DE VINORUM MULSORUMQUE FACIENDO

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When I decided to deliver to the Chicago Literary Club a paper on the making of my own wine and beer, I realized that a flat-out phrase clearly describing the subject lacked both the class and the obscurity customary in titles to Literary Club papers. But any statement can be made classier by putting it into a classical language, such as Latin; moreover, doing so lends the subject a degree of obscurity for those who, like myself, have not studied the language for 40 years.

One Sunday morning a dozen or so years ago I awoke well before breakfast time and lay in bed thinking. Like the sentry in Iolanthe, I think, on such occasions, of things that would astonish you. That particular Sunday morning I thought that living in the United States I was part of the nation with the widest diversity of cultural groups of any in the world, and that living in Chicago I was in the most intensely diverse part of this country. Yet what had I done to take advantage of any of the enormous available variety of cultures other than my own? "Nothing," I said to myself. "What other cultural characteristics would you like to participate in?" myself asked me. My answer was clear and decisive: "I'd like to make my own wine, like the Italians."

At about the same time I was given a wine-making kit containing a few of the items of equipment necessary to do a good

job of making wine, including a cubic plastic five-gallon jug which is useful. Instead of a hygrometer calibrated according to four different scales, however, the kit included a large eye-dropper with a float which rose when the dropper was filled with a fluid more dense than water, and sank when the fluid was about the same or less. A battery acid tester would have been more useful, but I did not know that then. It really made little difference, however, because the kit contained no grapes, only a can of grape juice concentrate. With concentrate one adds a measured amount of water to the contents of the can to achieve the correct proportion of sugar in the must. With grapes one must measure the specific gravity of the must since the sugar content of grapes is highly variable. The instruction book that came with the kit was helpful and not very demanding. The best thing about the instructions, however, was a reference to other books on amateur wine-making, especially Duncan and Acton's Progressive Winemaking.

Because the kit did not contain a wide-mouth crock, and the instructions did not say I needed one, I mixed the concentrate and water and yeast and left the mixture in the narrow mouthed plastic jug to ferment. It fermented all right, and a sudsy mass of foam and yeast appeared on the surface of the liquid. The mass grew and grew and found its way out through the water-seal valve and onto the study floor. Eventually the foaming subsided and the wine was, I thought, ready to bottle. Mercifully I knew not to bottle the stuff until nearly all the sugar

was turned to alcohol and carbon dioxide. The kit did not contain bottles or corks, but these I had ready access to by virtue of drinking store-bought wine. Only later did I realize that the use of old corks is unwise because of the possibility of contamination. Fortunately my memory of drinking the wine is dim, but the first attempt was successful enough to encourage me to persevere. In other words I had tasted worse wine than what I made on that occasion.

Most of my early assays were with wine concentrate, and I quickly learned to buy the most expensive rather than the least. With concentrate you will never get a very good wine, but your chances of getting a very bad wine are significantly diminished. Recently I have seen on store shelves a variety of grape juice concentrate that requires the winemaker to add his own sugar as well as water. Since sugar should not be removed from grape juice during the concentration process, I can only conclude that such concentrates are either made from very low-sugar grapes or from not enough grapes to provide a satisfactory sugar content when the required quantity of water is added.

In time I concluded that if I were really going to make wine I should learn to use grapes. Not knowing what sort of grapes to use or where to get them, I went out to the West Randolph Street Market on an occasional Saturday and bought table grapes by the case. On one occasion the proprietor of one of the enterprises on West Randolph Street ascertained that I was going to use the grapes for wine and sold me a case of grapes which had been

noticeably infested with mold. Not knowing any better, I swallowed his story that the mold would be what I needed to turn the grapes into wine. I learned better when I had to pour the entire lot down the drain because the wild mold had turned the must into some substance that clearly was not potable wine. Subsequently I have kept quiet when a merchant tried to sell me moldy grapes with that story because any words I might say under the circumstances would be fighting words. It is true that in some areas of Germany, and it may be true in parts of France that the native wild molds which attack the grapes on the vine do result in superior wines. But those molds don't seem to be prevalent around Chicago. So far as I can tell, if you are lucky the local wild mold will produce lactic acid or vinegar; if you're not, it will produce something worse.

My equipment grew gradually into a selection that works reasonably well. Grapes, to yield their juice, must be both crushed and pressed. Early on I learned to crush grapes by putting them in the turkey roaster, putting the turkey roaster in the bathtub and treading on the grapes barefoot until the the skins ruptured. Further, I decided it was part of my children's education to learn to tread grapes, so they helped until they got bored. Although romantically Continental, the practice of stepping on grapes is time consuming, particularly because I insist that feet be washed before they contact the juice and my wife insists that they be washed afterward. It is also hard to keep grapeskins from going down the bathtub drain and clogging it. Initially I pressed the grapes by ladeling them from the turkey roaster into

an old laundry bag and then squeezing and twisting the laundry bag. This worked pretty well, though I doubt that the flavor imparted to the juice from the bag was an improvement. However it is messy and is likely to give one blisters if he twists the wet laundry bag too often. In time my wife gave me a small press and I bought a crusher which passes the grapes between two rollers with gearlike teeth when I turn a crank.

Fairly early in my winemaking career I learned of Chiaruggi's Hardware. It is the winemaking supply store in town that stays in business, unlike several that started and failed. Chiaruggi's is on West Taylor Street, a couple of blocks east of Ashland Avenue and carries all the equipment and supplies an amateur winemaker is likely to need. Another store I found helpful is the Conte di Savoia grocery in the shopping center at Jefferson Street and Roosevelt Road; from the latter I bought a magnificent ten-gallon earthenware crock in which I now start whatever I intend to ferment in quantities larger than a gallon or two.

When making wine, you use dark grapes and ferment the juice after crushing but before pressing the grapes so that the tannin leaches out of the skins and into the juice during the fermentation process. Otherwise you would get a white or pale pink wine, even from dark grapes. But leaving the skins on increases the risk that wild mold will attack the must, so if you don't want red wine, you press immediately after crushing and ferment the juice alone.

Earlier I mentioned the book Progressive Wine Making by Duncan and Acton. The authors (or at leat one of them) appear to be trained in sugar chemistry or biochemistry, and have no hesitancy in explaining the difference between a molecule of sucrose and a molecule of fructose of maltose and, more importantly, the significance of such differences. In case the difference is one you have forgotten, sucrose, which is table sugar, has 12 carbon atoms per molecule whereas glucose and fructose have only six. Maltose, like sucrose, has 12 but the structure of the molecule is different between these two types of sugar. This sort of information is almost certain to be useful some time, and I intend to treasure it until that time comes.

The book is helpful in encouraging the amateur winemaker to understand what he is doing and why. It also teaches the use of ingredients other than grapes, and provides a sound basis on which to deal with such ingredients. I have made wine from dandelions, strawberries and chokecherries. The dandelion wine would have been pretty good except for the fact that I picked a few dandelions in a part of Lincoln Park where someone had recently walked a dog. Although not noticeable in the freshly picked flowers, the scent came through clearly and unmistakeably in the wine. I recalled reading somewhere that dandelions for wine purposes should be picked early in the morning, as soon as they open up, to assure a maximum sugar content. Another reason to pick them early is to get to them before the dogs do.

Strawberries make a light pink wine with little flavor, a nice bouquet and lots of acid. The wine is not too acid to drink, but would be better mixed with another wine that does not have enough acid. Chokecherries make a decent wine, and the flavor is so strong that the fruit can be mixed with a relatively large quantity of sugar and water yet yield a wine which has all the flavor you need, and a nice color to boot. With all of these wines it is necessary to add sugar in various amounts -- a practice which some wine connoissuers may decry, but which does not make the final product any worse if used judiciously. If the ingredients do not have enough natural sugar to ferment into an adequate level of alcohol, the addition of some sugar before fermentation is necessary if the wine is to be any good at all. In adding sugar to the must, you should boil it in a cup or two of water until the sugar is thoroughly dissolved and then add enough of the resulting simple syrup to the must so that the specific gravity of the latter is about 100. For winemaking purposes there is a standard measure of specific gravity which calibrates pure water at 1.000. In speaking of the measure, the "1" and the decimal point are disregarded and the reading of the hygrometer is reported in units of a tenth of a percent, like a baseball player's batting average. There are never any readings around the .500 mark. A reading of 100 refers to a liquid that is one and one-tenth as dense as water, and a reading of 990 (which is typical of a fully fermented wine of good alcoholic content) means that the liquid is 99% as dense as water. Because alcohol has a lower specific gravity than water, the fermentation process turns a relatively dense liquid into one

considerably less so. When the readings stop falling, then you know that the fermentation has stopped.

If the fermentation stops because all the sugar is used up, rejoice. Sometimes fermentation stops (or "sticks") because the yeast has been killed by sudden change in temperature or by some other cause, or because it has suddenly become perverse. If fermentation sticks, the wine still tastes sweet and, worse, if you bottle it, fermentation may resume, creating enough pressure to force the corks out of the bottles or to make the bottles explode. The calibrated hygrometer is particularly useful when fermentation stops, as it lets you know pretty well how much sugar is left in the must. Tasting the liquid is less exact, but better than not trying to measure the sugar content at all. The most accurate measure I know of that is readily available to the amateur is a small kit which can be bought at any drugstore and is called a "Clinitest." The kit includes a test tube, a color chart, an eye dropper and some capsules of a caustic substance which foams, gives off heat and changes color when immersed in water. You put five drops of wine and ten drops of water in the test tube, add one of the capsules, wait until the foaming dies down, and match the color of the liquid in the test tube to one of the colors on the color chart, which shows, to the nearest quarter of one percent, the amount of free sugar in the liquid being tested. Many amateur winemakers are grateful to Miles Laboratories for selling such a useful device at a reasonable price considering the number of such amateurs who are likely to buy it. Fortunately for the manufacturers,

however, there is also another use for the Clinitest -- to enable diabetics to determine the amount of sugar in their urine.

Also available for those who want it is a kit to test the acidity of wine. I have used such a kit in the past, gradually adding measured amounts of a neutralizer to a measured amount of wine until immersed litmus paper does not change color. The information is of limited practical value, however. If the wine is too acid there is very little you can do about it other than mixing it with other wine which isn't acid enough, and you are not likely to have much of the latter in stock. Grapes generally contain enough acid, but other fruits, vegetables or flowers may not. If the wine is not acid enough, there are commercially available acids which can be added; but don't disregard your sense of taste; what you want is to produce a wine that tastes good rather than one which passes a test suitable for the "average" wine. Nevertheless, a wine should taste a little too acid when you bottle it, as a rule.

In time I learned that the place to go for wine grapes is the Santa Fe Railroad yards at 27th Street and Ashland Avenue in Chicago. Until recently, each October, one or more refrigerated boxcars of grapes would apppear there and men would sell them in 26 pound cases rather than the 18 pound cases that table grapes come in. My trips to the railroad yard paid off in another respect when my son Dodge was six years old: he was then fascinated by trains so I took him to the Santa Fe yards one mild January Saturday to admire the rolling stock. After looking at a few miscellaneous boxcars and noisey refrigerator cars, we found a locomotive stopped near a small building and approached to adore it. As we were

standing there the engineer emerged from the building and invited Dodge to climb up into the cab. I climbed up after him. Then the engineer, who looked as if he might have a grandson about Dodge's age, asked if we would like to go for a ride down the track to another building where he was to pick up a clerk. We would. As the locomotive was about to start the engineer asked if Dodge would like to drive, and putting the boy on his lap, he placed Dodge's right hand on the throttle and his left on the brake, where his hands stayed as the locomotive proceeded down the track for half a mile or so. The clerk who was expected to want a ride back from our destination either was not there or did not want to return then, so we backed up to the point of beginning, with Dodge still at the controls.

In the last few years the Santa Fe has stopped bringing in the wine grapes but immediately across Ashland Avenue each October appear a number of trucks containing various types of wine grapes from California. Mostly they have been Zinfandel or Muscat grapes -- not the best for winemaking, but far from the worst. This past fall they had a few cases of Cabernet grapes, which are among the best, although I suspect that the locations in which they were grown were probably not of the choicest. Through experience I have learned a couple of lessons about buying grapes which I shall pass on here and now: first, put plenty of newspapers on the surface of your automobile where you expect to carry the grapes; the cases sometimes leak and most men's wives dislike grapejuice running free in the backs of their automobiles. Second, look for

insects flying around the cases in each truck and buy from the truck that has the fewest; insects are attracted by grapes of which the skin is broken, and such grapes are likely to have been attacked by wild molds, especially after the insects have been landing on them with their dirty feet.

One day while in a winemaking supply store I encountered a kit for making beer. The kit included yeast and dried malt extract and one or two other items plus a book of instructions. I bought such a kit and produced a beverage which I was willing to drink. Thereupon I was hooked on beer-making as well as winemaking. Both the similarities and the differences between the two are worth exploring.

In each case, sugar is fermented by yeast which is introduced into a liquid of high sugar content, though the sugar in beer wort is likely to be only about half that of wine must. In beer the sugar is maltose which is made upon the germination of grain -- properly barley. Upon germination the grain is roasted to stop the growth process before the maltose turns into anything else. The grain is macerated and the sugar is leeched out in a bath of hot water and to this water is added yeast of a variety that thrives on maltose. Even after fermentation, the resulting liquid would be too sweet if a flavoring were not added to it. The flavoring generally used in most beer nowadays is hops, which has a bitter flavor and pungent aroma, and which also has some preservative qualities. Other flavors have been used from time to time and place to place, however. I understand that in Iceland they used to

use yarrow. Once I had some spruce beer in Montreal which was very good; however my attempts to duplicate it were unsuccessful. I have made beer using sassafrass as the flavoring, and find it better than no beer at all, but not very much better. I understand that wormwood, which is suitably bitter and is a significant ingredient of absinthe, has been used to flavor beer and that it has the added property of significantly increasing the intoxicating effect of the alcohol. Continued taking of the concoction results in permanent brain damage, so its use is discouraged by the criminal law.

Unlike my view of winemaking -- that using a concentrated juice is somehow morally wrong, my appproach to brewing is to use a can of malt extract (preferably hop flavored) rather than to try to germinate grain and otherwise follow the procedure mentioned above. If one wants more hop flavor than comes in the can, he can add either an infusion of dried hops or instant hops (which comes in small pellets in a paper packet). The malt extract is mixed with water until the hygrometer reads about 50 and then small quantities of salt and acid are added, followed by a packet of dried brewer's yeast . Active fermentaion generally takes about ten days to two weeks from the pitching of the yeast, and a couple of weeks or so of ageing in a narrow mouthed container is wise before the product is bottled. Over this period of time, nearly all the sugar ferments yet some yeast remains alive when the beer is bottled.

Amateurs take advantage of the partial survival of the yeast by adding a half teaspoon of sugar to each bottle of beer

and letting the yeast ferment the sugar in the bottle after it has been capped. If this is virtually all the sugar remaining in the beer, the result is to produce about the right amount of carbonation in the beer naturally after it has aged in the bottle for a couple of weeks; if much less than all the original maltose is fermented before bottling, the result is likely to be a series of explosions.

The fermentation process causes a certain amount of sediment to be deposited in the bottom of whatever container the fermentation takes place in, and for some reason the major breweries have concluded that it is better to have the beer completely ferment outside the bottle and then to add carbon dioxide to the finished product. Professional champagne makers have developed a technique of bottle fermentation followed by removal of the sediment, but this process may be too expensive to be used on beer. Those who partonize homemade beer, however, learn to make peace with the mud at the bottom of the bottle, and to pour the liquid so that the sediment is stirred up as little as possible.

I have from time to time used the sediment left at the bottom of the ten-gallon fermentation crock as a source of yeast in making buckwheat cakes, raised waffles and bread. It seems to me that the flavor is better than if baker's yeast were used, but sometimes bread made this way does not rise nearly so much as it would if made with baker's yeast. I have also tried making raised pancakes with leftover wine yeast and wholeheartedly recommend against the practice. Having been bred to consume fructose, wine

yeast does not thrive in an environment derived from grain, and the result is not fit for human consumption.

In Germany law prohibits the use of ingredients other than malted barley, yeast, hops and water in the making of beer generally, although there are some beers that legally use wheat. In the United States, virtually all beers are made with part malted barley and part sugar derived from other grains, usually corn or rice. Among amateurs, the tendency to add some sort of extraneous sugar to the wort in making beer is strong, but not overwhelming. Sucrose (cane sugar) is often used, but dextrose (corn sugar) is available and seems to do less violence to the taste of home made beer than does sucrose. The more sugar you add, the more the resulting brew resembles light beer -- a product midway between beer and water which is sold at beer prices. Indeed, I recently heard Fred Huber, of the Huber Brewing Company of Monroe, Wisconsin, comment that if you want light beer you can save money by simply adding vodka and ice cubes or club soda to real beer.

As with wine, it is important to make sure that all containers and equipment used in the manufacturing process are both clean and sterile. Cleanliness is not only next to godliness, but it is essential to the spirit. It has been my limited experience that the presence of errant bacteria in beer is more likely to produce vinegar whereas in wine it generally produces something even worse. The one time I asked my wife if she could use five gallons of freshly made malt vinegar, her answer was decidedly negative.

Because of the taxes imposed on alcoholic beverages, which are legally avoided by those who make their own and don't distill it, some money can be saved by the amateur vintner or brewer who assigns no value to his own time and effort, nor to overhead. Inexpensive wines are readily available, however, catering to a wide range of tastes, and although many of them are worse than good home-made wine, some are as good or better. Yet with beer, it is harder to get a good nourishing brew with character, unless you make it yourself.

Although some domestic beers are sold in 16 ounce cans, none that I know of are sold in bottles of that size, and while canned beer is better than no beer at all, bottled beer is less susceptible to deterioration due to temperature changes. Yet in my estimation, the ubiquitous 12 ounce bottle contains exactly the wrong amount of beer to put in one container. One such bottle is not enough and two is too much as an accompaniment to a meal. Indeed, were I to write a history of our weights and measures as I would like to, without benefit of evidence, I would aver that the pint measure evolved as that quantity of beer or ale which a man should have with lunch. Until industrialization polluted the ground waters around Waukesha, Wisconsin, the Weber brewery of that city sold beer in 16 ounce bottles, and I still have a couple of cases of their empty bottles which I refill each time I make beer, thereby providing myself with the correct amount to have with whatever meals I choose to drink beer with. Recently I encountered Bellhaven Scottish Ale, which I find very much to my taste, not only because

of its taste and body, but also because it comes in 18 ounce bottles. These, when refilled with home-made beer, provide me with the right amount, and also an additional two ounces, just for good measure.

Among the quirks of our nation's laws is that although beer and wine are in fact foods, they are not subject to the parts of the Food and Drug Laws which require the manufacturer to show on the package of his products what ingredients are in them. Further, I understand, the law prohibits advertisements which suggest that such beverages are beneficial to your health, and this prohibition seems to extend to the advertising of their true nutritional value. Thus the manufacturers of light beer are permitted to advertise how many calories they don't have, but the makers of real beer may not let the public know how much and what sort of nourishment is in it. The U. S. Department of Agriculture booklet Calories and Weight (Home and Garden Bulletin No. 153) shows that eight ounces of beer contains 100 calories, compared to 90 for skim milk or 160 for whole milk. Beer also contains some of the various minerals useful in human nutrition, such as calcium, phosphorous and potassium, though in considerably less degree than milk, according to an old newspaper clipping I keep. More to my concern, is the fact that brewers are not required to show on the labels of their bottles what specific ingredients are inside, such as chemicals to promote a head on the brew, to clarify it, to retard oxidation or to prevent cloudiness when the beer is chilled. On making one's own beer one can decide whether or not to include such chemicals. I generally decide not to.

A couple years ago my wife and I took an evening course in beer tasting at Francis Parker School, near our apartment. After sampling between 20 and 36 beers at each of six weekly sessions, I had a much better understanding of what kinds of beer are available to those who are not satisfied with brands sold on the mass market. The variety is remarkable, not only as to quality but also as to type. I also learned not to assume that any given beer will taste the same each time you drink it; even though two beers are bottled under the same label by the same process and by the same manufacturer, differences in the lots of barley used for each batch of beer can make a noticeable difference. Even more significant is the freshness of the beer when you get it, and how it has been treated. Much has been said about how long wine should age in the bottle, but beer (unless chemically preserved) is fully as sensitive as most wines to errors in keeping and grows unpleasantly old much sooner.

In this connection, the amateur beermaker has at least one advantage over the person who buys beer from a store. The latter has no effective way of telling how long or under what conditions his beer has been kept since bottling; further, the prevalent practice of pasteurizing commercial beer and injecting carbon dioxide into it for carbonation eliminates any chance that yeast will survive. As a result, there is no yeast available to consume the small quantity of oxygen present in the cushion of air at the top of each bottle, and such beer will slowly oxidize. With homemade beer the yeast is not killed and enough survives to consume most of the oxygen in that cushion of air. The modest

quantity of harmless sediment at the bottom of the bottle seems a small price to pay for the extra shelf life. Indeed, I have often wondered why it is that in a bottle of good claret one expects a certain amount of lees, yet the equivalent is not tolerated in market beers.

If asked which I prefer to make, wine or beer, I would have difficulty answering. In fact I do make more beer than wine, and of the beer I drink a higher percentage is homemade than of the wine I drink. Both give me pleasure in the making and in the drinking. Both satisfy wise requirements of a good hobby: it is not expensive and in fact saves money; it produces something useful and desired, and the produce is consumed after a while so that excessive amounts of whatever one makes do not unreasonably accumulate. And each contributes to the ecology by providing an unparalleled way to recycle old bottles.

As to how good the result is in each case, I can only point to the bottles on the table over there and suggest that you find out for yourselves.