CHAPTER ONE: THE INSUFFICIENCY OF NATURAL ENDS

1.0 Introduction

A substantial and enduring tradition in ethics, that of natural law, has conceived itself as finding or discovering norms present in nature.[1] Somehow, there is natural teleology or there are natural ends which determine what our good is. By understanding

[1] Wild 1953, Strauss 1953, Korsgaard 1996b. I take it to be essential to the natural law tradition that there is some kind of appeal to nature. I will say something further below about how the appeal is thought to work. As I construe it, it is not sufficient simply to hold that some moral claims are objectively correct or that their correctness does not depend on contract, custom or convention as, for example, Hart seems to do (1984, 77f.). Strauss also at times seems to understand natural law as equivalent to moral objectivity (p. 3).

the natures of things – especially by understanding human nature[2, 3] – we can understand the purposes or goals or principles to which we are suited or which suit us by nature and find guidance as to what we ought to do, what kinds of lives to live, what kinds of characters to cultivate. Importantly, for my purposes, many or most eudaemonists have placed themselves within that tradition, extending at least from the time of Aristotle,[4] through the Stoics and the Thomists to Aristoteleans and neo-Aristoteleans[5] of the present

[2] I do not think deep conceptual or theoretical problems stand in the way of identifying human nature, so I will base no criticisms upon that. It is probably true that we cannot provide an illuminating set of necessary and sufficient conditions for being human, but I think the insistence that we must have such conditions (as distinct from conditions which generally hold for human beings or in human societies) is itself a hold-over from an essentialism about biological species which, in the aftermath of Darwin, is untenable.

[3] Of course, understanding human nature has to include an understanding of human sociality. It should not be presumed that adequate understanding can be achieved by the examination or investigation of isolated individuals.

[4] According to Julia Annas, "[f]or Aristotle, it is just as naive as it is for us to ask what the point is of a human life. This is not a well-defined question; for there is no well-defined larger system that a human being is part of. So Aristotle does not have a 'universal teleology'; and the teleology that he does have is not a theory about human lives." (1993, 139) Elsewhere, commenting on Aristotle's function argument in Book I of the *Nicomachean Ethics*, she downplays the reference to nature, saying that "it turns up once in verbal form, but somewhat casually." (p. 144)

I find this attempt to minimize the teleological dimensions of Aristotle's ethical thinking puzzling. In the first place, she seems to impose an extravagant condition upon interpreting his thought about the human good as teleological – that we could only do so if we saw human lives as fitting into a larger system. I don't see that Aristotle ever commits himself to this. As John Cooper says, "The good of each species is judged merely on the basis of its single nature, and without assuming it was made for any further purpose." (1996, 280) Second, Aristotle clearly thinks that human beings exist by nature and have natures and that "... action for an end is present in things which come to be and are by nature." (*Physics* 198b1 7-8, cf. 199b1 32) Third, in the function argument in the *Nicomachean Ethics* (hereafter cited as *NE*), he seems to assert just what Annas denies that he does: "[T]o say that happiness is the chief good seems a platitude, and a clearer account of what it is is still desired. This might perhaps be given, if we could first ascertain the function of man .... Or as eye, hand, foot, and in general, each of the parts evidently has a function, may one lay it down that man similarly has a function apart from all these?" (1097b1 22-32) Surely, however the function argument is best understood, Aristotle is not treating it as naive to ask for the point of a human life. (All quotes from Aristotle, unless otherwise noted, are from the New Oxford Translation, 1984.)

[5] Of course, not all who would call themselves Aristoteleans or neo-Aristoteleans identify with the natural law tradition. A notable exception is Alasdair MacIntyre (1984).

day.[6]

Though some version of the natural law position has probably been held by the majority of eudaemonists, I wish to distance myself from it. I believe it subject to decisive objections and that the appeal of eudaemonism is radically undermined if it is insisted that it is inseparably linked to a philosophically suspect view[7] about the place of values in nature.[8]

1.1 The Appeal to Nature

We can distinguish at least three ways in which the appeal to nature was supposed to work: nature as *limit*, nature as *potential* and nature as *direction*. I shall only briefly speak of the first two – in fact, shall treat them together – for what is distinctive about the natural law tradition has been what it has had to say about the third, about the way in which attending to our nature can provide guidance as to what to do.

[6] Annas 1993; Finnis 1980; Irwin 1980; Machan 1975; Miller 1995; Rasmussen and Den Uyl 1991; Wallace 1978.

[7] My concern is not that the appeal to natural teleology is *scientifically* suspect but rather that it fails to provide the right sort of answers in ethical questions.

[8] Thomas Hurka's perfectionism is, though clearly related, not a version of eudaemonism as I construe it. Like me, he seeks to dissociate his position from any grounding in natural teleology. I think he is right to do so, but that he has no adequate replacement. The appeal to natural teleology may fail, but it is at least an attempt to answer a real question which might be phrased, "which way is up?" By invoking natural ends, the natural teleologists try to say which directions of change within the scope of possible different exercises of our natural capacities count as improvements and which do not. Hurka, of course, has an account of what counts as improvement, but seems to rest his conclusions on their intuitive appeal. (1993, 28-33) He speaks frequently of realizing or fulfilling or perfecting human nature, but doesn't explain why his candidates count as improvements.

1.11 Nature as Limit and as Potential

Our nature is, on one level, simply what is inevitable or unavoidable about ourselves. We are limited physically, psychologically, cognitively and motivationally. We have certain traits and not others, and the fact that certain patterns of action and response are not open to us sets limits on what we ought to do.[9] If all of the limits were merely idiosyncratic, though they would be relevant to what particular persons ought to do or could reasonably aspire to do, there would be little place for attention to them (casuistry apart) in ethics. If, however, some or many of the limits are extremely widespread – if, that is, they can reasonably be said to be matters of human nature rather than matters of the particular characteristics of particular agents – then they may well have an important bearing upon moral theory. Though this might conceivably be contested (in the name of Original Sin, perhaps), it should be relatively uncontroversial for anyone endorsing some reasonably wide-scope version of the Kantian dictum that " 'ought' implies 'can' "[10] and its corollary, " 'cannot' implies 'not-ought.' "[11]

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[9] Some patterns of action and response might be motivationally inaccessible to us not because of sheer impossibility but because we are incapable of seeing them as choice-worthy. However, the point needs careful qualification because there may be a developmental story about how we come to see those patterns as choice-worthy. The motivations of the mature person of settled moral character (the practically wise person) may be opaque to the beginner, without its being the case that there is no developmental path that leads from what the beginner sees as choice-worthy to what the practically wise see as choice-worthy.

[10] "[W]hen the moral law commands that we *ought* now to be better men, it follows inevitably that we must be *able* to be better men." (Kant 1960, 46) Also, a character in an example "judges, therefore, that he can do something because he is aware that he ought to do it." (Kant 1997, 30)

[11] I believe we can identify some exceptions to " 'ought' implies 'can'," cases in which it is proper to say that something ought to be or have been done but in which it cannot be or could not have been done. The plausible cases involve culpable inability and various sorts of conflict between obligations. However, these are rare exceptions and, for the vast majority of cases, it is true that if one cannot do it (whatever "it" is), it is not the case that one ought to do it. A discussion of some such cases may be found in Kavka 1986, 309-314.

The same point can be deployed in a more positive form. Through attention to human nature, we may not only discern limits but disclose possibilities. We can look at the kinds of lives lived in different communities, different historical periods and in different cultural contexts. We can look for generic features found in almost all lives, however different they may otherwise be, such as engagement in some productive occupation, involvement with family and community and so on. We can also seek and may find that there are ways of life that are widely exemplified and seem to fit into recognizable social roles, such as the lives of a soldier or an artist or an intellectual, rather than involving just the possibly idiosyncratic activities or predilections of individuals.[12] Among these, we can ask which ways of life, on the one hand, are found to be satisfying or worthwhile by those who live them,[13] and, on the other, are admired or respected by others. We can also ask whether, among these ways of life judged to be worthwhile, there are any traits of character that are generally common to, distinctive of and regarded as important within those ways of life. This kind of investigation, which can obviously be pursued further than has been sketched here, can suggest a great deal about what kinds of lives may be good – about the range of possibilities for good lives – including drawing our

[12] It is not being assumed that unique or idiosyncratic lives that are not (recognized by us to be) integrated into the societies in which they are lived cannot be expressive in interesting ways of the possibilities of human nature, but rather that widespread ways of life that are integrated into the societies in which they are lived have passed a test that the unique and idiosyncratic have not (yet). There is a presumption in their favor as being expressive of interesting possibilities of human nature.

[13] It is at least a plausible initial assumption that morally good lives will typically be found to be satisfying or worthwhile to morally good persons. Enkratic lives, in which there is knowledge of and concomitant action upon what is morally good in the face of inner conflict, cannot be offered as a possible counter-example unless one already has some kind of account of what a good life is. In particular, we would need to know whether the enkratic ultimately count as morally good. But, at this stage of the investigation, that is yet to be provided.

attention to possibilities that would not have occurred to us apart from the investigation. Again, however, recognition of this fact is something that should be acceptable to moral theorists of many sorts. Through considerations of this kind, we may reach a heightened awareness of what may possibly count as a morally good life, but must look elsewhere to select among them or even to be sure that a morally good life *is* among the options we have examined. Though the approach can be described as an appeal to nature, it is not distinctive of a natural law position.

1.12 Nature as Direction

What has been distinctive about the natural law position has been the claim that nature not only (negatively) imposes limits on what can count as a good life or (less negatively) makes different kinds of lives possible, some of which may count as morally good, but that nature provides direction – that somehow to be found in nature are norms, standards or ends which provide direction towards living good lives. If we properly attend to nature, we find not just limits to what we can do or possibilities for what we may do but what we *should* do. We find goals or ends by which to direct our actions.[14]

[14] I shall not pursue the common criticism that appeals to nature (as providing direction) involve "the naturalistic fallacy" or illicitly infer an 'ought' from an 'is.' I think the most common general arguments that naturalism is misguided are themselves confused, and, though I agree that no substantive ought-claims can be derived from is-claims that do not themselves presuppose some substantive ought-claim, it is not clear to me that that is what was being attempted in the appeals to nature endorsed by the classical eudaemonists:

> [A]ncient theories are not reductive; in keeping with the way that they do not try to reduce other ethical concepts to those of virtue, they do not try to reduce ethical concepts in general to those that are not ethical....
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> [T]he notion of nature ... is not a neutral, "brute" fact; it is strongly normative. In defending virtue by showing it to be natural we are not pointing from value to fact, or from evaluative to non-evaluative facts.... For ancient ethics, the facts in question ... are

How was this supposed to work? The root idea probably came from consideration of artifacts.[15] A good knife is one that is sharp, rust-free, well-balanced, that keeps an edge and so on. A good house is one that provides protection from the weather, comfort and privacy for inhabitants and so on. On the level of specific characteristics, there need be little if anything that is interestingly common to two or more good things. A good knife need not provide protection from the weather, and a good house need not have a sharp edge.[16]

Yet, the attribution of goodness to (some) knives, houses and innumerable other artifacts is not just a case of homonymy. On a more abstract level, we can see that there is something common to good knives and good houses – that, to some acceptably high degree, they serve the purposes, achieve the goals or fulfill the functions for the sake of which knives or houses are wanted. More generally, a good *x* is one that, to some acceptably high degree, serves the purposes, achieves (or contributes to) the goals or fulfills the functions for the sake of which things of its kind are wanted. The list of characteristics of a good *x* is open-ended because the satisfactoriness of *x* for its purpose or function is a matter of degree and may be increased or improved in ways not previously

> facts which take some finding and the discovery of which involves making evaluative distinctions. (Annas 1993, 135, 137)

[15] See, for example, *Eudemian Ethics* II.1, 1218b 38-1219a 5:

> Let this then be assumed, and also that excellence is the best state or condition or faculty of all things that have a use and a work. This is clear by induction; for in all cases we lay this down: e.g. a garment has an excellence, for it has a work and use, and the best state of the garment is its excellence. Similarly a vessel, house, or anything else has an excellence; therefore so also has the soul, for it has a work.

The word here translated "work" is the same as is rendered "function" in the function argument at *NE* 1097b1 22-32.

[16] I am not yet speaking, nor will I be for some time, of moral goodness.

considered. Additionally, the goodness of *x* is implicitly a comparative matter – the comparison is between the satisfactoriness of *x* for its purpose and the satisfactoriness of some available alternative. This is part of the reason that we cannot replace the clause that demands that a good *x* satisfy its purpose to an "acceptably high degree" with more concrete criteria: what counts as an acceptably high degree depends on the available alternatives.[17]

In speaking of artifacts, I have indifferently referred to a good *x* as answering to the purposes for the sake of which it is wanted and as answering to *its* purposes. And for artifacts, there may be no important difference: they would not exist were they not (believed to be) wanted for certain purposes or to fulfill certain functions.[18] However, the assessment of the goodness of some artifact does not seem to depend essentially upon its being *wanted* – one only needs to know what the purpose or function *is* (together with various facts about the artifact) to judge its goodness. Its being wanted for that purpose may determine *what* its purpose is, but makes no difference to the content of assessments, given that purpose. If you know what its purpose is, you can judge whether or not it is good and how good it is without knowing that it is wanted for that purpose.

This suggests a further possibility. If assessments of goodness do not depend for their content upon the fact that what is assessed is wanted for a given purpose or to fulfill

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[17] Candles once supplied interior illumination for reading to an acceptably high degree, and so were good to read by, but no longer do so.

[18] I don't think this is the whole story, even for artifacts. The same object may be both a good paperweight and a bad knife. Its being good for the purpose for which it is wanted (being a paperweight) does not make it a good knife. However, it is not important to my current discussion to work out a satisfactory general account of the goodness of artifacts, so I will not pursue it.

a certain function, but only upon the purpose or function itself, then it may be that the approach can be extended to things that are not or are not known to be wanted – that is, to things with respect to which we do not suppose there to be a conscious designer or intender to impose purposes or functions – provided that there is a purpose or function which itself can be identified. And there are at least *prima facie* plausible cases to be found in the organic world.[19]

- The heart exists in order to circulate blood.
- The eye exists for the sake of sight.
- Sight exists in order to facilitate navigation in a three-dimensional world.
- The acorn exists in order to become a mature oak tree.
- The digestive system exists in order to sort nutrients from wastes.

Examples could be multiplied at length, but I will pause to note a few features that show up in these.

First, though it may be difficult to say what is involved in saying that some structure or process exists or occurs for the sake of something else if we are not allowed to appeal to conscious intentions, I take it that these examples really are plausible[20] and that

[19] Many of the ancient teleologists, Aristotle included, thought that purpose or function in nature extended beyond biological examples, but we need not follow them that far in order to see the plausibility of attributing it in biological cases.

[20] One reason it is plausible to explain organs and processes in terms of their purposes or functions is that it is difficult to eliminate such explanations in biology and perhaps even more difficult to do so in medicine. (Try to imagine what medicine would be like if either it had to proceed without use of the concept of health or had to conceive of health without reference to the proper functioning of organisms or their parts.)

therefore we have reason to see if an account of such purposiveness or end-directedness can be worked out. I will signal that examples of this kind are (we hope) to be explained somehow in terms of their functions or purposes without appealing to conscious design by saying that the relevant explanations are in terms of *natural ends* or *natural functions*.[21] Briefly, we can say that the positing of a natural end or function is an attempt to answer a "what for?" question.

Second, a natural function explanation can be applied to particular organs, such as the heart or the eye, to organ systems, such as the digestive system, and to functions of other organs, such as sight.[22]

Third, natural functions may be hierarchically ordered into those that are more or less proximate. The eye exists for the sake of sight and sight exists to facilitate three-dimensional navigation, or, for a different example, hearts exist to circulate blood and blood circulation exists in order to meet cellular needs. Additionally, structures or processes may be systematically related to the same natural function as the different organs of the digestive system are to the function of sorting nutrients from wastes.

Fourth, and perhaps most important if natural ends are to be applied to give guidance in ethics, the purposes or functions for the sake of which something exists or occurs can be used to assess not only its goodness but the goodness of things that contribute to or interfere with the achievement of the end or the performance of the function. If we know that acorns exist in order to grow into mature oak trees, we can

[21] I use "natural ends" and "natural functions" interchangeably.

[22] In principle, then, we can ask what is the function of voluntary or intelligent behavior or for the function of moral regulation of behavior.

make sensible judgments about what conditions of, e.g., soil, water, sunlight and the prevalence of squirrels, are good or bad for acorns.[23] If we know that hearts exist to circulate blood, we can tell that consumption of fatty foods is bad for hearts and that a leaner diet is better. This point might be turned into a slogan: If you can tell what something is good for, you can tell what is good for it.

If we admit, at least provisionally, that explanations in terms of natural ends may be in order and may help us to grade processes (and supporting or interfering conditions) in terms of the ends they serve, how might this thought to apply to ethics? The basic answer that the classical eudaemonists gave runs in parallel with their accounts of goodness in other cases. We could tell what is good for a human being if we could identify the human function.[24] For the classical eudaemonists, the human function was to be understood as the achievement of *eudaemonia*, often translated as "happiness."[25] To make that more concrete (and leaving aside lots of details), we can say that the function is living a successful life as a mature adult in a social context. That will include possession of the intellectual capacities and traits of character that make possible or contribute to such a life.[26] Since the conditions that make such a life possible or contribute to it are not only

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[23] Of course, we can extend that to judgments about what is good or bad for the sapling, etc.

[24] *NE* 1097b 22-32.

[25] I think that translation is unfortunate. I discuss why in Chapter Four, "The Structure of Eudaemonism."

[26] I take something like this to be more or less common ground among the classical eudaemonists. For present purposes, I have no comments on the rather puzzling passages in which Aristotle apparently elevates the contemplative or theoretical life above a practical life in a social setting as the best kind of life. I am inclined to hope that some kind of reconciliation is possible, but trying to work out such a reconciliation or, alternatively, trying to explain why the apparently discordant praise of the contemplative life is present but unreconciled with other claims, would take us far afield.

external, like conditions of water, soil and sunlight for the acorn, but also depend upon choices, habits and intelligently acquired dispositions, there is room for specifically ethical assessment – for assessment of a person's activities, choices and character insofar as they depend upon voluntary action.

So far, I have tried to portray this kind of account of the human good in a sympathetic light, but plainly, there are questions outstanding both about how we are to understand and identify the human natural function and about the way in which it is relevant to ethics. Both points are crucial, for it might be that the attempt to understand the human good in terms of a human natural function fails in either of two ways. It might turn out, first, that there is no credible way to identify the human function – no way, that is, to identify a function that is both sufficiently determinate to serve in ethical theorizing and which can also lay claim to being objective.[27] Second, even if we can credibly identify something as the human function, it might turn out in any of a number of ways not to be apt for ethical theorizing.[28]

Briefly, I believe that we may be able to give a defensible answer to the first set of questions, but that when we have an account of the human natural end in hand, it will turn out not to provide the kind of guidance we seek for ethics. As a slightly more detailed

[27] It is, of course, no easy task to say what is involved in a method being able to lay claim to being objective, but at least part of what we would want to avoid in such a method can be stated fairly readily: We do *not* want it to be the case that differences in prior moral convictions or intuitions decisively affect the conclusions drawn through the correct employment of the method. More positively, if a method can lay claim to objectivity, we would expect that competent investigators employing it would tend to converge in their conclusions without respect to divergent convictions they brought to the investigation and, moreover, that competent investigators would agree to employ it.

[28] Suppose it turned out that the human natural function was to breathe.

preview of what is to follow, I shall claim that we can understand (and can best understand) natural functions in terms of inclusive fitness but that, if we take such an account *as* an account of the human good, we find first, that it delivers intuitively unacceptable prescriptions in ethics, second, that even if we can identify some more concrete form of individual and social life than contribution to inclusive fitness as the human natural end, that form of life will probably not be accessible to us (and thus will provide *us* with no guidance), third, that more restrictive accounts of the relevance of natural functions to ethics depend for their plausibility upon ethical principles that are not themselves based on natural functions, fourth, that a natural-function-based approach to ethics confuses explanation with justification, and fifth, that it is, despite appearances, ill-suited in general to provide any guidance in cases of ethical perplexity. These are large claims. I shall begin with highlighting certain features of natural function claims, to which any satisfactory analysis should be answerable, and then briefly survey different accounts that have been offered, preparatory to sketching what I take to be the best account, which holds that natural functions are to be understood in terms of inclusive fitness.

1.2 Accounts of Natural Functions

Let us begin by noting certain general features that pertain to claims that something has a function (in the relevant sense).

A function claim is not a claim about how some structure or process actually

works or is actually working or what it actually does. The function of a heart is to circulate blood, but, in the first place, it may *malfunction*. If it does not circulate blood or does not do it well, that does not amount to a change in its function. In the second, something with a function may do other things than fulfill that function. A heart also makes noise, but making noise is not its function.

A function claim is not a claim about the statistically typical behavior of a structure or process. If, for example, most people on earth were to simultaneously have heart attacks, that would not mean that hearts had acquired the new function of causing pain and death, but that most hearts were malfunctioning.[29]

A function claim is explanatory – it explains why the structure or process is there, what it is for. Such a claim is not just a gesture in the direction of pointing out the structure's or process's serviceability to some more or less arbitrarily specified end. At least before the development of mechanical clocks, hearts may have been serviceable for the measurement of short intervals of time, but time-keeping is not the function of hearts. Hearts do not exist in order to keep time even if that is one of the things they can be used for.

A function claim is normative, about what a structure or process is *supposed* to do. Hearts are *supposed* to circulate blood and, less directly, to meet cellular needs. Success or failure in doing these things is what enables us to grade hearts as to how well they are functioning. It is this feature that makes it plausible that natural ends could provide

[29] Indeed, something with a natural function may *typically* fail in that function. The natural function of mating calls is to attract a mate but most instances of mating calls fail to do so. (Millikan 1998)

guidance in ethics.

How, without calling upon intentions in the mind of a designer, can we make sense of these features of ordinary function claims as they are applied to natural structures or processes? How can we reasonably and non-arbitrarily attribute functions to them?[30] Or can we do so at all? Might it be that the functions we attribute just reflect our purposes and interests or, perhaps, our laziness with respect to working out a causal explanation for the structures and processes in which we are interested? Setting aside access to the intentions of a designer, what options are available to account for these features of natural functions?

1.21 Value-Based Accounts

Since he is often thought to be both the paradigmatic teleologist and the paradigmatic eudaemonist in the philosophical tradition, it is useful to begin by looking at Aristotle's use of teleological thought. Fred Miller helpfully distinguishes four features of teleological explanations to be found in Aristotle's work, "(*a*) involving a potential for form which cannot be reduced to the powers of the material elements; (*b*) happening for the sake of something good; (*c*) having intrinsic causes and hence not being mere chance outcomes; and (*d*) involving an inherent self-regulating principle,"[31] and points out that which is taken to be the most fundamental makes a difference to the interpretation of

[30] If we had insights into a designer's intentions, that would be a very good way of reasonably and non-arbitrarily attributing functions to the products of her design, but I do not suppose we have such insights, at least none upon which competent investigators can be brought to agree.

[31] Miller 1995, 340.

Aristotle. Since my concerns here are not primarily exegetical, I will focus mainly upon (*b*) and (*d*).

Miller suggests that there is some advantage to taking (*d*) to be the most fundamental feature since the other features can themselves be explained in terms of the presence of an internal directive principle. I can accept his arguments with respect to the explanatory power of an internal directive principle for (*a*), irreducible potential for form, and (*c*), intrinsic causation, but I think that it does not adequately capture (*b*), explanations in terms of what is good – hereafter, value-based explanations.

To the contrary, internal directive principles are themselves best understood in terms of value-based explanations, and therefore, it is value-based explanations that should be regarded as the most fundamental. Consider the argument from internal directive principles to value-based explanations. A plausible case of an internal directive principle would be the genetic program, encoded in an organism's DNA, that guides the organism's development to maturity. In terms of that encoded program, we can say why a given feature of an organism is good for it – that is, why it contributes to the organism's having the kind of life specified in the genetic program. We can also identify certain things that could go wrong with the normal developmental program. But this is not a sufficient account of the goodness of such species-typical features for it provides no reason to suppose that the mature form specified by the genetic program is itself good or part of the organism's good.

This can be made clearer by noticing two different ways in which features of an

organism may be defective. There are, first, what may be called developmental defects. Some external cause may interfere with the normal developmental program or some necessary supporting condition of normal development may be absent. A mother may drink too much during pregnancy, and the alcohol interferes with the infant's normal development. This would be a case of an interfering external cause. Or, a mother may be malnourished during pregnancy and the infant's development is thereby stunted. This would be a case of the absence of a normal supporting condition. However, there is a different way in which features of an organism may be defective. These may be called original defects. Suppose that there is a properly genetic defect in the developing organism, so that the actual genetic program at work in the development of an infant does not encode for the development of arms. Then, there need be neither the influence of external causes interfering with development nor the absence of supporting conditions that are normally present. However benign the external causes or the normal supporting conditions, the infant will not develop arms. Its defect is not that it fails, in one way or another, to realize the developmental pattern encoded in its genetic program. It *does* realize that pattern, but the pattern that it realizes is not good for it (or not as good as the more common pattern realized in other members of its species).

It is value-based explanations, then, that are more fundamental than those in terms of internal directive principles[32] because, though internal directive principles can account

[32] I do not mean to be claiming that this was Aristotle's position. I do not know if he considered the question or, if he did, what he would have thought about which feature of teleological explanations was most fundamental. I am only claiming that it is value-based explanations that *we* should take as most fundamental in understanding his position.

for what goes wrong in developmental defects, value-based explanations can account also for what goes wrong in cases of original defects. Accordingly, the best option for an account of natural functions in an Aristotelian framework is value-based. If we are looking for something else, we will have to go significantly beyond Aristotle.

Now, I do not think that, in general, I need to resist appeals to value-based explanations to account for natural functions.[33] However, there is a reason such an account is not apt for our current purposes. Since our concern is to identify the human natural function (or human natural functions) in order to discover what contributes to or constitutes living well, we cannot rely upon an account of natural functions in terms of which those functions themselves will be explained via the well-being of the organism.

1.22 Cummins' Causal Role Account

If we set aside value-based accounts of natural functions, there are two further major contenders. One of these is the etiological account that will be explained and defended at some length below. The other, which I wish to examine now, is the causal-role account developed by Robert Cummins.

Fortunately, the examination can be relatively brief, and a detailed presentation of Cummins' account is not necessary. This is not because Cummins has failed to elucidate a scientifically useful concept. Rather, it is because the concept he analyzes, however useful for some purposes, is not suited to play the role teleologists require of natural functions. In short, though the concept he elucidates may have a legitimate role in

[33] For a contemporary defense of a value-based account of natural functions, see Bedau 1998.

inquiry, it is not the same as the one to which teleologists appeal and therefore is not really competitive with it.[34]

Briefly, Cummins holds that the analysis of functional explanations has been derailed by the assumption, which he calls (A)[35]: "The point of functional characterization in science is to explain the presence of the item (organ, mechanism, process, or whatever) that is functionally characterized."[36] Cummins thinks we will do better if we reject (A):

> To attempt to explain [for example] the heart's presence in vertebrates by appealing to its function in vertebrates is to attempt to explain the occurrence of hearts in vertebrates by appealing to factors which are causally irrelevant to its presence in vertebrates. This fact has given "functional explanation" a bad name. But it is (A) that deserves the blame. Once we see (A) as an undefended philosophical hypothesis about how to construe functional explanations rather than as a statement of the philosophical problem, the correct alternative is obvious: what we can and do explain by appeal to what something does is the behavior of a containing system. (Cummins 1998, 176)

For Cummins, the functional characterization of some item does not provide an

[34] We might think it competitive if it turned out to be the only intelligible conception of function, but it is not. The next section will show that an analysis better suited to the teleologists' requirements is available.

[35] There is also an assumption (B) that Cummins finds problematic; however, it is, according to him, problematic primarily in the way it is interpreted when conjoined with (A). (1998, especially 169, 179-184)

[36] Cummins 1998, 169.

explanation for the presence of that item but rather refers to its causal role in producing some effect in a system of which it is part. Plainly, if an account of this kind is accepted as the one relevant to natural functions, they will not only not be explanatory of the presence of items functionally characterized but will also not account for the other common features of function claims noted above. That is, there will be no account of the divergence of function claims from the actual or statistically typical behavior of the item nor will the normativity of function claims be captured. Perhaps something like that will have to be accepted in the end, but if it must be, that will amount to giving up on the prospects for appealing to natural functions in ethical theorizing. It is worth considering an alternative that appears better suited to the teleologists' purposes.

1.23 The Inclusive Fitness Account

The kind of account of natural functions I shall try to sketch draws on the work of many recent thinkers in both biology and philosophy who have worked out slightly differing versions of what has come to be called the *etiological account* of natural functions.[37] It will not be necessary, for my purposes, to deal with the sometimes subtle distinctions that are made between these different versions.[38] I will confine myself to outlining the general picture that they share[39] and will also try to provide an answer to the

[37] The *locus classicus* for this kind of account is Larry Wright's 1973 article, "Functions." (1998) Its most sophisticated version, in my judgment, can be found in the work of Ruth Millikan. (1984; 1998) Also important, for its response to certain features of Millikan's account, is Karen Neander's "Functions as Selected Effects: The Conceptual Analyst's Defense." (1998)

[38] An excellent collection of articles exploring versions of and alternatives to the etiological account is *Nature's purposes: analyses of function and design in biology* (Allen, Bekoff, and Lauder 1998).

[39] Some friends of natural functions have proposed less restrictive accounts than those to which I

argument that functional explanations are superfluous, that they substitute relatively easy armchair theorizing for more fundamental causal accounts.

We can begin by considering how biologists think about adaptations. In order to do this, some terminological distinctions are needed. We need to understand what an adaptation is and how it is related to and distinct from a feature which is adaptive. What an adaptation is can best be understood in terms of inclusive fitness. The inclusive fitness of an organism is relative to an environment which may and typically does include other organisms. That organism will possess certain heritable traits. The inclusive fitness of an organism is a measure of the contribution it makes, *because* of those heritable traits (not just accidentally), to the presence of other organisms carrying those same heritable traits in subsequent generations.[40] That contribution will typically occur through the organism's

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shall be referring. On one hand, it is easier to satisfy the conditions of less restrictive accounts, but, on the other, it is harder to see why satisfaction of those conditions might be thought to be ethically relevant.

For example, Eric Mack says that "[t]he nature of the function of something can be determined by the requirement which accounts for the existence of that thing" and elaborates that the existence of the function involves the existence of "some need or requirement which explains (plays a role in explaining) the existence of some thing (object, activity, process, etc.)." (1971, 735) There is a problem, however, in understanding this. What are we to make of something being a need or requirement? If to be a need or requirement is just to be something for which there is some causally necessary condition, then there are natural ends or functions everywhere. The need or requirement to destroy the World Trade Center explains the trajectory of airliners headed towards it. The natural function of obesity is to discourage exercise that would result in weight-loss. The natural function of the secret police is to suppress dissent that might overturn a totalitarian state. And so on. Someone may of course stipulatively use "natural ends" in that way, but it doesn't look very interesting ethically. It only becomes interesting if one forgets all the things the definition lets "natural ends" apply to and focuses upon a subset of them that are found ethically salient for reasons other than that they are natural ends.

Alternatively – which is what I suspect Mack had in mind – the appeal might be to some notion of genuine or objective needs that form only a subset of causally necessary conditions. Unfortunately, the notion of such objective needs is as much in need of analysis as the original idea of natural functions. So understood, Mack's account does not amount to a solution so much as to a relocation of the problem.

[40] "Inclusive fitness is calculated from an individual's own reproductive success plus his *effects* on the reproductive success of his relatives, each one weighed by the appropriate coefficient of relatedness." (Dawkins 1982, 186)

own successful reproduction, through what it does for close relatives (who will normally be carriers of at least some of the same heritable traits), through reciprocal altruism,[41] or some combination of these.[42]

Given this, a heritable trait is *adaptive* if it contributes to inclusive fitness. That is, an organism possessing it is more inclusively fit than an otherwise similar organism (living at the same time and in the same environment) lacking it or possessing some (actual) alternative to it.

If a trait is adaptive and if the environmental conditions under which it is adaptive remain stable, it can be expected that the trait will spread through the population; its carriers will reproduce more successfully and will be less likely to be eliminated under adverse conditions than non-carriers. This is to say that there will be selective pressure in favor of the trait.

An *adaptation* is a trait which is present in a population of organisms because there has been, at some time and in some environment, selective pressure among its ancestors for that trait.[43] An adaptation may be more or less complex and the clearest

[41] One organism may act in a way that benefits another that is not closely related because the other can be expected to reciprocate. At least some cases of symbiosis can probably be explained in this way.

[42] If the relevant information were available, then, for comparative purposes (this variant is more inclusively fit than that), in principle, an index number representing an organism's inclusive fitness could be assigned by determining how many other organisms carrying the same heritable traits there can be expected to be (where the expectation is based on the heritable traits) in subsequent generations because of that original organism. Thus, for example, if there were a population of genetically identical organisms that doubled in size in each generation, then the inclusive fitness of each member of that population could be represented by the index number, 2.

[43] I shall not place much emphasis on what is or is not to count as a trait. Since we are speaking of heritable traits, it will have to be the case that any adaptation referred to has some realization in the body or brain of the organism in question. However, our evidence for the existence of an adaptation will often be largely or entirely behavioral. We may have only indirect arguments that the trait is realized in or supported by some inherited structural feature of the organism.

examples will be of complex traits that must have been shaped out of multiple mutations.

Clearly, if these definitions are accepted, it is not necessarily the case that an adaptive trait is an adaptation. First, there may be adaptive traits that are not heritable. A hunter's skill is not genetically transmitted to offspring. Second, there may be traits exhibited in a population which are both adaptive and heritable but the explanation of which does not include selective pressure in their favor. This would be the case for any new mutation that is adaptive and would also be the case for any adaptive traits that are in some way byproducts of other processes.[44] It is also not necessarily the case that an adaptation must be adaptive. It must have *been* adaptive under the circumstances in which it evolved but those circumstances may be quite different from what the organism carrying it faces now.[45] There is no serious doubt, for example, that the human appendix is an

[44] See Gould 1991. To complicate the story slightly, it should be noted that a trait may *emerge* as a by-product of other processes, but be preserved because it confers adaptive advantages. See Dennett 1995, 238-251.

[45] Steven Pinker puts this nicely in an application to human psychology (1997, 207-208):

> … [W]hat about the Darwinian imperative to survive and reproduce? As far as day-to-day behavior is concerned, there is no such imperative. People watch pornography when they could be seeking a mate, forgo food to buy heroin, sell their blood to buy movie tickets (in India), postpone childbearing to climb the corporate ladder, and eat themselves into an early grave. Human vice is proof that biological adaptation is, speaking literally, a thing of the past. Our minds are adapted to the small foraging bands in which our family spent ninety-nine percent of its existence, not to the topsy-turvy contingencies we have created since the agricultural and industrial revlutions. Before there was photography, it was adaptive to receive visual images of attractive members of the opposite sex, because those images arose only from light reflecting off fertile bodies. Before opiates came in syringes, they were synthesized in the brain as natural analgesics. Before there were movies, it was adaptive to witness people's emotional struggles, because the only struggles you could witness were among people you had to psych out every day. Before there was contraception, children were unpostponable, and status and wealth could be converted into more children and healthier ones. Before there was a sugar bowl, salt shaker, and butter dish on every table, and when lean years were never far away, one could never get too much sweet, salty, and fatty food. People do not divine what is adaptive for them or their genes; their genes give them thoughts and feelings that were adaptive in the environment in which the genes were selected.

adaptation, though it no longer makes any positive contribution to our reproductive success.

To connect this with the terminology of natural functions, we can say that an adaptation, whether it be an organ, an organ system, a process or a behavior, is a trait that has a natural function and that it has such a function just when there is an explanation based in natural selection – that is, one ultimately in terms of contributions to the organism's inclusive fitness – for its presence or features.[46]

An etiological account of this sort, which interprets talk of natural functions in terms of the causal history that gave rise to that which is said to have the function, seems able to capture at least three of the four features mentioned earlier of the way that we talk about functions. It allows a distinction between the actual or statistically typical working of a structure or process and its function and allows us to understand why the attribution of a function is normative rather than merely descriptive. Some, however, have thought that an account like this does not successfully capture the feature that natural functions must be explanatory. This deserves further attention.

In *Philosophy of Social Science*, Michael Root has recently surveyed and endorsed some general criticisms of functional explanations. Though his concern is primarily with the employment of functional explanations within the social sciences, if his general criticisms are correct, they would also (as he recognizes) apply to functional explanations in evolutionary biology. Those of his criticisms which are relevant to the issue of the

[46] Explanations of this sort can be extended to cases in which there is not literal biological reproduction or inheritance, as in the first two chapters of Millikan 1984. Less systematically developed, Richard Dawkins' notion of "memes" is also of this type. (1976)

explanatory power of natural functions[47] can be summarized as follows. First, they do not solve what he terms "the selection problem." Second, they do not explain why a trait, T, rather than a functionally equivalent trait, T', prevails in a population.

Root's first claim is that functional explanations (where they are not mediated by the deliberate choices or intentions of some designer) fail to adequately address what he terms the selection problem – "why of all the solutions that might have been selected [to a hypothetical design problem] T was selected." (1993, 83)

> An answer to the selection question must include a description of how the trait is transmitted from some members of the group to others. The biologist explains how, first by theorizing that the trait is the effect of a gene and next by describing the process by which genes are inherited. However, this answer to the selection question replaces a functional explanation with a causal one....
>
> Functionalism faces a dilemma.... If it doesn't offer an answer to the selection question, then it doesn't explain the presence of the trait; but if it does provide such an answer, then the answer, rather than the functional fact, explains the presence of the trait. Add the causal facts needed to explain the selection of the trait, and the fact that the trait is

[47] Root also objects that explanations in terms of functions are empirically empty because one can always postulate an adaptive problem in a hypothetical ancestral environment for which the trait in question appears to provide a solution. The answer to that is surely, as Elliott Sober says, "[i]f optimality explanations are too easy to invent, let's make the problem harder." We impose empirical constraints on what counts as a plausible description of the ancestral environment, what counts as a success for the proposed explanation (does it, for example, *predict* what is observed rather than simply provide a just-so story?), and so on. (1993, 134)

> functional is trimmed from the explanation; for the causal rather than the functional fact now explains the presence of the trait.[48]

In a closely related criticism, Root maintains that functional theories in evolutionary biology do not deal adequately with the problem of functional equivalents. For any given trait, T, for which a case can be made that it is adaptive with respect to some problem faced by an organism, there is some other possible trait, T', which would be equally adaptive with respect to that problem. However, the only explanation that the biologist has to offer as to why T appears in the population rather than T'is that genes for T and not for T'appeared among the organism's ancestors. Once again, a functional explanation is replaced by a causal explanation. (1993, 86-88)

I am addressing both of these together because it appears that they both rest on the same mistake – roughly, upon the assumption that causal explanations are invariably competitive with functional explanations. A useful way of showing that they are not is in terms of the model of fitness landscapes.[49]

One imagines the ancestors of an organism at some time in their history located upon an abstract landscape, a fitness landscape, where ascents represent increases and descents represent decreases in inclusive fitness. Where exactly the organisms ascend (or not) depends on causal factors – what adaptively favorable mutations occur. These will be hills (or mountains) on the adaptive landscape. So, in one sense, there is a causal

[48] Root 1993, 86.

[49] For some discussion and further references, see Dennett 1995, 190ff. Further useful discussion may be found in Nagel 1968, 80-96.

explanation for every adaptively favorable mutation that spreads through a population. However, if there had been a mutation producing a different but functionally equivalent trait present (then and there) on the fitness landscape, that trait would have spread through the population instead. The functional explanation focuses on what is common to the two or more different causal stories, namely, that they both contribute (or would have contributed, had they occurred) to inclusive fitness.

The point can be illustrated with a non-biological example: What explains the stable and non-interfering orbits of planets in the solar system? Why are there not many bodies in unstable orbits? How, in short, were the stable orbits selected (the selection problem) and why *these* stable orbits (the problem of functional equivalents)? Now, there is, of course, for each planet, a causal account that explains why it is in the particular stable orbit that it is. Apparently, what Root would recommend is that we be satisfied with taking the conjunction of the separate causal accounts as the explanation for the overall order of the solar system.

But there's a simpler explanation, obvious once it has been suggested, that operates on a different level of generality. To wit: the planets we see in stable orbits are *survivors*. There may have been any number of bodies in the solar system in unstable orbits. But, given time (and in the absence of any regular or large-scale influx of bodies in unstable orbits from outside the system), they either fell into the sun, achieved escape velocity from the system, or collided with something else, thus producing one or more new bodies which then, if the collision did not result in its product(s) achieving stable

orbit, either fell into the sun, achieved escape velocity, or collided with something else ... and so on.

Eventually, any solar system, in whatever state of order or disorder it may have begun, can be expected to be either empty or to be occupied primarily by bodies in stable orbits.[50] That is, though there is a detailed causal explanation for each stable orbit, there is also a functional explanation for the fact that almost all the orbits are stable. Since the explanations are not competitive with one another, the correctness and relevance of the detailed causal account does not, as Root presupposes, necessarily undermine claims that a functional account is *also* correct and relevant.[51, 52]

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[50] I am still assuming the absence of any large-scale or regular influx from outside the system.

[51] The qualification, "not … necessarily," is important. Some causal accounts would undermine some functional explanations. If, for example, we had reason to think that basic laws of celestial mechanics ruled out unstable orbits, then the functional explanation would be an unnecessary fifth wheel.

[52] It might be wondered whether, if we can find functional explanations appropriate for the explanation of non-biological systems, there remains any interesting normative punch to the claim that natural functions are important to understanding living organisms. Are we saying any more when we say, e.g., that the heart is *supposed to* pump blood than when we say that the planets are "supposed to" be in stable orbits?

I think we can identify a difference between the two cases. The most promising suggestion in this direction that I know comes from Nozick. His suggestion is that, for full-fledged natural functions, we need a two-level etiological account: "Z is a function of X when Z is a consequence (effect, result, property) of X, *and* X's producing Z is itself the goal-state of some homeostatic mechanism [or process, such as conscious design or natural selection] ... and X was produced or is maintained by this homeostatic mechanism M (through its pursuit of the goal: X's producing Z)." (1993, 118) In other words, some organ or process will have a function if it is "designed" to have that function and the "designing" itself can be understood as a homeostatic process. See also Nagel 1968.

If, however, I am not correct on this, there is still a larger point to be made. If we cannot identify anything interestingly normative in any functional explanations, that is compatible with, and in fact would lend support to, what I aim to show in this chapter, namely, that natural functions do not provide the right kind of guidance for purposes of ethical theory.

1.3 Are Natural Functions Fruitful for Ethics?

I have sketched the kind of account of natural functions that can be developed in terms of inclusive fitness at some length and responded to what I think are the most important objections in order to make it clear that, why and how I take talk of natural functions to be scientifically respectable. So far, it is still an open question whether natural functions can be used to support ethical conclusions in the way the classical teleologists thought (though with an empirically better informed account of what natural functions are).

Before proceeding, however, it may be asked whether it is fair to natural law thinkers to attribute to them or to interpret their positions in terms of an account of natural functions that was not available to many of them. I think there are grounds of two sorts for saying that it is. First, there does not seem to be anything better (or as good) available. If *anything* can play the role natural law thinkers have reserved for natural functions, then it is the kind of functions that can be identified by the etiological account. Second, at least among modern thinkers working within the tradition, the need for some such account seems widely appreciated. Terence Irwin cites Wright's version of the etiological account.[53] So do Richard Sorabji[54] and James Wallace.[55] Eric Mack, apparently independently, works out a version of an etiological account,[56] and Roderick Long adapts

[53] Irwin 1980, 51.

[54] Sorabji 1980, 160. Sorabji's discussion, unlike the others cited, is not especially concerned with the relevance of natural teleology to ethics.

[55] Wallace 1978, 23.

[56] Mack 1971, 735.

Wright's account.[57] Fred Miller situates natural teleology within evolutionary theory.[58] Not all are as clear as might be wished upon the matter, but the convergence upon something like an etiological account is impressive testimony both that something of the sort is needed and that nothing better is available.

So, given an etiological account of natural functions, what can we say about whether there is something that can be identified as the *human* natural function? (And if there is, what is it?)

There appear to be three options for theorists. First, it may be that inclusive fitness itself is the relevant natural function. Second, it may be that the human natural function involves living a more concretely specifiable individual and social life. Third, it may be that there is no single natural function in terms of which to guide one's life, but that natural functions may be used to identify goods that arguably should have a place in a good life. I think the first of these is the most defensible account of the human function but the least appealing morally. Immediately below, I shall undertake to defend that interpretation and to show that if contribution to inclusive fitness is taken to be the ethically relevant human function, it leads to counter-intuitive consequences. Then, I will address the other two options and also develop two more general objections which, first, do not require appeal to moral intuitions, and second, apply to all of the options.

[57] Long 1993, 11-19.

[58] Miller 1995, esp. 344f.

1.31 Inclusive Fitness as the Directly Relevant Natural Function

Biologists do not often, unless they are ecologists, speak about the functions of whole organisms;[59] they confine themselves to discussing the functions of parts, processes and behaviors. But there seems no reason that the kind of account indicated above cannot be applied to understand what the function of an organism is. We can ask whether there is any over-arching function of the organism, or at least of such of its behaviors as are directly or indirectly under voluntary control, that promote the organism's inclusive fitness. I think, however, that we will not find a great deal of illumination from that direction. The only natural function we will be able to find for human beings will be just the promotion of their own inclusive fitness.

The crucial reason for this is that, in complicated organisms like ourselves, natural functions are highly modular. We can specify the functions of the heart, the liver, the visual processing system, the language centers in the brain and so on in quite a bit of detail. We can explain why organisms with those phenotypic features[60] would be more likely to successfully reproduce than similar organisms with slightly different designs.

But the natural functions of the parts or modules don't add up in any very illuminating way to a natural function or end for the whole organism. About all that can

[59] When functions are attributed by ecologists to organisms or species, it is typically to their functions within ecosystems. Such attributions plainly cannot be explained in terms of the contribution of those organisms to their own inclusive fitness, but perhaps a more abstract etiological theory, such as Millikan's, can accommodate them. Alternatively, it may be that some different analysis, such as Cummins', is needed.

[60] Briefly, the *genotype* is the heritable genetic "recipe" for building an organism. The *phenotype* is the way the genotype is expressed. Since the genotype will be expressed differently under different environmental conditions, genotype underdetermines phenotype. (Height, for example, is certainly affected by the genotype, but increase in average height over the past several decades is due to nutritional rather than to genetic changes.)

be said, if one wants to talk about the organism's natural function, is that it must be (or its ancestors must have been) good at reproducing.[61] We can say that the digestive system must be good at sorting nutrients from waste in dietary intake. We can say that the visual system must be useful for navigating a three-dimensional world. But what must the digestive system and the visual system *together* be good at? Only one thing: contributing to reproduction.[62]

In itself, this may seem somewhat disturbing. Contributing to reproduction or, more accurately, to inclusive fitness doesn't seem as promising for ethics as "activity of soul in conformity with excellence .... in a complete life"[63] or the Stoic ideal which identifies happiness (or *eudaemonia)*, the life according to nature, and virtue.[64] Be that as it may, it is worth examining further. I shall begin by considering three sorts of cases in which it appears that accepting inclusive fitness as the (ethically relevant) human function leads to counter-intuitive consequences.

First, if inclusive fitness is the human function, there appear to be cases in which it provides no guidance at all. Some people may not be in a position to contribute to their own inclusive fitness – for example, some of the elderly who are themselves past

[61] Technically, it doesn't have to be good at reproducing *itself*; it just has to be good at contributing to the existence of organisms in the next or subsequent generations that carry the same genes and it has to be *non-accidentally* good at doing so. Its phenotype has to typically result from its genotype and typically result in such a contribution to reproduction.

[62] I take no position on whether the contribution to inclusive fitness may or must be explained (for some traits that it is plausible to regard as morally relevant) through some kind of group selection. See Richards 1995, 259ff.

[63] *NE* 1098a1 16-18.

[64] "Thus, on the Stoic theory there is for each of us some single end that it is appropriate for us to refer everything we do in life to, and this end is identical, first, with our own 'happiness' ... second, with our living in agreement with nature, and third, with our living virtuously." (Cooper 1996, 261)

reproductive age and have no living relatives. Such people may still enter into decent, respectful, honorable and humane relations either among themselves or with others. Of course, they also may not, but it is, I submit, counter-intuitive to hold, as one would have to if inclusive fitness is the touchstone for ethics, that they have no moral reason for preferring decent, respectful, honorable and humane relations to their alternatives.

Second, there appear to be cases in which the appeal to inclusive fitness gives the wrong answer to ethical questions. For example, it would justify rape by conquering soldiers. The soldiers are young and healthy, but may die at any time in battle. In their circumstances, rape gives them the best chance at passing on their genes.

Third, the appeal to inclusive fitness gives the wrong kind of answer in another respect. It may give the right answer for the wrong reason. It may be true that some wrong action does not contribute to or interferes with achieving or promoting one's inclusive fitness. But that may be a complete irrelevance. Consider the case of Adolf Hitler, whose actions resulted, among other things, in the deaths of several million Jews. It is plausible – and I invite you to suppose that it is true – that his actions did not promote his inclusive fitness. Had he not been so obsessed with the Jews, he could have sired more offspring.[65] So, in this case, the appeal to inclusive fitness gives the right answer about what he should have done. He should not have made the plans, taken the actions, or cultivated the obsessive hatred that led to those deaths. But surely, though this is the right answer, it is reached for the wrong reason. What Hitler did was wrong, not primarily (if at all) because of the way those actions interfered with his reproductive success, but because

[65] So far as I know, he had none.

those actions trampled on the interests and violated the rights of his victims. Hitler's moral failure was *not* that his obsession kept him from having as many children as he otherwise could have.

The direct appeal to inclusive fitness as the human natural function, then, yields counter-intuitive results in at least three ways. It sometimes tells us that moral considerations are irrelevant where we are confident that they are not, it sometimes tells us that acts that we are confident are morally wrong are in fact morally right or at least permissible, and it sometimes gives us an account of why certain actions are morally objectionable that we are confident is mistaken. The point can be put more strongly in the reverse direction: If our intuitive responses to these cases are correct and if it is also correct that promotion of inclusive fitness is the human natural function, then, for the first and third cases, our action ought to be guided by something *other than* our natural function, and, for the second case, we ought to act *against* our natural function.

1.32 Beyond Intuition

However, this is less than decisive in at least two respects. In the first place, appeals to intuition are not decisive. I think that widespread moral conviction, especially when shared by persons who otherwise differ in moral theory, should be taken very seriously, but there is still the possibility of a shared mistake. In the second place, the arguments that an appeal to a natural end leads to counter-intuitive conclusions are predicated upon the (argued) assumption that the only natural function for human beings

(as distinct from particular organ systems, etc. *of* human beings) that we can identify (consistently with a scientifically respectable account of natural functions) is inclusive fitness. However, there are, as mentioned above, available two other understandings of the relevance of natural ends to ethics. Accordingly, I shall first address each of those and then develop two more general objections to the appeal to natural teleology in ethics that do not depend either upon assuming the correctness of moral intuition or upon the assumption that the relevant natural function must be the direct promotion of inclusive fitness.

1.321 A Concrete Life as the Human Function?

One of the two alternative readings of the relevance of natural ends to ethics is that human beings have it as their natural function to live some concretely specifiable individual and social life[66] – one, that is, which is *more* concretely specified than just the direct promotion of inclusive fitness. Let us suppose we can credibly identify some kind of individual and social life to which we are naturally adapted. If so, it is almost certainly not accessible to most of us. The evolutionary processes in terms of which we can understand natural functions are very slow, especially in comparison with the processes of cultural change operative in human societies throughout recorded history. Human biology has been essentially fixed for approximately two hundred thousand years. Therefore, we should expect that if some more concrete end than success at contributing to reproduction

[66] Such a natural function, of course, would itself have to be explicable in terms of its contribution to inclusive fitness.

– some kind of individual and social life – is or is part of our natural end, then the individual and social life in question would be that which was characteristic of our ancestors at the time that our biology was fixed. Since those ancestors (and indeed, probably the majority of biologically modern humans throughout our species' tenure on this planet) lived in hunter-gatherer bands, we should expect that we are naturally adapted to life in hunter-gatherer bands. But if this is so, the life which it is our natural function to live is one that, for the vast majority of us, is not an available option. If everyone were to attempt to live that kind of life, most of us could not survive. At best, such a natural function could provide no guidance to most of *us*.[67]

1.322 Multiple Natural Ends

Another way of interpreting the relevance of natural ends to ethics would involve abandoning the assumption that there is some *single* natural end or function in terms of which to guide one's life. Since the classical teleologically-oriented eudaemonists shared the assumption of a single end or function, it is appropriate in discussing their positions, but one might take a less global view of what natural functions can be expected to do. We could instead identify various functional characteristics, natural desires perhaps, and claim that their objects are goods for us.[68] To some extent, my criticisms of appealing to a

[67] This is powerful, I think, but not quite decisive. It might be held that there is some appropriate level of abstraction at which a human natural function, identified neither with the direct promotion of inclusive fitness nor with the concrete social arrangements prevalent when our biology was fixed, can be picked out. To say the least, accomplishing that – including the provision of a credible case that such a life *is* (or is part of) our natural function – will be a difficult task. Even if it can be pulled off, however, I think it would fail to meet the more general objections yet to be developed.

[68] See, e.g., Arnhart 1998. It should be noted that there may well be cognitive, motivational and

natural function to pick out an over-arching end will apply to this more modest proposal as well. But even where it does not, there will be, on this proposal, a need for some kind of ordering principle or combinatorial function to deal with cases in which goods cannot be jointly realized and, where necessary, to direct us to appropriately subordinate one good to another, and that principle, *ex hypothesi*, is not given to us by any natural end.

1.323 Two More General Problems

There are two further ways in which natural ends give the wrong kind of answer for ethics, which apply independently of the particular readings given of their relevance to ethics. First, they provide explanations rather than justifications. Second, they do not in fact provide the kind of guidance we seek from an ethical theory. Each point bears some elaboration.

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behavioral adaptations that bear on our susceptibility to being moved by moral considerations. There is, for example, considerable evidence that we are much better at detecting cheaters on social rules (those who collect benefits without paying the rule-assigned costs) than upon comparable problems not involving such detection. (Cosmides and Tooby 1992) That, of course, would be important for prospective cheaters to take into account. Unfortunately, there's another side to it: better detection breeds better cheaters. There's not likely to be a persuasive argument that *all* of us have a natural function of avoiding cheating. Quoting Kim Sterelny:

> The psychological disunity of mankind is no idle possibility. One plausible hypothesis predicts disunity. [Robert Frank's ideas about the emotions as commitment devices] can ... be used to make a point about the diversity of human cognitive design. For if he is right, then having emotions incurs a cost: really cooperating, rather than pretending to, and cheating. So, we should expect an evolutionary arms race between the emotional and emotion mimics, who try to parasitise, getting benefits but not paying costs. We should expect long term survival of both mimic and model .... So the commitment problem suggests that selection might maintain a diversity of human psychologies. There is no single best design for solving it. (1995, 378f.)

1.3231 Confusing Explanation with Justification

We may explain why we have certain tendencies, desires, behavioral patterns and the like by their contribution to inclusive fitness. That does not tell us either *why* we should have them or *that* we should. An explanation in the present context, where we are speaking of actions or dispositions, says why an action occurs or why a motivation or behavioral tendency is present. A justification would say why it ought to occur or why it is better that the motivation or tendency be present. A justification can be (or be part of) an explanation: you can explain why a person did something by saying what justified her in doing it. However, there are explanations for things that are not justified – child abuse, for example, is not inexplicable just because it is not justified.

If, to give an example, there is an evolutionary explanation for xenophobia,[69] for the tendency to divide people into "us" who count, who are important, and "them" who do not – who are at best neutral, but more commonly enemies or resources to be exploited – that tells us only that such a behavioral pattern helped our ancestors reproduce, not that it was admirable and not that we have any reason to emulate them now.

This is connected to the (much) earlier point that a feature of an organism may be an adaptation – that is, it may have been shaped out of mutations in response to a problem that organisms of that type faced in their ancestral environment – without being presently adaptive. Even if we overlook or set aside the question why or whether we are justified in

[69] There probably is such an explanation. It would have to do with the way in which xenophobic tendencies promoted the inclusive fitness of members of small and generally closely-related members of hunter-gatherer bands in competition with other bands of hunter-gatherers who were much more distantly related.

serving some particular natural function, an adaptation may, under current conditions, confer no advantages or be a disadvantage. Even in terms of what made the trait functional, its contribution to inclusive fitness, there may be no reason for continuing to have the trait, and, if it manifests itself in the form of behavioral tendencies or motivations that we are capable of resisting or suppressing, there may be reason for resisting or suppressing them. Our natural xenophobia may, under present conditions, increase the likelihood of war on a scale that may prove destructive both to "us" and to "them." It seems excessively respectful of nature's handiwork to suppose that, even in such a case, we ought to give our natural xenophobia free rein rather than resisting and suppressing it.

1.3232 Failure to Provide Guidance

There is also a further and deeper problem with the appeal to natural ends as a touchstone in ethics. Appearances to the contrary perhaps, natural ends, assuming they can be identified, do not in fact provide guidance if we are in doubt about what to do. For there are, in general, two possibilities. A natural end may inexorably control behavior, either directly or by way of some irresistible motivation. But if that is so, no question of choice, of what one should do, arises. If there are such natural ends, agents *will* act accordingly. They will face no moral choice about whether or not to serve such ends.

Alternatively, the natural end in question may not ineluctably control behavior. Though we may suppose that the end can somehow be identified, it leaves the agent at most with only tendencies or motivations that can be resisted. It may even be that she will

not be left with so much as tendencies or motivations, just the possibility of reasoning about what would serve or best serve her natural end. She can still ask whether to go along or resist. The natural end provides tendencies and motivations. Reasoning about it can tell her both what actions would promote it and perhaps apprise her of the frustrations she is likely to experience if she does not promote it. But nothing about it, simply insofar as it is a natural end, tells her that she *ought* to promote it.

Once the question is clearly posed and clearly understood, the agent may, of course, decide that service to the natural end is her best option. But that decision will not be justified solely in terms of the fact that the selected act or plan serves the natural end. If the agent has a reason for selecting it, *that* reason must come from somewhere else. Knowledge about the natural end and the motivational and behavioral tendencies to which it gives rise at most provides information to be taken into account in deciding what to do. The decision itself must be justified in some other way.

1.4 Summary

This has been lengthy and summary may be useful. The classical eudaemonists typically defended their conceptions of the appropriate end in terms of which to guide one's life by an appeal to natural teleology. Though some have been suspicious that natural teleology is a relic of an out-dated and no longer defensible world-view, it is possible to make scientifically respectable sense of the notion. In evolutionary terms – specifically in terms of inclusive fitness – we can understand what it means to speak of

natural ends or functions. However, once we import that understanding into the consideration of specifically ethical arguments, we find, first, that the direct appeal to inclusive fitness leads to counter-intuitive ethical conclusions, second, that insofar as natural ends can be understood to specify some concrete individual and social life, what is proposed as an ethical ideal is a way of life not open to most of us, and third, that less global appeals to natural ends will be incomplete unless supplemented by some principle the rationale for which cannot itself be accounted for in terms of natural ends. More generally, the appeal to natural ends as the touchstone for ethical theorizing confuses explanation with justification and in fact fails to generate answers to genuine moral perplexity. We can learn much that is relevant to ethics by attending to our biologically evolved nature, but through such attention, we can at most discover limits and disclose possibilities. The answers, if we can find them, must lie elsewhere.