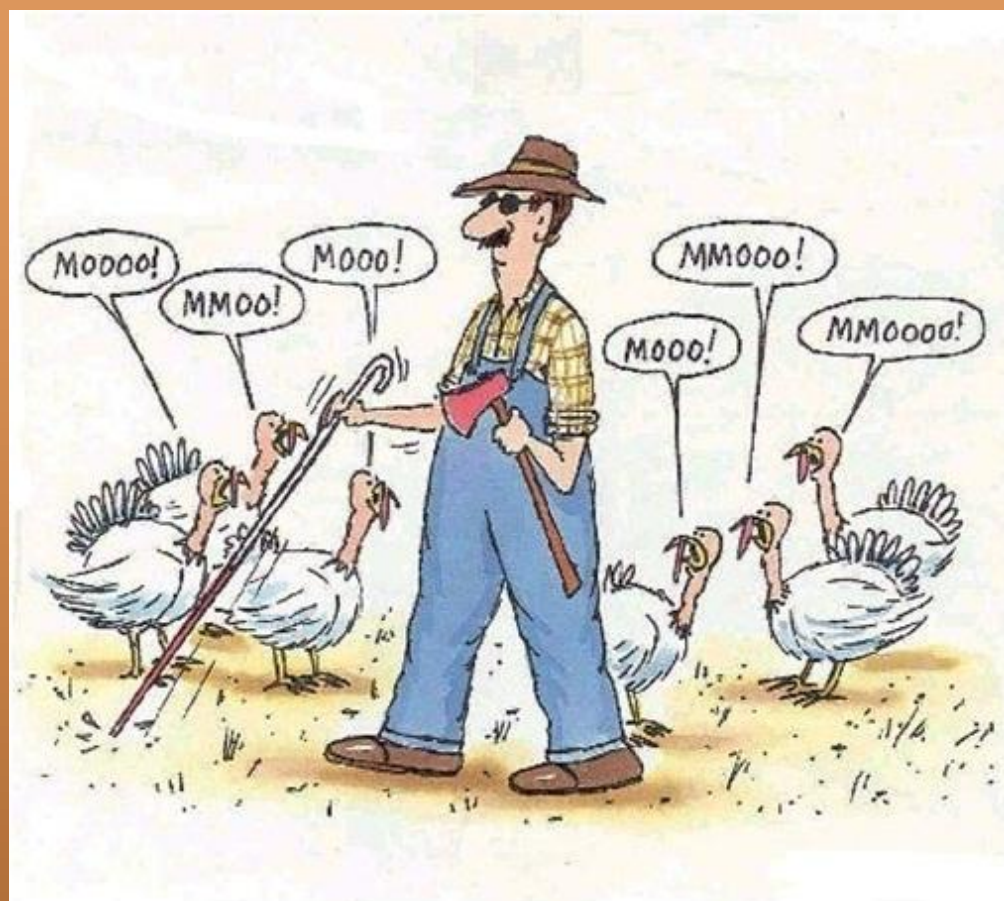


ISSN 1945-1342

# DREGS FROM THE KEG

November 2011



**Turkey Day or not. Which beer  
will pair well with your dinner?**

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## **Foam at the Top**

[Chris Voisey](#), Strand President

Cleaning seems to be the theme for our November Dregs! This month's Dregs has some of the best columns I've seen in a while. Thank you Rives on your ingenuity on creating an effective Keg and Carboy Cleaner and another add-on from a previous article written by Robb Proffitt from Jim Wilson on how to remove beer stone. So in that spirit, I wanted to do a little house cleaning myself on some things to wrap up the year (or two) as President of the Strand Brewers Club. Don't forget that the November meeting is club elections! It isn't too late to nominate or be nominated.

In fact, we still have a nomination position open for the Treasurer. Please be sure to get to our meeting on November 9th at the South Bay Brewing Supply in Torrance and cast your vote for your new 2012 leadership team! If for some reason you cannot make the meeting, please feel free to send an email to any two of the Club Officers (emails at the end of the Dregs) with your Nomination and Votes. Please make sure that you include any two of the officers of your choosing and that you send these before Tuesday, November 8th. Your names will be kept anonymous in the voting too.

In addition to our cleaning articles, I am pleased to see the tradition of spreading great tips on brewing and its process with the articles from Mike Haisma and another insert from Jim Wilson on his new stir plate. These are the type of articles that really help gain the interest in our club and help point out some great brewing tips to our club members. In fact, if you were like me you missed Hop Tea at the October meeting. What is Hop Tea? Well, I'm glad you asked. Jeff Sanders apparently did an awesome job at preparing 5 different hop tastings similar to brewing tea. This allowed everyone

to really get a great idea of the flavors and aromas that really come out when you use different hops. In fact, the club is already considering a follow-on to this where it will be the same malt used in addition to the hops to really get an idea of the effect on your pallet by cutting down on some of the more extreme bitterness. These remind me of some of the experiments that people like Jim Hilbing and others have done and brought into the club in past years. Let us know if you have any other ideas and even better yet if you want to help out in some of these experiments.

Did you survive LA Beer week? Luckily I did. There were some absolutely fantastic beer events going on around town. If you felt like you missed it or didn't get enough, you can head on down to San Diego for their kick off that starts on November 4th and goes through the 13th. Otherwise, like usual we have a number of great beer events planned for the club. To keep up to date, check our calendar on the website and we've outline a few below. But don't forget that we won't be having a Final Friday this month; we are instead taking advantage of Tuesday, November 15th at Whole Foods in El Segundo. We are going to keep the spirit alive of enjoying not only home brews, but of course our local craft beers. After all, they do help give us inspiration and ideas for what we brew in the club!

Finally, we wanted to try something else new at the November meeting, beer pairing! If you are bringing your own home brew, try to bring something along with it that pairs nicely. This can be something you have prepared at home, bought at the supermarket or heck, just hit up 7-Eleven and bring along a Twinkie if it goes well with your beer! Even if you don't have a home brew to share, feel free to find a commercial pairing with any food too. Let's get creative on this! It could be fun and open the door to a whole new thing to embark on in 2012.

Otherwise, I look forward to seeing you all at the November meeting!

## What's Brewing?

[Esther Tung](#), Strand Events Director

### November Meeting

This month we'll meet on November 9 at 7 p.m.



1311 POST AVE TORRANCE, CA 90501

### Club Events

#### Club Brew

Saturday, November 19. 10:00 a.m.

South Bay Brewing Supply Company

We will be brewing a Baltic Porter so please join us!

#### Third Tuesday

November 15

Whole Foods, El Segundo

Since this month's Final Friday falls on a holiday, we will meet for a mid-month social event. Whole Foods El Segundo has a rotating tap list and all beer and food will be 50% off.

#### Holiday Party

Saturday, December 10

Steve Fafard will be hosting our Holiday Party again this year. We'll have great beer, great food, and great company so don't miss it! More details TBA.

#### Other Events

##### San Diego Beer Week

November 4 – November 13

For those of you who did not get enough during LA Beer Week, San Diego Beer Week starts this week. Check the [website](#) for events if you plan on attending any of them:

##### LA River Center Charity Event

Sunday, November 20, 2:00 p.m. – 5:00 p.m.

L.A. Works is celebrating 20 years of service to LA. This will be their first beer event and it will take place in a beautiful setting. Please see the event [website](#).

## Stovetop Mead and Beer Brew Demo

By Jay Ankeney

Several Strand Brewers have asked for a demonstration of my mead making process and one last stovetop brew session for the year.

So if there are enough members interested, I'll be hosting a dual brew day on Saturday, November 12<sup>th</sup>. Although this is geared for beginners, it would be really great if some of our more advanced brewmasters could come by to answer questions that exceed my knowledge.

Starting at 11 AM, I'll start brewing up a batch of mead following the exact methods that did pretty well in this year's Pacific Brewer's Cup.

Then around 1 PM I'll start a stovetop extract and mini-mash beer brewing session. One of our members will be doing the actual work, so you can all watch how someone else does the magic. This will be the same process that won a 1<sup>st</sup> for English Pale Ale at the PBC, but we will probably do a more wintry style like a Porter.

We should be done by 5 PM at the latest.

I'll put a notice up on the SBC Web site. If you are interested in coming by, please let me know at [Jayankeney \(at\) mac dot com](mailto:Jayankeney@atmacdotcom). See you there.







## Spent Grains

[Rob Proffitt](#), Strand Treasurer

As I started writing this article, I couldn't remember what happened at the October meeting. Then I realized I wasn't there. I was on my annual trip back to the Midwest for a reunion with several college friends. These gatherings usually include lots of bourbon, because one of my friends works for Jim Beam and we all enjoy good bourbon. But in the past couple years, I've turned several of them on to craft beer, and now even the little town in Kentucky where we go has a liquor store with a huge selection of beers. We sampled at least 3 different bourbon barrel aged beers, two barleywines, and two doppelbocks, none of which we can get out here on the West Coast. Wish I had taken notes on them though so I could tell you about them.

The club has around \$1,850 in the bank, counting raffle income and expenses paid out from October. I think

we're back to projecting around \$1,100 at year's end. If there are any expenses you want reimbursed, please let me know so I can include them in our budget.

I noticed that there were no nominations for Treasurer at the October meeting. I'm termed out, so we need someone to take over the books. If you can balance your checkbook, you're qualified.

## Keg and Carboy Washer

By [Rives Borland](#), Strand Vice-President

If you're like me, cleaning kegs and carboys is one of the least enjoyable parts of homebrewing. The common methods are tedious and waste a lot of water. Usually people will give the vessel an overnight soak in hot water with PBW or OxiClean. This uses a lot of water and just getting the hot water into the vessel is not always quick and easy. I've used various methods from filling a smaller pot with hot water and then pouring through a funnel to hooking up a hose adapter directly to the kitchen sink. These methods also require moving around heavy vessels full of water and, in the case of glass carboys, that always poses some risk. Even after an overnight soak, I often find that there is still a ring of krausen that requires additional attention with a carboy brush. In the case of better bottles, using a carboy brush is not recommended, due to the risk of scratching the plastic and providing more places for bacteria to grow. Instead, they recommend sloshing around a soft wet cloth inside the better bottle but I have found this minimally effective and a lot of effort. I figured there had to be a better way, more similar to how the commercial breweries clean equipment.

After some searching around on the Internet, I found a bunch of variations on a similar design. The basic idea is to use a relatively high power submersible pump (sump pump) to recirculate hot cleaning solution through a spray wand inside an inverted Corny keg or carboy. Some also add a few tees and gas and beverage post couplers to recirculate through the gas and beverage inputs of the keg. I thought that was a good feature, so I decided to add it to my design. The most expensive part of the design is the high power sump pump. I got a ¾ HP pump at Harbor Freight for \$70. They often run sales where you can find them even cheaper, or you can possibly go with a little less power. I am very happy with the ¾ HP and I would probably not recommend going with less than about 1/3 HP. The rest of the parts can be found at most hardware stores or maybe you already have them lying around. Buying everything new, I think

this setup would run around \$100. If you brew a lot, I think this investment will pay off in the long run in time and effort savings. Here is the general parts list, as some of the minor details will depend on which pump you get, which parts PVC parts you can actually find, etc.

- Sump Pump (1/3 – 1 HP range)
- PVC bushing to go from pump thread size (mine was 1.5") to 1/2" in PVC
- 1/2" PVC slip-slip-slip tee
- 1/2" PVC slip-thread-thread tee
- 1/2" PVC slip ball valve (optional)
- 1/2" PVC slip to female thread adapters (optional)
- Multiple 1/2" PVC slip to male thread adapters (optional)
- Multiple 1/2" PVC end caps
- 5-10' of 1/2" PVC pipe
- Two 1/2" thread to 1/4" barb nylon adapters
- ~8' of 1/4" vinyl tubing
- Two SS 1/4" barb to 1/4" flare swivel adapters
- 1/4" flare gas and liquid keg post quick disconnect couplers (ball lock or pin lock, to match your kegs)
- Large bucket (5-8 gal) and lid (lid optional)
- Stabilization device (4" to 3" plastic pipe coupler, carboy stand, get creative) (optional)
- SS hose clamps to fit 1/4"
- PVC glue and primer
- PVC cutter, hacksaw, etc.
- Thread tape
- GFCI adapter plug or GFCI outlet (for safety)



Based on your pump dimensions and design and your bucket dimensions, figure out some configuration with the PVC parts go from the pump to each of the keg

couplers and also to a long segment of pipe that will stick straight up through a hole in the middle of the bucket lid. Cut and dry fit all the parts and when you are satisfied with the design, then glue everything together.



I chose to add a threaded segment to the straight spray wand portion, so that I can attach different spray wand lengths, for 5 gal vs. 3 gal kegs or various carboy sizes. It also helps if I want to flush out any particles that have started clogging up the wand portion. For the spray holes on the wand, I used a fairly small drill bit and I focused most of the spray holes around the top cap and where the krausen ring normally forms (towards bottom of spray wand when it is inverted). You can start small on the holes and always make them bigger later. I added the ball valve because I wasn't sure if the tubing and connectors would hold the pressure when cleaning a carboy and only using the spray wand. Tests have shown this is not necessary. To stabilize the carboy, I used a 4" to 3" pipe adapter, but others use the carboy holders they sell in homebrew shops, or just stick it right in the hole in the lid, or use no lid and just stabilize it on the wand.





concentration or you will get a lot of foam building up after a while. My GFCI adapter also doubles as an on/off switch.

This relatively simple piece of equipment really frees up your time to do other tasks while it's working. It's very portable and stores easily. You can clean a whole bunch of kegs and carboys right in a row, with the same cleaning solution, and I feel a lot better not wasting so much water compared to soaking methods. I just rinse each vessel well with a garden hose and spray nozzle after cleaning. I'm considering building a second device, similar to this, but without the pump and just connected to the garden hose, which drains to the ground, for rinsing. That way I can take the vessel of the washer and plop it right on the rinser (something similar to the picture on the left). For Kegs, as part of a good sanitation regiment, I still recommend fully disassembling the connector posts and soaking all the individual parts in star san or iodophor before filling with beer.

### **Hopping into the Sunset at the 2011 San Diego NHC**

By Mike Haisma

#### **Background**

Dr. Charlie Bamforth, professor of Brewing Science at U.C. Davis, gave a presentation entitled [Hopping into the Sunset](#) to a packed room first thing in the morning after club night at NHC. His presentation covered a wide array of hop-related topics. Although he did spend a little time talking about other hop-related topics, most of the presentation revolved around different aspects of alpha acids as they relate to brewing. As a word of warning, some parts of the seminar got fairly technical.

#### **IBUs vs. Bitterness**

One of the most interesting parts of Dr. Bamforth's presentation was in the distinction between perceived bitterness and IBUs. Although we tend to measure a beer's bitterness in terms of IBUs for homebrewing as well as in the wider world of craft beer, that measurement can be quite misleading. As we are all aware as homebrewers, alpha acids from hops are isomerized during the boil, which results in bitterness. However, the quality of the bitterness can vary dramatically depending upon the hop variety, the age of the hops, and various other factors. Hops are composed of three different alpha acids: humulone, cohumulone, and adhumulone, the most abundant of which is humulone. However due to the harsh, rather unpleasant quality of the bitterness derived from

Here is a shot of the washer in action:



Initial results have been excellent! Even a carboy with dried on krausen residue that did not come off after a soak came out completely clean after a few minutes on the washer. Just fill the buck with a gallon or two of hot water and cleaning solution, mount the carboy or keg (with couplers attached) and let it run for 10 minutes or so. Rotate the vessel occasionally to ensure complete coverage. I recommend PBW, because it does not foam as much, but if you do use OxiClean, don't overdo the

cohumulone, hops breeding programs try to target lower relative levels of it.

#### Typical $\alpha$ -acid composition (%) of selected hop varieties

Variety	cohumulone	humulone	adhumulone
Galena	36	51	13
Nugget	22	64	14
Wye Target	34	51	15

A similar situation occurs with iso-alpha acids, which are alpha acids that have been isomerized, either by boiling in wort or by other means. There are two different categories of iso-alpha acids that occur: cis-isomers and trans-isomers. Cis-isomers, like cohumulone, are perceived as more bitter. The method of isomerization used can have a quite large effect on the ratio of cis-isomers vs. trans-isomers. Since the way IBUs are measured in a lab is by analyzing the amount of iso-alpha acids in a given amount of solution, even though two different beers can have the same apparent IBUs, they can in fact taste quite different in terms of bitterness due to the different relative quantities of cohumulone vs. humulone, or cis-isomers vs. trans-isomers.

#### Hops and Skunking

I learned that there are no skunks in England. When he first got the job at UC Davis and moved over from the UK to California, Dr. Bamforth was driving in the area around Davis with his wife when he rolled down the window and that distinctive aroma wafted in. He turned to his wife and said, "Good God! Heineken has opened a brewery here!" There is no need to belabor the point that brown glass is much better at blocking out harmful rays of light than green glass, but even brown bottles are not impermeable to long exposure. Dr. Bamforth said however, that Miller beer does not skunk, due to the isomerization process used which hydrogenates iso-alpha acids to produce tetra-iso-alpha acids, which, although they still break down, at least do not produce MBT (3-methyl-2-butene-1-thiol, the chemical responsible for skunky odor and flavor in beer) when they do so.

#### Hops and Foam

Apparently, tetra-iso-alpha acids also form remarkably stable foam compared to other iso-alpha acids. In fact, the alpha acid content in hops is an important factor in not just foam stability, but also its texture. Dr. Bamforth

told a story about how they did some research on the visual appeal of foam in beer. They took many different pictures of beer in a glass, where the only variation between pictures was how the beer was poured into the glass. They then showed these pictures to people, who found the pictures with a large, foamy head to be more appealing, even when those people normally preferred to drink out of the bottle. When he took this research to Anheuser-Busch to present the results, the first question he was asked by the brewers was "Why did you use Miller beer?" Although Charlie had never stated that they used Miller for the experiments, the brewers could tell just by looking at the foam texture.

Dr. Bamforth had one other bit of advice for homebrewers to improve head retention. He said that adding 2mg/L of zinc to your beer will greatly improve head retention.

#### When Hops Go Bad

Dr. Bamforth also spoke about what happens when you use older hops, which, if you've ever encountered them, you'll know develop a distinctive "cheesy" aroma when they have gone bad. He related the story of a stingy commercial brewery in the UK who discovered some old hops in storage that had gone a bit cheesy, but decided to use them anyway as bittering additions in the boil. After performing lab tests to determine the alpha acid percentages left in the old hops, they increased the quantities appropriately to compensate for the lower levels, and made a batch. What they ended up with was extremely cloudy, off-tasting beer. By increasing the quantity of hops to get the alpha acids, they also dramatically increased the quantity of polyphenol in the beer to levels that caused the product to suffer. Lesson learned: don't use old hops, even for bittering!

Although the commercial brewing industry spends enormous amount of money to prevent oxidation during brewing, packaging, distribution, etc., given enough time, your beer is going to go stale. Even if the hops are fresh when you make beer, over time, the iso-alpha acids break down, lowering bitterness while simultaneously increasing the off flavors in beer. Dr. Bamforth said that one thing you can do, at least in a commercial setting, is to play around with the types of iso-alpha acids in the beer. Trans-isomers are more prone to degradation than cis-isomers, so by altering the relative content of each you could help control this. One other potential solution is again to use reduced side-chain isomers like tetra-iso-alpha acids, which do

not produce the same staling compounds.

### Summary

So, what did I learn from the seminar that I can actually use in my homebrewing? It seems like a lot of the things I learned during the seminar are impossible, or at least impractical for a homebrewer to implement in an effort to improve their beer. And, staling probably isn't as much of an issue for most of us because we tend to drink our beer much faster after making it than a multi-national or even regional brewery has to worry about packaging and supply chain. Then again, I still have bottles of homebrew from three or four years ago hanging around my house. After doing a bit of Googling I found that tetra-iso-alpha acids are available in quantities useful for homebrewers, being sold as hop extracts for brewing as well as herbal supplements. One trick that I do plan to test side-by-side in the near future is adding zinc to my beer in an attempt to improve head retention. After all is said and done, however, I think common-sense applies: be sure to use fresh ingredients, drink your beer in a timely fashion, and avoid exposing it to sunlight.

### The Kettle

[Jim Wilson](#), Dregs Editor

My answer to the question on the cover is - Dubbel.

### Aperitifs

My 10 year old Hanna HI 190M magnetic stir plate up and died. I think the problem was the motor brushes but they're not serviceable so I bought a replacement from [Brewers Hardware](#). It's stirring a starter for tomorrow's batch of Dubbel as I type this. The machine is just a variable speed computer fan packaged in a knock off Tupperware box. It does have more torque than the Hanna and claims to be able to spin up a 2 liter starter which I have no reason to doubt. The price was attractive although the only shipping offered from Orange to Redondo was atrocious.

Special for Esther. [Three cheers](#) for sour beer!

Google bees help make [Google beer](#).

[LA Beer Week Festival Re-Cap and Photos](#)

[First commercial cassava beer rivals African homebrew](#)

[Swim in beer](#). Could you be happier?

This link isn't obvious but with a little mousing around, good things can be yours!

### Digestifs

Beer stone be gone!

By The Stonerator, Jim Wilson

Rob Proffitt, the original Clean Freak, explained the importance of cleaning and sanitation in the October 2008 [Dregs](#). This is an add-on to his excellent discussion.

Brewing leaves organic and inorganic residue on equipment. Both have to be removed before any sanitizer can do its thing. In commercial breweries, hot caustic is often chosen to remove organics. Noncaustic alkaline cleaners like PBW and Oxy-Clean work fine too and are safer in home breweries. Acid cleaners remove simple inorganics well and can tag team with NACs to remove complex inorganics like beer stone.

Beer stone is calcium oxalate,  $\text{CaC}_2\text{O}_4$ . An insoluble precipitate, it can appear as a dull brownish-white film on stainless steel equipment like mash tuns, kettles, plate heat exchangers, fermentors and kegs. Time and temperature play their usual roles. Beer stone can form in a short time at high or over a longer time at low temperatures. If it's not removed, pitting of the vessel may occur underneath the film, heat transfer can be impeded and microorganisms growing in its nooks and crannies could spoil your beer. Oh, horror of horrors!

Some homebrewers use household cleaners to remove beer stone. I tried vinegar, CLR, TSP and Lime-A-Way. None worked for me with or without elbow grease. Redondo beer stone needed a more powerful solution.

*A Brewing Techniques* [primer](#) by Mica Millspaw has good tips about caring for stainless steel. In it, Mica discusses what beer stone is and why it deposits on our favorite brewery metal. A more narrowly focused [piece](#) by Dana Johnson details a process for removing beer stone but I had no idea where to buy the nitric and phosphoric acids he recommended for the key step.

After reading Rob's article, I reviewed my practice of using 75% ethyl alcohol, Everclear, as a sanitizer. It worked well but was expensive. Rob suggested Star-San which I didn't know much about. A little mouse time on [Five Star Chemical's](#) site fixed that and also introduced me to another of their products, [Acid Cleaner #5](#), which is a blend of nitric and phosphoric acids. Eureka!



I bought AC #5 at [SBBS](#) and tried it on my small kettle, an 8 gallon Vollrath stainless stock pot. Here's what it looked like before cleaning.



Below is the same kettle, after using Johnson's process with one ounce of AC #5 per gallon of 140°F tap water and a light wipe with a paper towel after draining.



Just like brand new!

Danger, Will Robinson! AC #5 is a strong acid with a pH of 1.2 and will cause injury if you don't show respect. When you use it, at least wear glasses or a face shield and remember "A&W root beer". Always add acid to water, not the other way around. For those who dream about the nitty gritty late at night, here's AC # 5's [MSDS](#).

After the Vollrath was shiny and pretty, I recycled the acid solution into my 15 gallon kettle and removed the beer stone from it too. After treatment, inside surfaces of the two look very similar. Conscientious brewers regularly remove beer stone to prevent it from gaining

even a toe hold. I'll do that going forward and keep trying to brew the best damn beer.

The usual disclaimers are active. I don't work for Five Star Chemicals or SBBS yadda yadda yadda.

## Competition Calendar

[Rives Borland](#), Strand Vice-President

### Club-Only Competitions

Strand Brewers' Club Meeting

**Time:** 2nd Wednesday of most months 7:00pm.

Best entry at the club meeting will be sent to the judging location.

For more info on club-only competitions, go to

<http://www.homebrewersassociation.org/pages/competitions/club-only-competitions>

### November/December 2011 (bring entries to Nov. SBC meeting)

*Hail to Hefeweizen*

Entries are due November 25, 2011 and judging will be held December 3, 2011.

Hosted by Brian Steuerwald and the [Foam Blowers of Indiana \(FBI\)](#) club of Indianapolis, IN, this competition covers BJCP categories 15A, 15B, 15C, and 15D.

For more information, contact Brian Steuerwald at [BLSteuerwald@aol.com](mailto:BLSteuerwald@aol.com).

### January/February 2012

*Dark Lagers*

Entries are due TBD and judging will be held TBD.

Hosted by the [Silverado Homebrew Club of St. Charles, IL](#), this competition covers BJCP category 4.

For more information, contact Robert Keck at [keckbobb@netscape.net](mailto:keckbobb@netscape.net).

### March/April 2012

*Stout it Out Loud!*

Entries are due March 17, 2012 and judging will be held March 24, 2012.

Hosted by Kelly Kruegel and the [Rock Hoppers club of Parker, CO](#), this competition covers BJCP category 13.

For more information, contact Kelly Kruegel at [kruegel.kelly@gmail.com](mailto:kruegel.kelly@gmail.com).

### Local Competitions: *in order of entry deadline*

**12/10/2011** [3rd Annual TVHA Homebrew Competition](#)  
**Temecula, CA**

Contact: [Eric Holden](#)

Phone: (858) 386-6059

Entry Fee: \$5.00

Entry Deadline: **12/02/2011**

**01/21/2012** Doug King Memorial Homebrew Competition (no web site)

**Woodland Hills, CA**

Contact: [Ed Kochanowski](#) Phone: (818) 917-2467

Entry Fee: \$6.00 Entry Deadline: **01/12/2012**

**05/27/2012** [California Festival of Beers Home Brewer Competition](#)

**San Luis Obispo, CA**

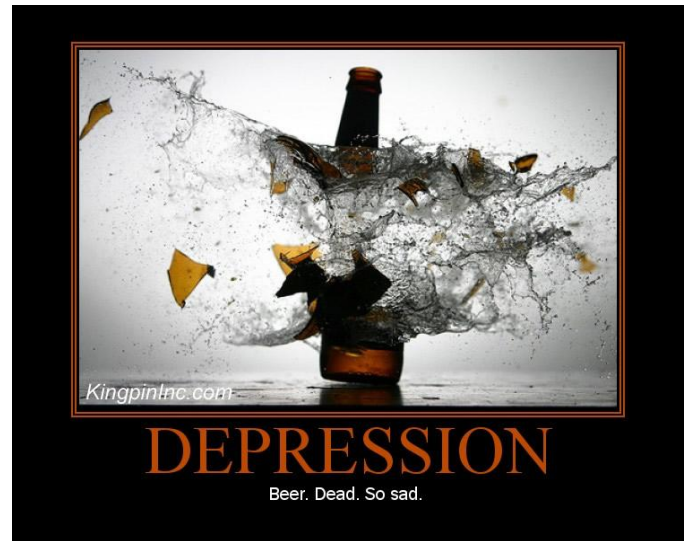
Contact: [Holly Todd](#) Phone: (805) 544-2266

Entry Deadline: **05/01/2012**

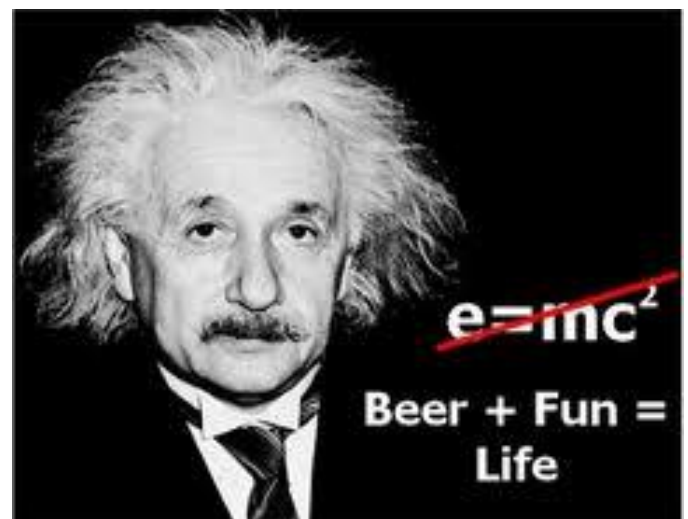
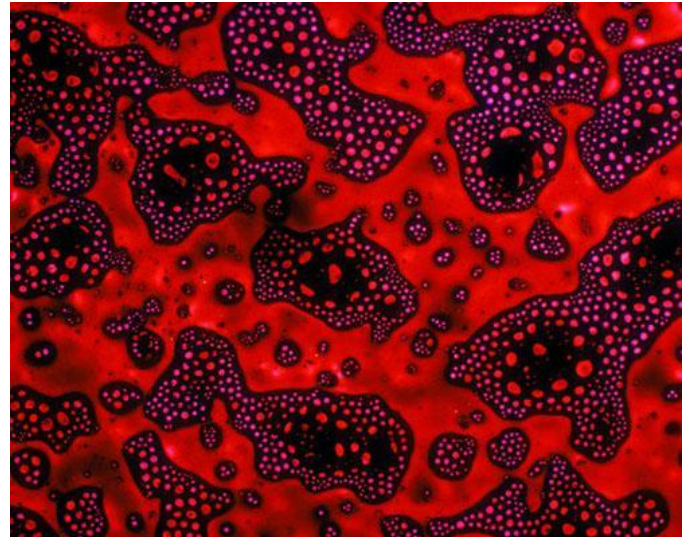
Go here for a [complete list](#) of BJCP competitions.

### Year Look-Ahead

November	COC – Hefeweizen
January	COC – Dark Lagers
March	COC – Stout
May	COC - Scottish and Irish Ale
May	Mayfaire
July	Los Angeles County Fair
August	COC – Porter
September	Pacific Brewers Cup
October	California State Homebrew Competition



Microscopic view of crystallized Black and Tan





Your stories are welcome in the *Dregs*. Upgrade your brewery? Fine tune your practice? Take a road trip? Do well in a competition? Have recipes to share? Read a good beer book? Have club related pictures, especially for the *Dregs* cover? Send all those, or anything else you think would be interesting to [Jim Wilson](#). Thanks!



The objectives of the Strand Brewers Club are to brew beer and share information about brewing, presentation, consumption, judging and history of beer. We promote and encourage homebrewing competition and hope to foster general goodwill through the making and consuming of this noble and most excellent beverage. We aim to brew the best damn beer.

It is our policy to brew and consume beer strictly for fun. Under no circumstances does Strand support or condone in any manner the sale or barter of homebrewed beer, the operation of a motor vehicle under the influence of alcohol by a member or participant in any club event or the provision of alcohol to minors.

#### Strand Brewers Mentor Pool

These members have volunteered to answer brewing questions and to help beginning brewers learn the craft.

Name	Phone	Email	Location
Bill Krouss	310-831-6352	bkrouss (at) cox dot net	Rancho Palos Verdes
Dave Peterson	310-530-3168	diablo390 (at) aol dot com	Torrance
Jay Ankeney	310-545-3983	jayankeney (at) mac dot com	Manhattan Beach
Jim Hilbing	310-798-0911	james (at) hilbing dot us	Redondo Beach
Jim Wilson	310-316-2374	editor (at) strandbrewersclub dot com	Redondo Beach
Steve Fafard	310-373-1724	sfafard (at) cox dot net	Rolling Hills Estates

#### 2011 Club Officers

President:	Chris Voisey	310-941-4810	president (at) strandbrewersclub dot com
Vice-President:	Rives Borland	310-469-3634	vp (at) strandbrewersclub dot com
Treasurer:	Rob Proffitt	310-787-9511	treasurer (at) strandbrewersclub dot com
Activities:	Esther Tung	310-227-1063	activities (at) strandbrewersclub dot com
Administrator:	Jeff Sanders	310-292-9301	administrator (at) strandbrewersclub dot com
Editor:	Jim Wilson	310-316-2374	editor (at) strandbrewersclub dot com
Webmaster:	James Amezcua	310-683-2260	webmaster (at) strandwbrewersclub dot com