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Letter to the Editors

Blind Tasting

The wine world generally regards blind tasting as the gold standard for the evaluation of wine, the only way to reliably separate the wheat from the chaff. This is clearly stated in the Oxford Companion to Wine; "Only by blind tasting can a true assessment of a wine's style and quality be made, so powerful is subjectivism in the wine-tasting process." (Robinson, 1999). In practice, however, blind tastings are notoriously prone to unexpected results. It is almost a cliché that well-known and expensive wines will fall short while obscure contenders steal the show. Robin Goldstein and associates investigated this phenomenon in an extensive series of tastings comparing wines at different price levels (Goldstein, 2008). The result was that the tasters actually preferred less expensive to more expensive wines. This seems to imply that there is no correlation between a wines price and its quality, but that is nonsense. Is our understanding of what makes a wine good completely mistaken or is it possible that the process of blind tasting is inherently flawed?

A study by Plassman *et al.* from the California Institute of Technology and the Stanford Graduate School of Business (Plassmann, 2008) has a direct bearing on this question. In that experiment, 20 relatively-naïve wine drinkers were presented with five cabernet sauvignon wines while in an MRI brain scanner and were asked to rate them on a scale of 1 to 6. Before being given each sample, they were told the price of the wine. Unknown to the subjects, there were only three different wines. Two wines were presented twice. The first was a $90 bottle but they were told on some occasions that it cost $90 and on some that it cost only $10. A $5 bottle was presented as either $5 or $45. The result was not simply that the participants preferred the same wine when it cost more, but they showed increased neural activity in the orbitofrontal region of the cerebral cortex, an area postulated to monitor the pleasantness of an experience. Thus, not only did they say that they liked the pricier wines better, there was evidence that they actually enjoyed them more.

This study provides evidence for what seems to be a reasonable assumption, that the expectation of quality (as measured by price) influences the degree to which a person enjoys a wine. If someone gets more enjoyment out of a wine simply because he is told that it is expensive, how much more would he be swayed by a famous label or the ratings of a wine critic? This would certainly seem to support the practice of blind tasting which one assumes is unbiased by extraneous psychological factors.

But the same data could lead to the opposite conclusion. The participants in the Plassman study were not misstating what they felt; they were honestly reporting an increased sense of pleasure when drinking wines they thought cost more. In the lingo of neuroscience this is called top-down processing, higher cognitive centers modifying the results of input from lower centers. Any number of conscious or unconscious influences from above can and do alter the degree of gratification one experiences from the primary sensations alone. The resulting level of enjoyment is the true level of enjoyment and may be quite different from what would be experienced solely from the incoming stimuli. The degree of perceived pleasure depends on the whole experience and not just raw sensory data. There is no reason to assume that the appeal of a wine in a blind tasting will correlate with how much it might be enjoyed in a less artificial setting. I do not mean to imply that the enjoyment of wine is entirely dependent on extraneous factors. Some wines are much better than others, but the satisfaction one gets from them is so much more nuanced in a social setting than in a blind tasting, the latter is but a pale shadow of the former. The message that I take home from the Plassman experiment is that blind tasting has little to do with the real life experience of tasting wine.

Another issue in blind tasting is the reproducibility of the results. A study published in this publication evaluated the consistency of the judging at the California State Fair Wine Competition and found that it was very poor. The judges could not replicate their own results when given the same wine several times (Hodgson, 2008). Furthermore, there seems to be little consensus between different tasters at the same event. Frédéric Brochet of the University of Bordeaux demonstrated this in a study (Brochet, 2001) in which a panel of 8 tasters was asked to rank 18 samples of wine according to preference. The resultant rankings were almost random. If you read about the outcome of a blind tasting please realize that if you were there, your own individual preferences would most likely have been completely different.

How people make decisions is an important field of research in cognitive psychology. One interesting finding is that, in many instances, the harder one thinks about a decision, the weirder the result will be. Introspection is often counterproductive. Investigators at the University of Washington conducted a study using different brands of strawberry jam (Wilson, 1990). A group of experts had previously rated 45 jams in order of preference. The researchers chose five jams sufficiently spread apart in ranking for quality differences to be clear (numbers 1, 11, 24, 32 and 44) and gave them to a group of undergraduates to taste. The undergraduates' ratings correlated well with those of the experts. They then gave the jams to another group of students who were asked to write down their reasons for liking or not liking the jam before giving it a grade. The results of the second group, it turned out, had little correlation with the experts' ranking. The more the students thought about what they were doing, the more their judgment was off.

The same principle applies to wine tasting. In a formal tasting, blind or not, one consumes wine in an unusual manner. The mere act of concentrating on what you are doing, swirling a small quantity of wine in your mouth, breathing in, gurgling, perhaps spitting out, make this an experience separate from ordinary wine drinking. Furthermore, concentrating

heavily on sensory input distorts the sensations. Your mind gets confused. With repeated tasting the bouquet and flavor of a wine become blurred, like a word that you repeat over and over again to yourself until it loses meaning. "You should go with your first impressions," I was told. Why? Because each time you come back to that glass, you change your mind. The more you concentrate on the sensory qualities of any particular wine, the less focused they become.

The human sense of flavor has evolved for specific purposes. For one, it is meant to guard against the intake of toxins. Probably more significantly, it predisposes to the ingestion of nutritious foods; at least it did in the context of our ancestral surroundings, long before the franchising of McDonalds. What it is not meant to do is to distinguish between different items in the environment. We determine that something is a peach by looking at it, not by biting into it. Whole regions in the secondary visual cortex are devoted to determining what that thing is that we are looking at. Not so for the sense of flavor. It has not evolved in humans to make fine discriminations. Trying to identify wines by their aroma and flavor with no other information is notoriously difficult. Experienced wine tasters are often unable to distinguish a characteristic of wine as basic as what grape it is made from (Gordon, 2008). Unless it is extremely refined by practice, taste is a blunt instrument to try and differentiate between a group of fairly similar wines at a tasting. It is like trying to distinguish objects through rippled glass.

The very order of the presentation of the wines may skew the results. One's appreciation of wine number five may well be tempered by the character of wine number four. Also, wines change in the glass. For one, the temperature may have been optimal when they were first poured, but it will adjust towards room temperature fairly rapidly. Furthermore, the tannins in a wine presented near the end of the tasting will be attenuated because the palate has already become accustomed to tannin from the previous wines. Other aspects of the wine's flavor may be dulled by sensory adaptation, the process by which the intensity of incoming stimuli is diminished during exposure over time. As a result of this, the last wine sampled will taste quite different from what it would have had it been first. And don't underestimate the effect on your judgment of the alcohol you have consumed. Even if you spit, unless you are unusually proficient at it, you still take in a fair amount.

The parameter being measured in a blind tasting is very elusive. You are essentially asking people to express the degree to which they enjoy something. This is a mutable endpoint and depends on the circumstances of the tasting. It is not true that blind tasting is a neutral state in which all extraneous influences have been removed. It comprises a context of its own, sometimes a trying one. You might feel anxious because you don't want to make a fool of yourself, particularly if you know you are expected to get up and pronounce some gobbledygook like, "The bouquet of wine number eight contains elements of leather and tobacco." If you're not relaxed, your judgment will be off. Conversation should be verboten. You can feel how minds are swayed when one person says, "Wow, there's a lot of fruit in glass number two." Ideally, tastings should be silent, though I have been to such events and they are deadly.

There are great variations in the quality of wines and it would be nice to have a scientific method for determining which are better and which are worse. Drinking wine inside an MRI is not the direction to go in. I'm afraid, however, that there is no "clean" methodology. Wines can and should be judged but this must be done in a conventional setting. There will always be an element of subjectivity and of individual taste but a consensus is possible. Let us simply enjoy the wine, say what we think and see if others agree with us.

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