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NATURE APPRECIATION, SCIENCE, AND POSITIVE AESTHETICS

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Scientific cognitivism is the idea that nature must be aesthetically appreciated in light of scientific information about it. I defend Carlson's traditional formulation of scientific cognitivism from some recent criticisms. However, I also argue that if we employ this formulation it is difficult to uphold two claims that Carlson makes about scientific cognitivism: (i) it is the correct analysis of the notion of appropriate aesthetic appreciation of nature, and (ii) it justifies the idea that nature, seen aright, is always beautiful (that is, positive aesthetics about nature). I attempt to find a revised formulation of scientific cognitivism that can support both of these claims. I argue that to do this we must rethink the notion of positive aesthetics and its place in our theorizing about the appropriate aesthetic appreciation of nature. Specifically, I propose that positive aesthetics be made 'internal' to the theory of appropriate aesthetic appreciation, in the sense that this theory determines the correct scientific categories for appreciating a natural object, in part, in virtue of a 'beauty-making' criterion. I argue that this sort of formulation of scientific cognitivism can support both of Carlson's claims and does not compromise the objectivist scruples that motivate the view.

I. INTRODUCTION

Scientific cognitivism is a normative thesis about aesthetically appreciating nature: nature must be aesthetically appreciated using, or with reference to, scientific information about it and its parts. Allen Carlson has argued that scientific cognitivism has two features. First, it is the correct analysis of the notion of appropriate aesthetic appreciation of virgin nature. That is, we appreciate nature's aesthetic qualities in the proper manner in so far as we aesthetically appreciate it in light of scientific knowledge.¹ Second, scientific cognitivism

¹ Allen Carlson, 'Nature, Aesthetic Judgment, and Objectivity', *Journal of Aesthetics and Art Criticism*, vol. 40 (1981), pp. 15–27. Note this is not the claim that viewing nature using scientific information about it is necessary and sufficient for appropriate aesthetic appreciation of nature, but the claim that viewing nature *aesthetically* (whatever that may mean) in light of such information is necessary and sufficient for its appropriate aesthetic appreciation. Carlson sometimes describes his view as the weaker claim that scientific knowledge is necessary for appropriate aesthetic appreciation of nature (see, e.g., 'Nature, Aesthetic Appreciation, and Knowledge', *Journal of Aesthetics and Art Criticism*, vol. 53 [1995], pp. 393–400, esp. p. 393). In conversation, however, he acknowledges that the claim that aesthetic appreciation together with scientific knowledge is both necessary and

provides justification for a state of affairs called ‘positive aesthetics’: if nature is viewed properly (that is, in light of scientific knowledge about it) then nature appears aesthetically positive, or good.² I present cases of appreciation and argue that they show, given a reasonable construal of positive aesthetics and using the traditional formulation of scientific cognitivism, that the second claim is false. However, I argue further that these cases show that the first claim is also false: traditional scientific cognitivism is not a correct theory of the appropriate aesthetic appreciation of nature. To obtain a version of scientific cognitivism that is a correct theory of appropriate aesthetic appreciation of nature, I suggest rethinking the relation of positive aesthetics to our theorizing about appropriate aesthetic appreciation. The idea that nature is aesthetically good must be incorporated into such theories explicitly, rather than derived from them *post hoc*.

II. TRADITIONAL SCIENTIFIC COGNITIVISM

I begin by laying out the essential features of the traditional formulation of scientific cognitivism. This formulation is due to Carlson, but the underlying apparatus of the theory is derived from Kendall Walton’s theory of art appreciation.³ Walton’s theory of appreciation has a descriptive psychological part and a normative philosophical part; I outline the former first. When we encounter objects in perception, we perceive non-aesthetic perceptual properties (NAPPs), such as colour and shape. However, these NAPPs are perceived under *categories*: for example, tree, human, painting. NAPPs have one of three relations to any given category (CA, p. 339):

NAPP N is *standard with respect to a category C* iff the absence of N tends to disqualify an item from being a member of C.

NAPP N is *variable with respect to a category C* iff the absence or presence of N is irrelevant to an item being a member of C.

NAPP N is *contra-standard with respect to a category C* iff the presence of N tends to disqualify an item from being a member of C.

For example, white skin colour is a NAPP variable with respect to the category human; having four arms is a NAPP contra-standard for that category, and having one head is a NAPP standard for it. Observers typically perceive NAPPs under multiple, overlapping categories. For instance, something might be viewed

sufficient for appropriate aesthetic appreciation of nature is plausible and merits careful consideration. Furthermore, I will argue that Carlson’s position actually requires the stronger claim.

² Allen Carlson, ‘Nature and Positive Aesthetics’, *Environmental Ethics*, vol. 6 (1984), pp. 5–34.

³ Kendall Walton, ‘Categories of Art’, *Philosophical Review*, vol. 79 (1970), pp. 334–367 [hereafter CA].

simultaneously as a human, a Caucasian, and a female. Any given NAPP of the object may be differently related to different categories under which it is being simultaneously perceived: for example, a person's skin colour may be variable with respect to the category human, but standard with respect to the category of Caucasian.

Despite the relativity of the status of NAPPs to the different categories under which an observer perceives them, we can talk about a NAPP being standard, contra-standard, or variable relative to the observer herself on a given occasion, rather than to one particular category, using the following definitions (CA, p. 342):

NAPP N of an object is *standard relative to observer O* iff (i) N is standard relative to some category in which O perceives the object, and (ii) N is not contra-standard relative to any category in which O perceives the object

NAPP N of an object is *variable relative to observer O* iff N is variable relative to all categories in which O perceives the object

NAPP N of an object is *contra-standard relative to observer O* iff N is contra-standard relative to any category in which O perceives the object

For any given observer perceiving an object on a particular occasion, every NAPP has one, and only one, such status relative to that observer on that occasion. I will call the assignment of one such status to each NAPP the *NAPP-profile* of the observer. The NAPP-profile of an observer depends upon, or is determined by, the set of categories under which the observer views the object.

The main psychological element of Walton's theory is his claim that the aesthetic properties that an observer perceives in an object on a particular occasion depend not only on what NAPPs the object has, but also on the NAPP-profile of, and hence the categories used by, the observer on that occasion (CA, p. 354). This claim is made only for certain aesthetic properties, which I call category-sensitive (CA, p. 337). Walton cites a number of such properties; one of these is the property of being shocking, startling, or disturbing. This property is category-sensitive in that it is generated when some NAPP of an object is seen as contra-standard for the observer. Walton's example is a painting with a three-dimensional object protruding from its surface. Such an object would seem shocking and disturbing to most of us, because this feature is contra-standard for the category of painting: hence it is contra-standard for any observer that views such an item under the category of painting (that is, most of us) (CA, pp. 352–353). Other aesthetic properties may be category-sensitive in this fashion also: for example, a living room with a sink in it is apt to look, to most of us, disunified and chaotic, even if the sink happens to have a high degree of formal harmony with the furniture. This is because 'having a sink' is a NAPP that is

contra-standard for most of us, it being contra-standard for the category of living room.

The normative or philosophical element of Walton's theory is the claim that certain sets of categories under which we may perceive objects are the *correct* categories for doing so. In Walton's theory of art appreciation, these categories are usually the established artistic categories for which the artwork was produced.⁴ Carlson extends both the psychological claim and the normative claim to nature and its parts. He claims that the aesthetic properties of natural objects depend upon the categories employed to perceive them and that certain categories, namely the natural kind categories employed by natural science, are the correct categories to employ in appreciating them.⁵ Thus Carlson offers us an analysis of appropriate aesthetic appreciation of nature: the appropriate, or correct way to appreciate nature is to do so employing scientific categories.

III. THE IMPORTANCE OF THE TRADITIONAL FRAMEWORK

The theory just described is not scientific cognitivism itself, but one articulation of it. Since the rest of this paper is going to be about this particular articulation of the view, which I shall call the 'traditional' version, I should say why I think it important to evaluate, critique, and ultimately revise this articulation. In short, I think this because it is the best articulation of scientific cognitivism available. This can be shown by the fact that many of the criticisms advanced against the view are neutralized once the details of the Walton/Carlson theory are taken into account. Thus, the scientific cognitivist has good grounds to endorse the traditional formulation and I have good reason to evaluate and critique it.

The following passage is representative of a common objection to scientific cognitivism:

Scientific knowledge may be a good starting point for appreciation characterized by curiosity, wonder, and awe, but is it necessary for perceiving aesthetic qualities? Counterexamples are not difficult to find. I can appreciate the perfect curve of a wave combined with the rushing white foam of the wave crashing on to sand without knowing how waves are caused. My judgment of the wave as spectacular and exhilarating can be dependent solely on an appreciation of perceptual qualities and any associations or feelings which give meaning to these qualities.⁶

The objection can be summarized as:

⁴ For Walton's criteria for correctness, see CA, pp. 357–358. I discuss one of Walton's criteria in Section VI.

⁵ Carlson, 'Nature, Aesthetic Judgment, and Objectivity', p. 21.

⁶ Emily Brady, 'Imagination and the Aesthetic Appreciation of Nature', *Journal of Aesthetics and Art Criticism*, vol. 56 (1998), pp. 139–147 at p. 140.

O₁: There are some aesthetic qualities of natural objects that can be appropriately appreciated without scientific knowledge.⁷

As an objection to traditional scientific cognitivism, O₁ is a *non-sequitur*. O₁ would refute the following:

N₁: For any natural object N, some scientific knowledge is necessary for the correct appreciation of every aesthetic quality of N.

But there is no reason to think that N₁ is entailed by traditional scientific cognitivism. Perhaps the easiest way to see this is to examine the analogous case in Walton's theory of art appreciation. Consider the following:

A₁: For any artwork A, artistic knowledge is necessary for the correct appreciation of every aesthetic quality of A

A₂: For any artwork A, artistic knowledge is necessary for the correct appreciation of some aesthetic qualities of A

Prima facie, Walton's theory of art appreciation certainly entails A₂, but not A₁: he holds that some aesthetic properties of artworks are category-sensitive with respect to artistic categories, but he does not claim that all are.⁸ Walton's view that knowledge of artistic categories is necessary for the correct appreciation of any artwork is compatible with the existence of some aesthetic qualities, perhaps highly formal ones, that can be appreciated correctly in the absence of such knowledge. Analogously, scientific cognitivism holds the analogue of A₂, namely:

N₂: For any natural object N, scientific knowledge is necessary for the correct appreciation of some aesthetic qualities of N

N₂ is compatible with the existence of some category-insensitive aesthetic qualities, but it is enough to make scientific information necessary for the correct appreciation of any natural object.⁹ Furthermore, within the Walton/Carlson framework there are grounds for thinking N₂ true, for any natural object will

⁷ As an aside, not all Brady's examples seem to support O₁. Is 'being exhilarating' an aesthetic quality? 'Being spectacular' perhaps is a better candidate, but would a wave appear spectacular in the absence of the scientific/commonsense belief that its size is contra-standard, or in the upper part of a variable range? Can you see a tiny wave as spectacular?

⁸ Walton writes: 'I am more interested in discussing particular examples of such properties than in making generalizations about the class as a whole. It will be obvious, however, that what I say about the examples I deal with is also applicable to a great many other properties we would want to call aesthetic' (CA, p. 337).

⁹ If the qualities for which scientific information is dispensable are category-insensitive ones, such as formal qualities, then aesthetic appreciation using scientific categories will also be *sufficient* for the appropriate aesthetic appreciation of any natural object, in the sense that any properly functioning observer would be equipped to apprehend these formal qualities correctly. I discuss the claim of sufficiency further in Section IV below.

presumably have a multitude of aesthetic properties that *are* category sensitive (see CA, p. 347).

Another common objection to scientific cognitivism is:

O₂: For any natural object N, many pieces of scientific knowledge about N are irrelevant to aesthetically appreciating it.

In the passage quoted above, for example, Brady complains that the manner in which waves are caused is irrelevant to her appropriate aesthetic appreciation of them.¹⁰ However, O₂ also appears to be a *non-sequitur*, because there is nothing in the Walton/Carlson theory that entails that *all* scientific knowledge about a natural object is relevant to its appropriate aesthetic appreciation (the theory does entail, of course, that *some* scientific information is relevant). However, O₂ does lead to a more serious complaint, namely:

O₃: Scientific Cognitivism offers no principled way of deciding what scientific knowledge is relevant to the appreciation of a given natural object and what is not.

Many writers have pointed to this perceived defect in scientific cognitivism. Robert Stecker writes that:

the range and variety of knowledge we might have of the environment is indefinitely large. Unless we can discriminate knowledge of nature relevant to its aesthetic appreciation from knowledge not so relevant, an appeal to knowledge is not very helpful. Would knowledge of the chemical composition of the cell walls of lady's slippers be relevant to their appreciation? For most people, I suspect not. So what knowledge is relevant?¹¹

In the Walton/Carlson theory, not all scientific categories are relevant to aesthetic appreciation. In order to make an aesthetic difference, a switch between categories has to alter the NAPP profile of the observer: one NAPP becoming contra-standard where it was standard, for example. However, not all switches between categories satisfy this condition. One instance of this arises with respect to what Walton calls 'perceptually distinguishable categories': 'A category is perceptually distinguishable if membership in it is determined solely by features of works that can be perceived in them when they are experienced in the normal manner' (CA, p. 339). Some categories are perceptually distinguishable (for

¹⁰ Similarly, Thomas Heyd asserts that knowledge about the relationship between two types of tree is irrelevant to appreciating them. See his 'Aesthetic Appreciation and the Many Stories About Nature', *British Journal of Aesthetics*, vol. 41 (2001), pp. 125–137, esp. p. 128.

¹¹ Robert Stecker, 'The Correct and the Appropriate in the Appreciation of Nature', *British Journal of Aesthetics*, vol. 37 (1997), pp. 393–402, at p. 398. Malcolm Budd raises a related but distinct concern in 'The Aesthetics of Nature', *Proceedings of the Aristotelian Society*, vol. 100 (2000), pp. 137–157; I discuss Budd's concern in detail in Section VI.

example, ‘apparent etching’) whereas others are not (for example, ‘actual etching’).¹² Since the category of ‘actual etching’, say, assigns the same status to all NAPPs as that of ‘apparent etching’, swapping these categories cannot affect NAPP profile.¹³ Hence, any switch from some category to a corresponding perceptually indistinguishable one is automatically aesthetically ineffectual, and in this sense the perceptually indistinguishable category is irrelevant to aesthetic appreciation. Similar phenomena arise in the case of scientific categories. To return to Brady’s example, the categories of ‘wave caused by wind’ and that of ‘wave generated by volcanic activity’ may not differ in the status they assign to various NAPPs. In such an event, the knowledge that a given wave is the product of volcanic activity, though scientific, is not going to make an aesthetic difference to our appreciation of the wave.

Some philosophers sympathetic to scientific cognitivism have tried to deflect O₃ by drawing the distinction between relevant and irrelevant knowledge along the boundary between the physical sciences and those sciences more closely associated with natural history. Yuriko Saito, for instance, writes:

In general . . . aesthetically irrelevant considerations belong to early modern sciences within the rationalist tradition (such as physics and chemistry). . . . On the other hand, some other scientific information enhances or modifies our initial perceptual experience of nature. Such information is derived from what Hargrove calls the natural history sciences (such as geology and biology). . . .¹⁴

The too-familiar generalizations involved in this distinction (physics and chemistry reductive and ‘beyond sense experience’, biology and geology ‘based upon observations’ and appreciative of context) engender scepticism. But on the Walton/Carlson approach, this pat division is not only unnecessary but misleading. For a switch between the categories of ‘three-dimensional carbon lattice’ and ‘vertical stack of two-dimensional carbon planes’, for instance, can make an aesthetic difference to the NAPP profile of an observer viewing a mineral (NAPPs contra-standard for one are standard for the other). Hence these chemical categories, and the corresponding chemical information about molecular structure, *are* aesthetically relevant. Not all physics and chemistry is relevant, of course, but neither is all of it irrelevant.¹⁵ The applicability of a piece of

¹² The example is Walton’s (see CA, p. 339).

¹³ Any NAPP standard for ‘actual etching’ is also standard for ‘apparent etching’, any NAPP contra-standard for ‘actual etching’ is contra-standard for ‘apparent etching’, and so on.

¹⁴ Yuriko Saito, ‘Appreciating Nature on its Own Terms’, *Environmental Ethics*, vol. 20 (1998), pp. 135–149, at pp. 144–145.

¹⁵ Compare Saito’s claim that ‘the molecular structure of a rock. . . . seems too removed from our immediate perceptual arena to be realizable on the sensuous surface [of the rock]’, and so cannot inform our aesthetic appreciation of it (Saito, ‘Appreciating Nature on its Own Terms’, pp. 144–145).

scientific knowledge to aesthetic appreciation need not be settled *ad hoc* or by recourse to stereotypes of the sciences, but in a principled manner based on the status assigned to various NAPPs by the particular scientific categories involved.

A fourth objection often brought against scientific cognitivism is represented by the following passage from Thomas Heyd:

... if my cognizance of geology, chemistry, or botany were to lead me to really focus on, for example, seeking appropriate scientific classifications for the Olympic mountains, the watery expanse, or the arbutus tree I sit beneath, diverting my attention from the natural objects and sites concretely at hand, such knowledge should be considered harmful to my aesthetic appreciation of the natural environment in which I am immersed.¹⁶

The complaint is:

O₄: Scientific knowledge distracts observers from aesthetic qualities.

The worry behind O₄ seems to be that if scientific cognitivism is adopted, then aesthetic value will be reduced to scientific value: we will end up appreciating the *scientific* qualities of objects rather than their *aesthetic* qualities.¹⁷

Now there is no question that thinking intently about scientific facts, indeed thinking intently about anything, can distract our attention from what is immediately before us. But it by no means follows that cognitive factors, such as seeing an object as an instance of a certain sort of scientific kind, always or necessarily distracts from, or interferes with, our attention to what is before us. Indeed, Walton's entire theory of appreciation is based on the notion that cognitive factors enter into *attentive* perception, via our seeing objects as instances of various categories. When we see an organism as a reptile, we do not pause our perception while we flip through beliefs in a mental register: we simply see the item *as* a reptile. Furthermore, this 'seeing as' is manifested, in terms of our perception of aesthetic qualities, in our use of the NAPP profile that is characteristic of the set of categories employed. In short, the Walton/Carlson theory offers a plausible and precise account of the way in which cognitive factors, including scientific knowledge, are involved in attentive aesthetic perception.

IV. TRADITIONAL SCIENTIFIC COGNITIVISM AND POSITIVE AESTHETICS

To evaluate Carlson's claim that traditional scientific cognitivism justifies positive aesthetics, we must investigate further just how the acquisition of scientific

¹⁶ Heyd, 'Aesthetic Appreciation and the Many Stories about Nature', pp. 128–129. See also Stecker, 'The Correct and the Appropriate in the Appreciation of Nature', p. 401, and Saito, 'Appreciating Nature on its Own Terms', p. 144.

¹⁷ Cf. Brady, 'Imagination and the Aesthetic Appreciation of Nature', p. 141.

knowledge is supposed to function in that theory. I offer the following account in terms of the framework for scientific cognitivism sketched above. We start out with vague, 'common sense' categories that we acquire in childhood: beach, tree, flower, and so on. Depending on our background, some of these categories may be more esoteric: for example, we may have mythological categories, such as 'embodied spirit', or religious ones, such as 'sign from God'. We apply these categories in our appreciation of natural objects, and of course these naïve categories may overlap (for example, animal and deer).

Eventually we learn scientific natural kinds (mammal, coniferous tree, orchid, meteorite) and we learn about which particular things fall into them. This process can affect the naïve observer and her categories in at least three ways:

1. Naïve categories are eliminated and replaced by scientific ones.
2. The sorting of particular objects into naïve categories is revised.
3. Naïve categories are maintained, but new overlapping scientific categories are added.

All three of these effects might occur in the scientific education of a naïve observer: a few naïve categories may be eliminated, some reapplied, and some new categories may be added which overlap with existing naïve ones. I want to focus on the latter effect.

This effect consists of adding more specific categories to general and vague naïve categories, of refining these categories rather than replacing them. This is undoubtedly a ubiquitous effect of scientific education: for example, one who learns botany does not jettison the naïve category of plant. What he does, among other things, is add to the naïve category 'plant' many more specific categories that overlap with it: for example, fern, lichen, conifer, orchid. The important point is that we can expect that a scientifically informed observer will not have eliminated many of his naïve categories; he will have simply added others to them.

A consequence of this is that some properties that were contra-standard for the observer before his scientific education (that is, ones which were contra-standard relative to some naïve category of the observer that is not eliminated) will remain contra-standard for that observer regardless of how much science is learned. This follows from the traditional account of scientific cognitivism given above. According to our definitions, a NAPP that is contra-standard relative to *any* category of the observer is contra-standard for that observer. I just argued that after scientific education, many naïve categories of the observer will be retained. Therefore, if some NAPP is contra-standard for a naïve category, and if that naïve category is retained after scientific education, then no matter what new categories are added under which the object might also (simultaneously) be seen, that property will continue to be contra-standard for that (now scientifically informed) observer.

We are now in a position to evaluate Carlson's claim that scientific cognitivism justifies positive aesthetics. If scientific cognitivism is the proper analysis of appropriate aesthetic appreciation, then the aesthetic appraisals of nature that a scientifically informed observer makes should be appropriate ones.¹⁸ Take the case of a Venus fly-trap. A naïve observer will have a category of plant, for which the NAPP of 'having jaw-like features' is a contra-standard property. Having jaw-like features tends to disqualify something from being a plant. Such a naïve observer, for whom having jaw-like features is contra-standard (since it is contra-standard for the naïve category plant) might well see a Venus fly-trap as grotesque or ugly as a result of this.¹⁹ After learning the correct categories of botany, she realizes that objects like this are carnivorous plants and that it is perfectly normal for such organisms to have jaw-like apparatus. Yet, because her adopting such botanical categories does not involve eliminating her naïve category of plant, having jaw-like features remains a contra-standard property for her, and therefore continues to generate the negative aesthetic appraisal. Hence if scientific cognitivism is a correct analysis of appropriate aesthetic appreciation of nature, the Venus fly-trap will be correctly perceived as being grotesque.

I believe that this result, though it does not outright refute Carlson's claim that traditional scientific cognitivism justifies positive aesthetics, leaves it most seriously imperilled. I take positive aesthetics to be, roughly, the claim that any natural object, appropriately aesthetically appreciated, is on balance aesthetically good.²⁰ Given this characterization, the sort of negative aesthetic judgements I have discussed do not *ensure* that the object in question will fail to be aesthetically good. It remains possible, for instance, that the Venus fly-trap has enough positive aesthetic qualities to outweigh its grotesque character. However, the onus is on the defender of Carlson's claim to explain how scientific education serves to generate enough positive aesthetic appraisal to outweigh these judgements in all cases. Lacking such an account, the scientific cognitivist seems thrown back on head-counting aesthetic qualities, turning positive aesthetics into the shaky empirical hypothesis that every natural object happens to have more positive qualities than negative ones. This sort of support for positive aesthetics is completely antithetical to the robust justification that Carlson envisions scientific cognitivism as providing it.²¹

¹⁸ I assume here that Carlson's first claim is that scientific cognitivism holds that aesthetic appreciation employing the correct natural scientific categories is necessary and *sufficient* for appropriate aesthetic appreciation of natural objects, but see below.

¹⁹ Such an aesthetic response fits the general manner in which properties contra-standard for observers tend to function in Walton's theory: that is, they produce negative aesthetic judgements. See Walton, CA, p. 352. Cf. the case of the living room with a sink, discussed in Section II.

²⁰ For discussion of different versions of positive aesthetics, see Malcolm Budd, 'The Aesthetics of Nature'.

²¹ See Carlson, 'Nature and Positive Aesthetics'.

An important objection to the above argument should be discussed. I rely on the premise that having jaw-like features is contra-standard for a scientifically savvy observer, but this is arguable. Walton suggests that when we repeatedly encounter a property as contra-standard, we ‘ordinarily adjust our categories to accommodate it, making it contra-standard for us no longer’, and thereby eliminating any associated negative aesthetic appraisal (CA, pp. 352–353). For instance, he suggests that if we are frequently exposed to paintings that have three-dimensional objects protruding from their surfaces (a property contra-standard for the category ‘painting’), we may eventually employ, not the category ‘painting’, but rather an expanded category in which the offending property is not contra-standard, but variable. In the case of the Venus fly-trap, this would mean that a scientific observer, after sufficient exposure to carnivorous plants, would view it in a category for which having jaw-like features is irrelevant, in which it fails to misfit. So if the category ‘plant’ that is used by a scientifically educated observer is of this sort, the fly-trap will not appear grotesque. So perhaps, if seen aright, the Walton/Carlson theory does not lead to a negative appraisal of the Venus fly-trap after all.

The main reason I think this is not so is that it simply is not the case that the scientific category of plant, which includes carnivorous plants as a subcategory, is one for which ‘having jaw-like features’ is irrelevant and in which that NAPP fails to misfit. It is true that there are some plants with jaw-like features, and it is true, consequently, that this property is not incompatible with planthood. But it still is true that ‘having jaw-like features’ tends to disqualify anything from being a plant; it tends to recommend you as something else (for example, an animal). Furthermore, and more importantly, it *misfits* with the central properties that characterize the type ‘plant’.²² Still, one might insist that if something can be a plant with or without having jaw-like features, then this property must be variable in some sense. I would not argue over the use of the term ‘variable’. However, if this terminology is adopted, it must be recognized that being variable (or standard or contra-standard) is a matter of degree (CA, p. 342, n. 10). Even if ‘having jaw-like features’ is variable, rather than contra-standard, surely it is a feature just on the border between the classifications of contra-standard and variable: even though it does not *really* misfit the category of plant, it is certainly a lot closer to doing so than ‘having leaves’. Moreover, it seems that such borderline properties are likely to generate a negative aesthetic response only slightly less intense than a full-blown contra-standard one. Hence, even if ‘having jaw-like features’ is taken as variable, this is unlikely to remove the negative aesthetic judgement.

Another response to the fly-trap argument is that it misconstrues the strength

²² Walton says that NAPPs ‘contra-standard for us are perceived as being *misfits* in a category to which the work strikes us as belonging to, as doing *violence* to such a category’ (CA, p. 354).

of the scientific cognitivist's position. Perhaps aesthetic appreciation employing the correct natural scientific categories that apply to something should not be seen as *sufficient* to generate appropriate aesthetic appreciation, but only *necessary* for it. In other words, perhaps the scientific cognitivist can admit that there is more to the analysis of appropriate aesthetic appreciation than aesthetic appreciation using scientific categories. Perhaps there is some additional element to appropriate aesthetic appreciation of nature, which, when applied to the appreciation of the Venus fly-trap, will result in its not appearing grotesque. So maybe there really is no conflict between scientific cognitivism and positive aesthetics.

Admittedly, this move allows the scientific cognitivist to maintain that traditional scientific cognitivism does not entail that the fly-trap is grotesque. But it hardly provides a response to the argument, since it is tantamount to abandoning Carlson's second claim. For if scientific cognitivism is to justify positive aesthetics, surely it at least must show that the Venus fly-trap does not have substantial aesthetically negative qualities, like grotesqueness. For this is just the sort of crucial test case that any justification of positive aesthetics must confront: it is one of those parts of nature we are most inclined to see as ugly and therefore clear violations of the thesis. But if scientific cognitivism, in itself, fails even to tell us whether the Venus fly-trap is beautiful or grotesque, then it is hard to see how it can be construed as providing any sort of substantial justification for the positive aesthetics position.

V. REVISING TRADITIONAL SCIENTIFIC COGNITIVISM

At this point, the scientific cognitivist's response may be simply to abandon positive aesthetics, a thesis which, after all, some philosophers find implausible. I think, however, that this would be a mistake. I think this because the Venus fly-trap case shows not only that traditional scientific cognitivism does not support positive aesthetics, but also that traditional scientific cognitivism is not a correct analysis of appropriate aesthetic appreciation of nature. That is, it shows that Carlson's first claim about traditional scientific cognitivism is false as well. For it seems to me that the judgement of the Venus fly-trap as grotesque is, intuitively, a case of *inappropriate* aesthetic appreciation of nature. It is just aesthetically improper to see a Venus fly-trap as grotesque or ugly because it has jaw-like features. It does not seem appropriate to find aesthetic fault with it simply because it possesses unusual properties. Not only is it perhaps morally suspect (for example, narrow-minded), it seems *aesthetically* wrong. More specifically, aesthetic appreciation that branded the fly-trap grotesque would be a shallow appreciation, the kind of aesthetic judgement that we would want, instinctively, to correct rather than to let stand.

From a technical standpoint, the problem in these cases is that a NAPP is seen as contra-standard, leading to an inappropriate aesthetic response. In fact, Carlson himself discusses similar cases: for instance, an animal whose size is seen by a

naïve observer as contra-standard, leading to an inappropriate appraisal of it as awkward. In this case, the problem is that the animal is seen using the wrong category: it is really a moose, but is seen as a deer.²³ Science corrects this mistake, and tells us to view the object as a moose. This done, the size no longer is contra-standard for us, and the inappropriate appraisal is abrogated. This is an instance where scientific education affects our naïve categories in the second way described in Section IV: it reapplies our naïve categories over particular things. But in cases like the Venus fly-trap, this way of eliminating the troublesome contra-standard status of the NAPP is not available, because the Venus fly-trap really *is* a plant. Science does not correct that categorization; it merely adds more specific categories which refine it. Hence, although scientific education is capable of avoiding many inappropriate appraisals of nature, such as those Carlson has described, it does not help avoid the intuitively inappropriate judgement about the Venus fly-trap.

If this is right, then the question is: How do we revise traditional scientific cognitivism such that it does capture our intuitions about the appropriate appreciation of the Venus fly-trap (that is, such that it dictates that the plant is not grotesque)? One way this could be done is to change the normative element of the theory by adding the stipulation that natural objects are to be appreciated using, not all scientifically correct categories (plant, carnivorous plant, and so on), but only some of these, namely the more specific ones. For example, the inappropriate appraisal of the Venus fly-trap could be avoided if scientific cognitivism instructed us to reject broad categories like plant and see items only in more specific ones, like carnivorous plant.²⁴ For in that case, jaw-like features would be standard for the observer, rather than contra-standard. The problem with this proposal is that not all properties contra-standard to some naïve category generate inappropriate aesthetic appreciation. For instance, the beaches of Prince Edward Island in Atlantic Canada have the unusual property of being rust-coloured. The fact that this NAPP is contra-standard for most of us, since we take beaches not to be this colour, is part of what makes Prince Edward Island seascapes so striking and vibrant. If scientific cognitivism was reformulated so as to require us to appreciate things, not in very broad naïve categories like 'beach', but in more specific categories like 'iron-oxide containing earth' then this aesthetic effect, and others like it, would be lost. But surely it is, intuitively, just as inappropriate to allow science to deaden us to the striking character of Prince Edward Island's seascapes as it is to spurn a Venus fly-trap as grotesque.

²³ Carlson 'Nature and Positive Aesthetics', p. 26.

²⁴ This loss of general categories may occur among professionals and specialists, and may explain why entomologists, for example, lack many of the layman's negative aesthetic responses to insects. Such category loss, however, may require prolonged study and/or exposure to the items in question; see Walton's comments on the revision of artistic categories in *CA*, pp. 352–353.

VI. RETHINKING POSITIVE AESTHETICS

Although our reformulation of the normative element of traditional scientific cognitivism founders on this case, a better solution is apparent. For the example makes plain that for a natural object that is a member of a small, variegated subset of a broad category, our intuitions mandate employing either the broad and narrow categories together, or only the narrow one alone, *depending on which makes the object look aesthetically best*. That is, the normative part of scientific cognitivism should not be ‘view the object under all of the scientific categories in which it truly belongs’ or ‘view the object under the most specific scientific categories in which it truly belongs’. It should rather be, ‘view the object under scientific categories in which it truly belongs and which maximize the aesthetic appeal of the object’.

The approach to the Venus fly-trap argument that I recommend places within the normative element of scientific cognitivism a constraint to select certain categorizations as correct on the basis that they maximize aesthetic merit. This is not a novel idea; such a criterion was actually a part of Walton’s theory of art appreciation.²⁵ Walton cites four criteria for determining which categories C are the correct ones in which to view an artwork W. His criterion (ii) is: ‘the fact that W is better, or more interesting, or more pleasing aesthetically, or more worth experiencing, when perceived in C than it is when perceived in alternative ways’ (CA, p. 347). In his formulation of scientific cognitivism, however, Carlson explicitly rejects this kind of approach. He writes

I have not mentioned Walton’s circumstances (ii), for I think it directly relevant in the case of neither art nor nature. This is because it seems not to be a circumstance *constitutive* of correctness as are circumstances (i), (iii), and (iv). In contrast to these, (ii) seems only to provide some evidence for correctness.²⁶

Carlson’s point is that the fact that some category makes an object look good does not make the object belong in that category. This point is well taken, but it does not apply to the manner in which I propose using the maximization of aesthetic merit as grounds for selecting certain categories as the ones to use for aesthetic appreciation. I suggest using the criteria of aesthetic maximization to select one category that truly applies to the object over another one that also truly applies to it. In short, I do not use the criterion to justify the correctness of a category: the categories are already established as correct. It is not because a Venus fly-trap appears attractive as a carnivorous plant that it is one.

Carlson excludes beauty-making as a criterion for selecting the correct

²⁵ Eddy Zemach also argues for the employment of a beauty making criterion for the selection of the correct manner of appreciating artworks. See his *Real Beauty* (University Park, PA: Pennsylvania State U.P., 1997), pp. 86–89.

²⁶ Carlson, ‘Nature, Aesthetic Judgement, and Objectivity’, p. 27, n. 21.

categories in which to view nature in order to avoid a subjectivism about natural aesthetic appreciation that is both theoretically and ethically problematic.²⁷ On the version of scientific cognitivism that he fashions, the correct categories are ones science uses to describe the natural object. What he misses is that the categorizations of science are such that we can hold that the correct categories are the ones science uses to describe the natural object and yet employ a beauty-making criterion that restricts those categories in certain cases. Carlson worried that a beauty-making criterion would license as appropriate the sort of appreciation that involves seeing a Venus fly-trap as if it were an animal. On our revised version of scientific cognitivism, this would not occur. However, the beauty-making criterion might well license seeing one as a carnivorous plant rather than as a plant.

Incidentally, the appeal to a beauty-making criterion also provides a response to an objection to scientific cognitivism raised by Malcolm Budd. Budd points out a problem with Carlson's extension of Walton's psychological claim to nature:

Any natural thing falls under more or less specific concepts of nature, and can be appreciated under concepts that express a greater or lesser understanding of it. . . . The problem is: What determines which concept or concepts of nature are the correct concept or concepts under which a natural item is to be perceived?²⁸

As an illustration, Budd mentions that we could perceive a flower under one of several different categories, 'flower', 'orchid', and 'sexual organ of a plant', all of which truly apply to it. Further, appreciation using each of these categories might yield quite different, even incompatible, aesthetic judgements about the item. But as a supposedly objectivist account of aesthetic appreciation, scientific cognitivism is committed to there being *one* correct way of appreciating the object. So which of these different categories should be employed?

Perhaps the most natural response for the cognitivist is to say that correct appreciation requires using, simultaneously, *all* those scientific categories that truly apply to the object.²⁹ After all, the object in question does fall into all of these categories. However, if my interpretation of the Venus fly-trap case is correct, then this strategy is not satisfactory, since employing all of these categories sometimes leads to inappropriate appreciation. Therefore Budd's problem remains: if not all, then which categories should be used? The beauty-making criterion invoked above answers this question: use those that make the object appear aesthetically best. It preserves the objectivist character of

²⁷ On the latter point, Janna Thompson writes that 'if beauty in nature or in art is merely in the eyes of the beholder, then no general moral obligation arises out of aesthetic judgments'. See her 'Aesthetics and the Value of Nature', *Environmental Ethics*, vol. 17 (1995), pp. 291–305, at p. 292. See also Budd, 'The Aesthetics of Nature', p. 141.

²⁸ Budd, 'The Aesthetics of Nature', p. 143.

²⁹ As long, of course, as they are categories that are capable of making an aesthetic difference: see Section III above.

scientific cognitivism by specifying a unique set of categories that are the ones to be used in appropriate appreciation of the object.

Furthermore, it may well be precisely because of Carlson's exclusion of any kind of beauty-making criteria from the normative element of his theory that he has difficulty in defending positive aesthetics. As we have seen above, he treats positive aesthetics as a sort of independent thesis, to be proven somehow from, or justified by, his version of scientific cognitivism. As others have convincingly argued, there are serious problems with Carlson's attempts at such justification.³⁰ As a result, positive aesthetics is left as an extremely general and correspondingly implausible empirical hypothesis. Budd points out that this implausibility is exacerbated by the fact that scientific categories have an important difference from artistic ones.³¹ Given that something is a moose, there are an infinite number of ways to view it, in contrast to *Guernica*, which must be viewed in a specific way: *Guernica* cannot be viewed (*qua Guernica*) using a microscope, for example.³² In light of the variety possible in modes of nature appreciation, even when it is informed by natural science, what grounds are there to think that *every* instance of natural aesthetic appreciation will be positive?

If the line of thought laid out above is correct, however, then to some extent at least, this sort of scepticism about positive aesthetics is misguided. For positive aesthetics is not a thesis that stands independent of our account of appropriate aesthetic appreciation of nature, something that we have to show *follows* from that account. It is, rather, to some extent, *a part of* that account, in so far as there are beauty-making criteria inherent in the account's normative element. This suggests a different way to conceptualize positive aesthetics: perhaps the essential and universal beauty of nature is not a dubious idea that we must argue for based on whatever our conception of appropriate aesthetic appreciation happens to be, but rather part of the intuitive data that we use in constructing our theories of appropriate aesthetic appreciation of nature. Given this alternative view of positive aesthetics, its truth would be, perhaps, less surprising than many have thought. This point can be put in terms of Budd's remark about the variety of natural appreciation. It may seem *prima facie* unlikely that any way of looking at, or perceiving, a natural object under its scientific categories will render it beautiful. However, the universal beauty of natural objects would be less mysterious if, regardless of what way we choose to perceive such objects, we

³⁰ See Budd, 'The Aesthetics of Nature', pp. 145–154.

³¹ Budd, 'The Aesthetics of Nature', p. 150.

³² A useful way to put this is that whereas categories of art determine a unique set of non-aesthetic perceptual properties (NAPP) that an object has, *qua* artwork, natural scientific categories do not serve an analogous function for natural objects. It is perhaps worth noting that this point, which I think correct and important, does not threaten scientific cognitivism's claim to be an objectivist theory in any significant way. Granting Budd's point, the theory is objectivist in the sense that once the NAPPs of the object are fixed (that is, once we choose a way of looking at it) its aesthetic properties are determined uniquely by the correct set of scientific categories.

perceive them using those scientific categories that maximize their aesthetic merit.

Admittedly, the revision of the normative element of scientific cognitivism that I propose here does not ensure the truth of positive aesthetics. It may be that, despite this particular beauty-making criterion, there are yet natural objects that cannot be construed as aesthetically positive. This might be the case if some significant negative aesthetic properties of natural objects are not the result of a NAPP's being contra-standard for a scientifically savvy observer. If so, however, it may yet be possible to implement similar beauty-making criteria, or to extend the present one in a principled way, to deal with these potential counterexamples to positive aesthetics. The important point is that hitherto scientific cognitivist philosophers have conceptualized positive aesthetics in the wrong manner. A realization of the deep beauty of nature is not where we need to end up in our theorizing, but the place where we should begin.³³

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