beings are a plain citizen of the biotic community. What do you think of this view?

Murray Bookchin
It's absurd. It's patently absurd that we are just plain citizens of the biotic community. We, for better or worse, and as things stand, for worse, have produced a second nature, a social nature out of that old time-honoured biological nature in which we, along with other primates, in which other mammals and other vertebrates have evolved over hundreds of millions of years. We are capable of discoursing, evaluating, moralizing, spiritualizing. We are the ones who have created, for better or for worse, morality, ethics, and we--are unless dolphins are keeping some great secrets from us--we are the ones who are doing the thinking, and we are not only doing the thinking, we are doing an enormous amount of acting for the worse on this planet. We're not plain citizens. We have profoundly altered the whole world. Wilderness is, as pure wilderness, pristine, untouched, purely biological, gone. We have to defend wilderness. We have to defend other life forms today from predatory forces in our society. So this biocentric notion, in my opinion, represents a very naive image of nature, basically a picture postcard view. Secondly, this biocentric notion totally deprecates the role that humanity can and possibly should play in a rational society. We are nature, like it or not, rendered self-conscious. The point is, we have not developed a society that is self-conscious, but potentially we are nature rendered self-conscious to a degree that no other life form can possibly be. So therefore I regard that biocentricity as being utter nonsense, just as I oppose anthropocentricity, just as I oppose centricity, which is in my view basically hierarchical. You see, behind this lies a whole body of ideas, I need hardly tell you, of how second nature, namely society, human society, has increasingly enveloped a biological evolution which I would call first nature. It's enveloped it, and the best proof of it is that we have to go around trying to conserve the Antarctica to remind us that wilderness today, in the truly spontaneous wild, untramelled form, has disappeared. We are now, whether we like it or not, the custodians of all those things we call wild, otherwise the present society will essentially eliminate them. So we have to recognize that a second nature has emerged and we have to recognize the second nature as very imperfect. It's based on greed, it's based on profit, it's based on growth, it's based on accumulation. It threatens to destroy first nature, okay, and we must go beyond both second nature and first nature to a new nature, a free nature, in which we will work together with the natural world, bringing our consciousness to the service of natural evolution, and that would require developing an ecological society. So I would call that third development an integration of second and first nature into a third nature, a free nature, in which we bring the element, to the extent that it is possible, of thought, rationality and freedom to natural evolution and to the evolution of our own society, in a marvellously integrated world which I'd call an ecological society. You see, what's getting me very much is that people are being beguiled away from social issues, they're being coaxed away from them. The connections are not being made. The relationship of the domination of nature, the notion of dominating nature, to the reality of dominating people has not clearly been made by many people in the ecology movement.

David Cayley
This has been all through your writings, this insistence that human beings dominated each other long before they dominated the natural world. I'd like to ask you first of all on what basis you argue that, and then I would like to ask you, to make it a really big question, what the importance of the distinction is, the implications of that distinction are for current discussions.

Murray Bookchin
The evidence for that is staggering. Inca society was a system of elaborate domination. Ancient Egyptian society was a system of elaborate domination of people. The pyramids that were built in ancient Egypt were done almost with slave labour, based on an elaborate system of domination, ultimately organized into a caste system under the Ptolemaic dynasty. Yet the impact that that system had on the natural world was minimal. It was not until that notion of domination of people began to be projected out to the natural world by a society that was out, literally out to make profit or to gain enormously by the exploitation of what we call natural resources that the idea of dominating nature emerged. It takes a long time for that idea that we are the lords of the universe, that we are meant to conquer the natural world, to emerge. That does not emerge out of primitive society. It does not even emerge out of fairly high civilizations, such as the ancient Egyptian civilization and such as the Incas. It requires a lot of steps in the evolution of domination, on the one side, and in the evolution of thinking, the discarding of pagan views, the discarding of a feeling of dependency on the natural world, and so on, to arrive at the notion that it is humanity's destiny to dominate the natural world. Even the Bible does not say it the way we say it says it. It's easily forgotten that, far from being totally anthropocentric, there are passages in the Bible that are amazingly, quote, "biocentric." I'm reminded, for example, of Psalms, where there's a passage saying the good shepherd takes care of the souls of his animals. Now, it's not translated like that in the King James version because animals are not supposed to have souls, but if you go to the Hebrew version, you see, you'll actually see the generic word for soul, in Hebrew, used there. So there are many animistic, there are many distinctly non-anthropocentric elements in the Bible, and it's not always clear in the Bible, particularly in the Hebrew scriptures, that human beings are destined to dominate, exploit, rapaciously utilize the natural world. But let's take the question of why is it important to draw a distinction between the fact that the idea of dominating nature emerges from the domination of human by human, as distinguished from the more classical liberal view and Marxist view that the domination of humans emerged from the need to dominate nature. Now, that is a very sinister point of view, the idea that people are obliged to dominate each other in order to dominate nature. We

have to use human labour, we have to mobilize people in gangs to pull up pyramid blocks for pyramids, build temples, etc. etc. etc., exploit them in order to advance the productive forces through the domination of human by human. Marx utilized that notion and the liberals have utilized that notion to justify capitalism as a historically progressive phase of history. Not that Marx believed that it was destined to remain that way. He wanted to replace it by socialism. But the reality of the situation is that such a view justifies domination. If we have to dominate people in order to dominate nature and in order to improve the human condition, then domination is built into progress. So my emphasis on domination is not only ecological, it's also social. I do not believe we will have a completely free society unless we end hierarchy.

David Cayley
In the course of this conversation, you have suggested that we must take the idea of domination very seriously, more seriously than Marxism has taken it, for example, look in every aspect of our lives, at how we dominate children, about how we dominate each other. So this suggests that the change you would like to see must happen at every level of our lives and very much within our personal lives. At the same time, you've spoken against the guilt trips that you think are being put on people right now, the blaming of people, particularly relatively powerless people. So in a movement for change, what do you see happening? You want the society to change in its fundamental structure.

Murray Bookchin
And sensibility.

David Cayley
And sensibility, but also you see the need for individuals themselves to change. So how finally do you see this process ideally taking place?

Murray Bookchin
Well, within the individual, it's very, very hard to say. For one thing, I mistrust a movement that is built exclusively on individual changes. The Catholic church was for 2,000 years, with very grim results. You know, you won person to person, whether by sword or by persuasion, to the holiness of Jesus and turned them into Christians, after which they started a bloody reformation in the 15th century going clear up into the 18th century, with immense results. These are things that people have to take counsel with themselves about and they have to examine what they want to do. It's good practice to live well but low on the food chain, feel the sense of responsibility. It's good personal practice as well as socially useful to do that. But I don't think that you can outweigh the enormous impact of the multinational corporations by individuals. What about social change? There I think we need a radical ecological movement, and for that we have to decentre power, so to speak. Now that requires politics. Well, what kind of politics? If I go into the politics of the NDP, for example, in Canada, or if I go into the politics of Jesse Jackson in the United States and the Rainbow coalition, all I see is the same old system with more cosmetics on it, the same bureaucracies, the same top-down control, in spite of much of the rhetoric that goes on that people are running the organizations. That is what I call statecraft, and I distinguish that from politics in its original Greek meaning. In its original Greek meaning, politics meant the control of the polis. The polis is what we misname the city state but which was really the small democratic community, unfortunately marred by slavery and patriarchalism and war. But still, that existed all through the Mediterranean. The Athenians made a special contribution: they created a big assembly and they created citizens, and citizens were supposed to be trained and educated into citizenship, and working for the community was the highest calling in life, not making money. You see, that was the highest calling in life. And the army was a militia, you see,in which officers were elected, and you brought your own equipment. Okay, now, I don't want to go back to that world. I don't think we can. I don't think we should. I don't want the slavery, I don't want the patriarchalism, I don't want the male domination and I don't want the militarism. But I do want certain things that have been abiding features, and that is the attempt on the part of people to recover power, whether it be in the small villages during the great peasant wars around the time of Luther in Germany--they wanted to control power, they wanted to take it away from the princes--whether it be in various revolutionary movements and upsurges that occurred during the French revolution, when the so-called enrages and the sans culottes in Paris and in other cities tried to reclaim power in sections or small town meetings, in Paris, with a million people there. You see, a city could be run that way, would you believe it? People always have a big mistake, always work with the big error that because a city is beyond human scale, you can't destructure it, or let's say "decentre" it politically. You can do it and it can still be large. People have continually, in all their revolutionary ferment at various times, and political ferment, have tried to decentre power. And I am in favour of a political movement, grass roots, which necessarily means municipal, not one that goes up into the higher echelons of the state. I would like to call it "green," when Greens don't start running for provincial office or state office, be it in Canada or in the United States, or try to put up a presidential candidate, or try to put up a candidate to the House of Commons in Canada or the House of Representatives in the United States. At that point, when a representative gets separated from the people, there's a tremendous amount of self-corruption that very silently goes on. I watched the German Greens degenerate from a movement, in which the politics that I've advocated was very widespread, into a pure political party, indistinguishable from the Social Democrats, the Christian Democrats, at least in terms of its structure, and in terms of its policy, deradicalizing itself, more and more entering into coalitions, making political deals. Therefore I believe that the kind of politics we need has to be a grass roots politics based on municipalities. It has to be confederal. I don't believe you can build an ecological society in one household, in one village, in one town and in one city. They all have to

be interlinked on a confederal basis, so that the higher up the authority, the less power it has, the higher up it is, the more it's purely co-ordinative and administrative and everything always has to go back to the people. That's the kind of society I would like to see and where I'd like to see evolution go, and I'd like to see of course it would be thoroughly ecological. That's what I mean by politics, you see, the old Greek sense, namely the people, citizens controlling the polis, except that my notion of citizenship would be immensely expansive based on true ecological and libertarian principles, so we must continually strive and fight and fight and strive.

David Cayley
Murray, thank you.

Murray Bookchin
Thank you.

David Cayley
Murray Bookchin, originator of social ecology. His most recent book is Remaking Society.

Stuart Hill is a soil ecologist and the founder of the Ecological Agriculture Project at McGill University's Macdonald College, where he's a professor. He believes that agriculture, in its reliance on chemicals, has neglected intelligent design, that a more subtle, more sensitive science could accomplish the same ends now achieved with the brute power of pesticides, herbicides and fertilizers, but without the pernicious side effects. A soil ecologist is concerned with the community of life in the soil, a community on which all of us depend but few of us know. Stuart Hill and I began a recent conversation at my home by talking about this soil community.

Stuart Hill
If you look out on the landscape, there's more life, however you want to measure it, underneath the surface of the soil than there is above. So you see this field and forest with all the massive amount of wildlife, and however much there is, there's more underneath the surface. And that's what it is, it's a massive community of small organisms, all running around in primarily two quite different worlds. If you think of soil, it's made up of particles, and those particles are usually covered with a very thin film of water. And so between the particles with the thin film of water there's air, and most of the food chain in the water film is based on bacteria, and there are protozoa, one-celled animals, and nematodes and things swimming around, feeding on the bacteria and feeding on one another, and rotifers and these sort of things. And then in the air spaces, you've got fungi, mold growing out into the spaces, and browsing on them, a bit like cows browsing on grass, you've got mites and springtails and small insects, and then, in turn, more of these feeding on one another, and spiders and centipedes and scorpions and pseudoscorpions, and so forth. And what's going on in soil, what all these bugs are doing in soil, is basically breaking down dead organic matter. It's the part of the cycle in the ecological system, which is production, consumption, recycle, and it's the recycle part which in the terrestrial environment primarily goes on in soil. And so if you want to think how to relate to soil in a responsible way, the key is to make sure that the dead organic matter gets returned to the soil so these bugs can get their lunch and break it down and stick the soil particles together and release the nutrients for the plants.

David Cayley
Well, let's take a corn field that was started on pristine soil, this community that you spoke about which is more various, richer than any known life above the soil. What has happened to it after a number of years of farming in the current way?

Stuart Hill
Well, for a start, the way we grow corn is as a row crop, which means that most of the year, most of the soil is bare, and even when the corn is growing, we kill everything between the corn, usually. So most of that soil is bare, and that makes the soil subject to erosion by wind and water and rain, and so forth. In an average corn field, we're probably losing 20 or more tons of topsoil per acre, per year, and there's probably about a maximum of 4 or 5 tons produced, so you've got a net loss of 15 or so tons of topsoil per acre, per year, just being exported out of the system by erosion. So the system is obviously not sustainable, and the waste that's going back into that system, the cornstalks, is just one type of organic matter. It's like if you normally had a diversified diet and somebody started just feeding you lettuce leaves for the rest of your life, that's in a sense what's happened to that soil community. Suddenly they've got this monotonous diet of cornstalks, which is incredibly restricting for a lot of the bugs that live there, and so they gradually die out, and you start off with maybe 1,000 different species and run down to a measly few hundred and then even less than a hundred, probably, after years and years of corn. The key, of course, is to do the opposite, is to have a rotation of different crops from one year to the next, grow different things in between the corn as companion crops and intercrops and so forth, and then keep all those diverse amounts of organic wastes returned into the soil so those organisms can have a feast instead of a monotonous diet. We've got to work with the system and try and be an ally to it, try and be supportive to those natural processes, and have some respect that those organisms are the experts, and not constantly be trying to be one up on nature and straighten it out. You know, if they're there, they're doing some job, and every time we lose one organism we inherit the job. And if we don't know they're doing the job, the job doesn't get done, and we couldn't do it anyway. They're experts, we're amateurs. Even all these scientists coming up with biotechnology solutions, thinking they're going to do all these jobs that nature has been doing for millions of years, just haven't got a really good understanding of it because they're thinking of one organism, that they're going to splice in some DNA and do this specific little biochemical pathway and carry it out. But that's not what's going on in nature. There

are thousands and thousands of little biochemical processes going on and if you really wanted to control those, it would take all the scientists in the world, and even then we'd still not know what's going on. It reminds me of the fellows who were selecting the short-stemmed grain varieties in the tropics with the green revolution, and it looks like a great plan. You know, you've got this great, long stalk and this little bunch of seeds on the top. How much more efficient if we have a short stalk and some seeds, and then we haven't got all the energy wasted going into the stalk. But we didn't ask what's the stalk there for. You know, you can harvest the seed, but the stalk is what goes back into the soil as dead organic matter to feed the organisms so they can maintain the fertility of the soil. So we've selected this plant now that requires that we put on fertilizer to maintain the fertility of the soil because we've bypassed the organic life in the soil, the system that's set up there for doing it, because it looked like, in our simple economic process, it didn't enter into the cost-benefit analysis. We've really got to ask ourselves if something is there, what's it doing, it must be doing something, rather than trying to get rid of it if we don't understand it. Well, like weeds. You know, we spend massive amounts of efforts trying to get rid of weeds. Well, weeds tend to be trace mineral accumulators and they tend to accumulate the mineral that is most difficult to obtain, and the weed that grows tends to be the specialist that accumulates this elusive mineral, brings it up to the surface, eventually dies on the surface, makes that mineral available to all the other plants as the weed breaks down, from all the decomposers breaking it down, and then does itself out of a job. And then the next weed takes over, through a succession. So actually, if you allow it to happen, a soil will go through a succession of weeds that, in quotes, "heal" the soil as they bring up all the nutrients to the surface and create this highly fertile topsoil, which is what naturally has gone on through time and why we have such fertile soils in some parts of the world. But we see this weed as "not the crop," so we come in and put on a herbicide or come in with a cultivator and get rid of it. But somehow we've got to, instead of so much getting rid of the weeds, favour the crop that we want to grow, so we give that crop the best advantage and select for plants that out-compete weeds rather than plants that can respond to pesticides and fertilizers and herbicides and everything.

David Cayley
To go back to the corn field, take southwestern Ontario, where I believe the soils are very deep, very rich. What is happening in that field now if it's been farmed conventionally for the last 30 or 40 years?

Stuart Hill
Well, the community in the soil would have been gradually simplified. Now, if it's got a lot of fertility and it's a deep soil, it's like living on the capital in the bank, and so we can go on doing that for quite a long time. It can get out of balance, though, in the process, because when we put on a certain fertilizer, let's say we're putting on nitrogen, potassium and phosphorus, which is what we tend to keep putting on, that creates deficiencies of other things, because the soil is a bit like a railway carriage, you know, there's a certain number of seats in the carriage. Well, in the soil, there are a certain number of locations where minerals can "sit" and be held. Now, if you keep putting on more and more of one, it eventually bumps some of the other ones off. So you keep putting on phorphorus or you keep putting on calcium, it sort of bumps these others off, and you end up with a lot of the thing you're putting on being held and the other things being more available to be lost by water draining through the soil and carrying the minerals down into the groundwater or being eroded away. And so I would think those soils are gradually becoming unbalanced and having the diversity of wildlife in them, at least micro-wildlife, depleted.

David Cayley
How serious is this?

Stuart Hill
Well, I think it's very serious because it's one of those things where we're approaching this threshold where the soil eventually becomes unproductive, and we don't know how far we are from the threshold, and the nearer we get to it, the more expensive it is to correct the situation. And when we cross the threshold and the system breaks down, then it becomes almost inhibitively expensive to do anything about it. And so the onus is on us to learn how to manage that soil before we get to that point, so that it can be healing itself, rejuvenating itself and maintaining itself just as a byproduct of the way we design and manage our agricultural systems or our forestry systems.

David Cayley
Well, what are the signs now, in terms of declining productivity, soil loss and so on, that can already be seen in Canada?

Stuart Hill
Well, in a way, the amount of fertilizer and pesticide and any other inputs, antibiotics and so forth, that we're having to put on in agriculture to achieve production is a measure of our failure to work the system, to manage the system and design our operations so that the system can function. So when somebody tells me that they achieve this enormous production, my question is, Well, what did you have to put on to achieve it? And that's the measure of how incapable they are, in a sense, in terms of their skills of managing, if we've got to keep bolstering up the system with these inputs which potentially can be produced in the system by managing it properly. It's like people having to keep taking some drug to carry out a function of the body that the body's capable of doing. Eventually the body gives up trying to do it. Why should I bother, they keep giving me this drug to do this thing? Well, the soil functions a bit the same way. If we keep putting on nitrogen, it stops the free-living nitrogen fixers from fixing nitrogen, so they eventually sort of peter out. If we keep putting on phosphorus, it stops the fungal associations of roots, the microrhizal fungi, from liberating the phosphorus that's in the soil. Now, our whole

technological approach and controlled approach has tended to put those organisms out of business rather than say, How can I be an ally to those organisms, how can I help them do their job? And the potential is enormous for this, and that, to me, would be real science, is learning how to do that, whereas the science we do now is pretty boring and tame.

David Cayley
How does this new science differ from the current science?

Stuart Hill
Well, I see it particularly coming out if we look at how we solve problems, like current science tends to be looking for what some people have called "magic bullet solutions" to solving problems. They tend to be solutions that are quick, high power, physical and chemical, short-term, expert dependent, high technology dependent, imported solutions. Now, what we have hardly tried is the opposite, which would be the alternative approach, which is to look at complex, diverse, long-term, locally derived, indirect, multifacted, bioecological type solutions to problems, and they're often very dependent on knowledge and skills which need to be locally derived, and the precise carrying out of certain actions in time and space, like when we plant a seed and where we plant it makes a whale of difference as to what happens. Whether that plant is got by an insect or zapped by some disease is a function of the environment and time and space, and because we've had access to chemicals that can control pests and diseases and fertilizers that can add fertility to the soil, or make it look like we're adding it, it's made it seem like we didn't have to know about time and space and these relationships because you could always override them with an input. Now, of course, the resources are limited that these inputs are derived from and the cost is going to go up and the availability is going to go down, and the overuse of them is impacting on the environment in various ways and eventually having effects on us. So there are all sorts of pressure to not be so dependent on these and to find out alternative ways to do the same thing, which comes back to learning how to work with the ecological processes that go on in the system naturally and be supportive to them.

David Cayley
Can you say more about this, the idea of the time being important, the placing being important? Tell me what a farmer who employs this more subtle science is likely to be doing.

Stuart Hill
I guess the examples that come to mind would be insects. Like some insects emerge from the soil in the spring when the day reaches a certain length and the temperatures a certain level, and suddenly, boom, all these insects emerge and then they look for a plant to lay their eggs on. Now, if that plant is there, they'll go and lay their eggs on it. If, however, you've delayed planting that plant for a week and they've all emerged and there's nowhere to lay their eggs and they all die and don't lay them, and then you plant your plant, you've missed that pest, so you haven't got to go and apply a pesticide to control the pest because just by the timing of the operation you can avoid it. You may be able to do the same thing by planting earlier. For example, cutworms are the caterpillars of a moth that will go down a row of beans and broccoli and cut the stems of all those little seedlings and plants. Now, if the plant has reached a certain thickness of the stem and also in terms of its biochemical composition is less sort of juicy and not so much free amino acids floating around in the tissue of the plant as it's got a bit bigger, it's of no interest to the cutworm. First of all, it can't cut it because it's too tough, and it doesn't taste right anyway. So by planting that bed earlier and getting that plant to the stage where it's not susceptible, you can avoid the cutworm. By planting the carrot a bit later, you can avoid the carrot rust fly because you don't coincide with the pest. Now, all pests have their season, and so there's opportunities there to avoid those pest problems by managing the crops in those ways.

David Cayley
This involves more knowledge and presumably less production as well.

Stuart Hill
Well, it may be paradox. I always think that I haven't understood what's going on unless I've come to the thought that maybe there's a paradox involved. First of all, I think one needs to use more knowledge but not necessarily have more knowledge. Some of that knowledge we need to use is the intuitive knowledge that, in a sense, flows through us from being just tuned in to things and allowing ourself to acknowledge the feelings we have that say this would probably be a good thing to do, even though we may not fully understand why we're thinking that that is a good thing to do. And so that's useful knowledge, particularly if we note down what we did and we note down what happens, because we can learn in the process. I think in terms of production, in most cases, once we start to manage things in this way, we find actually the system is more productive, particularly if we look at it over a long period of time, because we have less ups and downs. Like in a conventional management system, we tend to have a lot of good years and bad years. People will talk about the crop "wiping out this year," something happened that they didn't expect would happen, and maybe they didn't have a pesticide that they could put on when some unexpected insect arrived. Well, when you manage things in a much more ecological and diverse way, so what if you lose a few things? There's always plenty more of different types of things that are not affected, so you always have a lot of produce. I know when some people come to my garden, they'll walk around the garden and they'll say, "God, you know, how come you tolerate all these holes in the beetroot?" I say, "Well, my function is to nourish the family and there's more food out there than we can possibly eat, and even if we lost a few beets, who cares?" You know, so there's some for some of the insects. I mean they're taking their bit and I'm taking my bit. But if one is trying to achieve Olympic standard everything, beets and asparagus and carrots and potatoes, then of course you're going to be

on a treadmill of having to put on pesticides and fertilizers and all sorts of things, because we have the wrong objective, the wrong vision. It's as if productivity of every single thing is our goal and we're forced to keep using all these inputs. But if we're actually trying to nourish people, then it's a whole different story.

David Cayley
Stuart Hill has always emphasized that ecological agriculture, or sustainable agriculture, involves a new attitude as well as a new practice. The farmer or gardener who works his or her ends by patient attention or careful design must be willing to forego the big effect that's available with chemicals. Hill once pointed out to me the passage in the ancient Chinese classic, the Tao Teh Ching, which says, "Of a good leader, who talks little, when his work is done, his aim fulfilled, the people will say, 'We did this ourselves.'" A good farmer, Hill believes, should be equally anonymous. He must be willing to let the farm do it itself.

Stuart Hill
The conventional solutions of pesticides and fertilizers I think are not just used because they kill pests or make the plants grow, but because they do it in a powerful way and an instant way. So you can spray your pesticide and then suddenly the field is full of all these dead insects, laying on their backs with their legs shaking, and it confers on the person who applied that pesticide the power, it gives them that powerful feeling that "I can make it happen, when I want to, where I want to," and in that sense it's subject to compensating for an internal sense of powerlessness. Whereas the biological control and the natural control that's sort of gently going out there and nibbling on one another in a very non-powerful sort of way and a non-instant sort of way doesn't have that power symbolism. And I notice the people trying to sell biological controls are now learning that if they want to really sell them they've got to put great big jaws on them in the advertisements, and "this ladybird beetle will go and chomp all your aphids to death," you know, or this bacterium looks like a little pac-man that will nobble every little caterpillar by gobbling it up, almost. And they're having more success, I think, selling them when they tap into this power symbolism, which I think brings us to the roots of this, that a lot of this straight rows of crops and no weeds and killing every insect, when we don't even know whether the insects is doing any harm or not, is very much tied up with people's feeling of impotence and powerlessness. I think if we're really going to have a transition to sustainable agriculture, sustainable anything, we really have to have it on several levels. We've got to look at rational ways to solve problems, and that's usually the level that we emphasize. But we've also got to look at the whole system level and see that if we manage systems differently we wouldn't have these problems in the first place, so there'd be less interest in coming up with these magic bullet, powerful solutions because we would have designed them out of the system. Then we need to look at the political level and the socioeconomic levels. How can we support the designing approach, the health promotion approach, the ecosystem-health promotion approach politically and socioeconomically and culturally and spiritually. And then, at the individual level, what sort of individual is going to do this. How does such a type of individual feel about themselves? How can we bring up children so that they become those sort of individuals and how do we educate them and provide them with opportunities for experience, that they can become the sort of person who doesn't need to become addicted to power symbolism and magic bullet solutions to problems and can be, in a sense, more wise and wait and learn from and integrate with and interact with the system in a mutually beneficial way, a symbiotic sort of way.

Lister Sinclair
On IDEAS tonight, you've been listening to part seven of The Age of Ecology. The series concludes tomorrow night. Heard on tonight's program were Stuart Hill of McGill University's Macdonald College, and author Murray Bookchin. The Age of Ecology is written and presented by David Cayley.

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Lister Sinclair
Good evening. I'm Lister Sinclair and this is IDEAS. Tonight we conclude our eight-part series, The Age of Ecology, with a program about the many meanings of nature. We'll begin with journalist Bill McKibben, the author of The End of Nature, talking about what it means for human beings to change the weather.

Bill McKibben
If you look in your insurance policy, it says that things like hurricanes and stuff are "acts of God," and don't bother writing to them if your house blows down in one. But it's very unclear that anything of that sort will be an act of God in the future.

Lister Sinclair
We'll hear from musician and writer David Rothenberg about the difficulties of rethinking attitudes to nature.

David Rothenberg
People talk about "new ways" of understanding nature, we need a "new way" of conceiving of nature, we need a "new way" of thinking. But it takes a lot to be new, because if it's really new, it's going to be so new that it's going to take a long time to understand what's meant.

Lister Sinclair
And we'll conclude with a conversation with philosopher Erazim Kohak, the author of An Inquiry into the Moral Sense of Nature.
Erazim Kohak
As long as our basic attitude towards ourselves and the world

remains the same attitude which produced an ecological disaster, then our attempts simply to manage more rationally, welcome though they are, are not sufficient, that we need to be rethinking the relation between humans and reality.

Lister Sinclair
"Images of Nature," part eight of The Age of Ecology, written and presented by David Cayley.

David Cayley
In the early 1980s, a writer named Jonathan Schell made a remarkable impact on the public conscience with a series of articles in the New Yorker magazine on the threat of nuclear weapons. They were called "The Fate of the Earth." I had a sense of deja vu this past fall, when it suddenly seemed as if everyone I met was urging me to read an essay in the New Yorker called "The End of Nature." The author was Bill McKibben, and when I did read it, I found the same portentous tone, the same terrible sense of occasion that had given Schell's work its galvanizing impact on the reborn peace movement of the early '80s. McKibben's essay, also published as a book of the same name, is a meditation on the meaning of global warming. His argument is that nature is only nature if it confronts us as a power which human purposes can not substantially alter. When industrialization begins to change the chemistry of the atmosphere, and therefore potentially the weather, then summer, in McKibben's slightly sinister phrase, "will go extinct, to be replaced by something else that will be called summer". Bill McKibben lives in the vast Adirondack wilderness of northern New York. It was partly his reflection that even this seemingly pristine place could be transformed by global warming that caused him to write his book. I visited him at his home near Johnstown, New York this spring, and we talked about The End of Nature.

Bill McKibben
It doesn't mean the end of the world and it doesn't mean the end of the human species, it means the end of a way of looking at the world, a way of looking at the world where we're one species among many and there's something much larger than us. I think that that way of looking at the world is unfortunately becoming harder and harder to maintain, that we're becoming more and more and more dominant a species, and now we're taking a quantum leap by interfering with the most fundamental forces of the natural world around us, the weather and the climate. You know, short of interfering with gravity or something like that, this is about as profound as you can get, and in so doing, we manage for the first time to alter or to put our boot print on every square inch of land and sea.

David Cayley
What, for you, is the significance of this "end of nature," as you've called it?

Bill McKibben
Well, ... It's on many different levels. One that's I think immediately apparent to a lot of people is the kind of theological level, you know. An awful lot of our ideas about our place in this world and our relation to some higher being have to do with the idea that there was some creator God who in some sense operated through natural forces. I mean, if you look in your insurance policy, it says that things like hurricanes and stuff are "acts of God," and, you know, don't bother writing to them if your house blows down in one. But it's very unclear that anything of that sort will be an act of God in the future. I mean, a hurricane, for instance, its power comes from the warmth of the ocean. If we raise the air temperature very much, we'll also raise the tropical sea surface temperature and quite quickly create the possibility of a hurricane half again as large as any that are physically possible now, and that won't be an act of God, that'll be an act of man. I guess in some more personal sense for me it's the sense that there is no place you can go to get away from people and their effects, that there's no sphere or won't be any sphere left larger than us, and that to me is a saddening and kind of scary thought. One of the things that's made life, especially life out here in the woods, as wonderful for me as it is, is the sense that there are many other forms of life around us, that we're merely one part of some great, large, complicated, humming operation, and we're threatening to reduce that to just us, to reduce it by changing the climate so that we'll wipe out an enormous number of other species and things, or by tinkering with genes so that we're creating and modifying all the forms of life around us. One writer on biotechnology that I was reading recently said that, I think the quote was that "once we've mastered genetic engineering in the fairly near future, we'll be able to turn the working of all other living things on earth to the particular advantage of our own species." Now, to me, that's a very barren idea, you know, a sort of shopping mall kind of world where everything's ordered for our pleasure and consumption and whatever else, and it's much less interesting than the world we live in now, which is mysterious and where we don't understand why we're here or why anything else is here, but yet most of us feel an enormous delight at living here and at being in this world.

David Cayley
This is partly an aside, but you habitually use the term "we" when you're talking about this. But do you really mean "we"?

Bill McKibben
As opposed to?

David Cayley
"They"?
Bill McKibben
No, I mean "we." As I say--

David Cayley
How many species have you wiped out this week?

Bill McKibben
Oh well, I've done my part. As I say, I'm a good child of suburban America, the most consumptive commodity-intensive society that the world has ever produced. Heck, just

to print my book, I shudder to think of the size of the forest that they needed to knock down, you know, and it's now in eleven languages, so I assume in each part of the world there's a small grove of trees that I personally have taken down. That's the thing. It's not that any of us is particularly to blame. You know, we didn't until very recently have any idea that what we were doing threatened things in any large scale. We're born into these patterns. I mean, we now have to figure out ways to get out of them and to learn to live other ways. But no, definitely I am a major league hypocrite and I realize it.

David Cayley
The thing that struck me about your essay, first of all, was that I saw it as an argument for limits. I felt like I was walking with you, in that way, but I couldn't follow your idea of "nature" as something not containing human beings, that somehow nature is tainted if a human presence is detectable in it, then it's no longer nature.

Bill McKibben
No, "wilderness" might be a better word if you're talking about these things. It's very clear that human beings are a part of nature, you know, and there's nothing wrong with that. As I say, we've needed to change nature around us and that seems to me perfectly permissible, just as it's perfectly permissible for the beaver who lives up in Mill Creek here to build a dam. It's less permissible when it threatens to flood my basement. But there need to be places--we're the one species that possess the ability, if we choose to use it, to go everywhere and be everywhere and dominate everything. There's no other species that can have that kind of impact. If we want to have a world that has anything but us in it, we do need to begin, I think, to limit ourselves in ways both practical and philosophical. We need to kind of give up the dream of living in a perfect world where we live forever, free of sickness, and where we have absolutely unlimited comfort and convenience and things like that. I'm not even sure that these are treasures worth having in their ultimate sense, but they're certainly sort of what we've been aiming at. And now we're finding that, at best, they're going to lead us I think to a kind of sterile and barren world, and at worst, they're going to create a planet that's very uncomfortable and very inconvenient and very hard to live on.

David Cayley
I want to know what you think the implications of this are for environmental politics, because it's always seemed to me that once things are at this pass, that the solutions can intensify the problem. You cite some pretty zany examples of that in your book, people wanting to zap fluorocarbons with lasers and so on.

Bill McKibben
Yes, or cover the ocean with styrofoam chips to reflect the sunlight back out to space. Those are kind of the ludicrous examples, but the temptation is to continue following the same paradigm and the same general path and, you know, "manage things more wisely than we're managing them now," which is a better idea than managing them badly. But it seems to me that in some sense our goal should be to have a world where eventually we don't have to manage it and where we're merely one part of it and not an overwhelming part of it. So I think we need to sort of question the idea that it's always going to be some new technology, new way of doing things that saves us, and remember that we already have a lot of good ideas about how to live in this world and we just don't make use of all of them.

David Cayley
Journalist Bill McKibben, the author of The End of Nature.

David Rothenberg
The kind of nature that's dying, this vision that is no more, the luxury of saying, here is nature, here is civilization, I will walk between them when I please. That's what's ending.

David Cayley
David Rothenberg is a musician--that's his music in the background--and a graduate student in philosophy at Boston University. He's worked at The Ecologist magazine in England and collaborated with Norwegian philosopher Arne Naess, the godfather of a philosophical school called "deep ecology." Rothenberg's writings raise questions about the meanings we associate with nature, and he thinks that the environmental movement needs to be grounded in such questions and not facile answers.

David Rothenberg
People expect a lot from this idea without thinking too much about what it is. It becomes a kind of shallow religion, a vague, thin idea--a thin religion, I guess we talked about before, that there's just this vague idea that caring about the earth or paying attention to interconnections will solve our problems, and interrelationship is a powerful idea but it's quite a vague idea. It's only a place to begin, and people taking ecology, which started as a new direction in biological science, and then just said oh, ecology is the word, ecology is the answer, without taking the time to realize what needs to be developed and what's the question, exactly, what are we trying to answer with this. And some of this spills over into the thinking about "the new paradigm," where people say ah, everything's changing, we're at the verge of a new paradigm, and then you often read the entire parameters of this new paradigm as if it's already here, as if we can just switch over by flipping the channel or something. But if we really are at a changing point in our thought, then we don't know the answer. We've got to work more carefully on specific changes and on specific questions rather than just saying this is the way it is and we already know enough, if only we could implement it. I think that's too naive. There's a lot of problems here. We don't really know very much about where we should redirect society, and that to speak of a new paradigm generally seems to me to bring with it this false sense of security that we already know where we're going.

David Cayley
One of the concepts that David Rothenberg wants to query

is the idea of "nature." He's not satisifed, for example, with Bill McKibben's account of nature. McKibben belongs to the romantic tradition of Henry David Thoreau which opposes nature and civilization. He sees nature as a sublime teacher and deplores humanity's ever-present "boot print," just as Thoreau longed for a wilderness "I cannot put my foot through." Rothenberg wants a more flowing, less divided image of the world.

David Rothenberg
Our civilization developed in a certain way, such that we could place a wall around it and say, "Beyond this is nature," and it starts that this nature beyond the wall is something frightening and negative and evil, and then we begin to see it as antidote to the problems of our own world and say, "Ah, let us escape into nature." And I think that's another part of this superficial world view, which I certainly feel as much caught up in as anyone else, because I love going out into the wilderness, this place bereft of other people and, you know, other cars and shopping malls and no gas stations. But I want that because my culture and civilization is not connected enough to the world which surrounds it, so I need to escape it into some imaginary realm that's off on its own, but I think it's part of the delusion that I need to think that way. Tliat's part of what's wrong with the civilization that I live in, and that another way to live would feel a greater connection to the world around all the time and not think that one escapes into it and back from it, and where I feel just as cultured or civilized out there, in the woods, or in the desert, than I would be at home, writing about all this stuff, sitting at a computer. We don't know exactly how to talk about these things without dividing them up, which is a big frustration.

David Cayley
Rothenberg is currently at work on his PhD thesis on the philosophy of technology. His research follows the way in which the meaning of nature modulates with technological change.

David Rothenberg
What I want to examine is how technology changes the world, both by allowing us to build things and change our physical environment, as well as letting us think about the world in a new way. It's tremendously powerful in redirecting our thoughts in different directions, and throughout the course of this investigation--I started by looking at very simple tools and how impressed we humans get with things we can build that work. You take something, a tool, a simple machine, we see that it works, then we begin to imagine the world working in the same way. So that even from the very first glimpses of the way the world is conceived, it seems to be like a machine, like our very simple machines, and then like our more complicated machines. At the same time, you know, this is technology, as it develops, changing what nature means. Because first Heraclitus says the universe is like a bow and a lyre--it's tension and release. And then Plato talks about the world, says it's spun on a potter's wheel and shaped by the creator. And then later on, we have Descartes and Leibniz saying it's all like clockwork, the world is like clockwork. And then in the 18th century, nature is like an engine, self-regulating systems, and this becomes later into cybernetics, which comes out of mechanical, self-correcting mechanisms. And then we have the computer, which becomes a kind of technology that doesn't even have a material basis. We use it, apart from its material construction, it's a way of organizing ideas. When technology becomes that abstract in its use, it changes the way we think about things which we can't build or we can't make. Things like waterfalls or the spread of forest fires can be simulated with digital thinking that has nothing to do with the way it actually happens, but because we notice certain patterns, we think we can explain it. It's not that nature is now a machine and wasn't seen as a machine before, it's just machines have become more complicated and they threaten, perhaps, to explain more. On the other hand, as I'm reading all these various theories that have been put together about technology over the centuries, it seems that everyone has always wanted technology to be natural and be like nature. Even people like Francis Bacon, considered the arch villain by many eco-freaks of the modern era, thought of as the man who turned humanity against nature, he too wanted technology to fit in, be able to fit into the world. It's all there, it's the same dream, only what nature is keeps changing, and so we keep going in different directions. Well, the disturbing thing about this is that I started my whole research into this with the idea that I'd explain all these things and then emerge still with this victorious idea that somehow we can look for what is right in what is natural, as Artistotle encouraged us to, and that we can use nature in this way. Only now that I'm about halfway done, I'm just no longer sure what nature means, it's just being twisted and transformed so much.

David Cayley
Rothenberg's inquiries into the meaning of nature came to my attention through an article, called "Ways Towards Mountains," which appeared in a Canadian eco-philosophy journal called The Trumpeter. The article investigates a famous letter by the 14th century poet Petrarch concerning his ascent of Mount Ventu, near Avignon. Petrarch's climb is reputed to be the first case of a European climbing a mountain purely for the experience of doing so. But when he reaches the summit, he rejects the elation he feels and concludes that "there is nothing wonderful except the soul, which, when great itself, finds nothing great outside itself. Then, in truth," Petrarch goes on in this letter, "I was satisfied I had seen enough of the mountain." Beside this text Rothenberg sets another, The Mountains and Rivers Sutra, by the 13th century Zen master, Dogen.

David Rothenberg
He gave this as a lecture at 12 midnight on November 3, 1240. It's exactly written down. It was to all his students--they were staying up late just to listen to him--and he doesn't talk directly about an experience climbing a mountain, but just makes certain statements about mountains that try and connect them to things that we as humans are and can do.

The basic image which the rest of the talk is centred around is the following. "The blue mountains are constantly walking. The stone woman gives birth to a child in the night." The rest of the talk sort of enigmatically weaves in and around that image, that idea. "Mountains," Dogen says, "lack none of their proper virtues because they are constantly at rest and constantly walking. We should study this virtue of walking. The walking of mountains is like that of men. Don't doubt that the mountains walk simply because they do not appear to walk like humans. He who doubts that the mountains walk does not yet understand his own walking." It's not that he doesn't walk but he doesn't yet understand, has not yet clarified his walking. This is a vision of a mountain somehow alive in a way that we are alive, not different from us but like us. Like Petrarch, Dogen says that if we refuse to believe or participate in these perfect, virtuous mountains, we are lacking in virtues, we are imperfect. What Petrarch refuses to do is leap to the notion that the mountains are perfect, beyond the limitations of the human soul. This is because, unlike humans, presumably, the mountains can be calmly at motion and at rest. Nature doesn't need to reason between these two states, it contains both. Now, this isn't just an Asian idea. I think it's a common but somewhat dangerous simplification to say that there's something right about the way the East understands nature and there's something wrong about the way the West does. I mean, there are specific people who believe specific things and think specific things, and we can find images that are inspiring from both at different times. You know, Plato somewhere describes wisdom as "touching the motion or stream of things," and that's the same kind of thing Dogen is getting at here. The language of the Mountains and Rivers Sutra is not the kind of thing that we would like to call logical, or straight philosophical the way argument is supposed to be written, but most of the great philosophy is like that too. It's all written in strange, enigmatic ways and people are trying to pretend that it's logical and clear, but actually it's all forcing us to try and get outside the strictures of the thought we're used to and think in new ways, and language isn't really prepared to do this, so it's all a struggle one way or the other. Plato, Aristotle, Spinoza, they're all twisting language in different ways, so it's frustrating, but in some sense it has to be written in this difficult way, though often I wish it were not so. Well, Dogen ends by saying that mountains are not just things for us to see on the horizon, but "as for mountains, there are mountains hidden in jewels, there are mountains hidden in marshes, mountains hidden in the sky, mountains hidden in mountains. There is a study of mountains hidden in hiddenness." Okay, this is what inspired me to write this whole thing, just this one quote, to try and figure out what could remain of the meaning of the word "mountain" after it's been twisted in so many different ways, after it's been hidden in so many different places, after it's been taken away from where we're used to climbing on it and touching it and seeing it, and now it's everywhere. Does it mean anything? And that's where I began to investigate what mountain might mean as idea. And this began to resonate the way images in poems are supposed to resonate with other experiences, in my own limited experience, that got me thinking about these ideas. And one of them also in this paper is this advertisement on a bus in Boulder, Colorado, which was a poem which just said, "I wish I could look at a mountain for what it is and not as a comment on my life," and that's a poem by David Ignatow. And that idea has been with me for years, wondering what it means and whether it's a good idea, even, since all of this is looking at mountains as comments on our lives in some way, but not without looking at our own lives as comments on the mountains at the same time. He wants to get beyond the situation of modern man and modern woman trying to make everything make sense for us, for me, for you, rather than looking at things the other way around. He feels stuck in the place where Petrarch is stuck, you know, nothing greater than the soul, nothing outside the soul, nothing outside itself, never mind the mountain. It's just something that sends me back within and he's saying I wish I could get beyond that. Whether Dogen gets beyond that is another question, since we're not exactly sure what he's after, but one thing which he may be after is the notion of mountain as idea. Before it's something we see or climb or identify, there's this idea, the rise and the fall, the peak, the valley. All these are ideas that are found in all parts of experience and thought. Maybe it's wrong to ask which comes first, but that maybe this is the most profound meaning of mountain, that it's a concept which flows through all kinds of experience, even things that seem flat. The world we live in is not separate from what we think about and our ideas are not separate from the world in which we live there. One can't think of self-realization without the environment. One can't think of human thought without the world as it's experienced and as it's changed. That's the most basic point of this. Don't think you can be anything without the world.

You might be able to tell from this whole discussion that there's this part of me that's entirely suspicious of all attempts to discuss these things in words. There's a whole other side of my life where I play music and try and compose music and explore some of these same questions in a medium which doesn't have any arguments, which doesn't have any conclusions, but has its own form of expression.

David Cayley
Musician and writer David Rothenberg.

Erazim Kohak is a professor of philosophy at Boston University. In fact, he's been David Rothenberg's teacher there, and Rotheberg his teaching assistant, though I came to know of them independently of each other. Kohak writes in the tradition of Czech philosophy, which goes all the way back to Rene Descartes' great opponent in the 17th century, John Comenius, a tradition that has not accepted the split between nature and mind that Descartes introduced into the mainstream of European philosophy. In 1984, Kohak published The Embers in the Stars: An Inquiry into the Moral Sense of Nature. The book is a poetic and personal account of the author's own discovery of meaning in the world around his rural New Hampshire home. But it's also

an effort to put environmental concern into an adequate philosophical framework.

Erazim Kohak
Practice is always an idea in action, and what I am doing there, I am not giving prescriptions on how to clean up rivers or how to change modes of consumption. But I am very much convinced that we have an ecological crisis not only because there is an awful lot of us, five times as many as there were when I was born, and I don't know how many times it'll be before I die, but also because of the way in which we have oriented towards nature. And it seems to me that environmentalism can now take two general directions. One of them is more rational management of natural resources, and here the assumption is yes, that humans are basically the exploiters of a lifeless reality, and the question is only how to exploit it most rationally so it would last minimally for our lifetime. It seems to me that while I welcome, no matter what the motivations are, I'm always happy when somebody uses more environmentally sound materials and practices, I welcome it. If the devil is divided against himself, he will not stand. But my concern is that as long as our basic attitude towards ourselves and the world remains the same attitude which produced an ecological disaster, then our attempts simply to manage more rationally, welcome though they are, are not sufficient, that we need to be rethinking the relation between humans and reality. And this seems to me that what I'm trying to do here is to provide persons with environmental concerns a conception of nature and the place of humans in it which can provide a more adequate guidance than the arbitrary human deciding about dead materials.

David Cayley
Environmentalism, for Kohak, faces a choice of world views. His philosophy recognizes other purposes in nature than our own. Modern European philosophy has not.

Erazim Kohak
The conception of reality with which we operate today and which is so deeply engrained in us that we're not even aware of it is indebted heavily to the early 17th century, to Rene Descartes, and it conceives of reality as bifurcated between a mind, a res cogitans which is in no intrinsic sense a part of the remainder, the remainder being an aggregate of res extendes of objects which have no properties other than spatial extension, mathematical and causal ordering. Tliis is the so-called world of "dead matter." Against this I was trying to revive a conception of reality as value-laden and meaningfully ordered, a reality of which the subject, and all subject beings, all purposive beings, living beings, are an intrinsic part, and which is therefore a world that is both meaningful and valuable. So that value is not something that humans impose upon the world but which the world already has as a life's world.

David Cayley
For Kohak, it is no easy thing to throw off a philosophy, because it confront us not only as a body of ideas but as a set of perceptual habits. To perceive the life world around us, we have to unlearn our concepts, a procedure Kohak's phenomenological tradition calls "bracketing."

Erazim Kohak
What I am concerned with, simply is breaking a particular habit of perceiving. When a human being perceives the world, he/she does not perceive it as dead matter. This is something that we have to be taught, and in our lived experience, that remains an artificial perception. We perceive the world as meaningful. I used to do an experiment for my students. I would bring in a small, stuffed bear. I would introduce him to the class, tell something of his personal history, where he got his degrees and what he has done since, and I would put him on my desk and forget about him. About five minutes later, I would take some notes out of my briefcase, start to place them on my desk. The bear would be in the way and I would say, "Let's get this thing out of here," and I would swing my arm as if to hit the bear aside. The entire class--and here I'm dealing with adults, advanced graduate students--instinctively reacted: "Don't hit that cute little bear." Now, clearly, theoretically they know that--his name was Cocy becaues he was stuffed with coconut husk--that Cocy is just a piece of cloth stuffed with crushed coconut husks. Yet what they actually perceive is a meaningful entity to which they relate--I don't like the word but I'll use it anyway--emotionally, empathetically as well as in strict utilitarian terms. And what I'm trying to suggest by the term "bracketing," set aside the learned ways of perceiving the world as dead matter there for your use and see if you can recover again your actual perception of the world as a community of beings to whom you are meaningfully related. Other writers would invoke the Navajos, for instance, who have a very strong sense for the rhythm of nature. I am a man of the West and so I use Husserl's concept of bracketing, setting aside. But the purpose here is to recover the actual experience from the heavy overlay of theoretical interpretation, because we are all convinced that the bear is cloth and coconut husks, but in the world of our experience that is not the case.

David Cayley
Is there in fact such a thing as our "actual" experience, apart from the theoretical constructs we use?

Erazim Kohak
This would be the question that a philosopher would say, and I would say, very definitely so. Here I would invoke Paul Ricoeur and his lovely statement in The Rule of Metaphor: "Something must be for something to be said." The moment that I start speaking about my experience, I am of course dressing it in a set of particular terms, and this is why I would say the truth is never the sentence. Truth is not the property of sentences. Truth is the reality to which a sentence seeks to point me. So that just as with our doctrinal statements, a particular creed points me to the truth but it is not itself the truth, and this is why the church can have a range of creeds from the Apostles' Creed all the way down to the 39 Articles of Religion, the most definite statement, of course. And we can say none of them is the

be a hermit and be a practicing Jew. You have to have to have a community.

David Cayley
I'd like you ask you finally about what I'll call environmentalism for want of a better term, meaning all those persons who are concerned with this. And this is a movement which seems divided in many ways but which ranges certainly from a managerial perspective at one end, an attitude which is confident that sustainable development is possible, that you can have growth and environmental protection, however it's phrased, and at the other end one has a biocentric perspective, let's say, descending from Leopold's famous saying that we should be only a "plain citizen" of the biotic community. It seems to me that coming out of your Jewish roots, you take a different view, neither one nor the other.

David Ehrenfeld
Yes, let me try to answer your question by describing the Jewish attitude towards work and the Sabbath, which I think is the ultimate, for me at least, the ultimate way of stating this problem. In Judaism, you're supposed to work six days and rest on the seventh. On the seventh day, on the Sabbath, which for us is Saturday--or it actually starts Friday evening at sundown, you are supposed to stop working and there's three things you have to do if you are going to observe the Sabbath correctly. You can't create anything. I mean anything. If you get an idea for a book, you cannot write it down on a piece of paper. That's very painful for an author and it happens to me all the time, and I wonder, will I remember this till after sundown on Saturday, and sometimes I do and sometimes I don't, and I have stopped worrying about it. If you're a gardener, you can't plant a seed. That's a creative act. You can't do it. You also can't destroy anything. That's the second thing you can't do. Again, if you're a gardener and you see a weed growing in your garden, you can't pull it up, you can't kill an insect pest, you can't shoot a rabbit, or anything of that sort on the Sabbath. The third thing that you're supposed to do is a positive injunction, which is to celebrate the Sabbath and celebrate the fullness of the earth that was given to people to live in, to work in and to enjoy. So you have this prohibition against creating or destroying, which means you cannot be a manager, you can't be a steward even in any sense. You've got to leave it alone, and it will continue all by itself. It's a wonderful lesson. You also have to learn how to enjoy it, and that's the other part of the lesson. People were told you had to have the confidence, in a sense, in the earth and in the creator of the earth that says I'm going to just rest for one day, I'm going to leave it alone. Now, I think that stewardship without the idea of the Sabbath is bound to go wrong. Without the idea of the Sabbath, without some idea of a built-in restraint, then the steward eventually becomes very arrogant. Hence my title, The Arrogance of Humanism. The stewards says I'm really the king. You know, the late J.R. Tolkein, in his book, his wonderful Ring trilogy, The Lord of the Rings, has this dilemma of a steward who says How long do I have to stay a steward if the king doesn't show up? When do I become a king? And the man who asks this question is told by his father, who is the steward, Even ten thousand years wouldn't be enough, and essentially there is never a time when a steward becomes a king. Well, I think that there's a great temptation for stewards to want to play king, to want to play God, and without some kind of a restraint that's built in at a regular basis, a kind of constant reminder you're not running the show, you can't run the show. You don't know enough to run the show and you never will and you're only going to mess it up if you have that attitude. Without that idea, then I think that stewardship is bound to go awry, to go amiss. I think that the idea of the Sabbath, for Jews, and perhaps for Christians too, introduces this idea of restraint which is so essential to keep stewardship on the right track. So I think that stewardship is the only hope, but I think it has to have some kind of restraint built into it.

David Cayley
David, thank you so much.

David Ehrenfeld
You're welcome.

David Cayley
In 1980 a book appeared which I think of as a kind of sibling to The Arrogance of Humanism. It was called The Fallacy of Wildlife Conservation and it was written by John Livingstone, a lifelong naturalist and a professor in the Faculty of Environmental Studies at York Unviersity. It was a book, Livingstone once told me, written in blood--his life's blood. After a lifetime of arguing for wildlife conservation, Livingstone took apart the arguments he himself had made and found them all wanting. Everything seemed to come back to what David Ehrenfeld calls "the doctrine of final causes," the idea tliat the end to which something can be put is the cause for which it was created, the idea, as Ehrenfeld says, that gravity exists in order to make it easier for us to sit down or that rain forests should be saved because they may contain undiscovered medicines. Species and places with no obvious economic usefulness become recreational amenities, prized for their aesthetic value. All arguments circle back on humanity. None can penetrate what Livingstone calls "the metaphysical dome" which encloses human society and cuts us off from the living world. In the light of The Fallacy of Wildlife Conservation, John Livingstone began, in effect, a second career, searching for a way out of environmentalism's utilitarian bind, trying to put a retractable roof on the metaphysical dome. We spoke recently in his office at York.

John Livingstone
If I have a technique, it has been, I think, to ask the question that my colleague, Reg Lang, always asks: What is the problem to which this is the solution? So what I've done mostly is critical analysis, I think, of the statements of the so-called conservation movement, the so-called environmental movement, and so forth. Nobody seems to want to reveal what the problem is that is being addressed by all the environmental placards. I like to say to my students, "Go out