that of a stone in my driveway, if no benefit or harm comes to any person or sentient being by my moving it?" ("Ethics and the Environment").

7. Mark W. Lipsey, "Value Science and Developing Society," paper delivered to the Society for Religion in Higher Education, Institute on Society, Technology and Values (July 15–August 4, 1973).
8. Joel Feinberg, "The Rights of Animals and Unborn Generations" in *Philosophy and Environmental Crisis.*
9. See Albert Szent-Gyorgyi, *The Living State* (New York: Academic Press, 1972), esp. ch. vi, "Vegetable Defense Systems."
10. "Later Selves and Moral Principles," in *Philosophy and Personal Relations,* ed. A. Montefiori (Boston: Routledge & Kegan Paul, 1973), p. 147.
11. K. M. Sayre, *Cybernetics and the Philosophy of Mind* (New York: Humanities, 1976), p. 91.
12. See J. Lovelock and S. Epton, "In Quest for Gaia," *The New Scientist* LXV, 935 (Feb. 6, 1975).
13. Stone, op. cit., p. 24.

DISCUSSION QUESTIONS

1. Does it seem to you that the "take-off" point for moral inquiry is, as Goodpaster puts it, a generalization of the self?
2. How does Goodpaster argue against limiting moral considerability by sentience? Do you agree that stopping at sentience is as arbitrary as stopping at the boundary of the species *Homo sapiens?*
3. What does Goodpaster mean when he claims, "Psychological or hedonic capacities seem unnecessarily sophisticated when it comes to locating the minimal conditions for something's deserving to be valued for its own sake"? Do you think he is right?
4. Consider Goodpaster's response to objection 3. Does his account also include refrigerators in the moral community?
5. Consider Goodpaster's response to objection 4. Is it true that the ecosystem as a whole is alive? (If it is, are refrigerators alive too?) What kinds of obligations might we have to the whole ecosystem if it is alive?
6. In his response to objection 6, Goodpaster denies that his life criterion for moral considerability is vacuous. What does he mean and is he right? Do Goodpaster's views have implications for genetic engineering?

GARY VARNER

Biocentric Individualism

Gary Varner is associate professor of philosophy at Texas A&M University. In his recent book, *In Nature's Interests? Interests, Animal Rights, and Environmental Ethics,* as well as in a series of articles, Varner defends biocentric individualism. Biocentric individualism is the view that living things, even nonconscious ones such as plants, have morally significant

Gary Varner, "Biocentric Individualism," from *Environmental Ethics: What Really Matters, What Really Works,* David Schmidtz and Elizabeth Willott, eds., Oxford University Press, 2002, pp. 108–120. Reprinted by permission of Oxford University Press.

interests. However, unlike Taylor (and others) who argue for egalitarianism among interests, Varner maintains that some interests are morally more significant than others, thus attempting to show that biocentric individualism is a practicable position. Varner writes, "[I]t is plausible to conclude that the lives of plants are, generally, less valuable than the lives of desiring creatures, including yours and mine. And that goes a long way toward showing that biocentric individualism is a practicable view, although most environmental philosophers have doubted that it is."

CRITICAL READING QUESTIONS

1. For Varner, how are moral standing, interests, and intrinsic value connected?
2. What is the mental state theory of individual welfare and how does Varner argue against it?
3. How does Varner adapt G. E. Moore's argument about the intrinsic value of beauty to argue for the intrinsic value of living things?
4. How does Varner propose to construct a hierarchy of interests?

INTRODUCTION

As a boy, I often wandered in the woods near my home in central Ohio. One August day, I dug up a maple seedling from the woods and planted it in one of my mother's flowerbeds beside the house. Within hours, the seedling was terribly wilted. Convinced that I had mortally wounded the plant, I felt a wave of guilt and, wishing to hasten what I believed to be its inevitable and imminent demise, I pulled it up, broke its small stalk repeatedly, and stuffed it in the trash. When my mother later explained that the plant was only in temporary shock from being transplanted into full sun, I felt an even larger wave of guilt for having dispatched it unnecessarily.

Was I just a soft-headed lad? Even then, I did not think that the plant was conscious, and since childhood, I have not again tried to "euthanize" a doomed plant. I feel no guilt about weeding the garden, mowing the lawn, or driving over the plants which inevitably crowd the four-wheel-drive paths I gravitate towards while camping. Nevertheless, I now let "weeds" grow indiscriminately in my wooded backyard, I mow around the odd wildflower that pops up amid the Bermuda grass out front, and I sometimes swerve to avoid a plant when tracking solitude in my truck. I believe that insects are not conscious, that they are in the same category, morally speaking, as plants, yet I often carry cockroaches and wasps outside rather than kill them. I'll even pause while mowing to let a grasshopper jump to safety. My relative diffidence regarding insects could just be erring on the side of caution. I believe that insects *probably* are not conscious, whereas I am *cock-sure* that plants are not; so when I do dispatch an insect, I make a point of crushing it quite thoroughly, including its head. Similarly, my current plant-regarding decisions are doubtless inspired in part by aesthetic judgments rather than concern for their nonconscious well-being. The wildflowers in my front yard are just more interesting to look at than a continuous stretch of Bermuda grass, and my unkempt backyard buffers me from my neighbors. Still, I believe it is better—*morally* better—that plants thrive rather than die, even if they do not benefit humans or other, conscious creatures. So if I was just soft-headed to feel bad about that maple seedling, then my gray matter hasn't quite firmed up yet.

But *am* I just soft-headed, or is there a rational case to be made for plants and other presumably nonconscious organisms? A few philosophers have thought so. The famous doctor and theologian, Albert Schweitzer, wrote:

> A man is truly ethical only when he obeys the compulsion to help all life which he is able to

> assist, and shrinks from injuring anything that lives. He does not ask how far this or that life deserves one's sympathy as being valuable, nor, beyond that, whether and to what degree it is capable of feeling. Life as such is sacred to him. He tears no leaf from a tree, plucks no flower, and takes care to crush no insect. If in summer he is working by lamplight, he prefers to keep the window shut and breathe a stuffy atmosphere rather than see one insect after another fall with singed wings upon his table.
>
> If he walks on the road after a shower and sees an earthworm which has strayed on it, . . . he lifts it from the deadly stone surface, and puts it on the grass. If he comes across an insect which has fallen into a puddle, he stops a moment in order to hold out a leaf or a stalk on which it can save itself.[1]

And in the contemporary literature of environmental ethics, Paul Taylor's 1986 book, *Respect For Nature: A Theory of Environmental Ethics,* is a must-read for any serious student of the field. In it Taylor argues that extending a Kantian ethic of respect to nonconscious individuals is plausible once one understands that organisms, "conscious or not, all are equally teleological centers of life in the sense that each is a unified system of goal-oriented activities directed toward their preservation and well-being," that each has a good of its own which is "prima facie worthy of being preserved or promoted as an end in itself and for the sake of the entity whose good it is."[2]

I call views like Schweitzer's and Taylor's *biocentric individualism,* because they attribute moral standing to all living things while denying that holistic entities like species or ecosystems have moral standing. Hence they are *bio*centric—rather than, say anthropocentric or sentientist—but they are still *individualist* views—rather than versions of holism.

Schweitzer's and Taylor's views differ in important ways. Perhaps most significantly, Schweitzer talks as if we incur guilt every time we harm a living thing, even when we do so to preserve human life. He writes:

> Whenever I in any way sacrifice or injure life, I am not within the sphere of the ethical, but I become guilty, whether it be egoistically guilty for the sake of maintaining my own existence or welfare, or unegoistically guilty for the sake of maintaining a greater number of other existences or their welfare.[3]

In the '40s and '50s, Schweitzer was celebrated in the popular media for bringing modern hospital services to the heart of Africa. Yet he appears to have thought that he incurred guilt when he saved human lives by killing disease microbes, not to mention when he killed things to eat. By contrast, in his book, Taylor makes it clear that he believes we are justified in violating plants' (and some animals') most basic interests in a range of cases: certainly for the sake of surviving, but also for the sake of furthering nonbasic, but culturally important, interests of humans. He does impose on this a requirement of "minimum wrong," that is, harming as few living things as possible in the process[4] but Taylor, unlike Schweitzer, believes that we can prioritize interests in a way that justifies us in preserving our own lives and pursuing certain nonbasic interests at the expense of plants' (and some animals') most basic interests.

I will return to this question of which interests take precedence in various cases of conflict later. That is certainly an important question for any biocentric individualist. After all, if you think that even disease microbes and radishes have moral standing, then you need an explanation of how your interests can override those of millions of plants and microbes which must be doomed in the course of living a full human life. Otherwise, you are left with Schweitzer's perpetual guilt. But if I wasn't just being a soft-headed lad when I regretted killing that maple seedling—if there is a rational case to be made for plants (and other nonconscious organisms) having moral standing—then the first question is: Why think this?

WHY THINK THAT PLANTS HAVE MORAL STANDING?

I have two basic arguments for the conclusion that they do. Before discussing these arguments, however, it is important to be more clear about what, specifically, is being asked.

As I use the terms, to say that an entity has moral standing is to say that it has interests, and to say that it has interests is to say that it has needs and/or desires, and that the satisfaction of those needs and/or desires creates intrinsic value. When I say that their satisfaction creates intrinsic value, I mean that it makes the world a better place, independent of the entity's relations to other things. As the introduction to this volume emphasizes, the term "intrinsic value" is a key one in environmental ethics, but it is also a very nuanced one. There certainly is a distinction to be drawn between valuing something because it is useful, and valuing it apart from its usefulness. One way of expressing the biocentric individualist stance, then, would be to describe it as the view that moral agents ought to value plants' lives intrinsically rather than merely instrumentally. However, putting it this way suggests that plants' flourishing might not be a good thing if there were no conscious valuers around to consider it, and one of my arguments for biocentric individualism purports to show that plants' flourishing is a good thing independent of there being any conscious valuers around at all. So I define biocentric individualism in terms of plants having interests, the satisfaction of which creates intrinsic value as defined above, whether or not there are any conscious valuers around.

A second thing to be clear about is what I mean by "plants." For simplicity's sake, I will speak simply of "plants," but unless stated otherwise, what I mean by this is *all nonconscious organisms.* Later I will take up the question of which nonhuman animals lack consciousness. For now, suffice it to say that even after the taxonomic revisions of the 1970s, the animal kingdom includes a number of organisms that are poor candidates for consciousness, e.g. barnacles and sponges. Besides plants, the new taxonomy includes three whole kingdoms, the members of which are equally poor candidates. The fungi are just heterotrophic plants. Organisms in the new kingdoms monera and protista—single-celled organisms like bacteria and amoebas (respectively)—were previously classified as animals. But in this essay, "plants" is a shorthand for all of these nonconscious organisms.

In summary, I assume the following definitions of these key terms:

Moral standing: An entity has moral standing if and only if it has interests.

Interests: An entity has interests if and only if the fulfillment of its needs and/or desires creates intrinsic value.

Intrinsic value: Intrinsic value is the value something has independently of its relationships to other things. If a thing has intrinsic value, then its existence (flourishing, etc.) makes the world a better place, independently of its value to anything else or any other entity's awareness of it.

Plants: Unless stated otherwise, "plants" refers to all nonconscious organisms, including (presumably) all members of the plant kingdom, but also all members of the kingdoms fungi, monera, and protista, as well as some members of the animal kingdom (to be specified later).

So the question is: Why think that all those "plants" have interests, the satisfaction of which creates intrinsic value, independently of any conscious organism's interest in them?

My first argument for this conclusion is developed in detail in my book, *In Nature's Interests?*[5] There I argue against the dominant, mental state theory of individual welfare (for short, the mental state theory). The dominant account of individual welfare in recent Western moral philosophy has identified what is in an individual's interests with what the individual actually desires, plus what the individual would desire if he or she were both adequately informed and impartial across phases of his or her life. This dominant account then identifies what is in an individual's *best* interests with the latter, with what he or she would desire under those idealized conditions. Formally:

The mental state theory of individual welfare: X is in an individual A's interests just in case:

1. A actually desires X, or
2. A would desire X if A were sufficiently informed and impartial across phases of his or her life; and
3. What is in A's *best* interests is defined in terms of clause (2).

Something like this theory is accepted by most contemporary moral and political philosophers.

My first argument for the moral standing of plants begins by pointing to an inadequacy of the mental state theory.

> **Argument 1:** The mental state theory seems to provide an inadequate account of the interests of conscious individuals. If that is so, and if the way to fix it involves acknowledging that intrinsic value is created by the satisfaction of nonconscious, biologically based needs of such individuals, then it makes sense to attribute interests to plants. For although plants are incapable of having desires, they have biologically based needs just as do conscious individuals.

Here is an example that brings out the problem I see in the mental state theory:

> **Example 1:** By the 19th century, British mariners were carrying citrus fruit on long sea voyages to prevent the debilitating disease of scurvy. It was not until this century that scientists discovered that we need about 10 milligrams of ascorbic acid a day, and that citrus fruits prevent scurvy because they contain large amounts of ascorbic acid.

To see how this raises a problem, consider what is meant by being "adequately informed" in the second clause of the mental state theory. Some authors limit "adequate information" to the best scientific knowledge of the day. But then it would be false that those mariners had any interest in getting 10 milligrams of ascorbic acid a day. This is because they did not in fact desire it (they did not even know it exists), and even having the best scientific knowledge of the day would not have led them to desire it because no one then knew about it. The problem is that it certainly seems wrong to say that getting 10 milligrams of ascorbic acid a day was not in their interests.

This problem is easily avoided by adding a clause about biologically based needs to our theory of individual welfare. Renamed appropriately, the theory would now be something like this:

> **The psycho-biological theory of individual welfare:** X is in an individual A's interests just in case:
>
> 1. A actually desires X,
> 2. A would desire X if A were sufficiently informed and impartial across phases of his or her life; or
> 3. X serves some biologically based need of A.

In my book,[6] I give a detailed analysis of the complex notion of a biologically based need, arguing that these can be determined by examining the evolutionary history of an organism. Here, I think it unnecessary to revisit that analysis. Ascorbic acid clearly served a biologically based need of sailors before modern scientists discovered it. So, on this psycho-biological theory, it was in those sailors' interest to get enough of it, even though no one knew anything about ascorbic acid at the time.

Note that this new theory says nothing about what is in one's *best* interests. I replaced clause (3) in the mental state theory rather than adding another clause because identifying what is in one's best interests with what one would desire under ideal motivational and informational conditions—clause (2)—faces similar problems. Other things being equal, it seems that getting enough ascorbic acid was in those mariners' best interests, even though they would still not have desired it even under the best motivational and informational conditions. So even after adding a clause about biologically based needs, it would still be a mistake to identify what is in one's best interests with clause (2).

One limitation of the 19th-century mariners example is that being "sufficiently informed" can be analyzed other than in terms of having "the best scientific knowledge of the day." We could, for instance, analyze it in terms of having all the scientific knowledge that humans will ever or could ever accumulate. I believe there are other problems with this analysis,[7] but it would solve the problem raised by the above example. However, here is another example that brings out the same kind of problem with the mental state theory, and where the alternative analysis of "sufficiently informed" doesn't help:

> **Example 2:** Like many cat owners, I grapple with the question of whether and when to allow my cat, Nanci, to go outside. Cats find the outdoors endlessly fascinating, but they also

encounter health risks outside, including exposure to feline leukemia virus (FeLV) and fleas (which Nanci happens to be allergic to).

I frankly do not know whether or not keeping Nanci indoors is in her best interests, all things considered. Nonetheless, it does seem clear that keeping her inside would serve some interests of hers, in at least some ways. For instance, it would prevent exposure to FeLV and fleas. Yet the mental state theory does not support this intuition because it is not clear that it even makes sense to talk about what an animal like Nanci would desire if she were "sufficiently informed and impartial across phases of her life." I assume that Nanci is congenitally incapable of understanding the relevant information about FeLV and fleas. So on the mental state theory, what are we to say about her going outside? It looks like we have to conclude that, whenever she in fact wants to go out, she has no interest whatsoever in staying inside, because clause (2) is irrelevant in her case. It just doesn't make sense, in the case of animals like Nanci, to talk about what they would desire were they "sufficiently informed" (let alone "impartial across phases of their lives"). What is in their interests is whatever they happen to desire at any moment in time. This is another counterintuitive implication of the mental state theory, and one which the psycho-biological theory avoids. Although the psycho-biological theory as formulated above is silent on the issue of what is in an individual's best interests, it at least supports the intuition that Nanci has some interest in staying inside (because doing so would serve her biologically based needs by preventing exposure to FeLV and fleas), even if she now desires to go outside and no sense can be made of what an animal like her would desire under ideal epistemological and motivational conditions.

The examples of Nanci and the 19th-century mariners together illustrate a general problem for the mental state theory. The theory ties all of our interests to what we desire, either actually or under ideal epistemological and motivational conditions, but not all of our interests are tied in this way to our conscious desires and beliefs. Most (maybe even all) of our desires are tied to our beliefs about the world, because as our beliefs change, our desires change. For instance, suppose that I desire to marry Melody, primarily because I believe that she is a fine fiddler. When I find out that my belief about her is false, my desire to marry her will presumably be extinguished. Similarly, if I do not desire to marry Melinda only because I believe that she is a lousy fiddler, when I find out that she is actually a virtuoso, I will presumably form a desire to marry her. My interest in marrying each woman comes and goes with my beliefs about her. However, nothing I could possibly believe about the world, whether true or false, could change the fact that I need about 10 milligrams a day of ascorbic acid to stay healthy, and no matter how strongly I might desire it, I will never be able to make it true that going without ascorbic acid is in my interest. My interest in ascorbic acid is determined by a biological need that exists wholly independent of my beliefs and desires. This is a central advantage of the psycho-biological theory over the mental state theory. Some things are only in our interests if we happen to desire them or have certain beliefs about the world, but other things are in our interests no matter what we desire or believe, or what we would desire and believe under ideal conditions. We can refer to the former as preference interests and to the latter as biological interests. The mental state theory errs by identifying all of our interests with our preference interests. The psycho-biological theory acknowledges these, but also accounts for biological interests that are wholly independent of our preference interests.

That being said, my first argument for the moral standing of plants is now complete. The above examples are intended to illustrate how the dominant, mental state theory of individual welfare is flawed, because it ties all of individuals' interests to their actual or hypothetical desires. An obvious way to fix this problem is to hold that individuals also have biological interests in the fulfillment of their various biologically based needs, whether they (like the 19th-century mariners) could only become aware of these needs under special circumstances, or they (like Nanci the cat) are congenitally incapable of desiring that those needs be fulfilled. But then, since plants too have biologically based needs,

they too have interests, even though they are congenitally incapable of desiring anything at all.

I did not include my second argument for the view that plants have moral standing in my 1998 book because, frankly, I doubted that it would be persuasive to anyone not already essentially convinced. Nevertheless, I think that this second argument expresses very clearly the most basic value assumption of the biocentric individualist. It also ties in to famous thought experiments in ethical theory and environmental ethics, and so I include it here.

The argument is driven by a variant of a famous thought experiment that British philosopher G. E. Moore used to cast doubt on sentientism (the view that only sentient—that is conscious—organisms have moral standing). Moore discussed the classical utilitarians (Jeremy Bentham, John Stuart Mill, and Henry Sidgwick, who were all sentientists) at length and in particular responded to Sidgwick's claim that "No one would consider it rational to aim at the production of beauty in external nature, apart from any possible contemplation of it by human beings." Moore responded:

> Well, I may say at once, that I, for one, do consider this rational; and let us see if I cannot get any one to agree with me. Consider what this admission really means. It entitles us to put the following case. Let us imagine one world exceedingly beautiful. Imagine it as beautiful as you can; put into it whatever on this earth you most admire—mountains, rivers, the sea; trees, and sunsets, stars and moon. Imagine these all combined in the most exquisite proportions, so that no one thing jars against another, but each contributes to increase the beauty of the whole. And then imagine the ugliest world you can possibly conceive. Imagine it simply one heap of filth, containing everything that is most disgusting to us, for whatever reason, and the whole, as far as may be, without one redeeming feature. Such a pair of worlds we are entitled to compare: they fall within Prof. Sidgwick's meaning, and the comparison is highly relevant to it. The only thing we are not entitled to imagine is that any human being ever has or ever, by any possibility, *can*, live in either, can ever see and enjoy the beauty of the one or hate the foulness of the other. Well, even so, supposing them quite apart from any possible contemplation by human beings; still, is it irrational to hold that it is better that the beautiful world should exist, than the one which is ugly? Would it not be well, in any case, to do what we could to produce it rather than the other?[8]

Moore thought we would agree with him in answering yes. But then, he continued:

> If it be once admitted that the beautiful world *in itself* is better than the ugly, then it follows, that however many beings may enjoy it, and however much better their enjoyment may be than it is itself, yet its mere existence adds *something* to the goodness of the whole.[9]

That is, Moore concluded, the mere existence of beauty adds intrinsic value to the world.

I have always been unsure what to think about Moore's thought experiment, so apparently I am of two minds when it comes to saying that the mere existence of beauty adds intrinsic value to the world. However, I have always felt certain about my answer to an analogous question. Suppose that instead of choosing between creating a beautiful world and an ugly world, the choice were between creating a world devoid of life and a world brimming with living things, neither of which would ever evolve conscious life or even be visited or known about by any conscious organisms. If, like me, you believe that it matters which world is produced and that it would be better to produce the world chock-full of nonconscious life, then you seem to be committed to biocentric individualism. For you appear to believe that life—even nonconscious life—has intrinsic value. To paraphrase Moore:

> **Argument 2:** If we admit that a world of nonconscious living things is *in itself* better than a world devoid of all life, then it follows that however much better it is to be both conscious and alive, the mere existence of nonconscious life adds *something* to the goodness of the world.

Note that this contrasts with the "last man" thought experiment (where the last person on earth destroys a tree "just for fun") in two important ways. First, in my variant of Moore's thought experiment, it is stipulated that there is no person on the scene at all. This is important because an anthropocentrist might

try to explain the problem with the last man in terms of his action's effects on his own character. Second, and more importantly, in the "last man" case, the tree is said to be "the last remaining Redwood," but in my variant of Moore's thought experiment, nothing is said about the plants in question being rare. If we agree that it matters which of my worlds is produced, and that it would be better to produce the plant-filled world, then we seem to agree that the lives of even the most mundane plants add intrinsic value to the world.

JUST WHAT ARE PLANTS' INTERESTS WORTH?

The next question has to be: Just *how valuable* are the interests of plants, in relation to those of humans and other animals? Moral hierarchies are unpopular in many quarters. In particular, feminist philosophers often condemn hierarchical views of beings' relative moral significance for being instruments of patriarchal oppression. But as a biocentric individualist, I feel forced to endorse one. Otherwise, how could I live with myself? I gleefully tear radishes from the garden for a snack, swatting mosquitoes all the while. I take antibiotics for a persistent sinus infection, and (at least when I'm not on antibiotics) I send countless intestinal bacteria on a deadly joyride into the city sewer system every morning. Unless I can give good reasons for thinking that my interests somehow trump those of microbes and plants (if not also animals), I am left with Albert Schweitzer's view, quoted above, that we "become guilty" whenever we "in any way sacrifice or injure life," even when fighting off disease organisms, eating, and defecating. In my book,[10] I argue that a plausible assumption about what I call "hierarchically structured interests" does the trick, when coupled with empirical observations about certain broad categories of interests.

Here is what I mean by hierarchically structured interests:

> **Hierarchically structured interests:** Two interests are hierarchically structured when the satisfaction of one requires the satisfaction of the other, but not vice versa.

Certain types of interests clearly stand in this relationship to other types of interests. For example, satisfying my desire to succeed professionally requires the satisfaction of innumerable more particular desires across decades, but not vice versa. It takes years to succeed professionally, and therefore I have to satisfy innumerable day-to-day desires to eat this or that in the course of completing that long-term project. But each particular desire to eat can be satisfied without satisfying my long-term desire to succeed professionally. So my desires to eat and to succeed professionally are hierarchically structured in the above sense.

Generally, what the contemporary American philosopher Bernard Williams calls "ground projects" and "categorical desires" stand in this relationship to day-to-day desires for particular things. Here is how Williams defines these terms:

> **Ground projects and categorical desires:** A ground project is "a nexus of projects . . . which are closely related to [one's] existence and which to a significant degree give a meaning to [one's] life," and a categorical desire is one that answers the question "Why is life worth living?"[11]

A person's ground project normally is a nexus of categorical desires, and generally, a ground project requires decades to complete. There are, of course, exceptions. It is conceivable that a person might have literally only one categorical desire, a desire which he or she could satisfy in one fell swoop. Perhaps a young gymnast aiming at a gold medal in the Olympics is a realistic approximation of this, but notice that even in the case of the gymnast: (1) satisfying the desire for a gold medal requires years of training, and (2) we would probably think it unhealthy and abnormal if the gymnast had no other ground project, if there were no other, longer-term desires that made her life worth living beyond the Olympics. So a ground project normally involves a host of very long-term desires, which bear the above kind of hierarchical relationship with the individual's day-to-day desires for this or that specific thing.

Here is a plausible assumption about interests that are clearly hierarchically structured:

> **Assumption:** Generally speaking, ensuring the satisfaction of interests from similar levels in

similar hierarchies of different individuals creates similar amounts of value, and the dooming of interests from similar levels in similar hierarchies of different individuals creates similar levels of disvalue.

In stating the assumption in this way, I do not mean to imply that we can make very fine-tuned judgements about which interests are more valuable than others.[12] All I claim is that interests from certain very broad categories *generally* bear this relationship to interests from other very broad categories. In particular, I argue that the following two principles are reasonable in light of the assumption:

Principle P1 (the priority of desires principle): Generally speaking, the death of an entity that has desires is a worse thing than the death of an entity that does not.

Principle P2′ (the priority of ground projects principle): Generally speaking, the satisfaction of ground projects is more important than the satisfaction of noncategorical desires.

Since I introduced the above assumption by discussing human ground projects, let me begin with principle P2′.

I call it P2′, rather than just P2, because in my book I first introduce, and dismiss, this principle:

Principle P2 (the priority of *human* desires principle): The satisfaction of the desires of humans is more important than the satisfaction of the desires of animals.

Principle P2 would solve the problem under discussion in this section, but it is transparently speciesist. It says that humans' desires are more important than any other organisms' simply because they are desires of *humans*. Principle P2′ compares ground projects to noncategorical desires without asserting that humans' desires are more important than any other organisms'. If it turns out that some nonhuman animals have ground projects, then Principle P2′ applies equally to theirs. Which animals, if any, have ground projects is an empirical question, as is the question of whether all human beings do. Surely some human beings do not. For instance, anencephalic babies and the permanently comatose clearly do not, and perhaps others, like the most profoundly retarded, or those who have lost the will to live, do not. Regarding animals, my hunch is that very few if any nonhuman animals have ground projects, but maybe some do (perhaps some great apes or cetaceans). The crucial thing to note is that principle P2′ is not speciesist. It does not say that humans' interests are more important *because they are humans' interests*. Principle P2′ only says that ground projects, wherever they occur, generally have more value than noncategorical desires. P2′ leaves the question of which beings have ground projects open for empirical investigation; it does not stipulate that only humans have this especially valuable kind of interest.

So why think that ground projects are more valuable than noncategorical desires? The reason is that, as we saw above, ground projects normally stand in a hierarchical relationship to day-to-day desires for particular things; satisfying a ground project requires the satisfaction of innumerable day-to-day desires for particular things, but not vice versa. So under the above assumption (that various interests within each type generally have similar amounts of value), satisfying a ground project generally creates more value than satisfying any such day-to-day desire.

I will discuss the implications of P2′ in the next section, along with those of P1. First, however, let me discuss the justification of P1. Notice that P1 does not assert that just any desire trumps any biological need or set thereof. Some day-to-day desires for particular things are incredibly trivial and it would be implausible to say that these trivial desires trump seemingly important biological interests like one's biological interest in good cardiovascular health. But all that principle P1 states is that "Generally speaking, the death of an entity that has desires is a worse thing than the death of an entity that does not." This is plausible under the assumption stated above, given the following general fact: maintenance of the capacity to form and satisfy desires requires the ongoing satisfaction of the lion's share of one's biological needs. Certainly not every biological need of a conscious organism must be fulfilled for it to go on forming desires. In particular, the account I give in my book implies that the

continued functioning of my vasa deferentia is in my biological interest,[13] but obviously I would go on desiring sex (among other things) after a vasectomy. One of the deep challenges to my position (as Vermont philosopher Bill Throop has driven home to me in conversation) is deciding how to individuate interests. Do I have just one biological interest in the continued functioning of my whole cardiovascular system? One interest in the functioning of my heart and another in the functioning of my vascular system? Or do I have myriad interests, in the functioning of my various ventricles, veins, arteries, and so on? This is a difficult issue, but however it gets sorted out, it seems plausible to say that just as satisfying a ground project requires the satisfaction of innumerable day-to-day desires for particular things, maintaining the general capacity to form and satisfy desires requires the ongoing satisfaction of the lion's share of one's biological needs. As a conscious process, maintenance of the capacity to form and satisfy desires presumably requires maintenance of myriad biological organs and subsystems, including, at the very least, the respiratory and cardiovascular systems, and most of the central nervous system. The argument for principle P1, then, is this: The only interests plants have in common with conscious organisms are biological interests. The ability to form and satisfy desires stands in a hierarchical relationship to such biological interests. But if interests of these two types generally have similar value, then conscious animals' lives have more value than plants' lives, because animals satisfy both types of interests in the course of their lives, whereas plants satisfy only one type.

The question posed in this section has not been answered precisely. My argument has not shown precisely how much the interests of plants are worth, relative to the interests of humans or other animals. For reasons given in my book,[14] I think it is impossible to give such a precise answer to this question. However, if principle P1 is indeed justified by the principle of inclusiveness (coupled with the assumption articulated above), then it is plausible to conclude that the *lives* of plants are, generally, less valuable than the *lives* of desiring creatures, including yours and mine. And that goes a long way towards showing that biocentric individualism is a practicable view, although most environmental philosophers have doubted that it is.

IS BIOCENTRIC INDIVIDUALISM PRACTICABLE?

One reason for doubt would be that before Paul Taylor, the only well-known biocentric individualist was Albert Schweitzer, and as we have seen, he said flatly that we are guilty for merely keeping ourselves alive by eating and fighting disease. However, as the foregoing section shows, a biocentric individualist can reasonably endorse a hierarchy of interests and related principles showing why it is better that we do this than let ourselves perish. We can at least say that my view implies this rough hierarchy of value:

ground projects
noncategorical desires
biological interests

Principle P2′ states that the satisfaction of a ground project is better than (creates more value than) the satisfaction of any interest of the other two kinds. Thus killing an individual with a ground project robs the world of a special kind of value. According to principle P1, the lives of many nonhuman animals have more value than the lives of plants, because these conscious organisms have both biological interests and noncategorical desires, whereas plants have only biological interests. Thus killing an animal robs the world of more value than does killing a plant.

The second part of this value hierarchy focuses attention on questions about consciousness that were alluded to earlier: which animals are conscious, which ones have desires? These questions are related, but not equivalent. I assume that all "genuine" desires are conscious, or at least potentially conscious, just as pain is. However, the evidence for desires in nonhuman animals may not overlap the evidence for pain, because I also assume that desires require relatively sophisticated cognitive capacities, whereas the bare consciousness of pain may not. A detailed treatment of this issue is

beyond the scope of this essay, but here is a summary of the conclusions I reach from the more detailed treatment in my book.[15] All normal, mature mammals and birds very probably *do* have desires, and there is a somewhat weaker case for saying that "herps" (reptiles and amphibians) do too. The case for saying that fish have desires is decisively weaker. However, the available evidence makes it very likely that all vertebrates, including fish, can feel pain. This is a curious result—it sounds odd to say that fish could feel pain without desiring an end to it—and so I suspect that as more kinds of scientific studies are available than I considered in my book, the evidence for pain and for desire in the animal kingdom will converge. However, for the sake of discussion here, I assume that although mammals and birds have desires, fish and invertebrates do not.[16]

We can now spell out more specifically the implications of the principles defended in the preceding section. Principle P1 tells us that it is better to kill desireless organisms than desiring ones. This addresses Schweitzer's hyperbolic guilt, because it shows that it would be worse for a human being to kill herself than it would be for her to kill any plant or microbe for the sake of good nutrition or fighting off disease. However, in light of the above discussion of consciousness, this does not imply that vegetarian diets are better, since most invertebrates apparently lack consciousness, and even fish may lack desires. Also, since it is possible to obtain animal by-products like eggs and dairy foods from animals without killing them, a lacto-ovo diet might be perfectly respectful of animals' intrinsic value. (There are other ethical considerations, of course, as well as complicated issues in human nutrition. For an overview, see the essays in Comstock.)[17]

I also suspect that Principle P2′ can be used to make a case for the humane killing of animals who clearly have (noncategorical) desires. My reasoning is as follows. To the extent that hunting and slaughter-based animal agriculture play an important role in sustainable human communities, the value of protecting the background conditions for satisfying humans' ground projects would seem to support the necessary killing, at least if the animals live good lives and are killed humanely. Obviously, various animals, including mammals and birds, played a very large role in both paleolithic hunting-gathering societies and in the emergence of agriculture. Domesticated mammals continue to have a crucial role in sustainable agricultural systems in so-called "developing" nations, where they provide not only food but draft power and fertilizer. But at present it is still unclear to me just how much killing of animals might be necessary in utopian sustainable communities of the future.

In light of these implications of Principles P1 and P2′, the biocentric individualist stance hardly looks unlivable in the way Schweitzer's talk of perpetual guilt would suggest. There is a deeper reason that many environmental philosophers dismiss the biocentric individualist stance, however. They fear that it somehow devalues nature and thus, even if it is not literally an unlivable ethic, it is "inadequate" as an *environmental* ethic. This charge of "inadequacy" takes at least two distinct forms, and the biocentric individualist response to each must be different.

First, it is often claimed that individualist theories in general (that is, anthropocentrism and sentientism in addition to biocentric individualism) have implications that do not comport with the environmentalist agenda, which includes things like endangered species programs, the elimination of exotic species from natural areas, and the whole emphasis on preserving remaining natural areas. The heart of this claim is that because they focus on individuals, such theories get the wrong answers in a range of cases. For instance, environmentalists are keenly interested in preserving remaining natural areas, but, so this objection goes, biocentric individualism cannot justify this emphasis. For if we compare a woods and a cultivated field, or an old growth forest and a managed timber lot, they may look equally valuable from a biocentric individualist stance. Simply put, if only biological interests are at stake, then a cultivated area supporting thousands of thriving plants creates just as much value as a wild area that supports the same number of plants. Similarly, the biological interests of common plants seem no more valuable than the biological interests of rare plants.

This first version of the "inadequacy" charge misfires precisely because there *is* more at stake than the biological interests of the plants involved. Envi-

ronmentalists commonly claim that in order to preserve the ecological context in which humans can live healthy, productive, and innovative lives into the indefinite future, we must stop the current trend of species extinctions and preserve most remaining wild areas. Characterizing the environmentalists' claim as a general need to safeguard background biological diversity in our environment, my response to the first version of the inadequacy charge is this. Principle P2′ attaches preeminent importance to safeguarding humans' ability to satisfy their ground projects. But if safeguarding this ability requires safeguarding background biological diversity in our environment, then doing so is of preeminent importance, at least instrumentally, in my view. That is, to the extent that environmentalists are correct that their practical agenda safeguards long-term human interests, any version of biocentric individualism which, like mine, attributes preeminent importance to certain interests of humans can probably endorse their agenda.

At this point it is important to note that two senses of the term "anthropocentric" are sometimes conflated in discussions of environmental ethics. In one sense of the term, a view is anthropocentric just in case it denies that nonhuman nature has any intrinsic value whatsoever. Obviously, biocentric individualism is not anthropocentric in this sense. But in another sense, a view is called anthropocentric if it gives pride of place to certain interests which only humans have. Schweitzer's version of biocentric individualism is not anthropocentric in this second sense, but because I doubt that any nonhuman animals have ground projects, mine is. For clarity's sake, I use the labels "valuational anthropocentrism" and "axiological anthropocentrism" to refer, respectively, to views that deny all intrinsic value to nonhumans and to views that acknowledge the intrinsic value of some nonhuman beings but insist that only humans have certain preeminently important interests.[18]

The other form of the "inadequacy" charge focuses on the fact that for the biocentric individualist, even if holistic entities like species and ecosystems have enormous value, this value is still only instrumental. Environmentalists, it is claimed, tend to think that such entities have intrinsic value rather than merely instrumental value, and thus environmentalists tend to think more like holists.

I think this version of the "inadequacy" charge misconstrues one of the central questions of environmental ethics. As environmental philosophers, we should not think of ourselves as focusing on the question: What do environmentalists *in fact* think has intrinsic value? Rather, we should be asking: What *should* we think has intrinsic value? Or, what do we *have good reasons* to think has intrinsic value? Defining an "adequate" environmental ethic as one that matches the pre-theoretic intuitions of self-professed environmentalists turns the discipline of environmental ethics into a kind of moral anthropology rather than a reasoned search for truth. In this essay, I have not developed a case against environmental holism, but the arguments of this section do show that biocentric individualism cannot be summarily dismissed as impracticable, either generally or in regard to environmental policy specifically.

CONCLUSION

My larger goal in this essay has been to show that one need not be soft-headed to think that it matters, morally speaking, how we treat plants. It would, in my judgment, be unreasonable to obsess on the microbes one's immune system is killing every day or on how one's dinner vegetables were dealt their death-blows, but it is not irrational to think that it is good to save the life of plants and nonconscious animals when one can. Good arguments can be given for thinking this, and someone who thinks this can consistently live a good human life.

And, of course, if it is reasonable to think that plants' lives have intrinsic value, then it was not irrational for me to feel at least a little bit guilty about killing that maple seedling unnecessarily.

NOTES

1. Albert Schweitzer, *The Philosophy of Civilization* (New York: Macmillan, 1955), p. 310.
2. Paul Taylor, "The Ethics of Respect for Nature," *Environmental Ethics* 3 (1981), p. 210.
3. Schweitzer, *Philosophy of Civilization,* p. 325.

4. Paul Taylor, Respect for Nature: A Theory of Environmental Ethics (Princeton: Princeton University Press, 1986), p. 289.
5. Gary E. Varner, *In Nature's Interests? Interests, Animal Rights, and Environmental Ethics* (New York: Oxford University Press, 1998) chap. 3.
6. Ibid., pp. 64–71.
7. Ibid., pp. 58–60.
8. G. E. Moore, *Principia Ethica* (London: Cambridge University Press, 1903), p. 83.
9. Ibid., pp. 83–85 (emphases in original).
10. Varner, *In Nature's Interests?* chap. 4
11. Bernard Williams, *Moral Luck* (Cambridge: Cambridge University Press, 1981), pp. 12–13, and Bernard Williams, *Problems of the Self* (Cambridge: Cambridge University Press, 1973), pp. 85–86.
12. Strictly speaking, my view is that the *satisfaction* of interests creates intrinsic value, but in this essay I speak interchangeably of "the value of various interests," "the value of various intrests, satisfaction," and "the value created by the satisfaction of various interests."
13. Varner, *In Nature's Interests?* p. 97.
14. Ibid., pp. 80–88.
15. Ibid., pp. 26–30.
16. The issue is further complicated by the phenomenon of convergent evolution—some invertebrates could have evolved coping strategies that most other invertebrates have not. In particular, cephalopods (octopus, squid, and cuttlefish) may have evolved consciousness of pain and cognitive capacities that other invertebrates lack but most or all vertebrates have.
17. Gary Comstock, "Might Morality Require Veganism?" *Journal of Agricultural and Environmental Ethics* 7, no. 1 (Special issue, 1994).
18. Varner, *In Nature's Interests?* p. 121.

DISCUSSION QUESTIONS

1. Is it mere sentimentalism to express concern for plants?
2. If nonconscious beings can have a good, are there no limits to what can have a good? Why stop, as Varner does, with living things? Does moral concern for plants commit one to having to extend moral standing to machines? How about houses or rocks?
3. Is Varner committed to thinking that some human lives are worth more than others? Is this a problem for his view?
4. Is Varner successful in answering the charge that his view is not an adequate environmental ethic because such things as species, forests, ecosystems, and mountains are not alive (and therefore do not have direct moral standing)? (Hint: Varner discusses this issue in the last section of the article.)
5. Is mentality necessary for having interests? Consider fetuses, future generations, and dead people.

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Well-Being

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