Winemaking is about management of phenolics
Typically phenolic materials in total represent only about 200 to 2,000 mg/L or one to six percent of the total sugar free extract of table wines. Generally they are not volatile and have little direct effect on the aromatic characteristics of a wine. However they are fundamentally responsible for the wine’s colour and much of its effect on the palate. Nevertheless they are probably the class of compounds which most clearly distinguish one wine from another. They make white wine white and red wine red. Faults aside, they also have the major role in differentiating good, from not so good, wine.

Arguably they could be considered as the soul of the wine.

What are we trying to achieve?
The tone of the titles of presentations at this seminar suggest a primary focus on the role of phenolics in red winemaking. This is a big enough topic in its own right but it would be short sighted to overlook the importance of this discussion for white and sparkling wines as well.

It is presumed that other speakers will provide enlightenment on the characterisation, categorisation and chemistry of wine phenolics, so the differences will not need to be explained here.

... generally there is an inverse relationship between fruitiness and tannin. (Peynaud 1987 p113)

Peynaud’s quote was written in the context of the most suitable temperature for serving wine when he wrote this, but it serves as a succinct statement of an important general proposition. Looking at the broad range of wines, this is substantially defensible, but the rule breaks down somewhat when considering white winemaking. In this case it could be better stated as an “inverse relationship between fruitiness and palate structure”.

Peynaud (1987 p160) continues elsewhere:
I would like to refer again to the opposition that exists in wines between their fruit-like aromas and their tannic constitution; this concept should serve as a guideline for all winemakers. By applying different vinification methods to the same red grape harvest one can make a white wine, a rosé, a light or a strong and full-bodied red wine, depending on the extent of the maceration and, as it were, on one’s inclination. The white wine is the most aromatic, and the lively aroma of fruit decreases progressively until one has a red wine that needs long ageing and whose aroma is heavier and less esterish.

We have to make fundamental choices in winemaking styles:
• If we are trying to make rich, complex, long living red wines then tannin extraction  is good and by corollary, for fruity young drinking styles, tannin extraction is bad.
• However, if we are trying to make complex long living whites, then tannin is bad, and if we want fruity young whites, then tannin is still bad but probably unavoidable.

This paper is about these options. It is a personal statement containing a number of observations and opinions accumulated over 20 years of winemaking and consulting in Australia and abroad.

In this regard it will draw on my recent experience working as a consultant to a number of major wineries in Bulgaria. This experience provides a distance and perspective that is important when considering fundamentals. Winemaking is reduced to basics and there can be no pretence in these circumstances. As a result, there has been a need to think more about phenolic extraction and manipulation than was necessary in many years of winemaking in Australia.

Bulgaria as a wine producer is hardly known in this country, but it is a major supplier to some of our important markets, especially the UK where, until recently, it has sold more than Australia. Its great strength has been in very well priced, accessible red wines made from Cabernet Sauvignon and Merlot. In some of the major supermarket chains it still sells more bottled red wine by volume than France.

Technically, most of the industry is probably 30 or more years behind us but they remain competitive because their cost structures are low and viticulturally, despite terrible neglect, it is a natural environment for grapes. Even so, it was a shock when I first visited and has remained a source of continuing amazement to me.

At the time my brief was to introduce modern white winemaking methods and I accepted this on the basis that my clients had the market presence and experience to know what they wanted. It did not take long to see the wasted opportunities that existed in the area of red wines. My hosts could not see this at the time because they were sure that their wines were world class. Their publicity material spoke of rich, full bodied wines with depth and good tannins. When I tasted the wines they were quite different—overly developed, light in colour, nose and body. Tannins were similarly sparse and it seemed at the time that I was missing something and there must have been more.

To my surprise, the winemakers believed their own publicity. They believed their wines were tannic and hard and needed a lighter touch. They were, in fact, being told this by a number of customers. As a result there was no incentive to get the fruit riper or give the wines the extractive methods they needed. Since then there has been the beginning of a change and we are busy advising them on more appropriate red winemaking procedures.

The early results reflect some of the strategies and procedures advocated in this paper.
White wine

A question of style

The emphasis of this seminar on red wine could lead us to overlook the importance of phenolics, or lack of them, in the making of white wine. The issue remains a question of style: whatever the winemaker does to enhance fruitiness and aromatic intensity is at the expense of palate finesse and length.

In general, to make white wines with intense youthful aromas, the winemaker needs to practise more extractive and protective methods—specifically must maceration and reductive juice handling. In this case, the phenolic levels are increased and colour stability decreased.

This issue was well canvassed by Zelma Long in an address at the Sixth Australian Wine Industry Technical Conference in 1986 (Long and Lindblom 1986). She described experimental work in Chardonnay juice oxidation at Simi Winery during the early 1980s. It was her basic proposition that finer, more long lived wines could be produced using less extractive and more oxidative juice handling methods. At the time this was a fairly bizarre proposition for Australian white winemakers who were committed to a highly protective regime.

Winemakers understand the issues much better now, and there would be more acceptance of contrary styles, so it is worth reviewing the factors which affect phenolics in white wines.

Fruit ripeness and time of harvest

We know that the juice-soluble hydroxycinnamates are the major phenolics of white wines (Somers 1986). The skin- and seed-derived flavonoids which are fundamental to red winemaking are of much less significance in whites. Nevertheless, there is an issue with these flavonoids. This is particularly the case with ripe, sun-exposed fruit which exhibits some bronzing or sunburn. Even when skin contact is not practised there is a noticeable firmness in juice and wine that cannot be otherwise explained by any of the winemaking procedures.

Harvesting method

Machine harvesting is now so extensive and well developed that it can no longer be implicated as a negative quality contributor. Nevertheless its practice does limit some options, particularly for smaller scale winemaking.

Machine harvested fruit which has to travel any distance inevitably is macerated and often at greater than ideal temperature. To protect it from excessive oxidation and microbiological deterioration, some SO₂ and, perhaps, ascorbate is added. This sets the wine on the protective winemaking path and, as a consequence, higher phenolics could be expected.

Crushing or whole fruit pressing

For the finest, lowest phenolic juices, bunches should be pressed whole, cold and without SO₂ addition. This is only possible with hand harvested fruit and where there is adequate pressing capacity.

Fruit or must chilling—when and how much?

Juice phenolic content increases with length of skin contact and temperature. Therefore if the juice is cold before it is liberated from the berry, it will extract less phenolics than if crushed warm. In most modern wineries with efficient crushers, must pumps and chillers, the delay between crushing and chilling is insignificant. Nevertheless the ideal is to chill the fruit first. In many small wineries cool room chilling of whole bunches is a practical proposition but it is not realistic for larger operations.

Most wineries are happy to chill must to between 8 and 10 degrees as this is cold enough to inhibit oxidation and phenolic extraction but not so cold that pectinase activity ceases.

Sulfur dioxide?

Sulfur dioxide is a remarkable substance. It does have its drawbacks, however, if trying to minimise white wine phenolics. By inhibiting polyphenoloxidase activity it slows oxidation. This effect is compounded by the binding action of sulfur dioxide on phenolics. In so doing, the process of phenolic condensation and polymerisation is blocked, and what could otherwise be a useful tool for reducing phenolics becomes associated with bitterness and colour instability.

A scorbic acid?

A scorbic acid, when used in conjunction with SO₂, is a potent anti-oxidant. In a protective winemaking regime it has an important place. Accordingly, it has no place where the aim is to reduce phenolics by oxidation.

Skin contact?

As indicated above, increased skin contact time and temperature increase phenolic content. To a degree they also increase the fruit aromatics extracted. Here is where the winemaker has a most difficult choice: to strive for intensity of fruitiness on the nose and get coarseness of palate or to aim for palate finesse and sacrifice immediate fruit appeal on the nose. For wines from basic fruit intended for immediate sale, the decision is clear: skin contact together with reductive handling to protect and lift aromatics is the only way to ensure short term appeal.

Skin contact has a very limited role in the production of the finest white wines if they are to have any prospect of acquiring the complexity and finesse that is only brought about by time.

Use of pressings

As with skin contact, pressings can contribute to fruit flavour and aroma but at the expense of increased phenolics. This can be managed to a degree by juice fining.

Barrel fermentation and maturation

It hardly needs saying that oak is a significant contributor to wine style. Besides enriching the aroma of quality white wines, it can be a significant contributor to wine phenolics. It is far too big a topic to address here and include all the important influences from oak origin, seasoning, toasting and conditioning. Other factors such as the number of previous fills for the barrels; whether the wine is fermented or just matured; length of time and storage temperature all have a role. For a good summary of the various factors involved see Hoey and Codrington (1986).

Of course, oak can be used inappropriately and to excess. There are still winemakers who believe they can turn thin, green wine into something else by using oak barrels or chips. With few exceptions they usually only succeed in making thin green woody wine.

Fining

If the various winemaking procedures result in an excess of phenolics there are a number of fining agents which may be used to ameliorate the wine: such as skimmed milk or casein, isinglass and PVPP. In extreme cases, such as fining of heavy pressings juice, gelatin may also be used.
Red wine
If white winemaking is about minimising extraction, then red winemaking is unquestionably about phenolic extraction and manipulation. Red wines have a richer group of phenolics than whites; besides the juice-derived hydroxycinnamates, red wines typically contain larger quantities of anthocyanins, flavonols, procyanidins and polymers of these and other compounds such as polysaccharides and peptides. Together these make red wines red. This much richer and more complex brew generally makes red wine more satisfying, and probably healthier, to drink and for the winemaker more satisfying to make.

Fruit ripeness and time of harvest
It is not possible to make generalisations about the quantitative evolution of phenolics as a whole in the maturing grape berry. At veraison, the phenolic content of red grapes is already high but during the maturation process, the quantity of the various components changes dramatically, particularly the anthocyanins (Ribereau-Gayon and Glories 1986).

Winemakers have an implicit understanding of the qualitative changes that take place during the maturation of red grapes. Generally it is known that if grapes are harvested too early, the resultant wines are light in colour, thin in body and have a harsh 'greenness' on the palate. High quality ripe fruit from good vineyards gives red wines that are dark and rich with soft acid, supple tannins, balanced astringency, no more than a hint of bitterness and good length.

Other, more qualified speakers will explain the chemistry of this but, as a practitioner, I believe that fully ripe fruit is crucial—within reason, the more, the better. Of course, there is a point when the fruit becomes over-ripe and quality suffers but in most of my work in recent years in Australia's cooler areas and in Bulgaria, this has not been a problem. On the contrary, it has been frustrating making wine with fruit which has not had a chance to ripen either because the weather has not been favourable or grapegrowers have picked the fruit green. This has led to the use of every trick possible to make an acceptable beverage. Some of these will be discussed below.

Crushing and destemming
A range of options is available to the winemaker: from no crushing i.e. whole berry (carbonic maceration) to fully crushed and destemmed fermentations. Generally winemakers seek to handle their fruit as gently as possible to minimise the risk of extracting excessive bitter tannins from damaged seeds and stems. The softest, fruitiest, least extracted wines are produced by the carbonic maceration method while the most extracted wines are made using the process of crushing without destemming. Stems are a rich source of phenolics and their inclusion in fermentations leads to higher phenolics in the wine (Price et al. 1995).

Winemakers will often look to the maturity, or woodiness, of stem tissue before deciding to include it. Green stems are believed to contribute harsh tannins to the wine.

Preferment maceration?
There is a strong school of thought which believes that finer reds are made if the crushed must is allowed to macerate (cold soak) for a period of a few days to a week before ferment. This has its strongest following among Pinot Noir producers. The idea is that a more intense aromatic quality can be achieved if the must macerates before any significant alcohol is present. A small of the flavonoids are not very water soluble, it is possible that other flavour components are extracted while minimising phenolic extraction. For lighter bodied varieties such as Pinot Noir this could be a valuable tool and I have certainly tasted many fine wines produced by the method.

There is, however, the risk of opportunistic contamination from undesirable yeasts and bacteria, with the development of undesirable characters such as volatile acidity and hydrogen sulfide. These can be controlled to some extent by using the procedure with only 100% sound fruit and with the use of sulfur dioxide and low temperatures. The high levels of sulfur dioxide required can then have other undesirable side-effects on the subsequent fermentation and development of the wine.

Fermenter configuration and size
Presuming this recommendation of a standard yeast inoculation is accepted after crushing and destemming, the next issue would be the type of fermenter to use.

Fermenter style
There is a great range of red fermenters in all shapes and sizes:
- Closed static fermenters – with and without screens and heading down boards
- Open plastic bins
- Steel tubs
- Open concrete tanks
- Closed concrete tanks
- Standard stainless steel tanks up to 250,000 litres
- Open tanks with hydraulic robot plungers
- Rotary fermenters from 7 to 70 tonnes
- Ducellier type autofermenters
- Padovan style vertical fermenters with in place irrigation

Something good and something bad can be said for all of these but red wine can be made in all.

Cap management systems
The management and manipulation of the cap is an essential component of the red winemaking art. The main problem with whatever type of fermenter is to keep the cap in contact with the fermenting red wine. The shape and size therefore has a great bearing on this. In general, a flat shallow cap is easier to use and gives better extraction than a tall, narrow one. It is worth reviewing the options in the light of our focus on phenolic extraction.

Mechanical submersion of cap
All of these systems involve some process of submerging the cap in the fermenting wine.

Heading down boards or screens
This system involves securing a sturdy permeable screen within a vessel and pumping in must below it. The level of the liquid is above the cap which is held submerged despite the tendency for it to float. In theory this should give good contact between cap and wine but poor circulation within the cap limits extraction. In particularly poor systems, the cap is forced up under the screen and becomes compressed and filled with gas which precludes wine contact.

One recent experience with this system produced a wine
that was bright and fruity with light body and very soft tannin. It was fermented cool and very still. The wine was very attractive when young but the colour was very unstable and it all precipitated on the side of the bottle within 24 months.

The worst example of a submerged cap system was with a Bulgarian fermentation in a closed concrete tank. In this case the ceiling of the tank was supposed to hold down the cap. It did but no wine moved through it and it became very hot with the ferment sticking. Needless to say, even when the wine eventually finished it was thin and stewed with poor colour and body.

Manual pigeage and plunging
In shallow enough tubs this can be done by treading, which is immensely satisfying but not particularly practical on an industrial scale. In tubs up to about 5 tonnes capacity and a depth up to 1.8 metres, hand held plungers can still be used to submerge the cap. A ny deeper than this is not really possible by hand. Done regularly however (3 or more times per day during fermentation) it is an effective system for extracting colour and tannin.

Mechanical plunging
Various mechanical plunging systems have been developed over the years. The most elaborate was a robot hydraulic system seen in a large Burgundian cooperative. The fermenters were tall 40 tonne capacity with a hydraulic ram on a cycle to plunge the whole cap. The cooperative was very proud of this system but it seemed it was not really doing its job. The ram had a pitch of only 1.2 metres but the depth of the cap must have been at least 1.8 metres so not much of it got wet at all. The system was supplemented with pumping over.

Other systems include vertical and horizontal helical screws which rotate and submerge the cap as well as various paddle-like devices. Used properly they all can do their job but the engineering required is sometimes not justified by the result.

Rotary fermenters
These are really just another type of mechanical plunging system but they have the advantage that all the machinery is on the outside of the tank which rotates. Because of their horizontal configuration, they have the advantage of a shallow cap. Together with their ease and thoroughness of mixing and emptying, they are the supreme red fermenter.

The only negative point besides their expense is that they are a closed system so aeration is not easy to include as part of the vinification process.

Pumping over
At its simplest, this consists of wine being pumped from a valve below the cap and circulated over the top. A worker will often distribute the wine over the cap with a spray or jet. This is usually done at least three times a day. It may also involve running the fermenting wine first into a tub and pumping from this. This is good for aeration and mixing of additives such as acid or sugar.

Done properly, this is an effective extraction method, but it has some practical limitations. If the fermenter is squat and wide, unless it has an open top, it is difficult to wet all the cap effectively. If it is tall and slim, all the cap is more easily reached but it is usually deeper and needs longer work to wet thoroughly.

Automatic pump-over systems are very popular in Bulgaria and reflect the industrial approach to winemaking that prevailed in that country during the height of its development. These consist of large (40 to 80 tonne) vertical fermenters with permanent high capacity centrifugal pumps drawing wine from below the cap and pumping it up through a fixed line to be spread over the cap by a turbine or splash plate. Typically these are on an automatic cycle to pump over for a few minutes every hour. Unfortunately this seldom provides enough wetting for the deep cap so extraction is generally poor.

Towards the end of fermentation, the wine drains from a valve near the bottom and the marc is removed by an auger within the tank. This system has many problems and does not lend itself to quality winemaking. Attempts to improve extraction by extending maceration have led to other problems; if the cap sinks, the drainage system blocks up and the wine cannot be easily removed.

A nother system is the autofermenter which works on fermentation gas pressure to force wine into a reservoir above the cap. When a certain level is reached the gas vents and the wine rushes back down to flood the cap. This cycle takes about 15 to 30 minutes. The extraction is satisfactory but the system is a nightmare to keep clean.

If any of these systems fail to give adequate mixing, the winemaker has the option to drain off all the wine to another tank, thus dropping the cap to the bottom of its tank. The wine can then be pumped back over the top. This is time consuming but a very effective form of cap management.

Time of draining
Irrespective of the cap management system used, the winemaker has to decide the best time to drain the wine from the cap. This is important because the different phenolic constituents are extracted at different rates and they may even diminish during the course of fermentation. The skin-derived anthocyanins and flavonols peak early and then diminish. The seed derived catechins take longer to extract (Price et al. 1995).

Accordingly, the timing of pressing can influence the relative concentration of these. Typically, lighter, fruitier, younger drinking styles are drained off before dryness while their colour is bright and intense and before too many of the harder, seed derived tannins are extracted. Fuller bodied, more tannic styles are achieved by extending the maceration.

An interesting variation on early draining is to finish the fermentation in new oak barrels. In so doing, wines of bright, intense colour and lifted fruit and oak aromatics can be created. To some extent the late extracting flavonoid phenolics of the seeds are replaced by the non flavonoids from the oak. Nevertheless, these wines are charming but lack some body. A ‘whole’ wine needs some of the phenolic and other materials only extracted in extended maceration.

Post ferment extended maceration
For sound ripe fruit of good quality, extended maceration is strongly advocated. That is, allowing the wine to macerate with its skins and seeds for at least 20 days after the completion of fermentation. This is really only practical in vessels which can be sealed but it is nevertheless one of the most powerful tools of the red winemaker.

On numerous occasions some wines have become progressively more tannic and even bitter over the course of the maceration until, after a variable period in the order of 3 weeks, they seem to soften. Where this suppleness comes from is not really known. There may be a continuing alcoholic extraction of phenolics from the seeds but perhaps there is the beginning of polymerisation and the condensation of tannins with polysaccharides, proteins and peptides derived from degraded plant and yeast cell matter (Ribereau-Gayon and Glories 1986). These would have the
effect of improving the body of the wine and reducing the perceived astringency of the tannins. It has to be admitted that the wine often acquires a distinct ‘skins and seeds’ flavour which is not attractive in the short term. This has always been transient and it has taken 12 months or more to change but when it does, the wine is usually much better. It is an essential component of great red wine blends.

Pressings
Pressings wine has similar characteristics to wine that has extended maceration and, similarly, has a place in some blends.

Maturation
Red wine of any status benefits from maturation. The colour becomes less red and more brown, and deep; the rough astringent tannins soften and the wine becomes more supple. A low of these changes are based, to some degree, on the presence of oxygen and the passing of time.

The role of oxygen
By a complex process which others are better qualified to explain, in an acetaldehyde mediated reaction, anthocyanins condense with tannins to form more deeply coloured and stable compounds than the original pigment (Ribereau-Gaëyn and Gories 1986). These are less susceptible to pH and SO₂ dependent decolouration.

The tannins themselves also polymerise. This leads to a softening of raw tannins and, taken to its conclusion, the eventual precipitation of these large molecules. This is evident in the loss of colour and body from red wines as they mature in an oxidative environment.

From a winemaking point of view, this process can be used to advantage. Maturation in barrels with occasional aerative racking can soften wine, and deepen and stabilise colour.

On the other hand, the degree to which this can diminish a wine really only became clear while working in the rudimentary conditions of Bulgaria, where relatively light bodied red wines with high iron content would be stored in poor concrete tanks without seals.

The role of sulfur dioxide
Sulfur dioxide is important for the prevention of microbiological spoilage in wine but it also has an antioxidant role in its blocking of the polymerisation and condensation reactions above. In this regard its use should be carefully moderated. Too much blocks the processes necessary for the normal maturation of wine and too little allows them to proceed too rapidly.

In fruity young red wine of low tannin content, destined for early consumption, higher levels of SO₂ can be useful in preserving its freshness and preventing its premature ageing.

Full bodied, tannic red wines need much less SO₂ to proceed. Just what is the right amount therefore depends on the type of wine, its destiny and the storage conditions.

Exogenous tannin addition
Tannin is a permitted wine additive in most winemaking nations. It is also a very valuable tool that allows the winemaker extra options. There is another presentation at this seminar on the origin of exogenous tannins, so this discussion will be brief.

As a consultant, one is often confronted with fruit or wine that is thin and green. In this case the addition of some tannin is often recommended. Invariably this thickens the wine and confers a degree of resistance to premature ageing. This is, in part, a simple supplement to replace what nature did not provide and in part, a reflection of tannin’s anti-oxidant capacity. In Bulgaria, where the tendency in recent years has been for grapes to be picked greener and greener, it has been a very successful tactic.

Other speakers from this country will explain that tannin has been a regular additive to a number of wines from our warmer regions where ripeness is generally not a problem. In this case, the high alcohol sweetness and lower acids benefit greatly from some extra tannin to balance them (Peynaud 1987).

To get the best effect tannin should be added as early in the wine’s life as possible. It may then be added in small increments as the wine develops. By this means, the less polymerised tannin levels are topped up as polymerisation and condensation continue.

Fining
A wine with white wines, we sometimes get the extraction wrong and, at the time of bottling, the red wine is still too tannic and harsh. In this case, the traditional approach has been to use a proteinaceous fining agent to react with tannin and cause it to precipitate. While this generally had the effect of removing excess tannin, most of us who have used it felt that flavours and other wine components were removed as well.

In this regard, gelatin is commonly used but egg albumen is preferable for quality wines.

Some recent research
In 1996 a Bulgarian winery client was encouraged to produce a wine using riper fruit, a rotary fermenter, added tannin and extended maceration. It was considerably better than other contemporary wines and immediately found a buyer in the UK supermarket chain Safeway.

At the time Safeway was also sponsoring research into the flavonol content of red wines. The aim of this was to put some measure on the group of phenolics that are presumed to be associated with the antioxidant properties of red wines. Their interest was from the point of view of possible consumer health benefits.

They measured the free and conjugated quercetin and myricetin contents of 65 commercially available red wines from around the world. These are good indicator phenolics and other work by Price et al. (1995) shows their importance. The results covered a range from 5 to 42 mg/L and, despite the confidence of the Bulgarians that their wines were big and tannic, their existing older style samples all had levels at the low end of about 5 mg/L (Crozier et al). In a subsequent test, the new Safeway wine, at 16 mg/L was about three times higher than the other Bulgarians (Matthews).

This early result was very encouraging and the research is continuing.

The new frontier—ultra filtration
A new technology that has recently been developed by Vinovation in the USA has caused further thought about some of the options in red winemaking. They have been using ultra filtration systems to selectively remove phenolic materials according to their molecular weight. By this means they have been able to take even heavy pressings from a screw press and remove the harsher phenolics without stripping aromatics. Rich, flavoursome but soft reds could thus be created from otherwise unusable wine. This technology is in its early days but it shows great promise.
'X press' tannin concentrate
The really interesting aspect of the ultra filtration system is its by-product. The retentate or residue from the process consists of much of the concentrated, higher molecular weight phenolic material in the original wine base. This concentrate, marketed under the trade name 'Xpress' has shown itself to have a remarkable effect in filling out otherwise thin wines. As a complement for other, non grape derived tannins, it shows great promise. It appears to be permitted by BATF regulation.

Common sense, and an open minded approach to new technology, suggests it should readily find a place in the armoury of winemaking weapons. But what is it? Wine? Tannin? On either definition, it should be considered a permitted additive.

Managing the options
This is an attempt to review the options available to winemakers. Notwithstanding the vast amount of knowledge still required, there should be sufficient understanding of the nature and behaviour of phenolic compounds as well as the tools to be able to do a workable job of extracting and manipulating them in the winemaking process. The question really arises of whether winemakers can correctly identify their goals and the desires of their customers.

Great wines and manufactured wines
There is a large and healthy market for wines that fall a long way short of what most would consider great wine. This market seeks products manufactured to a wide range of specifications, so from a hard headed business viewpoint, it is neglected at our peril.

Notice the term 'manufactured' was used. This is an appropriate description for the winemaking process for all but a few very special wines. For much of the world, wine is consumed automatically and with little pretence. The consumers of this product want a basic, satisfying and low cost beverage. They have high expectations of wine as a safe and natural product. Yet notwithstanding the industry's best promotional efforts, probably consumers already suspect it is 'full of chemicals' and that is despite the relative purity of wine compared to other manufactured foods. So it should not be too obviously concocted.

These criteria have much in common with other foodstuffs and there are similarities in the development of globally homogeneous food products with the growth of major international wine brands. In this regard, for food at least, the framework of public health and consumer law provides strict guidelines as to what is acceptable practice. Wine laws have a lot to say about labelling and nomenclature but relatively little to offer in the area of winemaking practices. Winemakers are generally happy with this less intrusive state of affairs, but the negative side of this is the lack of clear guidelines on where to 'draw the line' in terms of their intervention in the process.

A new ethical framework is required.
Wine has to cover a huge range of consumer tastes and needs. In some respect, most winemakers talk and act as if they are all making great wines. Unfortunately, the market for such wines is limited. So while many winemakers carry on as if they are preoccupied with making Grands Crus, they are in fact making oceans of basic red for the undiscriminating public. They then encourage consumers to believe they are in fact drinking Grands Crus.

This may be good for business but winemakers should set some ethical guidelines for themselves as to what is acceptable practice in making different wines. Paul Draper of Ridge Vineyards in California addressed this issue admirably at the last technical conference (Draper 1995). He proposed that great wine remains a laudable aspiration for us all but it can really only be considered great if we accept that it must be from a distinct vineyard and handled minimally. Other wines will be needed to satisfy the huge demand for a wide range of more 'manufactured' wines. His belief was that unless we subscribe to this description, the lines of distinction will be blurred by our technology and we will lose all sense of what wine needs to be 'great'.

The same ethic should guide winemakers aspiring to make great wine. If tannins are the soul of the wine, we increasingly have the techniques and understanding to manipulate them and so tamper with its soul. We still need to develop an implicit set of guidelines as to the right time for doing so.

References