

## *Of Man and the Stream of Time*

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AS I WAS carried here so swiftly across the continent by a jet airliner, it occurred to me that I have really been on the way for ten years, for it was that long ago that your President first invited me to come to Scripps College. Through the intervening years, he has renewed that invitation with infinite patience and courtesy. Now at last circumstances have allowed me to accept, and I am very happy to be here.

Had I come ten years ago, I am not certain what I would have talked about. But as I have lived and, I hope, learned, as I have reflected upon the problems that crowd in upon us today, one stands out in my mind as having such vast importance that I want to discuss it with you now.

I wish to speak today of man's relation to nature and more specifically of man's attitude toward nature. A generation ago this would perhaps have been an academic subject of little interest to any but philosophers. Today it is a subject of immediate and sometimes terrifying relevance.

The word Nature has many and varied connotations, but for the present theme I like this definition: "Nature is the part of the world that man did not make." You who have spent your undergraduate years here at Scripps have been exceptionally fortunate, living in the midst of beauty and comforts and conveniences that *are* creations of man—yet always in the background having the majestic and beautiful mountains to remind you of an older and vaster world—a world that man did not make.

Man has long talked somewhat arrogantly about the conquest of nature; now he has the power to achieve his boast. It is our misfortune—it may well be our final tragedy—that this power has not been tempered with wisdom, but has been marked by irresponsibility; that there is all too little awareness that man is *part* of nature, and that the price of conquest may well be the destruction of man himself.

Measured against the vast backdrop of geologic time, the whole era of man seems but a moment—but how portentous a moment! It was only within the past million years or so that the

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race of man arose. Who could have foretold that this being, who walked upright and no longer lived in trees, who lurked in caves, hiding in fear from the great beasts who shared his world—who could have guessed that he would one day have in his hands the power to change the very nature of the earth—the power of life and death over so many of its creatures? Who could have foretold that the brain that was developing behind those heavy brow ridges would allow him to accomplish things no other creature had achieved—but would not at the same time endow him with wisdom so to control his activities that he would not bring destruction upon himself?

I like the way E. B. White has summed it up in his usual inimitable style. “I am pessimistic about the human race,” said Mr. White, “because it is too ingenious for its own good. Our approach to nature is to beat it into submission. We would stand a better chance of survival if we accommodated ourselves to this planet and viewed it appreciatively instead of skeptically and dictatorially.”

Our attitude toward nature has changed with time, in ways that I can only suggest here. Primitive men, confronted with the awesome forces of nature, reacted in fear of what they did not understand. They peopled the dark and brooding forests with supernatural beings. Looking out on the sea that extended to an unknown horizon, they imagined a dreadful brink lying beneath fog and gathering darkness; they pictured vast abysses waiting to suck the traveler down into a bottomless gulf.

Only a few centuries have passed since those pre-Columbian days, yet today our whole earth has become only another shore from which we look out across the dark ocean of space, uncertain what we shall find when we sail out among the stars, but like the Norsemen and the Polynesians of old, lured by the very challenge of the unknown.

Between the time of those early voyages into unknown seas and the present we can trace an enormous and fateful change. It is good that fear and superstition have largely been replaced by knowledge, but we would be on safer ground today if the knowledge had been accompanied by humility instead of arrogance.

In the western world our thinking has for many centuries been dominated by the Jewish-Christian concept of man's

relation to nature, in which man is regarded as the master of all the earth's inhabitants. Out of this there easily grew the thought that everything on earth—animate or inanimate, animal, vegetable, or mineral—and indeed the earth itself—had been created expressly for man.

John Muir, who knew and loved the California mountains, has described this naive view of nature with biting wit: "A numerous class of men are painfully astonished whenever they find anything, living or dead, in all God's universe, which they cannot eat or render in some way what they call useful to themselves. . . . Whales are storehouses of oil for us, to help out the stars in lighting our dark ways until the discovery of the Pennsylvania oil wells. Among plants, hemp is a case of evident destination for ships' rigging, wrapping packages, and hanging the wicked."

So Muir, with his pen dipped in acid, many years ago pointed out the incredible absurdity of such views. But I am not certain that in spite of all our modern learning and sophistication, we have actually progressed far beyond the self-oriented philosophy of the Victorians. I fear that these ideas still lurk about, showing themselves boldly and openly at times, at others skulking about in the shadows of the subconscious.

I have met them frequently, as I have pointed out some exquisite creature of the tide pools to a chance companion. "What is it for?" he may ask, and he is obviously disappointed if I can't assure him that it can be eaten or at least made into some bauble to be sold in a shop.

But how is one to assign a value to the exquisite flower-like hydroids reflected in the still mirror of a tide pool? Who can place in one pan of some cosmic scales the trinkets of modern civilization and in the other the song of a thrush in the windless twilight?

Now I have dwelt at some length on the fallacious idea of a world arranged for man's use and convenience, but I have done so because I am convinced that these notions—the legacy of an earlier day—are at the root of some of our most critical problems. We still talk in terms of "conquest"—whether it be of the insect world or of the mysterious world of space. We still have not become mature enough to see ourselves as a very tiny part of a vast and incredible universe, a universe that

is distinguished above all else by a mysterious and wonderful unity that we flout at our peril.

Poets often have a perception that gives their words the validity of science. So the English poet Francis Thompson said nearly a century ago,

Thou canst not stir a flower  
Without troubling of a star.

But the poet's insight has not become part of general knowledge.

Man's attitude toward nature is today critically important, simply because of his new-found power to destroy it. For a good many years there has been an excellent organization known as The International Union for the Protection of Nature. I clearly remember that in the days before Hiroshima I used to wonder whether nature—nature in the broadest context of the word—actually needed protection from man. Surely the sea was inviolate and forever beyond man's power to change it. Surely the vast cycles by which water is drawn up into the clouds to return again to the earth could never be touched. And just as surely the vast tides of life—the migrating birds—would continue to ebb and flow over the continents, marking the passage of the seasons.

But I was wrong. Even these things, that seemed to belong to the eternal verities, are not only threatened but have already felt the destroying hand of man.

Today we use the sea as a dumping ground for radioactive wastes, which then enter into the vast and uncontrollable movements of ocean waters through the deep basins, to turn up no one knows where. . . .

The once beneficent rains are now an instrument to bring down from the atmosphere the deadly products of nuclear explosions. Water, perhaps our most precious natural resource, is used and misused at a reckless rate. Our streams are fouled with an incredible assortment of wastes—domestic, chemical, radioactive, so that our planet, though dominated by seas that envelop three-fourths of its surface, is rapidly becoming a thirsty world.

We now wage war on other organisms, turning against them all the terrible armaments of modern chemistry, and we assume

a right to push whole species over the brink of extinction. This is a far cry from the philosophy of that man of peace, Albert Schweitzer—the philosophy of “reverence for life.” Although all the world honors Dr. Schweitzer, I am afraid we do not follow him.

So nature does indeed need protection from man; but man, too, needs protection from his own acts, for he is part of the living world. His war against nature is inevitably a war against himself. His heedless and destructive acts enter into the vast cycles of the earth, and in time return to him.

Through all this problem there runs a constant theme, and the theme is the flowing stream of time, unhurried, unmindful of man’s restless and feverish pace. It is made up of geologic events, that have created mountains and worn them away, that have brought the seas out of their basins, to flood the continents and then retreat. But even more importantly it is made up of biological events, that represent that all-important adjustment of living protoplasm to the conditions of the external world. What we are today represents an adjustment achieved over the millions and hundreds of millions of years. There have always been elements in the environment that were hostile to living things—extremes of temperature, background radiation in rocks and atmosphere, toxic elements in the earth and sea. But over the long ages of time, life has reached an accommodation, a balance.

Now we are far on the way to upsetting this balance by creating an artificial environment—an environment consisting to an ever increasing extent of things that “man has made.” The radiation to which we must adjust if we are to survive is no longer simply the natural background radiation of rocks and sunlight, it is the result of our tampering with the atom. In the same way, wholly new chemicals are emerging from the laboratories—an astounding, bewildering array of them. All of these things are being introduced into our environment at a rapid rate. There simply is no time for living protoplasm to adjust to them.

In 1955 a group of 70 scientists met at Princeton University to consider man’s role in changing the face of the earth. They produced a volume of nearly 1200 pages devoted to changes that range from the first use of fire to urban sprawl. It is an astounding record. This is not to say, of course, that all the

changes have been undesirable. But the distinguishing feature of man's activities is that they have almost always been undertaken from the narrow viewpoint of short-range gain, without considering either their impact on the earth or their long-range effect upon ourselves.

They have been distinguished, also, by a curious unwillingness to be guided by the knowledge that is available in certain areas of science. I mean especially the knowledge of biologists, of ecologists, of geneticists, all of whom have special areas of competence that should allow them to predict the effect of our actions on living creatures, including, of course, man himself.

This is an age that has produced floods of how-to-do-it books, and it is also an age of how-to-do-it science. It is, in other words, the age of technology, in which if we know *how* to do something, we do it without pausing to inquire whether we *should*. We know how to split the atom, and how to use its energy in peace and war, and so we proceed with preparations to do so, as if acting under some blind compulsion; even though the geneticists tell us that by our actions in this atomic age we are endangering not only ourselves but the integrity of the human germ plasm.

Instead of always trying to impose our will on Nature we should sometimes be quiet and listen to what she has to tell us. If we did so I am sure we would gain a new perspective on our own feverish lives. We might even see the folly and the madness of a world in which half of mankind is busily preparing to destroy the other half and to reduce our whole planet to radioactive ashes in the doing. We might gain what the English essayist Tomlinson called "a hint of a reality, hitherto fabulous, of a truth that may be everlasting, yet is contrary to all our experience," for "our earth may be a far better place than we have yet discovered."

I wish I could stand before you and say that my own generation had brought strength and meaning to man's relation to nature, that we had looked upon the majesty and beauty and terror of the earth we inhabit and learned wisdom and humility. Alas, this cannot be said, for it is we who have brought into being a fateful and destructive power.

But the stream of time moves forward and mankind moves with it. Your generation must come to terms with the

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environment. Your generation must face realities instead of taking refuge in ignorance and evasion of truth. Yours is a grave and a sobering responsibility, but it is also a shining opportunity. You go out into a world where mankind is challenged, as it has never been challenged before, to prove its maturity and its mastery—not of nature, but of itself. Therein lies our hope and our destiny. “In today already walks tomorrow.”

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