

HAVE ELEPHANT SEALS REFUTED ARISTOTLE?

NATURE, FUNCTION, AND MORAL GOODNESS

1. Moral Goodness and Life-Form Judgments

A prominent strand of neo-Aristotelianism holds that moral judgments share a conceptual structure with judgments of excellence and defect in other living things, including plants and animals. In every case, we understand an individual living thing *as* living by viewing it in light of the *life-form* that it instantiates. The goodness of parts and activities in a living thing is determined by their role in enabling the organism to realize the characteristic flourishing, or good, of its kind of life. And just as it belongs to the life of oaks to have roots and to the life of wolves to hunt in packs, so it belongs to the life of human beings to recognize and act on reasons, and the moral virtues characterize how human practical reason must operate if a person is to realize the human good. Thus moral goodness is a form of natural goodness in human beings, and vice a form of natural badness.

A view of this sort has been put forward by Philippa Foot in her book *Natural Goodness*, and Michael Thompson has defended central aspects of the view in his book *Life and Action*.¹ The neo-Aristotelian view, however, faces a number of challenges. A very basic challenge attacks the idea that biological teleology can be understood in relation to the good, or flourishing, of living things as defined by their life-form. For many, talk about “oak-good” or “tiger-good” seems to belong to an outmoded metaphysical, and perhaps theological, view of the biological world. Darwinism, it is claimed, has refuted the idea that parts and activities in living things are

For helpful comments on earlier versions of this essay, I thank Anton Ford, Gabriel Richardson Lear, Jennifer Lockhart, Anselm Mueller, Robert Pippin, and Will Small. I also thank two anonymous reviewers for the *Journal of Moral Philosophy*.

¹ Philippa Foot, *Natural Goodness*, (Oxford: Oxford University Press, 2001); Michael Thompson, *Life and Action*, (Cambridge, MA: Harvard University Press, 2008).

“for” the good of the organism, revealing instead that biological function is ordered toward the replication of genes. And once we see this, it becomes clear that whatever teleology is intrinsic to life, it does not provide a helpful framework for thinking about moral goodness. As Robert Adams says in rejecting Foot’s claim that virtue is natural goodness, “If there is a teleology intrinsic to *our* biology, it is one in which the *telos* served in fact by evolving organisms is the propagation of their genes; and efficacy in serving *that telos* has, I think, no plausibility as a measure of ethical virtue.”²

This evolutionary criticism has been developed most fully by William Fitzpatrick in his book *Teleology and the Norms of Nature*, which is a sustained critique of the Thompson-Foot account of natural normativity.³ Fitzpatrick’s book is especially interesting because he addresses directly the most intuitive reply for the neo-Aristotelian, which is to claim that Aristotelian natural norms belong to a way of viewing living things which is different from an evolutionary approach but compatible with it.⁴ Against this, Fitzpatrick argues that once we understand the insights of evolutionary biology – especially as those involve the *details* of biology – we will see that there is *no room left* for the neo-Aristotelian approach in our understanding of the teleology of living things. Biological function is determined not by the good of organisms but the end of gene replication. Since this end has no plausible connection to ethical norms, the neo-Aristotelian claim that moral goodness is natural goodness is a nice-sounding bit of philosophy that is refuted by the “real world” of biological facts.

² Robert Adams, *A Theory of Virtue*, (Oxford: Oxford University Press, 2006) 51.

³ William Fitzpatrick, *Teleology and the Norms of Nature*, (New York: Garland Publishing, 2000). Although Fitzpatrick’s book was published prior to the books by Foot and Thompson, their ideas about natural goodness were already available to Fitzpatrick, both in published papers and in lectures. Arguments similar to those of Fitzpatrick have also been made, in a less developed way, by Joseph Millum in “Natural Goodness and Natural Evil,” *Ratio* XIX June 2006, 199-213.

⁴ This is the type of point Foot makes in *Natural Goodness*, 32-33.

In spite of the seriousness of Fitzpatrick's challenge, and the widespread belief that evolution is a problem for neo-Aristotelianism, there has been little response by defenders of the neo-Aristotelian approach.⁵ In this paper, I aim to fill that gap. In the next section, I briefly lay out the neo-Aristotelian view. I then consider Fitzpatrick's arguments in detail, and I show that they fail to undermine the neo-Aristotelian account of natural normativity. A natural goodness view is not impugned by an evolutionary perspective. Nor can Aristotelian life-form judgments be replaced by an evolutionary account of living things. Rather, in order to even have a topic for evolutionary explanation, we must already be engaged in life-form thought of the sort described by Thompson and Foot.⁶

2. Neo-Aristotelian Natural Normativity

The neo-Aristotelian account of natural goodness centers on the representation of life. Whenever we represent an individual organism *as* living, we do so by drawing on an implicit

⁵ One partial exception to this is a recent article by John Hacker-Wright – “What is Natural About Foot's Ethical Naturalism?” in *Ratio* XXII September 2009. In my view, Hacker-Wright says many correct things about the relationship between evolutionary biology and neo-Aristotelian natural norms. However, Wright does not directly address Fitzpatrick's arguments or the type of problems he raises.

⁶ There remain, of course, challenges to other aspects of Aristotelian naturalism, including its account of moral virtue. My claim in this paper is simply that we have no reason to think the view fails to “get off the ground” because its basic account of natural normativity conflicts with evolutionary biology. The criticism to which I am responding should be distinguished from another attack upon the Thompson-Foot view, put forward by writers such as Chrisoula Andreou and Elijah Millgram. Unlike Fitzpatrick, these writers *grant* the legitimacy of the Aristotelian life-form judgments as an account of biological teleology. But they go on to criticize the substantive Aristotelian account of human virtues. In brief, they argue: “OK, we can grant that there are natural norms related to human form, but empirical science reveals that what belongs to our life-form is not (only) justice and benevolence, but forms of injustice and oppression. So what is naturally good is not (only) virtue, and vice is not (always) naturally bad.” See Elijah Millgram, critical notice of *Life and Action*, *Analysis Reviews* Vol 69 Number 3 (July 2009). Chrisoula Andreou “Getting on in a Varied World” *Social Theory and Practice* Vol 32 No 1 (January 2006). In this paper, I will not respond to this challenge, which Millgram has termed “the Pollyanna Problem.” Instead, my focus is on the more basic rejection of neo-Aristotelian natural normativity in living things generally.

understanding of the life-form or species to which that individual belongs.⁷ In order to see a bit of activity as “eating” or “flying” or “reproducing”, we must employ a conception of a life-form and represent the individual as a bearer of that life-form. This understanding (or representation) of a life-form can be articulated in a set of statements which express the characteristic features and activities of the life-form – e.g. “the tiger has four legs”, “wolves hunt in packs.” Taken together, these “Aristotelian categoricals” spell out the natural history of a life-form – they capture “one’s *interpretation* or *understanding* of the life-form shared by the members of that class.”⁸ The generality expressed in Aristotelian categoricals is neither universal nor statistical. From the fact that “tigers have four legs” it does not follow that a particular tiger has four legs, or even that *any* tiger now living does (a disease may have just removed a leg from every tiger on earth, and that would not prove false the Aristotelian categorical “tigers have four legs”). And the truth of Aristotelian categoricals is also consistent with the fact that no individual organism will ever perfectly instantiate the life-form as it is spelled out in the natural history.⁹

The elements of a natural history can be organized into teleological judgments that articulate how a given kind of plant or animal carries out its characteristic vital processes. In this way, Aristotelian categoricals express the *function* of different parts and activities in the life of the species: “they articulate the relations of dependence among the various elements and aspects

⁷ See part I of Thompson, *Life and Action*. Here, as elsewhere, I use the terms “life-form” and “species” interchangeably.

⁸ Thompson, *Life and Action*, 73. Italics in original.

⁹ In fact, a true Aristotelian categorical need not be true of *any* individual who has ever lived. This can be seen by considering the fact that when true Aristotelian categoricals are conjoined, the resulting statement is also a true Aristotelian categorical. As Thompson says: “The same point emerges differently if we notice that by repeated application of our apparently unexciting rule of inference – “S’s are F,” “S’s are G,” *ergo* “S’s are both F and G” – we will presumably always be able to produce a true statement of our form involving a complex conjunctive predicate that is not true of *any* member of the kind denoted by its subject, living or dead. I mean: nobody’s perfect.” *Ibid.*, 72.

and phases of a given kind of life.”¹⁰ Aristotelian categoricals thus capture what something is *for*, what part it plays, in the life of species being described –e.g. “the human heart beats in order to circulate blood throughout the body.”¹¹ Because of this, Aristotelian categoricals also form the basis for normative evaluations of individual members of the species. How a life-form survives and maintains itself determines species-specific norms, or standards of goodness, for members of that life-form. For example, because deer escape from predators by running, a certain degree of swiftness is required for a deer to be good *qua* deer. In contrast, fighting with sharp claws is *not* part of how deer defend themselves, so possessing sharp claws is not a requirement for goodness in a deer. When an Aristotelian categorical fails to hold for a particular plant or animal – e.g. “*this* tiger has only three legs” – then there is an instance of natural defect. This can be brought out by considering the following: It is true of every tiger that it either has four legs or it is *missing* at least one leg (or, perhaps, has too many legs!).

Because “the tiger has four legs” is a true Aristotelian categorical, we can also say that tigers “need” four legs. In this way, Aristotelian categoricals correspond to what Foot, following Elizabeth Anscombe, refers to as “Aristotelian necessities.” Here, what is “needed” or “necessary” is that on which good hangs. In this sense an oak tree “needs” deep roots – to be a good, excellent oak tree, a particular oak tree must have deep roots, and this is so because deep

¹⁰ Ibid., 78.

¹¹ Foot stresses that for her schema of natural normativity, the relevant Aristotelian categoricals are those relating to what “plays a part” in the life of the organism. Foot notes that there may be some general propositions about a life-form –e.g. “the blue tit has a round blue patch on its head” – that do not refer to things that *matter* in the life of the species, insofar as they do not express anything about the creature’s characteristic way of achieving the ends of self-maintenance or reproduction. Foot refers to Aristotelian categoricals which *do* relate to these ends as “teleological propositions.” – “What is crucial to all teleological propositions is the expectation of an answer to the question ‘What part does it play in the life cycle of things of the species S?’ In other words, ‘What is its function?’ or ‘What good does it do?’” Foot, *Natural Goodness*, 31-32. Alternatively, rather than picking out a special kind of Aristotelian categorical, we might deny that statements such as the one about the blue patch belong to the natural history of the form.

roots play an important part in the life of “the oak.” What counts as “necessary” in the case of living things is determined by the life-form. Thus, earthworms do not “need” four legs as tigers do – and “earthworms have four legs” is not a true Aristotelian categorical – because having legs is not part of how the earthworm achieves the ends that define its life cycle. In addition, it belongs to the life of some species to act in ways that directly benefit others, rather than oneself, such as the dancing of the honeybee which alerts other bees to a source of food.¹² Such species live cooperatively. Thus what is “necessary” for an individual’s goodness *qua* member of the species is not entirely determined by what will directly benefit the individual.

Foot claims that the notion of “function” relevant to the identification of natural norms is not the same as the notion of function as defined in evolutionary biology. She notes that in evolutionary biology, “ ‘the function of a feature of an organism is frequently defined as that role it plays which has been responsible for its genetic success and evolution.’ ”¹³ Viewed as an evolutionary adaptation, the function of a part or operation is determined by placing it in the *history* of the species – saying something about why this feature has come about as a result of evolutionary forces. In contrast, the function of something in the neo-Aristotelian schema is determined by placing it in the life of the species *at a given time*. An Aristotelian categorical expresses “truth about a species at a given historical time, and it is only the relative stability of at least the most general features of the different species of living things that makes these propositions possible at all.”¹⁴ In forming the judgments that are the basis of natural norms, we take a “still” from the “moving picture of evolution.”¹⁵

¹² Foot, *Natural Goodness*, 35.

¹³ *Ibid.*, 32. Foot is here quoting Simon Blackburn in the *Oxford Dictionary of Philosophy*.

¹⁴ *Ibid.*, 29. Foot’s talk about the truth “at a given historical time” is potentially misleading. In particular, the point here should not be confused with the idea that, at a given time, an Aristotelian categorical will be instantiated by some of the now-living bearers of that life-form. Rather, what Aristotelian categoricals represent is the life-form itself, and their truth is consistent with the fact that all of the now-living bearers

Having given an account of natural normativity with respect to plants and animals, the neo-Aristotelian argues that the same form of judgment is in place in the evaluation of human willing and acting. In the human case, the role played by the notion of a life cycle is played by the notion of a *good human life*; the place of plant or animal flourishing is filled by human good. “Good roots” in an oak are those that fit a tree to live well *qua* bearer of that life-form – roots that fit an oak for its characteristic way of living. “Good dispositions of the human will” are those dispositions that fit a human being for living well *qua* bearer of *that* life-form – dispositions that fit a person for realizing the human good.

Foot points out that we can begin to articulate a conception of human good by thinking about human deprivation. In recognizing those things without which a human being as such is deprived, we discover those things on which human good depends. As in the case of plants and animals, humans have characteristic forms of physical and mental goodness – for example, two eyes for seeing, two hands for grasping, the capacity for memories that last more than a few minutes, etc. In addition, in order to live their characteristic life, humans need “the mental capacity for learning language; they also need powers of imagination that allow them to understand stories, to join in songs and dances – and to laugh at jokes. Without such things human beings may survive and reproduce themselves, but they are deprived.”¹⁶ Humans also

of that life-form are failing to instantiate the feature in question (see the tiger example in the text above). The Aristotelian categoricals that make up a life-form conception are put most naturally into a kind of timeless present tense – “the hedgehog defends itself by rolling into a ball, quills pointed outward.” This sort of present tense expresses relations of before and after, but not the time of particular, dateable events. And in such judgments, the life-form itself is represented as stable, not as under-going some transformation. For more on the temporal aspect of natural-historical judgments, see Thompson, *Life and Action*, 65-66, 76-80. As Thompson points out, we are able to put natural-historical judgments into the past tense when describing life-forms now extinct – “the velociraptor had three strongly curved claws on each hand.” But even here, Aristotelian categoricals articulate an understanding of the life-form that does not refer to specific, dateable events.

¹⁵ Ibid.

¹⁶ Ibid., 43.

have characteristic ends involving love and friendship and respect. Human good involves the forming of relations with family, friends and neighbors, and our good depends on relationships of a certain *kind*: “It matter in a human community that people can trust each other, and matters even more that at some basic level humans should have mutual respect.”¹⁷

Crucial to human good is the human ability to recognize and respond to *reasons for action*. Even the barest sketch of human good makes clear that our characteristic life depends on the exercise of practical reason – how could human beings form friendships, or raise their children, or stand in relations of mutual respect, without acting for reasons? The excellent exercise of practical reason, then, is something on which good hangs in human life. As Foot says, “Natural goodness in reason following is as much a form of goodness in humans as is proper instinctive behaviour in animals.”¹⁸

One could accept this account of natural normativity, but reject the claim that the traditional virtues characterize proper exercise of practical reason in human beings. Neo-Aristotelians such as Foot hold that “something like the traditional table of virtues provides an apt characterization of the specifically human form of practical rationality.”¹⁹ However, there can be many competing substantive accounts of human good and practical excellence, each of which accepts the framework of natural normativity. Fitzpatrick lodges his objection at a level that applies to all such accounts. Indeed, he argues that neo-Aristotelian teleology fails as an account of living things, even before we move to the specifically human case.

¹⁷ *Ibid.*, 48.

¹⁸ Philippa Foot, “Rationality and Goodness” in *Modern Moral Philosophy* ed. Anthony O’Hear (Cambridge: Cambridge University Press, 2004) 11-12.

¹⁹ Michael Thompson, “Three Degrees of Natural Goodness,” 5. This essay originally appeared as a discussion note in *Iride* (2003). Online edition available at: <http://www.pitt.edu/~mthomps/>

3. Evolution, Flourishing and Biological Teleology

Fitzpatrick regards the neo-Aristotelian view as a “welfare-based” account of biological teleology, and he argues that welfare-based views are false. What actually determines function in living things is not the flourishing of the organism (either the individual or the species), but the end of gene-replication. The lesson of evolutionary biology, Fitzpatrick argues, is that “organisms must generally be understood ultimately as complex gene replicating systems – functional systems that have as their general and ultimate biological end *the replication of certain germ-line copies of the genes represented in their co-adapted genomes in the next generation*, with lower level functions and ends all geared toward this end.”²⁰

Fitzpatrick is right to suppose that if the only kind of function in living things is that defined by gene replication, then the attempt to see moral goodness as a kind of natural goodness is unsuccessful. On a view like Foot’s, the moral virtues are traits necessary for realizing human good, and there is an analogy between moral virtue in humans and species-specific goodness in plants and animals. If the analogy is to hold, the end which is served by those functional features in plants and animals must be sufficiently similar to the human good, and for Foot that end is the relevant plant-good or animal-good, as defined by the characteristic life cycle of the species. If, however, the ultimate end served by the functional features of living things is gene replication, then the analogy clearly does not work: Any “norms” associated with biological teleology will ultimately tell us not what is required for the flourishing of the organism, but for success or failure in the replication of genes. And the neo-Aristotelian certainly would not accept a view of the moral virtues which defined them in terms of contribution to gene replication in humans!

Fitzpatrick stresses that even if we accept his view of natural teleology, we might still understand moral virtues in terms of human needs and the human good. We might, for example,

²⁰ Fitzpatrick, *Teleology and the Norms of Nature*, 186. Italics in original.

speak of “the good that hangs on justice” in human life. The point, however, is that in doing so we would not be making any connection to the broader category of *natural goodness* as a special kind of goodness found in living things. Thus Fitzpatrick’s target is not the notion of human good, but what he considers Foot’s “persistent but erroneous appeal to nature in ethical theory.”²¹

Fitzpatrick recognizes that Foot intends her account of natural teleology to be distinct from accounts of function in evolutionary biology, and not in competition with those accounts. He argues, however, that even this “complementary” approach fails, given a proper understanding of biological teleology.²² In developing his own account of biological teleology, Fitzpatrick begins with reflection on function in machines. He considers the case of an unfamiliar machine. We believe that it has *some* function, but we do not know what that function is. To answer questions about its function, Fitzpatrick suggests, it makes sense to consider the *process of design* – what the designer intended the machine to do, what the designer was going for in putting the parts together in this particular way. Facts about the designer’s intention are relevant to determining the functional facts about the machine because they explain how the system came together and they account for it being *no accident* that the parts and features are so organized. Thus Fitzpatrick endorses the following principle:

“[W]hatever is ultimately causally responsible for the non-accidental compresence and organization of a set of parts and features into a coherent system that produces certain special effects – without which relations we would not have a genuine functional system at all – is surely equally responsible for determining the functional facts pertaining to the system.”²³

²¹ Ibid., 25.

²² Ibid. Emphasis in original. In the preface to his book, Fitzpatrick explains that he formerly held a view like Foot’s, and that he accepted the complementary approach. What changed his mind, however, was the reading of “numerous and varied biological examples in light of the plausible natural selection background.” (x) In an interesting personal detail, Fitzpatrick notes that “it was when I got to his discussion of dominance hierarchies among elephant seals that I first realized in particular that the welfare-based approach to natural teleology I had been defending for years – and, likewise, the ethical project that relied on it – was in deep trouble.” I discuss the case of elephant seals below.

²³ Ibid., 38.

In fixing the function of a machine, the facts about design thereby enable us to distinguish between the machine's function and its incidental effects. For example, in addition to moving people and things, a car also makes noise. But making noise was not part of the designer's intention, and hence its noise-making plays no role in explaining *why* the car-system is organized as it is. Thus a car's function is not to make noise.

Fitzpatrick then applies his central principle about function to the teleological features of living things. In the case of organisms, "the processes constituting the natural selection history behind the evolution of a given type of organism play the same *causal role*, with respect to the selection and organization of organic parts, features and activities at various levels, that is played by the process of intelligent design in the case of machines."²⁴ It follows from this that an organism's evolutionary history fixes the functions of its teleological features. And the core mechanism of natural selection is gene selection and replication. Thus what is "ultimately causally responsible" for the non-accidental presence of the organism's features, and the coordinated hierarchy of effects they produce, is the contribution they have made to success in gene replication. What living things are "working for" (of course there is no *intentional design* in view here) is the replication of those genes.

It is worth noting that on a certain reading of Fitzpatrick's principle, an appeal to evolutionary history might not be necessary to explain biological function. Consider the function of a particular sparrow's wing – flying. If a person points at the wing of a sparrow in front of us, and asks what is "ultimately causally responsible" for *this* wing being arranged as it is in a non-accidental way, it makes sense to respond: "because it grew from a *sparrow* egg." It is clear that a sparrow's wings develop as they do (and not like the wings of penguins) because they come

²⁴ Ibid., 40.

from sparrow eggs and the particular stuff contained therein (rather than from, say, penguin eggs and the different stuff they contain). And of course biologists may study the causal mechanisms that transform the sparrow-egg-material into the sparrow's wing. An explanation of sparrow wings in terms of sparrow eggs (and the production of sparrow eggs in terms of adult sparrows) thus gives a causal explanation of the functional features of particular sparrows.

An explanation such as this stays *within the life-form* of the sparrow, without referring to the natural selection history of the life-form considered as a whole. This, however, clearly does not capture what interests Fitzpatrick. In speaking of what is “ultimately causally responsible” for the features of a life-form, Fitzpatrick is not trying to explain a particular sparrow's wing, but the origin of “the wing” as a feature of the sparrow life-form. He is asking how and why the wing came to have a place in the life-form – how the life-form as a whole came to have the functional features it does. To appeal to the sparrow eggs as the cause of the sparrow's wings is to miss the point of his question – it is the *whole thing* (=sparrow wings for flying that develop from sparrow eggs) for which he is seeking the ultimate causal explanation.

3.1. *Function, Flourishing and a Benevolent Designer*

So far Fitzpatrick's picture presents no challenge to Thompson-Foot natural normativity. Neo-Aristotelian judgments articulate the functional relations within a life-form; they do not attempt to explain how the life-form came to be as it is. The fact that biologists (and philosophers of science) have a *different* way of approaching biological teleology does not, in itself, show anything illegitimate about the kind of judgment that interests Foot and Thompson.

But Fitzpatrick thinks evolution poses decisive problems for neo-Aristotelianism, and he offers two main criticisms. His first criticism is based on the claim that there are functional

features of organisms whose end is *not* the welfare of organism, either at the individual or group level. Since these features *do* have functions, they show that biological teleology as such cannot be defined in terms of contribution to the organism's good – that welfare “cannot play the role of general or ultimate end within an organism's teleological structure.”²⁵

In order to support his claim that there are teleological features whose end is not the good of the organism, Fitzpatrick appeals to examples of traits that evolution has selected but that work *against* the flourishing of the organism and cannot be said to “benefit” the organism in any plausible sense. One example concerns the especially long tails of male birds of paradise. The evolutionary explanation of this trait is fairly straightforward: The females of the species prefer longer-tailed mates, and thus males with longer tails were able to attract more mates than they would otherwise, thereby spreading their genes more successfully, including the gene for longer tails. The function of the long tails, then, is to increase the individual male's reproductive output. However, the long tails are also an encumbrance for the males, thereby decreasing their personal ability to survive. Fitzpatrick's claim, then, is that there is no plausible *benefit* that can be ascribed to these long tails. The individual male bird is not better off by attracting more mates than his shorter-tailed rivals. Likewise, the longer-tails are not something “needed” by the birds as a group, in the way bees might be said to “need” their stings. The birds could survive perfectly well without the longer tails, and the males would probably even live longer. In sum, “[t]he good of organisms, whether considered individually or generally, simply doesn't have anything to do with such traits.”²⁶

A related example involves the dominance hierarchies among male elephant seals. These seals fight one another to gain exclusive control of the harem, sometimes to the point of

²⁵ Ibid., 62.

²⁶ Ibid., 72.

significant injury, and the females of the species typically refuse to mate with any other than the dominant male. Such behavior, Fitzpatrick says, makes “perfectly good evolutionary sense,” because the genes tending to produce such behavior would have out-replicated their rival alleles in the gene pool. But once again there is no plausible *benefit* realized by such behavior: “Can we really suppose that animals fighting desperately with their peers simply in order to out-reproduce them are thereby acting ‘for their good’, or for any organism’s good for that matter, making themselves or others better off? On the contrary, it seems elephant seals could at least in principle *get on* just as well without these traits – perhaps even better, expending less energy fighting, avoiding the inevitable injuries, and so on.”²⁷

Fitzpatrick thinks it is clear that the long tails and dominance hierarchies do have functions, and that from the perspective of evolution this is no surprise. He also thinks it is clear that these traits do not have functions in the neo-Aristotelian sense, because they do not promote the good of these organisms. But is it true that the long-tails and dominance hierarchies cannot have a function in the neo-Aristotelian schema? The answer depends on whether these features are part of the characteristic way each life-form has for surviving and maintaining its way of life.²⁸ And with both of these traits, we can say that these traits *do* have a neo-Aristotelian function. It is characteristic of birds of paradise that the males attract mates via their long tails. That is part of how they find mates, and therefore part of how they achieve the end of reproduction. The long tails of the males, then, do “play a part” in the life cycle of the species. Given that, we could formulate an Aristotelian categorical along the lines of “the male bird of paradise attracts mates using his long tail.” An individual male bird who was born tail-less would be thereby defective *qua* male bird of paradise. And something similar seems true in the

²⁷ Ibid., 73.

²⁸ I use the term “feature” as a general term for aspects of a living thing, including organs/parts and operations/processes.

case of elephant seal hierarchies – that is *their* characteristic way of settling on a mate, and therefore how *they* realize the end of reproduction. We could presumably formulate an Aristotelian categorical and corresponding norm – e.g. “the male elephant seal recognizes hierarchical relations with other seals.” An individual male who failed to respond to hierarchy, perhaps avoiding all contact with other males, would be thereby defective. The fact that the males are *competing* for mates does not seem to alter the fact that they are realizing the end of reproduction. For birds of paradise and elephant seals, it turns out, the process of finding a mate and reproducing is a competitive one; that is their characteristic way of reproducing.

What is bothering Fitzpatrick, I think, is the thought that “the good” served by these traits – the characteristic way of living that these traits enable – does not seem to be a very good way to live. Fitzpatrick repeatedly stresses that many animal traits are *not* what we would expect to find if the organisms were the creations of a “benevolent designer” interested in their welfare.²⁹ The suggestion is that if Thompson-Foot account of function is true, the biological world should look like the product of a benevolent designer. Fitzpatrick finds it significant that we can imagine *better* ways for many organisms to realize the ends of survival and reproduction. The sense of “better” here is based on what Fitzpatrick calls our “ordinary, if somewhat fuzzy, conception of organismic welfare.” While Fitzpatrick leaves this ordinary conception “fuzzy,” at minimum it includes the claim that unnecessary pain is contrary to welfare.³⁰ The idea, then, is that birds of paradise could continue to mate *and survive better* with shorter tails. Elephant seals could still reproduce *and be injured less* without the struggle to control the harem. And that seems to cast doubt on the idea that these traits are *necessary* for the good of the organism. After all, if some other way of achieving its ends is possible, how can we say that *these* traits are

²⁹ Ibid., 72, and twice on 79.

³⁰ Ibid, 69.

necessary for the organism's good? From the perspective of organismic welfare, the present traits seem to be *bad ways* for the life-forms to realize their *good*.

There may be something intuitive about this thought. It seems easy to imagine a slightly different life cycle that would be better for a given life-form, perhaps by allowing it to live longer or freer from pain. And looking at the struggles of elephant seals, we might find ourselves with the thought, "Surely a different life cycle would be better for those poor creatures." However – and this is the crucial point – it is no part of neo-Aristotelian naturalism that a life-form, when viewed as a whole, should appear to be the product of a benevolent designer. In identifying Aristotelian categoricals, we articulate an understanding of the life-form. The corresponding judgments of function and natural goodness are made by representing the individual as a bearer of that form. These judgments depend on an understanding of the relations of dependence *within* the life-form. But judgments of natural goodness nowhere depend on the idea that it is in some further sense good *that this is how things stand* with respect to this life-form.

It is true that Foot describes survival and reproduction as ends for all life-forms. But we should not take that to imply a single picture of "flourishing" or "welfare" across all life-forms. Rather, what counts as flourishing for a life-form is determined by *how* it realizes those ends, and the relevant sense of "flourishing" for an individual organism is *given* by its characteristic life cycle, as articulated in the system of Aristotelian categoricals that make up the conception of the life-form. So it is no part of neo-Aristotelian account of function or natural norms that a given life cycle is "good for" that life-form *in comparison to* other life-forms we are able to observe or to imagine. It is not "better" to be a tortoise than to be a mouse, because the former lives so much longer and thus realizes better the end of survival. Nor is it "bad" to be a fruitfly because

they live for less than a month. (As if we should object: “A benevolent designer have given them at least *two* months!”)

The worry about a benevolent designer arises only when we consider the life-form “from without” and imagine how the life-form *itself* might be improved or made “better” for its bearers. In contrast, Thompson-Foot judgments of natural normativity are internal to a life-form conception. Understanding an organism as living depends on seeing it as the bearer of some life-form, and our understanding of the life-form can be articulated in a system of natural historical judgments. The species-specific “good” of a living thing is fixed by the natural history account, and this account provides the measure for judging excellence and defect in individuals of the kind. Now, given a benevolent commitment to reducing animal pain, perhaps we can make sense of the idea that a species’ way of life amounts to a “bad state of affairs.” And perhaps that might inspire us to try to help the species live differently – e.g. train the elephant seals to find mates via some less aggressive means. But however we understand that thought that *it is good (or bad) that* things stand this way with a life-form, judgments of natural normativity in living things do depend upon or entail such a thought.³¹

3.2. *Distinguishing Actual Function from Incidental Benefit*

Even if the neo-Aristotelian view can handle cases of elephant seals and birds of paradise, Fitzpatrick argues that the view faces another, deeper problem: the Thompson-Foot approach cannot distinguish between a feature’s incidental benefits and its actual function. Since

³¹ Foot has also argued (persuasively, to my mind) that the notion of a “good state of affairs” must be understood as a concept *within* morality: A “good state of affairs” makes sense in the context of what a virtuous person aims for – as an end related to a given virtue, such as benevolence – but not as something standing prior to morality which it is the business of morality to promote. See Philippa Foot, “Morality, Action, and Outcome” and “Utilitarianism and the Virtues” in *Moral Dilemmas* (Oxford: Oxford University Press, 2002). These papers are a helpful background for understanding Foot’s brief remarks about states of affairs in *Natural Goodness*, 47-51.

any successful account of function must enable us to make that distinction, the Thompson-Foot view fails. To see what Fitzpatrick has in mind, imagine the following example: Suppose someone intends to invent a quieter, more fuel efficient car. The inventor is successful. Several years go by, and it is discovered that the car also produces special vibrations which are good for the health of dogs in its vicinity. It is clear, however, that the *function* of the car is not to improve the health of dogs, but to transport people in a quieter, more fuel efficient way. It does not have a veterinary purpose, but a locomotive one. The improved health of the dogs is a “happy accident.” To grasp the function of something is to be able to make such distinctions between its genuine function and such incidental benefits, and thus an explanation of function must account for such distinctions. But a flourishing-based approach to biological function, Fitzpatrick claims, fails to do precisely this in the case of specific features of living things. For a given part or behavior, the neo-Aristotelian view is liable to misidentify its function as its contribution to the welfare of the individual or species, while in reality its function is something entirely different and its contribution to welfare is a “happy accident.”

It is easiest to understand Fitzpatrick’s argument by looking at one of the examples he develops.³² Consider the fact that some species of swift reduce their clutch size (=lay fewer eggs) from three to two in times of scarce resources. We can ask: what function does that behavior have in the life of swifts? Fitzpatrick claims that if we have the Thompson-Foot view, we are likely to suppose that clutch-reduction is a kind of cooperative birth-control swifts have to conserve their resources in hard times, so as to meet their nutritive needs and guard against extinction. And if that is the end of reduced clutch size, then we can generate an Aristotelian categorical and associated norm –“the swift reduces clutch size from three to two in times of scarcity” – and an individual swift that failed to do so would be thereby defective. Now,

³² Fitzpatrick, *Teleology and the Norms of Nature*, 10.

Fitzpatrick points out, from an evolutionary perspective the cooperative birth-control explanation *might* be the correct account of the behavior. It could be that groups with this “altruistic” trait fared better than groups without it, in which case it really was the trait’s connection to the welfare of the group that explains its presence in the current swift population. In that case, the Thompson-Foot approach would have landed on the correct explanation of function.

However, there is a second possible evolutionary explanation for the behavior, which is that the optimal clutch size for the *individual* turns out to be two rather than three. In scarce times, the attempt to care for three offspring spreads the resources of that family too thin, so that on average fewer survive from families with three offspring than with only two offspring to care for, and thus the trait for two eggs was selected for. If that is the correct evolutionary explanation, then what explains the presence of the behavior is not its contribution to the benefit of the swift group as a whole, but its role in maximizing individual reproductive success. What is *really going on* with respect to function is not that the swifts are “working together” to conserve resources via cooperative birth control, but that each is engaged in a competitive struggle to out-reproduce the other swifts. If that behavior also happens to benefit the swift-group in times of scarcity, that will just be an incidental benefit resulting from the actual function of clutch reduction. Thus, if the second evolutionary story is correct, the welfare-approach will have misidentified the true function of clutch reduction in the life of swifts. And even if the first story is correct, getting it right will just been “dumb luck” for the Thompson-Foot view.

Fitzpatrick’s idea is that for any teleological feature of a living thing, we can ask why the feature is manifest, where that question asks about the end the feature serves (e.g. Why is the heart making that movement? For pumping blood.) And appealing to the principle laid out earlier (3.0) we can say that if some benefit to the individual or group is not part of the ultimate

explanation *why* the feature is manifest, it makes no sense to think of that benefit as the *end* that determines the feature's function. To appeal to benefit in such a case would be like saying doggy-health was part of the function of the car in the example above – helping dogs is not the actual function of the car, because it is a side-effect that doesn't *explain anything* about why the car is organized as it is. However, in the case of biological teleology, it is only by looking to the evolutionary history of a feature that we will be able to understand the real reason the feature is manifest. Thus if we ignore evolutionary history, we will be unable to distinguish actual function from incidental benefit. And because looking to that history is precisely what welfare-based accounts fail to do, such accounts cannot make that distinction. Therefore they often generate false teleological ascriptions, finding function where it does not exist. As Fitzpatrick says, "It is only when we look to history that we see what they [the swifts] are really doing from a functional point of view is, for example, just *maximizing reproductive output*, rather than making a self-sacrificing contribution to overall population control...the proponent of the ahistorical view cannot just help herself to this insight and then proceed as if history were irrelevant."³³

Fitzpatrick brings forward more biological examples to support his argument. However, the problem with his criticism is not a lack of biological detail, but that it assumes what needs to be proved. Let us grant that any account of teleology that could not properly distinguish between actual function and incidental benefit would be unsatisfactory. Fitzpatrick's argument shows that the Thompson-Foot account of teleology fails to make such distinctions only by *assuming* that what determines the "real" or "genuine" function of features in living things must be whatever is the *historical cause* responsible for their existence. Only on that assumption can Fitzpatrick make his key claim about what is "really going on" in terms of function, which is the

³³ Ibid., 202.

teleological fact that he claims the Thompson-Foot view will fail to account for. But of course the Thompson-Foot view is spelling out a different understanding of “function,” which is not arrived at by considering the evolutionary history of the species. In effect, then, Fitzpatrick’s argument simply takes for granted what needs to be shown – that *any* account of biological teleology must treat features as evolutionary adaptations rather than functional in the neo-Aristotelian sense.

Consider how a Thompson-Foot judgment of natural normativity might work in the case of the swifts discussed above. In that schema, what determines the end of clutch-reduction will be the *good* that hangs on that behavior. Of course identifying the relevant good will require observing the life cycle of the swifts. But we do not need to know anything about the evolutionary history of the species to recognize, say, that without clutch-reduction the swifts would starve for lack of resources. And if that does turn out to be the case, then we can say that clutch-reduction “plays a part” in the life the swifts by helping them avoid starvation. Suppose it also happens to be the case that, with respect to the history of the species, this trait is explained in terms of the success of individual swifts in maximizing reproductive output. How does that historical reality change the fact that in the current life of the species, avoiding starvation depends on clutch-reduction? Clearly, with respect to current life cycle, avoiding starvation is not an *incidental* benefit of clutch-reduction, since clutch-reduction is *ex hypothesi* necessary for the swifts to avoid starvation in times of scarcity. There is a *good* at stake here, which licenses the ascription of function and an associated natural norm, as well as the related judgments about defect in individuals that fail to reduce clutch size.

The benefits Fitzpatrick describes as “incidental” are so only when judged by the principle that “functional facts” of living things are determined by evolutionary history. But the

current life cycle of the species is what neo-Aristotelian normative judgments apply to. For a given feature, so long as we have identified a good that actually depends on that feature – that is, a true Aristotelian categorical – we are justified in saying that realizing that good is its genuine function *in the current life cycle* of the species.

Whether or not we should represent the swifts as cooperating will depend upon the facts of the case. Are swifts cooperative creatures, like ants, or solitary ones, like spiders? And if they are cooperative, which other swifts do they cooperate with and why? Since not any behavior that affects others counts as cooperation, in order to answer these questions we will need to answer other questions about the swifts: Do they communicate with each other (as with dancing bees)? Do they coordinate their activities toward a common goal (as with hunting wolves)? Do they share resources among themselves, giving and taking (as with humans)? Of course, the schema of natural normativity will not allow us to say *in advance* if a given behavior is cooperative or competitive, but we can make such a distinction given a fuller account of the organism's natural history.

Likewise, the natural normativity approach allows us to distinguish between “actual function” and “incidental benefit” on the basis of the life cycle of the species in question. Imagine a tree that grows so large that the birds of the air build their nests in its branches. This benefits the birds (recall the car-dog example). But is it the branch's function (in the Thompson-Foot sense) to provide the birds with a place to build their nests? How we answer that question depends on whether or not there is some vital process of the tree that depends on providing a home for the birds. Perhaps there is no such process, and the nesting birds play no part in the life of the tree. On the other hand, perhaps for this kind of tree it is essential that its roots gain nourishment from the droppings of a particular kind of bird, and the tree will only get this

nourishment if the branches are such to support the nests of these birds. In the latter case, providing a home for the birds does play a part in the life of trees of this kind – it is part of how they get nourishment for their roots – and so the benefit to the birds is not “incidental” from the view of the tree’s own life-form. The difference between these two possibilities will determine whether or not we judge an individual tree to be defective if its branches fail to support the birds’ nests. In the first case, the failure to support the nests is not, as such, a defect in an individual tree. But in the second instance it is a defect, because having branches for that purpose is part of the life-form of such trees.

And of course the Thompson-Foot view can also recognize a case where a trait happens to benefit an individual, though that is not the function of the trait. Again this judgment will be made in light of the conception of the life-form. For example, suppose that a man is hunting tigers. He comes across a tiger, raises his gun to shoot, but stops when he realizes that the pattern of fur on this particular tiger reminds him of his own mother’s face. In this case, we might say that the tiger’s stripes have the feature of looking like the hunter’s mother and that this feature has been a benefit to the tiger. But clearly it is not the function of the stripes to look like this hunter’s mother. We know this because we know it does not belong to the life of “the tiger” to have stripes that resemble the mother. Though it helped this particular tiger, it is no part of tiger-form to have stripes with that feature.

At this point, the critic of neo-Aristotelianism might press the following objection: “I now grant that the neo-Aristotelian approach can distinguish actual function from incidental benefit, but a problem remains, because neo-Aristotelian ascriptions of function are bound to be viciously circular. For a given feature X, the neo-Aristotelian identifies that feature’s function, if there is one, by relating the feature to the characteristic good of the organism – that is, by

appealing to our conception of the life-form in question. If some good hangs on X – if it plays a part in the life cycle of this life-form – then this gives us the function for X. However, we understand the characteristic good of the life-form *in the first place* only by grasping the functions of its characteristic parts and operations. That is, what *counts* as belonging to “the good” of the organism is fixed by the Aristotelian categoricals that are true of it. But then the good of the organism determines the truth-value of Aristotelian categoricals, while that good is itself determined by whatever Aristotelian categoricals are true of it. So the neo-Aristotelian cannot provide non-circular criteria for the truth-value of Aristotelian categoricals.”

In making charges of *vicious* circularity, the objection confuses two points. The first point is that, in our efforts to formulate true Aristotelian categoricals, our thought does not go “outside” the system of natural-historical judgments that represent the life-form. The second point is that Aristotelian categoricals are therefore badly circular, presumably because they are not answerable to empirical observation or properly grounded in the facts. While the first point is true, the second point does not follow from it, and the type of “circularity” involved in Aristotelian categoricals is in no way vicious.

A particular natural-historical judgment is always one part of a system of such judgments, each of which is related to the others. These judgments articulate the relations of dependence between the parts and activities of the organism. They thereby make possible a special sense of the question “why?” that applies to vital processes.³⁴ This sense of the question “why?” asks about the function of a given feature in the life of the organism – how this feature makes possible, and in turn depends upon, other parts of the organism and other things the organism does. Since a life-form conception *just is* the representation contained in the system of natural-

³⁴ Talk of a special sense of the question “why?” is taken from Anscombe’s method of investigation in *Intention*. Thompson makes it clear that he means his own method to be of the same sort as Anscombe’s. See *Life and Action*, 47-48.

historical judgments, the truth or falsity of given Aristotelian categorical will have implications for the life-form conception as a whole. So the idea behind the objection is correct in a way: In grasping the function of given feature, we are simultaneously grasping some aspect of the organism's good, and to the extent that we understand the good of an organism, we also understand the function of (at least some of) its parts and vital processes.

What makes a given Aristotelian categorical true or false is whether or not the given feature does in fact play the part attributed to it in the life cycle of this kind of living thing. To determine this, we will have to figure out how the feature in question relates to the other parts and processes of the living thing – how it fits (if at all) into the special unity that is represented in the life-form conception. And to figure this out, we must of course *observe* the creatures in question to see what life is like for them – How do they get around? What sort of organs do they use for nutrition? How do they reproduce? At each stage of our empirical investigation, our observation will be mediated by our current understanding of the life-form whose bearers we are investigating. And our observation of those individual bearers will in turn improve our understanding of the life-form itself, giving us a more thorough understanding of the life-form, thus making possible even more well-informed future observation of individual bearers.³⁵

So in order to determine the function of a given feature, we draw on our best current understanding of the characteristic good of the life-form we are observing. But this does not mean that our judgments about function will be viciously circular, or that our life-form conceptions will be immune to revision in light of empirical evidence. For example, imagine that a species of bird has bright red spot on its tail feathers. We initially believe that this spot is

³⁵ In the opening sections of his essay “Apprehending Human Form,” Thompson discusses this “general and thoroughgoing reciprocal mutual interdependence of *vital description of the individual* and *natural historical judgment about the form or kind*.” 52, in *Modern Moral Philosophy* ed. Anthony O’Hear (Cambridge: Cambridge University Press, 2004) 47-74.

used to attract mates. We form an initial Aristotelian categorical: “Ss have a red spot on their tail feathers that attracts mates.” However, further observation reveals that the birds of the species do not seem to notice the red spot on their fellows, or react to it in any way. In addition, the birds display their tail feathers when attacked, and the red spot seems to frighten away some larger, predatory birds. We now have reason to revise our Aristotelian categorical to something like, “Ss have a red spot on their tail feathers that frightens away potential predators.” In each case, we formulate an Aristotelian categorical in light of our beliefs about how this feature relates to other aspects of the bird’s characteristic life. To the extent that we grasp the function of a given feature, our understanding goes hand-in-hand with a grasp of other vital processes – e.g. that is how it mates, that is how it flies, etc. And to so much as to describe these things *as feathers* is to appeal to some conception of the life-form, to represent these things in relation to other aspects of this sort of creature. Even so, whether or not something *does* play the part we attribute to it is a factual question, and we can gain new insight into the function of a trait by observation. So we discover true Aristotelian categoricals through familiar methods of empirical research, and there is no vicious circularity to such judgments.

3.3. *Can we do without Life-Forms and Natural Norms?*

I have argued that, contrary to what Fitzpatrick claims, the neo-Aristotelian account of natural normativity is not undermined by evolutionary accounts of how species have arisen. However, this might suggest that while natural norms are “safe” from the results of evolutionary biology, they are *unnecessary* to our understanding of living things. Even if Thompson-Foot life-form judgments are not refuted by evolutionary accounts, might not we dispense with them once we have an acceptable evolutionary story?

No. The reason for this is that we must employ some conception of life-form *whenever* we represent an individual *as* living. In order to see anything as an organism, we must understand some of its happenings as *vital processes* and some of its parts as *organs* or *members* of the organism. And in order to grasp what vital processes are happening and what organs are present, we must appeal to the “wider-context” of the life-form. To see why this is so, consider the fact that what counts as eating, breathing, hunting, etc. varies from life-form to life-form. And as Thompson points out, the same biochemical process may amount to a different life-process in different life-forms: mitosis is a part of *reproduction* in an amoeba, and part of *self-maintenance* in a human being.³⁶ There is nothing in the individual, considered in isolation from some life-form conception, that tells you what is happening at the level of vital description – nothing that tells you what role this or that activity is playing in the life of this thing. Thus if we are to so much as see something *as* living, we must bring it under some life-form conception, however inchoate or partially formed that conception may be. As Thompson says: “every thought of an individual organism as alive is mediated by thought of the life-form it bears.”³⁷

Thus there is an appeal to life-form in each of the examples Fitzpatrick brings forward, whether elephant seals or sparrows or whatever. We want to give evolutionary explanations of how various parts and behaviors came to characterize the species, and of course there is nothing in neo-Aristotelian life-form judgments that rules out such explanations. But *before* giving such explanations, we have already *presupposed* life-form judgments in characterizing the phenomena to be explained. We make implicit reference to a life-form conception whenever we represent

³⁶ Thompson, *Life and Action*, 55.

³⁷ *Ibid.*, 81. See also “Apprehending Human Form” – “Even such apparently purely physical judgments as that the organism starts here and ends here, or weighs this much, must involve a covert reference to something that goes to beyond the individual, namely its life-form. It is only in the light of a conception of this form, however dim that conception might be, that you could intelligibly suppose, for example, that the tentacles are not parasites or cancerous excrescences or undetached bits of waste.” 52.

this object *as* a wing, or that movement *as* flying. This is equally true of our representation of things *as* genes or an activity *as* reproducing. There is nothing in a particular bit of stuff considered entirely on its own that determines it to be “genes.” And the same is true for a particular happening described as “reproducing.” To characterize things in this way is already to make a *vital description* of what we are observing, and hence to appeal to some conception of the life-form present.³⁸

Thus, far from replacing life-form thought, an account like Fitzpatrick’s relies on the concept of life-form explored by Thompson and Foot.³⁹ To so much as have a topic for evolutionary explanation, we must rely on Thompson-Foot judgments of life-form. And, as we have seen, a life-form conception contains within it the materials for normative judgments. Insofar as we understand what belong to the form of living thing, we are *already* in position to make judgments of excellence and defect about individuals who bear that form. As Thompson says, “We thus go no farther for critique than we went for interpretation.”⁴⁰

³⁸ Of course, we might be wrong about our initial natural-historical judgments of now extinct life-forms, just as we might be mistaken about currently living species. What we supposed to be a dinosaur’s wings might turn out to be legs for walking. However, with both initial and revised judgments, we never leave the distinctive form of natural-historical judgment, mediated by our conception of the life-form.

³⁹ This is not a point that Foot emphasizes in her writing, but see Thompson: “But if the thoughts advanced in the last chapter are sound, then it is *not* a merely empirical fact, given that there are any organisms, that they fall under the particular items we were calling ‘life-forms’. The received taxonomical hierarchy is a record either of history or of the similarities that this history explains; but the simple ‘classification’ of individual organisms in terms of life-form precedes any possible judgment of similarity or of shared historical genesis.” *Life and Action*, 67.

⁴⁰ *Ibid.*, 81.