What Makes The Best (And Worst) Bier?



A pair of home-brewed German-style pilsners

After 37 years of brewing, I've learned two things for sure. The first? Homebrew can be some of the best bier on the planet! I have sipped home-crafted bier that would be competitive with some of the best biers I've had in this country and abroad. There are indeed those who take the hobby to a new level, putting copious amounts of time and effort into every stage of the brewing, fermenting, aging, and serving process. They focus on every detail of brewing and they regularly conduct blind tastings to learn more about their biers, fine-tuning their processes, updating/improving their equipment and raising the bar with each subsequent batch. The results can be spectacular. But like any pursuit, there is a spectrum to be sure and the vast majority of home brewers aren't brewing to create bier of this caliber. Rather they are only seeking something they feel tastes "pretty good" and worth sharing with friends and family. They brew because it's a fun hobby they can do on the weekends, between loads of laundry and yardwork. Something to knock out quickly, while Mom takes the kids to the pool. In these cases, the bier can still be quite good, but just as often, it can be utterly forgettable.

I've been all-grain brewing since 1988 and during this time I've met scores of brewers (both professional and amateur). I've had the good fortune to taste and explore how various brewers make their bier and I've compared them to other similar and not so similar versions. I've tasted some world-class biers at the source and explored the process for making them with the Head Brewers. Countless blind tastings have occurred, with both home brewed bier and commercial bier (more likely both at the same time). In short, I've tried to continue to grow as a brewer, paying attention to the details and keeping an open mind (or as much as possible). Most importantly, I remain a student of brewing. I think this last point is the most important. I am never going to know everything there is to know about making bier and I need to continue to learn, above all else. Through it all, patterns have emerged and the connections between the best and worst biers have started to come more into focus.



Home brewers, tasting bier with Brewmaster Mario Allendoerfer (center) at Rothaus Brewery in the Black Forest

Ultimately, I'm seeing that there are no silver bullets to creating a great bier, only road maps to the best and worst places you can go in brewing. And so, I wanted to get some of this down in print. Not only as a reminder and reference for myself, but possibly for others who might have an interest in exploring ways to improve their biers. It isn't intended to preach the gospel on the right and wrong ways to make bier. My goal here is to simply report what I've seen and learned from successful brewers over nearly four decades of following this craft. There are multiple routes to your final product and all of that depends on your own personal goals in brewing and why you pursue this in the first place. It is only meant as food for thought, for anyone who may be curious which efforts in their processes might be worth reviewing. Some of this might resonate with you and some might not.

I'll present my perspectives under a variety of headings, hopefully categorizing the principles that are closely related and possibly adding in some of what I see as possible "*do's and don'ts*". Keep in mind that many of these principles relate closely to one another. For example, my advocating for a certain process or procedure might, in some way tie-in with accepting another process. Finally, I'll list some of my favorite time-honored practices that often seem to be overlooked by home brewers and professional brewers alike. Ultimately, these are my interpretations and observations, gleaned over many years of being a self-professed student of the craft. Use what you like and discard the rest.

HOME BREWING IS EXPENSIVE and HOME BREWING IS HARD WORK

As a home brewer, I often hang out with other home brewers and so I've picked up on a general vibe regarding the culture of home brewing in America. By and large, in my personal experience, I've found home brewers to be rather thrifty people, adverse to spending too much money on equipment and supplies. Likewise, most home brewers are spread rather thin on time, and not able or interested in doing "*more than is needed*" to make a batch of bier. Simply put, I've found most home brewers to be both cheap and lazy. I know that sounds unduly pejorative, but I don't mean it to be (cheap and lazy just has a ring to it). I've already pointed out that different people have different standards for what they are trying to achieve, but it's worth noting that time, effort and expense will certainly affect the outcome of any project. Brewing a batch of bier is no different. When sharing this observation with a fellow brewer one day, he said something I found quite profound; "*You can be cheap, but not lazy".* I thought about this for a moment and realized he was right. A home brewer can cobble together a *Rube Goldberg* type of system, with a matching process that makes delicious bier, but it will likely create lots of extra work. And if a brewer expects the process to be hard work (and brewing is hard work), then it's safe to say that brewer is not cutting corners on effort. On the other hand, a home brewer can purchase one of the most expensive home brewing systems available and still take shortcuts to save time and effort. It is true that sometimes expensive brewing systems can save time and money (added automation, etc.) and this is not necessarily a bad thing. However, equipment manufacturers often create brewing systems specifically for home brewers, understanding they want something that makes bier as fast and as easily as possible, so the "short cuts" are sometimes built-in to the equipment. You'll need to decide for yourself if these systems are really what you want. Efforts to make the process as simple and as easy as possible often means you are cutting out part of the process or shortening/simplifying something along the way. In my observations this invariably results in a subpar product. It seems that mimicking how professional brew houses are setup and operate might allow you to make the best bier. I've sampled some really tasty bier from home brewers who have the simplest, most cost-efficient brewing set-ups, yet ones that take into account every step of the brewing process. I've also had some really bad tasting bier from people who spent thousands of dollars on state-of-the art brewing systems. There are no silver bullets with equipment either.



Home Brew Club Meeting – Talking bier making here!

My observations; home brewing is a process heavy pursuit. The more this process is truncated, the less control you will have over the final product. Simple equipment is fine, so long as it does what it is supposed to do. Like time and effort, cutting out certain equipment and shortening/combining processes will often prevent you from achieving different goals along the way. Ultimately, I believe you will taste it in the end. Bier is also a quality-sensitive product, so purchasing the cheapest ingredients might save you a few bucks, but this too will likely show itself in your bier. If it's the very best bier you want, review the entire process that's used to make the very best versions on that style. Then compare the process and systems you plan to use to get there. Regarding sheer effort, I like to remember that some of the very best bier is made by monks. Monks seek out hard work, which they believe brings them closer to their God. It should be no surprise then that Trappist monks chose brewing as one of these hard-work, godly pursuits. We all know how that turned out; world-class Trappist bier! For the very best bier on a consistent basis, you should plan on a hard day's work. I firmly believe this and go into every brew day ready to roll up my sleeves and work a long hard day.

Do's and Don'ts

Do schedule ample time for your brewing operations. If you don't have the time, wait until you do.
Do think about your ingredients. Purchase the freshest, highest quality ingredients you can.
Don't sell yourself short by shortcutting the process.
Do plan to work hard. Wrap your head around what will be required and get to it!



Discussing Franconian lager making with brewer/owner Stephan Zehender

CHOOSE YOUR MENTORS WISELY

For home brewers, it seems the American craft beer industry is the shining example to follow. Indeed, most craft brewers were once home brewers, so there is a sort of natural connection there. And the styles of bier being produced by the industry are what most home brewers are drinking on a regular basis (besides their own home brewed bier). It should come as no surprise then that home brewers would look to the modern craft industry for guidance. To be fair, there are both good and bad examples to be found in the craft industry, and everything along that spectrum. Which brewery or commercial example a home brewer chooses to adapt into their own brewing practices likely depends on their level of respect for the commercial products they want to emulate. If it's a hazy IPA you've found from your local brew pub that turns your crank, explore that and find out how it's made. Look to multiple other breweries that also make the style. Compare the processes used by all of those breweries producing that product. Details matter here. If on the other hand, your favorite bier is *Ayinger Maibock*, you have a much different roadmap to follow and probably only a handful of American craft brewers who can offer much meaningful guidance.

Many home brewers get a great deal of their information from the guy standing next to them at the home brew club meetings. There is information there and it may be very good info, coming from experienced brewers. It might also be bad information, from someone who only 'believes' they are giving you great direction. You will have to determine for yourself if the advice you follow actually works the way it's intended (this is where note-taking and recipe critiques come in handy; see below). Everyone's an expert but plenty of home brewers have just enough information to be dangerous. It can turn into a *blind-leading-the-blind* scenario fairly easily. Even if the club member is an "award winning

brewer", tread cautiously. I've tasted my fair share of biers from brewers who have won awards. Some are quite good, but plenty are quite the opposite. It's probably safe to assume that other home brewers are still learning the craft, just like you and me. Home brew competitions are largely judged by other home brewers, many of whom face their own challenges in creating consistently clean, high-quality biers. That's not to say entering your bier into competitions is a bad idea and plenty of home brewers do so primarily to improve their own understanding of bier quality. I think this is an honorable and worthwhile reason to participate. The same goes for becoming a certified judge. It can be very educational. Of course, there is also the element of taste involved in judging bier, and the ability to taste varies widely in any given population; with a broad range of sensitivities to off flavors in finished bier. And while you can't teach taste, a motivated beer judge can learn to identify off flavors and flavor characteristics common in well-made biers. For this reason, home brew competitions and/or becoming a certified bier judge might be a helpful way for brewers to get non-biased feedback and understand their bier better. I guess my only point here is to take it all with a grain of salt. Contests can become very ego-centric. Always be critical of your bier. Never let the highs get you too high or the lows get you too low. Remember to be a student of the craft. When you start wearing your medals and ribbons around as jewelry, you've likely stepped off the path of self-awareness in your brewing efforts.

The bottom line? Your fellow brewers may be great resources and they may not. Remember, they learned to do what they are doing from others as well. How good that "intel" was is always in question. Consider advice and information similar to a gifted yeast culture. If it's tainted, so then will be your bier. Taste more than one of the advice-giver's bier. If you like it, they might just be one of your best resources!

My observations: Keep in mind that the American craft industry is unique. Only here in the US do breweries try to be all things to all people. This is not a common theme in other parts of the brewing world. If we want the finest English ale, we look to England. If you want world-class Trappist bier, you go to Belgium (mostly) and if you seek the gold standard in lager production, you would probably consider German and Czech brewers the best producers. Here in the states, you'll find a craft brewery on nearly every corner or in every strip mall, and every craft brewery is trying to make every style of bier on the planet. That's a huge ask, particularly if you are observing how these different biers are made and the equipment and process needed to make them correctly. And so, is that local craft brewery making your hazy IPA the best choice for learning how to make a German Pils? Choose your mentors wisely. As for myself, after brewing all sorts of different styles through the years I'm now mostly only making lager bier. I'm fortunate enough to have a couple of very good craft brewers near me that focus only on lager styles (one making Czech style bier and the other making primarily German style biers). Both ownerships/brewers are quite open and helpful about how they make their bier and they are willing to help anyone who is interested. I've learned so much from these people about what to do and not do in brewing lager biers. So, I don't go to just any craft brewery that has a "German Pils" on the menu. Chances are, it's not going to be something I'd be interested in emulating anyway. Find the very best examples and follow that lead. Learn all you can about how it's made, from start to finish!

Do's and Don'ts

Do try to learn as much as you can about how particular styles are made and who is making the best versions. Don't simply accept that anyone who is a "professional brewer" is worth mentoring you on your brewing efforts. Do follow the best brewers for advice and guidance for a particular style.

MODERN BREWING vs TRADITIONAL BREWING



Traditional mash tun at Koslau brewery

This might seem like a really weird or unnecessary entry here. You might read that heading and say to yourself, *"Well, of course I plan to focus on modern brewing processes, why would I follow old information?".* I don't think it's that simple. Some of the finest biers from around the world are produced using traditional methods. Some ONLY by traditional means. So there seems to be a dichotomy between "modern brewing" and "traditional brewing". In my experience, there is good and bad to be gleaned from both and elements of each can be employed simultaneously. In my own brewing efforts, I appreciate that there are obvious improvements in brewing science that have moved the industry forward. And so, I adhere to these as a baseline. An obvious example might be using a stainless steel brew kettle vs. one made of copper. That said, even the most modern equipment and processes can't replace some traditional methods. When making certain styles of bier, some more traditional methods might come into play. Another good example here might be the use of a mash cooker for brewing a decoction bier, particularly a Dunkel or a Dunkler Bock. Ultimately, unless I am convinced through my research and experience that there is a modern method that will create a better product, I will ultimately lean on the side of tried-and-true processes. For me, this is largely due to my interest in brewing history and traditional brewing practices. Otherwise, Both modern and traditional practices can be found throughout my brewing efforts, from start to finish. It's all about the bier and what I'm trying to produce.



Traditionalists: Koslau brewery in Franconia, making bier the old fashioned way (L: Oliver Schineller, R: Jose Caro)

Do's and Don'ts

Do be open minded about a wide variety of brewing techniques.
Don't get into a rut, doing the same thing for every bier and every style of bier.
Do learn what methods will give you the best results for each style and explore those!
Do consider incorporating time-honored practices into your brewing. At least give them a fair chance to show you which might be worth following.

RECIPE SHEETS AND NOTES

When discussing any particular bier with a home brewer, I always notice when they pull up their phone or reach for a notebook of some kind. If I've not yet tasted their bier, I'm certainly expecting a better product from someone who keeps track of what they are doing. Anyone who keeps records of their brewing efforts, at the very least, is on the right path to start with. You can bet that all professional brewers have detailed records of how their biers are brewed. A lack of note taking suggests a lack of focus, and even if the brewer somehow stumbles blindly into brewing something tasty, it's unlikely they will ever be able to brew it again. There are just far too many variables. Variables that are hard enough to track, even for scrupulous note-takers! Multiple recipe formats exist for home brewers and you can do it all online if you like. If you are still looking for your own record keeping system, try to find an option that allows you to edit as much as possible and enter lots of text. You should be able to track

every single detail of what you are doing from the time you prepare your yeast before brew day to the time you pull the tap and pour your first glass of bier. I even like to keep tasting notes/critiques on all of my biers. What better way of knowing if the final product hit the mark? As of this writing, I'm on batch 575. There's just no way I can remember how each bier turned out without keeping critiques. There's really not much more I can say on this subject other than more notes are always better and the more detailed you can get, the more you will be able to adjust your recipes going forward and finally get the bier dialed in, just the way you want it.

My Observations;
One thing I've seen from all the really good home brews I've sampled. Every brewer who has made them focuses on the details and keeps detailed notes. There is no "best way" here and this might be the very best thing you can discuss with other home brewers. The community of home brewers are generally very clever people and you'll get tons of ideas of how best to track your brewing efforts.

Do's and Don'ts
Do research and determine a way to record your efforts.
Don't simply "wing it". You will never advance your efforts unless you know where to make changes going forward.
Do keep some kind of tasting record for each recipe/batch.

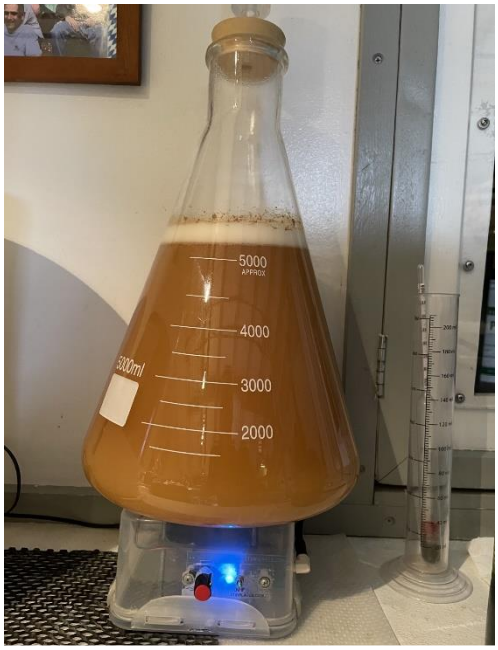


Helles lager in the Kupferschmidt biergartens

THE TENETS OF BREWING
As in all pursuits, there are time honored practices in brewing that came about as solutions to problems within the process (I usually refer to these as *Tenets of Brewing*). Sometimes these are improved upon and updated as we learn more. Chilling wort with a heat exchanger vs allowing it to simply chill in a coolship could be argued is an improvement (less oxidized wort). But sometimes, we only think we're making an improvement. More often, it's not so much an improvement as a convenience or shortcut to save time. Modern brewing practices often trump older methods to achieve a better result. In these cases, I salute the advancement of brewing science and add that change into my own process. At other times, the replacement practice might not actually achieve the desired result and in fact, might create new problems. There are basic tenets that have been "unlearned" by certain segments of the brewing industry. This trickle-down effect might cause home brewers to miss something that could improve their biers simply because they either had no knowledge of it or were emulating a commercial counterpart's practices. The only way to guard against this in our own brewing efforts is to continue to learn as much as we can about how different brewers from around the world make their biers. Some of these processes might have more of an effect on the outcome of your bier than others, so it's up to you to decide which to follow and which to ignore.

Carbonating vs Conditioning - A good example of a short cut that became popular with many home brewers seems to have been ripped directly from the commercial brewing ranks. Several years back, I toured a popular local craft brewery. While in the fermentation/packaging area, it was explained to me that the bier in the nearby tank was "*ready for packaging but the brewery staff is pumping Co2 into it*

and just waiting until it reached proper carbonation levels". At the time I didn't think much about this. After all, the only benefit carbonation provides in bier is bubbles, right? It was only years later that I would finally realize that there is far more to "conditioning" than getting fiz into the bier. Force-carbonation (sometimes referred to as "burst carbonating") is a short-cut used to add carbonation to a finished bier. To be fair, if bier fiz were the only thing we're seeking here, this might be a great idea. As it turns out, one of the tenets of brewing was being utterly ignored by most craft breweries at this time, and still is for many today. In Europe, the term "conditioning" is often synonymous with "carbonation". This is certainly true in the UK where to two terms are often used interchangeably. When you think about it, this makes sense since the way ale is traditionally carbonated is through secondary fermentation (conditioning) in the cask. Unfortunately, while one creates the other, it doesn't work the other way around. Secondary fermentation will develop carbonation, but carbonating by injecting Co2 provides no benefit or improvement to the bier's character. In fact, it may actually work against things like good head retention. In the commercial example above, the brewery wasn't really "conditioning" their bier at all. They were just carbonating it, similar to how Pepsi Cola adds fiz to their products. Thankfully, many craft brewers have come to the realization that following a more traditional practice, like that employed by their European counterparts, will create a much better end product. Naturally conditioning bier creates carbonation that is often referred to as softer, finer and one that helps to create and maintain better foam stability and a longer lasting head. And while this might be argument enough to employ this basic tenet of brewing, consider also that a secondary fermentation will clean up all sorts of off flavors in a bier, including excessive diacetyl and acetaldehyde. Two very common off-flavors (particularly the latter) found in home brewed bier. The results can be quite noticeable. Finally, since the active yeast in naturally conditioned bier is still present, it eats up any remaining oxygen in your bier, ensuring you have a bier that stays fresher longer. This one factor might be the best advantage of all, since living biers are often considered better tasting.



Krausenbier fermenting on transfer day

Here's the good news, if you are home brewing ales, conditioning your biers naturally couldn't be easier! Simply add a bit of sugar (generally dextrose) to your keg after primary fermentation is complete. That's it. Lagers are admittedly a bit more challenging for a variety of reasons, but some brewers have adopted a suitable work around called *Spunding*.

Temperature and Yeast - Another tenet of brewing has to do with the one of the final stages of brewing; fermentation and yeast management. As home brewers especially, I think it's easy to get excited about brew day. After that, I think we often take fermentation for granted, feeling our work is done. In my view nothing could be further from the truth. I would even suggest that most off flavors found in finished bier happens on the cold side of the process. From what I've seen, a "set it and forget it" mentality here is a risky proposition and when an otherwise great effort comes off the rails. Taking the easiest and fastest path available for adding yeast to your hard-earned wort may not give your bier the best chance for success. As you stand in the home brew shop staring at the vast selection of yeasts, you have some big decisions to make; quite possibly the most important decision for this particular batch of

bier! Do you go with a popular dried yeast or a pure liquid culture? Do you plan to pitch it directly into the wort or will you make a starter? How much yeast do you need for your batch of bier and how old is the yeast you are buying? Personally, I've always purchased the pure liquid yeast for my brewing efforts. I know that the quality of dried yeast has advanced since the early days of dried yeasts, but I go back to what the professionals are doing. By and large, breweries that are making the best bier are using fresh yeast slurry, for the most part, they aren't breaking into a brick of dried yeast. Pure yeast cultures do cost a bit more and they won't keep for very long, so they'll need to be used as soon as possible (don't believe the "good for 6 months" claim). I still believe that the most important part of your brewing efforts happen on the cold side of the process. A strong healthy yeast is your most important tool for making the best bier you can make.

To make a starter or not? Again, it's a bit more planning and another step to do the day before brew day. It costs a little more and takes up an hour or two of your day, but having an ample, strongly fermenting starter at the time of pitching can be a huge advantage. Your batch of bier will get a strong and healthy head start, with less lag time. If you are brewing a lager or an especially big ale, I believe it's a must to have a large, strongly fermenting starter at the time of pitching. If properly fermented (and if you are making a lager, properly lagered) your yeast needs to be as healthy as possible at the start of fermentation. It has a very long and hard road ahead of it. Pooping out before the job is done is a common issue with home brewed bier (especially when making strong biers or lagers) and this likely happens because the brewer didn't give the bier the support it needed. As far as starters go, the only reason I always make one is to make sure my yeast has every advantage at the start of fermentation. I never make a starter to give a suspected weak yeast a leg up. I've often heard that if a yeast is a little old *"just make a starter first*". I recognize that this is a common hack, but I'm not certain this completely corrects poor yeast viability. I've pitched actively fermenting yeast starters, made with older, weak yeast. While they clearly "fermented", they rarely fermented all that strongly and certainly did not perform like a fresher, healthier yeast would have. As a result, the fermentation with those older yeasts did not have the vitality needed and the resulting biers suffered for it. For this reason, not only do I purchase pure cultures for my biers, but I make sure to get the very freshest yeasts I can find, often asking the person in charge of yeast ordering to just add what I want to their next order. Most home brew shops will do this for you.



Krausened kegs, stepping-down to lager temperatures

Not unlike the American craft industry, home brewers want to make every style of bier. That's ok, and making bier is fun, so why not? But it would serve us well to just make note of how these different biers are made and pay attention to those details. The home brew supply industry is a great resource, providing lots of free guidance on how best to use their products. There may be some things we're told however that might not be completely accurate, like "*this yeast produces lager-like characteristics at warm temperatures*", or *"this yeast is viable for up to 6 months from packaging date*". It's up to us to decide what to believe. In my opinion, claims like these are designed to sell product, it's not to help home brewers make the best bier possible.

A final word on yeast. I'm not saying that a direct pitching of yeast (pure strains or dry) won't yield a strong healthy ferment. Plenty of home brewers will swear by this, so give it a try if you like and see

what works best for you. I'm only advocating using the strongest and healthiest yeast since this is an industry standard and I think we can expect the best, most consistent biers by doing so. If you ultimately choose another path that is easier, you might find a process that works well for you, and you will definitely save time and effort in doing so. But it might be worth also trying the exact same recipe making a nice big starter, using a pure yeast culture. Compare the two fermentations and the resulting biers to make sure your direct-pitches are comparing favorably. It's all about getting the best bier possible, each and every time you brew it.

Not unlike other claims made by the home brew supply industry, new equipment comes available all the time. The pressure-fermenter burst onto the scene, supposedly allowing us to ferment lagers at warm temperatures in a fraction of the time. Not really, from what I've tasted so far, though I do like using a pressure-fermenter for getting natural conditioning into my lagers (without krausening). Shortcuts rarely turn out to produce the results we were promised. In short, fads abound both on the commercial side and in home brewing. A somewhat recent fad for American commercial brewing is lager-making. Suddenly every craft brewery has a "pils". Few are truly equipped to make the style, both in brewhouse/cellar configuration and in basic knowledge. Likewise, home brewers follow suit, wanting to also jump on the latest industry fads. Fortunately, home brewers can turn on a dime and adding the necessary equipment to properly make lagers doesn't necessarily break the bank. As home brewers, we CAN actually make every style if we choose to, and we can outfit our brew houses and cellaring operations to adjust. More likely, most home brewers will try to make a vastly different style in the exact way they make their other styles. I believe this to be a common mistake.



Lager yeast, hard at work in the Kupferschmidt cellar

Cold-Crashing - There is a time and place in the fermentation/packaging process where sharply dropping the temperature of the bier may be helpful. Certainly, professional brewers that filter their bier would find it beneficial to clear most of the yeast before running it through their filtration system. Cold crashing advocates have long suggested that cold crashing will improve flavor and shelf life while also speeding the aging process. Some of this information however is at odds with how yeasts work and ignores the benefits of leaving yeast in your bier for a longer period of time. Cold crashing assumes your bier is completely finished conditioning and forcing the yeast to drop out too early may be detrimental to your bier. It really depends on where your bier is in the process and what your goals are. I hear the term cold-crashing from home brewers far too often and sometimes they are recommending it at what I believe to be the worse time to employ it, at a time when you really want that yeast to remain for a bit longer. As home brewers, we often seem overly concerned with yeast in our bier. We might do better to remember that the yeast has a job to do and if it's still in suspension, it might be there simply because it hasn't yet finished its job. Reaching what you believe to be the terminal gravity does not necessarily mean the bier is "finished" and ready to be packaged. Home brewers might be missing a golden opportunity to get better biers at this juncture, and instead they simply cold-crash and move on. Most home brewers do this because someone taught them that this is the thing to do. On occasion, you might luck out and get something that's "pretty good". In most cases I'd wager the resulting bier could have become something much better had the brewer been just a bit more patient.

It might be helpful to consider what yeast is doing in those final stages. As yeast finishes eating remaining sugars it switches to cleaning up other compounds in the bier. Removing the yeast at this stage leaves those unwanted characteristics in the finished bier. A better approach might be to assist the yeast by moving the bier to a secondary fermenter and adding a touch of fermentable sugar creating a more robust secondary fermentation. This ramps up the clean-up effort instead of stopping it cold (pardon the pun). An added bonus is that you will also create natural carbonation and you can avoid force-carbonating your bier! Instead, cold-crashing and force-carbonation is the path of least resistance for most home brewers. In my opinion, while this creates a clear bier in your keg, it most likely won't create the best bier you could have made.

Remember that having your biers sit on yeast may actually be a benefit. Done correctly, your bier will clear quickly in the serving keg, despite sitting atop a fine layer of yeast. Bier that remains in contact with yeast may remain fresher tasting for a longer time since the bier is still "living" and able to continue to condition. Home brewers are often overly concerned with yeast autolysis. Remember, by moving your bier from the fermenter or secondary keg to a serving keg, you've already moved your bier off of the bulk of the old yeast.

Cold-Conditioning vs. Lagering – We've discussed "conditioning" above, and I believe anyone who understands how yeast works will tell you that in order to actually condition bier, you need living yeast. That is to say, for any kind of meaningful change to take place there would need to be biological activity from live yeast. Many home brewers feel that they are improving their biers by letting them sit for extended periods under refrigeration. It could be that something is happening here, but it's not really "conditioning". Maybe some compounds are dropping from the bier, certainly any remaining yeast will. What, if anything is happening with this so called "cold-conditioning"? In my view, "cold-conditioning" is another overused term in brewing and is often mistaken for lagering. It isn't necessarily lagering and certainly cannot be unless there is healthy lager yeast still actively working. If properly managed, this yeast will eventually settle out over the course of several weeks and the bier will drop bright naturally. True cold-conditioning is happening when you lager bier over time, at very cold temperatures (and with living lager yeast present). Lager yeast in fact can only remain active if it is carefully managed along the way. Starting a lager bier fermentation with the healthiest, strongest yeast you can (and plenty of it) will really prove itself once primary fermentation is finished and it's time for the yeast to continue to work over many weeks. After primary fermentation, the bier requires a gentle and gradual decrease in temperature in order to avoid shocking the yeast into dropping out, so the very opposite of cold-crashing! Crashing the temperature after primary fermentation, then moving your keg into a very cold environment will have no positive affect on the bier, other than perhaps forcing the yeast to drop out of suspension (cold-crashing it to be clear). In this case, there would be no actual change or improvement to the bier, other than clarity. You aren't lagering then, but simply refrigerating your bier. The term cold-conditioning sounds important, but in my view, you aren't really conditioning the bier at all.



Lager bier, slumbering at 33F

Krauesening – The term is somewhat confusing since the initial foaming that happens at the start of primary fermentation is referred to as "krausen". I believe the term comes from using a small amount of freshly-fermenting bier to kick-start a secondary fermentation, at the start of lagering. Hence, the term "krausening". I always naturally condition my biers, be they ale or lager. Since most of my fermenters are simply non-pressurized conicals, I'm left to other means to get natural carbonation into my finished biers. For English-style ales, this is priming in the keg. For Belgian Trappist-style biers, this is re-yeasting in the bottle, corking and storing in my warm room. For lagers, its krausening just before kegging and lagering. I won't belabor the process here since there's plenty of information available elsewhere. I also won't argue that it's better than spunding (retaining secondary condition in sealed kegs or a lagering tank). I will say that I've tended to prefer my krausened bier over those that were simply kegged early. I think there might be something to taking the bier too early into the kegs that brings other characteristics with it that I personally don't like. That said, I know homebrewers who have no issues with this, so who can say? I have come up with a fairly easy way to krausen my biers, and with any brewing procedure, getting a "system" figured out that you can easily repeat is most of the battle.

SUMMARY

So that's it, 37 years of observations (and counting) all tucked neatly onto a few pages. It's an ongoing learning experience though, so I'll consider this "treatise" a living document, subject to editing and additions through time. It's not lost on me that there were likely a few of my observations that did not resonate with you. That's ok and as I stated at the beginning, these have been my experiences over the years, I don't expect everyone to agree with all (or any) of this. That said, I hope you found something here to be worth exploring, or at least maybe some small thing that was thought provoking. I suppose that was my only real goal, to suggest that more critical thinking in all phases of our brewing efforts can only lead to better bier. I fully expect your brewing adventures will also provide you with a similarly constantly growing scope of experiences. All of which you can learn from and can use to continue to refine your brewing processes. For me, and I hope you agree, it's all about the bier! *PROST!* -***S***

