

Hume, Reid, and Signs of Intelligence

(Chapter 32 of *The Design Revolution*)

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Didn't David Hume demolish not just the design argument for the existence of God but any sort of inference to design based on features of the natural world?

David Hume's critique of intelligent design is vastly overrated. Nevertheless, his critique, especially at the hands of his contemporary disciples, has been highly effective at shutting down discussion about design. I want here to review Hume's critique, indicate how modern disciples have updated it, and then describe the response to Hume by his contemporary Thomas Reid. That response in my view is decisive. Would that more philosophers studied it. Hume did not demolish design. Reid demolished Hume.

Hume's critique of design is found in his *Dialogues Concerning Natural Religion*, published in 1779 three years after his death. Hume's case against design, unlike Darwin's, was purely philosophical. Darwin argued against design on scientific grounds by claiming to provide a natural mechanism that could account for the appearance of design in nature. Hume, on the other hand, argued against design by claiming to find logical flaws with it. Hume rightly showed that British natural theologians were overselling the design argument. Indeed, there is no valid inferential chain from the appearance of design in nature to the main character of the Bible or even to some stripped down deistic version of this biblical God. Hume argued that even if a designer could be inferred from the appearance of design in nature, such a designer's goodness, wisdom, and plurality (i.e., whether there be one or many) could not.

Design inferences based on the appearances of design in nature need to be modest. Hume was not alone in urging such modesty. Kant argued that at best the design argument could infer a designer responsible for designs within nature but not a creator God responsible for nature as such (see chapter 7). Even Aquinas admitted the need for modesty in design reasoning. In his *Summa Contra Gentiles*, Aquinas wrote: "By his natural reason man is able to arrive at some knowledge of God. For seeing that natural things run their course according to a fixed order, and since there cannot be order without a cause of order, men, for the most part, perceive that there is one who orders the things that we see. But who or of what kind this cause of order may be, or whether there be but one, cannot be gathered from this general consideration." Aquinas here was not doing first philosophy or metaphysics. He was simply noting that our natural reason readily infers some sort of "orderer" or "designer" behind nature. Aquinas calls this designer God, but he was clearly speaking of this designer very loosely—the nature and even plurality of that designer could for Aquinas not be settled simply by studying nature.

In his *Dialogues Concerning Natural Religion*, however, Hume went beyond urging modesty in design arguments. He attacked even a modest inference to an unspecified designer. His first main

criticism was that design at best constitutes a weak argument from analogy. His other major criticism was that design fails as an inductive generalization. Both these criticisms miss the mark. Consider first Hume's criticism of design as a weak argument from analogy. The problem with arguments from analogy is that they are always also arguments from disanalogy. Indeed, if there were no disanalogy, there would be no need to argue from analogy, because in that case we would be dealing with things that are identical and not merely analogous (things analogous in every respect are identical).

Arguments from analogy argue that two things share some feature because they share some other features (which constitute the basis of the analogy). For instance, consider a watch and an organism. We know the watch is designed. We also know that watches and organisms share certain features (like functional interdependence of parts, adaptation of means to ends, self-propulsion, etc.). Given these shared features, is it fair to conclude that organisms are designed? The problem is that watches and organisms also diverge on some features. Watches are made of metal and glass; organisms are not. Organisms repair themselves; watches do not. The million dollar question, therefore, is whether design is a shared feature of watches and organisms (like functional interdependence of parts) or a divergent feature (like self-repair). According to Hume, there's no way to decide simply on the basis of such analogical and disanalogical information.

Even so, there is a way to strengthen the argument from analogy, and that is by arguing that the features shared by the items in question have never in our experience been divorced from the feature in question. Suppose the items in question are watches and organisms and that the feature in question is design. If it could be shown that features shared by watches and organisms like functional interdependence of parts, adaptation of means to ends, and self-propulsion have in our experience always resulted from the work of a designing intelligence, then it would be reasonable, as an inductive generalization, to conclude that organisms, like watches, are designed. Schematically the argument would look as follows (P1-P3 are the premises, C is the conclusion):

- P1 Watches are designed.
- P2 Watches and organisms exhibit functional interdependence of parts, adaptation of means to ends, etc.
- P3 There is no known instance where something exhibits functional interdependence of parts, adaptation of means to ends, etc. without being designed.
- C Therefore, organisms are designed as well.

Although reframing the design argument as an inductive generalization turns it into a valid argument from analogy, reframing it this way runs smack into Hume's second objection. Hume and the Humean tradition reject such inductive generalizations. The problem is that inductive generalizations are supposed to be based on past experience. And while we have past experience of watches being designed, Hume would claim that we have no experience of organisms, or for that matter a universe, being designed. Hume's modern disciples agree. Robert Pennock, for instance, will remark that design inferences must be "based upon known types of causal

processes” (“The Wizards of ID,” *Intelligent Design Creationism*, MIT Press, 2001). He therefore claims that design inferences become more tenuous as the underlying causal processes becomes less well known. Accordingly he writes:

When archeologists pick out something as an artifact or suggest possible purposes for some unfamiliar object they have excavated, they can do so because they already have some knowledge of the causal processes involved and have some sense of the range of purposes that could be relevant. It gets more difficult to work with the concept when speaking of extraterrestrial intelligence, and harder still when considering the possibility of animal or machine intelligence. But once one tries to move from natural to supernatural agents and powers as creationists desire, “design” loses any connection to reality as we know it or can know it scientifically.

And for Pennock, as for fellow Humeans generally, if it can’t be known scientifically, then it can’t be known at all (Hume, after all, consigned metaphysics to the flames).

Wesley Elsberry and John Wilkins make essentially the same point. They maintain that there are “two kinds of design—the ordinary kind based on a knowledge of the behavior of designers, and a ‘rarefied’ design, based on an inference from ignorance, both of the possible causes of regularities and of the nature of the designer.” (“The Advantages of Theft Over Toil: The Design Inference and Arguing from Ignorance,” *Biology and Philosophy*, vol. 16, 2001). Accordingly, a design inference that infers design merely by looking at certain features of an object without knowing anything about its underlying causal story cannot infer ordinary design but only rarefied design. For Elsberry and Wilkins rarefied design means an attribution of design based on an absence of naturalistic alternatives and thus serving merely as a stop-gap for ignorance.

Such objections by Pennock, Elsberry, and Wilkins are typical of the Humean inductive tradition. Accordingly, to know that an object is designed we first need to know something about the designer. Since the Humean tradition is committed to empiricism, the first thing we need is direct observational experience of the designer or one like it (and that implies the designer needs to be physically embodied). We also need to know something about the capacities of the designer to bring about design. And finally we need to know something about the designer’s purposes and motives, for how else could we predict whether a designer would be likely to bring about a given design? As Elsberry and Wilkins put it, design within the Humean inductive tradition is a “form of causal regularity that may be adduced to explain the probability of an effect being high, and which depends on a set of background theories and knowledge claims about designers.”

All of these restrictions on inferring design are, of course, very convenient for keeping designers unacceptable to naturalism at bay. Indeed, there’s no way for a transcendent designer to get a foot in the door once one accepts this Humean inductive framework for design reasoning. But why should one accept this framework in the first place? It seems on its face an exercise in special pleading. Consider the case of SETI, the Search for Extraterrestrial Intelligence. If we were to receive a radio signal from outer space representing a long sequence of prime numbers (as in the movie *Contact*), we would know we were dealing with an intelligence—indeed, SETI researchers would be dancing in the streets, the *New York Times* would be trumpeting the discovery, and Nobel Prizes would duly be awarded.

But what exactly would we know about the intelligence responsible for that signal? Suppose all we had was this signal representing a sequence of primes. Would we know anything about the intelligence's purposes and motives for sending the primes? Would we know anything about the technology it employed? Would we know anything about its physical makeup? Would we even know that it was physical? Our evidence for design in this case would be entirely circumstantial. We would be confronted with an effect but be unable to trace back its cause.

Consider a more extreme example still. Imagine a device that outputs 0s and 1s for which our best science tells us that the bits are independent and identically distributed with uniform probability. (The device is therefore an idealized coin tossing machine; note that quantum mechanics offers such a device in the form of photons shot at a polaroid filter whose angle of polarization is 45 degrees in relation to the polarization of the photons—half the photons will go through the filter, counting as a “1”; the others will not, counting as a “0.”) Now, what happens if we control for all possible physical interference with this device, and nevertheless the bit string that this device outputs yields an English text-file in ASCII code that resolves outstanding mathematical problems, explains the cure for cancer, and delineates undreamt of technologies? The output of this device is therefore not only designed (and obviously so) but also exceeds all current human design. Yet our best science has no way of prescribing a causal account for how this design was imparted. By Hume's logic, we would have to shrug our shoulders and say, “Golly, isn't nature amazing!”

The fact is that we infer design repeatedly and reliably without knowing characteristics of the designer or being able to assess what a designer is likely to do. Humeans in their weaker moments admit as much. Take Elliott Sober. Before he permits intelligent design into biology, he wants to know the characteristics of the designer, the independent evidence for the existence of that designer, and what sorts of biological systems we should expect from such a designer. According to Sober, if the design theorist cannot answer these questions, then intelligent design is untestable and therefore unfruitful for science. Yet in a footnote that deserves to be part of his main text, Sober admits, “To infer watchmaker from watch, you needn't know exactly what the watchmaker had in mind; indeed, you don't even have to know that the watch is a device for measuring time. Archaeologists sometimes unearth tools of unknown function, but still reasonably draw the inference that these things are, in fact, *tools*.” (“Testability,” 1999 presidential address to the American Philosophical Association.)

Because he is wedded to the Humean inductive tradition, Sober views all our knowledge of the world as an extrapolation from past experience. Thus for design to be explanatory, it must fit our preconceptions, and if it does not, it must lack empirical justification. For Sober, to predict what a designer would do requires first looking to past experience and determining what designers in the past have actually done. And yet his comment about watchmakers and watches belies such a view, for he admits we could know that watches were designed even if we knew nothing about watchmakers and that mysterious tools were designed even if we knew nothing about the toolmakers or even the precise function of the tools. Within the Humean inductive tradition, designers are in the same boat as natural laws, with their explanatory power located in an extrapolation from past experience. To be sure, designers, like natural laws, can behave predictably (designers often institute *policies* that other designers then dutifully obey). Yet unlike

natural laws, which are universal and uniform, designers are also innovators. Innovation, the emergence of true novelty, eschews predictability. It therefore follows that design cannot be subsumed within a Humean inductive framework. Designers are inventors. We cannot predict what an inventor would do short of becoming that inventor.

But the problem goes deeper. Not only can't Humean induction tame the unpredictability inherent in design; it can't account for how we recognize design in the first place. Sober, for instance, regards the design hypothesis for biology as fruitless and untestable because it fails to confer an ascertainable probability on biologically interesting propositions. But take a different example, say from archeology, in which a design hypothesis about certain aborigines predicts certain artifacts, say arrowheads. Such a design hypothesis would on Sober's account be testable and thus acceptable to science. But what sort of archeological background knowledge had to go into that design hypothesis to make it a successful predictor of arrowheads? At the very least, we would need past experience with arrowheads. But how did we recognize that the arrowheads in our past experience were designed? Did we see humans actually manufacture those arrowheads? If so, how did we recognize that these humans were acting deliberately as designing agents and not just randomly chipping away at random chunks of rock (carpentry and sculpting entail design; but whittling and chipping, though performed by intelligent agents, do not)? As is evident from this line of reasoning, the induction needed to recognize design can never get started. Our ability to recognize design must therefore arise independently of induction and therefore independently of a Humean inductive framework.

That was precisely Thomas Reid's point, and in making it he demolished once and for all Humean induction as applied to design. In 1780, only a year following the publication of Hume's *Dialogues Concerning Natural Selection*, Reid delivered a set of lectures on natural theology in Glasgow. In those lectures he remarked:

No man ever saw wisdom [read "design" or "intelligence"], and if he does not [infer wisdom] from the marks of it, he can form no conclusions respecting anything of his fellow creature. How should I know that any of this audience have understanding? It is only by the effects of it on their conduct and behavior, and this leads me to suppose that such behavior proceeds only from understanding. But says Hume, unless you know it by experience, you know nothing of it. If this is the case, I never could know it at all. Hence it appears that whoever maintains that there is no force in the argument from final causes [design], denies the existence of any intelligent being but himself. He has the same evidence for wisdom and intelligence in God as in a father or brother or a friend. He infers it in both from its effects and these effects he discovers in the one as well as the other.... From marks of wisdom and intelligence in effects, a wise and intelligent cause may be inferred. (Reprinted in *Lectures on Natural Theology*, University Press of America, 1981.)

According to Reid, we attribute design as an inference from signs of intelligence (or "marks of intelligence and wisdom in effects" as he put it). We do not get into the mind of designers and thereby attribute design. Rather, we recognize their intelligence by examining the effects of their actions and determining whether those effects display signs of intelligence. Accordingly, when

one purports to attribute design on the basis of induction, one has already presupposed the ability to identify design independently of induction.

Take an anthropologist watching a native islander chipping stones. Is the native an arrowhead maker and therefore a designer? If our anthropologist saw the native banging away at a stone with a second rock ideal for chipping arrowheads, all the while gazing most seriously at the stone, this by itself would not prove that the native was designing something. Even if the native, upon seeing the anthropologist, began lecturing in exquisite and engrossing English on the ancient art of arrowhead making, the anthropologist would still not know that the stone getting beaten was a designed object, much less an arrowhead. If the anthropologist looked down during the exquisite lecture and found that the stone had been beaten to dust that was then carried off by the wind, for all the anthropologist could gather from this seemingly useless dust, the native might have been banging stones merely to relieve frustration. If, on the other hand, the anthropologist looked down at the end of the native's exquisite lecture and found an exquisite arrowhead fit for a king, this, rather than the motions or words of native, would demonstrate that the object produced was in fact a designed object and that the native was in fact an arrowhead maker and therefore a designer.

In short, we recognize intelligence by its effects, not by directly perceiving it. A human being who continuously mumbles the same nonsense syllable displays no intelligence and provides no justification for attributing design. Design reasoning is effect-to-cause reasoning: It begins with effects in the physical world that exhibit clear signs of intelligence and from those signs infers to an intelligent cause. Neither of Hume's two main criticisms against design therefore holds up. Induction is entirely the wrong analytic framework for how we infer design. And Hume's concern about design inferences involving faulty analogies is misconceived. The signs of intelligence that occur in human artifacts and biological systems are not merely analogous. They are isomorphic, for we find the exact same form of specified complexity in each.

The very idea that there could be something like a sign of intelligence (much less that it could be given analytic precision via specified complexity) is anathema to the Humean inductive tradition. Signs of intelligence, by their very nature, do not submit to Humean induction. Yet as Thomas Reid showed, though signs of intelligence can be learned and confirmed by experience, our ability to recognize them cannot originate in experience. That ability is hardwired into us as part of basic human rationality. It is, as Alvin Plantinga would put it, part of our "proper function." Hume and his followers exercise that proper function and do so daily just like everyone else. What's new with the contemporary intelligent design movement is that it brings analytic precision to our understanding of these signs of intelligence. Within the theory of intelligent design, signs of intelligence get cashed out as specified complexity, which serves as an analytic tool for scientifically assessing whether design actually is present in various phenomena.