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Fabling Gestures in Expository Science

ABSTRACT: Ranging from pre-Socratic philosophers to contemporary popular science writers, I analyze seven instances in which fable-like scenarios have been utilized in the exposition and/or promotion of philosophy and/or science. I examine the motives and strategies that propel such novel uses of fabling gestures and also explore the ironies and pitfalls that the genre poses when invoked in scientific discourse. For example, one pervasive assumption of the fable genre is that the animal characters are *really humans*; might this genre conceit subtly introduce a bias when a fable-like scenario of animal behavior, such as a crow confronting a pitcher, is examined by animal cognition specialists attempting to understand the relationship of human and nonhuman animal intelligence?

IN THE LAST few decades I have been exploring the ways in which expositors of science, especially popular science writers, tap into folkloric forms in order to make science appealing and humanly compelling. Although the fable genre appears not to be a favorite of such expositors, along the way I have encountered a smattering— seven to be precise—of what I will call fabling gestures, by which I mean either allusions to established fables or new verbal creations with some fable-like quality, adduced around a particular scientific theory. Following Michael Dylan Foster and Jeffrey A. Tolbert who coined the term the "folkloresque" we might refer to such contrived fables as the "fablesque"; or alternatively, in Dorson-style neologism, a fake fable would be a "fakle."

The fable qualities I will emphasize are three. First, there is a terse story or scenario deployed in order to deliver a specific moral. Second, the protagonists are generic and nameless—as in the folktale,

perhaps indexing fictionality—so that we have a prince rather than Prince Charles, and a hare rather than Thumper. Individual identifiers would take the formulation in the direction of legend or exemplum. Third, as implied in the example just cited, the nameless protagonist is often a nonhuman animal, the mention of the animal or animals—as in the Lion and the Mouse—often being enough to call to mind the moral.

Not all fables involve nonhuman animal characters. Given our focus on the Crow and the Pitcher, however, I will emphasize the five fabling gestures that involve nonhuman animals, from the seven total I have found; the remaining two I will mention in passing at the end. Two of the five involving animal characters are from the pre-Socratic era, the era of ancient science, and three are from the twentieth century. For convenience, I will concede to a bit of anthropocentric ambiguity embedded in our language; that is, hereafter in this essay "animal" will mean "nonhuman animal."

My first fabling gesture is, as far as I can determine, the first articulation of what we now understand as anthropomorphism as an epistemological problem, namely, a fragment from the pre-Socratic philosopher Xenophanes, who said:

> The Ethiopians say that their gods are snub-nosed and black, the Thracians that theirs have light blue eyes and red hair. But if cattle and horses or lions had hands, or were able to draw with their hands and do the works that men can do, horses would draw the forms of the gods like horses, and cattle like cattle, and they would make their bodies such as they each had themselves. (Kirk, Raven, and Schofield 1983, 169)

One of the human characteristics Xenophanes projects onto the animals is none other than our need to project our image onto other beings, in this case the gods. It may be that some theologies anthropomorphize divinity itself in a similar way, by projecting onto divine beings a need to project their image, most obviously in creation stories in which gods create us in *their* image—but perhaps also in more abstruse ways, such as one divine being emanating into further divine beings.

Xenophanes' gesture is not a fable but a blueprint for a fable; inspired by Xenophanes, I offer a fakle of the cow, the horse, and the lion:

One day a cow, a horse, and a lion were discoursing on the nature of the gods. Unable to agree, they decided that each would draw a picture, and the most pleasing image would be promulgated as religious doctrine, with the runners-up consigned to heresy. When it came time to decide, it became apparent that each had produced a theologized selfie: For the first, a nurturant countenance emerging above a cosmic firmament that resembled an udder:
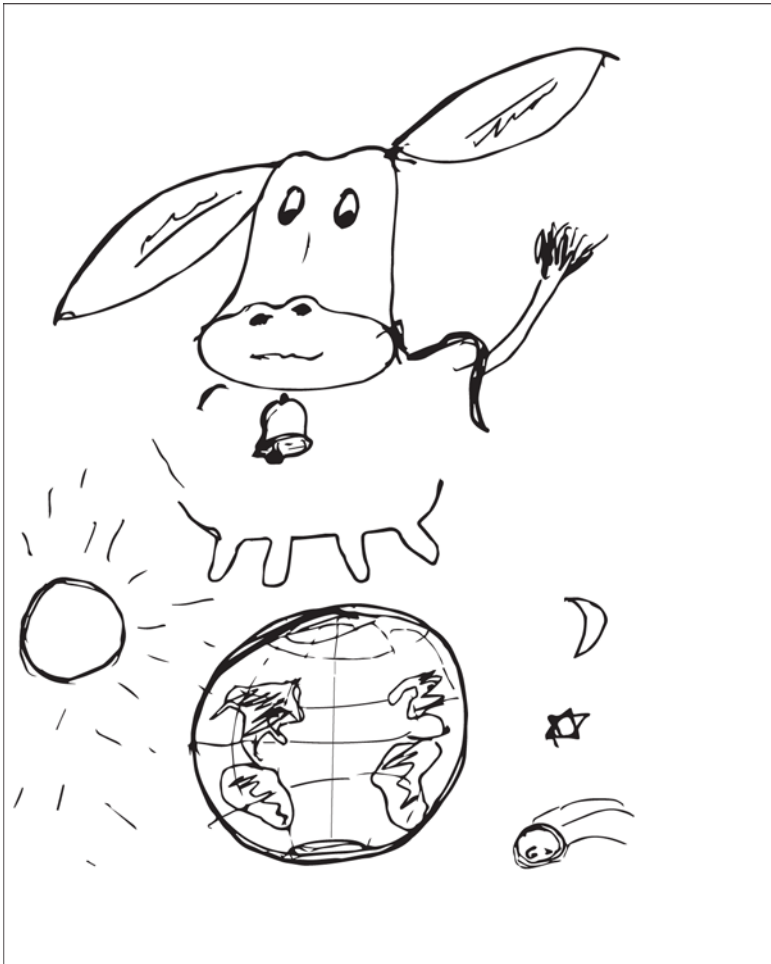
For the second, a fleet spirit with lithe legs galloping across the heavens, drawing the sun along:
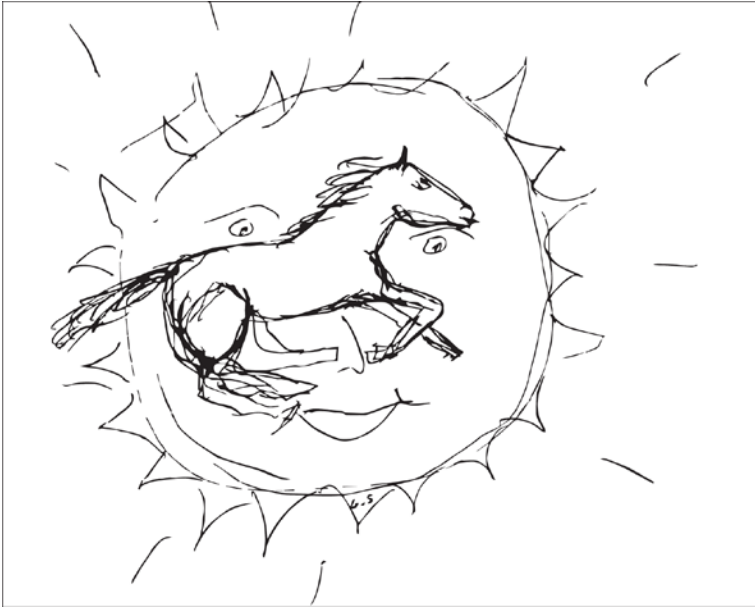
For the third, a kingly face with mane unfolding as the Aurora Borealis:

They argued all afternoon, gesticulating wildly, each claiming to offer the most pleasing image. When evening came, unable to agree on a winner, they parted in mutual scorn—and later their descendants fought a religious war.

The moral is: We each construct the cosmos in our own image.

If one wants a single text to point to as the foundation of Western academic critical thought, the fragment from Xenophanes would be a contender. Xenophanes' challenging of what amounts to mythological portrayals of the gods is surely one of the formulations that distinguished philosopher of science Carl Popper had in mind in his famous claim, now circulating as an adage, that "science must begin with myths," that is with the challenging of myths. To make a two and a half-millennia-long story short, the tendency of humans to project their own image onto the cosmos, rather than seeing it and themselves objectively, has, ever since Xenophanes, held a revered place in the catalog of defects of human reason—a defect that philosophy first, and now science, claim to remedy.

My second fabling gesture is actually a fabling-cum-epicizing gesture, because it draws in both fable and epic characters. Set in the pre-Socratic era, about a century after Aesop is thought to have lived, this complex creation comes to us from the most illustrious student of Parmenides, Zeno of Elea, who is said to have produced a book of paradoxes of which only a few remain. One of the best-known variations is the so-called Achilles, in which fleet-footed Achilles is trying to overtake a tortoise (generally taken to be the one who, in the fable, achieves an upset victory over a hare).

> Achilles . . . cannot possibly overtake the tortoise he is pursuing. For the overtaker must . . . first come to the point from which the pursued started. But during [that] time the pursued advanced a certain distance. . . . And so, during every period of time in which the pursuer is covering the distance which the pursued . . . has already advanced, the pursued advances a yet further distance. And so by taking distances decreasing in a given proportion *ad infinitum* because of the infinite divisibility of magnitudes, we arrive at the conclusion that not only will Hector never be overtaken by Achilles, but not even the tortoise. (Lee 1967, 51)

The place of Zeno in the development of science is at least as ancestrally significant as that of Xenophanes, for Zeno is often cited as adumbrating the central problems of change and motion, and even the methods of differentiation and integration, now addressed in the mathematical field of calculus, one of the cornerstones of modern astronomy and other sciences. Ironically, in disclaiming the possibility of motion Zeno gives us a glimmer of how to approach and represent it mathematically. Even now there is debate about whether calculus really solves the Zeno problem or merely gives us an effective

way to manage it. But in Zeno's mathematical paradox, does anything remain of the original tortoise-and-hare moral? Just possibly so, because the triumph of the slow and arduous over the fast and nimble does correspond to the image that early philosophers had of their new method of inquiry.

For my third fabling gesture, we jump to the late twentieth century and one of the most influential popular science writers of all time, the late Stephen Jay Gould, and to the self-proclaimed favorite of his books, *Full House*.[1] The point of this book is specifically to combat our anthropocentric proclivities by undercutting the notion that biological evolution is progressive—that is, that it is somehow driven to produce increasingly "higher" species, with particular reference to ourselves. Like Xenophanes, Gould indulges in anthropomorphism ultimately to expose the defects of doing so. One of Gould's strategies involves an encomium on bacteria that extols their amazing characteristics, which include the ability to live in ecozones far more extreme than those humans can inhabit, allowing bacteria to achieve a collective mass that dwarfs ours, on earth and perhaps elsewhere in the cosmos.

Like numerous traditional fables—such as the Lion and the Mouse—Gould thus sets up a comparison of two sets of contrastive qualities epitomized in two very different, and different-sized, species, leading to a boast. Gould says, "any truly dominant bacterium would laugh with scorn at this apotheosis"—meaning human self-apotheosis as reflected in our imagining of our special place in the kingdom of life. But Gould's scenario of the bacterium and the man never makes it beyond a proto-fable, perhaps because, vis-à-vis the traditional conventions of the fable genre, it is riddled with problems. It should be the large one, the human, who, paralleling the lion's attitude toward the mouse, laughs with scorn at the puny bacterium, and then gets its comeuppance when the little one strikes back through septicemia or some other malady. So far, so good.

But wait! In Gould's larger argument, the bacterium is not laughing at the man from the standpoint of a single bacterium, but rather as a representative of the total mass of bacteria and its stable place in evolutionary process, arrayed against the evolutionarily late and comparatively tiny biomass thus far constituted by *Homo sapiens*. The only criterion that Gould in biological mode is able to muster for assessing the comparative merits of different species is their overall success or biodominance as measured in collective mass; and from this

perspective it is rightly the bacterium who, as the giant, laughs with scorn. But then, according to the formula, it would be puny little us who would get the last laugh. And at the end of his tribute to bacteria, Gould does partially concede: "I do realize that bacteria can't laugh (or cogitate)—and that philosophical claims for our greater importance can be based on the consequences of this difference between them and us. But do remember that we can't live on basalt and water six miles under the earth's surface" (1997, 198)—yeah, like we'd actually want to!

A would-be fable showdown of pride and comeuppance thus blows up in Gould's face, and the best he can salvage is a draw: they are an admirable species, but in a different way so are we. In defense of humans I have to add one more thing. Inspired by a comment that Aristotle made about the advantage the philosophically minded hold over the unphilosophically minded, I suggest that if a bacterium and a human had an argument about who is better, the human would certainly win, because if, as Gould says, bacteria cannot cogitate, it follows that they will not be able to formulate a convincing argument. But given that fable protagonists, whether human or not, generally cogitate, is there a false rigor here in calling out Gould for his cogitating bacteria? No, because as his own comment makes clear, Gould *really is* comparing bacteria to humans with respect to the merits of these two species, not, as per the usual fable pattern, comparing humans with other humans via stand-ins drawn from other species. The interspecies contest that inspires the would-be fable also sinks it, because of the literal intent.

Gould's misadventure can alert us to a sort of trap that fables or fable-like scenarios set for interspecies comparative cognitive scientists. Specifically, Gould's abrupt termination of his fable might be seen as prompted by a sudden burst of realism, or, more narrowly, merely as a pullback from one constitutive conceit of the fable genre, a conceit through which Gould may have been drawn into the genre in the first place, namely, that *within fables animals are really humans.* Even the more brutish takes on the world attributed to animal protagonists in fables are dramatized precisely so that humans may recognize themselves in them. This genre conceit could hardly be helpful to an investigator who strays into fable territory while attempting to avoid anthropocentric/anthropomorphic bias.

My fourth fabling gesture is Isaiah Berlin's classic 1953 essay "The Hedgehog and the Fox," for which Berlin derives the framing contrast

from a classical Greek poet, Archilochus—Greekness of course making the image more fablesque. Berlin's essay, which focuses on novelist Leo Tolstoy, is well enough known that I am going to limit my comment to pointing out that Berlin, and Tolstoy, are also centrally concerned with science. Berlin's thesis is that Tolstoy was a fox—who knows many small things—attracted to the vision of the hedgehog—who knows one great thing. That is, Tolstoy's true gift lay in his ability to observe and present the myriad tiny details of individual lives; nevertheless, he was drawn, agonizingly, to the great unifying, monistic visions of eighteenth- and nineteenth-century thinkers such as Auguste Comte, E.B. Tylor, Herbert Spencer, and Karl Marx. It is important to note that what unifies the grand theorists whom Tolstoy admired was the vision of bringing human history under the methods and purview of the physical sciences—making it possible to discover in human life and culture regularities as certain as the laws that govern the planets and the tides, in E.B. Tylor's famous image. The polarity has since acquired many names, including, in the twentieth century, that of so-called nomothetic vs. idiographic inquiry.

In describing Tolstoy's attempts to cope with the dichotomy, Berlin also notes a quirk that brings us back to the tortoise and the hare. For like Herman Melville's *Moby Dick*, the narrative flow of Tolstoy's *War and Peace* is interrupted by analytical interludes, in which action is frozen and the author ruminates on what has been happening. Berlin emphasizes that in one of these interludes we have the Zeno thing. Specifically, we encounter Tolstoy (2001, 651–52) reflecting on the race between the tortoise and the hare, and then offering calculus as a metaphor for integrating the infinitesimals of individual wills and acts into the grand movement of history.

There is another, related invocation of the Hedgehog and the Fox, by Stephen Jay Gould once again, in his book *The Hedgehog, the Fox, and the Magister's Pox* (2003), which I group with Berlin's essay because of its close connection, both in substance and in inspiration. (Gould [2003, 3] refers to Berlin as "my personal intellectual hero, and a wonderful man who befriended me when I was a shy, beginning, absolute nobody.") Gould's book is about the need to integrate science and the humanities, for which he thinks the fox and hedgehog "proverb" provides a worthy metaphor—though interestingly he insists that neither science nor the humanities should be thought of as exclusively paired with either the fox or the hedgehog. Gould presents his thoughts on the interrelation over against the arguments

of E.O. Wilson in *Consilience* (1998), which Gould sees as offering a "reductionist unification into a single hierarchy" (2003, 262), a point congruent with my own assessment of Wilson: that "consilience" in the end amounts to a hierarchical encompassment of the humanities by the sciences.

The issue of hierarchy in fables is complex and subtle. In the scenario just considered, for example, our sentiments, fed in part by other analogous fables, might incline us toward the hedgehog. The fox is quick like the hare, while the hedgehog is slow like the tortoise, and both the tortoise and hedgehog are ungainly—perhaps triggering sympathy for the apparent "underdog," and ultimately a favoring of the virtues of persistence over those of surface dexterity, or of the virtues of quality over quantity. One can add the proverb that "still waters run deep."

But consider one further fable:

> The story goes that a sow who had delivered a whole litter of piglets loudly accosted a lioness, "How many children do you breed?" asked the sow. "I breed only one," said the lioness, "but he is very well bred!" (Gibbs 2008, 99 [#195])

If we are drawn to the underdog, are we also drawn to the one over the many? Though Berlin himself may be dissatisfied with the hierarchy, his essay takes off from the claim that Tolstoy was drawn to the hedgehog over the fox. And whether or not Gould's complex commentary really succeeds in redressing the imbalance between science and the humanities that he sees in Wilson, it is notable that on the level of the fable he too subtly accords a higher position to the hedgehog than the fox by presenting the former as end and the latter as means: "all the fox's skills now finally congeal to realize the hedgehog's great vision" (2003, 6).[2] If, as Louis Dumont (1980) forcefully argues, hierarchy is fundamentally a relation of encompassment, it just may be that the large vision has an advantage over the small in compelling our attention. But then of course, in parallel with the fable world, big, lumbering, grand theories might be challenged by nimble little ones (see Noyes 2008 on "humble theory").

For my fifth fabling gesture, I cite a peculiar and frequently-noticed line from famed twentieth-century philosopher of language Ludwig Wittgenstein's work *Philosophical Investigations*: "If a lion could talk, we could not understand him" (1958, 223). This line occurs

suddenly amidst a long and complex discourse about the incommensurability between and within human natural languages, a discourse that comes close to concluding that no human can understand another—a state of affairs that Wittgenstein's philosophical prose cannot but abet. Wittgenstein's *Philosophical Investigations* is not a work of science, but it is not far from science, especially given that analytical philosophy as a movement grew up under a widespread assumption that, displaced by science as the preeminent discipline, philosophy could still play a necessary role in clarifying language, thus making science possible and defining its limits.

Admittedly the lion line is meager, but we might still salvage a little fakle, to wit:

> A lion attempted to initiate a conversation with a man. Eventually, though, concluding that humans could not speak, he gave up and walked off.

But this is not quite enough; we need a little more punch. In reading through fables one encounters obvious structural types, such as the brains over brawn pattern, which includes the Lion and the Mouse, the Tortoise and the Hare, and, I will argue, the Crow and the Pitcher. At first glance this might seem a promising paradigm for our fakle, but on closer inspection the lion trying to speak to the man turns less on a contest between two than the frustration of one. Especially considering that some think of Wittgenstein as holding a cynical view toward his craft, we might consider, as an alternative, the pattern of the Fox and the Grapes, from which we might derive:

> A lion attempted to initiate a conversation with a man. Eventually, though, concluding that humans could not speak, he walked off muttering, I didn't want to talk to *him* anyway!

Or we could go for a more academic grab, and have the lion walk off muttering the moral that Wittgenstein himself gives us in the numinous closing of his *Tractatus*, a line that has taken on a proverbial life of its own: "Whereof one cannot speak, thereof one must be silent" (1960, 189).

Perhaps the uncomprehending lion of the *Philosophical Investigations* is intended, consciously or unconsciously, as a gesture of denial toward the fable world. For as in some origin myths, the fable world seems to presuppose an original cosmos-wide universal

language: animals can converse with other animals and with humans. It is conceivable that Wittgenstein alludes to, or perhaps just reinvents, the myth/fable world as a symbol of the theory of language that he wishes to challenge. Rather than assuming a universalizable system of reference, we should approach languages as game-like systems deeply rooted in particular "forms of life," to invoke another Wittgensteinian phrase. Wittgenstein's fabling gesture is a fable-stopper.

There is yet another possibility, suggested by my colleague William Hansen, who notes an affinity of Wittgenstein's scenario to the fable of Aphrodite and the Weasel. In this fable, a weasel falls in love with a young man, and Aphrodite allows the weasel to change her appearance into that of a beautiful woman, so she and the young man could marry. But on the wedding day, a mouse runs by and the bride runs after it, terminating the wedding. "Nature had proved stronger than Love" (Gibbs 2008, 166 [#350]). Hansen's suggestion (personal communication) is:

> Here one could have a lion who yearns to talk with human beings. Compassionately, the god Hermes grants the lion the gift of human speech. The lion eagerly seeks out a human and initiates a conversation. The human hears the lion's words . . . but doesn't understand what he is trying to say. The lion concludes that communication between lions and humans is not meant to be.

This fakle seems quite parallel to the one I have suggested, but emphasizes an immutable quality of the world over the consternation of the protagonist who would challenge it. In sympathy with the weasel's relapse, and wearied by his failed endeavor, the lion might eat the man in lieu of talking with him, or perhaps as compensation for his effort.

At this point consider one more fable, and one more lion, in Aesop's "The Lion and the Man Disputing." This fable, which flies in the face of Wittgenstein's claim about the incommensurability of human- and lion-speech, provides a moral that parallels the one that I had devised from Xenophanes' comment, and in its own way makes a case for getting beyond anthropomorphic/anthropocentric visions and toward empirically-based science:

> A man and a lion were arguing about who was best, with each one seeking evidence in support of his claim. They came to a tombstone on which a man was shown in the act of strangling a lion, and the man offered this picture as evidence. The lion then replied, "It was a man

who painted this; if a lion had painted it, you would instead see a lion strangling a man. But let's look at some real evidence instead." The lion then brought the man to the amphitheater and showed him, so he could see with his own eyes, just how a lion strangles a man. The lion then concluded, "A pretty picture is not proof: facts are the only real evidence."

As I noted in my comments on Xenophanes, recognition of anthropocentrism as an epistemological defect is generally an insight attributed to philosophy over against the prephilosophical view of the world. However, it is plainly evident that many folkloric fables—beating philosophy to the punch?—present various forms of species bias as epistemological defects; and in the fable just quoted we also hear a proposed remedy, namely, empirical observation. Like philosophers, fables zero in on potential flaws in the unexamined, centric ways in which we assess the world.[3] They often do this by projecting contrastive human perceptions or strategies onto animals whose different species characteristics figure in and thus dramatize the contrasts being drawn (the nimbleness of the fox, the deliberative persistence of the tortoise, the preoccupied, nerdy look of the hedgehog). They ask which is better, A or B: the strength of the lion or the incisiveness or the mouse, the speed of the hare or the persistence of the tortoise, the many local theories of the fox or the totalizing grand-theory of the hedgehog. In a few, like the Crow and the Pitcher, there is only one actor, but there are still two strategies: brute force first—since the crow is said to first exhaust itself by trying to tip the jar over—followed by a turn to cunning reason. The contest of lion and mouse is thus redistributed as a contest between a crow's lower and higher cognitive powers.

One other alternative sometimes posed in fable deserves mention, especially for the present project, specifically, the contrast between trying to accomplish a task as a whole vs. breaking it up into smaller tasks. In one Aesopian fable, that of the Old Man and His Sons (Gibbs 2008, 227–28 [#493]), a man demonstrates strength in numbers to his son by showing that sticks that can be broken individually cannot be broken as a bundle. Zeno's Achilles paradox works on the contrast too, as does modern calculus, by breaking motion into smaller parts. So does the fable version of the Crow and the Pitcher. Breaking a task up emerges as a sort of threshold, a breakthrough into analytical reason; indeed, the Greek term for "analyze" literally means to loosen or break-apart (*analyein*). Earlier it was noted that fables tend to be

anonymous, and that attaching the breakthrough to specific, named human characters takes the fable in the direction of legend. Here it should be noted that there are numerous such "Newton's apple" legends recounted in the annals of science, and that one of these—specifically Archimedes' *eureka* moment—shares a peculiar affinity to the fable of the Crow and the Pitcher, since the legend and the fable both center around the discovery of the principle of the displacement of water. This fable/legend parallel begs for further consideration in the future.

But having noted that fables do often juxtapose a lower and a higher way of understanding in dealing with a situation, it is necessary to add a caution, specifically, that the breakthrough portrayed in fables is presented in a quite different way from a similar breakthrough that is often encountered in myth scholarship. Specifically, scholars of myth and philosophy sometimes speak of a passage from *mythos* to *logos*—recall Popper's comment above about science necessarily beginning with myths—sometimes in ways that, ironically, are given over to the richest mythologizing. We hear for example of the "Greek miracle"—a moment when a higher form of understanding arose and cast off the shackles of a lower one, leaving behind a hierarchical dichotomy between worldviews and their respective adherents (philosophers vs. the ordinary people who rely on myths).[4] Over against the Greek miracle, it must be noted that the breakthrough from ordinary to analytical reason portrayed in fables is presented in a nonexclusive, generous spirit. Anyone willing to consider these colorful examples will be able to grasp the difference—giving up one's previous worldview, or enrolling in Plato's academy, is not required! Like proverbs, fables are wisdom for everyone, presented in the vulgate.

I have argued elsewhere (e.g., Schrempp 2012) that popular science writers often present the development of science, the new *logos*, in ways that resemble the mythologizing of the birth of philosophy. Here I will add that if the fable is not one of the favored genres of popular science exposition, it could be because scientists might prefer the more radical, worldview-shaking version of breakthrough offered by the passage from *mythos* to *logos* or of cosmic shakeups such as the Copernican revolution, to the more embracive portrayal of the transition offered by fables. But also note that the less heroic rhetoric of the fable does not imply that the scientific topics subjected to fabling gestures are frivolous. Just consider the topics we have broached thus far: the problem of objectivity (Xenophanes), analyzing change and

motion (Zeno), teleology in Darwinian evolutionism (Gould), the relation of science and the humanities, and the possibility of a natural science of human history (Berlin, Gould), and the limits of natural languages (Wittgenstein).

As noted above, my emphasis has been on the five fabling gestures I have encountered that include animal characters, since the topic of our discussion is animal intelligence. However, I will add some quick comments on the other two fabling gestures I have come upon, both of which are built around scenarios with only human characters, partly because they offer, by way of contrast, insight into what it is we want from animal characters.

The first of these two human-based fables is the biblical episode of David and Goliath, which forms the framing scenario for Malcolm Gladwell's recent book *David and Goliath: Underdogs, Misfits, and the Art of Battling Giants*, a work I have analyzed in more detail elsewhere (Schrempp 2016, 7–19). Gladwell approaches David and Goliath as a fable, that is, a scenario offering worldly, practical wisdom, summarized in a moral: "There is an important lesson . . . for battles with all kinds of giants. The powerful and the strong are not always what they seem" (2015, 15), which is of course also the lesson of the Lion and the Mouse among other traditional fables. While calling attention to David's fervent belief in divine providence, Gladwell finds the keys to David's success in nonreligious factors, such as the possibility that Goliath was impaired by a pituitary tumor (the source of his gigantism) and in a ballistic analysis of the surprising firepower of David's sling. The story becomes less about sacred history than about practical wisdom and strategy, which Gladwell juxtaposes to many other scenarios from the present-day worlds of sports, business, and politics. Even though concerned with human protagonists, the fablization of the story by Gladwell offers a possible insight into one (though certainly not the only) source of the attraction of animal characters for fable roles. Specifically, fables are about practical, not metaphysical, wisdom. As portrayed in fables, and no doubt based on everyday observations, animals are rather practical people, short on philosophy but long on astonishing maneuvers and life skills. Xenophanes' fabling gesture, considered earlier, might seem an exception, but his image of animals imagining the gods is presented in a contrary-to-fact tone intended only to satirize the religiosity of humans.

The final fabling gesture I will consider is the allusion to "The Emperor's New Clothes" (a tale probably best known from Hans

Christian Andersen, but with a longer history of adaptations for vary-
ing morals) by Roger Penrose in his book on cognitive science, *The
Emperor's New Mind.* Penrose's book opens with a fictional gathering
that took place for the inauguration of an "Ultronic" supercomputer,
which among other things was to "take over all those awkward deci-
sions of State" (1999, 1). When the activation switch was thrown and
the audience was invited to ask a question, "all were afraid, seeming to
sense a new and all-powerful consciousness" (1999, 2). But one young
boy, alone unintimidated, volunteers. At this point, Penrose segues
directly to his first chapter, entitled "Can a Computer Have Mind?"
Nearly six hundred pages of technical arguments follow, and then, in
drawing his work to a conclusion, Penrose says:

> Beneath all this technicality is the feeling that it is indeed "obvious" that
> the *conscious* mind cannot work like a computer, even though much of
> what is actually involved in mental activity might do so.
>   This is the kind of obviousness that a child can see—though that
> child may, in later life, become browbeaten into believing that the obvi-
> ous problems are "non-problems," to be argued into non-existence by
> careful reasoning and clever choices of definition. Children sometimes
> see things clearly that are indeed obscured in later life. . . . Children are
> not afraid to pose basic questions that may embarrass us, as adults, to
> ask. (1999, 580)

It seems that we humans have certain favored objects onto, or into,
which we project selective images, direct or inverse, of ourselves. These
include animals, celestial phenomena, tools with which we develop
daily familiarity, human "others" (such as "exotic" peoples), humans
with special physical/mental conditions such as autism, and human
children. Nineteenth-century social evolutionism often treated these
various "others" as analytically intersubstitutable (for example in the
notorious equivalency of children and savages in Freud's *Totem and
Taboo*). But clearly there are specific and distinct things that we want
from each of these objects. For example, the history of ethnology sug-
gests that what we want from exotic human "others" is either a nobler,
more robust version of ourselves, or an image of their "savagery" as a
foil for our own cosmopolitan civility (or some combination of these).
From heavenly bodies we want familiar images, notably as inscribed in
star constellations, that make us feel at home in the cosmos.
    The "little animals" that are our children are other than us in a
different way than the animals from other species; the former is us

ontogenically incomplete, the latter are phylogenic paths parallel to ours and sharing some characteristics. In his appeal to an obviousness that has been obscured, Penrose has pinpointed one of the things we want from children: a purified image of ourselves, one in which we are unencumbered by socialization. This desire is like, but more radical than, the desire of nineteenth-century folklorists for the simple purity of the peasant, for the peasant is merely unencumbered by city ways, while the wise child is unencumbered by socialization in general. This object of desire is not less self-contradictory than that of talking animals (who sometimes draw pictures), because what we really want from the mind of a child, in this trope, is a fully-functioning adult mind that is free from the constricting effects of education and socialization, which of course is already an impossibility by the time a child is developed enough to ask a question. The issue of why we speculate about ourselves through such impossible, self-contradictory objects remains a vexing question.

The mind of a child is a trope with no fixed content, for one encounters it as well in support of a conclusion opposite to Penrose's, namely, that the innocent, appealing, childlike view of the world is one in which the poetry- and empathy-destroying binaries of animate and inanimate, person and thing, have not yet hardened. What reason has a child for assuming that an object of silicon and metal cannot have a mind? The innocence depicted in the prebinarized child's mind in such examples may overlap with the childlike qualities sought in religious invocations ("Except ye be converted, and become as little children, ye shall not enter into the kingdom of heaven" [Matthew 18:3]).

Animals may still be the most complex and multifaceted of our objects of projection and desire. One has only to look at the intellectual history of theories of totemism for confirmation—a history in which the extravagance of so-called totemic institutions is equaled if not surpassed by the doubly-projective extravagance of European intellectuals speculating about how human others think about those other others—the animals. Investigation into the possibility of contemporary scientists anthropomorphizing animals offers yet another way in which to pursue an answer to the question of what humans want from animals. What we want ranges from food and sacrificial victims, to laborers for herding and plowing, to protectors and sources of affection, but in the present case we seem also to want something from their minds. The situation brings together in a heightened way

methods that profess objectivity with objects that—through their nobility, skillfulness, cuteness, and other admirable and fearsome qualities—have often succeeded in evading our efforts at an objective stance.

Postscript: The Saga Continues

In briefest terms I would like to mention two developments that occurred since the AFS conference that gave rise to this volume, both of which suggest intriguing new directions.

First, just a few months after our AFS panel, and as though in response to it, a long-overdue English translation of André Jolles' *Simple Forms* (2017) appeared (with a Foreword by Fredric Jameson). Jolles' theory of "simple forms" had been rudimentarily known about by many folklorists trained in the mid-twentieth century through a terse and stimulating summary of it by Kurt Ranke entitled "Einfache Formen" that appeared in *Journal of the Folklore Institute* (precursor to *JFR*) in 1967. I expect Jolles' book to be a major resource for the topic of folklore and science, for two main reasons. First, more than any other major genre theorist, Jolles

roots his concept of genre not in issues of style or form but in the mental/cognitive/emotional stance or disposition that constitutes a genre: what the genre assumes about the cosmos, its intellectual/emotional posture and orientation, what it wants to learn or teach about. Secondly, Jolles argues that the range of stances or "takes" on the world that constitute the simple forms—myth, legend, fairy tale, riddle, saying, and other folklore genres—remain at the base of "complex" forms such as literary novels or historical treatises produced by literate, cosmopolitan societies. In our contemporary intellectual environment, dichotomies of "simple" and "complex" of course trigger suspicions of social-evolutionism. However, given the historical context and spirit in which he wrote, I suggest that what Jolles means by "simple" is approximately what, writing in the same epoch, comparative sociologist Emile Durkheim means by "elementary" in his great and influential work *The Elementary Forms of Religious Life*: it means something basic and universal in human consciousness and in the human condition. If, for Durkheim, totemism is the elementary form of religion, then high Anglicanism is totemism in brocade robes. Jolles' claim that the various fundamental stances of folklore genres live on in cosmopolitan literary products is in essence what I am suggesting to be the case with folkloric forms in expository science. The ultimate question is whether folkloric forms go beyond strategies of exposition, and enter into the very process of scientific reasoning. At this point I will say, minimally, that I am not convinced that they do not.

Second, on June 7, 2018, "Weekend Edition" of National Public Radio offered an investigation of the capacities of bees, and interestingly that report involves and parallels some of the central themes we are considering in relation to the Crow and the Pitcher. The claims presented in the NPR report rest on evidence that bees can be trained to distinguish between cards with *fewer* vs. *more* symbols on them, and also between cards with *no* symbols vs. *some* symbols on them. Through the piece runs a kind of equivocation on what is going on in the bees' brains, in which the capacity to react differently becomes layered with various attributions of mathematical skills. The most striking similarity of this report to the Crow and Pitcher is that the scientific importance of the claims regarding animal intelligence in each case rests upon our anthropocentric history, specifically the belief that the achievement in question marks a watershed moment for humanity in the history of mathematics and science. Just as we have often heard

the story of Archimedes's "eureka moment" with the principle of displacement, so have we also heard the story that zero appeared late in human history, and proved critical to the further development of mathematics and science—as though these fields were languishing around waiting for the concept to appear. If I were to argue that it is obvious to anyone what zero means, I can imagine scientists responding by restricting the meaning of zero: what is at issue is not some gross sense of absence or of nothing vis-à-vis something, but a highly technical, versatile, and mathematically-operationalized concept and symbol. This is definitely not the treatment the bees get in the NPR report, the commentators seeming to bend over backward to see in the bees' behaviors evidence of their admissibility into the zero-club, as though fueled by a desire to cheer the little guys on and find ourselves in them.

The appeal of the report is surely related to fact that quantitative reasoning is discovered specifically in bees, a species that we admire for its organization, industriousness, and productivity—concerns we hear about in the daily stock-market and economic reports, which are steeped in quantitative buzz. While this NPR report on bees does not quite qualify as a fabling gesture, the bee is a much-fabled creature, and, along with the ant and the grasshopper and others, reminds us that the insect realm too attracts human curiosity and the desire to draw lessons—about efficient economic behavior among other things. Thinking about the NPR piece triggered for me a memory of an eighth fabling gesture, one that I encountered decades before engaging in my research on folkloric forms in science. Specifically, Louis Dumont sought to elaborate his theories regarding hierarchy (which I mention above) through a historical study of economic ideologies; his initial work in this direction was *From Mandeville to Marx* (1977). Chapter 5 of this book is "Mandeville's *Fable of the Bees*: Economics and Morality." The fable in question is one offered in the early eighteenth century by physician and social theorist Bernard de Mandeville; Dumont summarizes:

> A hive, presented as a mirror of human society, lives in corruption and prosperity. Harboring some nostalgia for virtue, it prays to recover it. When the prayer is granted, an extraordinary transformation takes place: with vice gone, activity and prosperity disappear and are replaced by sloth, poverty, and boredom in a much reduced population. (1977, 63–64)

Dumont points to evidence suggesting the influence of Mandeville on Adam Smith's *The Wealth of Nations*; and from that point of view, although Dumont himself does not phrase it this way, one might conclude that modern economic theory originates with a fabling gesture about bees![5]

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Acknowledgments

Notes

1. In an earlier discussion (Schrempp 2012, Chapter 3), I consider this fabling gesture in relation to Gould's other strategies of persuasion in *Full House* and his style of science popularizing generally.

2. See also the razzle-dazzle of hedgehog and fox, of hierarchy and symmetry, and of unity, duality, and plurality in the closing pages (2003, 259–60) of Gould's argument.

3. Interestingly, and perhaps presciently for gender studies, the fable just considered, the Lion and the Man Disputing, is alluded to as a metaphor of gender bias in the "Wife of Bath's Tale" in Chaucer's *Canterbury Tales.*

4. Particularly enlightening discussions of the idea of a transition from mythos to logos are found in J.P. Vernant (1982) and Bruce Lincoln (1999).

5. E.O. Wilson's *Anthill: A Novel* (2010) also might be approached as a fabling gesture—though one with enough complexities to require a separate treatment. The field of sociobiology, Wilson its most visible proponent, integrates human and nonhuman behavior in the study of social organization; so we would seem to have another context in which scientific interests dovetail with the genre-conceit of fables that animal characters are really humans. The main human protagonist of *Anthill* concludes: "The foibles of ants . . . are those of men, written in a simpler grammar" (2010, 169).

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