



# Myth-free space advocacy part I—The myth of innate exploratory and migratory urges



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## ABSTRACT

This paper discusses the “myth” that we have an innate drive to explore or to migrate into space. Three interpretations of the claim are considered. According to the “mystical interpretation,” it is part of our “destiny” as humans to explore and migrate into space. Such a claim has no rational basis and should play no role in rationally- or evidence-based space advocacy. According to the “cultural interpretation,” exploration and migration are essential features of human culture and society. These are not universal features because there are cultures and societies that have not encouraged exploration and migration. Moreover, the cultures that have explored have seldom conducted exploration for its own sake. According to the “biological interpretation” there is a psychological or genetic basis for exploration or migration. While there is limited genetic evidence for such a claim, that evidence suggests that genes associated with exploratory behavior were *selected for subsequent* to migration, making it unlikely that these genes played a role in *causing* migration. In none of these senses is it clearly true that we have an innate drive to explore or migrate into space; and even if we did it would be fallacious to argue that the existence of such a drive justified spaceflight activities.

## 1. Introduction

This paper is the first in a series on unjustified assumptions that underlie a wide array of arguments commonly raised in the space advocacy literature, both academic and popular. In the sequels I plan to discuss the “myth” that spaceflight spending has a clear causal impact on STEM education and scientific literacy, as well as the “myth” that settling the space frontier is necessary for avoiding societal stagnation. Here, however, I shall focus on the “myth” that, as humans, we have an innate drive to explore which motivates and justifies our exploration of and migration into space.

The idea that we have an innate drive, tendency, or compulsion to explore or migrate is very much equivocal in the space advocacy literature. It is helpful to distinguish between three broad ways of interpreting claims about our purported exploratory and migratory tendencies—a **mystical** interpretation; a **cultural** interpretation; and a **biological** interpretation.

1. According to the **mystical interpretation**, our innate drive to explore or migrate is explained as a spiritual feature of our humanity—that it is, for instance, our *destiny* to explore and colonize space.
2. According to the **cultural interpretation**, our innate drive to explore or migrate is identified, via historical or anthropological means, as an essential feature of human cultures and societies.

3. According to the **biological interpretation**, our innate drive to explore or migrate is described as a crucial feature of what it is to be a human being in a physical or behavioral sense, for instance as a claim about our psychology or our genetics.

No matter which interpretation is proffered, space advocates have generally *presumed* the truth of the claim that we have an innate drive to explore or migrate. That is, space advocates have not taken it upon themselves to collect and assess the kind of evidence that would be needed to confirm claims about, e.g., our cultural or genetic heritage. This unveils belief in our innate drive to explore or migrate as largely a matter of faith, rather than a product of good reasoning.

There is consequently a need to consider whether *there is* good evidence for either of the interpretations of the claim that we have an innate drive to explore or migrate. Moreover, supposing there is compelling evidence for one or more of the interpretations, we must determine what justification the claim actually provides for the exploration or colonization of space. It is important to stress that these are distinct tasks—if it is indeed true that we have an innate drive to explore or migrate, it does not immediately follow that we ought to explore or colonize space or that it would be a good thing to do so. To insist otherwise would be to commit an instance of the naturalistic fallacy.

As I argue in §2, the **mystical interpretation** is deeply problematic. Claims about, e.g., human destiny or spirit, have no place in serious,

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rational, discussion about the justification for space exploration. As I discuss in §3, the evidence for the **cultural interpretation** is equivocal at best. Existing and historical societies differ vastly with respect to their exploratory and migratory tendencies and ambitions. Moreover, the claim that certain societies are exploratory *by nature* belies the fact that exploration, in any sense relevant to space exploration, is principally the result of decisions made in specific historical contexts.

The **biological interpretation** requires a more careful assessment. As I relay in §4, significant psychological and genetic research has been conducted on, e.g., curiosity, novelty seeking, exploration, and migration. The psychological evidence suggests that curiosity is a pervasive human characteristic, but that its focus is far from univocal. There is no evidence demonstrating that, e.g., being curious about “what is over the horizon” is widely shared. From a genetic perspective, certain alleles of the dopamine D4 receptor gene (DRD4) have been shown, albeit tenuously, to be associated with novelty seeking and exploratory behavior. Note that here ‘exploratory behavior’ does not refer exclusively to, e.g., migratory behavior, but to information seeking in a more general sense (e.g. it includes how an infant might “explore” visually a new toy). Nevertheless a correlation has been identified between increased incidence of certain DRD4 polymorphisms and migratory distance from east Africa. To the extent causation can be assigned, the evidence supports a “selection” hypothesis—that these genes were selected for *subsequent* to prehistoric migration, rather than a “wanderlust” hypothesis according to which these genes *impelled* migration. The likely explanation for this is that traits associated with novelty seeking DRD4 polymorphisms were probably *adaptive* for individuals placed in novel environments due to migration.

After responding to two objections in §5 I conclude the paper in §6 by offering a general assessment of the argument that we ought to explore or migrate into space because it is in our nature. My contention is that according to all three interpretations the argument rests on shaky evidential grounds. I find it disconcerting that, concerning an endeavor that is as highly scientifically and technologically oriented as space exploration, many persist in presenting arguments with such a tenebrous connection to reality. And, lack of evidence aside, each interpretation falls victim to the naturalistic fallacy—simply because we *may* have an innate urge to explore or migrate into space does not serve to ethically justify such exploration or migration. The ethical force of any such justification would have to come instead from showing why, e.g., satisfying these urges would produce good consequences.

Lest the reader think that I am skeptical *simpliciter* of space exploration, let me clarify that I ardently support space exploration<sup>1</sup> and that my quibble here is only with some poorly-substantiated—but ubiquitous—space advocacy rhetoric. Thus I should in no way be interpreted as promoting skepticism about the ultimate value of space exploration. My aim is only to inspire more careful and open thinking about spaceflight rationales.

Before beginning in earnest it should be helpful to draw a further distinction between *essential* and *accidental* characterizations of behavior, including exploratory and migratory behavior. Briefly, an *accidental* behavior would be one that an agent simply *happens* to engage in, but one that the individual could have easily avoided performing, had their circumstances been different. Meanwhile, an *essential* behavior would be one that an individual is prone to engage in, for instance, out of habit or compulsion.<sup>2</sup> To start with an analogy, as someone who has once changed the brakes on my car, I am a “mechanic” in an *accidental* sense. That is, I have at least once performed some kind of activity that loosely falls under the purview of automobile repair. However, that single act of

brake replacement was hardly inevitable given my personality and past experiences, and neither was it predictive regarding my subsequent actions (as I have not in the dozen years since then engaged in any other form of automobile repair beyond, e.g., filling tires, replenishing wiper fluid, etc.). Thus I am not a mechanic in anything like an *essential* sense, which would require me to be someone for whom there is evidence that suggests unequivocally that they seek out or are prone to engage in further acts of automobile repair. Similarly, we could say of an individual (or culture or species) that has performed at least one act of exploration that they are an exploring individual. But the mere fact of having carried out at least one act of exploration would only establish that this was an exploring individual in an *accidental* sense. However, to be an exploring individual (or culture or species) in an *essential* sense would require evidence that this individual explores out of, e.g., habit or innate compulsion.

The accidental/essential distinction is important for evaluating spaceflight rationales which are based on the assumption that humans are explorers by nature. If the evidence only supports the claim that humans are explorers *accidentally*, then that evidence provides no basis for predicting or justifying future exploratory endeavors. However, I do not take space advocates to be promulgating the idea that we are explorers (according to either the **mystical**, **cultural**, or **biological** interpretations) merely *accidentally* but that our exploring is *essential* behavior. For instance, in describing the exploration of space as a component of human destiny, one hardly means that someday humans might *simply happen* to explore space (or might *have to* because of external circumstances, such as resource depletion on Earth), but instead that such exploration is inevitable simply because we are humans. So in what follows, the important question is not whether there are or have been individuals or cultures that *merely have* explored, but instead whether, as a norm, individuals and cultures have some kind of innate *compulsion* to explore.

## 2. The mystical interpretation

According to the **mystical interpretation**, humans are explorers essentially in the sense that it is the destiny—the fate—of humanity to explore and migrate into space. Examples of the **mystical interpretation** include the following passage from Buzz Aldrin and Wyn Wachhorst:

Like the sailing ships that incarnated the aura of the Renaissance, or the great steam locomotives that embodied the building of America, the Apollo rocket is an emblem of the *human* spirit. Apollo was inevitable from the first gleam in the eye of the hunter-gatherer, from the first fire, wheel, and furrow; it was latent in the stirrup and the longship, in the creak of every caravel, the ring of every railroad spike, the lonesome howl of every lumber camp harmonica. From the moment the first flint was flaked, space was fated to be the final canvas for expressing in bold strokes the inexhaustible soul of humanity. [2, p. 38]

Note in particular that they speak of the *inevitability* of Apollo; that the Saturn V is “an emblem of the *human* spirit,” and that space is part of our *fate*. Patrick Lin relays similar sentiments when considering justifications for space colonization, remarking that:

Wanderlust, or the compelling need to explore or travel to new places, is in our DNA—that is simply what humans do. Call it the indefatigable, and arguably incorrigible, “human spirit” to push our physical, intellectual, and creative boundaries. [3, pp. 288-9]<sup>3</sup>

Similarly, James Dator claims that:

<sup>1</sup> See, e.g. [1] for my views on the relative value of space science.

<sup>2</sup> Here I am using the ideas of accident and essence informally and do not propose to adopt any particular metaphysical interpretation of them. I therefore beg the reader's indulgence concerning the precise modal-metaphysical content of the idea that an individual could have done otherwise, had their circumstances been different.

<sup>3</sup> Given the placement of this passage in Ref. [3] it is unclear whether Lin endorses the claim or merely presents it for consideration.

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