discussion by Allen Carlson, for example, describes the aesthetics of nature as 'order-oriented', in contrast to 'design-oriented' forms of aesthetic appreciation, because pristine nature does not have "as such, a purpose or a function" (2000, 134). On this account, the order displayed by the natural environment is revealed by understanding those physical laws and non-intentional processes of historical development that have led to the environment being the way that it is. Since the natural environment is not the product of a designing intellect, elements within it do not have functions or purposes. On this line of thought, the possibility that I introduced earlier, that of a continuity between the aesthetic character of built and natural environments, is closed off, since the perceptual order characteristic of each sort of environment is distinct: thoroughly functional in the former case, and decidedly *non*-functional in the latter.

However, I think that, ultimately, we need not accept this dichotomy. In fact, in later writings Carlson himself reconsiders it, introducing a notion of "functional fit" that can be applied not only to the built environment, but to the organization of certain sorts of ecosystems as well (2001, 13). Elsewhere I have suggested that we can further develop Carlson's approach by relating it to some well-developed conceptions of functionality that may be applied, unproblematically, to elements within the natural environment (Parsons, 2004). I will briefly describe two of these senses, and show how they may be applied, not only to natural environments, but also to the built environment.

These accounts of functionality arose because, despite the misgivings of philosophers, biologists continued to explain the existence and/or form of biological traits and structures by making reference to their function.[10] Perhaps the best-known 'naturalized' account of functionality is that of *selected function*: on this account, the function of an item or trait is that effect of the item or trait that explains the selective success, and hence survival, of ancestral organisms with that item or trait, and that consequently explains the current existence of the trait in their descendants.[11] The kidney, for example, has the selected function of removing metabolic waste from the blood because removing such waste is the reason that kidneys were favored by natural selection. Another important naturalized account of function is that of *causal role* functionality. On this view, the identification of X's function serves not to explain the existence of X, but rather to explain how some larger system, of which X is a component, works.[12] One important difference between the two conceptions is that causal role functions may characterize natural items that do not undergo natural selection, including non-living things. For example, a river may

[10] As Mayr puts it, "biologists have insisted that they would lose a great deal, methodologically and heuristically, if they were prevented from using such language" (Mayr, 1988, 41). On this issue, see also Godfrey-Smith (1994).

[11] This approach descends from Wright (1973). For discussion of selected functions, see Godfrey-Smith (1994) and Neander (1991a).

[12] This analysis was proposed by Robert Cummins (1975). For more on the view, see Davies (2001) and Amundson and Lauder (1994).

have the causal role function of flooding, within the ecosystem to which it belongs. By flooding, rivers cue the spawning behaviors of fish and spread nutrients to the surrounding floodplains, both of which are factors that can help explain the ecosystem's capacity to support the various species that it does.[13]

Another important distinction between the two concerns their normativity. Selected functions are normative, in the sense that an entity might have the selected function of performing X, due to its history, but currently be unable to do so, due to damage or disease for instance. In such cases, the entity in question is malfunctioning. In contrast, causal role functions are generally viewed as non-normative because they are defined in terms of occurrent powers: when those powers are absent, so is the causal role function. A useful way to capture this difference is in terms of different expressions that fit each most naturally. With selected functions, we speak of something having the *function of* doing so and so, but with causal role functions, it is more natural to talk of things *functioning as* a so and so (Wright, 1973, 147). Something may have the function *of* doing X although it is not actually doing X, but if something is merely functioning *as* an X, and then ceases to do so, it is unintuitive to say that it is no longer 'working'. For example, when the cloud that has been functioning as our shade from the sun moves on, we are not inclined to say that it is malfunctioning.

Most philosophers now view each of these analyses of function as capturing a naturalistically acceptable and important sense of 'function' used by biologists (Godfrey-Smith, 1994; Sober, 1993; Millikan, 1989). The point that I want to emphasize here is that they are equally applicable to the built environment. The functions that derive from the intentions of designers, and which characterize many artifacts in the built environment, can be understood as close relatives of selected functions: a bridge, for example, has the function of allowing pedestrian traffic across a river insofar as allowing pedestrian traffic is the reason that it was placed there by its designers. In this case, as in the case of selected functions in nature, the function of the object is the reason why it exists, or is the way that it is. In this sense, both kinds of function attribution are 'historical'.[14] The concept of a causal role function can also be applied to elements within the built environment, since elements in the built environment may come to function as certain things although they have not been intentionally placed there to do those things: public sculptures become nests for bird life, old cemeteries become picnicking grounds, the rumbling of a daily train becomes a time signal for local residents, and so on.

There is, then, something that may be shared between the aesthetic characters of natural and built environments: a common kind of perceptual order, manifest upon understanding the historical and causal role functions of the various elements. In light of this, one might claim there is a sense in which aesthetic appreciation in natural and built environments, despite superficial differences, displays a deep continuity and unity.

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[13] This example is from Parsons (2004). For other examples of causal role functions in nature, see the case for the 'promiscuity' of causal role functions made by Neander (1991b) and Millikan (1989).

[14] That is, both fall under the general conception of function developed by Wright (1973).