

Wensel's Counterpressure Filler

By Steve Kranz

Wensel's Counterpressure Filler (CPF) is made and sold by William Wensel through his book publishing web site (www.backyardpublisher.com) and it sells for \$250 plus shipping.

The Wensel's Design

At right is Wensel's CPF, as modified by Gregg Norris for use at the Clay Pipe brewery to bottle Midnight Special Pale Ale. It sells for \$250. Below it for comparison purposes is a CPF sold by hoptech.com. It sells for \$70, and has a design common to all handheld units, namely a long fill tube through which both gas and beer enter the bottle, a rubber stopper at the top, a bleed valve to allow pressure to escape from the bottle, and a valve on the top to control the flow of gas and beer (some have two or three valves) on the top. It requires the user to hold the CPF to the top of the bottle while working the valves.

The Wensel unit does not come with a fill tube for either gas or beer. Both CO₂ and beer enter the bottle from the top. A beer fill tube can be added, but not for gas. So, is this good, bad, or no difference?

The perceived advantage to filling beer from the bottom of a bottle is that it undergoes less turbulence and creates less foaming. Frankly, as long as there is adequate CO₂ pressure in the bottle instead of air, it shouldn't really matter. As for where the CO₂ enters the bottle, it is thought that gas entering from the bottom more effectively displaces the air as the bottle fills from the bottom and forces the lighter air out through the top, as opposed to filling with gas from the top where the air must also exit. There is logical comfort in that theory...it just seems to make sense. However, since CO₂ is heavier than air, CO₂ entering the

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Counterpressure Bottle Filling 101

By Steve Kranz

FOR BREWERS OF ALL LEVELS

The "what, why and how" of counterpressure bottling

WHAT: Counterpressure filling means putting carbonated beer into a bottle under CO₂ (carbon dioxide) pressure. It is the (better) alternative to priming beer with sugar and carbonating naturally.

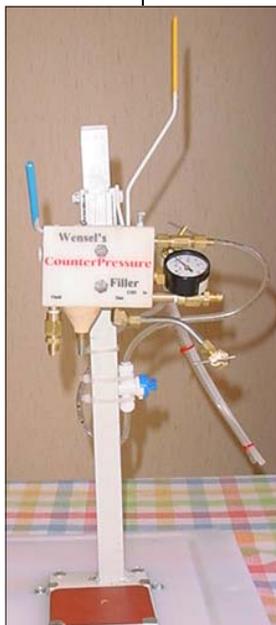
WHY: To get carbonated beer into bottles from a keg (or in the case of a brewery, from a conditioning tank), without:

- oxidizing the beer;
- losing the beer's carbonation; or
- having sediment in the bottle

Filling under CO₂ pressure eliminates the chance of the beer becoming oxidized, as it can get by filling the "regular" way with a bottling bucket and a bottling cane. You know what I mean, when you use a bottling cane with the spring-loaded valve at the bottom? When the bottle first starts filling, it sprays the beer into the bottle for a couple of seconds until there's enough beer to cover the tip of the valve. Spraying the beer like that oxidizes it, which can contribute to an off-flavor that seems typical of many homebrews. Also, air is left in the head space above the beer when a cap is applied to the bottle, providing an additional captive source of oxidation. You can reduce or eliminate this source of oxidation by using oxygen-absorbing crown caps.

Counterpressure filling eliminates both of these risks of oxidation. First, the bottle is purged of all air and filled with CO₂ before being filled. Secondly, before a cap is applied, the carbonated beer is caused to foam up slightly, which drives any air out of the headspace and leaves you

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Club Hoppenings

Springtime is for Happy Hours

A group of a dozen members and friends gathered for happy hour at Larry and Lin Hitchcock's house on April 22. Despite the gloomy weather that kept everyone inside, a fine time was had by all. Just about as many commercial beers were sampled as were homebrews, and everyone managed to stay for at least a couple hours. Good company and good conversation flowed among the food and drink. If you weren't able to make it to this one, another is being planned for the Fall.

Big Brew 2005

National Homebrew Day was celebrated locally at the home of Gary & Lydia Cress. About a dozen members attended or stopped by, and we brewed 25 gallons of beer.

National Homebrew Competition report

The MSPA saga continues...

Larry Hitchcock and Steve Kranz each sent entries into the 2005 National Homebrew Competition. Larry sent one entry, and Steve sent two...all three bottles packed in the same box. A week before the First Round judging in April, Steve got a call at home from the Regional Site Coordinator... "Uh, Mr. Kranz, I'm sorry to say that your bottle of Orange Blossom Special didn't make it." The other two

bottles survived the trip. Steve could have sent a replacement bottle, but he just let it go....sniff!...such a good mead it was, too. Because of the broken bottle, Steve received one free entry certificate for a future NHC entry.

This was the first, and LAST, time he sends entries via UPS. From now on, he's going back to using the (*shhhhhh*) U.S. Postal Service.

The First Round results are in. Larry's barleywine scored well, at the top end of the Good category. Steve's original Midnight Special Pale Ale batch won 2nd Place for the East Region in the "Specialty Beer" category. MSPA advances to the Finals, which will be judged during the National Homebrew Conference in Baltimore, June 16-18.

Speaking of Midnight Special...

We all thought that there was no MSPA left, at least not in Carroll County. We wuz wrong. Glen Codner scored four bottles from Cranberry Liquors on June 4. Seems that someone had ordered a case but never picked it up. These 4 bottles were the last of it.

Last Call for National Homebrew Conf.

June 16-18, Holiday Inn (Inner Harbor). Online registration is closed, so just register at the door. Schedule: www.beertown.org

Benefits of Membership

Members of the Midnight Homebrewers' League get these benefits in addition to this newsletter:

- Priority registration for tastings and other events
- Nifty color membership card, good for discounts at local homebrew supply shops
- Purchase club-logo T-Shirts
- Membership Directory - get help from other members
- Library of "Classic Beer Style Series" brewing books to borrow
- Buy, sell, trade anything "beer" in free member ads

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Brewer's Tips

Please send
Brewer's Tips
via email to:

smkranz@adelphia.net, with the
subject line Brewer's Tips.

Washing machine mash system

I am a proponent of adapting major household appliances for brewing use. So I am excited to share a web page with complete instructions for converting your washing machine into a WRIMS (Washer Recirculating Infusion Mash System). Really, it's genius. The pumps and motors in a washing machine already do exactly what we need to mash. And how about the spin cycle for getting all of the sugars from your grains? All you need are a few easy mods to better control your water temperature and wash cycles. It's all right here: <http://hbd.org/cdp/wrims/wrims.htm>

Slow Down Your Bottle Filler

You might think that because bottling is a chore, the faster it goes the better. Better for you, but not better for your beer. You invest a lot of time and money in your beer, so why risk spoiling it with rough handling at bottling time? If your beer splashes into the bottle as it begins to fill using your regular bottling cane (and they almost always do), it is being oxidized. It only splashes for a couple of seconds, but that's a couple of seconds too much. Lighter flavored beers evidence oxidation more than heavier beers, but any oxidation contributes to early spoiling of your beer with off-flavors. So get rid of that

splashing when you bottle, by slowing down the flow when you start to fill. Hold the bottle up higher, closer to the beer level in your bottling bucket, when you start each fill, and the beer will enter the bottle with less force...and less splashing. As soon as the tip of your filler is covered with beer, it won't splash any more. Now set the bottle down lower to fill it quickly.

Kettle Dowel, Kettle Dowel, Kettle Dowel (say 10 times fast)

If the inside of your kettle does not have gallon markers, use a wooden dowel and a permanent marker to make a low-cost, low-tech measuring tool. Add one gallon of water at a time to your kettle and make a line with your marker at each gallon level on the dowel. This way you can know exactly how much water or wort you have added, or how much has boiled away. Make a separate one for each kettle you own, because every kettle is shaped differently.

If you have a long-handled plastic spoon, you can use the spoon instead of a dowel. It has the added advantage of not absorbing liquid and possibly getting real funky like a wooden dowel can get if you don't clean it well after dunking it into your wort. But over time, you will need to re-mark your plastic spoon because after use, the lines will fade.

Lye source (for German pretzels)

Sadly, www.vegansoapworks.com is gone. But here is another place to get sodium hydroxide (lye) for your pretzel-making:

www.summerbeemeadow.com/

The Beer Thing™

By Steve Kranz

Meet The Beer Thing™, a multi-purpose homebrewer's dream. Those who were at Big Brew 2005 saw it in action.



The Beer Thing™ looks like an ordinary garden sprayer for fertilizer and weed killer. But don't let its appearance deceive you. It is a powerful and versatile brewer's tool. OK, so it started out as a garden sprayer. That was before. It is now:

1. A cleaning/sanitizing pump for the Wensel counterpressure filler;
2. A draft beer line/tap cleaner;
3. A sanitizer sprayer for brew day;
4. A portable beer keg to take one gallon of kegged beer on the road to a party, tasting, or other event where you want to take draft beer.

This is *the real deal*. The Beer Thing™ is uniquely suited to these purposes, for many reasons:

- It is built to hold pressure;
- It has a hand pump to push cleaner and sanitizer through beer lines;
- The pump has a handle to make toting it around easy;
- Its small size requires only a small amount of cleaner/sanitizer liquid;
- It is lightweight and translucent;
- It was CHEAP (\$9.00 at Wal-Mart, plus \$20-25 more for the additional hardware and hose.

As shown here, I attached a shut-off ball valve off the liquid connector with a barbed fitting and a short piece of

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with an oxygen-free bottle of beer. You can't do this by priming and bottling, because the beer is not yet carbonated (i.e. it won't foam).

And in a counterpressure system, the CO₂ that's dissolved in the beer stays in the beer rather than coming out of solution as foam, because the bottle remains pressurized with CO₂ during the filling process.

But if we already keg our beers, why would we want to then bottle it?

1. Reduced risk of oxidized beer;
2. You have precise control over the carbonation level.
3. You want to enter a competition which requires bottled beer.
4. You might need to empty a keg to make room for a new beer.
5. You might want to bring a few bottles to a party, or give as gifts.
6. Counterpressure filled bottles don't have any yeast sediment.

HOW: All CP fillers, from a \$60 handheld unit to a \$1 Million bottling line, do the same thing: purge air, fill with CO₂, fill with carbonated beer. Because the supply keg and the bottle are under the same CO₂ pressure, beer won't flow into the bottle unless we upset that equilibrium. So, we bleed off pressure from the bottle with a valve. As the pressure bleeds from the bottle, the pressure on the keg pushes beer into the bottle. By adjusting the rate of pressure bleeding from the bottles, we control the rate of beer going into the bottle.

CP fillers for homebrew use are available from approximately \$60 for Phil's CounterPhil, \$80-\$100 for a more "standard" handheld unit (e.g. the hoptech.com unit pictured on Page 1), to the \$250 Wensel's CP filler (see review). I owned a Phil's, used it once, and sold it. It is inconvenient to

use because it requires the keg to be elevated, since its design relies on gravity rather than CO₂ pressure to move the beer. I raised this issue to its inventor Dan Listermann, who defends the design as intentional, in order to minimize foaming. Well, my 47-year old back and knees don't appreciate filling and capping while sitting on the floor in my laundry room. A properly operated CP filler will not have foaming problems.

Here is a comparison of the two methods of carbonating and bottling, with the advantages and disadvantages of each:

Natural Carbonation:

- Sanitize bottling bucket, racking cane, bottling cane and hose;
- Transfer beer from secondary to bottling bucket;
- Boil water to dissolve priming sugar; add to beer;
- Sanitize bottles and caps;
- Fill and cap each bottle;
- Clean secondary, bottling bucket, hoses and canes;
- Wait 1-2 weeks for carbonation to occur.

Advantages:

- inexpensive - you already have the equipment and know-how to bottle this way;
- arguably less work involved;

Disadvantages

- produces sediment in bottles;
- risk of oxidizing beer due to aeration of the beer when filling, and from air in the headspace;
- risk of gushing or exploding bottles due to premature bottling or over-priming.
- occasionally bottles do not carbonate due to weak yeast, cool temperatures, insufficient priming sugar, etc.

Counterpressure Carbonation:

- Sanitize keg, racking cane, hose;
- Transfer beer from secondary to keg;
- Wait 1-2 weeks for carbonation;
- Sanitize bottles, caps, and CP filler;
- Fill and cap each bottle;
- Clean secondary and CP filler.

Advantages

- Sediment-free bottled homebrew;
- You determine the carbonation level you want...it always works;
- Ultimate flexibility to bottle a whole batch or only a few bottles, or to empty a keg for a new batch;
- No risk of oxidizing your beer;
- No risk of exploding bottles due to premature bottling or over-priming;

Disadvantages

- Cost. In addition to the expense of the filler itself and all connections (\$60 - \$250), it requires a basic kegging setup;
- arguably more work;
- inconvenience: this operation is best done wherever you keep your kegs and CO₂ tank, whereas priming and bottling the old way can be done easily anywhere.

SUMMARY

I believe that CP filling is a technically superior way to bottle homebrew. Part of our jobs as brewers is to give our beers a chance to be as good as they can be, and CP filling eliminates the serious risk of oxidation that can happen when we bottle. But CP filling is a little more involved, and requires an additional investment that some brewers won't want to make (or justify to their Spousal Units).

As with many other brewing issues, let your conscience be your guide.

Beer & Brewing News

Homebrew History

With the repeal of Prohibition in 1933, Congress intended to legalize homebrewing. But when the law was printed in the *Federal Register*, someone left out the words "and/or beer" from the phrase that legalized home wine-making. The mistake was not corrected then because the Bureau of Alcohol, Tobacco and Firearms and the brewing lobby both had reasons for leaving it in place -- the BATF to prosecute moonshiners who were caught before they actually began the distilling stage of the process, and the brewing industry because they didn't want the competition.

So it was 45 years later when, on October 14, 1978, President Jimmy Carter signed the bill that legalized homebrewing. One of the bill's sponsors, Senator Alan Cranston, said, "Homebrewers brew home beer because domestic beer lacks the rich malty taste they like. Homebrewers share a creative desire to concoct beer to their own personal taste. They also

share a consumer's need to cook a tasty brew for the equivalent of 15 to 25 cents a quart."

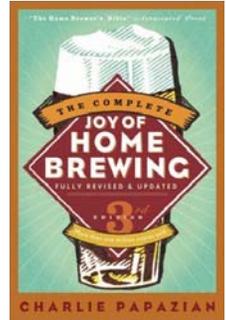
THIRSTY ELEPHANT RANSACKS VILLAGE

There's no stopping a wild elephant looking for a beer. Three villagers in northeastern India were trampled to death and seven wounded by a wild Asiatic elephant searching for homemade rice beer, according to wildlife officials.

The elephant strayed from a bigger herd. "The elephant herd came near the village looking for home-brewed rice beer. One of the animals strayed out from the herd and did the damage," the official said. "For a stiff drink, elephants would blast through walls ... they go berserk, at times plundering granaries and tearing apart huts, besides inflicting fatal attacks on human beings," elephant expert Kushal Konwar Sharma said.

Book Review

The Complete Joy of Home Brewing



Third Edition, by Charlie Papazian (Harper Collins October, 2003)

Review by Steve Kranz

Many homebrewers already have a copy of Charlie Papazian's earlier book, *The New Complete Joy of Homebrewing*. But it was in desperate need of updating, so the 3rd Edition was published in 2003.

Each edition has a Preface written by famous beer writer and lecturer Michael Jackson...and his new Preface is really a fun piece of reading in its own right. Sheesh! What a job, flying around the world to drink beer, write about it, and write about other beer geeks.

The 3rd Edition has been updated with new, fresher information. New recipes. New products. Some new charts, too. But the essential thrust of the book is the same as before, i.e. a non-intimidating way to get people started down the path to homebrewing happiness, replete with the standard, "Relax. Don't worry. Have a homebrew."

For brewers who have been in the hobby long enough to have their own sense of the right way to do things, there are probably few new things you'll take from this book, although it's still good to have as a more modern reference than the older editions.

But there are some things in this 3rd Edition that left me scratching my

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Treasurer's Report

By Larry Hitchcock

Just a few things to report since my last summary. At present, there are plans for the Club's involvement in the National Homebrewers' Conference in June, which may require some funds. We'll keep you updated.

Previous Balance: \$ 535.21

<u>Cash Received:</u>	
50/50 raffle	\$ 34.00
Food rebate	18.00
Memberships	55.00
Total	<u>107.00</u>

<u>Cash Disbursed:</u>	
Printing	190.95
Postage	7.34
Honey (MSPA)	<u>50.00</u>
Total	<u>(248.29)</u>

New Balance \$393.92

The food rebate was a generous donation from Eric and Debbie Lyons. They bought food for the group when we bottled Midnight Special Pale Ale. A collection was taken to repay them, which they returned to the Club...THANK YOU!

Please contact me if you have any questions or concerns about our Club's funds....Larry

(Continued from page 1)

bottle from the top should drop to the bottom anyway, and similarly force the lighter air out the purge valve at the top.

As delivered, the Wensel has ports for Liquid In, CO₂ In, and CO₂ Out. It also has a needle valve threaded directly into the filler's head to release gas pressure from the bottle. Gregg Norris added a separate needle valve and a purge valve to the filler's gas relief port for greater flexibility, and more effective CO₂ purging. Lastly, Gregg modified the CO₂ out port by adding a shut-off valve in case that port was not needed.

The top-down photo (at right) shows the "T" fitting which Gregg added to replace the original single needle valve for bleeding gas pressure. The center of the "T" goes to a new needle valve which controls the rate at which gas is bled from the bottle, which regulates the beer flowing into the bottle. This valve's new configuration allows for easy "blow-off" of any foam in the bottle as it fills, as the tube coming out the other end of the valve can be directed to a cup or a bucket to catch any "blow-off" foam.

The line off the right of the "T" goes to the blue & white plastic on/off purge valve which Gregg installed to the upright post of the filler. This valve allows the user to instantly pressurize with CO₂ and then release pressure from the bottle. Doing this several times purges air from the bottle prior to filling.

Bill Wensel, the designer/manufacturer, believes the "purge valve" was unnecessary, saying it would be just as simple to push up on the yellow locking handle to release the bottle from the rubber stopper to release pressure. That might be, but it would be awkward to do that several times with each bottle. Since the filler does not come with a "purge valve" installed, the product literature instructs the user to fill the bottle with CO₂, and open the bleed valve to allow air to escape as the bottle is filled. I believe the better route is to use the fill/purge method which the newly added purge valve allows. After having used the filler both at the brewery and at home, I think the addition of the purge valve is a nice improvement.

Mr. Wensel also discounts the need for a beer fill tube, and after my experience with it at home, I agree with him. I had virtually no foaming issues, using both 12 ounce and



22 ounce bottles. You can add a fill tube if you wish so that it will fill beer from the bottom of the bottle. Gregg added one at the brewery. It came loose, so he cinched it on with a very small cable tie.

The Wensel at home

The Wensel CP filler seems to be well conceived and put together. It is compact, and made of sturdy and lightweight aluminum. The locking lever is smooth and reliable. The filler is infinitely adjustable for any size bottle, by turning a thumb-screw on the back of the filler head and

sliding it up or down the post.

The primary control lever is the small blue-handled guy on the left of the filler. It pivots back and forth in three positions:

1. off (rear)
2. gas only (upright)
3. liquid (front, as shown in this photo)



Before filling bottles with the Wensel or any other CP filler, there are a few things to do. First, turn down the

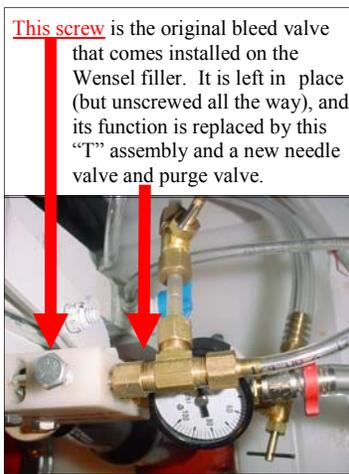
temperature in your beer fridge a day or so before you plan to bottle, to get the beer as cold as possible. Second, carbonate your beer to the level you prefer before bottling, and consider increasing it a few pounds a couple of days in advance of bottling. Even with the most efficient filler, tests have shown that your beer will lose 5-15% of its carbonation. For most purposes, that's probably not noticeable. But if you usually dispense your kegs at a pretty low setting (5-6 lbs.), I would boost the pressure to 10-12 lbs. about 5 days before bottling.

One great feature of the Wensel distinguishes it from other hand-held CP fillers. Most others require you to have separate CO₂ lines to the filler and to your keg to push the beer. The Wensel provides a CO₂ Out port on the filler head, which connects to your keg to push the beer.

To use the Wensel CP filler, here are the procedures:

- Set the blue control lever to the OFF (rear) position;
- Connect your CO₂ supply line to the "CO₂ In" port on

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CAUTION

- Before you start, read instructions packed with the sprayer.
- Do not use flammable liquids, caustics, hot water or acids in this tank.

I take product warnings seriously. Like this one. Since beer is neither a flammable liquid, a caustic, a hot water, or an acid, filling this Ortho/Roundup Multi-Purpose Sprayer with beer must be an approved use.

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hose. On the other end of the valve is a ¼" flare fitting, to which I can attach a variety of hoses for various purposes, by unscrewing the one I don't want and screwing a new one on.



Thing™'s valve to fill it with beer. When it's filled, shut the valve and screw a picnic tap beer hose to the flare

fitting. You now have a gallon of beer to go.

Pressure Options

For example, attach The Beer Thing™ to a counterpressure filler using a hose with flare fittings at either end, and pump cleaner, sanitizer, or rinse water flow through the filler. It can do the same thing for draft beer lines. Put a cleaning solution in it and connect the flare fitting from The Beer Thing™ to your beer lines. Pump the solution through the lines and beer faucets (and into a bucket). Shut the tap, let it sit a few minutes, then flush with water.

Switch hoses and you have a sprayer for sanitizing solution on brewing day, using the original nozzle and handle which came with the unit.

But the Beer Thing™ serves its highest purpose as a portable keg. You can either fill it with carbonated beer from a keg, or use it as a large bottle by filling it with new beer primed with sugar.

Before filling The Beer Thing™ with beer from a keg, flush it with CO₂ by connecting a gas line to the flare connector on the ball valve (you must also un-screw the plunger handle a little to let air escape as the CO₂ pushes it out). Then connect the beer line from your keg to the Beer



You have two options to pressurize The Beer Thing™, depending on whether you want to pump cleaner or sanitizer through it, or dispense beer:

1. the hand-pump (using air), or
2. install a CO₂ injector

Use the hand pump for cleaner and sanitizer. For beer, the hand pump is not the best option. The pump mechanism is inside a housing that

extends down into the beer. As air is pumped in, it bubbles up through the beer which can make it go flat. If you drink it fast, it would be OK.

Otherwise, use a CO₂ injector that uses small CO₂ cartridges. Installing an injector requires drilling a ½" hole near the top to attach a ¼ MPT x ¼ flare adapter. Screw the adapter directly into the hole...the plastic is thick enough to allow the threads to self-thread the hole, forming a tight seal. The injector connects directly to the flare fitting, allowing you to dispense beer under CO₂ pressure. Ain't that The Bomb?

(Continued from page 5)

head. For example, he (still) instructs extract brewers to pour hot concentrated wort through a strainer and into a fermenter half-filled with cold water. Now, this information flies in the face of modern brewing science that suggests that "hot side aeration", or the introduction of oxygen into hot wort that would come from such dreadful wort abuse, oxidizes the beer which leads to rapid "staling" and ruination of the beer's flavor. I don't know if Charlie really still does that...if he does, maybe he drinks his beer fast enough that it doesn't have a chance to oxidize. Or, maybe the truth is that the oxidation effect is less dramatic than believed.

Another oddity is his discussion of how to chill wort after boiling. Charlie mentions every which way *except* the most common: the immersion wort chiller. He uses immersion copper coil wort chillers in reverse. Instead of immersing it in hot wort and running cold water through it, he puts the chiller in cold water and runs the hot wort through the chiller. One of our own members (Cress, Gary) has modified his wort chiller to do exactly that, so Charlie is at least in some good company.

Countering the strange treatment of wort chilling, the book does have updated information on cleaners and sanitizers such as Star San and PBW. The recipes are also new...some are the same (but updated), while many are altogether new.

I haven't yet read the book all the way through, or explored the completeness of the Index (the sign of a good reference book), so I still have new horizons to explore with the Third Edition of The Complete Joy of Home Brewing. But no matter what, for \$10.17 at amazon.com, (and free shipping if you buy \$25 or more), you can't go wrong with this updated homebrewing classic.

Events Calendar

For all tastings, \$5 per member (\$7 for guests) covers the host's costs. RSVP directly to the host, or as indicated. If you wish to schedule an event, contact any club officer.

June
16-18 2005 National Homebrewers Conference in Baltimore, MD

Mead Day 2005! RSVP
neil@mezebish.com or 410-875-2325

July **American Beer Month!**

September-October
29—10/1 Great American Beer Festival in Denver, CO

August
6 Brew-Ha-Ha hosted by Neil Mezebish. Combined with

October
TBA BrewCamp 2005 returns!

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the Wensel; connect the "CO₂ Out" port to your keg's Gas In connector; and connect the Wensel's Liquid port to your keg's Out (beer) connector;

- Set your CO₂ tank regulator to around 30 lbs. pressure;
- Place a bottle on the base of the filler and adjust the filler head so that it locks onto the bottle when the locking lever is raised. Lock it onto the filler;
- Fill the bottle with CO₂ by raising the blue lever to the upright position. Monitor the pressure in the bottle on the pressure gauge.
- With the **modified Wensel**, purge air by turning the purge valve to ON which releases pressure from the bottle, then closing it to refill with CO₂, and repeating this process a few times. If your Wensel is **not modified**, adjust the bleed screw to allow gas to slowly escape, while you monitor the pressure.
- With the bottle pressurized, flip the control lever to the LIQUID (front) position to begin beer flowing to the bottle. Adjust the bleed valve to control the fill rate and any foaming response. Opening the valve allows a faster flow but may cause foaming.
- When the bottle is full, return the control lever to the OFF position.

- Lower the yellow locking lever to release the bottle.
- Cap immediately before filling your next bottle. If necessary before applying the cap, tap the bottle sharply with a metal tool (wrench, pliers, etc.) to cause a brief foam-up of CO₂ to the top of the bottle. Apply your cap.

The only thing about the Wensel filler that warrants a complaint is its undersized base. The machine needs a wider and maybe a heavier base. Bill Wensel advises that it is intended to be clamped to a bench or table, which works fine and makes for a pretty easy one-hand operation. I have attached mine to a heavy plastic cutting board with steel mirror clips, which work great. One other option would be to drill some holes through the base, which would allow you to mount the filler to a table, board or other work surface with screws.

Wensel's Counterpressure Filler does a good job, and a few easy modifications make it even better. It's ease of use makes it worth the extra price over hand-held models.

July 2005

SUN	MON	TUE	WED	THU	FRI	SAT
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

August 2005

SUN	MON	TUE	WED	THU	FRI	SAT
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

September 2005

SUN	MON	TUE	WED	THU	FRI	SAT
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	