THE RETREAT OF THE ELEPHANTS

an environmental history of china

MARK ELVIN
The Retreat of the Elephants
Other books by Mark Elvin


As ‘John Dutton’ (fiction)


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An Environmental History of China

Mark Elvin

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Dedicated to Dian Montgomerie, Richard Grove, and Kay Oldfield, each of whom helped me to see things differently
The straight tree is first to be felled;  
First drained dry, the well of sweet water.  

“Trees on the Mountains,” third century BCE, *Zhuangzi*
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Double quotation marks are normally only used in the main text to indicate direct quotation from an identified source, the emphasis being on the fact of citation. Single quotation marks are used for all other purposes, notably for picking out a term or phrase that is the topic of discussion, either semantically or in a literal sense, or else is being used with an unusual meaning.

Other uses of double quotes include the demarcation of the titles of individual poems in the main text, and of journal articles in the bibliography, as well as the indication of direct speech in dialog. As usual, embedded use of multiple quotation marks requires an alternation of the two types for clarity.

Single quotes are used to demarcate the titles of chapters within a book and of sections within an article, written by a single author. For collections of chapters by different hands, the chapters are treated as ‘articles’, and demarcated by double quotes.

All *italics* in passages translated from Chinese sources have been added for emphasis by the present author, and this fact is not noted in individual cases.

The omission of lines or verses in translated poems is marked by ‘...’ following the final word and stop of the extract presented, and is sometimes on the same line, to save space.
This book is an overview of the environmental history of China. The span covered is about four thousand years, but weighted toward the last thousand. The main reason for this is the greater availability of relevant materials for the more recent period. It is based on the findings of other scholars, Chinese, Japanese, and Western, and on my own researches. These include historical geography, local histories, poetry touching the environment, systems of belief about and representations of nature, local demography, and water-control systems.

The first aim is to sketch the factual record, so far as we know it at present. The second is to try to resolve a problem. Why did human beings here interact with the rest of the natural world in the way that they did? And, more tentatively, to what extent was it distinctive?

There are three main sections. Patterns gives the general picture, including the retreat of the elephants that contributes the title. Broadly speaking, their long retreat, from the northeast to the southwest, was the reversed image in space and time of that of the economic development and environmental transformation of premodern China. The central story, long-term deforestation and the removal of the original vegetation cover, is outlined in the two chapters that follow, more descriptively than analytically. But a core contention is documented, that classical Chinese culture was as hostile to forests as it was fond of individual trees.

The next two chapters look at two key questions. What were the original social driving forces and then the economic forces, behind the long-term environmental transformations of China, both constructive and destructive? Conversely, how did these environmental transformations, especially
water-control engineering on an often immense scale, interact with economic
growth, and with social and political institutions? I argue that the foundation
of the answer to the first lies in a form of cultural social darwinism: cultures
that actively exploited nature tended to gain a military and political competitive advantage over those that did not. I hypothesize that much later, once premodern economic growth had reached the point where money could be securely invested at interest, natural resources then came under a further pressure: a resource, such as a tree, that was not utilized economically appeared as income foregone. This is labeled ‘the cash-in imperative’.

A chapter on water control then follows up the story of the state-driven aspect of growth through the imperial period. Hydraulic enterprise moved from a mix of impressive early successes and some massive failures, along a curve of steadily improving technology, toward an eventual form of environmentally constrained premodern technological lock-in. That is, once a large system had been established, it became the foundation of a local optimum that could not be easily abandoned because of the threat to livelihood and even lives. It was incapable of being much further developed after a certain point, and its hydrological instability incurred a perpetual burden of maintenance that made heavy social and economic demands. The long-term opportunity cost of this achievement was high when seen in a wider perspective.

The second main section, Particularities, presents the environmental histories of three contrasting regions. It focuses on the impact of development by smaller-scale units, communities, family farms, manors, and religious institutions, all of them increasingly oriented economically by the magnetic-like fields of the multicentered competitive market system. One region, Jiaxing on the central east coast, illustrates what is perhaps the major pattern of premodern Chinese economic growth from a profusion of ecological riches to a resource-strained complex of ultra-intensive garden-farming and handicrafts that placed an all-but intolerable workload on working people. The second, Guizhou in the southwestern interior, shows Chinese colonialism and imperialism at work on a Han/non-Han environmental frontier. The last, Zunhua on the old northeastern border, explores a still relatively resource-rich underdeveloped area and the negative correlation between premodern economic growth and some indices of well-being, such as the expectation of life, which was longer here than in the more ‘advanced’ regions.

Each had different population dynamics. People, or at least adults, lived longer in northern backward Zunhua than in subtropical colonial Guiyang, the capital of Guizhou, and longer in Guiyang than in advanced east-coast Jiaxing. Technical difficulties make presenting new results in population history unattractive in a general book like this. It is critical, though, for the
reader to be aware of the trend of recent findings on fertility, including those of James Lee and his collaborators, of Zhao Zhongwei, and of my own team, still partly unpublished. The key point on which we broadly agree, though with nuanced differences, is that at least by late-imperial times the pace of childbearing within marriage was slowed down by a spacing of births. In our view this was first and foremost the consequence of a longish infertile period following the live birth of a child. The reasons, in our view, were principally a mix of post-birth amenorrhea, prolonged lactation, coitus interruptus, and social restraints on intercourse imposed by convention. Female infanticide must also have played a part, though how big a one is still open to serious debate. Methods of contraception and abortion were likewise known but are rather unlikely to have had a decisive quantitative impact. Life expectancy, though it varied from place to place, was too high—sometimes reaching over forty—for the death rate alone to have kept population growth within environmentally sustainable bounds. There was virtually universal marriage among women, and the majority of them married at close to the age of seventeen, prior to the peak period of natural fertility, which occurs at about twenty. Restraint within marriage must have existed; the direct evidence strongly suggests that it did; its pattern over the years of marriage, especially with relation to the effects of parity (the number of children born) and parental gender-preferences, and with regard to its mechanisms, awaits further clarification though a beginning has been made. Overall, there was indeed, as is commonly thought, population pressure on resources, especially during the later empire as easily exploitable space filled up. But it was moderated by long evolved customs, and a measure of conscious awareness and appropriate action. As Lee has stressed, China was not ‘Malthusian’, in any usual sense of this overused, often hazy, but still evocative word. Chinese environmental history was not just driven by a helpless subservience to the excessive replication of human beings.

Subtler, more fugitive, patterns are also sketched in these pages. How individual landscapes were brought under conceptual, religious, and aesthetic control. Cartography, shrines and temples, myths, legends, and landscape poetry. How communications consolidated communities, as by the millennial proliferation of new bridges. They detail local interactions with microfauna—epidemics and diseases like malaria. With macrofauna such as tigers, both the eaters of men and increasingly their prey. The use of raptors for hunting. And local plants, whether domesticated or wild, or imported from the New World and elsewhere. The differing degrees to which the ancient environmental buffers against natural disasters disappeared, diminished, or endured. Even how patterns of war and criminal activity were shaped by the natural environment