MAKING MEAD

by B. Acton and P. Duncan

"Amateur Wine-makers" publishers

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PREFACE

MEAD, as everyone knows, is a pleasant, alcoholic drink made by fermenting honey and water with yeast.

Of all the crafts of mankind, mead-making is almost certainly the oldest. It is likely that mead was made even before the wheel was invented. Cave paintings of primitive stone-age men depict the collection of honey from bee colonies, and any addition of water to this would automatically produce a mixture which could be fermented by wild yeasts. The discovery of alcohol almost certainly occurred in this chance manner, and spread to all parts of the world.

The method of making mead remained almost unchanged for thousands of years until fairly recently when advanced mead-makers such as Brother Adam of Buckfast Abbey and Mr. C. B. Dennis published informative pamphlets outlining the basic principles of mead-making. This book is a further extension of their work by introducing people to melomels as well as mead. Melomels (fermented honey and fruit juices) utilise less honey per gallon than mead, and we believe that once the delicate flavour of honey is appreciated in these drinks people will be moved to make mead once more in appreciable quantity.

Whereas most mead-makers are at present apiarists, we are writing mainly for the non-beekeeping fraternity, who are as much entitled to their mead as were their ancestors in Elizabethan, Anglo-Saxon or Celtic Britain.

A glass of lightly chilled mead on a summer's evening, when one is at peace, is a splendid thing. On a cold winter's night, a hot spiced pyment is a re-discovery of a delight that "Mr. Pickwick" took as a matter of course.

Compared with wine prices, a bottle of mead costing about 2/6d a bottle is cheapness itself. At 12%–14% alcohol by volume it is stronger than most table wines and quite as delicious—especially when it is your own!

We hope that you, on reading this book, will be inspired to join us in this admirable craft which has an end-product which stimulates, invigorates and satisfies man's most desired aim—Contentment.

G. W. B. Acton & P. M. Duncan.

Beehive: an illustration printed in the reign of Queen Anne

MAN'S OLDEST DRINK

AMONG the multitude of things which constitute the daily life of mankind through all the ages, certain things have always been accorded a special place of importance. Basic elements such as air, fire and water formed the groundwork of primitive science and also of magic, while commodities, such things as salt, wine, bread and honey were woven into the myths, folk-lore and religions of every race at every time in history.

The bee is such an amazing creature that it is hardly surprising that honey (and mead also) became attributed with the most remarkable of properties. Honey was for thousands of years the principal sweetening agent known to mankind; honey and mead were the givers of life, wisdom, courage and strength right from earliest history, through Hindu times, on through Aristotle and Virgil until they found powerful echoes in the Bible. Even our own Celtic ancestors made mead and a form of metheglin by mixing honey with the juice of the hazel tree which was to them a magic tree. Some of the Saints (particularly the Irish ones) were partial to a drop of mead. St. Findian, who lived on bread and water all week, used to eat salmon and drink mead on Sundays (a precedent if anyone asks what is the best wine to serve with salmon). That great Irish saint, St. Brigitte, went one step further and merits consideration as the patron saint of amateur winemakers. Once when the King of Leinster visited her they ran out of drink, and St. Brigitte took a great vat of water and turned it into mead, thereby emulating Christ's miracle at Cana. It is unfortunate that she did not leave her recipe for this "Instant Mead."

In later times, mead tended to decline somewhat. Beekeepers still made mead, and good mead, as many of them

do to-day, but fashions tended to change. On the one hand there grew up a whole range of metheglins (made by fermenting honey and spices or by steeping spices in mead), many of which were intended purely as medicines, and on the other hand court circles indulged themselves in ever more complicated "piments."

In Elizabethan times, when drinking standards reached their lowest ebb, hundreds of recipes for different "pyments" were in circulation. These "pyments" were not true pyments made from fermenting grape juice and honey, but were concoctions of mead with spices, syrups, grape wines and many odd substances. Already sweet meads were sweetened further, and so many spices were added to some that the bouquet must have been rather like after-shave lotion.

Queen Elizabeth's own royal recipe for mead has survived to this day, although no winemaker in his senses would want to make such a sickly concoction. We have, however, included a modern adaptation of it which will prove most satisfactory insofar as the herbs (for it is really a metheglin) are infused in the finished mead. This enables the winemaker to exercise more control over how much herb flavour is imparted to the drink.

Among ordinary people, however, mead became two drinks. It still continued as a wine, generally for special occasions and particularly weddings. Most people know that the word "honeymoon" comes from the practice of drinking honey wines during the month-long celebrations which followed better class weddings, but not everyone knows that in some parts it was the custom to pack the bride off to bed and then to fill up the bridegroom with mead until he could not stand. At this point, he was carried to bed alongside his bride and it was common belief that he would then sire a son that very night. If, by chance, the bride did conceive and bear a son nine months later, the maker of the mead was complimented upon its quality.

We moderns call any drink made from honey "mead," but apart from being a wine, mead was also a beer or ale. The Anglo-Saxon word for mead was "alu," significantly close to "ale," and almost certainly the mead which the

Vikings drank so copiously was more of a beer than a wine. Undoubtedly, there was an ale-like drink made from honey during the Napoleonic wars, since trouble occurred in the British Army when the alcoholic strength of mead supplied to the troops was reduced from 6% to 4%. This is definitely ale strength, and mead was in fact made with hops and was fermented with a brewers' yeast. In most inns, ale and mead were sold side by side along with cider.

Until the 18th century, of course, sugar was not used by the great mass of the population; it was so expensive that it could be afforded only by royalty and the wealthiest. Honey was the common sweetener, and it was therefore honey which was used to make the common people's drinks. It was only with the opening up of the West Indies and the creation of plantations of sugar cane with slave labour in the 18th century that bulk supplies of sugar for Europe became available, bringing its price down and putting it within everyone's reach. Supplies were further assured by the discovery of beet sugar by Napoleon's scientists in their efforts to beat the British blockade during the Napoleonic wars. Thereafter sugar gradually supplanted honey as the popular sweetener.

As honey slipped out of favour so, inevitably, did wines and beers made from it; as beer brewing became more and more organised, so malt beer became cheaper to produce than mead. The flavour of ale did not differ very much from that of the low alcohol meads, so that from then on mead declined very rapidly as a staple drink in this country.

Wine type meads and melomels and metheglins survived, of course, and formed the basic amateur winemaking of those days, which we now inherit. In our recipes we have included an ale-type one as a curiosity. It is certainly a genuine old-time drink, but would probably be regarded with blank astonishment if it were entered in a mead class at the National Honey Show.

MEAD, MAIDS AND MARRIAGE

IN our researches into mead's history we have occasionally come across material which really is suitable for a more light-hearted article, and some stories which are far too robust for modern publication.

We made a start on Nordic mythology, since we knew that mead played a very big part indeed in Norse legends. The Norse gods were a reckless, wild-living lot, much given to blatant venery. Episode after episode arose in which one god would give some goddess a few draughts of mead, following which her resistance would be visibly reduced so that the scheming god, like a Victorian villain, would enjoy her physical delights with impunity. Suttung's daughter Gunnlod was particularly prone to this form of seduction, and indeed appeared to thrive on it, for on one occasion when Odin stole the mead from Suttung (not knowing how to make it himself) Gunnlod was overcome with grief since Odin had someone else in mind at that particular time. Later, however, she turned the tables on Odin by giving *him* a few draughts of mead so that he became like clay in her hands. He remarked, as he slowly went under from the aphrodisiac qualities of the mead, that it gave him the gift of poetry and of composition (the authors will refrain from commenting on what is inspiring their prose at the moment).

Returning home from the British Museum with our heads full of these Norse legends, and eyeing our mead with a sideways look, we resolved to turn to the non-mythological, very real world of the ancient Hindus. Alas, it was much the same story, less colourful perhaps, and portrayed in a more refined manner. In those days honey was believed to be some form of magical dew which dropped from heaven and was collected by the bees. In one of the Sanskrit hymns, known collectively as the Rig-vedas, it states: "In the wide-

striding Vishnu's highest footsteps there is a Spring of Mead." This spring, it was believed, made people very fertile, and young girls, betrothed to some intended husband, were well plied with mead so that they would honour their families by giving birth to a son within a year of marriage.

When we came to study the Greek civilisation we had already guessed what would be found, for we knew that old roisterer Bacchus had been the God of Mead long before he became accepted as the God of Wine. Virgil and Homer wrote about mead in glowing terms, as they did about ambrosia, which was apparently a semi-solid mead liqueur of ancient times and reputed to be the food of the Gods.

The Greek civilisation was unique and has never since been rivalled. Basically, the Greeks maintained a splendid balance amongst all aspects of life. Love, parenthood, respect for the law, love of their gods and family life were all kept in harmony, and by some subtle trick of the mind they were able to explore any one avenue of life without it interfering in any way with any other aspect. There were no frustrations, repressions or guilt feelings among the Greeks. Sardanapalus, the last king of Assyria, summed it up well in his words: "I have been a king, and as long as my eyes have seen the light of the sun, I have eaten, drunk and done homage to the joys of love, knowing that the lifetime of men is short and subject to much change and misfortune." Mead, of course, was what they drank, and it was offered as a sacrifice to the goddess Aphrodite by ladies of good breeding, that they might get "a good bag of lovers."

Naturally, the Greeks had other pleasures too. Thus, there appears to have been a definite mead-making season, and the mead would be matured and kept for an orgy, called a Dionysia (from Dionysus, the God's other name), which took place once or twice a year. On these occasions the lightly-clad ladies and the men in their goat-skins would climb to the summit of a not-too-high mountain and then proceed, very methodically, to get "tight" on their mead, whereupon they would perform dances and make sacrifices which very quickly became orgies (the details of which we

must spare your tired eyes). The customs they practised were really quite remarkable, and they attributed this entirely to the influence of the mead, which was not, apparently, drunk at any other time of the year (at least, not in any quantity).

Despite their debauchery, they frowned upon anything which struck them as inelegant, and poor old Hippocleides, for instance, was severely censured by his father on his wedding night, when, having drunk too much mead, he insisted on standing on his head, stark naked, on the dining table and waving his legs in the air while he sang a merry song. For this bit of naughtiness his father refused to let him take his bride.

Having recovered from the Greeks, and decided that our mead stock had better be kept under lock and key, we turned to the Moorish civilisation. It was not long, however, before we reached the phrase "The Moors considered honey to be a love-stimulant." Indeed, Beck and Smedley remark that Moorish wedding celebrations were really sex-orgies at which the guests were given honey and honey-wines until they were drunk because they believed these contained powerful aphrodisiacal ingredients.

In Roman times we come across Pollio Romulus writing to Julius Caesar about it. Pollio was over 100 years of age and apparently (if he was not boasting) enjoyed a full sexual life. This he attributed to drinking copiously of the local Welsh metheglin and to rubbing his legs with "oyl."

Nearer home, in the 17th century, Sir Kenelm Digby quotes: "The Meathe (Mead) is singularly good for a consumption, stone, gravel, weak-sight, and many more things. A chief burgomaster of Antwerp used for many years to drink no other drink than this and though he were an old man, he was of extraordinary vigour, had always a great appetite, good digestion and had *every year a child.*"

In a very British way we might say "Ah well! There's no telling what these foreigners get up to," but an examination of our own history reveals much the same erotic story though the emphasis is more on the ability to stay the course rather

than on mead's stimulating effect on the imagination. That is probably why the Scots have a saying that mead-drinkers have as much strength as meat-eaters.

We have only quoted a small proportion of the references linking mead with sex, but they suffice to show that this belief was not only world-wide but covered all periods of man's history. Professor Jung once remarked that if one finds a belief in several unconnected cultures at different times in history, one should be wary of dismissing it out of hand. The evidence of centenarians enjoying "the full life" is even less easily brushed aside.

Some scientists have attempted to belittle the virtues of mead and honey by analysing their chemical constituents and showing that carrots or other edibles are richer in this or that substance. Fortunately, this attempt to mislead is being refuted by other scientists and doctors who are discovering that honey and mead are, in fact, valuable invigorating and revitalising aids, particularly when we live in an age of processed foods.

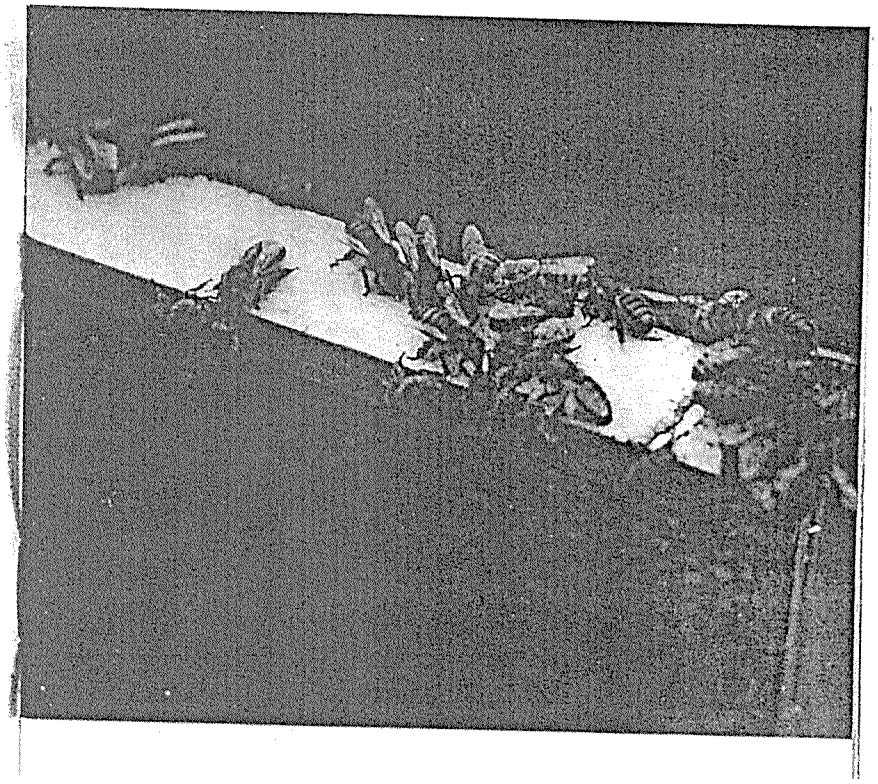
As to its qualities as a sexual stimulant, while it was certainly the principal aphrodisiac in ancient times, we must remember that people in those days tended to drink more heavily than we do. Certainly no family catastrophe could possibly result from giving your great-aunt an occasional glass of mead, and for those mead-makers determined on having a long life and a gay one, we would remind them not to forget the castor oil (to rub on their legs, of course!).

HONEYS FOR MEAD

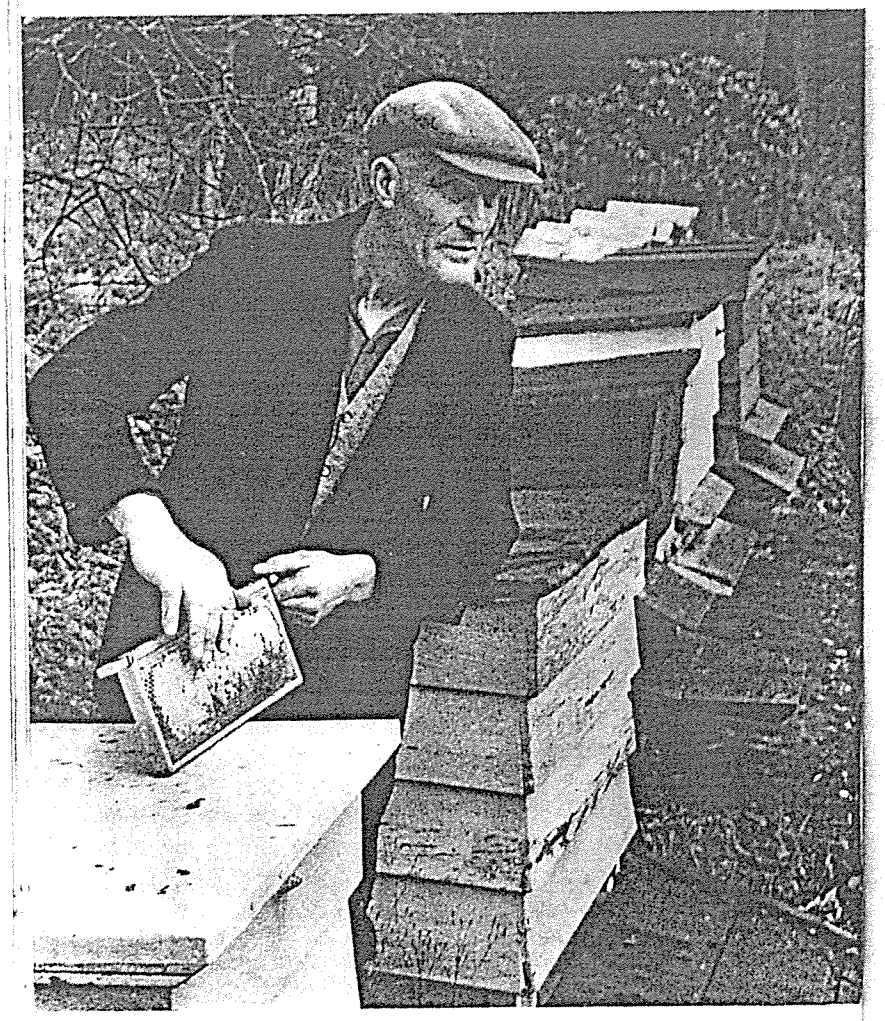
MODERN researches confirm that the bees which produce our honeys have one of the most highly organised social systems in the insect world.

To give some idea of its wonder, one need only consider the curious "Dance of the Bees." This is in fact a complex method of conveying information about sources of food outside the hive. When bees are feeding on a rich source of food, small white glandular patches on their abdomens are exposed, and it would appear that some kind of scent is emitted, so that a "beacon" is left for later bees. When the bee returns to the hive it does a sort of dance at the entrance to the hive or on a honey comb. For example, if the source of food is less than about 100 yards from the hive, the bees perform a circular dance first one way and then the other. This type of dance acts as a signal to other worker bees who stream off in all directions from the hive, to quarter the immediate neighbourhood and locate the scent "beacon" signalling the source of food. As more and more bees eventually find the food source, the "beacon" effect becomes stronger so that later bees emerging from the hive are able to fly directly to the supply, a very important factor since a worker bee's lifespan is mainly dependent upon how long its wings last.

If the food source is more than about 100 yards from the hive, the returning bee performs a figure of eight dance and wags its abdomen on the straight part of its run. It has been found that the farther away is the source of food, the slower the dance is performed but that more wags of the tail were performed in each sequence. The great research worker in this field, Von Frisch, discovered that from the time taken over the dance and the number of wags it was possible to calculate fairly closely the distance of the food source from



Bees have a highly-organised social system



Collecting heather honey
near Inverness

the hive. In addition, the bee's body during the straight part of the dance actually points towards the source of the food (to within a few degrees). The dance is only performed when the sun is shining or when there is at least one patch of clear blue sky. It would appear from this and other evidence that bees are sensitive to the polarised light which comes from blue sky and which permits them to locate the position of the sun, thereby enabling them to indicate direction even when the sun itself is obscured. The whole process is a beautiful piece of time and motion study which bees have been doing for ages before mankind ever came to organise itself in as efficient a manner.

Honey is made from the nectar of flowers, and is named according to the type of blossom from which the nectar is collected by the bees.

If you ask a British bee-keeper which type of honey is best for making mead, he will generally reply that any sort is good as long as it comes from these islands of ours. It would be folly to contradict him lest he call on his legions of bees to drive one from his land, yet, since we are concerned with the truth and not with British solidarity in this matter, it is necessary to consider the point from a different angle. It is possible in theory to obtain honey from any kind of blossom. As a matter of fact, while the nectar of most blossoms is wholesome, even from most poisonous plants, there are a few plants whose nectar is toxic to man. Rhododendron nectar has long been under suspicion in this respect, and cases do occur from time to time of people suffering ill-effects from eating one of these rare honeys. Such instances are, of course, very infrequent, and if one buys, say, Guatemalan Wild Honey it will certainly be quite sound and wholesome.

The collection of honey by bees is not a continuous process, for it is influenced by weather conditions, particularly by blue skies and by the relative humidity. Comparatively little honey is produced during the Spring, since flowers are relatively scarce and many sorties over long distances are often needed to obtain enough nectar to provide the bee colony with its daily requirements of food. This is

why Spring blossom honeys are almost unknown in this country, although in Mediterranean climates such as that of Spain, so much honey is collected in the very short hot Spring that there is an immediate surplus which finds its way into our shops as Spanish Orange blossom honey or Acacia blossom honey.

In this country, summer is the time when the greatest quantity of honey is made. During June, July and August, the bees are collecting nectar whenever weather conditions allow, and sometimes quite astonishing quantities are brought back to the hive in the space of a few days. Some types of flowers surrender their nectar much more freely than others, and someone once worked out that it would take seventeen miles of a normal garden border to equal the yield from a single acre of clover. Clover and heather (also known as ling) are the two largest single sources of nectar in Britain. It is the honey from these flowers which comprises the principal type produced and sold by many British bee-keepers.

In other countries, where the honey glut occurs at different times of the year, the emphasis is elsewhere, so that a great variety of honeys are obtainable, such as orange blossom, acacia blossom, lime, rose, rosemary, as well as curiosities such as leatherwood honey from New Zealand.

Most English apiarists will affirm that English honey has more flavour in it than foreign honeys, and a simple test of buying some honeys and tasting them will generally prove that this is true. By and large, English honey is full-flavoured while foreign honeys are usually somewhat milder.

Most mead-makers (who, at present, are mainly bee-keepers) will also assert that because heather honey is our most full-flavoured honey it will also make the best mead. We are not bee-keepers and have no allegiances to maintain in that direction, and we must take issue on this point very strongly. Mead in its matured state is very much like a good white wine, and as such may reasonably be expected to reach full maturity within two or three years. As it happens, heather honey imparts such a strong flavour to mead that it tastes unbalanced unless it is matured for perhaps as long as eight years.

Undoubtedly heather mead so matured is excellent beyond words, but this zealous devotion to heather honey has given birth to the idea that all meads require such lengthy maturing. Such a belief has for years bedevilled the winemaking world and has prevented a great many winemakers from trying their hand at mead making.

The way round this impasse is to use more delicately flavoured honeys or to use heather honey in smaller quantities mixed with fruit juices in melomels. Under these conditions meads and melomels mature as early as do white fruit wines, and we have even tasted some good meads (one a first prize winner at a big show) that were only a few months old.

In our view, the finest meads are made from single-blossom honeys, and of these, clover, acacia, orange, rose, wild-rose and rosemary are outstanding.

They are easily obtainable from most stores these days, although if one can obtain English clover honey direct from a bee-keeper it is worth the slight extra expense. The reason is, of course, that such honey is fresh and, in common with other winemaking ingredients, will produce better mead because none of its delicacy has been lost during storage.

Mixed blossom honeys rank next as mead-makers, but the mead does not have quite the same character and its flavour will generally prove poorer than that obtained from single-blossom honey.

Below these honeys we place heather (or ling) honey, for the reasons already stated. It is entirely a matter of the time element. If you are a patient winemaker and can wait eight years, then put heather honey up near the top of your list, but not otherwise.

Most of the honey sold in shops does not fall into any of the categories just mentioned. It is labelled 'Blended" and often in small type one can see that other things have been added to the honey so that it will spread better on bread and so on. These blended honeys are really of little use for making mead since the product will lack character. Such honeys, however, are useful when making melomels and metheglins if cost is important, since the honey plays

a lesser part in these drinks. Nevertheless, we cannot recommend them, and in particular would advise readers to avoid Australian blended honey at all costs. Some Australian honey is made from the nectar of eucalyptus blossoms. Some eucalyptus nectar, though not all, has a peculiar but typical bitter flavour which it imparts to mead made from it. Most Australian honey arrives in this country in blended form and there is no way of telling if it contains this particular bitter eucalyptus honey or not. New Zealand honey, on the other hand, is quite satisfactory, and is in most respects very similar to our own native honey.

Honey from such countries as Mexico, Jamaica, Guatemala and Rumania often have an advantage in that they are less pure than honey from Britain, Canada or the U.S.A. The eternal quest for purer and purer honey is not in our view a symbol of advancement but rather the opposite. One sometimes overhears bee-keepers commenting on the problem of pollen clogging their filters when purifying it. They seem blind to the fact that it is many of these so-called "impurities" in honey which give it its bouquet and flavour.

Some honey is light in colour and some dark. With a few exceptions the darker honey is more strongly flavoured and in consequence, since most meads are delicate light wines, it follows that the lighter and milder honeys are usually more suitable. For melomels, metheglins, pyments and hippocras, however, darker and stronger honeys may sometimes be preferable, although this is by no means generally applicable.

One feature of honey often causes confusion. Honey may be obtained either in a liquid or a crystalline state, and the question as to which form should be used and how much is required is commonly raised. Since solid honey is formed simply by the crystallisation of the liquid variety, the two types should be, and generally are, essentially identical. This can easily be proved by dissolving a pound of each type in 2 pints of water and bringing the volume up to ½ gallon when both solutions will have the same gravity or nearly so. The difference between the two is generally so small that it can be quite safely ignored. It is only when crystallisation is accompanied by simultaneous loss of water that significant

differences between the two forms of honey begin to become apparent. Such occurrences are fortunately relatively rare, but we have encountered one example where a 20% difference in gravity was observed. Hence, to avoid any chance of errors arising from exceptional honeys of this nature, it is probably better though certainly not essential to adjust mead musts to a predetermined initial gravity rather than work solely on the basis of a given weight of honey.

To sum up: good mead demands good honey. At the time of writing, mead is made by bee-keepers and by few others. Even here, many bee-keepers value their honey and beeswax above their mead. The reason is that mead is often made from the honey trapped in the wax so that combs are simply soaked in water and this product then fermented. This is all wrong! As our good friend Mr. S. W. Andrews, that well-known bee-keeper and winemaker, once said: "If you want the best mead, you must use your best honey!"

MEAD-MAKING TECHNIQUE

HAVING obtained your honey, you will be wanting to begin operations, so let us discuss basic mead-making procedure.

During fermentation the yeast, which is a type of fungus, acts on the sugar in the "must" (the liquid to be fermented) and splits it into carbon dioxide and alcohol together with a small amount of energy which it uses for its growth and reproduction. As well as sugar, however, yeast also needs certain nutrients, mainly nitrogenous substances, to keep it healthy, in much the same manner as we need vitamins. Yeast does have one great advantage over us—it can live in the absence of air and does so when fermenting mead musts. Its source of energy is sugar, and it will continue to thrive in a sugary solution in the absence of air until the by-products of its own metabolism, alcohol in this case, become too concentrated and kill it off. Fermentation then ceases and no more alcohol is produced. Fortunately, the wine yeasts now on the market can tolerate fairly large amounts of alcohol and will normally not become inhibited until 15% or more alcohol by volume has been produced.

Hence, all the winemaker has to do is to co-operate with the yeast so that it has ideal conditions in which to work, and to ensure that no other organism is allowed to enter in quantity to disrupt the yeast colony.

There follows a series of basic rules which every mead-maker should observe, although it is unfortunately impossible in a book of this size to relate the reasons which lie behind all the points mentioned. If, however, they are all followed, there should be no cause for dissatisfaction even in the very first mead or melomel made.

BASIC RULES

Preparation of the Must

(*a*) Sterilise the honey and water mixture with sulphite or by boiling, although the latter method is definitely likely to lead to a poorer mead.
(*b*) Adjust the mixture (must) with acid and tannin as per recipe.
(*c*) Ensure a plentiful supply of nutrients.
(*d*) Add the yeast at the correct temperature.

Fermentation

(*a*) Keep the fermentation container at the correct temperature (*see* page 28).
(*b*) Keep the container covered or fitted with a fermentation lock at all times except when actually inspecting or adjusting the fermentation.
(*c*) Add additional honey (if required) as the yeast can absorb it, dissolving the honey in a little of the must before adding it to the bulk, and stirring well.
(*d*) Do not ferment in metal containers (plastic buckets or glass containers are best).

Later Care

(*a*) Rack (i.e. siphon) the mead off the yeast carefully so that as little as possible of the sediment is sucked up.
(*b*) Top up the maturing jar with tap water if necessary so that no large air space is left in the jar. It is a good idea to make a few pints extra for topping up purposes to avoid dilution in this manner.
(*c*) Fit the jar with an air lock.
(*d*) Add one Campden tablet per gallon at each racking.
(*e*) Subsequent rackings should be made at 3–4 month intervals and should be conducted without much splashing.

General

(*a*) Keep all equipment clean and sterile.

Honey and water alone represent a very poorly-balanced "must," which is why meads made from these two ingredients alone ferment very slowly and mature rather poorly; such mead requires perhaps eight years before it is drinkable. There is no need to mature mead for so long if the must is first adjusted to conform to the basic rules of modern mead-making.

In order to obtain a sound fermentation and a finely flavoured product, it is necessary that a must should contain the following:—

Good quality honey.
Water.
Acid.
Yeast nutrients.
Tannin.

In addition, a good yeast is required.

Honey has already been discussed in detail, so let us consider the other items of this ideal must.

WATER

In general winemaking, there are often enough trace elements present in the ingredients to offset any deficiency in the local water supply. Where, however, honey is the sole ingredient, the question of trace elements becomes of paramount importance. Most of the water supply of this country contains a fair amount of trace elements except, perhaps, magnesium. We have found by experiment that, if a must is made with distilled water instead of tap-water, the fermentation will very quickly "stick" and the only thing which will revive the yeast into activity is a pinch of Epsom Salts (Magnesium sulphate). It is well worth remembering this fact when dealing with mead musts if there are no magnesium salts in your local water supply.

ACID

Acids play a big part in fermentation, and, indeed, on the final flavour of the mead. Where a must is deficient in acid, certain peculiarly flavoured substances are produced

during fermentation and these spoil the finished mead. It tastes more like cough-mixture than mead! Since honey and water form a solution with a very low buffer capacity in comparison with normal wine musts, however, small amounts of acid have a very significant influence which is much more apparent with meads than with other wines. Indeed, mead is about the only wine where some correlation between titratable acidity and pH can be observed and the latter does give a fairly reliable indication of its acidity and acid taste (provided it be measured accurately). In consequence, meads require a lower acidity than other wines and should preferably contain no more than about 2.5–3.5 parts per thousand acid (in terms of sulphuric acid standard) with 3.0 ppt being a good average value. Pure mead musts therefore need only ½–¾ oz. acid per gallon. On the other hand, melomels and other similar honey drinks (except metheglins) should be treated as normal wines with respect to acidity.

The type of acid used in mead-making is rather important. Citric acid has always been the standard additive in mead-making and many mead-makers like the flavour it imparts. Nevertheless, it is not the best acid to use if superior meads are sought. The best acid combination is 2/3 Malic acid and 1/3 tartaric acid (Mead acid mixture).

Various older publications on mead generally include a formula which is an acid plus nutrient mixture. This formula is of very ancient origin and is very suitable for old-style meads of the ale type. It is, however, not so suitable for modern wine-type meads and we have therefore not included it.

NUTRIENTS

The main nutrient for the yeast required in mead-making is ammonium phosphate. It can be obtained in 250 gm jars (¼ lb. approx.) quite cheaply through chemists or in the form of yeast nutrient tablets from amateur winemaking suppliers. One level teaspoonful of ammonium phosphate or 2 nutrient tablets is sufficient for a gallon of mead must.

Vitamin B_1 is also advisable to ensure a thriving yeast colony and this can either be added in tablet form (one 5

mgm tablet per two gallons) or as the proprietary food Marmite (¼ teaspoonful per gallon).

We have already mentioned the advisability of adding a pinch of Epsom Salts (Magnesium sulphate) per gallon (1 gm per gallon exact measurement) in case of any deficiency in the local water supply, but in addition, in an ideal mead must a small amount of potassium phosphate should also be added (2 gms or ¼ teaspoonful per gallon).

TANNIN

Meads that lack astringency lack character. In old-style meads this astringency was imparted either by adding hops or by adding herbs as in metheglins. Tannin is the main source of astringency in wines and we recommend this to be added to meads preferably in the form of grape tannin or tannic acid (1/15–1/20th oz. per gallon).

Having discussed the main additives for mead, we become aware of the differing needs of novices and advanced mead-makers. Ideally, beginners would start off as advanced mead-makers and adjust their musts with a mixture of acids and other chemicals to produce a balanced must. In practice, we realise that many mead-makers still rely on the hit-and-miss method of using the juice of two lemons for acid adjustment and a tablespoonful of cold tea for astringency. Since we cannot change the world in a single day, we give below two alternative mixtures which are required in the must in addition to the honey and water. These are, of course, for straight meads only, and where melomels, metheglins, pyments, hippocras or cyser are contemplated it is better to rely on the recipe. We must nevertheless confess to being reluctant to advise the use of lemons and cold tea since many mead-makers fail to achieve a consistently high average standard of quality because they are unwilling to adopt more refined techniques. The reader is therefore urged to slough this habit as soon as possible if his or her aim is to make better mead.

Beginners' additives (per gallon)

Juice of two lemons.
¼ teaspoonful of Marmite.
Pinch of Epsom Salts.
1 teaspoonful Ammonium phosphate (or 2 nutrient tablets).
1 tablespoonful of very strong tea.

Advanced mead-maker's additives (per gallon)

4 gms Ammonium phosphate.
2 gms Potassium phosphate.
1 gm Magnesium sulphate.
1 5-milligram Vitamin B_1 tablet per two gallons.
2 gms Tannic acid.
6.5 gms Tartaric acid.
10.5 gms Malic acid.
3.5 gms Citric acid.

In view of the difficulty of measuring out such small quantities, it is sometimes better to multiply these quantities by 20 (other than the vitamin tablet which is best added separately), obtain this quantity from a chemist made up to 2 pints with distilled water, whereupon it is only necessary to measure out two fluid ounces of the mixture in a kitchen measure to obtain the correct amount of acid and nutrients for one gallon of mead. If the solution is kept in a tightly sealed bottle in the refrigerator it should keep quite well and the two pints provides all the acid/tannin/nutrient requirements for 20 gallons of mead.

YEAST

Brewer's yeast is only suitable for producing ale-like meads in vogue during Napoleonic times and earlier. It is of no use at all in producing wine-meads.

Baker's yeast is a little better, but it cannot be recommended as the delicate flavour of the mead is easily overcome by the off-flavours imparted once baker's yeast starts to die and autolyse.

A yeast which has often been recommended for mead-making is Maury yeast. It is difficult to see why, since it is

a rather slow fermenting yeast and the flocculent sediment is easily disturbed, making racking more difficult.

Tokay yeast is a flocculent yeast which, however, does lend itself well to mead-making. Our friend Mr. E. A. Roycroft tells us that he has had considerable success with it. The secret appears to be that this yeast requires a fermentation temperature of 95° F. which is abnormally high by winemaking standards.

Sedimentary white wine yeasts are, for the average mead-maker, the best ones to employ. The principal varieties used for meads and melomels are:—Sauternes, Bordeaux, Steinberg, Bernkastler, Zeltinger, Champagne, Liebfraumilch, Graves and General Purpose (this latter yeast is generally a variation of a white wine yeast). Each type has its devotees, and we would not presume to rate one much above the others in quality, but only in its ability, given the right conditions, to produce a slight variation in the flavour of the finished mead. We do have our own preferences for Steinberg and Sauternes, however, and would recommend these to novices inexperienced with wine-yeasts.

TEMPERATURE

For most wine yeasts, a fermentation should ideally commence at about 78° F., drop to about 65° F. during most of the fermentation and be completed at about 80° F. This ensures that the fermentation gets off to a good start and avoids contamination from other organisms. The main fermentation is leisurely and avoids dissipation of the flavouring constituents by their being volatilised and thereby lost in the stream of carbon dioxide evolved during the fermentation. The final temperature of 80° F. ensures that all residual sugar is metabolised leaving the mead perfectly dry (sweetening-up, if required, occurs later when the mead is stable). Such ideal conditions are rarely possible and for most purposes fermentation at 70° F.–75° F. will prove quite satisfactory.

THE HYDROMETER

Readers will notice that here and there in the recipes we refer to certain operations being carried out at "Gravity 5" or "Gravity 0" and may wonder to what these refer. These are actually hydrometer readings, "Gravity 5" being 1.005 and "Gravity 0" being 1.000.

Let us make it quite clear that a hydrometer is not essential to mead-making, and it is probable that the majority of present mead-makers do not in fact use one. They rely upon years of experience in judging the volume of carbon dioxide bubbles and the taste of the fermenting must to gauge the point at which to add more honey (if required) or at which to rack. The advantage of the hydrometer is that it achieves the same objective without the need for years of experience at making mead. Thus, in this respect, the beginner who uses a hydrometer gains an advantage of several years over another beginner who does not.

The hydrometer has many uses which are fully outlined in another book in this series—"First Steps in Winemaking" (5/-, postage 8d.) and instructions as to its use are included with every one sold. Hydrometers are obtainable from most winemaking suppliers and cost about 10/– to 12/– together with a test or trial jar.

For the beginner who does not at present have a hydrometer we would offer this piece of advice. A fermenting mead or melomel should not have any further honey added nor should it be racked until it is "dry" or nearly so except when a sweet wine is desired. Precautions must then be taken to ensure that it is stabilised so that no further fermentation can occur.

The fermentation of meads is usually slow, but we have tried to remedy this to some extent by adding nutrients and acid to the basic honey and water. It also requires fairly lengthy maturing in order to achieve its optimum quality. As such, it is worthwhile making the occasional gallon of mead for storage, and to fill the gap by making melomels which ferment much more quickly and may be drunk much earlier.

BASIC PROCEDURE

1. Prepare must as directed in the recipe.
2. Allow fermentation to proceed to completion unless otherwise stated.

3. Rack within a week of fermentation finishing, taking care to avoid too much aeration. Add 50 ppm sulphite (1 Campden tablet per gallon).
4. Rack a second time as soon as a heavy deposit forms or after 3 months, whichever is the sooner, and add 50 ppm sulphite.
5. Rack again every 3–4 months, sulphiting 50 ppm every second racking (or every racking if preferred).
6. Mature until the wine is at its peak of perfection, i.e. 1–3 years for light meads and longer for fuller types. Most meads may be drunk much sooner, but adequate maturing is essential if superior wines are desired. Maturing in cask is advisable only if quantities larger than about 10 gallons are contemplated otherwise too much oxidation may occur.

MEAD RECIPES

RECIPE No. 1—DRY MEAD

Ingredients:

3 lbs. Clover honey	Nutrients — 6gms.
¼ oz. Tartaric acid	Steinberg yeast
¼ oz. Malic acid	1/15th oz. Tannin

Water to 1 gallon

Method:

Dissolve the honey in ¼ gallon warm water together with the nutrients, acid and tannin. Make the volume up to 1 gallon with cold water and add 100 ppm sulphite. After 24 hours add the yeast starter and allow to ferment to dryness. Thereafter proceed as recommended in the text.

RECIPE No. 2—DRY MEAD

Ingredients:

2½ lbs. Acacia blossom Honey	Nutrients
¼ oz. Tartaric acid	Champagne yeast
¼ oz. Maic acid	1/20th oz. Tannin

Water to 1 gallon

Method:

Proceed exactly as directed in the previous recipe. This mead can be made into a sparkling wine if desired and is an excellent wine for blending in a cuvee for sparkling wine production. (See Champagne chapter of "Making Wines Like Those You Buy" in this series).

RECIPE No. 3—LIGHT SWEET MEAD

Ingredients:

3 lbs. Orange blossom Honey	Nutrients
¼ oz. Tartaric acid	Sauternes yeast
¼ oz. Malic acid	1/15th oz. Tannin

Water to 1 gallon 4.5 litre.

Method:

Proceed exactly as described in the previous recipes but rack for the first time when the gravity drops to 20. Rack again at a gravity of 15 and if fermentation resumes once more rack for a third time at a gravity of 12. Thereafter mature in the normal manner, racking carefully every 3–4 months. This procedure will give a sweet mead whose alcoholic strength is around 12% by volume.

RECIPE No. 4—SWEET MEAD

Ingredients:

Acacia blossom Honey as required	Nutrients
¼ oz. Tartaric acid	Madeira yeast
¼ oz. Malic acid	1/15th oz. Tannin

Water to 1 gallon

Method:

Prepare the must exactly as before, using 3 lbs. honey. Ferment until the gravity drops to 5 then add ¼ lb. honey per gallon, making sure that the increment of honey is thoroughly dissolved. Repeat the procedure whenever the gravity drops to 5 until fermentation finally ceases and then rack. Thereafter proceed as recommended in the text.

#1 Dry Mead.
28 Litres. 6 Gallon.
8.17 Kg Honey.
42 gms Tartaric
84 gms Malic.
60 mgm Vit B1.
6 gms Epsom Salts.
36 gms Nutrients
11 gms Tannin.
Water to 66.
12 x Campden tabs.
24 hrs.
Yeast. X2.

to 19.1 litre. x4.25
8 x Campden tabs
6.3 Kg Honey
26 g Nutrients
Yeast.
8g Tannin.
Water to 19L.

231 Batch 9.
6 Kg Honey
1¼ oz tartic
2½ oz Malic
30 g Nutrients
5 g Epsom
1/8 added 22-2-02 need 5/8 more
98g tannin.
5 x 61 tabs — 2 added 22-2-02
50 ppm.
Citric 15gm
Tart 28gm
Malic 45gms.
1 x 10mgm Vit B1
4 gms Epsom.

RECIPE No. 5—SWEET MEAD

Method:

Proceed exactly as in Recipe No. 4 except that heather honey should be used instead of acacia blossom honey. The resultant mead will be much stronger in flavour and require considerable maturing. Even then, it does not appeal to everyone!

RECIPE No. 6—QUEEN ELIZABETH'S MEAD

Ingredients:

3 lbs. Heather Honey	Nutrients
½ oz. Tartaric acid	Madeira yeast
½ oz. Malic acid	1/15th oz. Tannin

Water to 1 gallon
Herbs as detailed below

Method:

Dissolve the honey, acid, tannin and nutrients in 5 pints warm water, then add 2 pints cold water and 100 ppm sulphite (2 Campden tablets). After 24 hours add the yeast starter and thereafter proceed as directed in the basic procedure. After the wine is 3–6 months old, suspend in it a muslin bag containing ½ oz. Rosemary, ½ oz. bay leaves, ½ oz. thyme and ½ oz. sweet briar. Taste the wine daily until the flavour extracted from the herbs appears satisfactory, then remove the bag of herbs. The wine should then be matured for at least another 6 months, and may possibly require fining in order to clear any haze produced by the herbs.

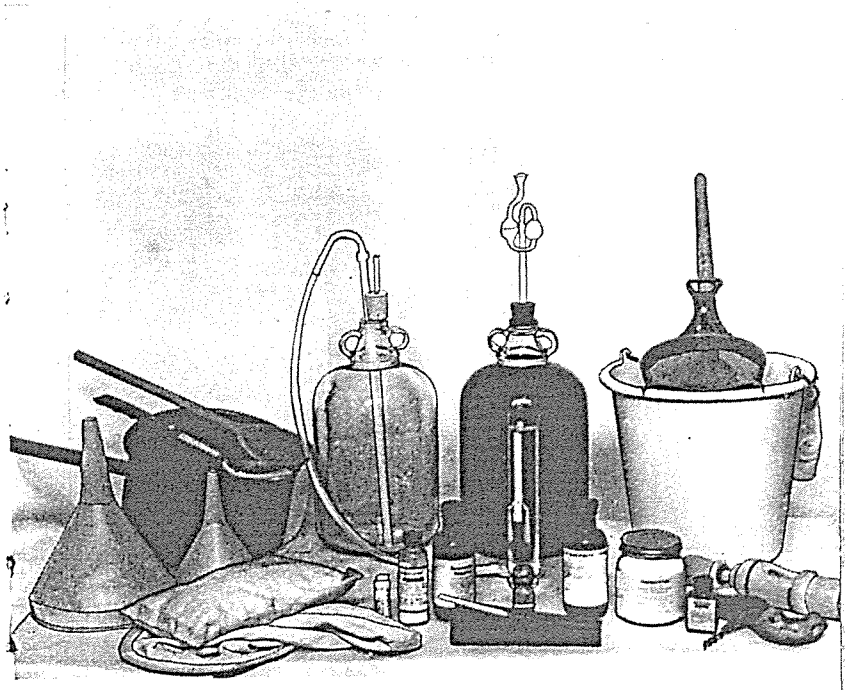
RECIPE No. 7—ALE MEAD

Ingredients:

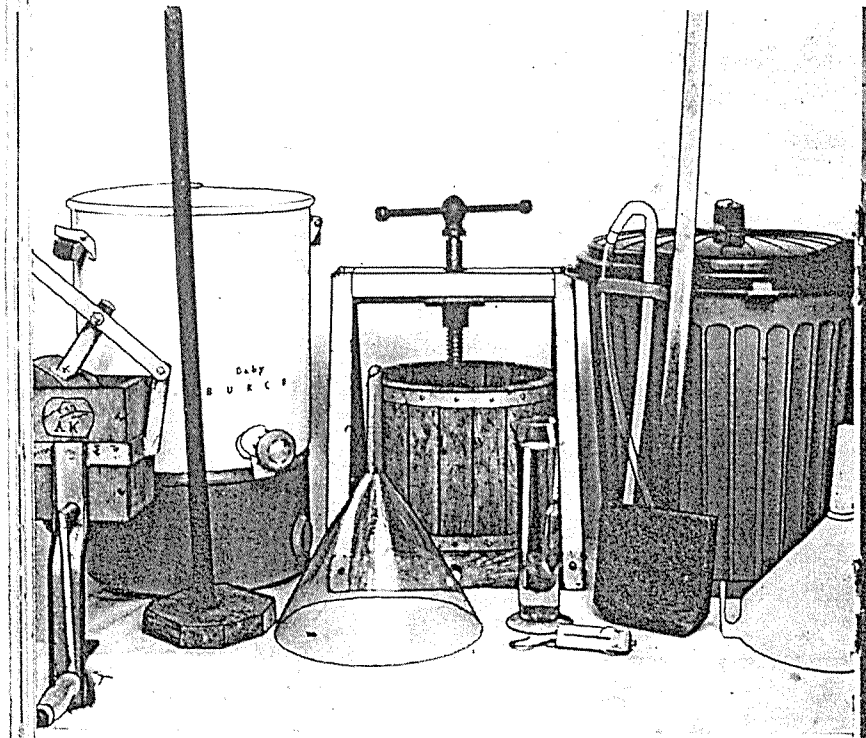
1 lb. Honey (preferably English)	Nutrients
1 oz. Hops	Brewers yeast
½ oz. Citric acid	Water to 1 gallon

Method:

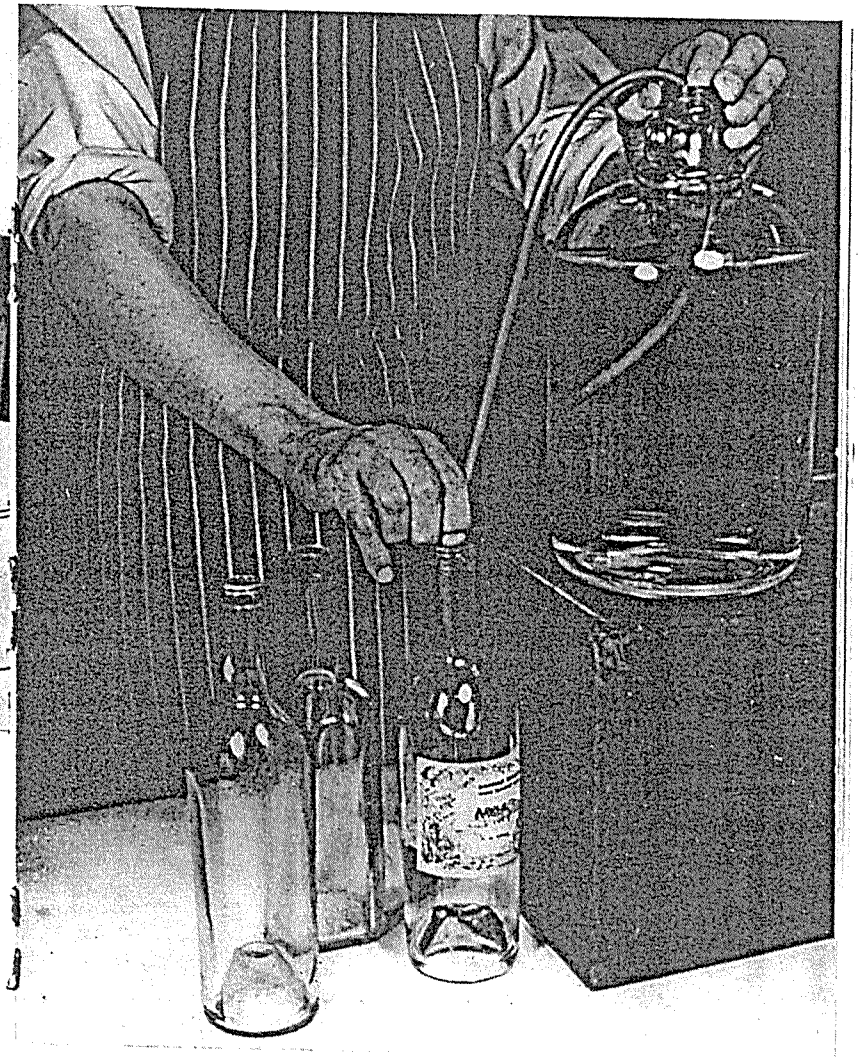
Dissolve the honey in 6 pints hot water and bring to the boil. Add the hops and boil vigorously for about 45 minutes. A few of the hops should not be added initially but put in



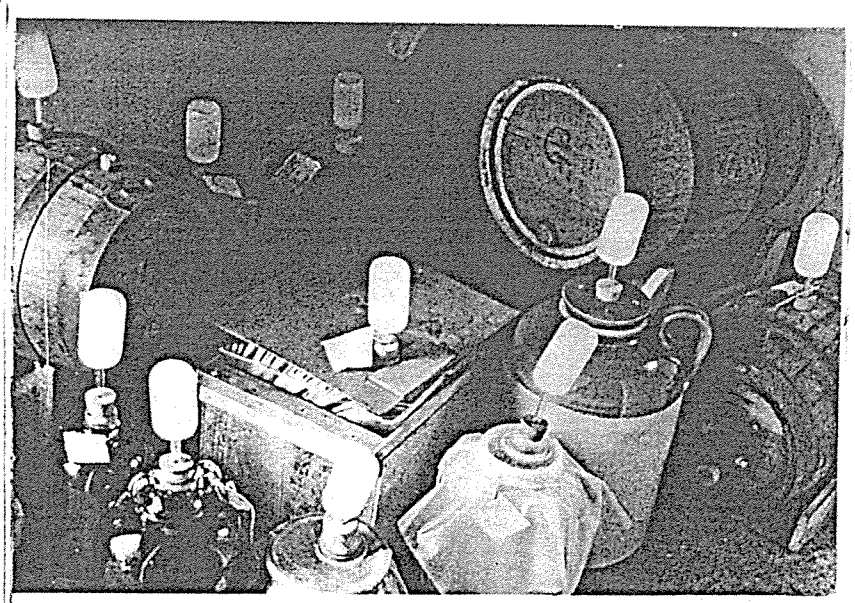
This is all you will need in the way of equipment for making a gallon or so of mead: a saucepan for boiling, a plastic bucket, a tube of some sort for siphoning, a glass one-gallon fermenting jar, fitted with a fermentation lock, a fine sieve or straining cloths, a plastic funnel, and a wooden or stainless steel spoon. Most of this can be found in the average kitchen, but it will also be useful to have the other things shown— a hydrometer and jar, wine yeast, yeast nutrient, Campden tablets, and sulphite solution



This equipment will be useful if you are contemplating producing, say, five gallons of mead or melomel at a time:—a five-gallon electric boiler, a spring balance, a crusher and a press for dealing with fruit, a plastic dustbin, a "paddle" and "plonker" for mashing fruit, large funnels, a hydrometer and jar, a siphon for racking, and hydrometers and a test jar



Racking a jar of finished mead into clean bottles



about 5 minutes before the "wort" reaches the end of the boiling period. Strain off the hops, add the citric acid and nutrients, allow to cool overnight (covered closely) then make volume up to 1 gallon with cold water. Add the yeast to the cool wort and allow to ferment to completion, skimming off the yeast daily as for beer. Allow to settle for a few days after fermentation ceases, then rack into quart beer bottles adding one level teaspoonful of sugar to each bottle. Stopper the bottles firmly, store in a warm place for 2–3 days to ensure bottle fermentation begins then move into a cooler location to assist clarification. Subsequently treat as a bottled beer. Priming is not, of course, essential and after fermentation the ale mead may be matured as a draught beer and drunk after a few months.

Larger vessels for storage: casks, stoneware jars, one-gallon glass jars, and a polythene five-gallon "cube"

Carboys used for the same purpose

MELOMELS

THERE is in every one of us a deep-seated desire to return to our primitive state. At one pole of this desire are such evils as outbreaks of mob violence, but on a more cultured level are such things as the great satisfaction felt by a city dweller, used to central heating, when he sits by a countryman's open log fire. With these thoughts in mind, one might have expected that among winemakers there would have been a basic yearning to make mead, like their ancestors, having mastered the elementary techniques of general winemaking. It may be that such a yearning does exist, but despite the fact that mead has played a gigantic part in our history, much greater than that of wine, beer and spirits lumped together, mead-making has been on the decline for centuries. Only in countries such as Ethiopia is it still the national drink. The reason is, of course, the high cost of honey, a problem which is not new since a high price merely reflects scarcity, and nearly always in the world's history there was insufficient honey to make the mead required by the expanding populations. To-day, the gap is filled with other beverages, but in former times ingenuity had to express itself in other ways. Some honey was always reserved for the mead needed for religious ceremonies, but the rest was "stretched out" by mixing it with fruit juices to make honey wines known as melomels.

Some melomels so dominated a region that they acquired particular names of their own. The most famous was Pyment, made from grape juice and honey, although the term "pyment" later represented a whole series of drinks of many different types. Another one was Cyser, made from apple juice and honey.

The big advantage of melomels is that they retain the character of mead to a large extent, and utilise much less

honey than meads, so that they are hardly more expensive to produce than ordinary wines. Moreover, fermentation is much speedier than is usually the case with meads. Melomels can in fact be produced and matured more or less as are fruit wines of the same type.

Unfortunately, not every type of fruit juice makes a pleasant melomel when fermented with honey. The high tannin of many red fruits causes a distinct clash on the palate when its astringency is mixed with the flavour of honey. For this reason, the winemaker is advised not to make elderberry melomel or blackberry melomel. Some case can be made out for an elderberry melomel if only the juice is used without severe pressing, but otherwise this fruit is best reserved for general winemaking. The principal dark coloured fruits which do blend well with honey are red-currants and blackcurrants, and these melomels have proved popular for centuries in some parts of the country under the names of Red Mead and Black Mead.

To place melomels correctly in the winemaker's repertoire, it is best to think of them in terms of light white wines, and to treat their production with the extreme care that is required to produce good white wines.

Almost any form of white fruit can be employed successfully, e.g. apricots, peaches, gooseberries, greengages, the paler type of cherries and rhubarb as well as canned juices such as pineapple, orange, passionfruit and grapefruit. The latter juice, indeed, can be made into an aperitif melomel of exquisite character.

Whereas in mead production the quality of the honey is paramount, this is not so important when making melomels, although a few types of blended honeys, such as Australian honey if made from eucalyptus nectar or U.S.A. honey when it is over-processed, are best avoided.

The question of sterilising the honey becomes important at this point. Honey contains a great many impurities from the winemaking point of view, principally wild yeasts, vinegar bacteria and other hostile organisms. It is essential that these are suppressed, and in the past honey has always

been boiled in order to sterilise it, and the boiling liquid skimmed in order to remove unwanted substances. In our view, this is an unfortunate way to treat a delicately flavoured substance, for volatile ingredients escape to the air and are lost to the subsequent mead or melomel. After the lengthy boiling recommended in many old recipes, the honey can scarcely be regarded as anything more than a source of invert sugar. There is one form of honey, namely heather honey, sometimes called ling honey, which can often benefit from moderate boiling and skimming, since this powerfully flavoured honey often contains more than the usual amount of bitter substances, but with the smaller amount of honey used in melomels, even this becomes unnecessary.

The most efficient way to sterilise honey is to make up the must of honey, fruit juice and other minor ingredients, then to sulphite it by adding 2 Campden tablets per gallon (100 parts per million SO_2) and finally add the yeast starter 24 hours later. In this way, none of the bouquet or flavouring power of the honey is lost and a much superior melomel is obtained.

At all times when making melomels great consideration should be given to the problem of conserving the delicate flavour and bouquet. Rackings in particular require care to ensure that no fruit pulp is sucked over into the second jar and that no splashing occurs. It is sometimes an advantage at the end of fermentation to sulphite the melomel with 2 Campden tablets per gallon about a week before the melomel is racked. This has an effect similar to that of a fining agent because a great deal of yeast and other matter deposits itself to leave a clearer wine for racking.

Melomels, like other wines, benefit by maturing, but they can often be drunk as young as a few months with great satisfaction. Most melomels contain only about 10%–12% alcohol by volume and reach their maximum maturity after about two years. There are many exceptions to this, however, as is the way with grape wines.

Some winemakers, particularly novices, will be tempted to make melomels of a higher alcoholic content than the range just quoted. This is often a mistake, as under these

conditions the delicate balance of flavour between fruit juice and honey tends to be upset. It is better to make larger amounts and to drink it in larger glasses!

MELOMEL RECIPES

RECIPE No. 1—APRICOT MELOMEL

Ingredients:

1 lb. Dried apricots	**Nutrients**
1 lb. Sultanas (or raisins)	**Steinberg yeast**
½ pint Elderflowers	**Water to 1 gallon**
1 lb. Acacia blossom honey	**¼ oz. Malic acid**

Method:

Dissolve the honey and nutrients in 7 pints warm water. Add the apricots, chopped raisins or sultanas and 100 ppm sulphite (2 Campden tablets). After 24 hours, add the yeast starter and ferment on the pulp for 2–3 days. Strain off the latter and press lightly. Add the elderflowers 3 days later, ferment on the flowers for 2–3 days then strain off the latter. Make the volume up to 1 gallon with cold water and thereafter proceed as instructed in the basic procedure.

RECIPE No. 2—BLACK MEAD

Ingredients:

4 lbs. Blackcurrants	**Nutrients**
½ pt. Red grape concentrate	**Bordeaux yeast**
2 lbs. English honey	**¼ oz. Malic acid**
(Light mixed flower)	**Water to 1 gallon**

Method:

Dissolve the honey in 4 pints warm water and add the acid and nutrients. Add the mixture to the crushed blackcurrants together with 2 pints cold water and 100 ppm sulphite (2 Campden tablets). After 24 hours, add the yeast starter. Ferment on the pulp for 3 days then strain off the latter and press it lightly. Add the grape concentrate, make the volume up to 1 gallon with cold water (if necessary) and ferment until the gravity drops to just below 0. Rack at this

stage, add 50 ppm sulphite (1 Campden tablet) and thereafter proceed as instructed in the basic procedure.

RECIPE No. 3—CASK-MATURED MELOMEL
(5 gallons)

Ingredients:

25 lbs. Damsons
4 pts. Red grape concentrate
2½ pts. Red rose petals
Nutrients
Port or Madeira yeast
Water to 5 gallons
Heather honey as required

Method:

Stone and crush the damsons. Dissolve 10 lbs. honey and nutrients in 3 gallons warm water and add to the damsons. Add 100 ppm sulphite (2 Campden tablets per gallon) and inoculate with the yeast starter 24 hours later. Ferment on the pulp for 2–3 days (check depth of colour periodically) then strain off the puip and press it lightly. Add the grape concentrate and rose petals and ferment on the latter for 3 days before straining them off. Make the volume up to 5 gallons with cold water. Check the gravity and add ¼ lb. honey per gallon every time the gravity drops to about 5 (rack off a little wine each time and dissolve the honey in this prior to its introduction). Any excess wine should be fermented separately and reserved for topping up purposes. Continue feeding the yeast in this manner until fermentation finally ceases, then rack the wine and thereafter proceed as directed in the basic procedure.

NOTES:

(i) This wine requires fairly lengthy maturing. It should be matured in cask for about 2 years (hence the reason for giving a 5 gallon recipe) and in bottle for another 3 years at least and preferably longer.

(ii) Wild rose honey may be used instead of heather honey but the wine still requires long maturing.

(iii) The body of this wine may be increased by including 1 lb. bananas per gallon.

RECIPE No. 4—CLOVER HONEY WINE

Ingredients:

¼ gall. Clover flowers
1 pt. White grape concentrate
2 lbs. Clover honey
¼ oz. Malic acid
1/15th oz. Tannin
Nutrients
Steinberg yeast
¼ oz. Tartaric acid
Water to 1 gallon

Method:

Dissolve the honey, acid, tannin and nutrients in 6 pints warm water then add another pint of cold water and 100 ppm sulphite (2 Campden tablets). After 24 hours add the yeast starter. Add the clover flowers 5 days after fermentation begins, ferment on the flowers for 2–3 days then strain them off. Make the volume up to 1 gallon with cold water if necessary and thereafter proceed as directed in the basic procedure.

RECIPE No. 5—REDCURRANT MELOMEL

Ingredients:

5 lbs. Redcurrants
¼ pt. White grape concentrate
2 lbs. Guatemalan wild honey
Nutrients
Bordeaux yeast
Water to 1 gallon

Method:

Dissolve the honey and nutrients in 5 pints warm water and add the crushed redcurrants. Add 100 ppm sulphite (2 Campden tablets) and introduce the yeast starter 24 hours later. Ferment on the pulp for 2–3 days then strain it off and press lightly. Add the grape concentrate and make the volume up to 1 gallon with cold water. Ferment to dryness and thereafter continue as instructed in the basic procedure.

RECIPE No. 6—GOOSEBERRY MELOMEL

Ingredients:

5 lbs. Green gooseberries
1 lb. Sultanas
1½ lbs. Acacia blossom honey
1/30th oz. Tannin
Yeast nutrients
Steinberg yeast
Water to 1 gallon

Method:

Dissolve the honey in 6 pints warm water and add the nutrients and tannin. Crush the gooseberries and sultanas and add to the honey solution. Add 100 ppm sulphite (2 Campden tablets) and leave for 24 hours before introducing the yeast starter. Ferment on the pulp for 3 days then strain off the pulp and press it lightly. Top up to 1 gallon with cold water and ferment to a gravity of about 0. Rack at this stage, add 50 ppm sulphite (1 Campden tablet) and thereafter continue as directed in the basic procedure.

RECIPE No. 7—GOOSEBERRY MELOMEL

Ingredients:

6 lbs. Ripe gooseberries	**1/15th oz. Tannin**
1 pt. White grape concentrate	**Nutrients**
½ pt. Yellow rose petals	**Sauternes yeast**
Acacia blossom honey as required	**Water to 1 gallon**

Method:

Dissolve 2 lbs. honey in 6 pints water and add the tannin and nutrients. Crush the gooseberries and add to this the honey solution together with 100 ppm sulphite (2 Campden tablets). After 24 hours, add the yeast starter. Ferment on the pulp for 2–3 days then strain off the latter and press lightly. Add the grape concentrate and rose petals, ferment on the flowers for 2–3 days then strain off the latter. Add the ½ lb. honey per gallon every time the gravity drops to 5 or less and continue doing so until fermentation finally ceases. Thereafter proceed as instructed in the basic procedure.

NOTE:

Recent experiments indicate that even better results can be obtained if the gooseberries have been allowed to become mouldy on the bush prior to picking. Gooseberries often split when very ripe and mould grows in the cracks. Such berries seem to produce better wine than perfect fruit, cf. Sauternes which is produced from grapes attacked by the mould Botrytis Cinerea.

RECIPE No. 8—GRAPEFRUIT MELOMEL

Ingredients:

1 large can of Grapefruit juice (43/46 fluid ounces)	**Yeast nutrients** — 6g **½ oz. Tartaric acid** — 7g
2 lbs. Mixed wildflower honey	**General purpose yeast**

1.25 litres fresh juice
1 x Bi tab
100 ppm

Method:

Dissolve the honey in 3 pints water and add grapefruit juice, acid and nutrients. Sulphite 100 ppm (2 Campden tablets) and make volume up to 1 gallon. After 24 hours introduce the yeast starter and ferment to dryness. Rack and sulphite 50 ppm (1 Campden tablet) and then continue as in basic procedure. Although this is a melomel, the characteristic "bite" of grapefruit flavour when blended with the honey is that of a well-balanced metheglin.

RECIPE No. 9—LYCHEE MELOMEL

Ingredients:

1 lb. Canned lychees	**Yeast nutrients**
1 lb. Orange blossom honey	**1/15th oz. Tannin**
1 lb. Sugar	**Sauternes yeast**
Water to 1 gallon	**½ oz. Malic acid**

Method:

Dissolve honey and sugar in 6 pints water. Add lychees, nutrients, acid and tannin and make volume up to 1 gallon. Add 100 ppm sulphite (2 Campden tablets). After 24 hours add yeast starter and ferment on the pulp for three days. Then strain off lychees and continue fermentation until completely dry. Rack, sulphite 50 ppm (1 Campden tablet) and continue as in basic procedure.

RECIPE No. 10—ORANGE MELOMEL

Ingredients:

1 large can of Orange juice (43/46 fluid ounces)	**Yeast nutrients**
	½ oz. Tartaric acid
1 lb. Heather honey	**1/15th oz. Tannin**
1 lb. Sugar	**Bordeaux yeast**

Method:

Dissolve the honey in 3 pints water, add orange juice, tannin, acid, sugar and nutrients and make volume up to 1 gallon. Sulphite 100 ppm (2 Campden tablets). After 24 hours add yeast starter and ferment to dryness. Rack and sulphite 50 ppm (1 Campden tablet) and thereafter continue as in basic procedure.

RECIPE No. 11—ORANGE MELOMEL

Ingredients:

2 pts. Orange juice
3 lbs. Orange blossom honey
¼ oz. Malic acid
Nutrients
Graves or Bordeaux yeast
1/15th oz. Tannin
Water to 1 gallon

Method:

Extract the juice from sufficient oranges to provide 2 pints juice. Dissolve the honey, malic acid, tannin and yeast nutrients in 4 pints warm water and blend with the orange juice. Add 100 ppm sulphite (2 Campden tablets) and make the volume up to 1 gallon with cold water. After 24 hours, add the yeast starter. Ferment until the gravity drops to about 5 then rack. Rack again when the gravity drops to 0 and add 50 ppm sulphite (1 Campden tablet). Thereafter proceed as described in the basic procedure.

RECIPE No. 12—PEACH MELOMEL

Ingredients:

6 lbs. Peaches
¾ pt. Elderflowers (or 1 pkt. dried flowers)
2½ lbs. Acacia blossom honey
Water to 1 gallon
1/30th/oz. Tannin
Nutrients
Graves yeast
¼ oz. Tartaric acid
¼ oz. Malic acid

Method:

Stone the peaches and press out the juice. Dissolve the honey in 4 pints warm water and blend in the peach juice together with the acid, tannin and nutrients. Add 100 ppm sulphite (2 Campden tablets). After 24 hours, introduce the yeast starter and allow to ferment for 7 days before adding

the elderflowers. Ferment on the flowers for 3 days then strain them off and top up to 1 gallon with cold water. Allow to ferment until the gravity drops to 10, then rack it off the sediment. Rack again when the gravity drops to 5 and add 50 ppm sulphite (1 Campden tablet). Thereafter proceed as directed in the basic procedure.

RECIPE No. 13—PINEAPPLE MELOMEL

Ingredients:

2 pts. Canned pineapple juice
½ pt. White grape concentrate
2 lbs. Clover honey
⅛ oz. Malic acid
1/30th oz. Tannin
Nutrients
Steinberg yeast
Water to 1 gallon
⅛ oz. Tartaric acid

Method:

Dissolve the honey, acid, tannin and nutrients in 4 pints warm water, blend in the pineapple juice and grape concentrate and make up to 1 gallon with cold water. Add 100 ppm sulphite (2 Campden tablets) and after 24 hours introduce the yeast starter. Ferment until the gravity drops to 0, then rack and add 50 ppm sulphite (1 Campden tablet). Thereafter continue as directed in the basic procedure.

RECIPE No. 14—PINEAPPLE MELOMEL

Ingredients:

1 large can Pineapple juice (about 43–46 fluid ounces)
2 lbs. Lime blossom honey
Yeast nutrients
1/15th oz. Tannin
¼ oz. Tartaric acid
Water to 1 gallon
Steinberg yeast

Method:

Dissolve the honey in 3 pints water, add the pineapple juice, tannin, acid and nutrients. Sulphite 100 ppm (2 Campden tablets). After 24 hours make volume up to 1 gallon and introduce yeast starter. Ferment to dryness. Then rack, sulphite 50 ppm (1 Campden tablet) and continue as in basic procedure.

RECIPE No. 15—RASPBERRY MELOMEL

Ingredients:

4 lbs. Raspberries	Nutrients
1 pt. Red grape concentrate	Port or Madeira yeast
Lime blossom honey as required	Water to 1 gallon

Method:

Dissolve 2 lbs. honey in 6 pints water. Add the nutrients, crushed raspberries, and 100 ppm sulphite (2 Campden tablets). After 24 hours, add the yeast starter and ferment on the pulp for 2–3 days. Strain off the pulp and press it lightly. Add the grape concentrate and make the volume up to 1 gallon with cold water if necessary. Add ¼ lb. honey per gallon every time the gravity drops to 5 and repeat the procedure until fermentation finally ceases. Thereafter continue as directed in the basic procedure.

PYMENT, HIPPOCRAS, METHEGLIN, CYSER

APART from mead and melomel, which have already been discussed, there are a number of other honey drinks which are worth making. All are of very ancient origin. Mead itself, being a scarce commodity, was reserved almost everywhere in the world for religious occasions. For general use and lesser celebrations, honey was generally mixed with some other fruit or herb. Across the whole Indo-Aryan world, for instance, a drink called Soma was made and when drunk in sufficient quantity, was believed to give strange and wonderful visions, and to ensure one's immortality. It appears to have been compounded from the yellow juice of some mountain plant, mixed with milk, barley meal and honey. Madhu, Haoma and Amrita were similar drinks, and from their great intoxicating power it would appear that in many cases some narcotic herb was included to enhance the effect of the alcohol produced and thereby create a form of hallucinatory drunkenness. These drinks are, however, beyond the scope of this book.

Pyment:

In Greek and Roman times, vineyards were planted and a fair quantity of wine was made. It was found that if honey were added to the juice from grapes, the must would ferment to a much higher alcoholic strength than by using the juice alone. These wines were called Pyments and were in fact the sweet dessert wines of those days. Although it is difficult to judge the strength of these wines, they probably did not contain more than about 15% alcohol because grapes at that time may have been less rich in sugar than nowadays due to less advanced viticulture and the yeast would not be able to attain a much higher strength. Only about 1 to 2 lbs. of honey were added per gallon of grape juice, but these Pyments

nevertheless contained a great deal of residual sugar and would be rather too sweet for modern tastes.

Hippocras:

Hippocras, named after Hippocrates (the "Father of Medicine") was a typical product of Greek civilisation. Hippocrates himself was one of the great priest-physicians of his age, who made some attempt to codify medicine into a single science. As such, he investigated the properties of many herbs, and presumably used to add them to Pyment as a convenient method of storage and administration. Hippocras is thus a wine made from grape juice and honey, to which has been added herbs noted for their medicinal value or (subsequently) for their bouquet and flavour. In later centuries Hippocras, like Pyment, became a generic term for a whole series of spiced drinks both hot and cold.

Metheglin:

In our own country, the same process was at work, but having no great quantity of grape wine available the herbs were added to honey and fermented to a spiced mead called metheglin (from the Welsh word "Medclyglin" meaning "medicine"). All the valued herbs of the country were used—cloves, nutmeg, elderflowers, cowslips, rosemary and ginger together with a great many rarer ones compiled by the witches of the time. The quantities of herbs used were very large, and often an ounce each of six or seven herbs would be added to a gallon of mead or fermented in with it. In modern times, of course, herbs were added solely for flavour and the attempt was made to impart just enough spicy flavour to offset the cloying effects of the honey, bearing in mind the fact that their "dry" meads were often much sweeter than a dry mead of to-day. An extra sweet metheglin called sack metheglin was exported at one time, and as this drink was very high in alcohol, it is probable that some form of distillation was involved in its production.

One of the problems in making metheglin is that of obtaining a balanced flavour in the wine. When a metheglin has just finished fermenting, the herbs and the honey are both distinctly separate to the palate—almost fighting each

other in fact—and a great deal of time is required for the wine to mature until the herb flavour has ameliorated and that of the honey almost disappeared entirely. The initial amount of herbs used, their variety and the type of honey all play a part in the process also, so that to make a good metheglin is a real winemaking achievement. By and large, metheglin is difficult to produce and also calls for a certain amount of luck if high quality is sought. For the Welsh patriot wishing to drink on St. David's day, we would advise using a milder honey and a small amount of herbs only. It is always possible to increase the herbal flavour at any time during maturing simply by steeping some more herbs in the metheglin in a small muslin bag.

A second problem with metheglin (as also with Hippocras) is that of hazes caused by the herbs. These hazes can sometimes be cleared by fining with a proprietary finings such as Serena. They can, of course, be cleared by filtration, but this latter process is often most damaging to the bouquet and flavour of the metheglin and cannot be recommended.

Cyser:

When cider was the staple drink of this country, someone, at some time, hit on the bright idea of adding honey to the apple juice, thereby obtaining a much stronger drink with an added exquisite flavour. This drink became known as Cyser. It was made mainly in the monasteries and abbeys, since the Church controlled most of the beehives, needing the wax for their candles, and in consequence Cyser seems to have declined when the monasteries lost their power and were dissolved.

It is a very worthwhile drink to make and follows the same basic principles as cider making, in that a mixture of cooking, cider and crab apples tends to produce a drink with more character than if dessert apples are used alone. Our friend Mr. E. A. Roycroft tells us of one exception to this rule in that a splendid Cyser can be made from James Grieves apples and honey, provided the apples used are *freshly picked from the tree.*

RECIPE No. 1—PYMENT

Ingredients:

1 pt. White grape concentrate	Yeast nutrients
2 lbs. Clover honey	1/15th oz. Tannin
½ oz. Malic acid	Sauternes yeast

Water to 1 gallon

Method:

Dissolve the honey in 5 pints water, add the grape concentrate, acid, tannin, nutrients and sulphite 100 ppm (2 Campden tablets). After 24 hours add the yeast starter and make volume up to 1 gallon. Ferment to dryness, rack carefully, add 50 ppm sulphite (1 Campden tablet) and thereafter continue as in basic procedure.

RECIPE No. 2—PYMENT

Ingredients:

1 pt. Red grape concentrate	Yeast nutrients
2 lbs. Mixed wild flower honey	½ oz. Malic acid
Water to 1 gallon	Bordeaux yeast

Method:

Dissolve the honey in 5 pints water, add the grape concentrate, acid and nutrients and sulphite 100 ppm (2 Campden tablets). After 24 hours add the yeast starter and make up the volume to 1 gallon with water. Ferment to dryness, rack carefully, add 50 ppm sulphite (1 Campden tablet) and continue as directed in the basic procedure.

RECIPE No. 3—HIPPOCRAS

Ingredients:

1 pt. White grape concentrate	Yeast nutrients
2 lbs. Heather honey	1/15th oz. Tannin
½ oz. Malic acid	¼ oz. Cinnamon
Water to 1 gallon	General Purpose yeast

Method:

Dissolve the honey in 5 pints water, add the grape concentrate, acid, tannin, nutrients and sulphite (2 Campden tablets). After 24 hours add the yeast starter and make up

RECIPE No. 1—PYMENT

Ingredients:

1 pt. White grape concentrate	Yeast nutrients
2 lbs. Clover honey	1/15th oz. Tannin
½ oz. Malic acid	Sauternes yeast

Water to 1 gallon

Method:

Dissolve the honey in 5 pints water, add the grape concentrate, acid, tannin, nutrients and sulphite 100 ppm (2 Campden tablets). After 24 hours add the yeast starter and make volume up to 1 gallon. Ferment to dryness, rack carefully, add 50 ppm sulphite (1 Campden tablet) and thereafter continue as in basic procedure.

RECIPE No. 2—PYMENT

Ingredients:

1 pt. Red grape concentrate	Yeast nutrients
2 lbs. Mixed wild flower honey	½ oz. Malic acid
Water to 1 gallon	Bordeaux yeast

Method:

Dissolve the honey in 5 pints water, add the grape concentrate, acid and nutrients and sulphite 100 ppm (2 Campden tablets). After 24 hours add the yeast starter and make up the volume to 1 gallon with water. Ferment to dryness, rack carefully, add 50 ppm sulphite (1 Campden tablet) and continue as directed in the basic procedure.

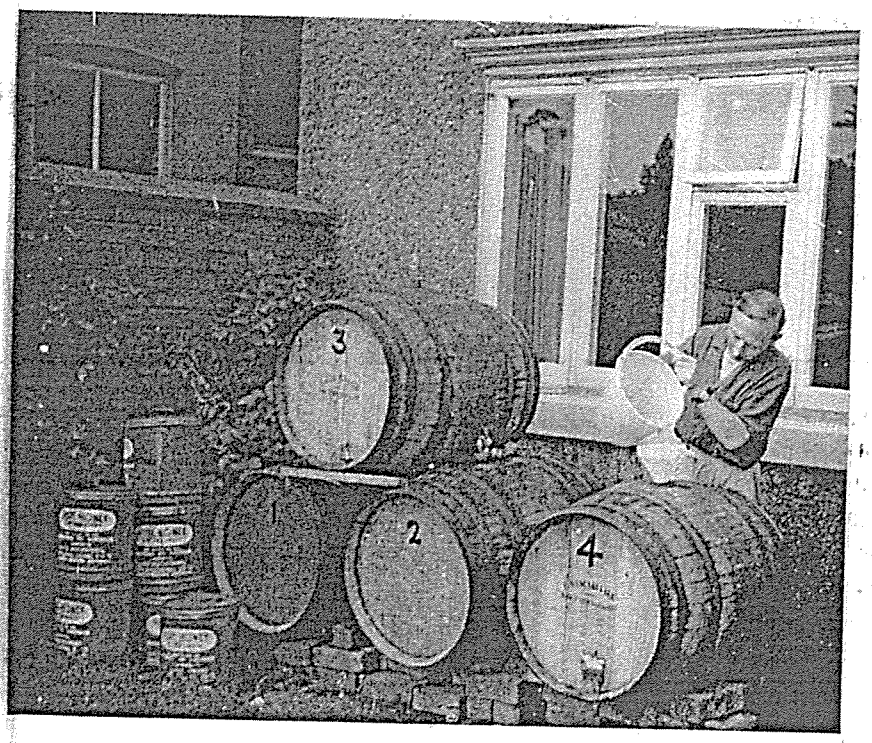
RECIPE No. 3—HIPPOCRAS

Ingredients:

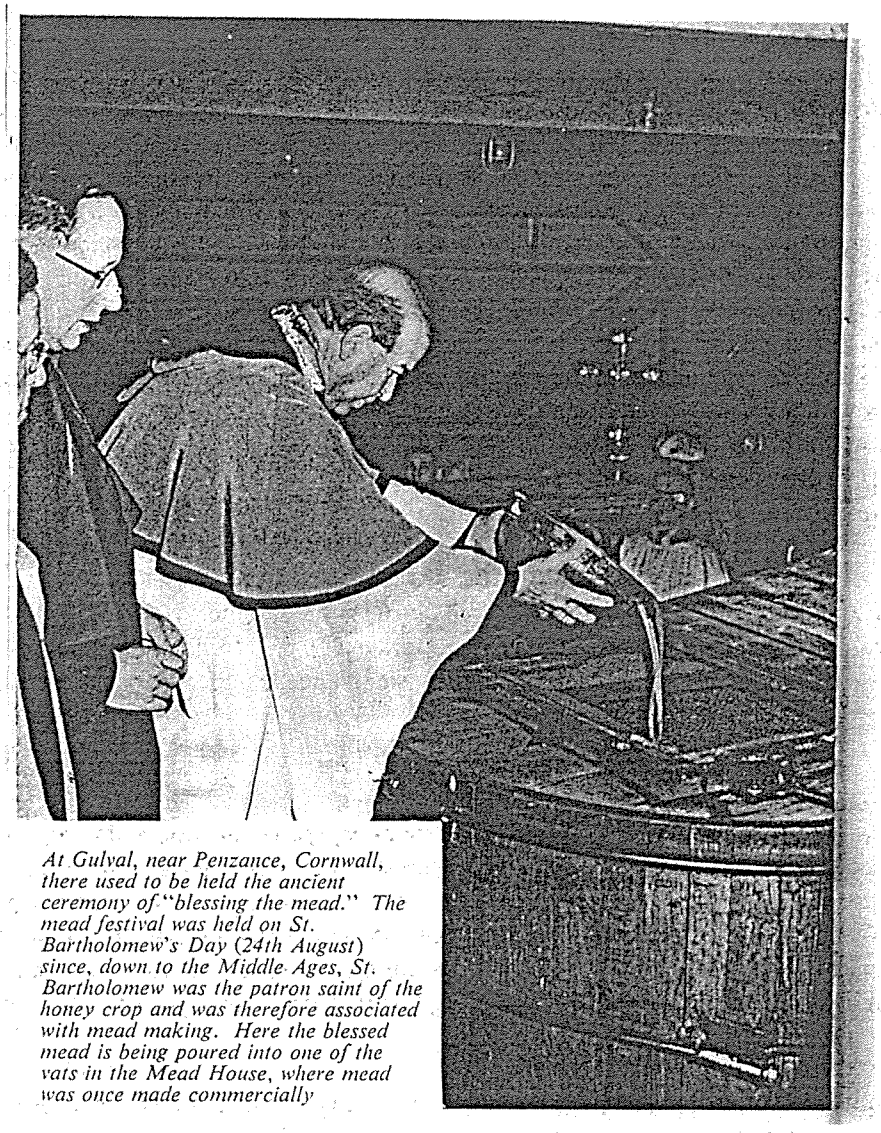
1 pt. White grape concentrate	Yeast nutrients
2 lbs. Heather honey	1/15th oz. Tannin
½ oz. Malic acid	½ oz. Cinnamon
Water to 1 gallon	General Purpose yeast

Method:

Dissolve the honey in 5 pints water, add the grape concentrate, acid, tannin, nutrients and sulphite (2 Campden tablets). After 24 hours add the yeast starter and make up



Mr. E. L. Rogers, of 27 Vicarage Road, Wednesfield, near Wolverhampton, Staffs, believes in fermenting mead on a large scale—out of doors! He uses a sheltered alcove of his house which is a suntrap for the purpose. His experience is that mead prepared in large quantities is vastly superior to small makings



At Gulval, near Penzance, Cornwall, there used to be held the ancient ceremony of "blessing the mead." The mead festival was held on St. Bartholomew's Day (24th August) since, down to the Middle Ages, St. Bartholomew was the patron saint of the honey crop and was therefore associated with mead making. Here the blessed mead is being poured into one of the vats in the Mead House, where mead was once made commercially

the volume to 1 gallon with water. When the gravity drops to about 5 rack and add the cinnamon. Rack again when the gravity drops to about 0, and add 50 ppm sulphite (1 Campden tablet). Thereafter proceed as in basic procedure.

RECIPE No. 4—HIPPOCRAS

Ingredients:

1 pt. Red grape concentrate
2 lbs. Heather honey
½ oz. Malic acid
1 knob Root ginger
4 Cloves
Yeast nutrients
Bordeaux yeast
Peel of 1 small orange (no pith) and juice
Water to 1 gallon

Method:

Dissolve the honey in 4 pints water. Boil the orange peel, ginger and cloves in 1 pint water for 15 minutes. Strain liquor over honey and add grape concentrate, nutrients and acid. Make up the volume to 1 gallon and sulphite 100 ppm (2 Campden tablets). After 24 hours add the yeast starter and ferment until gravity drops to about 15. Rack and sulphite 50 ppm (1 Campden tablet). Thereafter proceed as in basic procedure.

RECIPE No. 5—METHEGLIN

Ingredients:

3 lbs. Heather honey
½ oz. Tartaric acid
Steinberg yeast
Yeast nutrients
½ oz. Malic acid
Water to 1 gallon
Peel of 1 small lemon (no pith)
4 oz. Mixed herbs (any mixture of elderflowers, marjoram, cowslip, balm, mayblossom, mace according to availability)

Method:

Dissolve the honey in 6 pints water. Add acid, lemon peel, herbs and nutrients and sulphite 100 ppm (2 Campden tablets). After 24 hours add yeast starter. After 4 days strain off the herbs and peel and continue fermentation until gravity drops to 5 approximately. Rack and sulphite 50 ppm (1 Campden tablet) and continue as directed in basic procedure.

RECIPE No. 6—METHEGLIN

Ingredients:

3 lbs. Clover honey
¼ oz. Tartaric acid
1/15th oz. Tannin
Water to 1 gallon
Yeast nutrients
½ oz. Malic acid
Zeltinger yeast
1 pkt. Heath & Heather dried flowers (cowslip, elderflower or coltsfoot)

Method:

Dissolve the honey in 6 pints water. Add acid, tannin and nutrients. Sulphite 100 ppm (2 Campden tablets). After 24 hours add yeast starter. After 7 days fermentation add dried flowers and ferment on the pulp for 4 days, after which strain off the flowers and continue fermentation until the gravity drops to about 10. Rack and sulphite 50 ppm (1 Campden tablet). Thereafter continue as in basic procedure.

RECIPE No. 7—CYSER VARIATION

Ingredients:

4 pts. Apple juice
¼ pt. White grape concentrate
1½ lbs. English honey
Nutrients
Bordeaux yeast
Water to 1 gallon
½ oz. Mead acid mixture (equal parts tartaric and malic acids)

Method:

Dissolve the honey in 3 pints warm water and blend in the apple juice, grape concentrate, acid and nutrients. Add 100 ppm sulphite (2 Campden tablets) and after 24 hours introduce the yeast starter. Make up the volume to 1 gallon with cold water, ferment until the gravity drops to 0, then rack. Thereafter proceed as directed in the basic procedure.

OTHER HONEY DRINKS

THERE are many mixed drinks under various names (Punch, Negus, Bishop, etc.) which use honey in fair quantities. Most of these are winter drinks, and reading through the works of Dickens, Dr. Johnson and others one gets the impression that the main reason for fighting one's

way through snow, highwaymen and biting winds was for that glorious moment when one arrived at an inn and was greeted by the round-faced jolly landlord with a great flaming bowl of bishop. The warmth of the inn, the hot drink circulating and the merry company, glad to be safe from the perils without, produced an experience which is hard to match to-day. Unfortunately, while little can be done to restore the past, a little imagination can, on occasion, recapture its memories. If, for instance, a Bishop has a little brandy to him so that he becomes well lit up and is carried flaming into a darkened room, an undoubted magic is added to the event, which thus will be remembered long afterwards.

The important thing with all mulled drinks is that they should be kept very hot but not boiling. If they boil, they soon lose their "kick" as the alcohol evaporates and is lost. By contrast, nothing is quite so depressing as a luke-warm drink of this sort. The second point to remember is that mulled drinks can be made as strong or as weak as you wish (alcoholically speaking) according to whether additions of spirits are made on the one hand or water on the other. A strong drink of this type will undoubtedly help to get a party going full-swing quickly if each guest is handed a steaming glass of bishop as he enters. On the other hand, many people have a mulled drink every night before retiring, and for this a more moderate strength is required.

Most mead-makers are also winemakers, and so will understand the type of wine required in the following recipes. A full-bodied sweet red wine is meant to substitute for the Port quoted in the original recipe. Similarly, a dry red wine is a substitute for Claret.

HONEY BISHOP

Take a large lemon, make about twelve incisions in it and insert cloves. Roast the lemon slowly in the oven. Put a pint of water, ¼ lb. of honey and a pinch each of cinnamon, mace and allspice into a saucepan, bring to the boil and simmer gently until the volume has been reduced by half. Then, in another saucepan, bring to the boil a bottle of dry white wine. Put the roasted lemon and the contents of the two saucepans into a large punchbowl and add the juice of

a lemon, a sprinkle of nutmeg and, if required, a dash of brandy. Serve while hot.

BRAGGOT

This drink, much valued in the 14th century in England, is very easily made. It represents a link between mead and ale. To make it, take 1 lb. malt extract, 1 lb. heather honey and 7 pints of water and boil them together for 15 minutes, skimming the surface meanwhile. Add ½ oz. citric acid and yeast nutrients, and when cool ferment with an ale yeast. When fermentation has finished, rack and mature for three months as though it were a wine. This drink is drunk from beer glasses or pewter tankards and is best served slightly chilled.

CAUDLE

In Shakespearian times, people were frequently "caudled" last thing at night with a great mug of hot honey beer. It presumably acted as a hot water bottle until you had drunk it, after which it warmed you within. Ladies in childbirth were also dosed liberally with it. It is made by pouring a quart of brown ale over a quarter of a pound of honey and a tablespoonful of ground oatmeal. This is then stood in front of the fire or placed in a low oven for a couple of hours, after which the beer is stirred, strained off and given a send-off with a pinch of nutmeg, the juice of a lemon and a glass of whisky or rum. It is marvellous for insomnia if a pint is drunk.

BOSWELL

Dr. Johnson was a great compounder of Bishops, particularly after one of his jaunts with friends in the region of Covent Garden. In those days, if one were well-known in a tavern, one could make one's own Bishop, and he must have undoubtedly made the following one which was popular at the time. You can, if you wish, emulate Dr. Johnson by drying the orange peel afterwards and grating it into a glass of port—he insisted it was good for indigestion and this may even be true!

Take a bottle of claret (or any dry red wine), a sliced orange, two tablespoonfuls of honey, four cloves and half a pint of water. Put these into a saucepan and bring to the boil (but only just). Add one wineglassful of Curacao and one of brandy. Pour into glasses and grate a little nutmeg on top. A spoon should be placed in each glass to prevent breakage of the glass by heat.

ELDERBERRY NEGUS

In the early 18th century, a certain Colonel Francis Negus achieved fame for his family name by compounding a hot spiced port. Colonel Negus was at the time M.P. for Ipswich, and one night in the House of Commons when the temperature of the Chamber was very low and that of its members very heated (they were probably discussing whether Income Tax should be raised to the ruinous figure of 6d. in the £), it occurred to him that if the port they were drinking were heated up and at the same time diluted with water, the members would feel better (being warmer) and their discussions become more temperate (as less alcohol per hour was absorbed). Since that time, countless Neguses have been made, so we make no apology in adding one of our own on behalf of amateur mead-makers.

Take a bottle of elderberry wine, half a pound of honey, six cloves and the pared rind and juice of a lemon together with a quarter of a pint of water. Heat these until almost boiling. Add a tot of brandy or rum and some grated nutmeg and serve while very hot.

YORKSHIRE NIGHTCAP

Another "just-before-bedtime" drink of the Middle Ages, whose name we have not been able to trace (hence one of our own) is made by bringing to the boil a pint of water, four level tablespoonfuls of honey, four cloves and a half teaspoonful of allspice. In a separate saucepan, bring to the boil a quart of strong ale (Bass or Worthington) and when boiling blend the two together. Add a tot of brandy and a slice of lemon, and drink when cool enough.

CAPILLAIRE

At one time, Capillaire was an infusion of maidenhair fern, and later it was a Parisian spiced drink to which orange flower water had been added. As often happens with drinks of this type, a great many different recipes gradually evolved and the following seemed the simplest for most people to make. Into a wide-necked jar put half a pound of honey, ¼ lb. preserved ginger, 2 oz. candied lemon peel, the juice of 2 lemons and the peel of one of them and two wine glasses of redcurrant juice (Ribena will be satisfactory). Pour on a gallon of strong white wine, cover and leave for a month. Strain off the liquor and filter if necessary. Serve either chilled or warmed according to season.

MULLED HONEY WINE

Quite often winemakers might want to make a quick mulled wine but cannot be bothered with roasting lemons stuck with cloves and the like. The following recipe is streamlined to provide a satisfactory winter night's drink. Into a pan put one bottle of dry wine (white or red), ¼ oz. citric acid and a teaspoonful of whatever spice happens to be found in the kitchen (mace, cinnamon, allspice, ginger), plus a couple of cloves if available. Bring almost to the boil, and while heating add small amounts of honey until the taste is satisfactory. Serve immediately, if not already consumed during the tasting.

BOLTON ABBEY PUNCH

This is a drink for a hot summer's day, when the weary traveller can stop for a while amid the hum of the bees, tractors and passing cars. Mix together 2 tablespoonfuls of honey, 2 tablespoonfuls of lemon juice, half a bottle of gin and some crushed ice. The mixture can be chilled further in a refrigerator if necessary before serving.

LAMB'S WOOL

We cannot but marvel at recipes such as the following which we came across. Take three pounds of honey, 4 teaspoonfuls of grated nutmeg, 2 oz. ginger and the juice of four lemons. Add four gallons of beer and heat until the herbs

are well blended with the beer. Strain and serve immediately. (Presumably a friend or two dropped in!)

LAMB'S WOOL

An alternative recipe of great antiquity is more realistic these days than the preceding one. Take four large cooking apples and core them. Place them in a baking tin, fill the cored part with thick honey, sprinkle liberally with nutmeg and bake in a moderate oven for 45 minutes. Put the apples and liquor in a saucepan and pour on two quarts of brown ale. Heat gently, ladling the beer over the apples until enough flavour has been extracted, pour into a jug and serve immediately. The apples are normally eaten along with the drink.

PINEAPPLE HONEY PUNCH

Unlike the previous recipes, this is a modern one.

Empty a tin of pineapple chunks into a bowl. Meanwhile heat up two bottles of white wine until they start to boil. Pour over the pineapple and mix in half a pound of honey. Serve when cool enough to drink.

TWELFTH NIGHT WASSAIL

It was the usual custom, in former times, to make a powerful drink, float raisins on top and then set fire to the surface. Children would then play a game called "Snap-dragon" in which they braved the flickering blue flames to rescue a wine-flavoured raisin for themselves. When the raisins had all been disposed of everyone gave a wassail (good health) toast to each other in the drink. Alas! Brandy was very cheap in those days. We given an alternative wassail bowl which, although from the 18th century, is more economical than the earlier version.

Boil together 1 pint water, 1 cup of honey, 4 cloves and 3 sticks of cinnamon for five minutes. Add two lemons thinly sliced and allow to stand for 7 or 8 minutes. Add a bottle of medium-dry red wine and heat slowly until just below boiling point. Pour into a jug and serve very hot.

WINTER WARMER

This Negus has the advantage that is is made by the glass. It is a very warming drink, low in alcohol and as such could

be given even to children without risk (older children naturally, who want to join in their parents' merry-making).

Take a glass of Port or similar type wine and put it into a long glass. Add a teaspoonful of honey and a slice of lemon and fill up the glass with boiling water. Stir well, and remove lemon slice before drinking.

"BISHOP" MATHEWS BISHOP

In 1832, William Hone in his Year Book describes Bishop as a delicious winter beverage of antiquity beyond the memory of man, and he quotes this little rhyme by the editor of a University magazine *Oxford Nightcaps:*

"Three cups of this a prudent man may take;
The first of these for constitution's sake,
The second to the lass he loves the best,
The third and last to lull him to his rest."

In London, they made Bishops with oranges rather than lemons. It was said that none knew better how to make a Bishop than the father of Mathews, the great comedian of the 1830's, so we give his recipe:—

Make incisions in the rind of an orange and stick them with cloves and roast the orange by the fire. Put small but equal quantities of cinnamon, cloves, mace, allspice and a knob of ginger into a saucepan with half a pint of water. Boil it until it be reduced by half. Meanwhile boil a bottle of port wine, and, by applying a lighted taper to the pan burn out a portion of the spirit from it. Add the roasted orange and spice unto the wine and let it stand by the fire for ten minutes. Rub some knobs of sugar on the rind of an orange and add them to the mixture along with the juice of an orange (not roasted). Grate in nutmeg and sweeten to your taste with honey and you have a Bishop.

If a dry red wine, like claret is used it is called a "Cardinal" while if champage is used it is known as a "Pope." There is also another member of the Bishop family known as "Lawn Sleeves" which is made exactly as a Bishop except that madeira or sherry is substituted for port and three glasses of hot calves-foot jelly are added.

INDEX

[redacted] Nutrient Salts
[redacted] purpose Yeast
[redacted] Pectolase
[redacted] Citric Acid

[redacted] vessel with 1 lb raw sugar, additives and [redacted]. Add 1 Campden tablet and Pectolase. [redacted]. Add yeast.
[redacted] sugar in 2 stages, 1 lb at a time.
[redacted] is finished treat as usual.

[redacted] This wine is best made when fruit is very ripe therefore, I add Citric acid. If fruit is not so ripe, you may not need acid, do it to taste. The raw sugar gives this wine a very smooth flavour. I use the fermenting must to dissolve the sugar in when I'm making the additions.

[redacted] NOTE: It is rare to have to add extra acid to citrus wines. This should be determined by titration testing. This recipe won a gold and best in class at Whangarei Expo 1986 and bronze in the 1986 Regionals.

MEAD WINE

Amounts for 1 gallon. 21 L SG 1.104 24°C 27.3.2009

INGREDIENTS:
3 lb Manuka Honey
1 pkt Lalvin Canadian K1 Yeast 15.4.2009 SG 1.006
1 tsp Nutrient Salts 10 tsp
2 tsp Citric Acid 100 gm
½ tsp Tannin 2 tsp 10.5.2009 added 1.096 SG 4 L
4 bruised Cloves (optional)
Water to make 1 gallon

METHOD:

Boil the honey with about half the water for half an hour or longer, skimming off scum as it comes to the surface. The scum has a bitter and muddy taste which could detract from the flavour of the finished mead. Boiling also is necessary to sterilize the honey. I have found that mead clears just as quickly whether boiled or treated with Sodium Metabisulphite. The Sodium Metabisulphite is best not used as it can slow or stop fermentation prematurely.

Fermentation.

Add the remainder of the water and ingredients to make up to 1 gallon. When cooled to 30°C, add yeast starter. Keep the fermenting mead at between 26°C and 30°C for a week or two. This can be achieved by placing the fermentation vessel on top of the hot water cylinder. If not bubbling well or if it clears without sufficient S.G. drop, check the temperature and stir occasionally. I haven't had any trouble with the mead oxidising even if stirred every day. Using this method of fermentation, my

meads S.G. drops from 1.100 to 1.010 in less [illegible] normally.

Honey

I use Manuka honey because in my opinion, it has a [illegible] taste than pure clover honey and because a local [illegible] friend gives me his honeycomb cappings, which are about [illegible] wax/half honey. This is heated with some water and cooled to float the wax off. I then boil as above and add sufficient water to give a S.G. of 1.100, which is equivalent to about 1 lb honey per gallon. Using extracted and filtered honey is considered more desirable, but I have never had problems with off tastes in the cappings or the finished mead. Swapping unmarketable honey for mead and wax separation works well once you find a beekeeper who has acquired a taste for your mead.

Herbs and Spices

From experimenting with adding various herbs, my favourites are cloves, as they can obscure or moderate any obvious honey taste and some of the sweetness. A touch of cardamon hides sweetness and gives an adult character. If you overdo it, cardomon can give an illusion of ginger. Herbs should change the taste of the mead, but you should not be able to identify what herbs have been used. If you can identify a herb in the mead, you have added too much. You must taste the mead again two weeks after adding the herbs as the flavour tends to come out of balance from when it was first added. The herbs can be added at the start of fermentation if you are sure of how much is needed or a strong essence of each herb in a little mead can be added as required near the end of fermentation.

SWEET MEAD

Amounts for 20 litres.

INGREDIENTS:
- 13½ lb Clover Honey
- Sodium Metabisulphite
- 1¼ oz Tartaric Acid 35gm
- 2½ oz Malic Acid 71gm
- 1½ lb Sugar
- 5 tsp Nutrient Salts 25gm
- Champagne Type Yeast
- 2 tsp White Grape Tannin 10gm

METHOD:

1. Dissolve the honey in hot water (also make yeast starter).
2. Add ingredients except yeast.
3. Make up volume with tap water.
4. Add Sodium Metabisulphite - 400 p.p.m.
5. After 24 hours add yeast starter (ie 2 tbs malt in 1 pt plus yeast in beer bottle with cottonwool on top, starter made at stage 1).

NOTE: This mead was hard to start and needed to be aerated for ½ an hour, ie transfered from one bucket to another at height. Put under airlock with regular rackings. After 6 months the batch was sweetened with 1½ lbs sugar. It was then left

10.5 Ginger Wine

If you wish to be popular with the kiddies during the holidays, try making them some ginger beer...

	British	Metric	U.S.A.
Well-bruised root ginger	$1\frac{1}{4}$ ozs.	25 g	1 oz.
Sugar	2 lb.	1 kilo	$1\frac{1}{2}$ lb.
Lemons	2	2	2
Cream of tartar	$\frac{1}{4}$ teasp.	$\frac{1}{4}$ teasp.	$\frac{1}{4}$ teasp.
Water	1 gallon	$4\frac{1}{2}$ litres	1 gallon
Yeast & nutrient			

Put into a large bowl or jar the sugar, the rinds (thinly peeled), add the juice of the two lemons, and the well-bruised ginger. Add the squeezed halves of the lemons to the water as it comes to the boil. When it reaches boiling point, pour it over the ingredients in the bowl. Remove lemon halves, stir well and cover. When tepid add the yeast, previously. dissolved in a small amount of the warm liquid. Use a small bottle for this, dropping crumbled yeast in and shaking it to dissolve; leave it half-an-hour or more before adding it to the liquor. Lastly, stir in the cream of tartar. Cover and leave for 24 hours. Strain and bottle, and tie down the corks. **Never** use screwstoppers or the bottles may burst. Store in a cool place and drink fairly soon. Take care when opening the bottles, or they are apt to froth over.

10.6 Peach Perfection

This is a recipe by Mrs. Cherry Leeds, of Twickenham, for a peach wine which is so superb—and *cheap*—that we give the fullest possible instructions...

It sounds extravagant, but it is not. Keep an eye on the greengrocers and youwill see that in August (usually about the first fortnight) peaches come right down in price, to $2\frac{1}{2}$p each or even less. The wine works out at about $7\frac{1}{2}$p a bottle. Mrs. Leeds uses a Kitzinger sherry or Tokay yeast.

To Make 10 Gallons

	British	Metric	U.S.A.
Peaches	30 lb.	$13\frac{1}{2}$ kilos	25 lb.
Sugar, white	22 lb.	10 kilos	18 lb.
Sugar, brown	10 lb.	$4\frac{1}{2}$ kilos	8 lb.
Citric acid	3 ozs.	75 g	3 ozs.
Grape tannin	$1\frac{1}{2}$ teasp.	$1\frac{1}{2}$ teasp.	$1\frac{1}{2}$ teasp.
Water To	10 gallons	45 litres	10 gallons
Yeast & nutrient; pectic enzyme			

Nowadays it is quite difficult to obtain a culture, the only source of which we know being the Brewing Industry Research Foundations at Nutfield, Surrey, though other yeast laboratories might be able to help.

To make Bees Wine, dissolve about 2 ozs. of brown sugar in one pint of cold water in a cylindrical, wide mouthed jar— a Kilner jar or vase will do—pop in your "Bees" Add a pinch of citric acid, and a little yeast nutrient and cover the jar with a handkerchief. Each day for a week add 1 teaspoon of sugar and 1 teaspoon of ground ginger. Then dissolve $3\frac{1}{2}$ teacups of sugar in 4 teacups of boiling water, and make up to five pints with cold water. Add a teaspoon of citric acid, and strain the liquid from the "bees" into the syrup, stirring the bulk well as you do so. Bottle your Bees Wine in screw-stoppered bottles but leave the stoppers loose for three hours, then screw down. The Bees Wine should be ready to drink in a fortnight. The "bees" themselves will have doubled in quantity, so they can be halved, and each portion used to start a new batch.

6.3 Primrose Wine

	British	Metric	U.S.A.
Primroses	1 gallon	4 litres	1 gallon
Sugar	$3\frac{1}{2}$ lb.	$1\frac{1}{2}$ kilo	$2\frac{3}{4}$ lb.
Oranges	2	2	2
Lemon	1	1	1
Grape tannin	1 teasp.	1 teasp.	1 teasp.
Water	1 gallon	$4\frac{1}{2}$ litres	1 gallon
Yeast & nutrient			

Bring the water to the boil and stir into it the sugar, making sure that it is all dissolved. Put the peel of the oranges and lemon into a crock, bowl or polythene bucket, being careful to exclude all white pith, to prevent the wine from having a bitter taste, and pour the hot syrup over the rinds. Allow to cool to 70 F., then add the flowers, the fruit juice, tannin, your chosen yeast, and some yeast nutrient. Cover closely and leave for five days in a warm place, stirring each day. Then strain through a nylon sieve or muslin into a fermenting jar, filling it to the bottom of the neck, and fit an airlock. Leave for three months, then siphon the wine off the yeast deposit into a fresh jar. A further racking after another three months is helpful, and shortly after that the wine will be fit to drink, if still young.

6.4 Gorse Wine

Later in the month, and right up till July, you can make another flower wine which is thought by many to be one of the most agreeable table wines, when made reasonably dry, gorse.

	British	Metric	U.S.A.
Gorse flowers	1 gallon	4 litres	1 gallon
Sugar	3 lb.	$1\frac{1}{2}$ kilo	$2\frac{1}{2}$ lb.
Oranges	2	2	2
Lemons	2	2	2
Grape tannin	1 teasp.	1 teasp.	1 teasp.
Water	1 gallon	$4\frac{1}{2}$ litres	1 gallon
Yeast & nutrient			

The best plan is to put your flowers in a calico bag, which can then be dropped into the water and simmered for a quarter of an hour, afterwards making up the water to the original quantity. When you remove the bag, squeeze it well to extract the liquor, and return this to the bulk. Then dissolve the sugar in the liquid, and add the lemon and orange juice, and the skins (no pith) of the fruit. Allow the liquor to cool to 70°F, then add the tannin (general-purpose wine yeast), or a level teaspoon of granulated yeast, and yeast nutrient. Three days is sufficient a soaking period to extract colour and aroma, and for fermentation to get well under way, as long as the liquor is kept in a warm place (65–70°F), closely covered and given an occasional stir. Then strain it into a fermenting jar and tit an air-lock and put it in a slightly cooler place. Siphon it off the lees when the top third has cleared (after two or three months) and again three months later. Put in a cooler place still (55°F); it will be ready to drink after another two months or so.

6.5 Coltsfoot Wine

Coltsfoot grows abundantly in the British Isles but the flowers are not always easy to come by in quantity unless you have previously earmarked the plant's position. It is usually to be found on waysides, railway embankments and waste places, the bright yellow flowers putting in an appearance from March onwards, long in advance of the heart- shaped leaves. Because of this the old country name for this plant was "Son Before Father!" (Those who do not live in the country can obtain the dried flowers from a herbalist. One small packet will make a gallon.)

	British	Metric	U.S.A.
Coltsfoot flowers	1 gallon	4 litres	1 gallon
Sugar	$3\frac{1}{2}$ lb.	$1\frac{1}{2}$ kilos	$2\frac{3}{4}$ lb.
Oranges	2	2	2
Lemons	2	2	2
Grape tannin	1 teasp.	1 teasp.	1 teasp.
Water	1 gallon	$4\frac{1}{2}$ litres	1 gallon
Yeast & nutrient			

http://countrybrew.countrylifefreeweb.01x.net/e107_plugins/recipe_menu/recipes.php?0.view.99.0.2

Title
Gorse Wine

1.9.2009

Ingredients
12 cups of gorse flowers — 3L settled thawed flowers
7 pints of water — ~~2~~ 2/3 sauerkraut containers
2 pounds sugar — (2lb = 0.907kg) 3lb (Berry's recipe) = 1.36kg
~~1 1/2 cups seedless white raisins~~ — used 1kg sugar with primary
2 oranges
2 lemons (~~or 1/4 oz. citric acid~~)
1/8 teaspoon grape tannin
1 teaspoon yeast nutrient
1 pkg Lalvin EC-1118 yeast

Method — ~~4~~.9.2009 strained + rinsed, 0.36kg sugar and water to 1 gallon (from ~ 2/3 gallon) SG 1.064
The most widely familiar species is the Common gorse (Ulex europaeus), the only species native in most of western Europe. It is also the largest species, reaching 2-3 meters in height; this compares with typically 0.2-0.4 meters for Western gorse (U. gallii). Common gorse was brought to the Americas as an ornamental, but soon escaped into the wild and now is an invasive weed.

Common gorse flowers most strongly in spring, though it bears some flowers year round. The flowers have a very distinctive strong coconut scent. Western gorse and Dwarf gorse differ in being almost entirely late summer flowering (August-September in Britain), and also have somewhat darker yellow flowers than Common gorse.

Picking the flowers can be a chore, as the spines seem relentless. But the reward is a wine that is most enjoyable,

Put the flowers into primary immediately. Boil half the water, half the sugar and the chopped raisins together for 1 to 2 minutes, then pour over flowers.

Thinly peel the rind from the oranges and the lemons and add rind (no pith) to primary. Squeeze out the juice and add that too, but not the pulp. Add the tannin and stir thoroughly. Add cold water to bring total to 1 gallon. When water cools to 90 degrees F, or less, add the activated yeast and yeast nutrient, stir well and cover.

Ferment 3 days, stirring twice daily, then add remaining sugar and stir to dissolve. Recover primary and continue stirring twice daily until fermentation subsides or s.g. drops below 1.020. Strain through a sieve or cloth and transfer to a gallon secondary. Fit airlock and set in warm place.

Rack after 30 days and again when clear, wait a month and rack again. Stabilize, wait 30 days, and sweeten to 1.004-1.006. Wait additional 30 days, rack into bottles and age 6 months before tasting it.

http://casparcommons.org/Gorse/wine.php

Caspar Gorse Wine Recipe

Here is an idea that could be the downfall of gorse. If this turns out to be tasty or good for you or trendy, we have it made. Kiss your gorse goodbye!

This recipe came to Caspar by the way of James Jackson, Attorney to Oscar Smith.

Gorse Wine Recipe

* 12 cups of gorse flowers
* 1 gallon of water
* 4 cups of sugar
* 1 1/2 cups seedless white raisins
* 2 oranges
* 2 lemons (or 1/4 oz. citric acid)
* 2/3 cup strong tea or 8 drops grape tannin
* 2 heaping teaspoons all-purpose wine yeast
* 1 teaspoon yeast nutrient

Put the flowers into the fermenting bucket immediately. Boil half the water, half the sugar and the chopped raisins together for 1 to 2 minutes, then pour over flowers. Thinly peel the rind from the oranges and the lemons, and add to the bucket. Squeeze out the juice and add that too. Add the cold tea or the tannin and stir thoroughly. Make up to 1 gallon with cold water, or cooled boiled water if you prefer. This should give you a tepid mixture, about right for adding the yeast from the starter bottle. Add the yeast and yeast nutrient, stir well and cover.

Ferment for 1 week, stirring daily. After 2 or 3 days, when fermenting well, add the remaining sugar and stir to dissolve. Strain through a sieve or cloth and siphon into a gallon jug or bottle. Fill up to the neck or the jug with cool, boiled water, if necessary (the less surface area exposed with all wines the better), fit a fermentation lock or secure a plastic garbage bag with a rubber band over the neck of the jug. Rack when clear, bottle and keep for six months.

http://www.thewesternisles.co.uk/wildflowers/wildflowersgorse.htm

Gorse wine, is said to be a lovely greenish yellow wine which tastes very refreshing.

Gorse Wine Recipe
(thank-you Donald Mckee of Coll in the Western Isles)

1.5 litres fresh gorse flowers (not pressed down)
1kg sugar
Juice of a lemon
1 cup black tea
yeast

Pick your gorse flowers on a fine sunny day.

Boil these flowers in two litres of water for fifteen minutes and sieve the resulting liquor into a demijohn.

Add the tea, sugar and lemon juice then make up to one gallon with water.

Stir well, until the sugar has dissolved then add the yeast.

Fit an airlock then leave the demijohn in a warm place.

Once the density has reached 1.000 you can stop the fermentation and then clear the wine. When bottled it should be ready to drink after three months, but gorse wine can keep a lot longer. It should be about 11% ABV or 19% proof. Serve the wine chilled.

http://www.irishsecrets.ie/recipe-secrets/gorse-flower-wine.php

Gorse Flower Wine

* 1 gallon gorse flowers
* 1 gallon water
* 2-3lb sugar
* 1 tablespoon cold tea
* 1 orange
* 1 lemon
* 50g root ginger
* 25g yeast

Cover the flowers, ginger, orange and lemon juice and rind with boiling water. After 5 days, with occasional stirring, this is strained into a fermenting jar; the sugar is melted in the rest of the water and added. When cool add the yeast and cold tea. Syphon after a couple of months and again in eight to ten weeks.

From downsizer.net forum PDF:

Gorse Flower Wine

Gorse isn't a likely looking forage. Ugly, spiky, inhospitable, but it also makes an interesting spring wine. Usually the first flower wine of the year, and there are literally dozens of different recipes for it. Here are some culled from our forums:

Gil's Gorseflower Wine

For 1 gallon:
7 pints gorse flowers
1 litre white grape juice
1kg sugar
Juice of 1 lemon + 1 orange
1/2 mug teapot dregs
1 teaspoon yeast nutrient
yeast starter

by the 'no boiling water' method (steeping flowers in cold/warm liquid only once the ferment has commenced)

You may wish to use only 3-4 pints of gorse flowers per gallon, if only because they are so painful to acquire! Wear gloves, but they need to be

both thin and tough. Fingerless wool or leather gloves will stop the rest of your hands getting scratched, though not your fingertips. Take a plastic pint measuring jug with you - that way you can tell how much more you need on the spot. Also, use stout carrier or cotton bags

- supermarket plastic will be torn to shreds on the bushes if the wind blows.

Including :
A large 'jelly bag' or piece of muslin to tie the flowers up in
A piece of string to tie the bag to the bucket
A plate to weigh down the bag of flowers so it remains submerged (or you could sterilise a plain glass paperweight and put it in the bag with the flowers.)

Remember to sterilise the plate (if using) in boiling water before use

Sarah D's recipe for Gorse Wine

2 quarts flowers, loosely packed, no green parts
1 gallon boiling water
1lb - ish dried fruit
1 orange
1 lemon
3lbs sugar
yeast

Place the flowers in the bin and pour over boiling water; cover closely and leave 3 days.

Strain the flowers out, then add the dried fruit and sliced citrus fruits and the sugar; stir to dissolve. Warm to blood heat, then add the activated yeast. Cover again and leave 2 - 3 days, then place in a demi-john; you can take out the fruit or leave it/some of it in as you choose. Ferment out, then bottle.

As the flower wines can be a bit "thin", as they only really add their essence, some people use grape concentrate as well, but you need to reduce the sugar if you use this.

I don't, and use the recipe above, broom wine is made in exactly the same way, but it is easier and less prickly when it comes to gathering the flowers. You should find a place with several bushes, so that you don't denude one or more too much.

Cab's Vague Gorse Flower Wine Instructions

Take something like 3 pints of flowers; 4 if you like, 2 if you must. Put them into a nylon straining bag and that into a sterile bucket. Boil the best part of a gallon of water. Add a teaspoon of yeast nutrient and half a teaspoon of citric acid. Now, you COULD use sugar, or you COULD use dried fruit or even grape juice, but that loses something of the gorse flower flavour which is in itself surprisingly complex, lots of very subtle undertones you want to avoid drowning. I've used honey in the past, which complements the flavour of gorse without overwhelming it.

2 1/2lb of sugar would do, or 3lb of honey is better.

If you're using honey, heat it in the water and skim off the scum when its risen. If sugar, just boil it in the water.

Pour the hot juice into the bucket on the bag, put a bin bag on top (I tie it in place with some string round it) and leave it to cool. Pitch in the yeast; now, for this you can use any white wine yeast or a general purpose one, but please, if you can, use a champagne yeast.

It'll come out dry and aromatic then, you'll make the most out of the gorse and honey. Activate and add the yeast.

Stir this every day for, say, anything between 3 and 7 days. Till its good and gorsey.

Get it into demijon and ferment and rack as normal. Expect it to take a goodly while.

KIWIFRUIT

Another wine that tends to be better slightly sweet.

Ingredients

- 1 kg kiwifruit (soft)
- 1 tsp pectin enzyme
- $^1/_2$ tsp to 1 tsp tannin
- water to 4.5 litres
- 3 campden tablets
- 1 tsp nutrient
- $^1/_2$ tsp tartaric acid
- about 1 kg sugar
- Gervin varietal C yeast
- $^1/_2$ tsp potassium sorbate

Method

1. Remove skins, crush kiwifruit and add to 10 litre bucket.
2. Add enough water to cover the kiwifruit and add a campden tablet and pectin enzyme.
3. Take an SG reading from the free flowing juice.
4. 24 hours later add remaining ingredients, except sugar and balance of water, and fit lid loosely to bucket.
5. Ferment on pulp for 4 to 7 days.
6. Take an SG reading.
7. Strain fruit and transfer must to demijohn adding sugar and balance of water.
8. Take an SG reading.
9. When fermentation slows and wine is starting to clear rack into a clean and sterilised fermenter and add a campden tablet. If necessary top up with water that has been boiled and allowed to cool. Take an SG reading.
10. When all activity has stopped add finings and a campden tablet.
11. The following day add $^1/_2$ tsp of potassium sorbate.
12. When clear rack into a clean and sterilised fermenter. If necessary top up with water that has been boiled and allowed to cool.
13. Your wine is now ready to bottle however it is advisable to store in the demijohn for 6 months.

PASSIO

A lovely bouquet to thi

Ingredients

- 2 kg Passionfr
- 1 tsp pectin e
- approx. 1 kg s
- $^1/_2$ tsp tannin
- Gervin varietal

Method

1. Remove skins an
2. Add enough wat pectin enzyme.
3. Take an SG readi
4. 24 hours later ad and fit lid loosely
5. Ferment on pulp
6. Take an SG readi
7. Strain fruit and t water.
8. Take an SG readi
9. When fermentati sterilised ferment water that has be
10. When all activity
11. The following da
12. When clear rack i with water that h
13. Your wine is now demijohn for 6 m

bowl 2055 380 1675

The Winemaking Home Page

Requested Recipe:

KIWI FRUIT WINES

"I've just come across your web page and I find the most useful one yet!... I am wondering if you could help me find a suitable recipe for Kiwifruit wine." Val Williamson, Te Puke, New Zealand

KIWI FRUIT

Kiwi fruit form on the vines of *Actinida chinensis*. The fuzzy fruit come in two varieties. The common KiwiGreen is an acidic fruit while the KiwiGold is a much sweeter and less acidic variety. The latter tastes like a cross between a banana and a mellon. Each makes an excellent white table wine. A recipe for each is found below. each recipe is for one U.S. gallon.

12.9.2009

Kiwi Fruit Wine (1)

- **3-4 lbs fresh green kiwi fruit** 1.9 kg (unpeeled) 1.675 kg peeled 3L
- **2-1/4 lbs finely granulated sugar** 905 g 2lbs
- **7-1/2 pts water**
- **1 tsp acid blend** (tartaric acid) 1 tsp Cream of Tartar
- **1/2 tsp pectic enzyme**
- **1/8 tsp tannin**
- **1 tsp yeast nutrient**
- **1 pkt Lalvin AC or 71B-1122 (Narbonne) wine yeast** Gervin Wine Yeast GV10 ½ packet

Mix sugar into the water and put on stove to boil, stirring occasionally to dissolve. Meanwhile, thinly peel and coarsely chop fruit and place in nylon straining bag. Tie bag closed and put in primary. Crush fruit with hands. Add acid blend, tannin and yeast nutrients to primary and pour boiling water over

16.9.2009 Strain and put into demi-john, fit to neck
SG 1.040
21.9.2009 Add 1 tablespoon pectinase

fruit when all sugar is dissolved. Cover with clean cloth and set aside to cool. When room temperature, add pectic enzyme and stir. Recover primary and wait 12 hours. Add activated yeast and recover primary. Stir daily, lifting and dunking bag of fruit pulp several times (do NOT squeeze bag) before stirring. After 7 days, remove bag and drip drain without squeezing for about an hour. Return drained juices to primary and discard pulp. When specific gravity drops below 1.015, rack into secondary and fit airlock. Rack after 3 months, top up and refit airlock, and repeat after additional 3 months. Wine should be clear and completely dry. If wine is too dry for your taste, stabilize, sweeten to your liking, refit airlock and set aside. After 10 days, rack into bottles and set aside to age another 6 months. Serve lightly chilled. [Adapted from Terry Garey's *The Joy of Home Winemaking*]

Kiwi Fruit Wine (2)

- 3-4 lbs fresh golden kiwi fruit
- 2 lbs finely granulated sugar
- 7-1/2 pts water
- 1-1/2 tsp acid blend
- 1/2 tsp pectic enzyme
- 1/8 tsp tannin
- 1 tsp yeast nutrient
- 1 pkt Lalvin D-47 (Côtes-du-Rhône) or any Champagne wine yeast

Mix sugar into the water and put on stove to boil, stirring occasionally to dissolve. Meanwhile, thinly peel and coarsely chop fruit and place in nylon straining bag. Tie bag closed and put in primary. Crush fruit with hands. Add acid blend, tannin and yeast nutrients to primary and pour boiling water over fruit when all sugar is dissolved. Cover with clean cloth and set aside to cool. When room temperature, check specific gravity to ensure it is between 1.080-1.090 (correct if required) and then add pectic enzyme and stir. Recover primary and wait 12 hours. Add activated yeast and recover primary. Stir daily, lifting and dunking bag of fruit pulp several times (do NOT squeeze bag) before stirring. After 7 days, remove bag and drip drain without squeezing for about an hour. Return drained juices to primary and discard pulp. When specific gravity drops below 1.015, rack into secondary and fit airlock. Rack after 3 months, top up and refit airlock, and repeat after additional 3 months. Wine should be clear and completely dry. If wine is too dry for your taste, stabilize, sweeten to your liking, refit airlock and set aside. After 10 days, rack into bottles and set aside to age another 6 months. Serve lightly chilled. [Adapted from Terry Garey's *The Joy of Home Winemaking*]

My thanks to Val Williamson of Te Puke, New Zealand for this request.

BACK

This page was updated on February 1st, 2000

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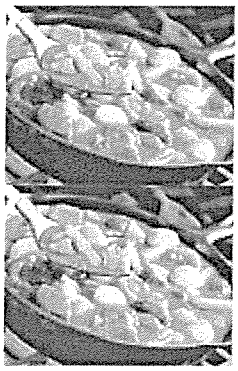
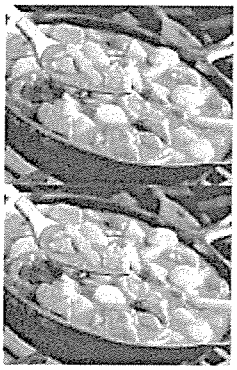
Celtnet Recipes

Welcome to the Celtnet Recipes Page for Kiwi Fruit Wine



Kiwi Fruit Wine

Kiwi Fruit Wine is a modern British method to form a fruit wine based on kiwi fruit. The full recipe is presented here and I hope you enjoy this classic traditional version of an Kiwi Fruit Wine.



Kiwi Fruit Wine

Origin: British *Period: Traditional*

Ingredients:

This is a rather wonderful and unusual wine that I fell in love with the first time I tried it!

2kg Kiwi Fruit
1.5kg granulated sugar
1 tsp citric acid
5l of unchlorinated water
1 tsp yeast nutrient
0.5 tsp Tannin
1/4 tsp potassium sorbate
2 crushed Campden tablets
1 tsp powdered pectic enzyme
Yeast (Prise de Mousse or Montrachet)

Method:

Preparation

Peel and chop the fruit then add to a fermenting bucket along with the sugar. Boil the water and add to the fruit then cover with cheesecloth and leave overnight. The

following day add the tannin, pectic enzyme, yeast nutrient and yeast. Cover with cheesecloth and leave for a week to ferment, ensuring that you give the mixture a stir with a sterilized metal spoon once each day. Strain through your nylon straining bag, squeezing out the last of the juice then pour into your fermenting jar (filling only to the shoulder) and fit a cork and fermentation lock (reserve the remaining liquid and store in the fridge). When the fermentation has become less vigourous (about a week) top-up to the neck with the remaining liquid. Rack into a new fermentation bottle after about a month adding a crushed campden tablet. Leave for about six months, racking monthly then about a week before bottling add 1/4 teaspoon potassium sorbate and 1 campden tablet. At then end of the week rack into bottles.

Once corked, leave the kiwi fruit wine in a cool dry place for at least three months before tasting or six months for best results.

I have given only basic instructions on making this wine here. For more detailed results please see my page on .

Ginger Beer
from FW Beech and A Pollard, 'Wine and Juices' (1961)

1/2 - 1 oz root ginger
nutrients
yeast
1/2 oz cream of tartar
1 lb white sugar
1 lemon
water (5 pts + extra to make 1 gall.)
1/4 lb honey

Bruise the ginger and put in a saucepan with the nutrients, thinly peeled lemon rind, cream of tartar, sugar, honey and five pints of water. Boil for twenty minutes, allow to cool, strain through muslin and run the mixture into a fermentation jar. Add the yeast and lemon juice, make the volume up to one gallon, insert an air-lock and keep in a warm room.

When fermentation ceases, take the jar to a cool room and allow most of the yeast to settle. Syphon off the liquid, running it through organdie. Sweeten with two ounces of sugar per gallon, bottle in strong screw-stopper bottles, or, if obtainable, the small, old-fashioned stone bottles, corked and wired. It is ready for drinking as soon as gas pressure develops in the bottles.

	Nutrient salts	Acid	tannin
①	10 tsp / 21 L	100g citric	2 tsp
②	10 tsp / 27 L	50g citric	3 tsp (30g?)
③	10 tsp / 28 L	135g (45g tartaric, 90g malic)	15g
④	~~15 tsp~~ (45g ↖42g by AW	105g (40g cream of tartar, 15g malic 50g citric)	15g

AW Acids

per gallon (4.5L)	6.5g	tartaric	32%	41 for 6 gallons (28L)
	10.5g	malic	51%	65
	3.5g	citric	17%	22
	20.5g			127.6g

Acid

40 g Cream of tartar

15g ~~65g~~ malic (all that would fit)

50g ~~75g~~ ~~25g~~ citric

140mm height of honey

SG 1.109 or 1.110

3+L

= 28+L

DUTCH PILSNER (HEINEKEN-STYLE)
Printed from COOKS.COM

---

3 pounds dry plain malt extract
3 pounds pale malted barley
1 ounce Saaz hops (boiling stage)
1 half pounds Cascade hops (boiling stage)
1/2 ounce Saaz hops (finishing stage)
1 teaspoon gypsum
1/4 teaspoon Irish moss
1 - 2 packages lager yeast
1/4 cup corn sugar (for priming before bottling)

The best beers produced are created in small batches by brewery artisans.

Home Brewing can be a rewarding undertaking, capable of producing an excellent quality product rivaling beers produced in high-end breweries, but it involves the procurement of specialized equipment and a basic knowledge of technique. Before embarking on the steps in this recipe, it is recommended that you become familiar with the process. Once you become a proficient home brewer, you will be able to experiment with different barleys and hops to create all kinds of beers from ales to malts.

You will need a thermometer, a beer hydrometer (measures specific gravity, or the thickness of liquids relative to the thickness of water - it allows us to determine the correct amount of sugar to add), a 5-6 foot length of food-safe plastic hose, a 5-10 gallon plastic bucket, 1 fermenter lock device, a fermentation unit (a large glass or plastic 5 gallon bottle fitted with a cork with a hole for the hose will do), new bottle caps and returnable beer bottles (no screw-type bottles) and a bottle capper. You can use the type of beer bottles with a wire bail and rubber ring if you save up enough of these. You'll also need a weak solution of chlorine bleach (2 ounces to 5 gallons of water) for sterilizing your utensils (sterilizing is an important step!). You can obtain all of the required equipment from any good beer or wine making supply catalog. For your first home brewing attempts, you may even want to purchase a kit.

Bring 2 1/2 quarts of water to a temperature of 130°F. Dissolve the gypsum in the warm water. After the barley has been crushed well, stir it into the water.

Allow the temperature to drop to 120°F. keep at this temperature for 30 minutes, stirring every few minutes. Bring heat to 130°F and add 1 1/2 quarts boiling water. Temperature should be at 150°F. Hold at this temperature (149 to 152°F) for 10 minutes. Raise the temperature to 158°F and hold for 20 minutes.

The conversion stage should be complete at this point but you may want to do an iodine test to determine for sure. If conversion is not complete, continue to mash for up to 20 additional minutes.

In a lauter-tun, sparge the mash with 1 gallon water at 170°F. Boil the sweet wort, add boiling hops and malt extract. Continue boiling and stirring occasionally for one hour. Stir in Irish moss and the finishing hops at the last five minutes of boiling.

Sparge into the fermenter with two and half gallons of cold water. When cool (below 78°F), use the hydrometer to measure the specific gravity, which should read somewhere between 1.035 - 1.042, then add the yeast. Discard the sample you took for this measurement - do not return to batch.

Ferment the brew in the sterilized fermentation unit at a temperature of between 60 to 75°F. Leave the hose in the bottle (feed it through the center of the cork) for 2-3 days. After this, replace the hose with the fermentation lock (be sure to fill the fermentation lock with about 1/4 inch of water to make it air-tight). Beer will become darker as the fermentation progresses. This is to be expected.

The mixture is ready to bottle when fermentation is complete. The fermentation process will take eight to fourteen days to run its course. When successive readings with the hydrometer remain unchanged for 2-3 days, fermentation is likely to have stopped.

Fermentation is complete when the hydrometer readings have stabilized with a reading which should measure in the range of 1.005 to 1.020 or slightly above for heavier malt-style beers.

For each 5 gallons of beer to bottle, boil 3/4 cup corn sugar in 16 ounces of water for 5-7 minutes, stirring until dissolved. This is your "priming sugar" which will be added to the brew just before bottling. Once the fermentation process has completed, little sugar remains in the brew, since it has mostly been digested by the yeast. The addition of priming sugar prior to bottling adds enough food for the still-living yeast to give the bottled brew the correct amount of carbonation. But be forewarned; adding too much sugar at this stage may cause exploding bottles! Never exceed one cup of sugar per 5 gallons of water! As an alternative, older methods of priming the beer before bottling called for adding 1/2 to 1 teaspoon of sugar to each bottle before capping. This method is still a good one if consistency is observed, but otherwise can result in variable levels of carbonation in a batch.

Using sterilized equipment, bottles, and caps, siphon the beer into the bottles and cap them. Label the bottles and store in a cool dark place between 55°F and 75°F and allow to age (lager) for at least two weeks, but not longer than 3-4 weeks for best flavor.

Serve icy cold in frosty steins and appreciate the rewards of your unique creation!

Submitted by: CM

Honey Mead
to make 20 litres.

Honey - approx	6 Kg. Start with 5 Kg and add till specific gravity reaches '1100' or '1110'.
tartaric acid	35g
Malic acid	70g
Yeast Nutrient	10 tspn
tannin powder	2 tspn
Vitamin B1	100-200 mg - yeast food
epsom salts	1 tspn - yeast food
Water to	20 litres.
Campden tablets as required	(50 ppm to start).
High Alcohol Gervin wine Yeast.	or 'Gervin C' (Brewers World).

Mix all ingredients - except yeast. adding campden tablets last of all. (1 crushed pill per 5 litres of 'must'). Wait 24 hours. Stir it up. add yeast by either simply pouring powder over surface, or by mixing yeast in a bottle of luke warm water with some sugar in it - allowing it to wake up. Bucket should have an airlock to exclude air and bugs. everything that comes in contact with the wine must be sterilised first with Sodium Metabisulphate. After about 4-6 wks when the action slows, syphon wine into another vessel. Note the Specific gravity which should have dropped to 995 ⇒ 1020/1030. Syphon to new vessel about every 3 months until clear. When clear sweeten as required (in bulk form) with sugar/water boiled together. I aim for a finished mead around 1020 - sweet.

allow a week or so to get over this.

drink it, or store in as large a vessel as possible with as little airspace as possible. rack off monthly or annually if any sediment forms. Keeps indefinetly.

Wine Analysis

ALCOHOL - TEMPERATURE CORRECTION TABLE

Temperature (of solution) °C	Alcohol concentration as indicated by hydrometer - calibrated @ 20°C. (add or subtract the appropriate value) .				
	8.0-10.0% v/v	10.1-14.5% v/v	14.6-17.9% v/v	18.0-21.5% v/v	21.6-25% v/v
18.0	+ 0.30	+ 0.40	+ 0.50	+ 0.60	+ 0.70
18.5	+ 0.25	+ 0.30	+ 0.40	+ 0.45	+ 0.50
19.0	+ 0.20	+ 0.20	+ 0.30	+ 0.30	+ 0.35
19.5	+ 0.10	+ 0.10	+ 0.10	+ 0.15	+ 0.20
20.0	0.00	0.00	0.00	0.00	0.00
20.5	- 0.10	- 0.10	- 0.10	- 0.15	- 0.20
21.0	- 0.20	- 0.20	- 0.20	- 0.30	- 0.40
21.5	- 0.30	- 0.30	- 0.40	- 0.50	- 0.50
22.0	- 0.40	- 0.40	- 0.50	- 0.60	- 0.70

First Steps in Wine making, C J J Berry, published by "The Amateur Winemaker"
North Croye, The Avenue, Andover, Hants (no date, 12th impression)

Sterilising with metabisulphite, p10
Stock solution of potassium or sodium metabisulphate
5oz of crystals to 1 gallon water (100 gm to 3L)

Stock soln use:
Sterilizing corks, barrels, bottles and apparatus:
8 fluid oz stock soln to gallon of water (250 mL to 5L) plus 10 gm citric acid

To purify must before fermentation:
20 mL to 5L must
To sterilise completely a must or juice:
50 mL to 5L juice
} need to wait 24 hours before adding yeast

alternately using Campden tablets:
Two tablets and saltspoon of citric acid in pint of water
he uses this as is to sterilize bottles

Yeast nutrient, p21
For 1 gallon mead (half this for wine)

			5 gallons
Ammonium sulphate	60 grains	3.888gm	19.4397gm
Magnesium sulphate	8 grains	0.5184gm	2.592 gm
Potassium phosphate	30 grains	1.9440gm	9.7198 gm
	98 grains	6.3503gm	31.7515

Schramm's formula, p55: (The Compleat Meadmaker)

Formula I

ammonium sulfate	1.0 gm
K_3PO_4	0.5 gm
$MgCl_2$	0.2 gm
$NaHSO_4$	0.05 gm
citric acid	2.53 gm
sodium citrate	2.47 gm
	6.75 gm

Formula II

biotin	0.05 mg
pyridoxine	1.0 mg
meso-inositol	7.5 mg
calcium pantothenate	10.0 mg
thiamin	20.00 mg
peptone	100.00 mg
ammonium sulfate	861.45 mg
	1000.00 mg

(Use I 6.75g/L and II 0.25g/L)

Brew craft Yeast nutrient salts
Acids
334 tartaric
330 citric
Nutrients
518 magnesium sulphate (firming agent)
340 potassium phosphates (mono, di and tri (basic)
342 ammonium phosphates

Here is a picture of my wine-making efforts.
http://people.pwf.cam.ac.uk/dab1003/vegetable/20090719_country-wine.jpg

They are, from left to right:

elderflower started 20090602
gooseberry started 20090612
blackcurrant started 20090621
rhubarb started 20090711

I also started a batch of ginger beer using my new recipe. I measured the specific gravity when I started: 1.052. It has to ferment to dryness in a gallon jar so it will be alcoholic then I put it in bottles with some extra sugar for carbonation. I used baking yeast. I bodged up an airlock from a bit of tubing and a small plastic container.

I only make gallon lots, each gallon should last for weeks. I am going to try a new recipe for ginger beer, because adding sugar and ginger every day does not fit in with my lifestyle, and also because I only have bottles into which to put the product. I got the recipe from a book that I borrowed from the University Library, 'Wines and Juices', and will modify it slightly so that it will be low alcohol (2 % sugar should give no more than 1 % alcohol, and probably much less because it will be mostly aerobic). It is supposed to ferment in a demi-john so that full flavour development from ginger and lemons can take place, the yeast can settle, and it is then bottled, with the addition of 10 g/sugar bottle for carbonation. I intend to use baking yeast, hoping that it will settle nicely in the demi-john. Actually, I will probably use a plastic fermentation vessel, a 5 l water bottle.

Some of the things that I have learned from my recent reading:

- each 1% sugar should give roughly 0.5% alcohol

- sugar, other dissolved molecules, and alcohol all affect the density and hence hydrometer reading

- SO2 not only kills/inhibits wild yeast and bacteria, but also stops fruit from going brown when it is being extracted prior to fermentation. Citric acid should also stop it going brown (like putting lemon juice in water to stop artichokes from going brown).

> In 1987 there were some decent-sized fish (up to 20 cm long) at the
> base of the waterfall - I can't quite remember what they were called
> but I did identify them at the time (brown somthing?), freshwater
> crayfish up to about 8 cm long in the pools of the waterfall, shrimp
> up to about 5 cm long from the waterfall pools down. Also freshwater
> mussels.

> I did a calculation based on sugar content and found that 1 litre of
> grape juice = a tin of grape concentrate = the amount of
> raisins/sultanas that some recipes have.

>
> Ginger Beer
> from FW Beech and A Pollard, 'Wine and Juices' (1961)
>
> 1/2 - 1 oz root ginger 14. - 28.3 g
> nutrients 2 tsp, by mead proportion
> yeast
> 1/2 oz cream of tartar 14g
> 1 lb white sugar 454g
> 1 lemon
> water (5 pts + extra to make 1 gall.) 5 pts = 2.8 L 1 gallon = 4.5 L
> 1/4 lb honey 117g
>
> Bruise the ginger and put in a saucepan with the nutrients, thinly peeled
> lemon rind, cream of tartar, sugar, honey and five pints of water. Boil for
> twenty minutes, allow to cool, strain through muslin and run the mixture in
to
> a fermentation jar. Add the yeast and lemon juice, make the volume up to on
e
> gallon, insert an air-lock and keep in a warm room. When fermentation cease
> take the jar to a cool room and allow most of the yeast to settle. Syphon o
ff
> the liquid, running it through organdie. Sweeten with two ounces of sugar
> per gallon, bottle in strong screw-stopper bottles, or, if obtainable, the
> small, old-fashioned stone bottles, corked and wired. It is ready for
> drinking as soon as gas pressure develops in the bottles.
>
> I used baking yeast, and measured the specific gravity as 1.052 at the star
t.
> The fermentation has slowed down and it is starting to clear.
>

2009.8.7
45 g ginger root
2 lemons
15g tartaric acid
? 454g sugar (2 lbs)
4 tsp nutrient
1 tsp yeast
no honey

SG 1.085 @ 35-40°C

charging:
60 g sugar per gallon
10 g sugar per 750 mL
4.4 g sugar per 330 mL

13.3 g sugar per L
27 g sugar p 2L

Harrelly gingerbeer = 2 gallons, 750 x 12 = 9000 mL

1C sugar = 215g ∴ 860 g sugar to 9 L for Harrelly recipe

Vintner's Harvest Winemaking

White Wine Yeast Strains

New yeast strains isolated

New strains of wine yeast are continuously being isolated and adopted by commercial vineyards but, as with so much regarding winemaking, they remain a closely guarded secret. Vintner's Harvest entered into an exclusive yeast strain screening program with a leading yeast and ingredient supplier to the European commercial winemaking industry. This program considered only specialist wine yeast strains used commercially in Europe and identified a complete wine yeast range for all varieties of Grape, Fruit and Vegetables. The screening process involved 3,000 separate fermentations over a two year period.

CL23 *Saccharomyces Bayanus*

Ideal for crisp, fresh dry white/blush and all sparkling wines. Also the best strain for high alcohol tolerance.

CL23 produces very low levels of fusel oils and other congener compounds during fermentation and so does not contribute much to wine flavour or aroma and can therefore be considered to be a particularly neutral / clean fermenter. However CL23 does contribute significantly to the wines structure and ferments out sugars completely allowing for the driest of wines to be made. CL23 is noted for its robustness, being able to ferment to 18% abv. ethanol, tolerate high free SO2 and high levels of other stress factors such as organic acids, incorrect temperature and pH making CL23 the strain of choice for high alcohol wines or where uncertain recipes are employed and fermentation reliability is a key factor or where low temperature fermentation down to 8OC (46 OF) is required. This strain is 'fermentation friendly' in that it produces zero foam, starts fermenting rapidly so avoids potential bacterial contamination and can be used to re-start stuck fermentations. In certain situations, CL23 can be used for red winemaking – especially where wine structure and dryness are key factors – but a word of caution, CL23 will take out colour and fruit flavour so recipes should be adjusted accordingly. To appreciate such attributes, split a Cabernet Sauvignon Must and ferment out using CL23 versus VR21 – you will not believe both wines came from the same grape.

MA33 *Saccharomyces Cerevisiae*

Acid reducing strain excellent for fruity white & blush country wines especially where residual sugars are desired. MA33 has the ability to metabolize between 30 and 35% of malic acid making this strain the perfect choice for country fruits which are naturally high in acid. Reducing malic acid will soften the wine and give a vin nouveau character for early consumption with a balanced palate. MA33 is also noted for its production of fruity esters and fusel oils conferring fresh fruity character to the wine. There is an increased chance of Malolactic fermentation by lactic acid bacteria following MA33 fermentation. MA33 is a killer-sensitive strain. It is a good fermenter between 18 and 27OC (64 -80OF), with a rapid onset to fermentation although can exhibit a slow late fermentation profile and may require aeration after 10 – 12 days fermentation. Will ferment up to 14% abv. ethanol providing the pH is above 3.2.

AW4 *Saccharomyces Cerevisiae*

The 'only strain' for Germanic aromatic white wines. AW4 is noted for developing powerfully fragrant, full spice aromatic wines and is a perfect match for Gewurztraminer and also recommended for Sauvignon and Semillon where the Oenologist requires a positive aromatic esters contribution from the yeast. AW4 is a good fermenter across the range 14 to 30OC (57 -86OF), low foam formation and medium to high glycerol. It will ferment up to 14.5% abv. ethanol providing the temperature is held within the 20 - 25OC (68 -77OF) range and the pH is above 3.0.

CY17 *Saccharomyces Cerevisiae*

Perfect for sweet white/blush and dessert wines from grape and particularly from country fruits & flowers.

CY17 produces high levels of desirable congeners during fermentation including aromatic thiols, imparting rich fruity aromatics, full body and 'tropical' flavour characteristics to the wine. CY17 is also noted for high glycerol formation further enhancing sweetness. This is a slow fermenter compared to all other strains in the Vintner's Harvest range typically taking up to 21 days to ferment table wines and up to 35 days for dessert wines. CY17 prefers a constant temperature in the 22 – 26OC (72 -78OF) range. Dropping the temperature below 15OC (59 OF) two-thirds the way through fermentation will arrest fermentation making CY17 suitable for producing naturally sweet wines (both potassium sorbate and metabisulphite must be used to prevent re-fermentation). CY17 is also excellent for sweet sparking wines, but strain CL23 must be employed for the bottle fermentation stage. Avoid free SO2 levels above 50 ppm and ensure pH above 3.2, CY17 is a delicate strain that must be treated with some respect. Pay particular attention to sterile winemaking conditions and a warm start to fermentation otherwise risk of bacterial contamination is increased. CY17 will happily ferment up to 15% abv. ethanol if such conditions are employed.

BV7 *Saccharomyces Cerevisiae*

Ideal for full bodied, full flavoured dry and sweet white wines. BV7 will both preserve and enhance the grape variety and *terroir*, promoting excellent flavour complexity, good wine structure and balance but especially FULL AROMATIC FLAVOUR. To appreciate the impact of BV7, split a chardonnay must, fermenting half with CL23 and the remainder with BV7 – you will be amazed at the impact of the yeast strain upon fruit concentration. BV7 produces a wide range of low level beneficial congeners such as higher alcohols and esters and high glycerol promoting full body and structure to the wine and contributing significantly to mouth-feel, wine texture and palate intensity. Avoid fermenting above 13% abv. ethanol, BV7 is not particularly ethanol tolerant. Acceptable temperature range is 15 to 30OC (59 -86OF) but ferment below 22OC (72 OF) for maximum flavour development.

Vintner's Harvest Winemaking

Red Wine Yeast Strains

New yeast strains isolated

New strains of wine yeast are continuously being isolated and adopted by commercial vineyards but, as with so much regarding winemaking, they remain a closely guarded secret. Vintner's Harvest entered into an exclusive yeast strain screening program with a leading yeast and ingredient supplier to the European commercial winemaking industry. This program considered only specialist wine yeast strains used commercially in Europe and identified a complete wine yeast range for all varieties of Grape, Fruit and Vegetables. The screening process involved 3,000 separate fermentations over a two year period.

VR21 *Saccharomyces Cerevisiae*

Exceptional strain for full fruit varietal and country red wines promoting good structure, balance and colour. The majority of yeast strains strip out fruit flavour and colour from the must, not so with VR21 which is particularly noted for preserving and retaining the natural fruit characteristics of the grape / country fruit and enhancing palate length. VR21 is a relatively neutral strain producing subtle levels of aroma and flavour compounds, allowing full expression of varietal / country characteristics whilst enhancing colour, wine structure and balance. VR21 is an ethanol tolerant killer strain, capable of fermenting to 15% abv. ethanol. Good production of glycerol, low volatile acid production, zero sulphur dioxide formation and low foaming.

R56 *Saccharomyces Cerevisiae*

Ideally suited for rich, full bodied red wines with exceptional flavour complexity. Noted for exceptional depth and flavour complexity, R56 exhibits complex aromatics during fermentation conferring an old world quality which one might only expect from natural flora multiple strain fermentations. Unusually for complex aromatic strains, R56 still respects the varietal character of the fruit and confers good structure and balance. R56 is also a high glycerol producing strain. R56 is a medium rate fermenter with optimal temperature between
22 to 30OC (72 -86OF) which will ferment to 13.5% abv. ethanol.

CR51 *Saccharomyces Cerevisiae*

Perfect for light, fruity red wines for early consumption CR51 will enhance ripe berry fruit flavours in light and fruity red wines and introduce a velvet texture perfect for Valpolicella and especially for Beaujolais style wines. This strain has an almost unique ability to confer a smooth even 'silky' quality to the wine, perfect for early consumption young reds. CR51 is a medium rate fermenter with optimal temperature between 22 to 30OC (72 -86OF) which will ferment to 13.5% abv. ethanol. Low to medium foaming strain with low volatile acid and SO2 production

SN9 *Saccharomyces Bayanus*

Very good all round strain, best choice for high alcohol and fortified wines but also excellent for most country wines, sweet sparkling wines and ciders. If you only had one wine yeast strain, this would be the strain because whilst being relatively neutral in character SN9 does introduce excellent weight and structure no matter the must or fruit and produces a congener profile that always compliments the wine. SN9 is particularly good when fermenting flower or low fruit recipes which often lack vinosity, weight and depth. SN9 is another strain noted for its robustness, being able to ferment to 18% abv. ethanol, tolerate high free SO2 and high levels of other
stress factors such as organic acids, incorrect temperature and pH. But unlike CL23, SN9 adds weight and high glycerol production making the strain perfect for high alcohol sweet wines or where uncertain recipes are employed and fermentation reliability is a key factor or where low temperature fermentation down to 10OC (50OF) is required. This strain is 'fermentation friendly' in that it produces zero foam, starts fermenting rapidly so avoids potential bacterial contamination and can be used to re-start stuck fermentations. SN9 is also the
most osmotolerant and the fasting clearing of all Vintner's Harvest strains.

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CL 23 Saccharomyces bayanus
high alcohol tolerance

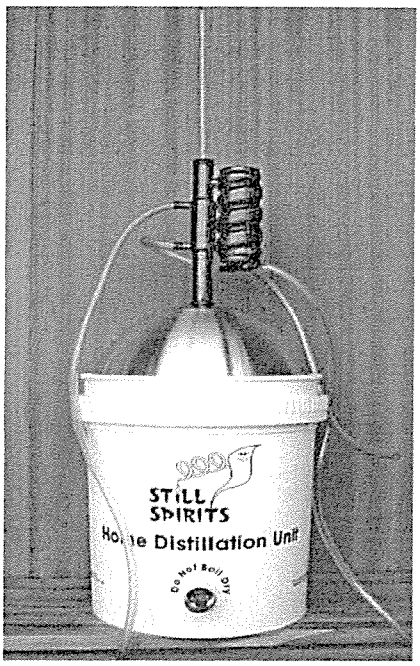
MA 33 S. cerevisiae
fruity white

TABLE FRUIT AND VEGETABLE WINE	Vintners Harvest Wine Yeast Strains								
Prominent Fruit	CL23	CY17	VR21		R56	AW4	CR51	MA33	
Blackberry			★★		★★★		★	★	★★
Boysenberry	★		★★★		★★		★		★★
Elderberry	★		★★		★★★				★★
Blackcurrant			★★★		★★		★		★★
Plum	★	★	★★★				★★	★	★★
Cherry	★	★	★★★		★★		★	★	★
Blueberry			★★		★★★				★★
Loganberry	★		★★★		★★		★	★	★★
Raspberry		★	★★★		★		★★		★
Strawberry	★	★★★					★★	★★	★★
Rhubarb	★							★★★	★★
Apricot	★★	★★★		★				★★	★★
Peach	★★	★★★						★★	★★
Apple	★★	★★★		★★				★★★	★★
Pear	★★	★★		★				★★★	★★
Gooseberry	★★	★★★		★★				★★	★★
Kiwi fruit	★	★★						★★★	★
Elderflower	★★★	★★★		★★				★	★★★
Mead	★★	★★						★	★★★
Vegetables	★★★	★★							★★★
Flowers	★	★★★		★★		★★			★★★
Other red fruits	★		★★★		★★		★		★★
Other white/blush fruits	★★	★★★						★★	★★

Reflux Still

20 litres

instructions for use



Welcome to the fascinating world of distilling; an **'age old art'** and a favourite pastime for many New Zealanders.

On 1 October 1996 the New Zealand Customs Act was changed to exempt people who run STILLS in their own home, for their own use, from paying Excise Tax. Although it is now legal to run a STILL for your own use, it is illegal to sell home distilled spirit.

Using your **Reflux Still** at home, along with **Still Spirits** ingredients, you can produce the finest quality spirits & liqueurs at a fraction of the normal retail cost. Amaze friends with your own home made spirits and liqueurs within one week of begin-ning this fascinating hobby. Full technical backup is available from the distilling specialist at your local Home Brew Store. This **Reflux Still** produces 5-6 litres of 37.5%V alcohol each time it is used.

Stage 1 Sterilisation

1. Everything must be cleaned and sterilised before and after use. This includes the fermenter (pail), airlock and stirrer.
2. For optimum cleaning, we recommend **FermTech Steriliser Cleaner.**
3. After sterilising, the fermenter and equipment should be rinsed several times with cold tap water taking care to run some water through the tap to ensure no trace of chlorine remains.
   - After rinsing, **seal** the fermenter to prevent any contamination.

Stage 2 Fermenting the Alcoholic Wash

1. Mix 5 kgs of Dextrose, (**or** thoroughly dissolve 4.5 kgs of Sugar), in 3 litres of boiling water.
   - Dextrose makes a cleaner spirit and ferments more quickly than white sugar.
   - Dextrose is easier to use than sugar because it does not need to be dissolved.
2. Pour the dissolved mix into the sterilised fermenter. Then add cold tap water to bring the volume up to the 20 litres mark.
3. When the Wash temperature is between18° - 25° Celsius, add one sachet of **Still Spirits Turbo Yeast** to produce an alcoholic Wash (mix).
   - If the Wash is too hot the yeast may be killed or weakened, and therefore may not be able to ferment out all the sugar.
   - Originally developed for the Swedish market, and containing a mix of yeast and nutrients, **Still Spirits Turbo Yeast** will produce an alcohol which is extremely low in byproducts.
4. Fill the **U** of the Airlock with water and fit to the fermenter to prevent any oxygen, bacteria or insects getting in during fermentation. Within 24 hours Carbon Dioxide should start bubbling through the Airlock, if the brew is working correctly and if the fermenter is sealed properly.
   - If this does not happen loosen the top and have a quick look inside. The wash should be bubbling and will probably have a foam on top.
   - A vigorous stir at this stage with a sterilised paddle (not wooden) will speed up fermentation. Stir gently to start with, to avoid a froth buildup.
5. The wash should be fermented between 20° - 25° C.
   - At a higher temperature, extra by-products may be made.
   - At a lower temperature, the wash will take longer to ferment, or may stop working altogether.
6. Fermentation will take as little as 3 days.

- In cooler weather it could take up to 7 days. For the first 24 - 48 hours, heat is generated by the fermentation process. After this period an Analog Heating Pad may be used in cooler weather to maintain the temperature. **Do not use a Heating Pad in the first 24 - 48 hours.**

7. Fermentation is complete when the yeast has used up all the dextrose/sugar. All sign of fermentation should be finished. If in doubt, leave the Wash for an extra day or two.
   - Wash and sterilise the **Wash, Wine & Beer Hydrometer** in cold water.
   - Drop the hydrometer into the wash, and take the reading where the line of the liquid cuts across the scale on the hydrometer.
   - The reading should be about 990 on a standard Wash, Wine & Beer Hydrometer.
   - Remember - Take care when handling hydrometers. They are very delicate.

Points to watch out for.

a) *If the airlock is not bubbling after 24 hours it is most likely that the fermenter is not sealed properly. With some barrels it pays to use a little Vaseline on the black **O**-ring. Check you have a good seal by lightly pressing the sides of the fermenter to force some air out through the airlock. When you release the pressure on the barrel the air should try to get back in through the airlock. If sealed properly the water level should remain uneven in the airlock (more water on one side than the other).*

b) *In some circumstances the yeast can stop working before all the sugar is used. This will be indicated by a final Specific Gravity higher than 990. Any reading above 1005 on a standard Wash, Wine & Beer Hydrometer suggests that something has gone wrong. In most cases a good stir to get the yeast back into circulation should get the Wash fermenting again but in serious cases you may need to add another yeast pack. The most common cause of stuck fermentation is low temperature. In this case simply move the fermenter to a warmer place and stir the yeast up. An inexpensive stick-on digital thermometer, available from your homebrew shop, will help monitor the temperature. If you are having problems maintaining temperature, an especially designed Heating Pad, can be purchased from your local Home Brew shop.*

Stage 3 Distillation

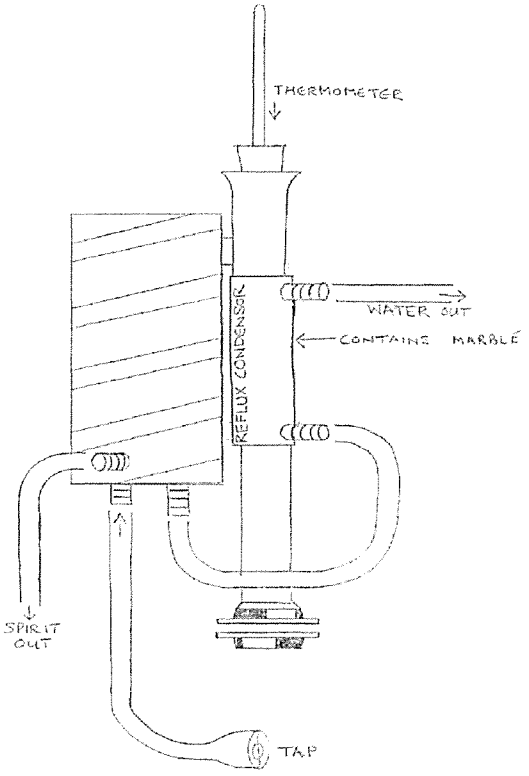
To Assemble a Reflux Still:

1. Fit the Condenser to the Domed lid and tighten securely.
2. Situate the Still on a firm **heat resistant** base close by a cold water tap, drain and power socket.
3. Place the marble into the top of the condenser where it will sit on the indentations on the inside of the Reflux Condenser. Fit the thermometer so that the bulb appears on the inside of the black bung by 20mm. Then fit the bung & thermometer into the top of the Condenser.
4. The lid may not drop down fully into place until the boiler has warmed up and the lid must be removed before the boiler cools down after use. This is because the polypropylene boiler expands and contracts with heat.

Distillation:

1. Pour the 20 litres of wash into the Still.
2. Fit the lid, complete with Condenser and hoses, onto the Still.
3. Plug the element in. When the wash has warmed up, but before thermometer reads 50° C, start the cold water running through the Condenser. ***Note*** - the lid may not fit into the boiler until the temperature is around 30° or 40°. Gently push the lid down (into the actual wash) as the unit warms up, until the lid sits tightly onto the step which is 75 mm down from the top of the bucket.
4. During most of the distillation process the cooling water flowing through the condenser should be flowing at about 400 mls per minute. To measure the flow fill a calibrated jug from the outlet pipe for one minute.

5. Collect the first 50 mls and discard this. This is the **Head.** It is <u>non drinkable and must be discarded</u> as it may contain trace amounts of Acetyl aldehyde, Methanol, and Ethyl Acetate.
6. Collect 3 litres of the **Body** which contains the Ethanol (drinkable alcohol) at about 70% proof. Make sure that the spirit outlet tube from the condenser stays well above the level of the spirit.
7. The more cooling water that flows through the condenser the lower the temperature in the reflux column, this will show on the thermometer. The temperature of your water also influences the amount you need. *(**i.e.** In summer you may need more water than in winter when the water is cooler).* The slower the cooling water flows through the condenser, the higher the temperature will rise producing a faster flow of spirit. Running the cooling water at less than 400 mls per minute may result in the lid pushing off. If you run more than 500 mls of cooling water through the condenser then this will slow the process down.



8. The thermometer temperature will slowly rise as the alcohol is boiled off. Increase the flow of water through the condenser to hold the temperature under 92°. The flow will slow toward the end of the distillation.

From a standard 20 litre wash produced with 5 kgs of Dextrose you should collect 3 litres of alcohol at 70% strength in 4 hours. Remember to always measure the strength of your spirit at 16° Celsius or refer to the **Temperature Correction Chart** on page 5 to make the relevant adjustments. Discard the rest of the fermented wash.

Points to watch out for:

a) *If for any reason the Wash has not fermented completely, (**i.e.** above 990 SG all the sugar has not been converted to alcohol), then you will not collect the full amount of distillate.*

b) *If you have not collected the full amount of alcohol, check you have:*
- *used the correct amount of sugar/ dextrose in the Wash;* **and/or**
- *the specific gravity is below 990 before distilling;* **and/or**
- *there is no steam leak during distillation.*

c) *A typical Wash will take about 4 hours to run through the Still. It will take about 1 hour and 35 minutes to heat up before any condensate will run out of the Condenser. It will then take about 5 minutes to collect the Head, about 1 hour to collect 1.6 litres of the Body and 1 hour and 20 minutes to collect the other 1.4 litres of Body. <u>This is a rough guide only</u>.*

d) *If the flow of water through the Condenser becomes too slow or stops the Domed lid will push off the boiler. This will also occur if the spirit outlet tube from the Condensor, is allowed to drop beneath the surface of the spirit being collected.*

e) *If the wash is not fully fermented out, then the unfermented sugars can foam causing lid lift and inefficient distilling. Use Distilling Conditioner to increase yield or avoid problems.*

Sparkling Grapefruit Wine

This recipe can be used to make wine from other citrus fruit

6 Grapefruit
1 3/4 lb (800g) sugar
1 Gal. (5 litres) water
Nutrient and yeast .....

Squeeze the juice from the grapefruit and pour it into a plastic bucket with the sugar. Pour on the boiling water, stir well and cover. When cool, add the nutrient and yeast. Stir twice daily for four days, then pour into a 1 gallon (5 litre) jar and fit a fermentation lock. When all fermentation has finished, siphon the wine into champagne bottles and to each add:
1 Teaspoon of fermentation starter.
Cork the bottles and tie down the corks.
Shake a few times to dissolve the sugar, then store bottles on their side.

Fermentation starter:
Juice of 1 lemon
1 Cup of water
1 Tablespoon of sugar
Mix together and bring to the boil. When the mixture has cooled to slightly warm ... Pour it into a clean bottle. When cool add 1/4 teaspoon of vegemite and 1/2 teaspoon of general purpose wine yeast. Plug the neck with cotton wool and leave for a day or two until the mixture is fermenting rapidly before using.