



# LIVIN' THE BREWS

July 2004



## Prez Sez

By Bo Turton

Here we are in July and the year is half over. I hope everyone has spent a little time thinking about what beers you could be brewing or have already brewed for the last few Gulf coast competition that will be coming up later this year.

As we mentioned at the last club meeting, we have a few things coming up in July. To begin with, get your sleep and get prepared for July 24<sup>th</sup>. We have two events on both corners of the Metroplex. We have the Iron Mash Competi-

**July Meeting:**  
**Tuesday, July. 13th, 7 PM**  
**Flying Saucer**  
14999 Montfort Dr  
Dallas, TX 75254-7519

tion that will be held at Rahr & Son Brewery in Fort Worth. This sounds like a fun event even if you're not brewing. Plan on attending this educational event, find out what the "Iron Brewers" will be faced with. It will be a real challenge for those brewers that will have to apply their brewing skills to the unknown ingredients.

After the Iron Mash you will have a drive to Plano for the club Summer Party. If you have any keged beers or side dishes then plan on bring them along. Bill James has opened his home to the club for this event and is working hard to make sure we will all have fun. The main course will be some of Texas finest BBQ from none other than "Rear of the Steer BBQ". I just bought 10 slaps of ribs for my July 4<sup>th</sup> party in New York.

WE HAVE A LOT OF FUN AT THE CLUB PARTIES SO PLEASE PLAN ON ATTENDING, RELAX, HAVE GREAT CONVERSATIONS, FOOD AND HOME BREW BEER! Don't forget to fill out a name-tag at the party, with all the new and old members, we want to know who we are. Who knows, if we have 21 kegs of

beer to sample we might have to look at our own badge to see who we are.

Enjoy and Happy brewing

Bo Turton

### Welcome New Members!

Bruce Rishel  
Dean Sestak  
Sam Ellis  
Steve Hayden  
Tim McClanahan  
Matt Ehinger  
Marylinda Jones  
Steve Quarrella  
Roman Beyga  
KirkCemper  
Lance Smith



**Inside — Don't miss Bill Dubas' article about his trip to Cantillon!**

CANTILLON



Kriek 100% Lambic

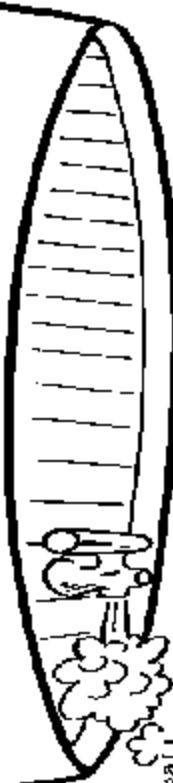
## BREWER ROYALE 2004

### Style of the Month

<i>May '04</i>	<i>Extract Brews</i>	<i>N/A</i>
August	Wheat Beer	Cat. 17
September	Smoked Beer	Cat. 23
November	IPA	Cat. 7

<u>Standings</u>	<u>Points</u>
Steve Haney	7
Jim Layton	5
Darrel Simon	3
Bill Dubas	3



sturdy box with several inches of padding on all sides. Fourth, make sure that you have completed all of the documents required by the homebrew competition and you have paid the entry fees. Finally, ship your box by UPS; it is illegal to send beer through the postal service. Be sure to mark the box as. "Fragile - Kitchen Supplies". Good luck.

The next Club Only Competition is in August and is wheat beer, so you still have time to brew.



**What's on Tap?**  
By Bill Dubas



### Competition Coordination

We are three-quarters of the way through the Gulf Coast competitions and no club has won more than one cup. The last leg is the Dixie Cup in October. If we can win the Dixie Cup, we can prevent the Houston boys from winning the Gulf Coast. By the way, we have never won the Dixie Cup. Get busy brewing.

Our next club sponsored packing party will be for the Cactus challenge in September, but if you have the competition bug and need a fix, the Bay Area Mashtronauts have a competition in July. The Entry deadline is July 10<sup>th</sup>. You can find more information at: [www.mashtronauts.com](http://www.mashtronauts.com).

If you have never entered a homebrew competition and you

are bit apprehensive about sending off three of your hard-earned brew off to strangers, here are some tips to make you a little more comfortable. First, you should make sure that the competition is AHA sanctioned. This means that your beer will be handled and judged in the best possible fashion. Second, make sure that you understand the entry requirements. Some competitions are restricted to certain styles or a group of brewers. Read the style guides for the competition and evaluate your beer according to the style guide. You may have been trying to brew pale ale but it turned out to be mild ale according to the style guide. If you have any doubt, enter your beer in both categories. Of course, that will take an additional three beers. Third, make sure you pack your beers well. There is nothing worse than losing beer to the UPS man. Wrap all of your bottles in bubble-wrap and place them in a

I have two reminders and one new social event to talk about this month.

First, remember that the NTHBA Summer Party will be at Bill James' place on July 24<sup>th</sup> starting at 6PM. Details of the party and a map to Bill's place were provided in last month's newsletter. Please bring a side dish and/or some homebrew to share. If you are bringing a keg, make sure that you bring everything you need to keep it cold and dispense it. If you are bringing a side dish, please remember to bring a serving spoon/fork. Please also remember to mark your name on everything you bring so that nothing gets lost in the shuffle. The last thing I want is for you to lose your spouse's good tupperware. The club will provide BBQ catered by Ernest Paul Pewitt and also the plastic cups, plates, utensils, napkins, etc.

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(Continued from page 2)

Next, remember that the 3<sup>rd</sup> annual IRON MASH competition is also on July 24<sup>th</sup> at 9AM at the Rahr and Sons Brewery in Fort Worth. Details of the event and a map to Rahr and Sons Brewery were provided in last month's newsletter. If you haven't already signed up, then too bad. The entry deadline has passed. However, I'm sure that you can still drop by and witness the event. I drove over to Fort Worth last week to visit with Fritz and Erin Rahr and Jason Courtney. They are excited to be hosting the IRON MASH competition and will be at the event. This will be a great opportunity for you to meet them and see the brewery. The brewery will be up-and-running by then, and they may even have some early samples of their Red Lager and Blonde Lager. They also have

the first "candle filter" system to be used in the USA. This filter is arranged in a series of candle-shaped filters instead of the usual plate-shaped filters. See <http://www.pall.com/pdf/EcoFlux.pdf>.

Finally, I have a new event that just popped up. Raymond Plasek, head brewer at Big Buck Brewery in Grapevine, has offered to graciously host another brew day, for all DFW area clubs, out on the Big Buck patio. This brew day will be on Saturday, July 17<sup>th</sup>. That's the Saturday a week before the IRON MASH and the Summer Party. As before, the goal is to have extract, partial mash, and all-grain brewers going at all times during the day so that Big Buck customers (and other passersby) can drop in and check out what homebrewing is all about. This will benefit all parties involved (local brew-

pubs, homebrewing clubs, and homebrew stores) by getting more people interested in craft brewing. The event will run from 9AM to 5PM.

A map to Big Buck is provided below, just in case you have been living under a rock and have never been there. To get to the patio, park at Big Buck and go in the front door. Once you get inside, make a hard left and walk into the glass-enclosed breezeway that connects Big Buck to the hotel next door. On the right side of that breezeway there is a door that opens out onto the patio. It is a huge patio with lots of tables and chairs. Raymond says that there are plenty of electrical hookups scattered around the patio, but there may be only one hose bib. If you plan to attend, you'd better bring along an extension cord and garden hose + splitter if you need that for your brewery. Due to this event being on Big Buck property, we will NOT be allowed to bring homebrew. We don't want to have any run-ins with the TABC and we certainly don't want to get Raymond or Big Buck into any hot water. There will be waitresses trolling the patio taking your food and beverage orders, so bring along some extra cash.

Also, Raymond has offered to treat all brewers to lunch. This offer ONLY applies to the brewers. . . not friends or family. Raymond had some problems with people taking advantage of this last time, so brewers will be asked to register prior to attending so that the waitresses can keep everything straight. Please contact me if you plan to attend or have any other questions.

#### Upcoming Brewdays:

##### Big Buck Brewery & Steak Hse

2501 Bass Pro Dr, Grapevine, TX 76051

Phone: (214)513-2337





## The Professor

“Thermodynamics”

By Pat Kruger

A Mr. Richard Feder of Fort Lee, New Jersey writes, “Dear Professor Pat, I have a problem of accurately hitting my mash temperatures. I can’t even seem to get it right when I use brewing software to calculate my water temperatures and amounts. What gives?”

Well, Mr Richard Feder from Ft. Lee New Jersey, you must be some sort of anal retentive brewer to ask me, Professor Pat, such a stupid question. It can’t be done, at least not exactly.

Let me ask you this: Did you ever think about how many different variables are at play when you mix cold grain and hot water? Sure, you can calculate how much water you have and how much grain and what the temperature of each are before you mix them together. But did you think about their heat capacity? What’s heat capacity? It’s the heat required to raise the temperature of a substance by one degree of temperature. For brewers, we define it as the number of British thermal units (btu’s) to raise a pound of grain or a pound of water or a pound of mash up one degree Fahrenheit in temperature. Pure water has a heat capacity of 0.999331231. Knowing that a gallon of water at room temperature weighs 8.322 pounds, if you want to bring ten gallons of room temperature water to a boil you will need to apply

11906.79177786956 btu’s of energy to make it happen This is how you calculate it:

$$(10 * 8.332) * (211 - 68) * 0.999331231 = 11906.79177786956$$

Grain has a heat capacity that ranges from .38 to .41 depending on its moisture content. Most brew calculators use a value of .40, which can be part of your problem. If we calculate the btu’s needed for two 12 pound batches of grain, one using low moisture grain versus one using high moisture, which we want to raise from room temperature to a rest temperature of 155, we get values of 398.8 and 418.2 respectively which are calculated as follows:

$$12 * (155 - 70) * 0.39 = 397.8$$

$$12 * (155 - 70) * 0.41 = 418.2$$

Hmmm, you really can’t trust those computers. Thanks, Bill.

Heat capacity can also be thought of as the amount of heat energy that is stored in a substance and is available for transfer to another substance. Hey, Richard, did you ever hear of the law of energy conservation? It says that the amount of energy in a closed system is constant. What that means is you can’t destroy it or create it. What we can do is transfer it. If we apply energy to the water (heat it) and then mix it with the grain, those btu’s will move from the water to the grain until the water and grain equalize in temperature. Let’s mix some hot water (176 degrees) and 12 pounds of room temperature grain (heat capacity of .40) in a 1-quart/1-pound ratio and see what the resultant mash temperature would be. First, we’ll

have to compute the total, or specific, heat capacity of the grain

$$12 * 68 * .40 = 326.4$$

and of the water:

$$(12 * 2.083) * 176 * .999331231 = 4396.353887213376$$

Adding them together, we get the specific heat capacity of the resulting mash.

$$4396.353887213376 + 326.4 = 4722.753887213376$$

To find the temperature of the mash, this figure is divided by a combination of the weight and per unit heat capacity of the water and grain components.

$$4722.753887213376 / ((12 * .40) + ((12 * 2.083) * .999331231)) = 158.591924991443$$

We just found out that our mash temperature will turn out to be just a hair over 158 degrees.

To summarize all the above into a generic formula:

$$tM = ((mG * cG * tG) + (mW * cW * tW)) / ((mG * cG) + (mW * cW))$$

where

m = mass (pounds)  
t = temperature (degrees Fahrenheit)  
c = heat capacity (btu/lb/°f)  
G = grain  
W = water  
M = mash

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We can rearrange the formula to solve for what water temperature to use for initial mash-in of a batch:

$$tW = ((tM \times ((mG \times cG) + (mW \times cW))) - (mG \times cG \times tG)) / (mW \times cW)$$

Still following me, Richard? Use this formula to calculate water temperature for a mash-in and compare the results with your spiffy brew calculator. If it's way off, it could be that your mash tun factor is set to something other than zero. Mash tun factor? Never mind what that's for just yet. Just set it to zero and redo the results. If you've been paying attention and didn't fat finger any keys, your results should agree with mine. Now, what about the tun factor?

Remember the law of conservation referring to a closed system? The mash tun is part of the system. It will absorb some of the heat from the water, taking it away from its intended purpose of heating the grain. We need to include the tun in our formula, but we should also need to know its mass, temperature and heat capacity. Finding heat capacity for your tun would be very complicated and, happily, can be gotten around.

From one brewing session to the next, the amount of grain and water used will vary, but not your mash tun. Instead of treating it as a variable in our formulas, we can treat it as a constant. Like all scientists eventually have to do to discover a constant, you'll have to perform a trial and error experiment. Make a batch of beer and compare the resulting tempera-

ture against what was calculated. Insert a series of test values for the tun factor until your calculation results in giving the same answer as the actual mash temperature. Use this value for all future brewing calculations. Here's the last formula which now includes the tun factor (T):

$$tW = ((tM \times ((mG \times cG) + (mW \times cW) + T)) - ((mG \times cG \times tG) + (T \times tG))) / (mW \times cW)$$

Note that this revised equation assumes that the tun starts out at the same temperature as the grain. If you preheat the tun, you will need to specify that preheat temperature.

Okay, we've gotten past the initial rest temperature. What about step infusion? It's the same formula but we are replacing the grain component in our formula with mash and it has a different heat capacity. Roughly (more trouble here) it is a weighted average of the heat capacities of the malt and water from which it came from. I say roughly because of molecular changes that occur because of enzymatic activity and the physical nature of solutions, which affect heat capacity. Here's the formula:

$$cM = (mG \times cG) + (mW \times cW) \times mM$$

Now that you have the mash heat capacity we can use it in yet another variation of our initial formula, one that solves for how much boiling water to add to achieve our next rest temperature:

$$mW = ((tM^2 \times ((mM^1 \times cM^1) + (mW \times cW) + T)) - ((mM^1 \times cM^1 \times tM^1) + (T \times tM^1))) / (tW \times cW)$$

You'll then have to repeat these last two formulas if you do another infusion.

So, Richard, are you still off on your results? You probably are but hopefully much closer. Why can't we get right on target? Well, it's kinda like what my friend, Steve Holle, said. He said, "Professor Pat, it's either one thing or the other. If it's not the water losing temperature as you transfer it to the mash tun, then it's the chemical reactions absorbing or giving off heat, or else it's not accounting for the expansion of heated water when measuring it's volume, or rounding errors in your calculations. There's a ton of variables and it's inconceivable to calculate for everything."



## Get your T-shirts!

If you renewed your membership by the June 1<sup>st</sup> deadline then you are entitled to a free club T-shirt. Richard Harris brings them to each meeting, so find him, show him your membership card, and he'll give you your shirt and check you off the list.

If you didn't make the deadline, you can purchase as many T-shirts as you would like for \$15 each. The shirts are well done and look great. The money we collect for these shirts will help pay for all the fun things we do throughout the year.

(Continued from page 5)

One of the most important things he taught me was to pre-heat the tun to minimize it as a factor. Another is to allow for cooler than absolute boiling water to account for heat loss during the mixing process. Yet another is to not add all the water at once, instead checking the temperature of the mash before the last few ounces are mixed in.

For me, Perfessor Pat, I just gotta say that controlling all the variables is like herding cats. It's near impossible! Of course with cats, it's even worse! I mean, you gotta deal with them tearing up your furniture and always coughing up those disgusting hairballs and shedding all over the place, not to mention about how they don't even recognize you're around unless it's time to feed them! Ever try to get a cat to play fetch? Of course I have heard you can train them to use the toilet, but I, Perfessor Pat, don't want to see no half-read copies of Cat Fancy in my bathroom!

Hope that answers your question, Richard.

*The Perfessor gives many thanks to Steve Holle for his assistance and sincere apologies to the late great Gilda Radner for abusing one of her characters.*



### Brewer's Travels: A visit to Cantillon

In one of his many books, Michael Jackson states that the lambic brewing method survives only among about 10 pro-

ducers, all on the west side of the city of Brussels, Belgium, in and around a district called Payottenland. He additionally states that Payottenland is a flattish, open country, with small farms and the homes of people who work in Brussels.

From this description, I had formed a mental picture in my mind of what it would be like to visit a lambic brewery. I pictured myself driving through the Belgian countryside in a rented Renault, passing dozens of grazing cows. The road would wind along the river Zenne and there would be vast meadows of wildflowers. I would then pull up to a little farmhouse and an old man would come out to greet me. He would lead me to his old barn and swing open the doors. Ta-da! There, in all its splendor, would be his antique lambic brewery, complete with copper kettles, wooden casks, and lots of dusty spider webs.

When my wife and I decided to visit Brussels in April, I told her that we had to visit a lambic brewery. After looking at a map of the area, we decided that Cantillon would be the best, due to its close proximity to Brussels and also because it seemed best suited to accept visitors. The Cantillon web site even indicated that we could reach the brewery using the Brussels public transportation system. Great! Instead of pulling up to the little farmhouse in my rented Renault I could have the bus drop me off across the street.

My wife and I started our journey that day at our hotel, near the train station at the north end of Brussels. We jumped on metro line #3 and rode the sub-

way all the way down to the south train station. There we changed over to an underground trolley and took line #2 west to the Clemenceau station. When we climbed the steps and emerged at street level we were surprised to find ourselves in an area of town that I wouldn't feel comfortable at night. This was not the Belgian countryside. There were no farm houses. A little old man did come over to greet me, but he just wanted my pocket change.

Boy was I surprised! It seems that I should have read Roger Protz's description of Cantillon instead of Michael Jackson's.

## Important Dates

**July**

**10th**

Bay Area Mashtronauts competition deadline

**17th**

Brew Day at Big Buck Brewery

**24th**

Iron Mash Competition in Fort Worth.

Summer party, 6PM, Bill James' house.



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Protz describes Cantillon as a "classic lambic brewery . . . . located in the backstreets of Anderlecht, known as the 'Liverpool of Brussels'." The Liverpool of Brussels? That sounds more like it.

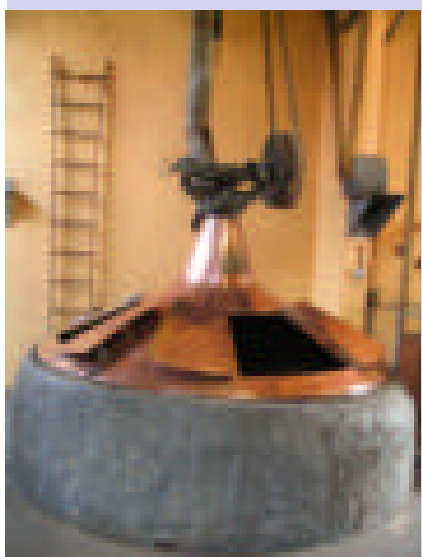
We looked at our map to get our bearings, and then started walking northeast, in the direction of the brewery. After about 20 minutes of wandering around in some questionable back alleys, we were wondering if we were lost. We couldn't see a brewery anywhere. It was then that we looked up and saw a pale yellow sign above a garage door "Brasserie – Brouwerij Cantillon". We found it!

Once inside, we were greeted by a woman who collected the 3.50 euro per person entrance fee and handed us a small pamphlet that described the brewery. She also told us that a free sample of beer would be waiting for us when we returned to the reception area. That was it. She was turning us loose to explore the brewery to our hearts' content. There would be nobody with us to answer questions or keep us from getting into trouble.

The first thing that we noticed about the brewery was the condition of the building and the equipment. The mash tun looked like it was made of cast iron clad with wood, there were two small copper boil kettles, and everything was covered with dust and cobwebs, especially the large dark rooms containing several hundred wooden barrels of conditioning beer. Cantillon amusingly boasts that flies and mosquitoes haunt the cellars and are



The Mash Tun



One of Two Copper Kettles



Barrels of Aging Lambic

likely to provoke bad infections. But due to the presence of all of the spiders, the brewery presents a natural equilibrium that enables them to produce the beers. At least this part was living up to my expectations.

We wandered around for about 30 minutes and then headed back to the reception area for our free beer. I selected the

Gueuze, (pronounced almost like "goose", if you were to say it with a French accent) which is the result of a well-considered blending of lambics of different ages and with different tastes. The lambic beers from the Cantillon brewery, which are stored in oak barrels, are called "young" after one year, but they will reach their full maturity after three years.



Cheers



Julie tasting her first lambic

The young beers still contain some residual sugar, which imparts a degree of balancing sweetness, and which is also necessary for the second fermentation in the bottle. The three year-old beers contribute their flavor. The brewer will taste about ten lambics from different barrels in order to select five or six which will be used for the Gueuze. The bottles are then closed with a cork and a bottle cap and remain horizontal in a cellar for a year, on average, in order to allow

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the sugars to be converted into carbon dioxide. Every blending will produce a different Gueuze. The Gueuze represents half of the production of the brewery.



Lambics available at the reception area

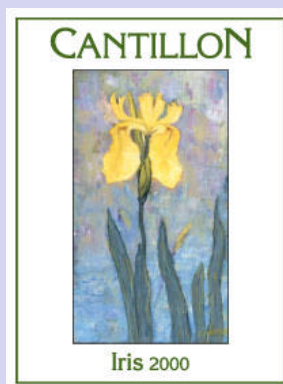
My wife selected the Kriek, a cherry lambic that is probably the most famous among Cantillon's beers. The process first starts with about 150 kilograms of cherries, which are put in 650 liter oak or chestnut barrels. These barrels are then filled with "healthy and mature" lambics that are about 18 months old. These are not so easy to find, because many lambics are still "ill and immature" at that age. Once the barrels are filled with the cherries and the lambic (about 500 litres), the hole in the barrel is closed with a sheet of paper in order to avoid contact with impurities. Five days later, the fermentation starts. The sugars from the lambic and from the fruits bring about the activity of the yeast that is concentrated in the wood and in the skin of the fruit. Once fermentation stops, the barrels are then closed and the acid in the lambic begins to

extract the taste and the color from the fruit. Years ago, people who drank Kriek in a pub were also given two lumps of sugar and a "stoemper" on a small plate. With the "stoemper", the customer could crush the sugar on the bottom of his glass and sweeten it in order to eliminate the sour taste.

There were a number of other beer that we did not get to taste during our visit, including Rosé de Gambrinus (a raspberry lambic), Lambic Grand Cru Bruocsella (a blend of only three year-old lambics), Iris (brewed with only pale ale malt and fresh hops instead of the normal 35% wheat and stale hops), Vigneronne (a white grape lambic), Saint-Lamvinus (a red grape lambic), Fou'Foune (an apricot lambic), and Lou Pepe (made with two year-old lambic beers in barrels from which only wine has been kept).

The tour of Cantillon turned out to be one of the more interesting brewery visits of our trip, and I'd recommend it to any one with a half day to spare while visiting Brussels.

For more information, visit the Cantillon website at [www.cantillon.be](http://www.cantillon.be)



## Doctor Bock: Answers to Your Brewing Woes

### Dr Bock,

I'm tired of sucking on my racking cane to start a siphon — I swallowed about a quart of unfermented wort last time, and my kitchen was totally messed up, there MUST be an easier way!

### The Doc Says:

Get your mouth off that siphon! Fill siphon hose and racking cane with water from a faucet or shower head to start a siphon. Keep a clean thumb over the free end while placing the cane in your fermenter, releasing the flow once the tip of the cane is well below the surface of the fermented wort.

### Dear Doctor,

Is there a difference between aerating my wort when it is hot and aerating when it is cool?

### The Doc Says:

Aahhh, Aeration. Cool is cool. Hot is not. When transferring hot wort, don't splash or otherwise allow air to mix into the wort or you will produce cardboard flavors in your beer. Once the wort has cooled to fermentable temperature and just before or after pitching the yeast, shake the beer vigorously to foaming or use a oxygenator stone to introduce a lot of oxygen. In the early stages of fermentation, yeast needs this oxygen to help multiply.

**The Doctor will try to answer any reader submitted brewing woes!**



# The Brewing Equipment Trading Post

## Job Wants and Needs

### “Brewer’s Dream Job”

Experienced beer and wine makers wanted for weekend work: OK money, excellent employee discounts!

contact:

Kelly Harris @

Homebrew Headquarters, Inc.

972-234-4411

Or

brewmaster@homebrewhq.

com

## Available for Hire

I recently lost my software engineering job at Nokia due to foreign outsourcing. I would like to ask my fellow NTHBA club members to assist me with my job networking. Do you know of any openings where you work? Do you know any friends that may have openings where they work? I would appreciate any information that leads to my eventual employment in a similar position in the north Dallas area.

I have extensive experience in full life-cycle development of embedded software systems. I specialize in C language

programming, but would also like to expand into other areas. Previous employers have included Nokia, Texas Instruments and General Dynamics.

Please contact Bill Dubas at 972-862-8518 or bill\_dubas@hotmail.com.

To list Your equipment, include the following:

1. Description of item(s)
2. Whether it is “For Sale,” “Will Trade for..?,” or “Free, come and get it”
3. Your name.
4. How and when to contact you.

You can give the information to Steve Atkinson at our Club meeting or email NTHBAnews@AOL.com

## North Texas Home Brewers Association, Inc.

President	Bo Turton	(214 ) 538-9178 Bo3769s@hotmail.com
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Treasurer	Bill Lawrence	(972) 644-8878 Lawrencefam@attbi.com
Minister of Education	Pat Kruger	(972)410-0188 p.kruger@comcast.net
Past President	Richard Harris	(972) 394-8166 L.r.harris@att.net

## Club Brewmeisters

Club "Brewmeisters" are members who are experienced brewers and have volunteered to help other brewers, both new and old, who are having problems. Give them a call with your questions! Just don't call too late or too early or during Cowboy games!

Russ Bee	Russmbee@aol.com	(972) 771-9489
Darrell Simon		(972) 675-5562
McKee Smith		(972) 393-3569
Jim Layton	Blutick@juno.com	(903) 546-6989
Homebrew Headquarters		(972) 234-4411

## North Texas Home Brewers Association, Inc.

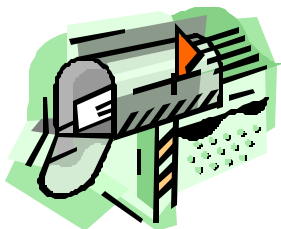


The North Texas Home Brewers Assoc. is a group with an interest in beer in general and home brewing in particular. We meet

once a month on the second Tuesday at various locations in the area. Visitors are welcome! "Livin' the Brews" is our newsletter and is published about once a month. We do accept advertising, although the NTHBA, its officers, assignees and editors are not liable for losses or damages resulting from mistakes or misprints, or any other consequences of advertising in this or any other publication. Ads are \$30 for a 1/3 page and \$50 for a full page, subject to change without notice. Readers are encouraged to submit articles. The deadline for ads and articles each month is 14 days prior to the next club meeting.

Visit the NTHBA Website at <http://www.hbd.org/nthba/>

Livin' the Brews Newsletter  
Stephen Atkinson, Editor  
c/o Homebrew Headquarters  
300 N. Coit Rd, Suite 134  
Richardson, Texas 75080



If you received this with a yellow post office forwarding sticker, please give Bill Lawrence a call at (972) 644-8878 and give him your new address.