest
Deer River, MN. Entry Deadline: 8/05/2011.
www.deerriver.org

August 13
18th Annual Dominion Cup
Richmond, VA. Entry Deadline: 7/30/2011.
dominioncup.jrhb.org

August 14
Kentucky State Fair
Louisville, KY. Entry Deadline: 7/01/2011.
kystatefair.org

August 20
3rd Annual Beehive Brew-Off
Salt Lake City, UT. Entry Deadline: 8/14/2011.
www.beernut.com

August 21
Best of the Bay 2011
Bellingham, WA. Entry Deadline: 8/14/2011.

August 26
Colorado State Fair Homebrew Competition
Pueblo , CO. Entry Deadline: 8/13/2011.
www.coloradostatefair.com

August 27
AHA Club-Only Competition, Mead
Harwood, ND. Entry Deadline: 8/20/2011.
www.homebrewersassociation.org/pages/competitions/club-only-competitions

August 27
The Limbo Challenge (How low can you go?)
Dallas, TX. Entry Deadline: 8/05/2011.
www.limbocomp.org

August 27
Besley's Homebrew Competition
Libertyville, IL. Entry Deadline: 8/18/2011. www.northshorewinebeerfest.com/homebrew.html

August 27
NSWABC
Adamstown, NSW, AU. Entry Deadline: 8/16/2011. www.hunterbrewers.com

August 27
Mountain Maryland Brew Down
Cumberland, MD. Entry Deadline: 8/21/2011.
www.queencityhomebrew.org

August 28
Puyallup Fair Amateur Beer Competition
Puyallup, WA. Entry Deadline: 8/20/2011.
www.thefair.com

COMMERCIAL CALIBRATION

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

Two meads were sent to our esteemed panel of judges for this issue.

First up was White Winter Sweet Mead from White Winter Winery in Iron River, Wis. The winery was established in 1996 and produces meads as well as hard cider.

Sweet Mead has a "nicely balanced acidity with sweetness," according to the White Winter web site. It is refreshing over ice with a twist of lemon, or warmed and spiced as a winter warmer. It checks in at 11.5 percent alcohol by volume and has won several medals in wine and mead competitions.

White Winter's Jon Hamilton said sweet mead uses Dutch white clover and basswood honey, both of which impart floral characteristics. Basswood can impart a minty characteristic as well, said Hamilton.

Que Syrah, Syrah is a recently released pyment from Celestial Meads in Anchorage, Alaska. It is a blend of 50 percent mead, 47 percent petite Syrah wine, and 3 percent Grenache wine. It checks in at 14 percent ABV.

"The three parts were fermented using three different yeasts and aged separately before blending," said Celestial meadmaker Michael Kiker. "The mead and petite Syrah were aged on French oak chips."

Que Syrah, Syrah won a gold medal at the 2011 Mazer Cup mead competition in Boulder, Colo. in April.

ON THE WEB

White Winter Winery
www.whitewinter.com

Celestial Meads
www.celestialmeads.com

BJCP Style Guidelines
www.bjcp.org

OUR EXPERT PANEL includes David Houseman, a Grand Master IV judge and competition director for the BJCP from Chester Springs, Pa.; Beth Zangari, a Grand Master level judge from Placerville, Calif. and founding member of Hangtown Association of Zymurgy Enthusiasts (H.A.Z.E.); Scott Bickham, a Grand Master II judge from Corning, N.Y., who has been exam director or associate exam director for the BJCP since 1995; and Gordon Strong, a Grand Master V judge, principal author of the 2004 BJCP Style Guidelines and president of the BJCP board who lives in Beavercreek, Ohio.

Sweet Mead—White Winter Winery, Iron River, Wis.
BJCP Category: 24C Traditional Sweet Mead

THE JUDGES' SCORES FOR WHITE WINTER SWEET MEAD

Bouquet/aroma: Light, refreshing honey aroma with a fruity, herbal bouquet, reminiscent of pears and lavender. Alcohol is evident but not excessive. No fusel alcohols; not hot. The floral, herbal, and fruity notes provide a nice complexity. (8/10)

Appearance: Light yellow color. Bright clarity. Just a hint of carbonation as bubbles linger on the sides of the glass. Very thin legs, hints to a lighter mead. (5/6)

Flavor: Herbal/floral characteristic verges on being medicinal with notes of lavender and fruity, pear-like esters. Sweet, not cloying. Thin body seems to result from a well-attenuated, smaller mead. Alcohol is there and balances the sweetness and body. Honey expression is not as assertive as I'd like in a sweet mead, but the honey may be present as the herbal character of the unstated varietal honey. Acidity is well-balanced with sweetness to give this mead brightness. Finishes with a bit of sweetness that dries up straight away. (19/24)

Overall Impression: The herbal character is quite intense for a traditional mead and this would be better represented by noting the varietal honey or presenting this mead as a Metheglin. It's also closer to a semi-sweet mead than a sweet mead. However, this is a very drinkable beverage that could easily accompany dinner in the place of a dessert wine with a white chocolate mousse. (8/10)

Total Score: (40/50)

Bouquet/aroma: Light floral honey expression, with notes reminiscent of Chardonnay. Some alcohol detected, but not dominant; taken with the honey, comes across to me like the aroma of purple iris mixed with buck brush, which has a kind of savory note. No single aroma dominates. (9/10)

Appearance: Pale straw, not quite totally white but nearly so, with the palest white gold highlights. Brilliant clarity. Leaves legs on the glass when swirled. (6/6)

Flavor: Honey expression is pronounced, and follows the floral, herbal spiciness of the aromas of iris, lilac, and buck brush. Well balanced between moderately pronounced sweetness and a light acidity. Sweet without heaviness, medium bodied, and still. A low alcohol warmth combines with acidity for a clean, sweet, yet crisp, finish, almost like biting into a ripe Fuji apple. (22/24)

Overall Impression: The floral honey varietal was unfortunately not listed on the bottle, however, serving suggestions were made, including serving warm and spiced. Were it still winter, I'd have tried it that way! The balanced sweetness and floral honey flavors would support the rich warming spices often associated with winter festivities. Something about it makes me think rosemary would work well, too. On the other hand, this is a beguiling beverage on its own, and a lovely expression of honey sweetness and flavor. (9/10)

Total Score: (46/50)

Bouquet/aroma: Lemony aroma with a hint of tangerines and sulfur. I also get oak and peppery notes, and these work well with the citrus character. A little honey sweetness emerges when the mead is swirled but it's quite subtle for a mead. Alcohol strength is evident, along with some fruity esters. (7/10)

Appearance: Crystal clear with an extremely light straw color. Modest alcohol legs cascade down the glass when the mead is swirled. (6/6)

Flavor: Spicy, apple notes remind me of a winter mulled cider. Some honey sweetness, but it is quite overwhelmed by the cinnamon and woody notes. I don't know if spices were added—the label says "natural ingredients"—but this does not seem to be a traditional mead. The balance is sweet, as labeled, but there are enough tannins and acidity to keep the finish from being cloying. (17/24)

Overall Impression: This is a very nice beverage in terms of drinkability, but it does not have enough honey character to stand out as a mead. The spice/cinnamon character is quite strong, and I would score this higher as a metheglin—even if the spicy notes were a byproduct of the yeast rather than intentionally added. The mulled cider character is quite interesting, and the sweetness helps balance the flavors without being too overwhelming in the finish. (7/10)

Total Score: (37/50)

Bouquet/aroma: Somewhat tart and apple-like with a waxy, lightly spicy finish. Honey provides some sweetness but minimal floral notes. I get a slight caraway note—that's odd. Expecting more of a clean, distinctive honey aroma. Nothing else obviously off, though. (7/10)

Appearance: Very pale straw color. Clear but not brilliant. Still. (5/6)

Flavor: Semi-sweet but with a high acidity. Almost apple-like or Riesling-like in profile. Medium body. Honey is slightly waxy and spicy tasting. Fairly clean, neutral honey flavor. Floral aspects are fairly low. The acidity overshadows the honey flavor and dominates the finish. The alcohol is subdued. The acid level is unbalanced to my taste. (15/24)

Overall Impression: I'd like to see more residual sweetness or less acidity. Almost has the profile of a cyser. Clean and tasty, albeit subtle. The honey character isn't very noticeable, and there is an odd caraway note to it. The balance is off for a mead, but it should appeal to those who favor crisp white wines. I'd drink it over ice or with food—as a standalone drink, the acidity is bracing. I wouldn't call it a sweet mead—it's medium at best. Definitely better on ice. (7/10)

Total Score: (34/50)

Illustrations by Terry McNerney

Que Syrah, Syrah—Celestial Meads, Anchorage, Alaska
BJCP Category: 25B Semi-Sweet Pyment

THE JUDGES' SCORES FOR QUE SYRAH, SYRAH

Bouquet/aroma: Buttery Syrah and Grenache grape wine aroma dominates with high alcohol aroma. Some oaky, cinnamon bouquet. Honey is present in a sweetish aroma but not specific honey notes. The combination of grape wine, alcohol, and sweet honey creates a complex bouquet. (8/10)

Appearance: Brownish red color. Bright clarity. No bubbles/carbonation at all; a still mead. Long-lasting legs encircle the glass. A very pretty mead. (6/6)

Flavor: Buttery, substantial Syrah and Grenache red wine flavor with a good deal of alcohol and residual sweetness from the honey. Finishes quite sweet. Could use a bit more acid to better balance the sweetness, although the grapes do contribute balancing tannins. Honey sweetness is present but honey flavor is lost in the depth of the grape. Hints of cinnamon and oaky notes add to the depth of complexity. Mouthfeel is a full-ish body. (16/24)

Overall Impression: An interesting combination of grape and honey wines. This mead presents more as a sweet mead than a semi-sweet mead, although it is not big and cloying. I suggest a bit lower percentage of grape wine in order to let the expression of honey compete with the grapes and shine through. Additional acidity to balance the sweetness and the buttery, cinnamon red grape would help to brighten the mead. Still a very nice mead to accompany a cheese course, especially a well-aged cheddar. (8/10)

Total Score: (38/50)

Bouquet/aroma: Fruity floral honey expression is well balanced with the full Syrah grape, notes of blueberry, and hints of cinnamon and black pepper emerge, with even a ghost of toasty oak. (8/10)

Appearance: Garnet with pink to lavender highlights, no tawniness; brilliant clarity and still. No legs form on a swirl. (5/6)

Flavor: A moderately strong Syrah grape expression is forward, but gives way to the fruity floral honey that follows the aroma. A light tannin and alcohol warmth leave a tingling sensation on the tongue that lingers into the finish, reminiscent of carbonation, though the beverage is distinctly still. Medium light bodied, it finishes with a mélange of blueberries, and a hint of oak, more akin to wine. Berry flavors meld to grape, balanced with the sweetness and light acidity of the mead. (21/24)

Overall Impression: Honey varietal is not specified, but the floral expression suggests orange blossom to me. Evenly balanced between the red wine character and the mead midpalate, but the finish leans distinctly to the Syrah. Quite an inviting quaff, definitely semi-sweet with a clean, lightly tannic, pleasingly crisp finish. (8/10)

Total Score: (42/50)

Bouquet/aroma: Sweet honey aroma comes through as the beverage is poured. The grape character is subtle for Syrah but boysenberry, currant, and pepper notes are evident. I also pick up earthy and musty undercurrents. Alcohol is evident, with some fruity yeast esters and a hint of solvent. (7/10)

Appearance: Burgundy color reflects the grapes; very good clarity. Still as described on the label. Good alcohol legs flow down the glass when the mead is swirled. (6/6)

Flavor: Starts with honey sweetness—variety is not evident but this is definitely a mead. The grape character builds, and while this provides berry and pepper notes from the Syrah grapes, honey is the primary flavor. The finish is soft, with a burst of alcohol and a pleasant afterglow from the tannins. There is enough acidity to balance the sweetness. (21/24)

Overall Impression: Excellent, enticing honey wine married with one of my favorite grapes. Perhaps that is why I would like the balance to be levered a little more toward the grape rather than leaning so strongly toward the honey. The finish is very smooth and makes this dangerously drinkable. Nicely done! (8/10)

Total Score: (42/50)

Bouquet/aroma: Fresh fruit and honey aroma with dark fruit and honey sweetness. Light peppery alcohol mixes with the fruit, which reminds me of blackberries and cherries. A little toastiness is noted from the oak. Enticing. Clean, like a fresh sweet wine. It has the oak and fruit of an expensive wine but the sweetness that I'd typically associate with a cheaper wine. (9/10)

Appearance: Deep red color, not into the purple or black range. Bright, vibrant hue, not aged. Still. Brilliantly clear. Looks like a fine wine, like a pinot noir perhaps. (6/6)

Flavor: Medium-full body. Still. Initial honey sweetness balanced by alcohol and oaky tannin in the finish. The sweetness takes the edge off, but it probably would benefit from more age. Big berry-like fruit flavor, blackberries with some dark cherry in the background. Very clean flavors. The honey is subtle and supportive; it brings out the fruit flavors nicely. The acidity is restrained and well-balanced. The overall sweetness level is moderate, with the alcohol and tannin balancing the sweetness. Well-made mead. (20/24)

Overall Impression: Well, I just found a new commercial pyment for the style guidelines! This mead is well-structured like a good wine. Clean and fresh flavors. Big body and mouthfeel, yet with a good wine character. Seems a little young—if the alcohol and oak/tannin had a chance to age more, it would be even better. Great balance, nicely drinkable. Impressive. Wish I had a bottle to cellar and try in a year. (9/10)

Total Score: (44/50)

by Charlie Papazian

Pierre Celis Wit Bier

Belgian-style white (often called wit or witbier) had disappeared in Belgium until a milkman resurrected the style. Belgian-style white ales are now brewed using unmalted and/or malted wheat and malted barley, and are spiced with coriander and orange peel. These very pale beers are typically cloudy. The style is further characterized by the use of noble-type hops to achieve a low to medium bitterness and hop flavor. This dry beer has low to medium body, no diacetyl, and a low fruity-ester content. Unlike German style wheat beer, Belgian wits have no phenolic and very little, if any, banana character. The profile range for this style of beer is:

Original Gravity (°Plato): 1.044-1.050 (11-12.5 °P)
Apparent Extract-Final Gravity (°Plato): 1.006-1.010 (1.5-2.5 °P)
Alcohol by weight (volume): 3.8-4.4% (4.8-5.2%)
Bitterness (IBU): 15-25
Color SRM (EBC): 2-4 (5-10)

The following was excerpted (and adapted for this article) from my book, *Homebrewers Gold, Prize Winning Recipes from the 1996 World Beer Cup* (Avon/HarperCollins 1997).

According to municipal archives, breweries existed in Hoegaarden by the year 1318. This was a land of people who always loved their beer. In the 17th century, the southern provinces of the Netherlands (of which Hoegaarden is a part) boasted 3,223 breweries. In 1880, Hoegaarden supported 85 breweries with

ABOVE: Two beer legends who are no longer with us: Pierre Celis (left) and Michael Jackson at the 2005 Great American Beer Festival.

Hoegaarden White Beer
ALL-GRAIN RECIPE

INGREDIENTS
for 5 U.S. gallons (19 liters)

4.5 lb	(2 kg) Belgian Two-row Pilsener malt
4.5 lb	(2 kg) Flaked unmalted wheat
0.2 oz	(5.5 g) American Nugget whole hops 12% a.a. (2.4 HBU /71 MB (75 min
0.25 oz	(7 g) Czech Saaz whole hops 4% a.a. (1 HBU /28 MBU) 15 min
0.25 oz	(7 g) Styrian Goldings 5% a.a. (1.2 HBU / 33 MBU) 15 min
1.0 oz	(28 g) freshly ground coriander seed
0.25 oz	(7 g) dried ground curaçao orange peel
0.25 tsp	Irish moss
0.75 cup	corn sugar for priming in bottles. Use 1/3 cup corn sugar if priming a keg.

Wyeast 3944 Belgian Witbier yeast is recommended

Original Gravity: 1.048 (12)
Final Gravity: 1.010 (2.5)
Alcohol by volume: 5%
Color: 4 SRM (8 EBC)
Bittering Units: 13

DIRECTIONS
A step infusion mash is employed to mash the grains. Add 9 quarts (8.6 l) of 130° F (54.5° C) water to the crushed grain, stir, stabilize and hold the temperature at 122° F (50° C) for 30 minutes. Add 4.5 quarts (4.3 l) of boiling water. Add heat to bring temperature up to 150° F (65.5° C). Hold for about 60 minutes.

After conversion, raise temperature to 167° F (75° C), lauter and sparge with 4.5 gallons (17 l) of 170° F (77° C) water. Collect about 6 gallons (23 l) of runoff, add bittering hops and bring to a full and vigorous boil.

The total boil time will be 75 minutes. When 15 minutes remain, add flavor hops and Irish moss. When 5 minutes remain, add 0.5 oz (14 g) of coriander seed and 0.25 oz (7 g) orange peel. After a total wort boil of 75 minutes (reducing the wort volume to just over 5 gallons), turn off the heat then separate or strain out and sparge hops. Chill the wort to 70° F (21° C) and direct into a sanitized fermenter. Aerate the cooled wort well. Add an active yeast culture and ferment for four to six days in the primary. Transfer into a secondary fermenter and add remaining 0.25 oz (14 g) crushed coriander seed. Allow to age for two weeks.

When secondary aging is complete, prime with sugar, bottle, or keg. Let condition at temperatures above 60° F (15.5° C) until clear and carbonated.

Hoegaarden White Beer
MALT EXTRACT RECIPE

INGREDIENTS

4.5 lb	(2 kg) Wheat malt extract (50% wheat, 50% barley)
2.25 lb	(1 kg) Very light honey
0.2 oz	(5.5 g) American Nugget whole hops 12% a.a. (3 HBU /85 MBU) 75 min
0.25 oz	(7 g) Czech Saaz whole hops 4% a.a. (1 HBU /28 MBU) 15 min
0.25 oz	(7 g) Styrian Goldings 5% a.a. (1.2 HBU/33 MBU) 15 min
1.0 oz	(28 g) freshly ground coriander seed
0.25 oz	(7 g) dried ground curaçao orange peel
0.25 tsp	Irish moss
0.75 cup	corn sugar for priming in bottles. Use 1/3 cup corn sugar if priming a keg.

Wyeast 3944 Belgian Witbier yeast is recommended

Original Gravity: 1.048 (12)
Final Gravity: 1.010 (2.5)
Alcohol by volume: 5%
Color: 4 SRM (8 EBC)
Bittering Units: 13

DIRECTIONS
Add the malt extract and bittering hops to 2.5 gallons of water and bring to a full and vigorous boil. The total boil time will be 60 minutes. When 15 minutes remain, add flavor hops and Irish moss. When 5 minutes remain, add 0.5 oz (14 g) of coriander seed and 0.25 oz (7 g) orange peel. After a total wort boil of 60 minutes, turn off the heat, separate or strain out and sparge hops and direct the hot wort into a sanitized fermenter to which 2 gallons (7.6 l) of cold water has been added. If necessary, add cold water to achieve a 5-gallon (19 l) batch size. Chill the wort to 70° F (21° C). Aerate the cooled wort well. Add an active yeast culture and ferment for four to six days in the primary. Transfer into a secondary fermenter and add remaining 0.5 oz (14 g) crushed coriander seed. Allow to age for two weeks.

When secondary aging is complete, prime with sugar, bottle, or keg. Let condition at temperatures above 60° F (15.5° C) until clear and carbonated.

2,000 inhabitants! Times have changed. In 1996 (when this story was originally written), there were barely 100 breweries in all of Belgium. Brouwerij de Kluis was one of them.

In centuries past, the most popular beer style of the region was known as wit beer, a white, cloudy, spicy brew made from local barley malt and wheat. Its popularity played itself out, and along with the industrialization of the region, the last brewery closed its doors in Hoegaarden in 1957. It was the reminiscence of a local milkman that brought white beer back from its grave. Brewing from his kitchen with homemade equipment, the milkman, with the encouragement of close and thirsty friends, set out making the fabled cloudy white beer he had learned to make by watching brewmasters when he was a boy. That was in 1965. By 1978, a soft drink factory was converted into a large white beer brewery and the new Hoegaarden Brewery was on its legendary way.

In 1985, a fire leveled the brewery, but it was soon rebuilt to continue reviving the appreciation for Belgian white beer throughout the world. Soon after the fire, the milkman sold the brewery to the large brewery Interbrew (now Anheuser-Busch InBev), which has maintained the Hoegaarden White beer tradition since, though the brewery in the village of Hoegaarden was closed in 2006 and production of the beer moved to the larger Anheuser-Busch InBev-owned brewery in Jupille called Brewery Piedboeuf.

The milkman was Pierre Celis, who moved to Texas and established a Belgian-style American white beer brewery, the Celis Brewery. This brewery was sold to Miller in the 1990s and then later bought back by the family, but the brewery eventually closed. The Celis White brand was contract brewed in Michigan and in Belgium.

Pierre Celis died on April 9, 2011. His passing made headlines in the Belgian press. He was a gentleman brewer, kind and passionate about beer and the brewing community. He is one of a few original European beer pioneers. His presence will be missed at American brewing events he so often attended. His beer will live on with his memory.

Besides the award-winning Hoegaarden White Beer, in 1996 the brewery also produced Hoegaarden Grand Cru (a stronger and more complex version of the White Beer), Forbidden Fruit (a strong dark ale reminiscent of Grand Cru with roasted malt) and Julius (a blonde all-malt strong ale). The brewmaster of the 1996 award-winning beer was Eddy Van Der Heggen. It was brewed at the 630,000 barrel Brouwerij de Kluis, 46 Stoopkens Straat, Hoegaarden, Belgium.

My description of the 1996 World Beer Cup gold-medal winning Hoegaarden White beer: *Extremely pale in color. Bottle-conditioned with yeast haze appropriately evident. Very exceptional fine, white, satiny head with great head retention. Citrusy sweet lemon-like floral aroma attributable to coriander and curaçao orange peel. Slight banana fruitiness from fermentation but certainly not aggressive. Wonderful fresh, sassy, and sexy yeast aroma. The floral mix of coriander, orange peel, and herbal hops blend to become one complex alluring siren, clothed in sheer satin. First flavor impression finds the beer notably effervescent. Floral and fruity flavors blossom, but are not acidic. Full, sensual mouthfeel without bitterness. Clean aftertaste refreshes.*

Charlie Papazian is founder of the American Homebrewers Association.

Photo courtesy of Charlie Papazian

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By J.B. Zorn

To Have and To Brew

How many times have you been to a wedding without any beer worth drinking? We're offered the same boring choices that almost never reflect the nature of the celebration or the unique personal expression fundamental to weddings. My wife, Rachel, and I decided to change that at our wedding last November.

As anyone who has been through wedding planning knows, it can be stressful, emotional, exciting, and scary all at the same time. So many expectations to fulfill, from the family and friends (often well intentioned), to the religious traditions. Weddings are work! Where does the time, money, and effort to craft and serve high quality brews come into play? It took some serious planning, patience, compromise, and teamwork, but in the end, the benefit was amazing.

Luckily, I've been able to share my passion for great beer with my wife since we first met two years ago. We shared a bottle of Pumpkin Porter on New Year's Eve within the first half hour of meeting each other. Sharing great beer continued during my trips from Hawaii to Seattle as we started the dreaded long-distance relationship (It didn't hurt that Seattle has an amazing beer scene). Hundreds of pints and eight months later...

I knew the proposal had to be special, so I crafted a traditional Saison, similar to the beer I brewed the first day we met, and brought it with me from Hawaii to Maryland. After the mandatory introduction of each other's parents, I was finally ready to pop the question. Finding the words wasn't too difficult, considering I had printed them on the bottle label!

She said yes…and the wedding planning began.

I started with the idea of brewing a few beers for the wedding, possibly bottling or filling a few kegs. To my surprise, Rachel decided that six beers would be necessary (considering how much our friends like to drink). I was elated, but how was I going to brew six all-grain 10- and 5-gallon batches, and maybe a few test batches?

After some careful planning and eight brewing weekends later, we had selected, brewed, and kegged our favorites. The reception venue was hesitant about allowing us to serve homebrew, but we finally convinced them it was non-negotiable.

WEDDING BREWS

Kailua Kolsch, 5.9%, 25 IBU
Rachel's Wheat, 4.4%, 18 IBU
Zekimus IPA, 6.9%, 72 IBU
Harvest Festbier, 6.3%, 25 IBU
Zorn's Lanikai Porter, 5.8%, 39 IBU
Great Pumpkin Ale, 6.9%, 44 IBU

How would we dispense? Picnic taps seemed a bit low-brow for such a formal affair, so I teamed up with friend and fellow homebrewer, Paul, to created a wooden six-tap draft box from scratch. We decided to make all the tap handles from scratch as well. Another great friend, Davey, gave us two hand-carved wooden handles as gifts that we were able to show off.

On the day of the wedding, Paul was in charge of the mobile beer setup (six kegs, CO_2, hookups, draft box, Rubbermaids) and it went off without a hitch! As many homebrewers have heard, "I don't usually like beer, but I like this" was a common phrase. It was no surprise when our gold-medal-winning Zekimus IPA was the first to kick.

Rachel and I plan to continue our brewing adventures in the future and were extremely grateful to share our passion with all our loved ones during my favorite beer event ever, our wedding!

J.B. Zorn has been homebrewing for more than three years. He is an active duty U.S. Coast Guard officer currently stationed in Honolulu, Hawaii. He is a member of the HOPS homebrew club and blogs at http://semperfermentum.blogspot.com. His Zekimus IPA won a gold medal at the Kona Homebrewers Competition in 2009.

Photo courtesy J.B. Zorn

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