

Introduction

MANY OF THE VISIONS sketched in these pages began to emerge four decades ago, when I was a young man in San Francisco in the sixties. I came of age with the support of a father who often took me along on his trips as a salesman marketing industrial products. By the time I was 20 I'd ridden in a caboose behind a steam locomotive, toured nuclear submarines and aircraft carriers, as well as various uranium mines, lumber mills, steel mills, power plants and oil refineries, and learned about cars by rebuilding one.

In the 1970s my fascination with architecture and infrastructure melded with a growing concern for the environment, and evolved into a vision of new transport, energy and water technologies, and a new approach to the land. This vision emerged in a science fiction book, *YV 88*, which outlined how a solar-powered railway operating on landscaped track could allow the ecological restoration of Yosemite Valley.

In the 1980s I formed a company to develop new railways. In 1991 we proposed the Yosemite project to the community and I found myself in the curious position of having written a science fiction book only to later be the developer of that vision. With the support of the park superintendent, executives of the park's concessionaire and environmental groups, I outlined the program before Congress and began to seek financing, but this proved too elusive and we had to shelve the project.

By this work I came to recognize the depth of our environmental plight and began to consider ecological restoration. But restoration was not even being discussed at the time; most environmentalists believed all that was gone was gone forever. I didn't agree. I once asked the eminent oceanographer Jacques Cousteau if, in all his travels, he'd seen any evidence of a

civilization that had recognized it was destroying its ecological foundation and then restored it. He said no, but then added, with a wry smile, that if it was ever to happen it would happen now.

That was 28 years ago and the turning point occurred not long after that conversation. The first restoration projects began to appear in the news. Initially they were tiny efforts, a pond or a stretch of a creek, but soon the scope expanded dramatically. The significance of restoration is underscored by Jared Diamond who, in his recent book *Collapse: How Societies Choose to Fail or Succeed*, cites ample evidence for how environmental changes effectively set the stage for the economic collapse of one civilization after another. Today restoration is a global effort, often involving major regional initiatives measuring in the billions of dollars. This has never happened before.

There were other turning points in the early eighties. Railroads awoke from a long sleep, in the form of a new trolley line in San Diego and growth in rail freight traffic, and the first 100 percent solar-powered homes began to appear in the backwoods of the US. These trends would prove to have profound implications.

All three trends, as well as parallel events in other fields such as organic farming and electric cars and high efficiency appliances, confirmed my belief that we could have ample energy and a high quality of life without continuing to transform the planet into a machine. I knew there need be no link between our quality of life and the destruction of earth, as if our seeming success and ecological health were mutually exclusive.

We are now entering a period when two major issues are likely to dominate our attention for some time: the decline of oil and the rise in the planet's temperature. If we do nothing to alter our course these two trends will, to varying degrees in various places, contribute to conflicts, starvation, disease and economic collapse. The causes behind these issues are not a result of normal events in the course of civilization's evolution, but of our use of extraordinary and unsustainable technologies over the last two centuries, and our inability to fully grasp the unprecedented magnitude of our numbers and our power.

We must recognize the uniqueness of our time. Modern civilization, beginning with the railway in the 1850s, is wholly unprecedented. While we may see similarities in human behavior and politics with long-gone civ-

ilizations, there is little similarity in our capabilities, achievements and potentials.

Today I see well-established trends pointing to a world where cities not only rely on the sun, but where the wild may be as close as the nearest shoreline, forest or grassland; where everyone would have equal access to mobility, healthful food, ample energy and pure water, and no one's life, nor that of the earth, would be compromised by anyone's use of any resources.

I do not see a bleak future. I've been accused of being a Pollyanna because I don't share the prevailing and often cynical visions of our future. I do see many potential horrors that *could* occur, and many that are likely to occur. But outside Hollywood there's no future in horror.

I turned away from such notions to focus on the visions I saw, reinforced by the ideals of millions of people all over the world who shared my feeling that modern life had to be transformed, not just fixed. These individuals now represent groups numbering in the millions, and they are focused on all manner of environmental, cultural and technological concerns. This spontaneous arising of citizens as activists and entrepreneurs has been a source of faith, sustaining me through many lean years.

I've witnessed this grassroots movement over four decades, following countless innovations in land restoration, energy, water, transportation and several other fields. I've also witnessed a denial of these realities by mass media and major institutions. To this day I find many popular debates persist as if solar power were not the fastest growing source of energy in the world, as if railways were not being expanded all over the world, and as if ecological restoration, organic farming and a raft of other trends were mere fantasies. Intelligent people have told me these things were not happening because the media or the president would have told them. They do not see a revolution happening all around them because it isn't being televised.

The vision I've been given has been sustained by faith in people, and their faith in me, and it has been informed by knowledge of basic infrastructure. I have long been a student of infrastructure, not just the technology of transport, energy or water, but the culture, economics and experience of it all. Major changes in energy, water or transportation—changes that will leave existing energy sources behind and may result in ameliorating if not reversing global warming—are tangible possibilities involving real technolo-

gies being made right now. History reveals that we've changed infrastructure much more rapidly than most people think, and precedent suggests all the ingredients are now present for a sweeping transformation.

Electric Water is about visions. It is not a book of prescriptions or analysis, but a journey into the realms of technology, culture, economy and our future. It is my hope that I might share with you what I believe is a most profound vision of a new world now emerging.