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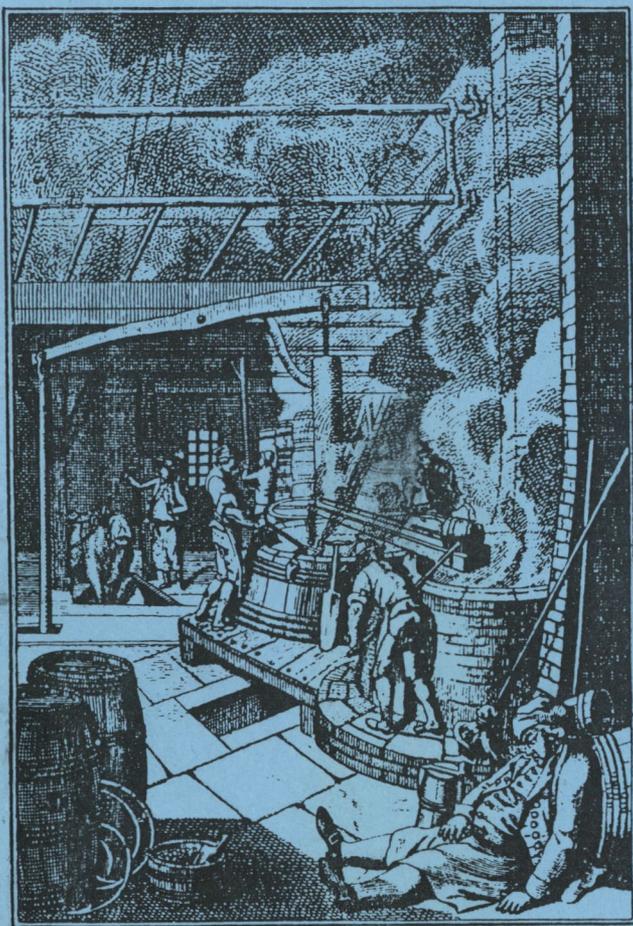
THE

JUN 28 1978

PORTLAND, OREGON

Amateur Brewer

FOR THE SERIOUS HOME BREWER



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AMATEUR BREWER
number five

Cover picture, an old woodcut of a 17th century brewhouse, is from One Hundred Years of Brewing re-published in 1973 by Sonja and Will Anderson, Possum Ridge Rd, Newtown, CT 06470.

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Talk to Your BEER

We're not late, we are secretly on time! If your "year" has only 12-months, ours may have 14 or 15 months. Anyhow, our subscriptions are for "four issues", and not a "year". What else can I say?

All that aside, the real reason is that we traipsed off to California to the Home Wine Merchants Association Third Annual Convention (60- merchants from all over the U.S., and product displays from all over the world.) While we were in the vicinity (Oakland, California's beautiful old Claremont Hotel overlooking San Francisco Bay) we visited the University of Calif--Davis' pilot brewery. Now there's a brewery you would fall in love with. Mounted on a wall were the beautiful small stainless steel brewing and mashing kettles, truly a sight to behold. Prof. Lewis was out of town, but his students were delightful hosts. (see story on p18). Not far from Davis we found Sonoma's New Albion Brewery, where we visited with very busy Jack McAuliff in his home-made brewery. You wonder how a small brewery can appear in this mechanized world: Hard work, long hours, and hand-made equipment make this very distinctive little brewery a going concern. In nearby Sonoma square we bought a case of their fine Ale, which had real yeast on the bottom of the bottle! Naturally we stopped at the Anchor Brewery to talk with Fritz Maytag, and drink some of his beer. His newest production is an English Barleywine. With just a light spritz finish and a deep mellow color, we found this beer a real delight. Old Foghorn Barleywine style Ale will never be marketed outside California, so you eastern types will have to suffer or make your own. --continued inside back cover.

Bock beer

By FRED ECKHARDT

The first time I tried *Bock* beer was when I was in college. My friend who introduced me explained that it was dark, because it came from the bottom of the beer vats when they were cleaned out in the spring. He said that these dregs were the finest beer, because they were aged all year round, and hence the most valuable and delicious of beers.

Logic should have told me that the dregs of anything would be the worst, not the best, but like most college men I shunned logic, and believed that ridiculous story for many years. Since that time I have made an annual pilgrimage to the local beer supply store to purchase this delightful brew, and have heard many stories concerning the origin of *Bock* beer.

There is almost always a picture of a billy goat on the label, and the story is that in the spring those who drank it acted like youthful billy goats. Another picturesque story concerns a medieval drinking bout between a brewer and a knight, which took place in a village square with the mayor presiding. The contestants were to drink stein for stein and barrel for barrel until one or the other was judged drunk. The contestant was considered drunk if he couldn't thread a needle while standing on one leg. The whole village turned out to witness this magnificent exhibition of plain and fancy drinking, and the combatants guzzled their beer, stein after stein, litre after litre, until at last the knight dropped his needle and stooped to find it. While

he was in this position a goat perceived that this was indeed a splendid target, and proceeded to do what goats are most famous for. The knight being unable to get up, the mayor awarded the victor's laurels to the brewer. When the knight recovered he charged that the goat had constituted unwarranted interference, and hinted that it had been egged on by the spectators. He demanded that the results be set aside. The mayor declared that, had the knight been sober, he would not have been laid out. In this manner the goat (German: *bock*) became the symbol for the strong beer served at spring festivities. The story may have more than a little truth to it, since the name of the village was Einbeck (pronounced Einbock) and *Einbocker* is one of the famous Munich style dark beers produced in Germany.

The traditional *Einbocker* was brewed in early winter from the first malt and hops of the fall harvest. It was aged in deep caves throughout winter and drunk in the spring. Bock Beer Day, the first day of spring, is the day this beer is first sold traditionally. Bock beer season lasts six weeks.

Bock beer is a strong dark beer made with caramelized and highly roasted malts. The flavor comes from 7-10 oz. Munich malt per U.S. gallon and 1-oz. caramel malt. These malts produce a dark beer, but the very dark color comes from the addition of about 1-oz. black malt per gallon. Other famous German bock beers are Dunkler bock, Salvatore, Ehrlanger and Kulmbacker.

The traditional method of making these beers begins in the mash kettle, where the malts are ground and added to cold water. During this doughing-in the mash is stirred and then left standing while boiling water is added to raise the temperature to 95° F. The mash is again stirred continuously while a third of this thick mash is drawn off and brought to a boil, then returned to the kettle, which raises the temperature to 122° F. A second thick

mash is drawn off, also one-third, and this too is brought to a boil and returned to the kettle, raising the temperature to 149° F., where the mash is allowed to rest for 20 minutes. During this period the malt grains settle on the floor of the mash tub, which is constructed with a false bottom that has fine holes in its surface. When settling is complete a lauter mash is drawn off by a spigot at the base; this will be a thin clear mash and of enough volume which, when brought to a boil and returned to the mash tub, raises the temperature to about 167° F. The mash then rests for an hour, following which is strained off into the brew kettle and brought to a boil. The total time involved in this process, called thick decoction triple mash process, is about five hours.

The wort, as it is now called, is boiled vigorously about 2½ hours, during which time delicate Hallertau hops are added in three batches for a total of 4-oz. per gallon (U.S.), the last being added about 15 minutes before completion. The wort is then strained through a hop jack to remove the hops, cooled to cellar temperature of about 55° F., and pitched with a bottom fermenting lager yeast, starting specific gravity 1.059 to 1.068 or higher.

Originally the primary fermentation took place in open wooden vats and lasted about 6-8 days. Secondary fermentation was carried out in large pitch-lined wooden casks, which were stored in the coldest part of the cellar. As winter wore on, ice was harvested from the surrounding lakes and packed around the wooden casks, lowering the temperature to 33-38° F. Terminal specific gravity ranged from 1.017 to 1.029. About a month before Bock Beer Day, a portion of new beer was added to the casks and they were racked off into smaller barrels, which were bunged (closed). The fermentation of the new beer provided carbonation for the stored beer. This process was called krausening and originated in the late

eighteenth century. Prior to that time all beer was served still (very little or no carbonation). Although German beers may have had some carbonation to them, it is almost certain English beers did not.

The high terminal gravity of these beers stems from the high kiln-dried malts which leave a relatively large amount of real extract, which is the unfermented residual sugars remaining in the beer. Bock beer then is exceptionally nutritious, rich in vitamins, especially vitamin B, and quite filling, yet reasonably low in alcohol (under 5-6% by weight). Bock beer is a heavy beer, and it is not intended to be consumed in large quantities. It goes well with sausages (wurst), cheese and pork and beef dinners.

Americans and Canadians who drink bock beer will find that the product differs little from their regular beer. The American brewery usually starts with a gravity of about 1.045, terminal about 1.012, and 3.6% alcohol by weight, the color from caramel coloring, and only a small amount of caramel malt and little if any Munich malt. American "bock" beer is actually the same beer that is sold as dark beer. There is no real attempt to produce the genuine article.

We offer here, the simplest of three recipes for making your own bock beer. This is a simple all malt extract beer. Our article "Decoction Mashing for the Masses" has two more recipes for more complex all-grain and part grain bock beers.

If you plan to drink your bock beer on April first it must be brewed before September 1st, since the brewing process takes about seven months.

INGREDIENT SUBSTITUTIONS

If the German Diamalt Munich Maltzin "Dunkel" (0.5-kg tins) is not available you may substitute a similar amount of the best quality English, German or Danish dark non-hopped malt extract you can find. If the weight differs, make adjustments in the original gravity as necessary. Any OG of 1.055-60

will be satisfactory. For the dry malt extract try to find a good import, rather than the powdery Fleishmans m.e. found in many supply outlets. This latter may be used to make minor adjustments in gravity, but larger amounts are not as satisfactory. Another substitute for the dry malt extract is the non-hopped malt extract syrup. The imported variety is better. If you can't find Hallertauer hops we have listed substitutions for the 19-HBU level called for in this beer.

Remember to set aside a pint of hot beer wort, cap it hot, and store in the refrigerator. You will need that for a yeast starter for the yeast you must add at bottling time. (see later).

All three of our recipes are for 5-USgallons (4-UKgal; 20-litre) finished beer. All three start with 5½-gallons to allow for racking, topping up, etc.

ALL MALT GERMAN STYLE BOCK BEER

Recipe No. 1, Malt extract beer
5-USgals (4-UKgal; 20-litre).

Ingredients:

2 x 0.5-kg Diamalt Munich Maltzin "Dunkel" (2.2-lb)
5-lb good quality dry malt extract (2.25-kg)
2-lb Caramel or Crystal malt (1.0-kg) crushed
3-oz Black Patent Malt (85-gm; ½-USCup) (whole grain)
Bittering hops (boiling) 19-HBU
2-oz Hallertauer or 1¼-oz Cluster) (60 or 35-gm)
Aromatic hops: ½-oz Hallertauer or Cascade (15-gm)
Water Treatment: to 500 ppm, or for soft water, about ½-tspn gypsum (CaSO₄) (1.75-gm), and 1½-tspn plain salt (7.5-gm)

Lager yeast, preferably in a starter culture of good beer wort.

Original Gravity 57 (14°B) 1.057
Racking Gravity about 26 (6.5°B)
Terminal about 10 (2.5°B) 1.010
Alcohol about 4.8% /w; 5.8% /v

PROCEDURE

1. Mix the water treatment in a cup of hot water.

2. Add about 1-gallon of hot tap water to your brew kettle of at least 4-gallon capacity. Wrap the caramel or crystal malt grains (crushed) in a cheesecloth bag, and mix into the hot tap water. Add 1/5 of the water treatment. Stand for about an hour, then discard the malt grains. Add as much more water as your kettle will safely boil (up to 5-gals). Leave plenty of space--bring this to a boil.

3. Add the malt extracts and the balance of water treatment as the water is coming to a boil. Rinse the tins. After the mixture comes to a boil, cover and boil vigorously for a total of 1½-hours.

4. Add the boiling hops in three batches: After 15-min, after 45-min, and after an hour of boiling. The aromatic hops are wrapped in cheesecloth and added at the end of the boil; and they are transferred to the fermentor along with the wort.

5. Add the black malt after an hour of boiling.

6. Pour into the primary fermentor; and add water to a total of 5.5-USgals (4.4-UKgal; 20.8-litre), to allow for racking, etc.

FERMENT AND AGING--REFRIGERATOR

1. Adjust the gravity if that is more than 4-points off. Place in the refrigerator to cool. Yeast Note: If the yeast is a dry yeast, add it direct when the wort has cooled to 70F (21C), and keep the beer at that temperature until ferment shows.

If you are using a starter culture of beer wort, wait until the beer has cooled to around 58F (14.5C), and add that culture.

In either case stir and aerate the wort thoroughly when you add the yeast.

2. The beer is fermented at 55-60°F (13-15.5C), for the primary ferment.

NOTE: This may be warm fermented in your usual manner, the following is a refrigerator ferment.

3. When the beer reaches full krausen-head, and starts to fall (after about 4-days or so), skim the head, and remove the aromatic hops in their cheesecloth bag.

4. When racking gravity (around 1.026; 6.5°B) is reached (8-10 days), rack to secondary fermentor without topping-up, and place a fermentation lock with water in it on the vessel. At this time lower the temperature to the 39-42F(4-4.5C) range.

5. Secondary ferment will take 5-10 days. Verify completion of ferment with a Dextrocheck kit (sugar less than 0.05%). Rack to another carboy, top-up, and if you wish, add ascorbic acid as an anti-oxidant (50-100-mg/gal; 12-25 mg/litre) or around 3/4 tspn.

When you are certain there is no further ferment, seal the containers, and set the temperature to as near zero as you

can (32-32.5F). This beer is to lager (store) for 5½-months at this temperature.

BOTTLING

If you plan to drink your bock beer on the 1st of April, you should bottle in mid-March. About 7-days early, you may add finings if you wish, but that will probably not be necessary, the beer should be crystal clear after nearly six months lagering. Start a yeast culture with the bottle of beer wort you saved (see earlier). Use fresh yeast, or yeast you saved from racking if you can revive that.

Bottle this beer with one of the yeasted methods outlined in part IV, ABC's of Brewing (p 8).

ON GROWING HOPS

Although I have grown hops in my yard, I am not an agronomist and do not claim to be knowledgeable in this area. The following is presented to help those who may wish to grow hops at home.

The major hop growing areas of North America vary greatly in climate, especially in rainfall and winter severity. Central Washington's Yakima Valley is fairly dry and hot in the summer, while quite cold (at times) and wet in the winter. Western Oregon (Willamette Valley), Washington (Puyallup v.), and British Columbia (Frazer R. V.) are high rainfall areas with summers fairly dry, and very little frost in the winter. California's Russian R, Sacramento Sonoma valleys offer still other growing problems--shorter days in summer, dryer and hotter. Each of the above hop growing areas require different growing stock. Sometimes a given hop variety will thrive only in a particular area. Practically speaking however, we can narrow it down to the only two areas we have found cuttings and rootlets to be generally available: Oregon and Yakima varieties.

To further complicate the matter, the different growing areas have different disease susceptibilities. For example, Downey Mildew infection is more common in Western Oregon than Yakima Valley, so that infection is less of a problem in Yakima varieties grown in Yakima-type climate. Western Oregon varieties are bred to be especially resistant to Downey Mildew, but may not survive in a cold Yakima-type climate.

You must determine which of the two available types best

fit your own climate area. Herbert Myrick, in his classic The Hop, Its Culture, and Cure, wrote (in 1904--when hops were commercially grown in many places over the U.S.) that hops would grow any place where corn could grow. Jack Horner, the hop scientist from Oregon State University, told me he collects wild hop plants from all over the U.S. He is especially fond of a particular cutting he acquired in the rocky mountains.

Check with your supplier to see if he offers hop plants or cuttings, since we gave the addresses of two top hop nurseries in our newsletter to dealers, to allow them to order in advance of this article. If your dealer does not have them, you may order direct from the supplier yourselves. Both nurseries do retail business, but they have \$10 minimum orders.

Oregon
Willamette v. Cascades,
Brewer's Gold

Weeks Berry Nursery
6494 Windsor Is. Rd.
Salem OR 97303
(503) 393-8112

Washington
Yakima v. Cascades

May Nursery Co.
PO Box 1312
Yakima WA 98901
(509) 453-8219

Hops will grow in most temperate climates with a minimum of 150 frost-free days, and temperatures above -20F (-29C) at elevations below 6000 feet (1800-meters), but long cold winters and damp foggy Springs make growth difficult if not impossible. They need irrigation if the weather is hot and dry. They need plenty of water in Spring, less as they mature, least before harvest, but they do need water. Proper drainage should be arranged, and you should avoid alkaline or saline soil. Preferred are alluvial soils of medium and coarse texture.

Hop seedlings may be planted anytime April to August. Hop cuttings should be planted in April. Plant in well worked friable soil, two or three feet apart (non-commercial). Root cuttings are placed vertically, buds facing upwards, so the top of the root is an inch or two below the soil surface.

Hops are climbing plants, so they need plenty of sunshine, and a 10-18-foot (3-5.5m) lattice, chicken wire, or a strung pole to grow on. They may be planted along a wall, at the base of a porch, a gazebo, or an arbor. They grow readily and add shade just when it is needed most, in the late summer.

WHEN TO HARVEST

The hops are ripe (late August to early September) when the cones open up somewhat, and the yellow lupulin powder is present and visible, along with a rich hop bouquet, after you rub the cones between your fingers. If they start to turn brown (or red) they may be diseased, past ripening, or in need of water. I harvest my hops by cutting the vines down, (you should do that), and then removing the hops by hand. I place the cones in shallow covered boxes, (well aired), and allow them to air dry. Then I place the very dry hops in plastic bags, pressing each bag, to fill it to the fullest.

I store them in the freezer away from light. One hop plant yields (me) about 12-20-oz (340-560-gm) dry hops.

These air dry hops will not be sterile for dry hopping, so if that is your intended use, you should sulphur them by burning a sulphur stick (your winemaker supplier) in a close compartment, such as a portable smoke house. Keep the stored hops away from air, light, and warmth.

HOP DIRECTORY--addenda

CONNECTICUT

Lexington

Wine Art
POBox 296
Lexington MA 02173

Domestic Yakima Cascades,
Oregon Bullions
Imported Hallertau, Styrian
Domestic pellets Clusters
Hop emulsion extract

NEW YORK

New York City

S.S.Steiner
655 Madison Av
New York NY 10021
Attn: Henry Furman

These Folk do retail business, but you should verify order size, etc., as they may market larger amounts than you are used to working with. All domestic commercial varieties grown in U.S., plus All German and continental imports, no English varieties. Pellets--same.

BOOK REVIEW

A TREATISE ON LAGER BEER, NEW FOURTH EDITION by Fred Eckhardt
1977 Portland OR, Illus, 53pp. Hobby Winemakers \$1.79

by John Dunphy, The Winemaker's Shop, Hudson N.H.

There is no arguing with success and any book that is in its 4th edition in 7-years must be successful. Fred Eckhardt has maintained his excellent group of recipes in the center section while expanding on various techniques. For some, who follow recipes and procedures to the letter, there are some inconsistencies which should have been caught in the editing. For example, the amount of priming sugar recommended is 1.5-oz/USgal., as listed on p27, and p45, while 2-oz/gal. is recommended on p42.

There are other proof errors such as Special Gravity instead of Specific Gravity (p52), and 360-lb per sq.in. rather than 36.8 psi (p45).

But I'm in hearty agreement with him that there are only four basic ingredients for a beer: water, malt, hops and yeast and the rest of the available additives are either insurance or frosting.

Mr. Eckhardt has succeeded in amplifying and improving his excellent "Treatise".

the ABC's of BEERMAKING Part IV bottling and kegging

by Fred Eckhardt

This is the fourth article on the beermaking process: the first (AB#1) dealt with preparing the wort for ferment. The second (AB#2) concerned itself with fermenting and aging. The third (AB#3) was all about the principals of finishing and packaging, while this, the fourth and final article, is all about the actual bottling and kegging processes. We have made no attempt, in this series, to discuss most of the ingredients, and have touched only lightly on the subject of equipment. We are concerned here mainly with procedures. Their use with any recipe you may have should improve that beer.

The reader should remember that even though we give detailed procedures on all of these methods, this is not intended to mean that you should slavishly follow such methods. Rather we hope to suggest only an outline for you to develop your own unique brewing ability.

BOTTLING SPECIFICS

Remember to verify that the beer has indeed finished its ferment by using a Dextrocheck kit (AB#2,p23, pgh D.3.)

A. COMMONBEER METHOD. Not recommended, unless you are very experienced, and not even then.

1. Keep very careful track of the progress of your beer, by regular hydrometer (beer-tester or saccharometer) readings. IF you are making the standard home brew, you may rely on the red-line (beer-tester), which is about 1 $\frac{1}{4}$ ^oBalling or sg 1.005. IF you are making a high malt beer, the terminal gravity will never get down to the red-line. In that case use another bottling method.

2. When the beer is found to be at the red-line, as described above, verify by taking a very careful reading, using a hydrometer jar to hold your beer sample. **DO NOT BOTTLE IF THE READING IS ABOVE THE RED-LINE.** Wait until the red-line is reached, or when it is a little below the red-line.

3. Rack the beer from its fermenting vessel to another container, so as to separate the beer from the sediment. Add a fining agent, if you wish, and anti-oxidant as described earlier. Heading preparation is also added at this point, if you use that. Stir these ingredients into the beer very gently and thoroughly.

4. Siphon into bottles which have been cleaned and sterilized and cap them.

5. Store the beer 4-days at room temperature; then store in as cool a place as you can manage, with 55F(12.5C) or lower ideal. Store the beer for at least 30-days or even longer, up to 3-months. chill, decant, and serve. Good luck.

B. PRIMING METHOD. This method is only for use when the yeast is still active in the beer. It should not be used when the beer has been in storage for a long time (over 30-days). Generally primed beers are ales, commonbeers, and steam beers.

1. Boil about 2-cups (480-ml) of the beer and add carbonation sugar to form a syrup. Alternately, boil about 2-cups water and add carbonation sugar to that to form a syrup. This latter will increase the volume of your beer but also reduce body slightly.

2. Rack the beer from the carboy to an open vessel, such as a primary fermentor. If you are using the commonbeer method (pg# A) of ferment, rack to another open container. Add the carbonation syrup prepared as in pg# 1 above, and stir gently but thoroughly. It is wise to add anti-oxidant, ascorbic acid 50-100-mg/gallon (12-25 mg/litre). If you have not already fined your beer, this is your last chance to do that. Add heading preparation if you wish. Dissolve these various additives in a small amount of beer, add, and be sure to stir gently but completely, to distribute them throughout the beer.

3. Siphon the beer into bottles which have been cleaned and sterilized, and cap them.

4. Store for 4-days at room temperature, and then store cool at about 55F(12.5C), or lower. Store 10-14 days minimum, chill, decant, and serve.

C. KRAUSEN METHOD. This is a modified procedure using yeast, and very similar to the PRIMING METHOD outlined above. The KRAUSEN METHOD is good for any beer, but it is absolutely necessary where the beer has been racked off its lees, and aged or stored for some time, (over 30-days).

1. When you rack the beer from secondary ferment, save a small bottle of the yeast dregs. Cap and store in the refrigerator for up to three months. If the beer is to be stored or lagered for longer than that, use a fresh yeast packet (bottom yeast preferred.) (Alternately you can revitalize your yeast-dregs by culturing them every three months).

2. Add this yeast to a pint of beer wort saved from your latest batch.

3. When the yeast culture is active and bottling time is at hand, boil 2-cups of beer and add the carbonation sugar to form a syrup.

4. Cool this syrup to 70F(21C). Swirl the starter culture, to mix the yeast and aerate it, then add the cooled carbonation syrup. Let that stand for four hours.

5. Rack the beer to an open vessel, and bottle as outlined above in the PRIMING METHOD. Use the yeast-starter-carbonation syrup mix for priming syrup. Add anti-oxidant and any other additives as described earlier. Bottle as usual.

D. SUGAR-HOP METHOD. This will add extra hop flavor to your beer without increasing the bitterness. It may be used with either the PRIMING METHOD (no yeast) or the yeasted KRAUSEN METHOD. Follow either system, but prepare the carbonation syrup as follows:

Boil 2-cups of beer or water with the carbonation sugar for 2-3 minutes, and then add aromatic finishing hops of the highest quality. Use quite a lot, that is 5 -9 gm/gallon (1.5 -2 gm/litre), or about 1-1½-oz per batch of beer. Boil the sugar and hops for another 5-minutes, strain and cool a little, being sure to rinse the hops with extra beer and press them to extract all of the sugar, (taste to be sure). Hallertauer and Saazer hops are best for this, but you may also use Fuggle, Northern Brewer, Cascades, Willamettes,

Columbias, Goldings, or any other high quality hops, with Clusters being the least desirable for this purpose. Aromatic hops are best. Hop pellets, and hop oils may also be used.

CARE OF BOTTLED BEER

After bottling, your beer may be aged about one month for every 10 -20 original gravity points (s.g.), and it will continue to improve. The beer will keep well if stored in a cool place and I have retained some of my beer for over three years with no apparent ill-effects. Possibly it will keep even longer, and in the case of very strong ales, you might dip the caps in paraffin or wired corks champagne style, to store for even longer periods of time, up to ten years or more.

DISGORGEMENT

This is a way of preparing your beer so that there is no sediment. You should use champagne or sparkling wine bottles for this, since the long neck is perfect for that process. In any case "stubby-type" bottles are unsuitable, although I have used old-style tall 12-oz bottles.

1. Bottle the beer in the usual manner, but increase the carbonation dextrose to produce one-atmosphere extra pressure over that desired as final bottle pressured. See table of pressures AB#3, p42. Fill the bottles to a slightly higher level than you usually do. 3/4 -1" (20-25 mm) from cap in beer bottles, and 2-inches (50mm) in regular champagne bottles.

2. After about two weeks of storage in the usual manner, turn the bottles upside down in their case. About twice a day lift each a few inches, and drop it to the bottom of the case, turning it a quarter turn or so. This is called riddling, and you should be careful to wear glasses or other eye protection while doing it. After a week or so, the sediment will settle on the cap. Stand another two weeks or a month, so the sediment will harden a little.

3. Place the beer to be disgorged in your refrigerator to lower the CO2 pressure. Keep the bottles cap down.

4. After the bottles are thoroughly chilled, you are ready for the final process which involves freezing the sediment in the necks of the bottles. This will be done by placing them, caps down, in a freezing mixture (see below), and leaving them for 10 -30 minutes, until ice crystals form in the necks.

THE FREEZING MIXTURE

An old one gallon plastic bleach bottle will make a nice container to hold a bath for 2-3 bottles at a time. Cut the top of the plastic bottle away, this is the part with the neck and handle. Use the cheapest alcohol you can find (methyl or even rubbing). You need about 16-24-oz (500-750ml). The freezing solution is produced by adding a 2-3 -lb block (1 -1.5kg) of dry ice (CO2 ice), available in many places such as some Baskin-Robbins Ice Cream Stores. If you wish, you may substitute a strong brine solution for the alcohol, but this is very corrosive.

PROCEDURE

You should wear heavy clothing and face/eye protection

while disgorging your beer. The process is less complicated than it looks. I have done it in front of a class, so it has to be simple.

1. Place one or two bottles at a time in the freezing mixture, caps down, and leave them until ice crystals can be seen to form in the neck (10-30-minutes). Wipe the bottle before proceeding.

2. While seated in front of a good size corrugated box, laid on its side, open-end towards you; point the bottle so that it will discharge the plug against the inside of the box. In a quick movement remove the cap with a bottle opener and the plug, consisting of sediment, yeast, etc., will fly out into the box.

3. QUICKLY--wipe the inside of the bottle with your finger to remove any sediment adhering to the lip of the bottle. Cover the mouth of the bottle with your thumb or finger, and QUICKLY cap the bottle again. About one-atmosphere of pressure will be lost in this disgorgement process. Believe it or not you have plenty of time to do the above operations.

4. Allow the beer a couple more weeks to settle down before consuming. This is a beer you can take camping, or wherever, and it won't cloud on you (excepting chill or protein haze). This beer may be drunk directly from the bottle, and good to the last drop!

DRAFT BEER

Most of us will agree that the bottling operation is a drag. That fact alone keeps many from making their own beer at home. There are many plastic draft packaging containers on the market, but most of them have turned out to be rather unsatisfactory in producing the lively carbonated draft beer most North Americans are familiar with.

American keg beer is delivered at a pressure of about 10 -15 -lbs/sq.in. (0.7-1.03 -kg/cm²), or just under one atmosphere. If you have such a keg as is used for US beer (or Canadian), that may be your best container to use. They are generally available in two sizes: 15.5-USgal (12.9-UKgal; 58.7-litre) and 7.75-USgal (6.5-UKgal; 29.3-litre) sizes, sometimes called keg and pony keg. The preferred keg and system would seem to be Golden-Gate, (Budweiser-Michelob uses that system for example), characterized by an extra fitting on the side of the keg at the bottom.

The equipment to rig your refrigerator to dispense draft beer may be obtained for a little over \$100. Consult your city's yellow pages--Beer dispensing and cooling equipment. The following two firms offer such equipment by mail order:

F.H.Steinbart Co.
526 SE Grand
Portland OR 97214,
(503)232-8793

The Home Brew Shop
336 Broadway
Chico CA 95926
(916)342-3768

Lee Coe, in a paper, Home Brew on Draft, 20pp zerox, \$1, available from him 840 Delaware st., Berkely, CA 94710, details the process and equipment needed to put your own home brew on draft. Kenn Grossman (Home Brew Shop, above) also has a paper on the subject.

A refrigerator with space of 22" high by 16" deep (55 x 40-cm) is needed, and manufacturers of home dispensing equipment say that you can take over a month to drink a keg of beer. That's commercial beer, so our beer, which is alive, should last longer.

It is an easy matter to obtain a good fresh keg to use with your beer, simply order a keg of beer (Golden-gate fittings) from your favorite supplier, and drink the beer. The supplier will ask a deposit of \$10-25. Drink the beer, and then use the empty keg for your own beer. You can always return it later for your deposit (keep the receipt).

Mr. Coe recommends that you put the beer into the keg through fittings that can be removed with a special wrench. We do not recommend that, but rather you should fill the keg just as the brewery does, through the bung. Extra bungs may be ordered from Steinbarts (address above) for 65¢ each. Be sure to specify beer keg bungs, not wine barrel bungs. The beer keg bung is 1-7/8 inches across (48mm). Remove the old bung, by drilling it out, use a hand drill and a 1" (25mm) wood bit. Rinse the keg carefully to remove the old beer and all of the wood bung chips which might remain.

PROCEDURE FOR KEGGING BEER NATURALLY

1. When the beer has finished aging, rack it to an open fermentor just as you did for bottling. Alternately you may want to rack direct from fermentor to keg. However, if you have used your keg as an aging vessel or secondary fermentor, you must rack the beer and clean the keg, before the kegging operation. In any case verify that the sugar is fully fermented by using your Dextrocheck, for less than 0.05% sugar residual.

The kegging operation uses much less carbonation sugar than is needed for bottling. You want about 0.82-atmosphere pressure (12-lb/in²). This calls for about 0.5-oz dextrose (corn sugar) per USgal (0.6-oz/UKgal; 3.7-gm/litre). (See pressure chart table p42, AB#3; or TREATISE, 4th ed, p47).

For a 7.75-gal keg this amounts to about 3-7/8-oz (110-gm). For a picnic tap, you might want a little more sugar, say 4-oz, which gives a little more pressure. If you do use a picnic tap, remember to drink the whole keg within 24-hours, a party for sure! This size keg will serve 12-18 people at a party, according to the US Brewers Association. Once at a party I had a 15.5-gal bbl, and there were so many people that the party only lasted 2-hours from tapping to dregs! Anyway, be sure to measure the sugar carefully and prepare it as you do when bottling your beer (make a syrup). Choose a priming or krausening method according to the beer you have made. After the beer has been racked to an open container (or add direct to the keg) add the carbonation syrup, anti-oxidant, finings and whatever you usually add, (Anti-oxidant: about half teaspoon). Clean and sterilize the keg.

2. Rack the beer into the keg, fill to about 2-inches (5-cm) from the bung hole. Then place a new bung in the opening and pound it into the keg with a rubber mallet. If you happen to crack the bung, drill it out and put another in. The rubber mallet should prevent such cracking.

Roll the keg a bit to mix the beer and store at room temperature for a week or so, then place it in the refrigerator for another three weeks before tapping. Voila! Your own tap beer, and naturally carbonated, too!

BREWERY NEWS

San Francisco CA--The General Brewing Company closed its plant here after 30-years of operation. The GBC still operates breweries in Vancouver WA, and San Antonio TX (Lucky Lager, and Pearl). There's only one brewery left in San Francisco, the inimitable San Francisco Steam Brewing Co., which produces Anchor Steam Beer. This brewery, once the smallest in the US (now out-smalled by the New Albion Brewery of Sonoma CA) has now apparently grown too big for its britches. Well, anyway too big for its kettles, and they are moving from their present location under the freeway on Eighth St. to Mariposa and De Haro Sts., about a kilometer southeast of their present location).

The brewery has purchased a small old German Brew House: Copper Brew Kettle (3565 USgal ca; 2968 UKgal; 135 hl), lauter-tun, mash mixer and mash kettle of matching capacities (double their present cap). The new equipment is presently being installed at the new location. As the song says--"If you're goin' to San Francisco, be sure to drink some Steam Beer while you're there..." And mabe you should wear flowers in your hair, too!

Erie, PA--The Erie Brewing Company closed down in March after 115-years of operation. The Erie was one of 641 different breweries that have operated in Pennsylvania at one time or another. There are now only 11 of them remaining. Sadly, the Erie Brewing Co. made the same kind of beer everyone else does, so their product probably won't be missed, except by those Pennsylvanians who remember better days.

NATIONAL BEER WHOLESALER ASSOCIATION reports that 74% of their numbers don't refrigerate your commercial beer while they store it before they ship it to your retail outlet. Coors and San Francisco's Anchor are the only two breweries we know that require refrigeration from their brewery to you the customer.

It's easy to find out if the wholesaler of your favorite commercial beer refrigerates, and if your retailer does. It can make a big difference in your beer's quality. Beer is a perishable product, and should be refrigerated from the brewery to your home.

OLYMPIA WA--The Olympia Brewing Company was fined \$55,000 recently by the states of Oregon and Washington for allegedly paying some taverns to sell their beer. (see next)

MILWAUKEE WI--The Jos. Schlitz Brewing Company was indicted recently for 747 (count 'em) counts of violating federal income tax and alcohol laws. They were accused of engaging in illegal marketing practices, including payment of kickbacks and other inducements to retailers and other distributors. They were also charged with tax fraud allegedly nearly one million dollars. The Feds also accused Schlitz of trying to cover the kickbacks by creating, falsifying and destroying business records.

DECOCTION MASHING FOR THE MASSES

by Fred Eckhardt

Note: Most of our readers have our pamphlet Mashing for the North American Home Brewer, this information is offered in conjunction with that pamphlet, so if you do not have that publication, and if you are interested in mashing your own grain malts in the traditional Continental style, then I suggest you order a copy from us. (\$1) See page 19 to order. This will save us a lot of space here by not having to discuss the various steps and processes, as well as malt differences. The various malting systems are discussed in "Barley and Malt", part II, AB#3. Our slide-lecture #2 also deals with the mashing procedure as well as refrigerator lager production.

Decoction mashing was invented by the old Bavarian brewers using their less fully modified German malts. In Mashing for the North American Home Brewer (above) we saw how malt grains were steeped in water at several temperatures to effect activation of different enzymes. These were called "rests" and there were four of them. Acid, protein, sugar and dextrins were all modified at these various "rests". The system we described is an infusion system, that is the grains are soaked in water of various temperatures. In England this infusion mash is used at only one temperature range (150-160F; 65.5-71C); because of the nature of English malts. In this country the malts have not been so fully converted in the malting process, so the mash must be held at various temperature "rests" to effect those conversions. Our method with infusion temperature "rests" is a marriage of the traditional German decoction mashing steps and the English infusion style. This step method is necessary when using the relatively un-modified American malts.

In the old days the English brewer found his correct mashing temperature by looking into the surface, and if he could see his reflection the temperature was correct, but if not it was either too low (less reflectivity) or too high (vaporous). The German brewer devised another system for finding correct temperatures. The "rests" were obtained by drawing off exactly (or nearly so) one-third of the mash volume, bringing it to a boil, and adding it back to the main mash. That's how they kept temperature control in the absence of thermometers. Of course, these days thermometers are available to all.

EQUIPMENT FOR DECOCTION MASHING

The subject of equipment is discussed extensively in the Mashing pamphlet, but briefly you need a brew kettle (to be used in mashing) of around 6-7 gallons capacity (or two lesser kettles, plus a second kettle of 2-3 gallon capacity, and a large dipper or saucepan for scooping the mash from one kettle

to another. Then you also need the equipment called for in the Mashing pamphlet, that is a lauter-tun or straining vessel, with a removable perforated false bottom (or wire mesh screen) complete with a spigot on the bottom. This vessel should hold at least 5 or 6 gallons, and may be of hard plastic construction, since it is not heated directly. You also need a grain grinder such as a Corona Hand Mill (Health food stores), but a blender will grind grain for you, albeit rather poorly. A good thermometer is very desirable (at least 80-212F; 25-100C), although theoretically you should be able to do a decoction mash without one--I wouldn't. A good wooden spoon, a flour sifter, a kitchen scale, and a garden spray watering can of metal or plastic (for sparging) should round out the special equipment needed.

PH control is very necessary in the mashing sequence, so you will need pH papers. These are available in most scientific supply stores (call your High School chemistry dept.). PH paper with a range of 4.8-6.7 is needed.

Generally one pound of crushed pale barley malt, added to water to bring the volume to one US gallon, may be expected to raise the gravity to about 1.026-30. This can and will vary. For our calculations we assume a yield of 1.026 (6.5⁰B) after mashing. (UK, 1-lb/1-gal = 1.022; metric 100-gm/litre = 1.022). Set your malt grinder so that when you grind 100-gm of malt (3.5-oz), and sift that in a standard flour sifter until most of the granules have been sifted, the remaining large particles (mostly husks) will weigh about 10-gm (0.35 oz)(10%), the husks should not be pulverized or totally shattered in the process.

PROCEDURE

1. In your mashing kettle place water about 1.4-US qt/lb of crushed malt grains, (pale plus crystal or caramel) (47-UKfloz; 2.9-litre/kg). This amount is for pale beers such as Pilsner, and is 50% more than is traditionally called for in dark beers, but we have found that the lesser amount is not practical to our needs and equipment. Heat this water to about 100F(38C), and add the malt grains (crushed as noted above), which will lower the temperature to around 95F(35C). Add the hardening salts, and hold the temperature for 30-45 minutes, or until the pH settles to around 5.8 or a little lower. If you are making a fully traditional beer use cold water at 54F(12C)(deep-well temperature), and hold aside a third of the water. Add the balance of water, and bring the third part of the water to a boil. Add this to the mash, and that action should bring the mash to 95-100F(35-40C) for the acid rest. Hold there until natural lactic acid bacteria produce enough acid to lower the pH of the mash to 5.8. I've been told that this could take up to six hours. With the hardening salts the process takes 30-45 minutes (or less).

2. When pH is achieved, dip out fully one-third of the thick mash, and place in your second kettle, bring that temperature to 150F(65.5C), and hold that for about 20-minutes, until conversion, as shown by an Iodine-starch test (see Mashing pamphlet). Keep stirring both mashes. Bring to a boil slowly over a 40-minute period, and simmer for about 10-min (pale beer) to 45-minutes (dark beer), keep stirring

both mashes. Keep the main mash at 95-105F during this period.

3. Return this mash to the main kettle, which should raise that temperature to about 125F(52C) after you have mixed the two mashes. This is the protein rest. Keep the main mash at that temperature area for the next step sequence.

4. Again dip out one-third of the thick mash, raise that to 167F(75C) in 20 -30 -minutes and then bring that to a boil in 10 -15 -minutes or so. Simmer for 10 -30 -minutes (light -dark) longer, then return this second mash to the main mash as was done previously. Keep stirring both mashes continuously. This should raise the main mash to about 150F(65.5C), the dextrin rest. Allow the mash to settle for about 15-minutes. You might want to verify conversion by an iodine test.

5. Again dip out one-third of the mash (more liquid balance this time) and bring that to a boil in 15-25-minutes, and simmer as noted in step #5 above.

6. When you return this third mash to the kettle (remember to keep stirring both mashes), the new temperature should be in the neighborhood of 170F(76C). After stirring, pour the entire mash into your lauter-tun or straining vessel. Let it settle for 30-minutes. The pH should be down around 5.3 by now, if not adjust with lactic or citric acid.

7. Meanwhile prepare the sparging water by heating (in another vessel, or clean your empty mashing vessel) water equal to the original water volume (see pgh 1 above). Heat to 170F and pour into a garden spray can (your sparger).

8. Sparge the mash as you drain the mash as described in our Mashing pamphlet.

CONTINENTAL STYLE BOCK BEER (Grain-malt extract recipe)

Recipe No. 2, Malt extract-grain beer

Ingredients:

4.5-lb pale malted barley, crushed (2.0-kg).
2.0-lb crystal or caramel malt, crushed (1.0-kg).
3-oz black patent malt (85-gm-- $\frac{1}{2}$ cup).
Malt extracts: 2 x 0.5-kg Diamalt Munich Maltzin "Dunkel" (2.2-lb)
1 x 2.2-lb (1.0-kg) light malt extract syrup or dry malt est.
Bittering hops (boiling) 19-HBU--2-oz Hallertauer or $1\frac{1}{4}$ -oz
cluster hops. (60 or 35-gm) or equiv.pellets.
Aromatic hops-- $\frac{1}{2}$ -oz Hallertauer or cascade (15-gm).
Water treatment: to 500 ppm, or for soft water about $\frac{1}{2}$ -tspn
gypsum (CaSO₄)(1.75-gm), and $1\frac{1}{2}$ -tspn plain salt (7.5-gm)

Lager or bottom fermenting yeast, preferably in a starter culture of good beer wort.

OG 1.057 (14⁰B), Rack at about 1.026 (6.5⁰B), terminal around 1.013 or so (3.3⁰B).
Alcohol around 4.6% /w; 5.6%/v.

1. Mix the water treatment in a cup of hot water.
2. Combine the grain malts (crushed), except for the black

malt, and mash them using the decoction mashing procedure detailed in the article on decoction mashing, or the infusion procedure called for in the Mashing pamphlet. In a small mash, such as this, it is wise to use a larger water-to-grain ratio, or about 1.5-qts/lb, which in the above recipe is under 10-qts water, plus an equal volume to sparge with. The result will be about 17-qts in the kettle for boiling.

3. Drain the liquor from the lauter-tun into your brew kettle. Add water as necessary to as much as your brew kettle will safely boil (not more than 5-USgallons). Bring to a boil, and boil for 2-hours.

4. After about an hour add the malt extract (syrup and dry).

5. Add the bittering, or boiling hops in two additions. Half are added fifteen minutes after it comes to a boil, and the second half an hour later. (traditional Munich style).

6. Add the whole grain black malt after an hour and a half.

7. Boil for a total of 2-hours. Add the aromatic hops (loose) and pour the entire hot wort mixture into the lauter-tun or straining vessel (after you've cleaned it from the sparging operation).

8. Stand for 30-minutes to settle, and then draw off into the primary fermentor. This standing period is very beneficial and will allow the unfermentable proteins, etc., to settle while extracting the aromatic hop oils from your aromatic hops. After you have drained the wort from your lauter-tun, which is now your hop-jack, sparge the hops with 20-oz (600-ml) hot water (hottest tap water will do) to extract all of the fermentable sugar from them. (This is based on using 8-oz sparge water per ounce of hops--8ml/gm.)

9. Add water to the primary fermentor (if necessary) to a volume of about 5.5-USgal(4.4-UKgal; 20.8-litre) to allow for racking, etc. Adjust the gravity, cool and ferment as outlined in the article on Bock beer, except there won't be any hops in the primary fermentor as was the case with recipe no.1.

BEER CLUB DIRECTORY

USA-CALIFORNIA

Berkely

YEAST BAY BREWERS

Riley
583 Colusa
Berkely CA 94707
(415) 524-4573

Humbolt County

HUMBREWERS

PO Box 58
Blue Lake CA 95525
(They call it "Brew Lake")

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22727 Hatteras St.
Woodland Hills CA 91367
(213) 348-5089

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Byron Burch
87 Larkspur St
San Rafael CA 94901
(415) 459-2520

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Dr. John Bolton
306 Ferndale Av
Mill Valley CA 94941
(415) 383-5553

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Roger Gribble
1876 W. San Carlos
San Jose CA 95128
(408) 294-7321

CANADA--ONTARIO

Kirkland Lake

KIRKLAND BREWER'S GUILD

Charles Pilger
12 Lakeshore Rd
Kirkland Lake ONT P2N 3G4

OTHER NEWS OF INTEREST

Washington DC--Lee Coe, Beer author, former newspaper man and sometime contributor to these pages is wandering about in the capitol this month buttonholing various people in an unpaid effort to change the notorious Conable bill which would require registration of homebrewers, and restrict severely the gallonage they can produce. (legally).

Lee has discussed those problems with Richard A Mascolo, chief of Regulations for the Bureau of Alcohol, Tobacco and Firearms, apparently without convincing that worthy to change the government's position. Mr. Mascolo is convinced that all home brewers will immediately proceed to make moon-shine whiskey out of their product. He isn't worried about winemakers, so the registration of winemakers is dropped in the new bill. (HR-2028 which passed the house in March, and is now in the Senate). (see TALK TO YOUR BEER--inside front cover). Lee has promised a full report on his return from Washington.

ENGLAND--Roy Clark, of the Los Angeles Maltose Falcons, wrote recently (in their newsletter) about a wonderful British organization called CAMRA (CAMpaign for Real Ale). He says: "I wonder if many have ever wondered what beer was like in the days before aluminium barrels and artificial CO2, when beer was served from the cask and the only way to get carbonation was to ferment in the bottle? In England there are still many local breweries producing good quality traditional beer, some of which is still served from the wood (i.e. direct from cask without carbonation or CO2 pressure). There is now a society, CAMRA, whose sole existence is to promote this traditionally brewed ale. CAMRA defines Real Ale as beer that 'must be alive, and not subject to unnatural processes in the brewery. It must be stored in containers that do not need to

be pressurized with CO2, and it should not be served using CO2 top pressure.' Currently about 90 of Britain's 160 breweries produce this type of traditional beer."

Last summer a friend of the Amateur Brewer traveled to England, and attended The Great British Beer Festival, sponsored by CAMRA. There were 67-booths in the large convention hall, and each served a different (or several different) traditional brew(s). One paid 80p (about \$1.50) at the gate, and received a glass "pint" (UK-pt = 20-oz), and then the person was free to wander at will sampling the various offerings at 40p/pint. Think of it--67 booths, 67-pints!! On the way out, you could (if you wished) turn in the glass for a 40p refund! In this country, if ever such a thing could happen, you KNOW the stuff would be served in paper cups.

Seattle WA--Nickel beer anyone? The Breadline, a Pioneer Square restaurant offers 5¢ beer! The glass is very small, but the price is a nickel. Another Seattle tavern offers a 6-oz 10¢ beer at the other end of downtown Seattle, near the Pike Street Market! Irene's Tavern on Pine St near first.

Davis CA--The University of California--Davis recently took a good look at brewing and decided to add brewing to its list of fermentable productions. The Food Technology Department's Malting and Brewing Science class hopes to do for brewing what Cal-Davis has done for winemaking (or is it that they want to do to brewing what UCD did to tomatoes--hopefully the former). According to a recent Time article (Apr 10) the poor little apprentice Brewmeisters are not allowed to drink their own brew --taste, but no swallow--what kind of an education is that? AB, visiting there, had a hard time swallowing that story. The head of the course, Dr. Michael Lewis, from England, has been very helpful to the homebrewers of California, very commendable.

READER QUESTIONS:

(Please enclose a stamped self-addressed envelope if you wish A DIRECT ANSWER TO YOUR QUESTION, PLEASE ASK ONLY ONE QUESTION, AND ALLOW PLENTY OF TIME. Sometimes I am quite overwhelmed with the questions people ask).

Ken Grossman, the Home Brew Shop, Chico CA takes me to task in a variety of ways, and they correspond to some criticism of the same nature by John Dunphy of the Winemaker Shop, Hudson, NH. Both of these gentlemen dispute my directions for using Crystal malt both in my book and on these pages. I recommend a modified mashing procedure which involves steeping the crushed grains in water for about an hour at 158F(70C). Crystal or Caramel malt is barley which has been malted, then while moist, has been raised to mashing temperature to convert starches, before being dried and kilned. Other malts of this genera are Amber malt, Cara-pils, dextrin malt and black malt. Messers Dunphy and Grossman say these malts may be added direct to the kettle without prior steeping, and Mr. Grossman says he has been doing just that for a long time, and his beer has always been fine.

It is true that you may add these malts direct to the kettle, since their sugars have been converted and are readily available, so why go to the extra trouble to steep them for an hour at 158F? Well as far as the exact temperature is concerned, anywhere from 130-170F(54-77C) would be adequate, the 158F is for the regular malted barley called for in some of my recipes. In the interest of brevity I merely listed the one temperature range. I will make that change in future recipes and articles (see Bock Beer recipe, p 3). The real issue here is whether you should or can add these malts direct to the kettle and boil them with the beer wort. Yes, you may do this, and the boiling process will extract the sugar, but the wort boil will add certain tannic and phenolic compounds to the beer, which can (but may not) alter the taste and quality, including clarity, of the final product. For this reason I do not recommend adding these malts in that manner. The exception, as I have mentioned elsewhere, is black patent malt, which is a crystal malt which has been kilned to over 440F(226C). Black malt is not ground, and is added to the kettle during the last 30-minutes of boil, for the express purpose of adding the above mentioned tannins, phenols, and above all deep rich color. If you are using very small amounts (under 8-oz; 200-gm) of crystal malts there would be little harm adding that to the kettle for the last 15 -20-min. In the case of hop flavored malt extract beers, such dextrin malts may be added to the kettle for the short boil we call for. Except in the case of decoction mashes breweries do not add any malts to be boiled. Why should we take a chance?

PUBLICATIONS AVAILABLE FROM THE AMATEUR BREWER INFORMATION SERVICE
P.O.Box 546, Portland OR 97207 (503)281-1473
These prices include postage and shipping.
Quantity prices and wholesale, please write for price lists.

BOOKS

Eckhardt, F., NEW FOURTH EDITION, A Treatise on Lager Beers, 1977 Illus. 53pp. \$2.10

Amateur Brewer back issues.

AB#1, ABC's Beermaking, Water, other info..... \$1.75
AB#2, ABC's Barley & Malt I recipes, etc..... 1.50
AB#3, ABC's Malt II, Jubilee Ales, etc..... 1.50
AB#4, Special Hop Issue, 24pp..... 1.75

MISCELLANEOUS PAPERS by Fred Eckhardt

1. Sake Procedure.....TEMPORARILY OUT OF PRINT
2. Supplement, A treatise on Lager Beers, an Outline of advanced Beermaking procedures, 1972, revised 1976, 14pp..... \$0.80
3. Mashing for the North American Home Brewer..... 1.00
4. An Outline of Winemaking Procedures for the Home Winemaker, 9pp Ditto repro, used in Portland Comm Coll classes..... 0.75
5. An Outline of Procedures for making Champagne at Home 6pp Ditto repro, used in Portland Comm Coll classes..... 0.55
6. Beer Tasting and Evaluation for the Amateur, a guide for judging beer the connoisseur or dilitant as well as competition 16pp.. 1.00

SLIDE LECTURES Professionally produced and narrated by Fred Eckhardt.
1. How To Make Good Beer at Home. 40-slides, 20 min. tape lecture on cassette. Complete step-by-step on making simple beer, boiling wort, racking, flow charts, brewery photos, etc. For use with Treatise.
2. Advanced Beermaking Techniques, 60-slides, 35-min tape lecture on cassette, student guides (5-copies). Advanced procedures for ale and refrigerator lager, mashing for grain beers. Complete how-to-do-it photos, and flow charts, etc.

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(continued from inside the front cover)

Lee Coe, our Grand Old Western Don Quixote was into it up to his ears with the Infernal Revenue people in Washington, and they are just as hard-nosed as ever (It's too bad proposition #13 doesn't apply to those #*1*#'s). Lee reports that there is now a very good chance that a different bill will be introduced in the Senate, which will be more to our liking. Some of you will receive a petition to get signatures, and we hope that you'll write your Senator. Otherwise it's registration like common criminals, and 30-gallon limitations for all of us. OH-THE-AGONY!

In addition to meeting a lot of nice people from the HWMA, we had the good fortune to meet with a number of California's Finest (Home Brewers, that is), and guzzling no small amount of their beer. Jim Weathers, the genial host (Wine Factory, San Leandro) had to drive us out at midnight. Such carryings on--By Burch made a big batch of really fine beer, and Lee Coe delivered up a whole keg! But that's not all: each of those fine Home Brewers brought far more of his product than I'd ever part with, and a good time was had by all (I think). Reminds me of the time I judged 80- home made wines at a wine judging a few years ago. Speaking of beer clubs, I am told there are clubs forming now in Albuquerque NM, and Cleveland Ohio.

It is time for many of you to renew your subscriptions, so let's have that loot before August 1, when we raise the rate by 75¢ or so. We are going to try to keep AB #2, #3, & #4 in stock at prices listed on p20 (\$1.50 and \$1.75 for AB#4). AB#1 will be allowed to die naturally, and then we'll re-publish the two main articles (ABC's part I, and Water) in a "sample issue" for those inquiring about the magazine. You may find a given issue "out of print" at any one time, but we'll re-print, so there'll be no real problem.

One last thing, our Continental Bock Beer recipe No. 3, for an all-grain beer, had to be left out due to lack of space. If you want a copy send a stamped self addressed envelope requesting it, and we'll send you a zerox of same.

SUBSCRIPTION Information

*New rates after Aug 1, 1978, add 75¢ U.S. & Can.

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