



Environmental Ethics

Using Water Naturally

Holmes Rolston III

Using water naturally can seem to have little to do with using water ethically. Contemporary water use is by prior appropriation, where seniors have rights to water they first took. This concept develops into water use economically, when water is a property right that can be traded in markets. Neither use considers a still more fundamental need—to use water "ecosystemically." Many present and planned water uses are unnatural, and unwise. Asking about using water naturally can better orient us to what we ought to do, both prudentially and morally.

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resource does not fit well with the natural way that water

works on the landscape.

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Using Water Naturally?

I first ask about using water naturally, though I expect to end asking about using water ethically. In between, I consider water law. Anyone who has had introductory philosophy knows that the ethical and the natural can be a dangerous mix. Right and wrong in using water, some will object, has nothing to do with using water naturally. But the connection may be more complex than we first think.

In one simplistic sense, everything that humans do is "natural," for as living beings we are unable to break the laws of nature. By this logic, there can be no such thing as using water unnaturally because, if people are part of nature, then everything

that people do is also part of natural systems. But in another simplistic sense, humans deliberately modify natural systems with "artificial" actions; we do something "unnatural" by intentionally interrupting otherwise spontaneous nonhuman systems. In this sense, all human uses of water will have to be considered "unnatural" because all actions, such as constructing ditch lines, modify wild nature.

In a third sense, we use water naturally, more or less, considering the degree to which human activities fit in with the natural cycles of water in the landscapes that we inhabit. Some uses of water may be more natural, some less, in this relative sense.

Using Water Archaically: Prior Appropriation

How do we use water at present? The prior appropriation doctrine, widespread in the West, holds that those who first acquire water have a permanent right to it thereafter. There is nothing particularly natural about that belief. Or ethical. No logic implies, if senior, then better or more just. Still, there is something to be said for seniority. "First come, first served" is often fair. Our property rights go back to the idea that the people who first obtained a particular piece of property have the right to it thereafter. The first who discover something can patent it, or stake a claim to it.

Is water that kind of public good? We cannot simply say that water is found once and kept

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thereafter because water moves around, flows over the landscape. We do not think that seniors can keep things forever; they retire, or die, and somebody else comes to take their jobs, or to use what was once their land and property. Common goods have to recycle, generation after generation, season after season, even day after day. Water is one of the fundamental natural givens, like air, soil, and sunshine. We do not really think that air and sunshine are things that people find and keep. Perhaps, though, soil and water are.

Most Americans were not really first anyway; our ancestors were simply the first Europeans who came here and found, and thought they could keep, the water. This idea that water is a finders-keepers resource does not fit well with the natural way that water works on the landscape. Native Americans did not think of water that way. Water, like air, sunshine, and soil, is not something to be grabbed up by the first Europeans to arrive.

We might say, somewhat provocatively, that such water use is archaic. About all the prior appropriation doctrine really means is that the law protects the European-introduced status quo, without asking the question whether the use is either natural or ethical.

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Using Water Economically: Appropriating a Common Good

All the really prior appropriates are now dead; anyone who established a water right in 1876 has long since departed. Prior appropriation was a way of obtaining water once upon a time. Rights have been inherited, but they have often also been sold. Now water operates in the market. We use water economically, and the prior appropriation scheme is just the historical background—the way, once upon a time, that we got water on the market. So water has become a marketable good; whoever has money can buy the water. Originally the water flowed preferentially to the seniors, but after a century of buying and selling water rights, the

effects of seniority wash out, and water flows preferentially to money.

Water is, after all, a resource. Many resources are left to user preferences. We do not think that we ought to tell people what to do with what they own; it is up to them to make the best use of their resources. The idea of a free market in a free country contains the idea that everyone can satisfy his own preferences as best he can. That is part of liberty. If you have money to buy water, you can do with it what you please. But then again, water may not be the kind of resource that we can simply put on the market and let people buy and do with as they please. Water is a basic good, and it may not be the kind of good that those who have the money ought do with as they please.

Why not? Is it not reasonable to market natural resources? Yes, but even on the economic side, those who appropriate water do not pay anything for the water itself. They just take it as a natural given, something that falls from the skies and runs down the creeks and streams by gravity. Water is an ecological good, not an economic one at the point of intake; a natural given, not something manufactured. So even the appropriators are collecting a natural common good. Moreover, most water systems have been heavily subsidized by the federal government. Therefore, we cannot simply say that everything that has happened to water has been a matter of market forces; it has actually been a matter of larger public policy.

The real problem is that many of the values carried by water may not show up in the market system. Water is a vital, biological good. Where money is the bottom line, natural systems are external to the market, and marketing water treats as externalities what are really biological vitalities. We fall into the illusion of supposing that humans, with their economies, are external to the ecological systems on which their economies are superposed. There is an old saying that water flows uphill toward money. But we can ask whether, if water flows naturally downhill in the ecosystem, and if the economic system says that water flows uphill to money, we may be in for trouble.

Using Water Ecosystemically

We should think of water in terms of the hydrology of the watershed, of the flourishing of the bioregion. The water we use is a part of natural systems; we may cycle it through our economies, through our fields, through our homes, but these little cycles are part of a bigger cycle where the water moves around and around on the landscape, falling from clouds in the sky, irrigating soil,

gathering in tributaries, held as groundwater, nourishing fauna and flora, some of it used by humans, flowing down to the sea, taken back into the air. We need to use water naturally so that the big cycles of spontaneous nature contain the little cycles we artificially build. We need to think about water in terms of ecosystem management, of the river basins, of the landscapes that we inhabit, even of the planet. Already we are a long way from "finders, keepers" and the doctrine of prior appropriation. And if we market water, we ought to do it so as to keep the little human circles inside the big ecological circles.



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Is water a private good? Remember that what an owner takes on her land, or takes upstream and diverts to ditches and pipes, is not something that is generated on that parcel of land but a good that rained down all over the land-raindrops broadcast over the landscape and subsequently gathered into streams. The minerals beneath one's land are one's own; they can be taken once only. But water is renewable; it recycles. There will be more next year, like sunshine and air coming around again, delivered to your land. Some actually falls on your land, but not enough; that is why you are diverting the water that fell elsewhere on the landscape. Another way of saying this is that water is really part of the system, and the question is: Can we isolate the water and make it nothing but economics in a market of private goods?

It took Coloradans, for instance, a century of water use to realize that water just flowing naturally in a stream could be a good thing, a century before we passed laws that let us call "in-stream flow" a "beneficial use." Economically, such water seemed to be going to waste. Now we see that water flowing in natural streams is vital, the lifeblood of aquatic, riparian, and terrestrial systems.

Using Water Unnaturally

Come at this from the other side. Think about how we use water unnaturally.

■ **Water use that destroys soil is unnatural.** It is unnatural when the use of water causes unnatural sedimentation or erosion, when it cuts down the capacity of the soil to raise crops or to support native vegetation. Soil has been on the landscape for a very long time; water helps to form it; and it is the product of sedimentation and erosion, but at natural rates. Soil holds water and can support a sustainable water flow for thousands of years. But water use that causes rapid erosion is a flag that our use is not fitting in with soil capacities and fertilities. Water use that destroys soil cuts down the scale during which a region can be inhabited, cuts it from millennia to decades.

■ **Avoid water use that is not naturally sustainable.** When we mine our water, we do not have a sustainable relationship with hydrological systems. Approximately 300,000 people in Colorado depend for their drinking water on nonreplenishable groundwater—fossil water. Someone will object that we mine petroleum and coal, so why not also mine water for irrigation and drinking? My answer is that water is different because water is vital to our life system, our biology, in a way that petroleum and coal are not. If we consider building a culture on a landscape, if we plan for the long-term future, we want our water coming for 100 years, even 500 or 1000 years. We do not want to depend on water that fell to earth 10,000 years ago. Having squeezed all the water from a dewatered countryside, we proceed to mine it from the past. But we ought not to form long-term, dependencies of that kind. They are unnatural.

■ **Big basin transfers might be unnatural,** depending on the degree to which they move water from one landscape to another. Perhaps we do not want to become dependent on using water that comes from 1000 miles away any more than on water that fell 10,000 years ago. Here someone will object: Water moves around naturally. The water that we drink in our cities may have fallen several hundred miles away. There is nothing wrong with moving water around because in nature water gets moved around in large amounts. What could be wrong with people doing this too?

Perhaps nothing, but there will be a tendency to move the water so that it flows toward

money, regardless of whether the moving relates people intelligently to their geography. Interbasin transfers where the water flows to money may be oblivious to the effects that the subtracted water has on the ecological system in the basin from which it is taken. In the semiarid West, the water is likely to be taken from a well-watered region. The dewatered areas are likely to contain a high proportion of the landscape's biological riches, the mammals, fishes, birds, amphibians, broad-leaved trees, the riparian floodplain floor.

Water keeps a landscape green, and selling one's native green environment is usually a bad bargain. On the uptake end, the place from which the water is taken is likely to be disrupted, and on the outflow end, the place where the water goes is likely to be a crowded city that will be made bigger than it was before, in a place that is already too dry to maintain the people who are there already. Those kinds of cities are already growing too fast, and once again the water—instead of flowing in ways that are relatively congenial to a geography—is simply flowing to the money.



*Water use ought to pay attention to geography in a way
that much else in the economy does not.*



The idea that we can obtain water where and when we want it can become arrogant. By God, we want water right here, and if not by God, then by human engineering. We will get water from however far away and get it to whoever needs it. That kind of mentality is good up to a point; we make heroes out of our engineers and developers. But perhaps it can go too far—if it becomes imperialist, if all it has in mind is maximum exploitation, if it seeks the total management of water rather than trying to merge a people's lifestyle into the natural hydrological system. More intelligent management might seek not so much to put water exactly where we want it in whatever amounts we want anywhere on the landscape as to fit ourselves in with water in a landscape.

No city can have more water forever, and if not forever, why not begin to face the truth now? We need to know when to say, enough,

and to envision a steady-state economy. The next hundred years of our city growth neither can nor ought to be like the last hundred. Cities ten times as big as they are would be too unnatural on the landscape.

- **Avoid letting political boundaries ignore hydrological boundaries.** Political boundaries that determine water use can be unnatural. A perfect example of a political boundary that ignores all geography is the state of Colorado, a big square, utterly oblivious to drainage basins, or any other feature of the topography. Almost no political boundaries between the states in the West follow the boundaries between watersheds. We ought to watch that the political boundaries do not get in the way of using water naturally. Management of water, fortunately, has often already been divided up into watersheds, wherever the state or county boundaries may lie.

But political boundaries that ignore how two political communities really form one ecological community will generate conflicts of interest that serve political agendas and make people forget their sense of place. What watershed you are in is just as important as your voting district. The word *rival* goes back to the Latin word for river: people who drink from the same river.

- **Economics that forgets ecology is unnatural** Much in our economy cuts against worrying about whether political or other institutional boundaries follow water flows because our uses of so many other natural resources, and so many of our other cultural activities, can ignore our regional boundaries. We drive cars made of ores and minerals that came from all over the world, whose parts were manufactured in a dozen nations. Our clothes come from China. A person works for IBM, and the hardware, the software, the financing that keeps the company going travel freely across state lines. Someone is a member of the Presbyterian Church; the church does not pay all that much attention to political boundaries. When we do not have to think about such boundaries, they do not make much difference.

Dealing with water, however, is not like shopping at K-Mart, or working for IBM, or belonging to a church. With water, one person is located in a little cycle within a big cycle. Water use ought to pay attention to geography in a way that much else in the economy does not. Some things we can move around. I eat bananas every morning and notice where they come from; stickers identify the country of origin. I think: What a marvel that my breakfast

comes from Ecuador. So why not import water from the other side of the continental divide?

If not from too far away, perhaps we should not object. But once again, as with coal and petroleum, we can answer that water is a fundamental ecosystemic good in a way that bananas are not. We can get along without bananas but not without a regular flow of water, any more than air and sunshine. Mining water that fell 10,000 years ago and importing water that fell 1000 miles away both signal a chronic growth problem rather than mere progress in moving our resources around. We should keep the lifelines short and reasonably natural. Otherwise we create dependencies that we may come to regret.

- **Do not degrade water quality.** Our ancestors simply worried about water quantity; nature took care of the water quality. You could drink from any mountain stream. But now, water legislation has been increasingly forced to consider water quality. If water does not have enough quality, it may be bad not only for people but also for the ecosystem. Water has to be of high enough quality to keep the system healthy. Toxics and pollutants in streams and groundwater choke up the system. So legislation increasingly constrains the quantity of water that users take with the quality of the water that must be returned to the system. Such constraints come from worrying about using water naturally.
- **Using water unnaturally damages wildlife** and endangered species, and degrades biodiversity. Subtract too much water from the system, and the fauna and flora are affected adversely. When farmers built high mountain reservoirs in alpine Colorado on the tributaries of the Platte River in the early 1900s, they did not think about any impact on the pallid sturgeons more than 500 miles downstream in eastern Nebraska. But today those who have rights that go back to the prior appropriation doctrine are finding that in exercising these rights, they must consider the downstream effects that their subtractions from the system are having on wildlife habitat and endangered species.

In general, we are using water unnaturally unless we have a water management policy that says that ecosystem health and integrity override economic development. That sounds radical, but it does get down to the root of the matter, and roots are always vital. Using water naturally has to do with our health and prosper-

ity, with our integrity and quality of life, and with that of the natural system with which we have an entwined destiny. And that is an ethical issue, both in human ethics and in environmental ethics.

One might have thought, superficially, that in our urbanized, industrialized economy, whether water use is natural would become ever less relevant. But not so. Just because of our escalating consumptive demands and our escalating powers for modifying natural systems, we have to pay more attention than ever to using water naturally if we are to use water ethically. Increasingly, as we face a new century, we must fit the natural systems we inhabit.

Water is one of the miracles of natural history. The planet on which we reside is called Earth but could have as well been called Aqua, since 70% of the surface is water. Earth is the only planet in the solar system in which there is a long history of liquid water flowing in large quantities, propelled by the energies of sunshine and recycled by currents of air. This water is put to remarkable use in biological systems, including ourselves, for we humans too are mostly water. There may not be another planet like this anywhere in the universe. Water is the most vital resource we have; it is more than a resource, it is the lifeblood of the planet. Life was first conceived in the water, and water has been vital ever since. The rivers of water are part of a bigger philosophical picture—the rivers of life on Earth. Unless we use water at least relatively naturally, we will threaten this natural history, and threaten ourselves as well.

Dogen, a medieval Zen Buddhist, used to drink from a bridge that still remains, built over a stream in front of Eihei-ji, a mountain temple in Japan. The bridge is called the Half Dipper Bridge because Dogen would take a dipper full of water from the stream but only drink half of it. The other half he would pour back, rejoicing in its onward flow. Water lawyers and managers cannot derive water law from a Zen sage. But there is an important insight about that half-dipper model, one that can orient us about what we ought to do both prudentially and ethically. Dogen sets an example of taking enough and fitting in his own life harmoniously with the water flowing around and through us over the millennia. Using water naturally does seem more profound philosophically, ecologically, and ethically than dewatering the river by rights purchased from those who took it by prior appropriation, with maximum exploitation in mind. ■