

Excerpt from  
**Feeling for Stones**  
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## **Introduction**

The last millennium is the one that has shaped us. During most of the past ten centuries, the human population increased slowly, giving us time to adapt our technologies and institutions to the pressures we were gradually placing on the earth's resources. That leisure is now gone. In the past fifty years – in my lifetime – our numbers have suddenly shot up and our demands on the environment have reached an unprecedented scale. However, the way we live and organise our affairs still reflects the slow evolution of the previous one thousand years.

This combination of gradually evolving human institutions and rapidly building ecological pressures creates an exceptional challenge. It is a challenge that most of us underestimate, assuming that with a bit of good will, some new technologies and a few new regulations, we can put things right again.

However, minor changes and alterations will not be enough. Instead, we need to recognise that we are facing the kind of social reorganisation last seen during the European renaissance and industrial revolution. We need to look again at our relationships with the environments we inhabit. We need to examine every aspect of the way we organise our lives so that we can learn to live differently with each other and with the eco-systems that support us. Above all, we need to understand that – like every other species – we live in nature, not apart from it.

This forces us to confront an important contradiction: nature's resilience has resulted from years of adaptation to variability and surprise – storms, pests, fires and other shocks. However, our modern organisations have sought to escape the disturbances of nature by increasing our technological control. Fires are stamped out in forests, floods are held back by dams, while diseases of all kinds are curbed through a variety of chemical, biological and mechanical tools. Thanks to this ability to contain the dynamics of the natural world, more people are now fed and housed than ever before.

However, ecologists are beginning to learn that the more successful our controls, the more we store up bigger shocks in the system; the bigger the dam, the bigger the flood if the dam breaks down. Each new shock tempts us to increase our control. In the process we lose the personal habits of resilience, of bouncing back after a disaster and moving on. Instead, we abdicate our responsibilities and ask the experts to increase their power. This is the paradox of control: the more we control the natural world, the more we need to control it and the less resilient all of us – human and wild – become.

The dilemma of resilience and control appears frequently in this book. During most of human history when we have been subject to the whims of nature, we have sought mastery over the natural world to help us survive. Much of the excitement of industrialisation has resided in its promise of prosperous survival through technological command. Now, it seems that the more we dominate the changeability of the world, the more risks we run. No one wants to give up the benefits of modernity, yet we need to learn how to live symbiotically and resiliently with the dynamic diversity of the world. How this might be done, however, is still unknown.

Ecology was not a fashionable word when I was growing up; its vocabulary was still closer to the hothouses of scholarly thought than to my family's suburban routines. We did, however, seek out the rural spaces of the North American East Coast during summer holidays, heading towards the national parks or renting summer cottages in country places. We also had the luxury of my grandparents' country house in Connecticut and lived within walking distance of Manhasset Bay, about twenty miles east of New York City. Here we learned to sail in different winds and tracked the limited numbers of birds, fish and other life found in and around the bay. We were not ecologists, but simply people whose education included knowing something of the natural world. Perhaps that is why I remember the first time I read the word "ecology" and felt the power of understanding the relationships between all forms of life and the places we all live.

If ecology has been one persistent echo in my life, a parallel curiosity about society's transformations dates back to the Vietnam War. Anti-war activists at my university were quick to condemn "the system" for dragging us into war. The system needed to change, but no one knew how to transform the American way of life and business as a whole. This question about comprehensive social change was rekindled in the late 1970s while working with an American livestock project in Niger, West Africa. I read most of what had been written about nomadic herding in the Sahel and visited every livestock project in the region, but noticed a disturbing contradiction between the scholars and international aid. Most of the

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aid projects were based on development theories that required fundamental changes in the local rules – land tenure and management, water control, family structure and animal ownership. They aimed to increase the productivity of the livestock sector. However, the scholars, who had often lived intimately with nomadic peoples, argued that nomadic herding reflected generations of successful adaptation to the irregular environment of the West African Sahel. In their view, fundamental change could be unwise. Their work raised a basic moral and ecological question about development's ambition: was it justified? What did development add to the generations of ecological survival? What right did we, American aid workers, have to test our theories on a society that was not our own, especially if our own American system also needed to change?

These doubts contributed to my early resignation from the livestock project, but they left me depressed and professionally confused. I remained fascinated by the process of systemic change I had witnessed in West Africa, but my mid-winter return to New York in 1979/80 was barren and lonely as few friends had experienced the things I had seen. Their support was genuine, but their advice fell wide of what I needed. After much thought, I moved to London to do a PhD in geography among people with a regular working knowledge of developing countries. In 1982, I did my fieldwork in Cameroon. After that, I did not return to Africa for another ten years. Africans, I had decided, needed less Western interference, not more.

By early 1984, when I finished my PhD, I was in debt, unemployed and tarred with so many years of independence that most employers found me hard to hire. I continued to mistrust aid agencies and grand development theories. I hoped to work with a multinational company operating in the non-Western world; it seemed a more honest place to stand as a company's interests were plain to see. After months of searching, I was given a trial assignment in the Group Planning Department of Royal Dutch Shell in London. Ironically, I was asked to predict the next newly industrialising countries based on their cultural characteristics; suddenly I needed a development theory of my own.

The arguments of this book have their origins in that 1984 paper for Shell, titled "The Social Foundations of Economic Growth". Using the statistics and ideas of a United Nations institute in Geneva, I showed that countries which had achieved high levels of health and education for most of their population were more likely to industrialise and grow than those with weak social foundations. This turned the conventional wisdom of the day on its head: economic growth did not pay for better health and education; rather, better health and education created stronger economic growth. Just as importantly, this idea could be drawn as

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a mnemonic double-S curve, the first slowly rising curve represented social change, while beneath it, a lagging, but steeper curve represented economic growth.

The paper ended with the suggestion that this double-S curve represented only one kind of change: the shift from agricultural to industrial societies. A second double-S curve was also visible, one driven by human pressure on the natural system. The economy of this second curve would probably be based on the technologies of resource efficiency and would probably require new social foundations – new skills, new rules and new breakthroughs in health. In an excess of historical imagination, I guessed that the first double-S curve had originated in 1750 with the English industrial revolution and was still spreading throughout the world. The second, ecological double-S curve, I egotistically decided, was beginning as I wrote and could appear almost anywhere. These dates were largely a matter of authorial convenience and dramatic effect, as I wanted to emphasize the depth of change being described and the simultaneity of industrial ambitions and ecological modernisation.

In the years that followed the 1984 paper, the exceptions to the social and economic double-S curve have revealed a pyramid of necessary building blocks. To create industrial societies, sound macro-economic policies are needed: keep inflation down, the government solvent, and the foreign exchange rate at a reliable level. “Hard infrastructure” – the ability to move goods, information and people– also matters. However, such infrastructure requires financial institutions, legal frameworks, corporate structures and other rules – what some term the “soft infrastructure” – to function well. All these need to be agreed and respected. Neither the hard nor the soft infrastructure can be maintained, however, unless there is a literate and healthy population with the necessary skills. To provide this building block of universal health and education then requires a capacity for political agreement, perhaps the most fundamental foundation stone of all. In the end, even the wisest societies and leaders need an element of luck: accidents of weather, war, international trade and personality all influence the ability of countries to transform themselves from one social and economic system to another.

In short, there is no single prescription for systemic change. Rather, it involves interlocking and often accidental foundations deeply embedded in each society’s history, geography and customs. In my own work, the diagram of the double-S curve of social foundations and economic growth remains enormously influential and is easy to understand. It travels in my laptop along with a sketch of development’s building blocks. I have wanted to redraw the building-blocks diagram for years, replacing the simple pyramid of stones with more systemic loops and arrows. But the building-blocks sketch has never changed, partly

because things do seem to require earlier foundations, with the capacity for political agreement supporting them all.

Both diagrams – the double-S curve and the building blocks – have helped me explore the process of inventing ecological societies today. I have repeatedly used the lessons of 20<sup>th</sup> century development to look at the invention of industrial society in England. When and how did literacy and learning begin to shape England's responses to new challenges? What was the role of health and disease? Where did the building blocks of hard and soft infrastructure fit in? What was the process of agreeing new rules and what were the politics of invention? The developing countries illustrate how agricultural societies have adopted the known model of Western industrialisation. The history of pre-industrial England, on the other hand, sheds light on inventing a new social and economic system never seen before.

If systemic social invention is the first theme of this book, the question of how we learn to live ecologically is the second important question. I first met this issue while working with the American livestock project in the Sahel. That assignment made me wonder what rural peoples in the non-Western world still know about living resiliently with the variability of the natural world. What might they teach us about ecological societies: the politics, property rights and every-day rules? I might have addressed this through the experience of country people in India, Southeast Asia or parts of Latin America, but here it is an African issue. Not only was West Africa where I first met this question, but suddenly, during the same years that I have been writing this book, a handful of long term assignments have taken me back to Africa after almost twenty years of working elsewhere.

This question of how we learn to live ecologically leads directly into the third organising issue: what are the creative consequences of conquest and colonisation? Geographers studying the impact of Christopher Columbus's arrival in the Americas refer to it as the "Columbian encounter" and my own American society is one of its consequences. African societies today are still shaped by the more recent experience of colonial conquests and its continuing encounters. More remotely, pre-industrial England was shaped by the Norman conquest, another traumatic encounter. English history, however, suggests that there can come a time when two unequal societies – one conquering and one conquered – change their relationship to each other, creating opportunities for a different kind of learning and invention. But how does the tragedy of conquest become the innovations of a more beneficial engagement?

This question has crept into the book because post-colonial societies today may be the most critical cutting edge of our ecological future. Social and ecological pressures are most intense in these countries where the land-based knowledge of agricultural economies is still relatively close and resonant. It is just possible, therefore, that modern ecological societies will emerge not in the Western heart of the industrial system, but in the remote peripheries where different conditions and beliefs apply. That is why the experience of conquest is the third question I explore.

Conquest and engagement, living ecologically, and the invention of new social systems are three complex and untidy issues. My task has been to reduce that complexity to something an intelligent reader can grasp. This book is an experiment on that frontier. It uses a personal memoir as the autobiographical spine for a structure of questions. While the memoir is told more or less chronologically, the questions cross one thousand years, three continents and three conquests, exploring social forms and transitions based on land, industrial innovation and ecological resilience. What emerges is less a logical argument than a structure of pictures and stories that suggest how the future might unfold.

This style follows from two core beliefs. First, we are living in conditions we do not understand where obvious solutions are hard to find. Good questions, I believe, should contain the innovations we are likely to need now. Second, complex subjects can be tracked more easily by exploring them from a single point of view, in this case the story of one person's travels. This personal story is illustrated with anecdotes, images and sayings which are used to simplify tangled observations. These are then linked to other simple images in order to complete our understanding of the whole. It is my hope that this approach will help all of us comprehend the process of learning and invention as we face the unknown thresholds of unpredictable change.

Most people are frightened by the unknown. Pioneers in all times, however, have understood that by embracing the empty spaces they can free themselves from the frustrations of working with unsuitable tools. This risky freedom has often been perilous, but just as often it has opened up possibilities never seen before. This book is therefore dedicated to all those who understand both the perils and possibilities of pioneering.