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Attempting to Understand the

Rein- heits- gebot

**500 Years of
Brewing Law**

By Jeff Alworth

In 2016,

Germans—and beer drinkers everywhere—will stop to celebrate the 500th anniversary of that most famous of brewing laws, the Reinheitsgebot (rhine-heights-geh-boat). To put that time frame into context, the Reinheitsgebot was born a year before Martin Luther tacked the 95 Theses to a Wittenberg church, sparking the Protestant Reformation. It has survived the rise and fall of empires, and the arrival of capitalism, industrialization and globalization. It even survived the 19th century German unification, which amazingly tried to bring both the lager-brewing Bavarian tradition and the exotic northern ale-brewing tradition under the same legal umbrella.

But the Reinheitsgebot, in addition to being the oldest intact brewing law (by a long shot), is also one of the most misunderstood. Over the centuries, as it has morphed and evolved, its meaning has, too. A 500th anniversary demands a closer look—not just at the past, but also the future and the viability of this funny old law in a time of great upheaval within brewing.

A Misunderstood Edict

On April 23, 1516, the Duke of Bavaria, Wilhelm IV, issued what would only much later come to be called the Reinheitsgebot, or the “purity law.” Originally, though, that element was downplayed—it’s just the third stipulation: “in all our towns, marketplaces and the whole of the countryside, that beer shall have no other ingredients than barley, hops, and water be used and employed.” When you read the full document, running about 320 words in translation, these 27 don’t appear to be the main point. The first two stipulations regulated prices, capping what a publican could charge, particularly during different seasons. There was also a fourth provision, again about pricing, and a comment at the end where Duke Wilhelm reserved the right to change anything in the law during grain shortages.

In other words, the original decree had a lot more to do about money than consumer health. Indeed, even the restriction on ingredients was only partly driven by the wish to banish the use of unhealthy additives from beer (though the practice was common at the time). Wilhelm was also concerned about protecting the food supply, and limiting brewers to barley freed up the wheat crop for bakers—which also helped keep the price of bread more stable.

Even the part we think we understand is generally misinterpreted. In detailing the allowable ingredients, Wilhelm does not specify yeast, which has caused modern writers to assume he didn’t know about it. Not only is that wrong, but it leads us to miss an important element of the Reinheitsgebot’s logic. Matthias Trum, the sixth-generation family owner of Bamberg’s famous rauchbier brewery Schlenkerla, explains how we should actually understand that famous omission.

“The yeast is in fact not mentioned; that is correct.” Trum, who studied history while earning his brewing degree at Weihenstephan, points out that brewers of the day were well aware of yeast’s existence. “In the Middle Ages, they had a profession called the ‘hefener,’ so they knew exactly. The purity law lists ingredients, right? Yeast I put in there and I get more out of it. I harvest the yeast at the end and I put it into the next batch. And that was actually the job of the hefener.”

It’s actually hard to imagine how they couldn’t have known about it. Why? Because after you brew, you end up with a fluffy layer of stuff at the bottom of the fermenter: “Zeug. Zeug was the German word, which is ‘stuff.’ The hefener’s job was to harvest the yeast from the batches, to press out as much remaining beer as possible, which was sold at a low price to the poor, and then the yeast was added to the next batch. You started with a smaller amount of yeast and then you ended with a bigger amount of yeast.” An ingredient, Wilhelm’s logic went, was something that stayed in the beer.

The final point is the most important of all: The 1516 law applied only to Bavarian breweries. This is not incidental, because the beers brewed there were unique in the world. By the 16th century, Bavarians were already well into lager brewing—that is, making beer with yeast strains that fermented at cool temperatures. Nowhere else in the world was this happening, including in other parts of what we now call Germany. In parts north, brewers made ales that looked like the ones in neighboring Belgium—they were funky, wild, and made with exotica like ashes, tree bark and beans as well as all manner of fruits and spices. It’s the same tradition that can be seen in historical remnants like gose and Berliner weisse. Duke Wilhelm’s original decree that beer be made with only hops, malt and water was appropriate for his charges; it would have been an absurd restriction for a brewer in Berlin or Leipzig. In fact, in a rebuke to the Bavarians, the city of Cologne even banned lager-brewing in 1603. Breweries in the north had their own tradition, and it included brewing with a range of ingredients.

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Unification

Bavarian lagers remained an oddity for centuries as the rest of the world went about their ale-making ways. The northern and Bavarian traditions only started coming into conflict in the latter part of the 19th century, when Germany unified in 1871. The law that followed two years later did not include ingredient restrictions (this allowed the state to tax all the ingredients being used by northern brewers). The first version of the law we have now, with separate rules for ales and lagers,

only came into effect in 1906. World War I interceded, requiring another reunification under the Weimar Republic—which Bavaria agreed to join only if its beer law joined with it. The resulting post-war legislation was also the first time the decree was formally called the *Reinheitsgebot*, the “purity law.”

In order to accommodate the co-existence of the two traditions, the 1919 *Reinheitsgebot* effectively became two laws; the old, restrictive one for lagers and a more lenient one for ales. The bifurcated “*Reinheitsgebot*” has caused quite a bit of confusion

over the years. In the popular imagination, all German beer is made with only barley, hops, water and yeast. But an ale brewery making beer with wheat malt, coriander and salt is also *Reinheitsgebot*-compliant, thanks to the expanded rules. There are just so few of those latter beers left that few people have had occasion to take notice.

There was one more unification to come in Germany, this one after the Wall came down in 1989. In the aftermath of that final union, the *Reinheitsgebot* was subsumed under the tax code, known as the *Biersteuergesetz*, or the

provisional beer tax law. The guidelines carry on with two categories, one for ales and one for lagers, and have become enshrined as a kind of national trust. In one final curious twist, the Germans were forced by European courts in 1987 to accept imports of beer from other countries not brewed to the Reinheitsgebot. It seems to have convinced Germans that their beer is all the purer and better by comparison.

How the Reinheitsgebot Affects Brewers

It's one thing to say that beer should only be made of four ingredients; it's another to figure out how to implement those rules as technology changes. In 1516, before industrialization and the invention of things like thermometers, the law's meaning was pretty clear. But in 2015, brewers have many more tools available to them—and this has had a curious effect.

Alan Taylor, a Berlin-trained brewer now overseeing three breweries in Oregon and New Mexico, describes the conundrum. "The Reinheitsgebot talks about barley, water, and hops," he began. "It doesn't talk about dry hopping; it doesn't talk about PVPP for clarification—it doesn't talk about this stuff. It talks about simple things. It doesn't say what to do about calcium chloride. Can you add it to the kettle? Can you add it to the mash tun? Can you add salts to the mash tun? Doesn't say. Can you use pure oxygen to aerate the wort? Doesn't say."

Over the decades, brewers and the law have come to certain accommodations. An almost universal practice in other countries is adding carbonation to beer before packaging. Is it an additive? Here's Bayern owner and brewmaster—and native Bavarian—Jürgen Knöller on the subject. "We have the law of purity, and we're still brewing in strict accordance to it. For example, when someone has a bright beer tank and blows CO₂ in there to carbonate their beers, that is not in accordance with the law of purity." If you want to add carbonation, it must come from the brewing process. "You observe your beer, you close it up at the right time, and you have natural carbonation." Breweries adhering to the purity law across Germany capture the CO₂ produced during fermentation and use that to carbonate their beer.

Germans have to jump through other hoops that brewers elsewhere avoid, like using acidified malt to lower the pH of their mash. Most other breweries just add food-grade acids, but that's not legal according to the Reinheitsgebot. Some breweries even produce their



own lactic acid through a natural mashing process ("biological acidification"), but they can't add lactic acid from a laboratory. It's an extra step that not every brewer loves. Taylor continues, "So instead of using pure, consistent, easy-to-get-to phosphoric or lactic acid, which gives you no byproducts, no weird flavors, you use biological acidification."

What about products that go into and come out of beer? Remember the reasoning for leaving yeast out of the original ducal decree? That same logic was used to evaluate whether or not PVPP, a clarifying agent, was compliant. "They had done some tests to find that, say, 50 grams per hectoliter was being used," Taylor says. "They found that through the filtration process all [the PVPP] was removed, which is important for the modern interpretation of the purity law. So what was added was removed."

As a practical matter, adhering to the letter of the Reinheitsgebot has produced a brewing style in Germany that is unique. No other breweries bother to do this stuff. When they depart for other countries, German brewers often abandon the more Byzantine of these practices. In creating all these exemptions and qualifications, it has also meant that the law has moved further and further away from the simple idea of "purity" most German drinkers think it represents.

How the Reinheitsgebot Affects Drinkers

In its first incarnation, the Reinheitsgebot was enforced by the state. Over time, breweries championed it as a way of keeping quality standards high. But in the 20th century, the brewing industry began to use it as a marketing point, and then something interesting happened: the customer began to enforce it. At Schlenkerla, Matthias Trum has had to be very careful when he introduces new beers, always reassuring his customers that they are traditional and authentic. "If you now start doing a totally new beer because you think, 'I want to diversify and I want new customers,' you will get some new customers. But... everyone will say, 'Ah, that's not traditional; he just started that.' That's the limitation. The Reinheitsgebot is the holy cow. If someone found out that someone was not brewing to Reinheitsgebot, they would not survive."

Florian Kuplent, founder and brewmaster at Urban Chestnut in St. Louis, agrees and points out how this fidelity to style in many Germans' minds. "I think it was a marketing



The 1516 law applied only to Bavarian breweries.



The 500th anniversary comes at an interesting moment for German brewers.

term that brewers were happily using for the last 50-plus years, and now they have a problem if they want to come up with new flavors. They've been telling people that these four or five styles are OK to brew and everything else, basically, is bad beer and bad quality."

When people survey the German beer scene, they often talk about calcification of styles and a resistance to change. It has resulted in a long, slow decline in per capita beer consumption and put some local styles, like altbier, in jeopardy. The Reinheitsgebot isn't solely responsible for these trends, but it makes addressing them an interesting challenge.

Looking Into the Future

The 500th anniversary comes at an interesting moment for German brewers and may be an opportunity for a reconsideration of the venerable law. As people stop to look at the law this year they may discover a couple of things. First, there's the public perception of what the

law disallows, which isn't exactly correct. Kuplent expects this to cause one kind of reckoning. "I do see the danger of somebody coming up and saying, 'Hey, this whole thing is actually not valid anymore because you are using PVCC, you are using malt extract, you are using salts to modify your water, so you're really not brewing according to Reinheitsgebot.' I think people will have a hard time distinguishing the truth."

Second, it might give regular drinkers an opportunity to learn what the law allows, as well. Beers can be made in a variety of styles that comply with the Reinheitsgebot. In Kelheim, the venerable Schneider and Sohn Brewery has been pushing these limits for years. Inspired by hoppy American ales, master brewer **Hans-Peter Drexler** has worked with growers in nearby Hallertau to produce new, more expressive hop varieties to use in his weissbier. He has even experimented

with barrel aging, which brings natural wild acidification into these beers. As cutting-edge as that looks now, it's very old-school in Germany. Wood-aging beer goes back centuries.

Drexler makes only weissbier and doesn't feel constrained. "I like to be a little bit different; for me it's interesting to play with old tradition. In Germany we have Reinheitsgebot—it means we have three raw materials, hops, malt and water. If you take different varieties of hops or different varieties of malt, you can do so many different things. I think it's more interesting to work with the raw materials, to create new things. And it works—you have seen the results."

Hoppy and barrel-aged weissbier are both perfectly modern and also brewed to the Reinheitsgebot.

Jan Matysiak, a Texas-based German brewer, says that, certainly, "you can brew IPAs to Reinheitsgebot." The limitations imposed by the old rule are far less restrictive than those the

brewers and drinkers have been placing on themselves.

If 2016 does turn out to be the year the Reinheitsgebot gets another look, brewers and consumers can look with their modern eyes at these issues and decide what "purity" means. There was nothing sacred about Duke Wilhelm's original decree, and it has evolved substantially in the 500 years since its introduction. Perhaps to bring it into its next half-millennium—to preserve it as a living part of the German tradition—it needs to evolve a little more.

Jeff Alworth is the author of *The Beer Bible and Cider Made Simple*.





AECHT SCHLENKERLA EICHE

**Brauerei Heller-Trum
Bamberg, Germany
8% | Oak-Smoked Doppelbock**

Even the label proudly declares this beer's adherence to the Reinheitsgebot. Brewed with oak-smoked malt, rather than the more traditional beechwood treatment, this doppelbock is especially inky and rounded by vanilla, even relative to the brewery's core line. Rich landscapes of campfire, almond and roast lead, with much complexity arriving courtesy of that malt permeated by a curious smoke. As the expression goes (and arguably true of the Reinheitsgebot as a whole): Constraints breed creativity.



SCHNEIDER WEISSE AVENTINUS

**Weisses Bräuhaus G. Schneider &
Sohn GmbH
Kelheim, Germany
8.2% | Wheat Doppelbock**

It's always refreshing to return to some of the classics, to remember all the things that they do well. Here, a deep caramel-brown pour is capped by light tan foam, like mousse. Aromatics are basically from another planet: cotton candy and caramelized sugars that feel weightless. Huge depths of dried dark fruit and leather are lit up by peppery clove and zesty bubbles—all the parts oriented in their proper direction.



URBAN CHESTNUT ZWICKEL

**Urban Chestnut Brewing Co.
St. Louis, Missouri
5.2% | Zwickel**

This unfiltered, Bavarian-style lager is a part of Urban Chestnut's Reverence Series: "our celebration of beer's heritage—brewing classically crafted, timeless European beer styles." Herbaceous and spicy hops provide a firm foundation here, while that underpinning of pilsner malt appears toasty alongside almond notes and emergent honey. A beautifully developed, complex and well-built lager that's endlessly crisp.

These beers were tasted by beer editor Ken Weaver.