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VIII. ARE SOME AESTHETIC JUDGMENTS EMPIRICALLY TRUE?

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I WISH to consider wines, and some judgments made about them. I will make several claims which may be taken together to constitute a major claim, namely, that the judgment "This is a fine wine" refers to an objective collection of properties in the wine, and, moreover, that there exists a specifiable relation between that collection of properties and the human sensory apparatus.[1] An equivalent way to describe my major claim would be to say that the judgment "This is a fine wine" is relevantly similar to the judgment "This is an heliocentric system." Entailed by this is the further claim that a *prima facie* aesthetic judgment may be true or false in exactly the same sense that a *prima facie* scientific judgment may be true or false.

The essence of my argument is a claimed analogy between the logical structure grounding these particular aesthetic and scientific judgments. That is, I claim that wine judgments are based upon observation statements interpolated by theories, theories which specify the significant observational predicates, and their interrelations to observers. I call observational judgments "descriptive-simple" judgments, whereas more theory-laden judgments I simply call "evaluation" judgments.

In what follows, I first describe in some detail the observational base of wine evaluation judgments. Following this, I briefly describe the theory about what wine is. Finally, I present a sketch of a theory about the nature and structure of the human sensory modalities relevant to wine evaluation. Let us now turn to my argument that there is a strictly empirical/observational base for wine evaluations.

A. DESCRIPTIVE PREDICATES INVOLVED IN WINE APPRAISAL

There exists a large number of recommended procedures for sensory description and evaluation of wine. One of the most currently accepted is that developed by the University of California, at Davis (Fig. 1). Analysis of this procedure reveals linguistic distinctions which are taken to be appropriate descriptions of sensory responses to wine.

Characters judged	*Suggested number of points*
Appearance	2
Color	2
Aroma and Bouquet	4
Volatile acidity	2
Total acidity	2
Sugar	1
Body	1
Flavor	2
Tannin and astringency	2
General quality	2

FIG. 1. Wine-tasting Evaluation Report.[2]

It is clear, first, that the items listed in the left-hand column ("Characters judged") are taken to be terms which refer to sensory responses to objective characters of the wine. These items are the terms which for the most part form predicates of judgments which I above called "descriptive-simple." Secondly, evaluational judgments, e.g., "This is a sound, well-balanced wine," are based upon the summation of points from the right-hand column. It would follow from this that evaluational judgments have as their basis descriptive-simple judgments.

1 It is quite evident that wine scientists already strongly believe the first of these claims and are strongly committed to exploration of the second: "It is clear that we should soon have a complete picture of the chemical components of wines which influence their color, taste, odor, and quality. It is not yet so clear how we can correlate this vast amount of information with the actual color, taste, and other characteristics of wines as perceived by the consumer. This is surely one goal of enologists for the last third of the twentieth century." M. A. Amerine and M. A. Joslyn, *Table Wines*, 2nd Ed. (Berkeley and Los Angeles, 1970), p. viii.

2 *Ibid.*, p. 711.

At this point let me briefly discuss some of the descriptive predicate terms. In my discussion I will not say much about the right-hand column, and how point values are arrived at. Rather, at this point I will concentrate solely upon the purely descriptive aspects of sensory analysis of wines.

The first two terms, "appearance" and "color," are the only visual predicates involved in wine analysis. "Appearance" refers to the perceived clarity of the wine. Evaluation of clarity might range from "brilliant," through "clear" and "dull" to "cloudy."[3] "Color" has three broad categories, namely, white, pink, and red. Each of these categories may be subdivided. Whites, for example, might range from water-white, through light-yellow and on to brown, with green and amber as modifying tints. Both "appearance" and "color" are fairly straightforward descriptive predicates. Thus, if any appraiser can use the ordinary linguistic distinctions involved in describing color of a liquid, and light transmitted through a liquid, he can make these same linguistic distinctions *vis a vis* wine. The significant factor here is simply this: judgments such as "This is a brilliant wine" and "This is a cloudy wine" are straightforward perceptual judgments which purport to report observed qualities of the wine. Use of predicates such as "brilliant" or "red" to describe wine is no more (nor no less) problematical than similar uses of predicates such as "red" in, e.g., "This apple is red."

"Aroma and bouquet" and "volatile acidity" are olfactory distinctions, while "total acidity" may combine olfactory and gustatory responses. These three descriptive terms are somewhat more difficult to talk about, not because they are in principle any more difficult to understand than visual descriptive terms, but rather because many observers, in the first place, are unfamiliar with a vocabulary of olfactory and gustatory responses in general, and secondly, unfamiliar with these sorts of responses to wine in particular. The complexity of the olfactory situation in wine is illustrated by the very terms used. "Aroma" in a wine refers to olfactory properties contributed by the grape in, e.g., a young unaged wine. But an aged wine, especially one which has been aged for a long period in the bottle, may have developed a complex but unmistakable odor which is called "bouquet." A given wine, for example, may have a fine aroma and no bouquet at the time of bottling, but, after several years in the bottle, the aroma might well be practically non-existent while the bouquet is evident and obvious. Although this distinction might at "first smell" be opaque to the naive observer, rapid learning rates indicate that it is reasonable to expect all but the most impaired "noses" to eventually make appropriate use of these predicates. Thus it must again be argued that detection of presence and amount of both aroma and bouquet are relatively normal perceptual skills, much like detection of clarity and color as noted above.

Similar analyses hold for the remaining olfactory and gustatory responses. "Volatile acidity" for example, refers to the perception of a vinegarish odor when the wine is sniffed. "Total acidity" refers mainly to the acid-response in the mouth, especially along the edges of the tongue (although this is often conjoined to the volatile acidity response). "Sugar" response is obvious. "Body," "flavor," and "Tannin and astringency" similarly refer to relatively straightforward perceptual responses which need not be gone into here. "General Quality" is similarly a descriptive-simple judgment, but one which allows preference to select which descriptive-simple predicate to be used, e.g., "oxidized," "flat," etc.

Further evidence of the apparently simple descriptive nature of these predicates is to be found in the methods used to analyze perceptual reports of appraisers, and further in the methods used to teach naive subjects how to appraise.

Ordinary statistical methods are used to analyze performance of appraisers. Performance may be analyzed in any number of ways, for example, one might evaluate either the agreement among judges for the rank ordering of presence and amount of some specific response (e.g., "acid"), or the performance of an appraiser relative to some standard.[4] More to the point of the present argument, analysis of performance in response to the question "Is there a difference in quality Ø between these two wines?" is simple and straightforward. A paired sample is given ap-

[3] *Ibid.*, p. 704.

[4] M. A. Amerine, C. S. Ough, and C. B. Bailey, "Suggested Color Standards for Wine," *Food Technology*, vol. 13 (1959), pp. 170–175; M. A. Amerine, E. B. Rossler, and C. S. Ough, "Acids and the Acid Taste: The Effect of pH and Titratable Acidity," *American Journal of Enology and Viticulture*, vol. 16 (1965), 29–37.

praisers, the question "Is the first wine more Ø than the second wine?" is asked, answered, and evaluated using the X^2 distribution.[5] This type of test requires only a minimum of seven tests or responses for statistical validity at any given sampling. What is significant here is the fact that wine-response discrimination is taken to be no different from any other perceptual response discrimination.

It might be argued against the above that although wine responses are treated in a way similar to other perceptual responses, this begs the question since statistical techniques might not be justified in *any* case of perceptual response. But this objection appears to miss the point of my argument. While it may very well be true that the use of statistical techniques in analysis of human perceptual response (and behavior in general) lacks philosophical justification, my point is not directed to this major and more fundamental question. Rather, I am simply arguing the preliminary point that the evidential basis for aesthetic judgment of wine consists of a very short list of purely descriptive perceptual predicates, predicates which are in principle no different from more ordinary ones such as "red," "salty," "clear," and so on. It would seem that the use by wine scientists of the usual statistical techniques presupposes, and thus argues to, my point. But a more serious argument against my point might be that the use of statistical techniques in wine response in particular is merely presuppositional. That is, neither I nor any of the wine scientists have presented any argument to justify treating wine-description as an instance of normal perceptual discrimination. And only if it is such an instance can statistical techniques be justified. This argument must be faced, which I will now do at least in part.

Teaching techniques for wine-appraiser education reveal the close connection between ordinary perceptual discrimination and wine tasting. The techniques first presume a causal connection between certain ingredients in the wine and the human perceptual system and then, using differential amounts of specific ingredients, put the student into a situation where he can become familiar with the use of the appropriate predicates. The acid test is typical. A bottle of sound wine is divided into two bottles. One bottle is left unadulterated. To the other is added 1 teaspoonful of citric acid (an acid which normally occurs in wine). The student tastes both wines, and is told that the difference in his response to the two is what is called "acid" in the wine. The similarities are obvious between this technique, and ordinary techniques in which we learn, say, to use "salty." A mother, watching her child's puckered response to the French fries which he has just heaped with salt, instructs "see, you put too much salt on the fries." Such, it would seem, are the ways in which we learn to use these ordinary kinds of predicates. Wine predicates appear not at all different.

The argument of this section suggests to me that wine-evaluation rests securely upon a fairly well-defined observational base. Implied by this argument is at least the conclusion that the truth of certain observational judgments seems to be required before an evaluational judgment could possibly be true. For example, "This wine is clear" would seem to be required for "This wine is sound and well-balanced." There exist, however, a significant number of inferential steps between these two judgments. My primary claim, to repeat it, is that certain theories guarantee the inference between the observational judgments and the evaluational judgments. The following sections sketch in a description of at least two of these relevant theories.

B. Theories About Wine

Wine is taken to be an aqueous solution of various alcohols, acids and their salts, esters, oils, proteins, metallic salts, vitamins etc. The complete list of substances which might naturally occur in wine has yet to be made. But the major components, and, more importantly, their relations and causes, have succumbed to rather straightforward analysis. Following chemical analysis, some successful attempts to correlate these objective factors with their sensory responses have been carried out. The reason for this is simple: All the chemical analyses in the world would be insignificant unless they correlated with sensory responses.[6] Many correlations, however, have been made. As the

[5] Amerine and Joslyn, *op. cit.*, p. 713.

[6] It is extremely interesting to note that wine appraisers are cautioned against study of the chemical analysis of a wine prior to its tasting. It is clear in this case that the theory of the causes of wine taste is so strongly believed by appraisers that theoretical observations might interfere with sensory observations. Amerine and Joslyn, *op. cit.*, p. 710.

taste-teaching example in the first section indicated, the presence of chemical acid in the wine is strongly correlated with the human perceptual response "acid taste." But the matter has not been left at this gross level. It has been found, for example, that malic acid (an acid preponderant in green apples) is perceived as having a much "sharper" taste than, say, lactic acid. Further, there is a relation between total titratable acidity, pH, and "acid taste." Thus, a wine with a high pH, and high total titratable acidity, will taste "less acid" than a similar wine with a lower pH. It would seem to follow from this that acid taste is in particular correlated with hydrogen ion concentration.

Even subtler distinctions may be chemically observed. Eastern American wine types, such as Concord, are distinguished by what is called their "foxy flavor." This flavor has been correlated with the ester methyl anthranilate, a chemical substance found especially in the native American grape species *Vitis labrusca*, but not in the European (and California) grape species *V. vinifera*.[7]

Another example involves ethyl acetate. This ester is the volatile component characteristic of the products of acetic acid bacteria. Bacteria such as these are responsible for the production of vinegar from wine. Thus the level of ethyl acetate presence in wine is correlated with the sensory predicate "volatile acidity."[8]

These examples should indicate the range and depth of current efforts to determine chemical components present in wine, and to attempt to discover correlations between them and human sensory responses. It is felt that in this way the connections between wine as a physical object, and wine as a perceived object may be specified in a relatively complete way. However, though completion of this project may solidify the claim that wine judgments are strictly empirical at least as far as the reference of descriptive predicates are concerned, it does not particularly enlighten us as to how the inference from "This wine is clear" to "This wine is sound and well-balanced" is made. What we will find is that the inference is grounded in several theories. First, for example, chemical identification of wine components is called for by the theory of what wine is. That is, given a certain model of the nature of wine, one looks for and identifies certain objective components. Then, bringing to bear theories from another domain, namely, theories about human sensation, one looks for correlations between objective components of wine and human responses. These two theories, and their interrelations, provide the "inference ticket." At this point, let us move on to an examination of the first of these theories, the theory of wine.

According to theory, wine-production is a completely "natural" ecological process; at least, it is "natural" in the sense that it occurs spontaneously in nature. The "naturalness" of this reaction, in fact, has been often proffered as the reason behind discovery of wine-making early in man's history, during the Neolithic period. Considered theoretically, as a biochemical-ecological process, wine production results from the regular metabolic activities of yeasts present in the environment constituted by fruit juices. Both yeasts and fruit juices are ubiquitous. Thus wine is ubiquitous. On the basis of this theory certain discoveries have been made. Some yeast populations, for example, have been found to be more well-adapted to certain fruit juices than to others. Some fruit juices, in fact, do not constitute a suitable environment for any yeast metabolism, although they are suited to other bacterial metabolisms. As would be expected, given the theory, current wine research, for the most part, is concentrated upon facilitating and optimizing the natural ecological relations between yeast and its environment. On the basis of this theory, it is not unexpected that the criteria for what counts as a good wine are com-

[7] It must be noted that the effort to chemically identify beverages is being pushed to near-ultimate limits. The Bureau of Customs, for obvious reasons, is developing analytical techniques which will identify beverage type, vintage, *specific* geographical point of origin, adulteration (if any), and so on. Alvin Bober and L. W. Haddaway, "Gas Chromatographic Identification of Alcoholic Beverages," *Journal of Gas Chromatography*, vol. 1 (1963), p. 8. Although this type of detective work is often ascribed to the expert professional wine-taster, it is not really his goal: "The idea of the professional taster playing the perpetual sleuth, following hints and clues that will eventually enable him to lay bare the imposter as a 'domestic little wine amusing only in its presumption' is mythical." The goals of the human analyzer are more modest: "First, he asks if the wine is sound. Is the balance of tannin, acid, and alcohol right? . . . Second, he asks if the wine is true to type . . . Third, he asks if the wine represents good value." Gerald Asher, "Wine Journal," *Gourmet*, vol. 34 (1973), p. 13.

[8] Amerine and Joslyn, *op. cit.*, pp. 445–456.

pletely colored by the natural ecological aspects of wine production.

A main evaluational judgment in wine appraisal is "This is a sound, well-balanced, wine." The two evaluational predicates, "sound" and "well-balanced," refer to certain ecological aspects of the wine-making process, although the latter predicate refers as well to elements in the overall system constituted by the wine and the human perceptual system. Since wine is made by a natural process, naturally things can go wrong during the process. A natural example is vinegarization. Vinegar is produced when the wine fermentation is infected by organisms other than the desired yeasts. Vinegarization is thus regarded as a sickness of the wine, a polluting process in the natural ecosystem. It follows from this that a sick, polluted wine is not a sound wine. A somewhat more complicated rationale is involved in the "soundness" appraisal regarding acid level. Yeasts function well in a normally acid environment such as fruit juice, although the perimeters of tolerated acid range are fairly wide. But most infective bacteria (other than the acetic acid bacteria, of course) do not function so well in an acid environment. Hence, since acid is always present in fruit juices, and, moreover, particular acid levels are requisite for both yeast ecology and bacteriacidal effects, acid levels figure in ascriptions of both soundness and balance. Although soundness and balance refer to many other relations and properties of wine, some of which I will mention later, my main point should be clear. A wine is evaluated as sound and well-balanced in great measure on the basis of what *it is only possible for it to be* according to the theory of its nature. Thus wine cannot be not-acid.

It is obvious that some purely definitional aspects derived from the theory are involved in this. For example, a sound wine cannot also be a sound vinegar, although the latter may in time, with care, be produced from the former. Hence, the presence of vinegarish qualities in wine detract from its evaluated soundness. Similar reasoning applies to the acid level. Wines, according to theory, cannot be produced or exist bereft of acids: the process of wine-production intrinsically involves an aqueous environment well-laced with various acids. Hence, evaluated soundness and balance must necessarily refer to acids and their levels. It is evident that these sorts of evaluative criteria can make sense only if wine is evaluated strictly in virtue of what sort of thing it essentially can be, as given by its theory.

It might be claimed that my present argument apparently reduces to the glaring tautology "This is a sound, well-balanced wine because it has the qualities of a sound, well-balanced wine." But there is a subtle misreading in this. The judgment, in fact, must read "This is a sound, well-balanced wine because it has only those qualities which *can be* in a sound, well-balanced wine." This latter judgment involves an empirical claim based upon the theoretical model of wine as a natural ecosystem.

It should be apparent that the choice of which observational predicates to include in evaluation judgments is under theoretical control of the model of wine. This theoretical model requires and insures the significance of the observational judgments. On the other hand, the observations insure the plausibility of the theoretical model, at least to the extent that the model is correct, given the observations as true. However, control of observation by the wine theory is not sole and entire. Another theoretical model impinges upon the observations. This theoretical model has as its domain the human sensory system.

C. Theories About Human Sensation

Scientists who work with human perception proceed as though some straightforward version of the causal theory of perception were true. While this presumption apparently raises philosophical problems, it apparently does not raise scientific problems. That is, the assumption has allowed certain theories to be brought forward, tested, and gain rather wide-spread acceptance in the scientific community.

Theories about taste and smell have been neglected for the most part until recently. However, within the last decade or so, fairly well verified hypotheses have come to the fore. I shall discuss in turn the main theory for each of these senses, and note the connections between wine as a physical object, and wine as a sensed object insofar as the theories allow such speculation.

As our understanding of chemistry grew during the present century, scientists continued to marvel at human smell. Two things were evident: first, smell is incredibly sensitive. Some substances can be perceived in amounts as small as one ten-millionth of a gram. Secondly, the olfactory

sense can often instantly identify "complex compounds that might take a chemist months to analyze in the laboratory."[9] As it turns out, a speculative hypothesis made originally by Lucretius is one which has borne fruit for our understanding of the mechanism of olfaction. Lucretius originally hypothesized that the "palate" contained minute pores characteristic in size and shape. Certain substances fit only certain pores, and hence had distinguishable odors. This basic hypothesis has turned out to be verifiable.[10] It would appear that the human nose has 7 different types of olfactory site, to each of which corresponds a basic, or "atomic" odor. Five of these site-types are differentiated by their three-dimensional geometry, while the remaining two are differentiated by their sensitivity to electric charge. A basic odor-object, for example, the "floral" substance phenylethyl methyl, has a characteristic shape, in this case, a stepped key-shape 12 angstroms long, which fits into a specific nasal receptor slot congruent to its shape. Thus, objects with similar 3-dimensional shapes elicit the same odorous response. Some objects of course, fit more than one slot. These objects have "non-atomic," or complex odors. It is theorized that all perceived odors may be constructs of varying complexity constituted from the 7 basic odors. One interesting feature of this account is that two basic odors, "pungent" and "putrid,"[11] correspond to two basic unsoundness factors in wine. An example of a "pungent" odor would be that produced by acetic acid; a "putrid" odor is exemplified by hydrogen sulfide. Presence of these compounds in the aroma of a wine is indication of sickness in the wine. Human sensitivity to these two basic odors is extremely high, thus detection of these substances is facile to the trained observer.

Inspection of the theoretical prerequisites necessary to produce olfactory sensation directly indicates the correspondence between wine as a physical object, and wine as a sensible object. The first requirement is that the object, to be sensible, must have volatile components. Wine obviously satisfies this requirement. Secondly, the volatile components must be water-soluble, since, if they are not, they will not go into solution within the mucus membranes on olfactory sites. Again, since wine is fundamentally an aqueous solution of components, it follows that it meets this requirement.

One might ask, "what does all this have to do with evaluating wine?" My answer will be seen to be analogous to my analysis of the objective aspects of wine in the section immediately above. There, I claimed that the evaluation of wine, especially in regard to its being "sound" and "well-balanced," was for the most part criterially circumscribed by the theory of what wine *can be* as an essentially bio-chemical product. As we will see, these same criteria continue to function when one turns from looking at wine as a biochemical product, in order to look at the relation between wine and the human sensory apparatus. But theories about the human sensory system add important new elements to the criteria based upon wine-qua-physical object. One new element is the specification of absolute perimeters to the range of allowable sensations. An example will indicate this. Intense acetic acid odor will block all other smells; in effect, it blankets the olfactory sense with an overpowering sensation. Similar results follow sniffing of a strong hydrogen sulfide odor. Thus, both pungent and putrid odors, and their objective correlates, besides being primary in olfaction, tend to overwhelm the sensing process when present in sufficient amount.[12] Moreover, it is clear that pain may follow from intense encounter with these odor-producing substances. It would appear, then, that maximum allowable amounts of these substances are specified by the theoretical nature of the olfactory mechanism itself. I must emphasize that I am not speaking about culturally learned patterns, but rather, about natural limitations of the sensing instrument. Thus, a negative reaction to a vinegarized wine is called for on both bases: first, according to the theory of wine-qua-biochemical-product, wine ought not to contain acetic acid; secondly, a vinegar smell blankets the nose, and, if intense, may cause pain. It

[9] J. E. Amoore, J. W. Johnston, M. Rubin, "The Stereochemical Theory of Odor," *Scientific American*, vol. 210 (1964), p. 42.

[10] *Ibid.*

[11] "Pungent" is the odor correlated with positively charged molecules, while "putrid" is the odor correlated with negatively charged molecules.

[12] Since each of these primary odors elicit sensation, not by stereochemistry, but rather by electric charge, it is fairly apparent how the blanketing effect might be produced.

should be clear that both "soundness" and proper "balance" are involved here. Straightforward detection of the presence of proscribed substances directly obviates an evaluation of "sound." But olfactory blanketing by some components directly indicates a judgment of "unbalanced," with respect to the theory of olfaction.

A similar analysis may be made in regard to evaluation of soundness and balance based upon gustatory responses. Again, what we find is that evaluative criteria are specified in detail by the theoretical model of wine-qua-physical-object, with maximum perimeters specified by the theoretical natural limitations of the sensing system itself. But a further element must also be noted. In addition to these gross limitations, more precise inter-relations between substances are conjointly controlled by the theoretical models of both wine and the sensing apparatus.

Taste, like olfaction, is a chemical sense which functions by means of soluble chemical substances. Ranges of allowable amounts of these substances are set by the taste mechanism itself. On a gross level, it is clear that wine having a pH of 1 (highly acid) would be unacceptable. In fact it would be undrinkable, since such high hydrogen ion concentration would corrode mouth, teeth, and tongue. But prior to reaching such toxic levels, acid presence would first blanket other sensations, and then begin to produce pain. I must again note that intense acid response is not proscribed on a cultural or other learned basis, but rather, is ruled out by the nature of the sensing apparatus itself. No culture could learn to drink a solution of $pH = 1$.

More precise details of sensory response are controlled conjointly by both wine and the sensory system. As I noted above, fruit juices by their very nature contain acid. Thus, "wine" with no acid does not count on the basis of the fruit juice-yeast ecosystem model. But on the other hand, sensory theories also call for acid. It is clear that moderate amounts of acid potentiate and sharpen other sensory possibilities. Thus, with acid present in certain amounts, one is capable of fuller perception of other qualities of the wine. The predicate "well-balanced" would seem to directly reflect this correspondence between the theoretical model of wine, and the theoretical model of the human sensory system. If a "well-balanced" wine is all that it *can be*, given the terms of what wine "naturally" is, then a "well-balanced" wine from a sensorial perspective, is one which is perceptually all that it *can be* given the theories about the human sensory system.

D. Conclusion

On the basis of the arguments above I would want to conclude that the judgment "This is a fine wine" is true or false, but not both. It might not be clear at this point how this conclusion at all follows from my earlier argument. Let me now summarize and reconstruct the argument.

The aesthetic judgment "This is a fine wine" seems to me to be relevantly similar to the judgment "This is a heliocentric system." That is, both judgments are based entirely upon "factual" or observable data, data, however, which acquire part of their meaning, and all of their organization from a theory or theories. Clearly, that the solar system is heliocentric is not strictly given (in any sense) in the observations; yet, we should still want to claim that the judgment "This is a heliocentric system" is empirically true or false, that is, true or false on the basis of observations such as "Venus has phases." Thus, the judgment is empirical, even though it is highly loaded with theoretical content.[13] Movement from "Venus has phases" to "This is a heliocentric system" is not immediate, deductive, intuitive, or in any other sense logically facile. But, on the other hand, it is reasonable, structured, controlled, and in no sense arbitrary or even inconsistent. Theories from many areas, including physics of motion (e.g., kinetics and kinematics), optics (e.g., wave theory and lens theory), and so on, at each step link simple perceptual judgments to ever more theoretical judgments, until the ultimate judgment "This is a heliocentric system" is finally entailed. Given the inferential movement within this complex but systematic structure, the ultimate judgment "This is a heliocentric system" becomes a candidate for empirical truth or falsity, but not both. What should be evident here is the curious, non-linear structure of the whole, a whole in which the theory entails observations, but only if the observations imply the theory.

[13] I have discussed this question at much greater length elsewhere. Cf., George Gale and Edward Walter, "Kordig and the Theory-Ladenness of Observation," *Philosophy of Science*, vol. 40 (1973), p. 474.

It seems to me that the judgment "This is a fine wine" is empirically true or false in just the same way. One starts from an observation-base, a list of perceptual qualities which wine is taken to have. Immediately brought into play in relation to this list is a set of theoretical criteria which deny significance to certain of wine's observable qualities, for example, its tactual or auditory qualities, but grant significance to others, e.g., olfactory, visual, etc., qualities. Criteria for restriction of observational predicates most plausibly are developed from our theory about the biochemical nature of wine. However, of course, this theory does not operate in isolation from theories about our own sensory system. Nor, moreover, do these latter operate in isolation from theories about the systematic relations which obtain between the theory of wine and the theory of the sensory system.

Perhaps a comparison of judgments made at different levels of both the Copernican theoretical structure and the wine-evaluative theoretical structure might make the analogy more complete. In astronomy, one would start from certain observations and observation-definitions such as "That object gets dimmer every night" and "That object is a planet (i.e., Venus)." It is quite a considerable movement from these relatively low level statements, to the more structured and theoretical statement "Venus has phases." The predicate "phases" already is controlled in part by the theory it will ultimately generate and verify. Already at this intermediate level the significance of "phases" is granted in some part by the fact that the judgment "This is a heliocentric system" will ultimately be made. In some sense each of the low level judgments or observations is true, independently, yet in another significant sense their truth depends as well upon the truth of "This is a heliocentric system." Of course, at the same time, the truth of this latter depends upon each and all of them, e.g., upon statements like "Venus has phases."

Consider judgments made about wine. "That object is clear" and "That object is wine" are respectively observation-statement and observation-definition analogous to "That object gets dimmer every night" and "That object is a planet (i.e., Venus)." "This wine is sound and well-balanced" is analogous to "Venus has phases." The truth of both of these latter most certainly depends implicitly upon the truth of their respective observation-level statements. But, even at this intermediate level, observational descriptive-predicate implication is not all that is required for truth, since ultimate judgments such as "This is a heliocentric system" and "This is a fine wine" lend significance and truth-relations to their respective lower level statements.

It should be quite obvious by now that, if "This is a heliocentric system" and "This is a fine wine" are true, then they are true because ultimately they are judgments which claim that an entire complex system of relations and interrelations obtain, in the world, between certain sorts of objects, certain sorts of theories, and certain sorts of perceptual judgments. If and only if these relations and interrelations obtain, is the ultimate judgment in each case true.

Theories about the nature of the truth of the judgment "This is a heliocentric system" are rampant and controversial—such theories form a main subject matter for the philosophy of science. What my claim in this paper reduces to is the claim that analysis of the judgment "This is a fine wine" can and ought to be carried out in exactly the same fashion as analysis of the judgment "This is a heliocentric system." I am quite sure that my claim will raise howls in some quarters. If true, my claim will most likely result in some aestheticians ruling wine-judgments out of the class of aesthetic judgments. But such a ruling-out necessarily entails that some sense modalities, i.e., olfaction and taste, are not aesthetic sense modalities. Perhaps an even more startling result might occur, namely, the claim might be made that any field of objects subject to detailed scientific scrutiny, scrutiny such as that found in wine investigations, ought necessarily to be ruled out of the field of aesthetics. Results such as these appear to me to be uncalled for even if my claim is acceptable. But then again, perhaps my claim that some aesthetic judgments are empirically true is neither made out in this paper, nor can be made out in any other paper. However, if this turns out to be the case, then apparently the gap between wine science and wine aesthetics is unbridgeable.

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