



# The Barleycorn Press

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## Protein Rests Revisited

by Steve Parkes, Brewmaster, Otter Creek Brewing

**F**irst and foremost I am a brewer, the artistry intrinsic in a pint of foaming ale is as close to spirituality as I can get. I am also, however, a scientist, which means I frequently am required to evaluate and re-evaluate what I think is true about brewing and to be constantly on the lookout for the enemy of brewing science.... dogma. Perhaps I over reacted when I first read Lew Greitzer's article in The Barleycorn Press Vol. 17 Issue 5, titled Protein Rests. I know I got angry, which, given the honest attempt by Lew to share his experience and knowledge with his fellow hobbyists, does count as a little extreme. Publications on brewing science available to home brewers tend to fall into two camps; those written by researchers or lecturers at the world's brewing universities and those written by enthusiastic home brewers. The former are famous for not addressing any of the practical concerns a brewer may have with actually producing a batch of beer, the latter for the general, often unscientific assumptions they contain. In my role as an instructor at a professional brewing school, and one that taught weekend classes in advanced homebrewing techniques, I gained a unique perspective on this problem. The much revered, respected and late George Fix was singled out in brewing class because of his insistence that brewing yeast respire (they don't) and that home brewers need to worry about hot side aera-

tion (they don't). The writer of Brewchem 101 came in for some deserved criticism for his statement that a good kettle boil will help prevent diacetyl in the beer (it won't). Even the godfather of home brewing Charlie Papazian wrote that catty flavors in beer were the same as skunky flavors because the English researchers that discovered the mechanism didn't know what skunks smelled like (catty and skunky are different aromas). Research into the subject has also led me to some internet sources with false information, including a textbook called How to Brew by John Palmer. These writers were not brewing scientists but enthusiastic and passionate brewers who wanted to share their knowledge, opinions and passion with other likeminded hobbyists. None of them got rich from their efforts, but each contributed greatly to the brewing community, both amateur and professional. Virtually every brewer I encounter in craft brewing began by brewing at home. Now onto the subject of protein rests.

Multiple temperature rests in brewing date back to a time when brewers malted their own grain and brewing was a continuation of the conversion process from barley starch and protein to sugars and yeast nutrients began in the malthouse. Modern brewers brew with malt that has been modified in the malthouse to the extent that a single temperature rest will suffice to yield the quality and quantity of extract any brewer may desire or need. A more important factor to

consider is the degree to which this enables modern malt to be kilned, prolonging storage life and adding flavor benefits. While the malting process produces several proteinase enzymes including endo-peptidase, which breaks proteins into smaller pieces, and exo-peptidases which break individual amino acids from the end of the protein molecules, most of these enzymes are denatured (destroyed) during kilning. Destruction of enzymes is greatest when the malt is "wet" so the malt must be carefully dried to a low moisture content before the temperature is allowed to rise for "curing" the malt. This results in "malty" flavors and the reduction of the precursors to troublesome sulfury flavor compounds. Virtually no protein solubilising enzymes and only a limited amount of the amino acid producing enzymes survive into the mash and they are quickly denatured in a thin hot mash. Historically a low temperature rest 95 F (35C) was employed which was

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## NEXT MEETING

### Friday, June 9

### Rich Evan's, Underhill

**T**he masher barbeque at Rich Evans' house will be on June 9. People should bring a dish that is made with beer, or goes with beer, or that we could eat while drinking beer. Arrive anytime after 4:30 PM, camp overnight if you wish. Rich has all the beers from the competition and a couple of his own. He will be cooking something very special that you do not want to miss. The grill will be available. Rich is ready for rain or shine, and hopes to see you all there.

By the way, he just replaced the mailbox by his driveway; it is now a grey mailbox with "448" on it in small, black and white, reflective stick-on numbers. This year you can drive up the driveway!

**DIRECTIONS:** Take Route 15 East through Underhill Flats (NOT Underhill Center). Four (4) miles past the new firehouse turn right onto North Underhill Station Road. At the end of this road (about a mile), turn Left onto Poker Hill Road. Go about a quarter of a mile and the house is on the right. (long driveway up a steep hill, green mailbox with EVANS and 448 in white letters) Drive up the driveway if you think you can make it, the bumps are bad and you may need a lot of ground clearance. There is a lot of space to park at the top if you can make it, or you can just park on the road.

### Protein Rests Revisited (continued from page 1)

supposed to favor the action of the enzyme phytase, which is theoretically capable of reducing the mash pH by releasing phosphates. Virtually none of this enzyme survives the kilning process so with modern malt it is unnecessary. Brewing texts are also very inconsistent in the temperatures they give for the "protein rest." I've found mention of rests anywhere between 104 F (40C) and 131 F (55C) which is a huge range. The process known as proteolysis is generally carried out at 120 F (49C) – 125 F (52C) and consists of mostly simple protein solubilisation, limited enzyme action to increase wort amino acids (important when a lot of adjuncts are used), and enzymic and mechanical solubilisation of gummy material (beta glucan). Contrary to a statement in Lew's article, enzymes are not created in the mash; they can only be created in the maltings, and the job of the maltster during kilning is to try and preserve as many of the enzymes as possible. Very few of the enzymes active during malting survive in the malt with the exception of the amylases, some exo peptidases and some beta glucanase. Amino acids are the basic building blocks of proteins, and yeast cells require them to build new cellular material as they grow in wort. The biochemical pathways yeast use to create the materials they need for growth also lead to many beer flavor compounds such as esters, higher alcohols, organic acids, aldehydes and ketones. In paragraph 3 of his article, Lew makes the very valid point that a protein rest is probably unnecessary when using well-modified malt. The only issue he fails to address is the fact that malt undermodified enough to need require a "proteolysis" rest is not available anywhere in the US. An online supplier in Texas used to sell undermodified malt from the Czech Republic but it is no longer available.

## Staff Box



The Barleycorn Press is a monthly publication of the Green Mountain Mashers Homebrew Club. The Barleycorn Press appears in the final week of each month. **Contributions are due by the 25th of the month of publication or two Thursdays prior to the next meeting (which ever comes first).** Please send contributions via e-mail (preferable) or send on a 3.5" IBM compatible diskette (hard copy as a last resort) to:

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Contributions on any subject even remotely associated with the brewing and/or enjoyment of beer and related beverages are happily accepted by the editors. The editors reserve the right to edit any contribution as a function of available space, while making every attempt to maintain its integrity. The views expressed by contributors to the Barleycorn Press are not necessarily those of the editors or of the Green Mountain Mashers Homebrew Club.

This publication is made available free of charge to all dues paying members of the Green Mountain Mashers. Subscriptions are available to all other interested parties at \$7.00 yearly (US funds).

Note: The yearly dues of \$20 should be paid by the end of January. Please mail your check or money order made out to the "Green Mountain Mashers" to Treasurer Anne Whyte at the following address:

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## Green Mountain Masher Calendar of Events

Date	Event	Information
5/3-6/2006	New England Real Ale Exhibition—Somerville, MA	<a href="http://www.nerax.org/">http://www.nerax.org/</a>
5/31-6/4/2006	Mondial de la Biere—Montreal, Quebec	<a href="http://www.festivalmondialbiere.qc.ca/">http://www.festivalmondialbiere.qc.ca/</a>
7/21-22/2006	Vermont Brewers Festival—Burlington	<a href="http://www.vermontbrewers.com/festival.html">http://www.vermontbrewers.com/festival.html</a>

**Please contact Melissa at 482-7400 or [melissa@vt.bitxbit.com](mailto:melissa@vt.bitxbit.com) to add items to the Masher Calendar**

### May Meeting Minutes By Jerry Gormley

**T**he May meeting was called to order when Dave Blumenthal dragged his sorry butt onto Jim and Mel's porch. He was sick, and quite a trooper for coming. Dave gave a competition update:

- We have a source for considerably less expensive ribbons this year.
- We are short of judges. Dave Clark is the man to see if you want to judge.
- There is also a bunch of pre-judging to do.

Ruth Miller suggested that, in lieu of a summer picnic, we could descend en masse on the New England Home Brewer's Jambo-ree. This is a big, giant campout held in Campton, New Hampshire that coincides with a homebrew competition. It is held Saturday, September 9. The deadline for

entries is August 1st. Ruth will send an email with details.

The next Masher meeting will be held at the home of Linda and Rich Evans in Underhill. It will be on the first Friday in June. This is Rich and Linda's wedding anniversary weekend, confirming what we all suspected: Linda is a saint.

Tim suggested that the club organize a monthly home brew swap. This would allow people who felt that they had too much of a single batch of beer (yes, these words did indeed come out of Tim Cropley's mouth) to swap some of it with others who felt the same way about their batches. That way, you get to have a bit more variety. Some discussion ensued, and culminated with the question, "What would you trade for a 6-pack of Monk's 2001 Cream Ale?" Hmmmmmmm.....

Andy Hunt announced that JT (the former brewer at the Three Needs)

gave Andy the original copies of his recipe cards shortly before he moved on to greener pastures. Andy had a couple of JT's beers at the Needs in celebration of his amazing good fortune, then went home leaving his empty glass, and the recipes sitting on the bar. Oopsie. Fortunately, the recipes were found and put away for safe keeping. Andy has recovered them (there are 40) and would like to publish them on our web site. There was discussion about putting them on a password protected portion of the site.

The meeting adjourned, and we hung out on Mel and Jim's porch enjoying the lovely spring evening.

# 15th Annual Green Mountain Homebrew Competition

Saturday, May 13, 2006 at the McClure Multigenerational Center, Burlington, Vermont  
Sponsored by the Vermont Pub & Brewery

**Best of Show sponsored by The Alchemist**

Von Bair, American Pale Ale

**Vermont Pub and Brewery Brewer's Cup**

Meddie Perry, American Rye Lager

**Vermont Homebrewer of the Year sponsored by Long Trail Brewing Co**

Dan Marshall

**Category 1: Light Lager sponsored by Vermont Homebrew Supply**

1st Michael Robinson, Munich Helles  
2nd Bill Walker, Dortmunder Export  
3rd Steve Urish, Munich Helles

**Category 2: Pilsner sponsored by Flatbread-Burlington/Zero Gravity Brewing**

1st Brian Newton, North German Pilsner  
2nd Dan Marshall, Bohemian Pilsner  
3rd Anne Whyte, North German Pilsner

**Category 3: European Amber Lager sponsored by Flatbread-Burlington/Zero Gravity Brewing**

1st Anne Whyte, Vienna Lager  
2nd Dan Marshall, Oktoberfest

**Category 4: Dark Lager sponsored by Three Needs Brewpub**

1st Dan Marshall, Munich Dunkel  
2nd Dick Messick, Dark American Lager  
3rd Dan Marshall, Schwarzbier

**Category 5: Bock sponsored by Rock Art Brewery**

1st Rick Rocheleau, Maibock  
2nd Phil Kaszuba and Paul Hale, Traditional Bock

**Category 6: Light Hybrid Beer sponsored by The Beverage Warehouse**

1st Meddie Perry, American Rye Lager (Brewer's Cup)  
2nd Tom Ayres, Cream Ale  
3rd Dan Marshall, Kolsch

**Category 7: Amber Hybrid Beer sponsored by Magic Hat Brewery**

1st Michael Robinson, California Common  
2nd Andrew Ferko, Dusseldorf Alt  
3rd Anne Whyte, Dusseldorf Alt

**Category 8: English Pale Ale sponsored by Jansper Murdoch Brewpub at The Norwich Inn**

1st Dan Marshall, ESB  
2nd John Allin, ESB  
3rd Steve Urish, Standard Bitter

**Category 9: Scottish and Irish Ale sponsored by Trout River Brewery**

1st Paul Zocco, Strong Scotch Ale  
2nd Anne Whyte, Irish Red Ale  
3rd Bill Walker, Irish Red Ale

**Category 10: American Ale sponsored by Harpoon Brewery**

1st Von Bair, American Pale Ale (Best of Show)  
2nd Dan Bresnahan, American Brown Ale  
3rd Michael Robinson, American Pale Ale

**Category 11: English Brown Ale sponsored by Otter Creek Brewing**

1st Dan Marshall, Northern Brown Ale  
2nd Anne Whyte, Northern Brown Ale

**Category 12: Porter sponsored by The Alchemist**

1st Rick Rocheleau, Baltic Porter  
2nd Darell Whitaker, Robust Porter  
3rd Dan Marshall, Brown Porter

**Category 13: Stout sponsored by Rock Art Brewery**

- 1st Paul Zocco, Imperial Stout
- 2nd Tom Ayres, Imperial Stout
- 3rd Anne Whyte, Irish Dry Stout

**Category 14: IPA sponsored by Long Trail Brewery**

- 1st Dennis D'Amico, Imperial IPA
- 2nd Dan Marshall, English IPA
- 3rd David Buhite, American IPA

**Category 15: German Wheat and Rye Beer sponsored by Long Trail Brewery**

- 1st John Wosczyzna, Roggenbier
- 2nd Bill Walker, Dunkelweizen (tie)
- 2nd Mike Grunwald, Weizenbier (tie)

**Category 16: Belgian and French Ale sponsored by The Alchemist**

- 1st Tom Ayres, Biere de Garde
- 2nd Michael Robinson, Witbier
- 3rd John Eustis, Saison

**Category 17: Sour Ale sponsored by The Alchemist**

- 1st Dan Marshall, Gueuze
- 2nd Tom Ayres, Flanders Red Ale
- 3rd Rick Rocheleau, Flanders Brown Ale

**Category 18: Belgian Strong Ale sponsored by The Three Needs**

- 1st Bill Walker, Dubbel
- 2nd Rick Rocheleau, Belgian Strong Dark
- 3rd John Allin, Belgian Strong Dark

**Category 19: Strong Ale sponsored by Long Trail Brewery**

- 1st Brian Newton, American Barleywine
- 2nd Dan Marshall, American Barleywine
- 3rd Micheal Robinson, American Barleywine

**Category 20: Fruit Beer sponsored by Magic Hat Brewing**

- 1st Dan Marshall, Flanders Red w/sour cherries
- 2nd Darell Whitaker, Raspberry Weisse
- 2nd Michael Robinson, Blackberry Wit

**Category 21: Spice/Herb/Vegetable Beer sponsored by the Vermont Brewers Assoc**

- 1st Paul Zocco, Winter Warmer
- 2nd Andrew Carlson, Stout w/Spices
- 3rd Brian Severns, English Pale Ale w/Burdock root

**Category 22: Smoke-Flavored and Wood-Aged Beer sponsored by Bedonaine & Bedons Ronds**

- 1st Phil Kaszuba, Paul Hale, Rich Evans, Classic Rauchbier
- 2nd Jerry McMahan, Peat Smoked Porter
- 3rd Michael Robinson, Classic Rauchbier

**Category 23: Specialty Beer sponsored by the Vermont Brewers Assoc**

- 1st Phil Kaszuba, Paul Hale, Rich Evans, Steinbier
- 2nd Dennis D'Amico, Sticke Alt
- 3rd Anne Whyte, Imperial Dutch Light Lager

**Category 24-26: Mead sponsored by BREW YOUR OWN Magazine**

- 1st Paul Zocco, Cassis Melomel
- 2nd Paul Zocco, Clover Honey Mead
- 3rd Paul Zocco, Orange Blossom Mead

**Category 27-28: Cider and Perry sponsored by The Chapin Orchard**

- 1st Dan Marshall, Common Cider
- 2nd Terrence Bradshaw, English Cider
- 3rd John Allin, New England Cider

## New England Homebrew Club's Hosting BJCP Competition and Jamboree in NH

By Ruth Miller

**T**his August, the combined efforts of several NH and southern ME homebrew clubs will converge to hold a new BJCP-sanctioned homebrew competition on **August 12th**. The **2006 New England Regional Homebrew Competition** will be hosted by the Southern ME Home Brewers, Winnepesaukee Area Brew Crew, Brew Free or Die, and Maine Ale & Lager Tasters in Manchester, NH at Milly's Tavern. Gritty McDuff's of Portland, ME is the primary sponsor this year. If you are in need of more points in pursuit of next year's NEHBOTY honor or just some more fame & glory, here is yet another local opportunity to enter your beers and rack some up. Certified judges and stewards are needed for this event, and I have pledged to the various clubs in charge that the Green Mountain Mashers will be part of the action, both for submitting award-winning entries, but also as judges. Please consider helping out this collaborative effort and making the Mashers a new and integral participant. Please note that Seven Barrel Brewery in W. Lebanon, NH has been added as a drop-off point for us VT brewers. The **drop-off deadline is August 4th**. Last year there were over 120 entries, and instead of the typical ribbons, winners will receive very swanky-looking medals which I have seen and some really nice trophies - sweet!

In addition, this same homebrewing collective has opened up their **10th Annual NH Homebrewer's Jamboree** gathering and **People's Choice Awards** to all New England homebrew clubs this year. This popular event includes convenient overnight camping and a myriad of family-friendly activities at the Branch Brook Campground on Rte. 49 in Campton, NH - part of the Lake Winnepesaukee Region. It will be held the weekend of **Sept. 9th**. Like the competition described above, this event also needs judges, stewards and of course - entries! However, you needn't be a certified judge to judge for this People's Choice event. Separate medals will also be awarded for this event. Food will be available for sale on-site, but you are welcome to bring everything you need for an enjoyable weekend of beer-tasting, eating, bonfires, music jams and fun activities. RV as well as tent campers will be well-accommodated. All proceeds from these events, as it has in the past, will be donated to the "Make-A-Wish Foundation." It could be fun to reserve a group-camping site where the Mashers can set up their own "community," so I will be looking to gauge serious interest amongst our members in order to reserve such a site to accomplish that. There were over 100 people attending last year, according to organizers Jeff Parry and Brian Rousseau.

I will be making further details available via the Masher Listserve as I receive them. This may well be the perfect replacement for the Masher Summer Picnic, and a new opportunity to meet fellow brewers from the larger regional community! I say - let's show 'em what we got!



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