

## MEMBERS PUT CBA ON FIRM FOUNDATIONS

Members have ensured the future of the C.B.A. by their overwhelming response to the 'Founder Member' scheme. This was announced in our January issue and offered Founder membership in return for a £5 donation towards the 'Start-up' fund. Before publication we had received 21 donations, totalling £135 but after publication we received a further 54 donations bringing the overall total to just over £800. Now, those of you of a mathematical mind will have worked out that  $75 \times £5$  does not = £800. Many members sent more than the suggested £5, the top donation being £50.

Although subscriptions will soon be asked for, these funds alone will ensure the viability of the CBA and Brewer's Contact for the next 12 months - Thank you all for your donations and for your letters of encouragement. Now all we need is a new Editor!

### CAMRA WELCOMES CBA

I am delighted to report that, following a meeting with Stephen Cox, CAMRA's Campaign Manager, when I briefed him on CBA's formation, objectives and achievements so far, he briefed his National Executive when they discussed the issue of homebrewing. He reported that the Executive welcomed the formation of the CBA and wrote "CAMRA welcomes the formation of the Craft Brewing Association. It's work should compliment that of CAMRA in promoting the cause of good beer. We wish the CBA every success in raising standards and awareness." *Stephen Cox*, Campaigns Manager.

*(More on CAMRA/CBA on page 15)*

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### Scotland's Big Day - 15th June 1996

No, we are not predicting the result at Wembley! What originally started as James meeting a few homebrewers whilst on holiday in Scotland has grown into a full day 'Amateur Brewing Seminar' organised by the Scottish Amateur Winemakers. It will be held in the Royal Ettrick Hotel in Edinburgh (in the CAMRA Guidebook) and some 50+ brewers are expected. Members in Scotland and Northern England have been sent details and a full report will be in our next issue.

### Brewlab Courses

Basic Homebrewing:

Sunderland - 15th June 1996

London - 12th October 1996

Advanced Homebrewing:

Sunderland - 22nd June 1996

London - 14th September 1996

Ring 0191-5152535 for details

## Introducing -Tim O'Rourke

*A name not known to many home brewers, the CBA is delighted and honoured to have Tim not only as a Editorial Adviser but also as a contributor. His knowledge, skill and experience in brewing and brewing publication is unrivalled. His first article, on the heated subject of wort aeration, starts on page 10 and he was also kind enough to write the following profile. - Ed.*

Coming from a family which owned a small brewery (Burts of Ventnor, Isle of Wight), I did not intend to go into Brewing when I graduated from University in 1973. However, the job market was very limited and my first job was as a Brewer with Tennent Caledonian Breweries in Glasgow (part of Bass). Since then I have spent the last 23 years working in the Brewing Industry, working for the major Brewers such as Bass and Courage, latterly as their Development Manager, and I have set up and commissioned a number of Mini Brewers in the UK, Canada, and the Falkland Islands.

As well as full time job in Brewing I have also had an interest in writing, and was one of the original editors of the Grist International from 1982 to 1994, and then became the Commissioning Editor of the Brewers Guardian from 1994 to the present day. I have also published a large number of Technical Papers and help with Brewers Training courses.

I am a member of a number of Brewing Institutions including a Fellow of the Institute of Brewing and a Diploma Masterbrewer, a Member of the British Guild of Beer Writers, and most recently a Member of Durden Park Beer Circle. Pursuing the "Art and Craft of Brewing", with a little Science thrown in, occupies most of my time, and it is a great privilege to be invited to support the Craft Brewing Association as one of the regular contributors. I hope I will be able to bring practical experience, based on scientific knowledge, to help explain the 'Craft' of brewing good beers.

## Introducing James Spence

*James Spence is another new name to British home brewers but not to many thousands of home brewers around the world. I met James when he was here last year as a Judge at the GBBF, a difficult task he is undertaking again this year. His experience of home brewing as well as his involvement with Zymurgy will be of great value to us all. Thank you for volunteering your services - Ed.*

James Spence, a 1989 graduate of California's Pomona College (Bachelor of Arts, English Writing), learned to homebrew in early 1990. He has been an employee of the American Homebrewers Association (AHA) since September 1991. James works as an Editorial Adviser for Zymurgy magazine as well as the writer of "Brew News" and "Winners Circle" for Zymurgy.

His duties at the AHA include helping to organize the National Homebrew Competition, the National Homebrewers Conference, the AHA's Sanctioned Competition Program, as well as other AHA events and programs. James has judged at both the Great American Beer Festival and the Great British Beer Festival as well as numerous homebrew competitions. As a member of the Beer Judge Certification Program, James is certified as a National beer judge.

James is a member of the North American Guild of Beer Writers, and was Managing Editor of Victory Beer Recipes, America's Best Homebrew (Brewers Publications, 1994) and is technical editor of a forthcoming homebrewing book. James also assists with the Association of Brewers Beer Style Guidelines, compiles the beer style guidelines for the National Homebrew Competition, and acts as the Association of Brewers in-house technical and home brewing adviser.

## EDITORIAL

Firstly, let me apologise for the lateness of this issue. I'm delighted that I was kept so busy replying to all those who donated to our 'start-up' fund. Although we had said that donations should be made before the end of February, they continued to arrive throughout March. Easter weekend was scheduled for compiling this edition but unfortunately other events took over. Also, the hoped-for increase in my DTP skills has failed to materialise. I must make time to study the manual more closely, perhaps by next time.

Visits to CAMRA headquarters and the Home Beer & Winemaking Show in Coventry to have useful meetings with various people about CBA also took up time and hosting the Vice-President of the Association of Brewers from the USA was undoubtedly more of a pleasure than a duty.

In the event, I've had to hold over material to the next issue, which will be in August, hopefully in time for the GBBF.

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Shop, Farnborough

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Brewers Contact is the Journal of the Craft Brewing Association and is privately circulated to members & friends.

It is published by the Craft Brewing Association, 82 Elmfield Road,  
London SW17

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The opinions expressed are those of the Authors and not of the Editor or

### CORRECTIONS TO ISSUE 1

Page 1: Graham Wheeler points out that the 1st Edition of his 'Home Brewing' sold some 15,000 copies and the 2nd edition 10,000 so far and climbing. The word 'things' was missing from the bottom of the main article.

Page 4: The discount offered to CBA members is 15%. (Contact James for an updated discount coupon.)

Page 7: Internet; the CBA page is at <http://sun1.bham.ac.uk/GraftonG/cba.htm>

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Beyond any doubt, one man above all others has been the most important inspiration in the revival of interest in British home brewing, Graham Wheeler. Ken Shales' last book, *Advanced Home Brewing*, was published in 1971 and the first edition of Dave Line's *The Big Book of Brewing* in 1974. There had been the boom-and-bust years. Then there was nothing, no more books, no more *Amateur Winemaker and Home Brewer* - nothing. Then, browsing the shelves of W.H. Smith's in 1990, there it was, a new book on Home Brewing and published by CAMRA, written by who? Graham Wheeler, who he? It has been one of my greatest pleasure since forming CBA to meet and talk a lot on the phone with Graham. His encouragement and support have been of great value to me and I am especially delighted that he has been persuaded to tell his story, for the first time, here in Brewer's Contact.

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## GRAHAM WHEELER - the man behind the books, by himself.

I have been asked to do an autobiographical bit for Brewer's Contact. This goes against my better judgement; I prefer to remain anonymous and be steeped in mystery. As Roy Ekins said when my first book was published: "Where the hell did you spring up from? Nobody has ever heard of you before now." I get a certain amount of satisfaction out of reactions like that.

I am an electronics engineer cum programmer and I became a real ale beer-buff under the influence of some work colleagues in the mid to late 70s. I was press-ganged into becoming a CAMRA member at an Alexandra Palace beer festival a while later and I have been a CAMRA member, on and off, ever since, although not an active one. There was a long period of "off" after I let my membership lapse because I objected strongly to CAMRA's ill-informed and badly thought out attitude towards the tied house system. They have now changed their tune, I smugly observe. After CAMRA published my books I thought it only good manners to buy life membership.

Many of my friends brewed from beer kits in the 70s and I tried their results, but I was not very impressed with what I tasted so I did not take up home brewing at that point. I reasoned that it would be far better to pay commercial prices for something that I enjoyed rather than try to make something cheaply that I didn't.

Much happened very quickly in the late seventies. I became increasingly interested in the history of brewing and pubs, after being flabbergasted by the sight of the quaint Hook Norton tower brewery. I saw a television programme about one of the first microbreweries, the Blackhawton Brewery, situated in a pretty Devonshire village, and thought what an idyllic life it seemed to be. I discovered C.L. Duddington's misleadingly titled book "*Plain Man's Guide To Beer*", which I thought was fascinating and gave me my first real insight into the techniques of traditional commercial brewing. I obtained Dave Line's "*Big Book of Brewing*" and Ken Shales' "*Brewing Better Beers*", out of interest rather than of any desire to brew.

In effect, I came into home brewing through the back door. With my increasing interest in the industrial archaeology of breweries and brewing, my visits to breweries and my interest in the microbrewery revolution, I acquired a good deal of knowledge, books, and information about the subject, and it was a natural progression of this interest for me to attempt to brew some beer myself. I performed several trial brews in the late seventies, both from malt extract and full mash, more to prove that I could do it rather than as a hobby. My first attempts were eminently successful and I found the process relatively easy and straightforward, probably because I had read so much on the subject prior to actually brewing for real. However, I did not really consider myself a home brewer; it was just something I did by way of experiment. I did not take up home brewing in earnest until I took a contract in Saudi Arabia in 1979, a story that can wait for a rainy day.

*(Continued on page 4)*

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(Continued from page 3)

### *Graham Wheeler - a profile*

On my return to England in 1981 I continued with home brewing, but by this time the hobby was in rapid decline. Many of the books available for the average or novice home brewer were appallingly bad, containing unworkable recipes and unbelievably misguided advice, and this, I was sure, along with poor quality ingredients and indifferent shop owners, was mostly responsible for the crash.

A new basic book appeared in late 1983 and although it turned out to be short-lived, it annoyed me at the time that it was not much better than any of the others; it spouted the same old stuff. A girl-friend at the time said: "Why don't you write one then"; so I took up the challenge. I started to write my first book in 1984 but it did not get properly underway until I bought a computer some months later. The book was completed in late 1985 and got its first rejection slip in 1986 and another one a few months later. It then sat on the shelf for three or four years after which time I noticed in *What's Brewing* that CAMRA were looking for titles for its publishing arm.

CAMRA eventually published it in 1990, six years after I had started it. There had not been a comprehensive book published on home brewing for some sixteen years, but, shock horror of horrors; two home brewing books appeared in the lists on exactly the same day! I later learned that while my face was draining to a whiter shade of pale in my local bookshop, Clive La Pensee was suffering the same reaction two hundred miles away in Beverley. Two home brewing books announced on the same day after a gap of sixteen years -- surely nobody can be that unlucky!

I was never really happy with the first edition of "Home Brewing"; a few things went wrong along the way and it did not turn out quite as I expected. The writing style was awful; it reads like a first draught. Nevertheless, it was fairly well received and I got no complaints at the time. The second edition came out in 1993, the publication of which went a bit more smoothly. My writing style is still not up to much, but I like to think that I have learned a lot since my early attempts. I am much more satisfied with the second edition, although I do have one or two little niggles with it, as any author does, I suppose.

"Brew Your Own Real Ale at Home" also came out in 1993, which was written to put some more workable recipes into place and to fill an obvious gap. It is not my choice of title, I have never had the luxury of choosing the titles of any of my books. I prefer short snappy ones. "Brew Classic European Beers at Home" came out in late 1995, and was written at CAMRA's suggestion. At that time I had decided that I had finished with writing home brewing books, but Roger Protz must have caught me during a moment of weakness, early on a Sunday morning, because I agreed to do it on his first telephone call without much resistance. I think he expected a much bigger fight than that. It is too early to say how well it will be received, it's only just finding its way into the shops, but it's not really mainstream stuff anyway. Several people who have read it tell me that my writing style has changed yet again. It is, apparently, a more laid-back, easy-to-read style, although it doesn't seem to be that much different to me. During 1994 I wrote three 40,000 word children's adventure stories, as yet unpublished, so this probably accounts for my "improved" writing style.

CAMRA member homebrewers (aren't we all) will be delighted to know that Graham has agreed to resume his occasional articles for *What's Brewing*. Despite rumours to the contrary, the reason these discontinued was solely that Graham decided to stop writing them and that it was not an editorial or policy decision by CAMRA.

He will also continue as an Editorial adviser, and contributor, to *Brewer's Contact*.

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The 'NATIONAL', the 38th Annual Show of the NATIONAL ASSOCIATION OF WINE & BEERMAKERS  
by Lesley  
Cooper

I have just returned from a very pleasant, if tiring, weekend spent at Western-super-Mare attending the 38th Annual Show of the National Association of Wine and Beer Makers (NAWB). This is a competition where wines and beers made by competitors from all over the country are judged by members of the National Guild of Wine and Beer Judges (NGWBJ).

Some 535 bottles of beer were entered in separate classes for Light Ale, Light and Heavy Lager, IPA, Dry and Sweet Stout, Newcastle and London Brown Ale, Strong Ales, Porters and Barley Wine with separate classes for kit beers. Judging was on Saturday morning, each judge being helped by a steward. I thoroughly recommend acting as a steward to anybody who is interested in learning more about brewing and improving their own beers. I have found all beer judges to be keen to share their expertise with fellow enthusiasts.

By early afternoon we knew how well or badly we had done with our entries and had the opportunity to quiz the judges on ways of improving our beer. Individual members from my own club, County Beer Makers, were pleased to gain awards. The Master Beer Maker was Mr H. Edwards from Tavistock in Devon. (*Of whom more elsewhere in this Edition - Editor*)

In the evening it was back to the hall for the dance during which trophies were presented and a lot of beer was drunk. What else can you do with a crates of opened bottles?

On Sunday morning those people wishing to become wine or beer judges took the practical part of their exam (the theory has to be passed before the practical can be attempted) while the rest of us could listen to an entertaining speaker and then attend the AGM or enjoy the spring sunshine with a walk by the sea.

This is the 12th National I have attended and I can recommend it as a way of finding out how good your beers really are by competing against amateur beer makers from all over the country. It is also a time for making new friends, and learning more about the hobby.

There are also many smaller club and federation shows around the country which often have classes open to people who are not members of affiliated clubs. Local homebrew shops normally have details of these shows. The London (East) Federation show is on 26th October 1996 in Ilford, Essex, anybody interested in entering, or just visiting, can contact me on 0181 539 2284.

## The 'LOCAL', the 18th CRYSTAL PALACE HOMEBREW FESTIVAL

Get off the Network South East train at Crystal Palace, avoid going to the National Sports Centre and walk a few hundred yards in suburbia and you come to a muddy track which, as the sign says, leads to the headquarters, i.e. 'hut', sorry 'Den', of the 2<sup>nd</sup> Croydon Scout Group. Walk up the track, past the piles of tractor tyres and other assorted junk and you arrive at one of the best-kept secrets in British homebrewing, the Crystal Palace Home Brew Festival. That is, if you walk up that track on the right day of the year.

It is 3pm on a Saturday afternoon and millions of people are glued to their television screen watching the Grand National but here we have a hall full of obviously happy smiling people. A band is playing happy, feet-tapping music and everyone has a glass in their hand. Around 2 walls are 30 plastic kegs of homebrew. This is a homebrew competition with a difference, one might even say with attitude. Even the portrait of Baden-Powell watching over the event seems to be smiling.

Some 18 years ago, in 1978, Ron Wood and a few friends were considering how to raise funds for the 2<sup>nd</sup> Croydon Scout Group and decided to hold a homebrew competition/festival. With no rule book to guide them it seemed obvious that each entry should consist of a poly-pin or barrel of homebrew and that all entries should be drunk. Some people, not involved in Senior Scouting, might blanch at the concept but Ron and his chums had the right idea. No advertising, the news spread by word of mouth, entry to the Competition and the Festival on the day strictly by invitation, freely given, and no charge for entry. There are classes for Red and White Wine and Mild/Stout, Best Bitter (OG>1045) and Best Bitter (OG 1046>). There are also classes for Best Novelty Beer and Best Novelty Wine.

All entries must be home brewed by the entrant and each entry must consist of a minimum of 3 bottles of wine or 4 gallons of beer. No unnatural CO2 can be used. Those are the rules.

Judging takes place between 12 noon and 2 p.m. when the doors are opened for guests. After the raffle and crossword prizes are distributed at 4.30 the tension mounts for the announcement of the Judges' decisions on the various Wine and Beer classes. Fighting their way through some friendly barracking, the winners collect their certificates and medals, culminating with the Best Wine and Best Beer trophies.

The beers range from those produced from kits through to full mash and the various class winners all try to give the impression that it was just their 'lucky year'. Many entrants have been entering for years but new entrants are given a genuine warm welcome, indeed this was Chris Taylor's first year there and he won the 'Best Beer of the Festival' Trophy. Once you have attended one of these Festivals you seem to come back for more. One entrant came from Wales and Dave Ranger, to whom I'm indebted for telling me about the Festival, travelled by train & bus, with 2 kegs, from Hove in East Sussex.

This really was a great afternoon, relaxed, informal and positively oozing friendship and pleasure. Thank you Ron Wood and your colleagues for your efforts over all these years.

James McCrorie

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# MILD ALES - WHAT ARE THEY AND WHERE DID THEY COME FROM? By Dr. John Harrison

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## Introduction

There is no doubt as to the origin of mild ales. When hops first came to the UK in the late fifteenth century they were scarce and expensive. Supply was initially as imports but even when hop cultivation was established in the early sixteenth century there were periodic shortages caused by poor cultivation, bad weather, pests, diseases, and a steadily increasing demand. Early records show that hopping rates before the late sixteenth century ranged from 1/3 to 1 1/8 lbs/barrel. It was not until the advent of March and October beers in the late seventeenth century that higher hop rates appeared. For the first 200 years of hopped beer in the UK (1480-1680) all beers were mild. There is a vogue at present to try to define beer styles in clear and unambiguous terms. Mild ale is a particularly difficult case.

## Defining Mild Ale

In Table 1, I have collected some 16 examples of beers called mild, or apparently mild (e.g. denoted X, XX or XXX, in brewbooks), or whose formulation suggest a mild ale, e.g. Wicklow Ale. Two of the ales, Cobb's mild beer and Tetley XX have hop rates so high as to raise questions about whether they should be included. Taking the rest at face value, then a mild ale can have any OG between 31 and 125, a hopping rate per barrel of any value between 0.75 and 2.9 and any colour between pale amber and brown. These are pretty wide limits. However, with the possible exception of the Tetley B and C, the common thread that limits the others is the modest hop rates, particularly in relation to the gravity of the samples. However, it is known that sweetness on the palate has a masking effect on perceived bitterness (11).

*Ale hopping rate alone is not necessarily the best criterion as to the 'mildness' of a beer.*

## A Mildness Index

There are two possible ways of making some allowance for the effect of residual sweetness. Probably the most effective would be to divide the hops/barrel by the **final** (drinking) gravity which is the most direct measure of palate sweetness. Unfortunately information on drinking gravities are hard to come by, particularly for old beers. The last gravity appearing in most brewing books is the gravity when racked from the fermenting vessel into casks. This could be noticeably different from the gravity seen by the customer.

The second option is to divide the hops/barrel by the OG. There is a broad relationship between OG and final gravity, i.e. final gravity is OG/4 to 5. A usable mildness index could be Hopping (lbs/barrel)/OG x 100. The mildness indices of the beers in Table 1 are given in the last column on the right. High numbers reflect high perceived bitterness, low numbers low perceived bitterness.

The next consideration is to decide what mildness index number represents the upper bound for a mild ale. On the basis of Durden Park tastings, I would rate the following as true milds: Wicklow ale, London mild 1844, the whole London X range, Ushers 68/- mild, and Maclay's 56/- mild. I had some Maclay's 56/- recently and I thought that although it was a pleasant drink, the bitterness was marginally high for a mild beer. If we take the figure 3 as the upper limit for the mildness index, then apart from the two rogue samples already mentioned, only the Tetley B and C are above the limit. This could be a regional variation in the expected levels of bitterness in milds.

Another test of the mildness index is to see how it copes with a group of beers **not** called mild ales. In the pale amber - amber section of Reference 12 there are 17 beers (12). Of these, 12 are well above the cut-off point; 3 are below, Wicklow ale which is a mild, Alex Berwick's Imperial Ale which tasted like a high gravity mild, and Ushers (Edinburgh) 60/- Pale Ale, which I do not remember tasting like a mild.

There were also 2 borderline cases, W Blacks X ale at 3.3 and Old Burton Ale at 3.2. As one would not expect the dividing line between milds and non-milds to be a sharp line, these results are encouraging. As a first approximation one could say that any beer with a mildness index of 3 or below is definitely a mild, above an index of 3-4 the beer is not a mild, and between 3 and 3.4 are the borderline, slightly over-bitter milds.

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Table 1 - Mild Ales

Description	Variant	OG	Hopping	Colour	Comments	Ref	Mildness
Cobb-Margate		80	5.6	Pale amber	Looks more like an original	2	7
Wicklow ale 1805		125	2	Amber	Genuine high-gravity Mild	3	1.6
London mild 1924		66	1.5	Brown	Full flavour from Pale amber	4	2.3
Typical London X ales 1850	X XX XXX	65/70 75/85 95/100	1.2 - 1.3 1.5 - 1.7 2.25 - 2.66	Pale amber Pale-ish amber Amber	Full bodied soft ales	5	1.9 1.95 2.66
Mild ale 1871		63/70	1.5 - 1.6	Amber	Similar to London X with	6	2.37
Ushers (Edinburgh)		80	2	Amber	Full-bodied, increased hop	7	2.5
J Tetley 1886	XX -X - A B	80 44 52 61	4.25 0.9 1.3 2	Amber Pale amber Pale amber Pale amber	XX denotes strength, not a mild ale Genuine mild Genuine mild Genuine mild?	8	5.3 2 2.5 3.3
Hadley Brewery	XX	43	0.9	Very pale	Only 60% of OG from malt	9	2.1
Maclay's 56/- mild		60	1.8	Brown	Good flavour and colour, less		3
Phipps (Northampton)	XXX	31	0.75	Amber	70% malt (3% crystal)	10	2.4

\* The Mildness Index = Hopping (lbs/barrel)/OGx100

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- (2) Cobb & Co - **Brewing Books in Kent County Archives**
- (3) Shannon, R - **A Practical Treatise on Brewing etc.**, London 1805
- (4) Anon - **Young Brewers' Monitor**, London 1824
- (5) **Brewing Books** (Whitbread/Reid/Truman/Mann-Crossman)
- (6) Herbert, J - **The Art of Brewing**, Burton on Trent 1871
- (7) **Brewing books** held at the Scottish Brewing Archive, Glasgow
- (8) **Brewing books** held at the West Yorkshire Archive, Leeds
- (9) **Brewing books** held at Barnet (London) Local History Library
- (10) **Brewing books** in the author's possession
- (11) Rousseff, R.L., editor - **Bitterness in Foods and Beverages**, Elsevier 1990 p 31.

*The above Article on 'Milds' was first published in 'The GRIST INTERNATIONAL' in the November/December 1995 Edition. Brewer's Contact is indebted to the Editor, Alistair Hook, for his permission to reprint this article.*

Dr. John Harrison is truly one of God's homebrewers. Professionally a Materials Chemist, now retired, he was a keen home winemaker and brewer who, 25 years ago, answered Ted Hickson's invitation to join a Brewing Circle at Durden Park. It was he who suggested that they should attempt to discover how beers **used** to be brewed. The original research was confined to published books as these were the only sources then available. The setting up of brewing archives, however, made available large numbers of old brewing ledgers, compiled as the beers were brewed. The first archive to be explored in 1987 was the Scottish Brewing Archive, then in Edinburgh. The archives subsequently set up by Courage Ltd. and Whitbread Ltd. were extracted soon thereafter. The publication in 1990 of the Manchester University's book on sources of historical data revealed yet another treasure trove of brewing information. Other people can read old brewing books and then theorise about old brewing but John actually deciphers these old brewing ledgers, not an easy task as a few followers have discovered. Then he and his colleagues at Durden Park brew the beers and offer them for critical tasting. One clear lesson they have learned is that not all old beers are good! Ignorance and commercial greed have ruined many a good beer. Other members of Durden Park add their own skills, the Second Edition of their booklet has almost run out of its second printing, and soon they will start preparing the Third Edition. One member has taken on the task of transcribing John's research notes onto a computer disk. A new Rolls-Royce *might* be an acceptable exchange for a copy! But don't get the idea that John is some crusty old academic sort of chap. He bashed a scaffolding pole deep into the ground to establish his own water supply and, if you really want to discover how up-to-date he is, just ask him about Xylitol! He is also, currently, the President of the Middlesex Federation of Wine and Beermaking Clubs. John hopes to complete his survey of all available information by early 1997.

*See page 13 for John Harrison's suggested recipes for real Mild Ale*

## Simple Water Into Liquor

### *How to read your water analysis*

You've got your Analysis from your Water Board and, unless you had a good chemical education it looks pretty daunting but, in fact, we don't really need to get confused.

The analysis records how many samples were taken over the period of the analysis, the number and percent which are above the maximum concentration permitted by law (shown as PCV, the prescribed concentration value, or MAC, the maximum admissible concentration), the lowest and highest values recorded during that period, the average (mean) value, and will give the PCV value and the units in which it is measured. All of the minerals we are interested in are measured in milligrams per litre (mg/L) which for all intents and purposes is the same as parts per million (ppm). We need to look only at a few lines in the analysis, under Parameter and the Mean Value or Concentration.

Get a sheet of paper and note down the following record:

Total Chlorine	Not recorded as such in my analysis but believed to be recorded as:-	
Residual Disinfectant	mg/l	(in my case .30)
Hydrogen Ion	pHval	(In my case 7.9)
Total Hardness as Ca	mg/l	(mine is 122)
Alkalinity as HCO <sub>3</sub>	mg/l	(mine is 256)
Calcium as Ca	mg/l	(mine is 110)
Magnesium as Mg	mg/l	(mine is 4.7)
Sulphate as SO <sub>4</sub>	mg/l	(mine is 53)
Chloride as Cl	mg/l	(mine is 37)

Now put your analysis away, you don't need it anymore.

*A note of caution should be sounded here. Please do not use bottled water for brewing. It is subject to much less stringent checks than domestic water and may have many undesirable components which cannot be removed. For example, some bottled waters have been shown to contain very high levels of bacteria, chemical pollutants or even uranium. Secondly, beware of water softeners of the type fitted into the water supply to your house. They soften water by removing calcium and magnesium and replacing them with sodium. This has two effects, the first is to add salt to your water which can make your beer unacceptably salty, and the second is to permanently solublise bicarbonates which then can't be got rid of.*

First check for the level of Total Chlorine. My analysis does not list Chlorine as such but as 'Residual Disinfectant'. It is present in most public water supplies. It is added to water to kill off bacteria but interferes with brewing since chlorine (**NOT** chloride) can combine with

components from both malt and hops to form medicinal tastes ("TCP-like"). We must get rid of any

*(Continued on page 9)*

chlorine in our water before brewing, whether using a kit-can, full mashing or any method in between.

### Getting Rid of Chlorine

The simplest water treatment of all is to remove chlorine.

- a. You can use a active-carbon filter which has an anti-bacterial silver component. However these require replacement of the element or the whole filter from time to time as they obviously trap chlorine and other substances. Most homebrewers use one or other of the following methods.
- b. Aerate the water, use a shower head fitting when filling whatever you use from the tap, and leave it to stand for 24 hours uncovered, or
- c. boil it vigorously for 5 to 10 minutes, uncovered.

This will remove chlorine and is probably the only water treatment you require if you do not mash your beers.

Chlorine may also be removed by adding sodium metabisulphite to the water. This can be in the form of Campden tablets. The recommended procedure is to add 1 tablet per gallon of water and leave to stand overnight. One level teaspoon of sodium metabisulphite = 1 Camden tablet, so don't rush out to buy Camden Tablets if you don't need to. This method is imprecise and results in the addition of salt to your water. The proceeding two methods are to be preferred, i.e. aerate and leave for 24 hours or boil for 10 minutes.

### Is your Water Acid or Alkaline?

pH (pHval) is a measure of how acid or alkaline a solution is. It is a scale ranging from 0 (extremely acid) to 14 (extremely alkaline or caustic). It is important to remember that pH is measured on a logarithmic scale so that for example pH 6 is ten times more alkaline than pH 5 which is ten times more alkaline than pH 4 and so on. Thus the difference in pH between pH 5.2 and 5.6 is a factor of 4 not 0.4. pH is a useful guide to the type of water you have. A pH of less than 7 indicates soft water, highly suitable for brewing lagers. A pH of 7 to 7.2 indicates water which is high in sulphate and thus is permanently hard, this is well suited to brewing pale ales. A pH of 7.2 to 7.5 indicates a mix of permanent and temporary hardness which will require some treatment before brewing, and finally a pH of 7.5 or above indicates water with high levels of temporary hardness with very little sulphate and which definitely requires treatment before it can be used for brewing..

Many of us will have water with a pH of 7.2 or over and that means we have to learn a little more about water treatment if we want to brew decent beers - more on this in the next issue.

This series of articles is the result of a lot of work by Sharon Ash and Gillian Grafton. I have cut, pasted and generally altered their original work so that I can understand it. Hopefully, after all the articles have been printed their original work will be available, on request. - Editor

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## WORT AERATION - HOT, COLD or SOMEWHERE IN BETWEEN

by Tim O'Rourke

Although Fermentation is an anaerobic process, (i.e. takes place in the absence of oxygen or air) most Brewers know it is necessary to introduce air into the wort at the start of a fermentation for it to proceed satisfactorily. This is because the Yeast requires oxygen to produce unsaturated fatty acids and sterols for cell wall formation which it can synthesise from brewers wort in the presence of oxygen. If sufficient oxygen is not present the yeast cells will be unable to reproduce (bud) and there will be insufficient yeast cell numbers to complete the fermentation, resulting in high final gravities, and possibly unwanted incomplete fermentation flavours such as VDK (which has a flavour like butter scotch) and aldehydes (which have a flavour of bruised apple skins).

To avoid this problem it is necessary to introduce oxygen (air) into the wort before adding the yeast or during the early stages of the fermentation (during the first 24 hours). The level of oxygen required depends on the wort gravity (the higher the original gravity the greater the demand for oxygen) and is dependent on the yeast strain. Oxidisation levels between 6 and 16 % mg/l are usually required up to the highest gravity worts. Using air (which contains 1/5 oxygen) the normal maximum saturation level is 8 mg/l; where higher dissolved oxygen levels are required pure oxygen is used. Precise control of oxygen is required since excessive oxygen can produce excessive yeast growth and may even poison the yeast. The level of wort oxidation influences ester production and hence the flavour of the finished beer.

Oxygen reacts with wort and beer components to give oxidised and stale flavours and so, apart from its role in stimulating yeast growth, oxygen should be kept out of wort production and the post fermentation stages of the beer. ***It is therefore important to confine the addition to the active stage of yeast growth.***

Historically there has been a debate as to whether to aerate wort when it is hot or cold.

The overwhelming majority of Commercial Brewers all aerate the cold wort, based on sound quality considerations. The relative merits are summarised below:

### Hot Wort Aeration:

#### Advantages:

Hot wort is more sterile, hence less prone to air borne infection.

Where a heat exchanger is used, this acts as a good system to ensure all the oxygen is fully dissolved.

#### Disadvantages

Oxygen is far less soluble in hot wort and hence less is available to the yeast.

Oxygen reacts very fast with hot wort (half life circa 8 minutes at 70oC) hence less is available for yeast.

Hot wort oxidation can lead to unpleasant stale and oxidised flavours in the beer.

Hot wort oxidation leads to colour formation due to melanoid reactions.

### Cold Wort Aeration:

(Continued on page 11)

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Advantages

Oxygen is more soluble in cold wort and hence more is available to the yeast.  
(8 ppm Oxygen from air at 20oC)

Oxygen reacts slowly in cold wort (half life circa 200 hours at 20oC).  
Negligible oxidation in the presence of active yeast.

Negligible colour pick up.

Disadvantages

Cold wort is more prone to infection and hence better micro control (air filtration) is required.

Must provide adequate mixing to ensure the oxygen is dissolved.

There are a variety of ways of introducing air/oxygen in the cold wort, and in practical home brewing all these systems can be used. Clean air (preferably passed through an air filter) can be bubbled into the cold wort before or immediately following pitching using a small pump such as a fish tank pump. For high gravity beers (Original Gravities of 1060 and above) several aerations are recommended within the first 24 hours after pitching to give vigorous yeast growth (it is unlikely that any yeast can be poisoned by air alone, so there little risk from over aerating).

If no pump is available use a clean spoon to agitate the cold wort and continue the mixing when the yeast is pitched. It is useful to give the brew a good stir or shake during the first 24 hours to dissolve further air in order to keep the fermentation going. It is also equally effective to aerate the yeast before pitching and this can be done by shaking, stirring or even by air pump. If the fermentation starts to slacken within the first 24 to 36 hours then further aeration may help to stimulate the yeast. After 36 hours aeration is generally of no value as the yeast has passed through its growth phase and lost its requirement for oxygen.

Although aeration is a very important part of the brewing process it must be remembered that there are a number of other causes for defective fermentation, such as dead yeast, insufficient nutrients, incorrect pH residual cleaning fluids etc., which can cause the fermentation to fail and no amount of air will overcome!

**CBA FINANCE**

All the contributions to the 'Start-up' fund have been banked. The only payments out have been to Gillian for the printing and distribution of the 1st edition of BC and for general postages and administration. We hope to have a Treasurer soon who can keep an overview on our finances and audit them. I have a few bills for stationery, postage etc. which I would like paid sometime but, on the principle that I shouldn't pay myself, that awaits a Treasurer's agreement.

Subscription to the CBA has been set at £15 for members in Europe with non-European (as defined by the Post Office) overseas membership at £20, which includes Air Mail postage. These rates are based on the cost of printing Brewers Contact and its distribution, together with occasional mail-outs. A reduced rate of £10 is available to UK members. Details will be included in Gillian's next mail-out (see p 13). Subscriptions will run from 1st July 1996 and annually thereafter.

**SELECTING YOUR YEAST****by Dr. Keith Thomas, of Brewlab**

Where does the dedicated, or adventurous, homebrewer obtain a specialist yeast and how can you guarantee quality and consistency? Sadly, the most readily available source of yeasts is from packets containing dried powder or granules. Although providing some consistency these are often baking yeasts or brewing strains with limited character.

*Today, many homebrewers are looking for more.*

For a wider range of options many homebrewers look towards the sediment in bottle conditioned samples. Here, at least, are distinctive varieties. The beers come from different breweries, they can be chosen according to the beer style and matched for the intended homebrew. Above all, they are available off the shelf, either in the off licence round the corner or in your nearest supermarket. However, take care in your selection. Not all bottle conditioned yeasts guarantee a quality beer. Just because a bottle comes from a well known brewery doesn't mean your beer will taste the same. Just because the beer tastes clean in your glass doesn't certify purity in your own brew.

Bottle conditioned beers are a valuable and exciting resource of yeasts for the homebrewer but beware the following:-

Not all bottles with sediment contain live yeasts. Some breweries allow a bottle conditioned beer to mature in the brewery but then pasteurise the bottles in an effort to extend shelf life.

Not all bottles contain a primary fermenting yeast. Some breweries filter out their brewing yeast and re-inoculate with a different yeast, often a lager strain, more suited to sedimenting in a bottle. Such yeasts may ferment slowly, are likely to settle rapidly during the brew and form little head. They are also likely to produce atypical flavours.

Many yeast cells may have died in the bottle. Yeasts are mortal after all and easily die if mistreated. Even age takes its toll, resulting in low viabilities after time, particularly in high gravity beers. Too low a viability and your culture may take so long to grow that you lose interest. Wild yeasts and bacteria may grow instead, giving a totally undesirable result. Choose a fresh bottle where possible.

Many bottles may be contaminated. No brewery is perfect and bacteria creeps in at all stages. In some cases these may be part of the brewery's character but held in check by careful handling. In your homebrew these may grow without restraint particularly if the bottle yeast takes an extended time to recover and multiply.

Of course, you may be lucky and select a bottle which avoids all of these potential problems and has pure brewing yeast of high viability. However, a recent technical survey of 31 bottle conditioned beers showed that 14 were contaminated with bacteria, one was also contaminated with wild yeast, and 4 beers had no viable yeast cells so were not bottle conditioned at all!

*Choosing a bottle off the shelf needs more than a degree of luck to succeed!*

This isn't to say that homebrewers can't maximise their options. Using a microscope to view the yeast is the obvious way to check yeast cell numbers, viability and for contamination but is an option not open to most homebrewers. Using a starter bottle to culture up the yeast to pitching volume is essential. Smelling, and even tasting, the culture after growth will often indicate problems. A good, healthy growth of yeast is essential before pitching.

Bottle yeasts can yield a rich harvest for the homebrewer and are worth using if precautions are taken and expectations kept under control. When successful, results can be excellent but select your samples with care.

**Summary:** Use bottles with a stated long shelf life, indicating freshness.  
Avoid bottles where the beer is cloudy.  
Look for a good, consistent sediment.  
Avoid bottles with a scum on the beer or a ring of dried matter inside the neck.  
Taste the beer and reject the yeast if any off-flavours are present.

**Postscript:** You should all be aware of the 'Light-struck' effect when beer bottled in clear or green bottles is exposed to light. Some bottle conditioned beers are so bottled and there is a suggestion that the resultant off-flavour can be carried forward in the yeast. Ask for a bottle straight from the box in the storeroom rather than one off the shelf.

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## Yeasts from the Bottle

On page 12, Keith Thomas advises on how to select a bottle conditioned beer with a view to culturing up the residual yeast. The CBA is often asked for advice on this, particularly on which yeasts are best.

Well, it's really horses for courses. The following recommendations are given with the caveat that they are based on several brewer's experiences but without specific knowledge of the brews brewed and that there are problems with consistency in beer from any brewery but particularly those without trained microbiological quality control staff.

Burton Bridge Porter  
Eldridge Pope Thomas Hardy Ale  
Fullers 1845  
Hoskins & Oldfields  
James Pryor's IPA  
King & Barnes Old Porter  
Luxter's Farmhouse Barn Ale  
Marston's Oyster Stout  
Shepherd Neame Spitfire  
Tesco's I.P.A.  
(Brewed by Marstons)

No guarantee given and bear in mind

### *Gillian's News*

Gillian has now moved to:  
The Old School House,  
Leighton,  
Shropshire SY5 6RN

Once she has unpacked all the boxes she will be mailing all members with an up-dated list of other members in your area. This mailing will include a Subscription form and up-to-date news about CBA's activities. We all wish Gillian many hoppy brews in her new house, and fewer puns!

## Making a Good Mild Ale

Because of the diversity of mild ales it is not possible to choose one formulation as representing the whole class. I am therefore settled on one dark mild, one light mild and one high-gravity mild as a Christmas ale. All recipes are for 5 Imperial Gallons.

### **Dark Mild** OG 45

This is a reduced-gravity version of London mild ale 1824. It needs to be left slightly sweet to bring out the mild character.

#### *Formulation for 5 Imp Gallons.*

Pale Malt 6 lbs 4 oz  
Pale Amber (or Caramalt Colour EBC 25-30) 1 lb. 10 oz  
Amber Malt 1 lb. Roast Barley 4 oz  
Copper Hops 2 ½ oz Fuggles (4.5 a/a)  
Dry Hop ½ oz Goldings  
OG 45, final gravity probably 14-16.  
A small amount of non-fermenting sweetener may be added, if available.

#### *Brewing*

Mash temperature should be on the high side, e.g. 66-67 oC. The low hop rate means that long maturation is not necessary, 2-3 weeks is probably sufficient but my experience is that the softening and integration of flavours improves for up to six weeks.

### **Light Mild** OG 45

This is similar to Tetley 1886 'X' with extra late hopping.

#### *Formulation for 5 Imp Gallons*

Pale Malt 9 lbs  
Copper Hops 1 oz Fuggles (4.5 a/a)  
Late hops (5 mins before end of boil) 1 oz Goldings  
Dry Hop ½ oz Goldings.

#### *Brewing*

As for dark mild. 2-3 weeks maturation should be sufficient.

I must confess that I am not a fan of light milds. The low gravity, absence of roast flavours and minimal bitterness makes for an insipid drink. The few I have enjoyed have had extra hop oil added to give the beer some character

### **London Mild XX (Christmas Mild)** OG 82

#### *Formulation for 5 Imp Gallons.*

Pale malt 15 1 lb,  
Amber malt 1 lb 6 oz.  
Copper hops 3 ¼ oz Fuggles (4.5 a/a) or equivalent.  
Dry hops ½ oz Goldings or equivalent.  
OG 82, final gravity 17-18.

#### *Brewing*

Mash at 66 oC. Fermentation temperature not to exceed 22 oC. Mature for 4 months.

**John Harrison**

## Building your Craft Brewery, by Clive La Pensée.

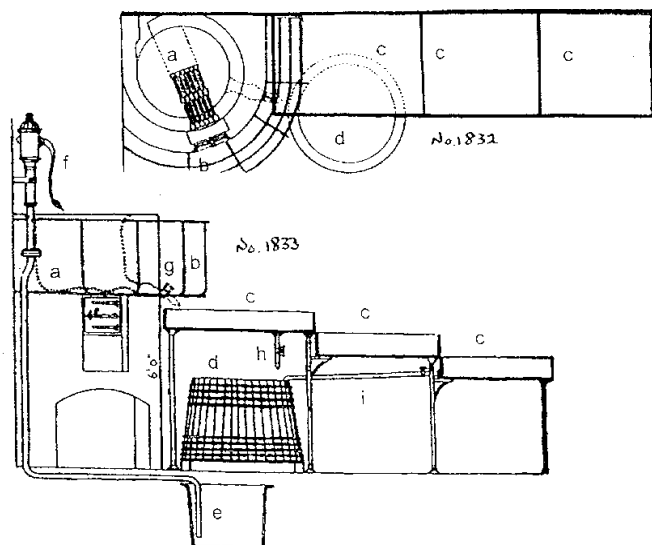
Many grain brewers, apart from those who are working on a professional basis, are turning increasingly to the mash techniques practised in the eighteenth and nineteenth centuries although at a first glance I doubt that many will recognise this to be the case. Professional micro-brewers are using gravity feed to move the dry crushed grain into the traditional copper mash tun and using heavy duty slurry pumps to carry the wet draff from the mash tun to be sparged and then on to be disposed of. Such heavy duty machinery is beyond the scope and requirements of house-brewers but it is worth looking at the materials the professional chooses.

I assume that most non-professional house-brewers will find copper or stainless steel too expensive and I'm not convinced that we need to go for such high quality materials. In any case, the house brewer will find it quite difficult to keep the equipment clean, especially the pipe-work, and we shall probably have to replace pipes regularly, at least every three or four years. Too large a capital investment is not reasonable for us. So although American and German homebrewers may well be spending over £1,000 for their mash tun and a few pumps, I don't feel that I want to move into that league yet, especially as the whole technique of mashing at home is still very much in the process of rediscovery, and huge improvements may be expected in the next few years. While the market is developing so quickly it seems foolish to make huge capital investments in equipment one may not wish to see as a long term investment. And isn't it much more fun to design your own House-Brewery?

Here is a quote from an 1834 edition of a textbook on cottage and villa architecture. It is a description of a nineteenth century step-masher, suitable for infusion mashes too, and a design which can be copied in plastic and copper to fit into 45 sq. ft. of outhouse or shed. It contains much wisdom for a house-brewer contemplating building a house brewery and is the basis for the design I shall propose, although brick and wood will be replaced with polypropylene, the lift pump with an electric device, and the cooling trays with an immersible copper coil.

"A very complete Brewery, on a smaller Scale, has been invented, and is now manufactured, by Messrs. Cottam and Hallen; of which fig. 1832 is the ground plan and fig. 1833 the elevation. In these figures 'a' is the boiler, which holds one hundred gallons; 'b', the gallery for examining the boiler, and working the pump; 'c', the coolers, seven and a half inches deep; 'd', the mash tub; 'e', the cistern for receiving the wort from the mash-tub over it; 'f', the pump for drawing up the wort to be boiled; 'g', the cock by which the boiled wort is let into the coolers; 'h', a cock by which the hot water from the boiler is let down through the first cooler into the mash-tub upon the malt; and 'i', a cock and tube, by which the wort, when cooled, is returned to the mash-tub (after the grains have been removed from it), in order to be worked.

In order to make a truly authentic beer of the period we would have to fly in the face of much modern wisdom. The use of flat-bed coolers allows air access to the hot wort, increasing the risk of infection and oxidation. I'm also sure that



constructing parts of the brewery in sheet iron, which will quickly begin to corrode at such temperatures, must also affect the nature of the final product. Nevertheless, it uses gravity to resolve many problems and allows a skilled operator exact temperature control on the grist by regulating the rate of circulation of the wort. Although I shall probably remain at a five gallon size, the use of a pump and gravity solves many of the problems associated with ten or fifteen gallon batches. Kegging could be done by with the help of high pressure carbon dioxide to move the beer, but I'm prepared to live with the problems caused by aerial oxidation and infection and fight the good fight with these adversities.

More details and thoughts on a house-brewery can be found in Clive's forthcoming book 'The Craft of House-Brewing' which also contains comprehensive details on planting and maintaining a hop garden. It will also include some advanced water chemistry for incorrigible tinkerers as well as lots of whacky recipes, some 5000 years old.

***'The Craft of House-Brewing' is due out in August, price £6.95.***

**TOTHILL BREWERS**

Tothill Brewers, formed in Plymouth in 1978, meet monthly in the home of one of its nine members. We are a competitive mashing group, our purpose in meeting is to improve our standard of beer making, and to test this internally with monthly competitions and externally in the larger competitions such as the National and the Wales and West.

Our monthly meetings are held at a member's home. This is done in rotation so that each member hosts the meeting about once a year. Our host for the evening always judges the competition, the style of beer for each month having been agreed at the beginning of the year, drawn from the eleven styles that most of us brew. These are Light Ale, India Pale Ale, Strong Ale, Barley Wine, Light Lager, Heavy Lager, Dry Stout, Sweet Stout, Porter, London Brown and Newcastle Brown. Whilst the beers are judged in another room, a member of the group gives a short talk on an aspect of brewing, usually something that he has specifically read up for the evening. Our host then talks us through the competition beers, explaining the reasons for the order he selected, the good and bad points in the beers entered, whilst we taste and discuss the flavours, aromas, body, mouth feel finish, methods, equipment and recipes. Our host's initial decision is always final! At the end of the year a cup is presented to the most successful brewer.

One thing that we learnt very early on is that whilst a particular recipe will create superb beers for one person, the recipe is only a very small part of the equation. Individual equipment, method, conditions and ingredients have an immense affect on the finished beer.

To improve our overall knowledge of brewing and beer flavours we hold commercial beer tastings and go to any local CAMRA Beer Festivals. We spent a most enjoyable day in Paddock Wood, Kent learning about hops, and visited the Tuckers floor malting at Newton Abbot. We visit breweries as a group whenever we can, including Courage's, Eldridge Pope, Fullers, Mildmay Colours, Palmers and the Royal Clarence Hotel. Some of us have spent a day in a commercial brewery with the brewer, making, racking and kegging beers, which we plan to repeat shortly.

In mid summer we always hold a barbecue for ourselves and friends, and at Christmas our party includes a meal in which each course is made with beer, and is accompanied by an appropriate beer.

As a group we try to be informal. We have no constitution, committee or treasurer. We are a small group of enthusiasts who meet to share the enjoyment of making and drinking first class beers. We have enjoyed success in this last year as a club winning most points for beer in both the National and the Wales and West competitions. (*How can Plymouth be in Wales or the North West? Editor*)

If anyone would like to join us or to find out more please give Hywel Edwards a call on 01 752 660382 between 9 am and 6 p.m. Monday to Saturday. We would welcome any new members who share with us the enjoyment of making and tasting good beer.

**CONGRATULATIONS**

The proof of the beer is in the drinking! Hywel Edwards won the 'Master Brewer' trophy at the 1996 National Show and another Tothill member, Philip Hardy, won the similar trophy at the Wales & North West Festival.

These Trophies are awarded to the brewer who gains the most points in the Beer Classes

Certainly, a club worth contacting with a view to learning about the craft.

**CAMRA & CBA**

It was most interesting to meet Stephen Cox, CAMRA's Campaigns Manager and to gain a little understanding about what CAMRA actually is and what its objectives are. Its main, if not sole, aim is to act as the consumer's champion in relation to the drinks industry in the UK and Europe. We all have our own idea about what CAMRA should be and Stephen says that every member he meets tells him what CAMRA should be doing, the trouble is that every member wants something different!

CAMRA, in publishing Graham Wheeler's books and articles, has encouraged the regeneration of interest in home brewing but has never considered becoming more deeply involved in home brewing. Naturally, CAMRA had not heard about CBA but now that it has welcomed us we hope to liaise closely as issues arise.

CAMRA have include our leaflet in their mailing to all Branch Secretaries, so get yours to recover it from the dust-bin, and will send it also to all those who write to CAMRA about home brewing.

We are also negotiating a very exciting project and you will have details in Gillian's mail-out.

**James' Bit**

Some of you know that the main reason for the delay in this publication and other CBA matters is that my only daughter died suddenly at the beginning of April. I sincerely thank all of you who sent messages of support and encouragement through this difficult period.

My apologies to those who have sent contributions which are not in this issue, they will be in the next one. It's easy to add pages on the computer but I had to remember the printing and postage costs.

## Exciting Time for Home Brewers

These are exciting times for home brewers. Never before has there been such a range of equipment and ingredients available to us. There is no excuse now for not brewing good beer, except perhaps ourselves. Only a few years ago the range and quality of brewing ingredients was, in the main, pretty awful. We could get pale, crystal and perhaps chocolate and black malt, all without any specification and already crushed but goodness knew how long ago. Now we have a full range of over 20 barley malts together with wheat and rye malts. The EBC colours are specified and this is important because the roasting of malt changes not only the colour but also the flavour. Just think of the crust of a good loaf because this is produced by the same reaction whereby malts are coloured. The range now available is also important in that if producing a dark beer we used to have to use a little black malt whereas the range now available to us enables us to, say, use a larger amount of amber malt to produce the same colour but with a lot more flavour. If you haven't tried an amber ale wait for the next issue of Brewer's Contact when John Harrison will be explaining all and giving some recipes. For those who have not yet taken the plunge into mashing, Muntons have recently released to home brewers a malt extract originally produced to meet the demand for a high grade product from a large chain of brew-pubs. Made only from premium-grade brewing malt, much malt extract is made from cheaper food-grade malt, it is mashed under brewhouse conditions at temperatures designed to encourage the development of fermentable sugars. In the homebrew trade it is called 'Brupaks Premium Grade Pale Malt Extract'. Muntons themselves call it 'Cedarex' and use it in their Gold range of beer kits. As far as I know, this is the first time that a malt extract of this pedigree has been available to us and I have received several reports praising it. For those who are considering mashing for the first time, homebrew shops are now stocking a easy mashing system based on a rigid plastic cool-box. This concept first saw the light of day in Dave Line's book, indeed I first mashed with one, but has a much simpler drain-off system which avoids having to drill all those holes. For those of a slightly do-it-yourself bent we will be covering the construction of one of these mash tuns, and others, in our next issue.

The other great advance has been the availability, again for the first time, of decent, fresh, alpha acid specified hops. These must be kept in vacuum packed, light and air barrier foil bags and preferably in the cold. It used to be, and in some places still is, that we only had a choice of Goldings or Fuggles rendered brown and useless by being packed in clear plastic bags left on the shop shelf but now we have a choice of over 25 different varieties.

On the equipment front we also can now get grain mills, wort coolers and stainless steel boilers. Some boilers on the market provide 2 heating elements and I should caution you to ensure that your electrical wiring and fuses can stand the strain. Perhaps one of our electrician members could write to me with more technical details, for publication. I would particularly advocate home brewers considering buying a grain mill, as that means we can ensure that all the flavour of the malt, so carefully produced by the maltster, gets into our beer. Other great new gadgets are the rotating sparge arms, no more straining with watering cans full of hot liquor, and the immersion wort cooler. Again, you can make these yourself but they were selling like hot cakes at the Coventry homebrew show. British home brewers are beginning to wake up to the vital importance of yeasts and it is ironic that the British and German yeasts now available to us mainly come back to us via the USA. You can get some yeasts from Brewlab at Sunderland University but there could well be a UK development in this area soon. Much of this improvement in homebrew supplies is due to the efforts of a relatively new wholesaler, Brupaks, who now supply over 45 homebrew shops around the country. I certainly feel that they deserve our support. I wonder how long it will be before other wholesalers catch on to the demand, on the other hand they could have done it themselves years ago.

The CBA will encourage the supply of quality ingredients and equipment for home brewers and publish information on their use together with encouraging the supply of other items which will help us all brew better beer.

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