

what's

with...



WINE

by

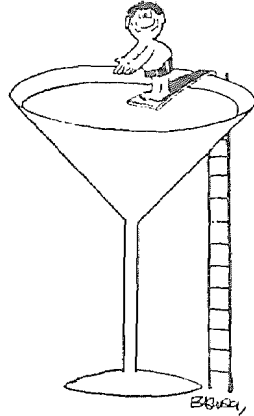
FRED W. DIES

THE BIG SWITCH IS ON!

The big switch is on! A dramatic change is taking place in the drinking pattern of America's alcoholic beverage consumers. More and more drinkers are reaching for wine -- red wine, white wine, sweet wine, dry wine, imported wine, American wine, pop wine, jug wine -- just so it's wine!

One fact cannot be denied: Wine is now being consumed by more people and in larger quantity than ever before. And since it is pleasing to the taste-buds, soothing to marijuana-irritated throats and inexpensive in price, many young adults, teenagers, and even pre-teens are being attracted to the so-called cheap-pop-sweet-jug wines which are now flooding the market.

But what are the facts? Just what is wine and how is it produced? Does it contain any harmful ingredients? Why are so many 9, 10, 11 and 12 year-olds already "winos" and fully addicted to alcohol simply because they drink wine? We hope this folder will help answer the question, "What's Wrong With Wine?"



WHAT IS WINE?

In simple terms, wine is fermented grape juice. Webster's Dictionary expands on this definition by stating that wine is "fermented grape juice containing varying percentages of alcohol together with ethers and esters that give it bouquet and flavor." Another dictionary defines wine as "a fermentation of sugar by yeast to produce alcohol."

During the entire year the vineyard owner prunes, restores, fertilizes and sprays the vines; he repeatedly hoes the soil. Finally it is time for the crop to be harvested. The grapes are picked when they are ripe - if a very sweet wine is to be made, when they are overripe. In some parts of Europe, grapes are picked one by one, depending on ripeness, rather than bunch by bunch.

Next comes the "expressing of the juice", which varies in method in different wine-making regions. Treading on the grapes is still common in some places, but most vintners have mechanized their technique of pressing the juice from their grapes.

When the pure grape juice - also known as the "must" or "the fruit of the vine" - is allowed to stand, fermentation begins almost at once. The liquid seethes violently, and depending on the amount of sugar in the must, the action of the

yeasts (the fermenting agents) raises the alcoholic content of the liquid from zero to about 7 to 14% and completely changes the character and nutritional value of the substance.

If the fermentation process continues uncontrolled vinegar bacteria would take over and convert the alcohol to acetic acid. Unchecked fermentation always produces vinegar.



Fermentation Was Discovered by the Ancients

The dictionary defines fermentation as "the decomposition of complex molecules under the influence of ferments or enzymes." In the case of wine, the fermenting agents are microscopic yeasts that have settled from the air on the skins of the ripening grapes. After the grapes are pressed, the yeasts release enzymes into the must that actually change the grape sugars into ethyl alcohol and carbon dioxide.

Notice the words "decomposition of complex molecules." This is a nice way to say the grape juice has begun to decay - to rot! Fermentation is nothing more than the "controlled" rotting of grape juice. Alcohol and carbon dioxide are merely the waste materials produced when any type of fruit, grain or vegetable undergoes decay. In fact, alcohol never occurs in natural substances until decay has set in.

THE INGREDIENTS OF WINE

Let's look at the ingredients in this dramatic chemical change called "fermentation."

ETHYL ALCOHOL -- This is the all-important item in wine and all other alcoholic beverages. As fermentation progresses the amount of alcohol produced may reach a maximum of 15% of the total volume (30 proof). However, some wines are "fortified" by having additional alcohol blended in to raise the alcoholic concentration significantly.

People drink wine for the alcohol it contains, and specifically for its effect on the brain. Ethyl alcohol is a narcotic drug whose specific effect on nerve cells is to dissolve the fat, increase cell fluids,

and cause the cells to become temporarily inactive. Every time a drinker consumes a glass of wine he is putting some of his brain cells temporarily out of commission, and a few cells may even be completely destroyed. Yet, if alcohol did not produce this effect on his brain, he would never drink it.

METHYL ALCOHOL -- Usually referred to as "wood alcohol," this is an extremely dangerous member of the alcohol family. Although most wine contains small amounts ranging from .01% to .02%, this is a significant concentration. In fact, any amount in a beverage should trigger concern. Because of the slowness with which it is eliminated from the body it should be regarded as a cumulative poison with an unusually high toxic hazard rating. Fruit wines are especially high in methyl alcohol.

HIGHER ALCOHOLS -- At least eight members of the propyl, butyl, pentyl, hexyl group of higher alcohols are always present in wine, and several others may show up in batches from time to time. The longer a beverage is aged the greater the amount of higher alcohols present.

Many authorities believe they are responsible for many of the undesirable physical effects, such as vomiting, "madness," or a rotten "morning after," when wine drinkers overindulge. One thing we are sure about - no amount of these higher alcohols is considered safe. They are all labeled "poisonous" when ingestion into the human body is being considered.

ALDEHYDE -- This organic compound is intermediate between alcohol and acid. It is reducible to an alcohol and oxidizable to an acid. Wine contains only about .05% aldehyde, but it carries a high toxic hazard rating and small quantities are considered very dangerous.

LEAD -- Pure grape juice has very little, if any, lead. Sometimes just a trace is discovered. However, government reports indicate 29% of French wines exceeded the 0.2 mg. per liter legal limit which is considered the safe extreme. The sources of this unusually high lead concentration are unlined cement tanks, lead-based paints, rubber hoses, lead-containing metal in pumps, filters, faucets and gaskets, and even lead in filter pads, bentonite, and glass.

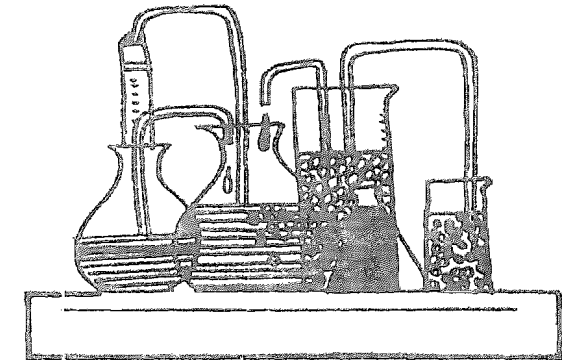
ZINC -- Zinc-containing insecticides and fungicides have been determined as the major source. Normal wines usually contain less than 5 mg. per liter, though reports as high as 19 have been made.

ARSENIC -- Also brought into the wine from certain insecticides is a significant amount of the highly poisonous element arsenic. It is present in wines in amounts of 0.01 to 0.02 mg. per liter.

The recommended maximum is 0.02, but this is considered much too high for safety by several authorities in this field.

CALCIUM -- Although small amounts of calcium are derived from the fruit and the soil and are present in all wines, often batches are encountered which contain very large and excessive amounts. The usual sources for the excessive calcium supply are found to be concrete tanks, plastering, calcium-containing filter-aids, fining agents, filter pads and sometimes from the careless use of calcium hypochlorite.

ALUMINUM -- This metal is a normal constituent of wine. Most have no more than 1 to 3 mg. per liter. However, more and more of the recent wines are reporting amounts of aluminum often exceeding 15 mg. Aluminum containers and pipes; and fining agents are the usual source of these higher amounts. Red wines are always higher in aluminum than white wines.



IRON -- The primary source of excessive iron in wine appears to be contact with iron equipment. Most California wines contain less than 10 mg. per liter. This is not too excessive, but the range of iron content is wide among the various types and brands on the market. In fact, it varies from 0.0 to 50 or more per liter.

COPPER -- Yeast poisoning from copper sometimes occurs if copper sprays are used for the control of mildew. This will have a carryover effect in the chemical composition of the wine.

SORBIC ACID -- Sorbic acid or its potassium or sodium salts have been approved for use providing not more than 0.1% remains in the wine. It is used as a mold and yeast inhibitor and as a preservative. Various investigators give their verdict: "causes slight toxic hazard; physical changes usually disappear when ingestion ends; is nearly nontoxic to humans."

WHAT HAPPENS TO NUTRIENTS?

Now let's consider what happens to some of the principal nutritional substances when grape juice is converted to wine.

Carbohydrates -- About 47% of calories in an average diet is provided by carbohydrates. They constitute a major class of foods. In wine-making we are mainly concerned with amounts of dextrose, levulose, arabinose, pectin and inositol. Pure grape juice contains 15 to 25% carbohydrates by volume. However, the wines produced only contain a range of 0.1 to 0.3%. This means that during the process of fermentation the carbohydrate concentration is reduced more than 98%. When grape juice is changed into wine there occurs an almost total destruction of very important nutritional substances.



Protein --- This nitrogenous compound is involved in structure, hormones, enzymes, muscle contraction, immunological responses, and other essential life functions. When we compare the amounts found in the must with those in the finished wine, we discover as much as a 70% loss with some types. Another tremendous loss of food value.

Mineral compounds -- Here again we notice a significant decrease when grapes are converted to wine. In fact, the total amount of mineral compounds may be reduced as much as 50%. Some of the major casualties are potassium (an element present in the body, mostly inside the cells, in considerable amounts), magnesium (an element essential to the diet), and calcium (a dietary essential needed for formation of bones and teeth).

Vitamins -- Ascorbic acid, better known as Vitamin C, is found in fresh grapes in amounts as great as 33.8 mg. per 100 ml. However, the amount decreases steadily during crushing and fermenting and little or none is present in the wine. Vitamin B, (thiamin), the anti-beriberi vitamin which is essential to normal metabolism and nerve function, also suffers an almost complete annihilation. Up to 97% of this vitamin may be destroyed in the fermentation process. Another victim is nicotinic acid, probably better known as Vitamin PP for its

pellagra-preventative abilities, and more recently it has been used as a cholesterol-lowering agent. It appears in grape juice in significant amounts, but approximately 52% is destroyed during the fermentation. Biotin, formerly called Vitamin H, a colorless crystalline vitamin deemed essential to man and a wide variety of animals, is reduced by 23% during the wine-making process. Riboflavin, or B2, is the growth-promoting member of the Vitamin B complex. It is essential for the oxidation of carbohydrates. Riboflavin is easily destroyed by light, and during the sulfiting and fining processes of wine making about 50% is lost. Another member of the B2 complex, meso-inositol, is reduced by one-third during the chemical change.

THE BIG QUESTION: WHAT'S WRONG WITH WINE?

Are you ready to answer the question, "*What's Wrong With Wine?*" Here are a few ideas:

1. Wine is a very complex mixture of organic and inorganic compounds. Some are harmless, some are not so harmless, and others are potentially quite dangerous.
2. As more people are becoming concerned about the nutritional value of the foodstuffs which cross their lips, it is alarming to realize that when grapes and pure grape juice are allowed to ferment into wine an extremely high percentage of their food value is destroyed and a significant amount of the potentially dangerous *narcotic drug alcohol* is produced.

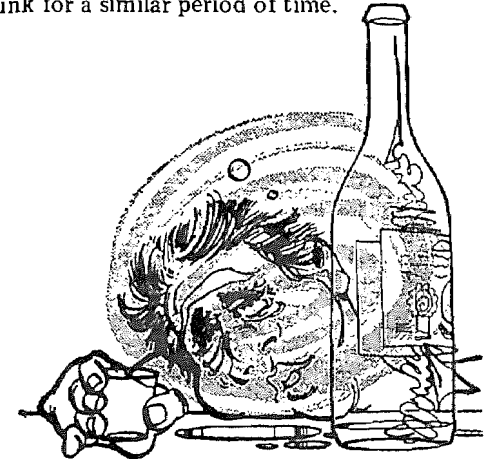


3. In the past some members of the medical profession considered wine as a helpful agent in the treatment of certain illnesses. Now, with a greater understanding of the physical effects of wine consumption, physicians do not consider that it possesses any value medically. In fact, there are now no wines listed in the *United States Pharmacopeia*, the *National Formulary*, the *British Pharmacopoeia*, or any other legitimate listing of medical preparations.

4. Quality control is woefully lacking in most of the inexpensive "pop" wines. Frank Prial, wine expert for the *New York Times*, states that the sweetness can "mask many flaws in the wine; not that the neophyte would recognize the flaws anyway, and neither would most experts." With the increased interest in wine drinking, many producers are getting rich with gigantic "ripoffs" in the industry. One recent newspaper story tells how a small company made a profit of \$12 million by selling a "cheap mixture, which looked and tasted like wine" but which only contained "sugar, water, glycerine, sulphuric acid, coloring and wine dregs."

5. The sweet, pleasant taste of the cheap, "pop" wines is so pleasing to the taste buds that dependence on these beverages occur much more rapidly than with other alcoholic drinks. One runs a double risk of becoming "hooked" by the craving for the good taste and the effect of the alcohol at the same time.

6. It is a well established fact that "winos", (alcoholics who are exclusive drinkers of cheap, sweet wine), have more brain damage occurring over a much shorter length of time than other types of alcoholics. Workers with "skid row" type alcoholics can usually spot the true "wino" because of the excessive retardation he shows when considered alongside other alcoholics who have drunk for a similar period of time.



Well, that's a start! Consider the question and make your own list of answers. -- *What's Wrong With Wine?*

Distributed by

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