16.6 DECISIONS BASED ON ETHICAL ANALYSES

Before embarking on a discussion of ethical analysis, it is necessary to define quite clearly what is meant by ethics.[5] The popular opinion is that an ethical person, for example, is a "good" person, a person with high standards. Likewise, a moral person is thought to have certain conventional views on sex. These are both common misconceptions.

Morals are the values people choose to guide the way they ought to treat each other. One such moral value may be telling the truth, and some people will choose to be truthful. Such people are thought of as moral people with regard to truth because they would be acting according to their moral convictions. If a person does not value truthfulness, however, then telling the truth is irrelevant, and such a person does not have a moral value with regard to truthfulness. In fact, it is possible to hold a moral view that one always ought to lie, and in this case the person would be thought of as a moral person if he or she lied because he or she would be acting according to a moral conviction.

Most rational people will agree that it is much better to live in a society where people do not lie, cheat, or steal. Societies where people lie, cheat, and steal certainly exist, but given the choice, most people would not want to behave in such a manner

16.5.3 Evaluation

The comparison of the results of the assessment procedure and the development of the final conclusions are all covered under evaluation. It is important to recognize that the previous two steps, inventory and assessment, are simple and straightforward procedures compared to the final step, which requires judgment and common sense. During this step in the writing of the EIS, the conclusions are drawn up and presented. Often, the reader of the EIS sees only the conclusions and never bothers to review all the assumptions that went into the assessment calculations, so it is important to include in the evaluation the flavor of these calculations and to emphasize the level of uncertainty in the assessment step.

But even when the EIS is as complete as possible and the data have been gathered and evaluated as carefully as possible, conclusions concerning the use of the analysis are open to severe differences. For example, the EIS written for the Alaska oil pipeline, when all the volumes are placed into a single pile, represents 14 *feet* of work. And at the end of all that effort, good people on both sides drew diametrically opposite conclusions on the effect of the pipeline. The trouble was that they were arguing over the *wrong thing*.[4] They may have been arguing about how many caribou would be affected by the pipeline, but their disagreement was actually how deeply they *cared* that the caribou were affected by the pipeline. For a person who does not care one twit about the caribou, the impact is zero while those who are concerned about the herds and the long-range effects on the sensitive tundra ecology care very much. What then is the solution? How can engineering decisions be made in the face of conflicting *values*? Such decisions require another type of engineering decision making — an *ethical analysis*.

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and would choose to live in societies where everyone shares moral values that provide mutual benefit.

While it is fairly straightforward to agree that it is not acceptable to lie, cheat, or steal, and most people will not do so, it is a much more difficult matter to decide what to do when conflicts arise between values. For example, suppose it is necessary to lie to keep a promise. How are we to decide what to do when values conflict? In economic questions a similar situation occurs. For example, how are we to decide which project to undertake with limited resources? As discussed above, we use a benefit/cost analysis. How then can we make a decision when moral values conflict? We use an ethical analysis.

Ethics provide a systematized framework for making decisions where values conflict. The selection of the nature and function of that decision-making machinery depends on one's own moral values. Both the cost-effectiveness analysis and the benefit/cost analysis are methods for making decisions based (mostly) on money. Risk analysis calculates the potential damage to health, and environmental impact analysis provides a means for decision making based on long-term effects on resources. Ethics is similarly a framework for decision making, but the parameters of interest are not dollars or environmental data but values. It then follows that, because ethics is a system for decision making, an ethical person is one who makes decisions based on some ethical system. *Any system*! For example, if one chooses to observe a system of ethics that maximizes personal pleasure (hedonism), it would be correct (ethical) to make all decisions so that personal pleasure is maximized. One would, in that case, push old ladies off benches so one could sit down or cheat on tests because this decreases one's required study time and maximizes party time. Provided one adopts hedonism as the accepted mode of behavior (ethic), one would in these cases be acting ethically.

There are, of course, many other systems of ethics that result in actions most civilized people consider more acceptable norms of social behavior. The most important aspect of any ethical code or system one adopts is that one should then be prepared to defend it as a system that *everyone* should employ. If such a defense is weak or faulty, then the ethical system is considered inadequate, with the implication that a rational person would then abandon the system and seek one that can be defended as a system that ought to be adopted by everyone.

16.6.1 Utilitarianism and Deontological Theories

Most ethical thinking over the past 2500 years has been a search for the appropriate ethical theory to guide our behavior in human–human relationships. Some of the most influential theories in Western ethical thinking, theories that are most defensible, are based on consequences or on acts. In the former, moral dilemmas are resolved on the basis of what the consequences are. If it is desired to maximize good, then that alternative that creates the greatest good is correct (moral). In the latter, moral dilemmas are resolved on the basis of whether the alternative (act) is considered good or bad; consequences are not considered.

The most influential consequentialist ethical theory is *utilitarianism* by Jeremy Bentham (1784–1832) and John Stuart Mill (1806–1873). In utilitarianism the pain

and pleasure of all actions are calculated, and the worth of all actions is judged on the basis of the total happiness achieved, where happiness is defined as the highest pleasure/pain ratio. (Sound familiar?) The so-called utilitarian calculus allows for the calculation of happiness for all alternatives being considered. To act ethically, then, would be to choose the alternative that produces the highest level of pleasure and the lowest level of pain. Since the happiness of all human beings involved is summed, such calculations often dictate a decision wherein the moderate happiness of many results in the extreme unhappiness of a few. Benefit/cost analysis can be considered to be utilitarian in its origins because money is presumed to equate with happiness.

The supporters of consequentialist theories argue that these are the proper principles for human conduct because they promote human welfare and that to act simply on the basis of some set of rules without reference to the consequences of these actions is irrational. Agreeing with Aristotle, utilitarians argue that happiness is always chosen for its own sake and, thus, must be the basic good that we all seek. Consequently, because utilitarian calculus provides for that calculation, it is the proper tool for decision making wherein values are involved.

The second group of ethical theories is based on the notion that human conduct should be governed by the morality of acts and that certain rules (such as "do not lie") should always be followed. These theories, often called *deontological* theories, emphasize the goodness of the act and not its consequence. Supporters of these theories hold that acts must be judged as good or bad, right or wrong, *in themselves*, irrespective of the consequences of these acts. An early system of deontological rules is the Ten Commandments as these rules were meant to be followed *regardless of consequences.*

Possibly the best known deontological system is that of Immanuel Kant (1724–1804), who suggested the idea of the categorical imperative — the concept that one develops a set of rules for making value-laden decisions such that one would wish that all people obeyed the rules. Once these rules are established, one must always follow them, and only then can that person be acting ethically because it is the act that matters. A cornerstone of Kantian ethics is the principle of *universalizability*, a simple test for the rationality of a moral principle. In short, this principle holds that, if an act is acceptable for one person, it *must be equally acceptable for others.* For example, if one considers lying acceptable behavior for himself or herself, everyone should be allowed to lie, and everyone is in fact expected to lie. Similarly, if one person decides that cheating on an exam is acceptable, then he or she agrees, by the principle of universalizability, that it is perfectly acceptable for everyone else to cheat also. To live in a world where everyone is expected to lie or cheat would be a sorry situation, and our lives would be a great deal poorer as a result. It thus makes no sense to hold that lying or cheating is acceptable because these behaviors cannot be universalized.

Supporters of rule-based theories argue that consequentialist theories permit and often encourage the suffering of a few for the benefit of many and that this is clearly an injustice. For example, they assert that consequentialist theories would welcome the sacrifice of an innocent person if this death would prevent the death of others. They argue that, if killing is wrong, then the mere act of allowing one innocent person to die is wrong and immoral. The utilitarians counter by arguing that often a

"good act" results in net harm. A trivial example would be the question from your roommate/spouse/friend "how do you like my new hairdo/shirt/tie/etc?" Even if you honestly think it is atrocious, the "good act" would be to tell the truth because one is never supposed to lie. Would a white lie not result in the greater good, ask the utilitarians? The deontologists respond that it is wrong to lie, even though it might hurt short-term feelings, because telling the truth may create a trust that would hold fast in times of true need.

There are, of course, many more systems of ethics that could be discussed and that have relevance to the environmental engineering profession, but it should be clear that traditional ethical thinking represents a valuable source of insight in one's search for a personal and professional lifestyle.

16.6.2 Environmental Ethics and Instrumental Value

All classical ethical systems are intended to provide guidance as to how human beings ought to treat each other. In short, the *moral community*, or those individuals with whom we would need to interact ethically, includes only humans, and the only *moral agents* within the moral community are human beings. Moral agency requires *reciprocity* in that each person agrees to treat one another in a mutually acceptable manner. But we obviously are not the only inhabitants on Earth, and is it not also important how we treat nonhuman animals? Or plants? Or places? Should the moral community be extended to include other animals? plants? inanimate objects, such as rocks, mountains, and even places? If so, should we also extend the moral community to our progeny, who are destined to live in the environment we will to them?

Such questions are being debated and argued in a continuing search for what has become known as *environmental ethics*, a framework that is intended to allow us to make decisions *within* our environment, decisions that will concern not only ourselves but the rest of the world as well. One approach to the formulation of an ethic that incorporates the environment is to consider environmental values as *instrumental values*, values that can be measured in dollars and/or the support nature provides for our survival (e.g., production of oxygen by green plants). The instrumental-value-of-nature view holds that the environment is useful and valuable to people, just like other desirable commodities — such as freedom, health, and opportunity.

This *anthropocentric* view of environmental ethics, the idea that nature is here only for the benefit of people, is, of course, an old one. Aristotle states, "Plants exist to give food to animals, and animals to give food to men. . . . Since nature makes nothing purposeless or in vain, all animals must have been made by nature for the sake of men." Kant similarly incorporates nature into his ethical theories by suggesting that our duties to animals are "indirect" duties, which are really duties to our own humanity. His view is quite clear: "So far as animals are concerned, we have no direct duties. Animals are not self-conscious and are there merely as a means to an end. That end is man."[6] Thus, by this reasoning, the value of nonhuman animals can be calculated as their value to people. We would not want to kill off all the plains buffalo, for example, because they are beautiful and interesting creatures, and we enjoy looking at them. To exterminate the buffalo would mean that we are causing harm to other humans. However, William F. Baxter says that our concern for

"damage to penguins, or to sugar pines, or geological marvels is. . . simply irrelevant
. . . Penguins are important [only] because people enjoy seeing them walk about the
rocks."[7]

We can agree that it is necessary to live in a healthy environment to be able to
enjoy the pleasures of life, and, therefore, other aspects of the environment have
instrumental value. One could argue that to contaminate the water or pollute the air
or destroy natural beauty is taking something that does not belong to only a single
person. Such pollution is stealing from others, plain and simple. It would also be
unethical to destroy the natural environment because so many people enjoy hiking
in the woods or canoeing down rivers, and we should preserve these for our benefit.
In addition, we should not exterminate species since there is the possibility that they
will somehow be useful in the future. An obscure plant or microbe might be essential
in the future for medical research, and we should not deprive others of that benefit.

While the "instrumental value of nature" approach to environmental ethics has
merit, it also has a number of problems. First, this argument would not prevent us
from killing or torturing individual animals as long as this does not cause harm to
other people. Such a mandate is not compatible with our feelings about animals. We
would condemn a person who causes unnecessary harm to any animal that could feel
pain, and many of us do what we can to prevent these types of acts.

Second, this notion creates a deep chasm between humans and the rest of nature,
a chasm with which most people are very uneasy. The anthropocentric approach
suggests that people are the masters of the world and can use its resources solely for
human benefit without any consideration for the rights of other species or individual
animals. Such thinking led to the nineteenth century "rape of nature" in the United
States, the effects of which are still with us. Henry David Thoreau (1817–1862),
John Muir (1838–1914), and many others tried to put into words what many people
felt about such destruction. They recognized that it is our alienation from nature,
the notion that nature has only instrumental value, that will eventually lead to the
destruction of nature. Clearly, the valuation of nature on only an instrumental basis
is an inadequate approach to explain our attitudes toward nature.

16.6.3 Environmental Ethics and Intrinsic Value

Given these problems with the concept of the instrumental value of nature as a basis
for our attitudes toward the environment, there has ensued a search for some other
basis for including nonhuman animals, plants, and even things within our sphere
of ethical concern. The basic thrust in this development is the attempt to attribute
intrinsic value to nature and to incorporate nonhuman nature within our moral
community. This theory is known as *extensionist* ethical thinking since it attempts
to extend the moral community to include other creatures. Such a concept is perhaps
as revolutionary as the recognition only a century ago that slaves are also humans
and must be included in the moral community. Aristotle, for example, did not apply
ethics to slaves because they were not, in his opinion, intellectual equals. We now
recognize that this was a hollow argument, and today slavery is considered morally
repugnant. It is possible that in the not too distant future the moral community will
include the remainder of nature as well, and we will include nature in our ethical
decision–making machinery.

The extensionist environmental ethic was initially publicized not by a philosopher but by a forester. Aldo Leopold (1887–1948) defined the environmental ethic (or as he called it, a land ethic) as an ethic that "simply enlarges the boundaries of the community to include soils, waters, plants and animals, or collectively the land."[8] He recognized that both our religious as well as secular training had created a conflict between humans and the rest of nature. Nature had to be subdued and conquered; it was something powerful and dangerous against which we had to continually fight. He believed that a rational view of nature would lead us to an environmental ethic that "changes the role of *Homo sapiens* from conqueror of the land community to plain member and citizen of it."

Leopold was, in fact, questioning the age-old belief that humans are special, that somehow we are not a part of nature but pitted against nature in a constant combat for survival, and that we have a God-given role of dominating nature, as specified in Genesis. Much as later philosophers (and people in general) began to see slavery as an untenable institution and recognized that slaves belonged within our moral community, succeeding generations may recognize that the rest of nature is equally important in the sense of having rights.

The question of admitting nonhumans to the moral community is a contentious one, and centers on whether or not nonhuman creatures have rights. If it can be argued that they have rights, then there is reason to include them in the moral community. The question of rights for nonhumans has drawn resounding "NOs" from many philosophers, and these arguments are often based on reciprocity. For example, Richard Watson points out that "to say an entity has rights makes sense only if that entity can fulfill reciprocal duties, i.e. can act as a moral agent."[9] He goes on to argue that moral agency requires certain characteristics (such as self-consciousness, capability of acting, free-will, and an understanding of moral principles) and that most animals do not fulfill any of these requirements so they cannot be moral agents and, therefore, cannot be members of the moral community. H. J. McClosky insists that "where there is no possibility of [morally autonomous] action, potentially or actually . . . and where the being is not a member of a kind which is normally capable of [such] action, we withhold talk of rights."[10] It, therefore, is not reasonable to extend our moral community to include anyone other than humans because of the requirement of reciprocity.

But is reciprocity a proper criterion for admission to the moral community? Do we not already include within our moral community human beings that cannot reciprocate — infants, the senile, the comatose, our ancestors, and even future people? Maybe we are making Aristotle's mistake again by our exclusionary practices. Perhaps being human is not a necessary condition for inclusion in the moral community, and other beings have rights similar to the rights that humans have. These rights may not be something that we necessarily give them but the rights they possess by virtue of being.

The concept of natural rights, those rights inherent in all humans, was proposed in the seventeenth century by John Locke[11] (1632–1704) and Thomas Hobbes[12] (1588–1679), who held that the right of life, liberty, and property should be the right of all, regardless of social status.* These rights are natural rights in that we humans

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*In the new United States of America, the revolution proclaimed life, liberty, and *the pursuit of happiness*, a modification to get around the sticky problem of slaves as both men and property.

cannot give them to other humans or we would be giving rights to ourselves, which makes no sense. Thus, all humans are "endowed with inalienable rights" that do not emanate from any human giver.

If this is true, then there is nothing to prevent nonhuman animals from having "inalienable rights" simply by virtue of their being, just as humans do. They have rights to exist and to live and to prosper in their own environment and not to have humans deny them these rights unnecessarily or wantonly. If we agree that humans have rights to life, liberty, and absence of pain, then it seems only reasonable that animals, who can feel similar sensations, should have similar rights. With these rights come moral agency, independent of the requirement of reciprocity. The entire construct of reciprocity is, of course, an anthropocentric concept that serves well in keeping others out of our private club. If we abandon this requirement, it is possible to admit more than humans into the moral community.

But if we crack open the door, what are we going to let in? What can legitimately be included in our moral community, or, to put it more crassly, where should we draw the line? If the moral community is to be enlarged, many people agree that it should be on the basis of sentience, or the ability to feel pain. This argument suggests that all sentient animals have rights that demand our concern.

Some of the classical ethical theories have recognized that animal suffering is an evil. Jeremy Bentham, for example, argues that animal welfare should somehow be taken into the utilitarian benefit/cost calculation because "the question is not, Can they *reason*? nor Can they *talk*?, but Can they *suffer*?"[13] Peter Singer believes that an animal is of value simply because it values its own life, and sentience is what is important, not the ability to reason. Equality is at the core of Singer's philosophy, and he believes that all sentient creatures have an equal right to life. Sentience, the capacity to have conscious experiences, such as pain and pleasure, is "the only defensible boundary of concern for the interests of others."[14]

To include animal suffering within our circle of concern, however, opens up a Pandora's box of problems. While we might be able to argue with some vigor that suffering is an evil and that we do not wish to inflict evil on any living being that suffers, we do not know for sure which animals (or plants) feel pain; therefore, we are unsure about who should be included. We can presume with fair certainty that higher animals can feel pain because their reactions to pain resemble ours. A dog howls and a cat screams and tries to stop the source of the pain. Anyone who has put a worm on a hook can attest to the fact that the worm probably feels pain. But how about creatures that cannot show us in unambiguous ways that they are feeling pain? Does a butterfly feel pain when a pin is put through its body? An even more difficult problem is the plant kingdom. Some people insist that plants feel pain when they are hurt and that we are just too insensitive to recognize it.

If we use the utilitarian approach, we have to calculate the *amount* of pain suffered by animals and humans. If, for example, a human needs an animal's fur to keep warm, is it acceptable to cause suffering in the animal to prevent suffering in the human? It is clearly impossible to include such variables in the utilitarian calculus.

If we do *not* focus only on the pain and pleasure suffered by animals, then it is necessary either to recognize that the rights of the animals to avoid pain are equal to those of humans or to somehow list and rank the animals in order to specify which rights animals have under which circumstances. In the first instance trapping animals and torturing prisoners would have equal moral significance. In the second it would

be necessary to decide that the life of a chickenhawk is less important than the life of a chicken and so on, making an infinite number of other comparisons.

Finally, if this is the extent of our environmental ethics, we are not able to argue for the preservation of places and natural environments, except as to how they might affect the welfare of sentient creatures. Damming up the Grand Canyon would be quite acceptable if we adopted the sentient animal criterion as our sole environmental ethic.

It seems, therefore, that it is not possible to draw the line at sentience, and the next logical step is simply to incorporate all life within the folds of the moral community. This step is not as outrageous as it seems, the idea having been developed by Albert Schweitzer, who called his ethic a "reverence for life." He concluded that limiting ethics to only human interactions is a mistake and that a person is ethical "only when life, as such, is sacred to him, that of plants and animals as that of his fellow men."[15] Schweitzer believed that an ethical person would not maliciously harm anything that grows but would exist in harmony with nature. He recognized, of course, that, in order to eat, humans must kill other organisms, but he held that this should be done with compassion and a sense of sacredness toward all life. To Schweitzer, human beings are simply a part of the natural system.

Charles Darwin is probably most responsible for the acceptance of the notion of humans not being different in kind from the rest of nature. If indeed humans evolved from less complex creatures, we are different only in degree and not kind from the rest of life and are simply another part of a long chain of evolution. As Janna Thompson points out, "Evolutionary theory, properly understood, does not place us at the pinnacle of the development of life on earth. Our species is one product of evolution among many others."[16]

Similarly, Paul Taylor[17] holds that all living things have an intrinsic good in themselves and, therefore, are candidates to be included in the moral community. He suggests that all living organisms have inherent worth, and as soon as we can admit that we humans are not superior, we will recognize that all life has a right to moral protection. What he labels the *biocentric* outlook depends on the recognition of common membership of all living things in Earth's community, that each organism is a center of life, and that all organisms are interconnected. For Taylor, humans are no more or less important than other organisms.

This approach to environmental ethics has a lot of appeal and quite a few proponents. Unfortunately, it fails to convince on several accounts. First, there is no way to determine where the line between living and nonliving really should be drawn. Viruses present the greatest problem here, and if Taylor's ideas are to be accepted, the polio virus might also be included in the moral community. Janna Thompson[18] points out that, based on most arguments for this position, there is also nothing to keep us from excluding organs (such as the liver or the kidney) from membership in the moral community.

Second, the problem of how to weigh the value of nonhuman animal life relative to the life of humans is unresolved. Should the life of all creatures be equal, and thus, a human life is equal to that of any other creature? If so, the squashing of a cockroach would be of equal moral significance to the murder of a human being. If this is implausible, then there must again be some scale of values, and each living creature must have a slot in the hierarchy of values as placed on them by humans.

If such a hierarchy is to be constructed, how would the value of the life of various organisms be determined? Are microorganisms of equal value to the value of polar bears? Is lettuce of the same order of importance as a gazelle?

Such ranking will also introduce impossible difficulties in determining what is and is not deserving of moral protection. "You, the amoeba, you're in. You, the paramecium, you're out. Sorry." just doesn't compute. Drawing the line for inclusion in the moral community at "all life," therefore, seems to be indefensible.

One means of removing the objection of knowing where to draw the line is simply to extend the line to include everything within the circle of moral concern that is important to the system within which individuals exist. Aldo Leopold is often credited with the initial idea for such an *ecocentric* environmental ethic. He suggested that ecosystems should be preserved because, without the ecosystem, nothing can survive. He stated that "a thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise."[8]

Val and Richard Routley[19] and Holmes Rolston III[20] recognize that, within the ecocentric environmental ethic, some creatures, (such as family) take precedence over others (such as strangers) and that human beings take precedence over nonhuman animals. They view the ethic as a system of concentric rings, with the most important moral entities in the middle and the rings extending outward, incorporating others within the moral community but at decreasing levels of moral protection. The question of how the various creatures and places on Earth are to be graded in terms of their moral worth is not resolved and indeed is up to the people doing the valuing. This process is, of course, once again human centered, and the ecocentric environmental ethic is a form of the anthropocentric environmental ethic with fuzzy boundaries.

Tom Regan presents a similar concept as a "preservation principle," a principle of "non-destruction, non-interference, and generally, non-meddling."[21] A school of thought embracing this idea is the *deep ecology* movement. Its most notable proponent is Arne Naess, who suggests that in nature humans are no more important than other creatures or the rest of the world.[22] Deep ecology centers on the idea that humans are part of the total cosmos and are made of the same raw materials as everything else; therefore, humans should live so that they respect all of nature and should recognize the damage that *Homo sapiens* have done to the planet. Deep ecologists call for a gradual reduction of the human population as well as changes in lifestyle to use fewer resources. "Deep ecology," named to distinguish the philosophy from "shallow ecologists" who value nature instrumentally, eliminates the problem of where to draw the line between those that are in and out of our moral community because everyone and everything is included, but it again presents us with the necessity of valuing all of nature equally, so we are back to the original problem of judging everything by human standards.*

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*It seems most unfortunate that we refer to organisms as "higher" or "lower," with the implication of "superior" or "inferior." Quite clearly, an earthworm does very well what it is supposed to do, as does a cheetah. It would be very difficult for humans either to wiggle their way through the earth or to catch an antelope on foot. Yes, we can construct machines to do these things, but this is due to our skill in thinking. We lack many other skills, and therefore, we cannot claim to be "higher" than other creatures. Similarly, it is nonsense to talk of a cheetah as "higher" and an earthworm as "lower."

16.6.4 Environmental Ethics and Spirituality

There is a third approach to environmental ethics — recognizing that we are, at least at the present time, unable to explain rationally our attitudes toward the environment and that these attitudes are deeply felt, not unlike a feeling of spirituality. Why don't we then simply admit that these attitudes are grounded in spirituality? This suggestion may not be as outrageous as it might sound at first cut (but certainly is outrageous in an engineering textbook!). Although we are deeply imbedded in the Western culture, other cultures exist whose approaches to nature may be instructive.

Many older religions, including the Native American religions, are animistic, recognizing the existence of spirits within nature. These spirits do not take human form, as in the Greek, Roman, and Judaic religions. They simply are within the tree or the brook or the sky. It is possible to commune with these spirits — to talk to them, to feel close to them.

Is it too farfetched to hope that future people will live in harmony with the world because we will experience, in Wendell Berry's words, a "secular pilgrimage"?[23] John Stewart Collis has an optimistic view of our future. He writes:[24]

> Both polytheism and monotheism have done their work. The images are broken; the idols are all overthrown. This is now regarded as a very irreligious age. But perhaps it only means that the mind is moving from one state to another. The next stage is not a belief in many gods. It is not a belief in one god. It is not a belief at all — not a conception in the intellect. It is an extension of consciousness so that we may *feel* God.

In all likelihood the spiritual alternative is the least likely to withstand rational scrutiny. Yet, does this not best explain how we feel toward nature? How do we explain why some people "may avoid making unnecessary noise in the forest, out of respect for the forest and its nonhuman inhabitants"[25] if it cannot be explained on the basis of spiritual feelings?

It is not at all obvious why we should have protective, caring attitudes for an organism or thing only if these attitudes can be reciprocated. Perhaps we are hung up on the idea of acceptance into the "moral community," and the logjam can be broken by thinking of it as the inclusion of all things in a "community of concern." In this community, reciprocity is not necessary; what matters is loving and caring for others simply because of their presence in the community of concern. The amount of love and care is proportional to the ability to give it and demands nothing in return.

16.6.5 Concluding Remarks

One aspect of the profession of environmental engineering (oft unstated, as if we are embarrassed about it) is that the environmental engineer is engaged in a truly worthwhile mission. The environmental engineer is the epitome of the *solution* as opposed to the *problem*, and we should feel good about that. Our client, in the broadest sense, is the environment itself, and our objective is to preserve and protect our global home, for the sake of our progeny as well as Mother Earth herself.