

FOREWORD

by David Gordon Wilson

As I write this draft in April 2008 it seems that Tamara Dean's book is an exact fit for the time. Global warming has become accepted as a highly probable consequence of human interference with the Earth's systems; the prices of oil and gasoline have never been higher; obesity has been recognized as a serious health threat across the "first world"; and we have failed to improve the poverty, malnutrition and access to good water of most of the third world. The proposals, the reviews of successful and failed developments, and comments in this book can make positive contributions in all these areas.

To bring about change in such difficult fields seems like a fantasy. Yet Tamara Dean's book could be another "Silent Spring". People do change. When I first came to the US in 1955 race relations were appalling and seemingly could not be improved. The situation in 2008 is not perfect, but conditions have undergone a massive transformation. Also in those days just about everyone smoked. I tried to get some rights for nonsmokers at MIT and elsewhere, and my friends said "Give it up, Dave! Look around — everyone wants to smoke!"

And they were right: students and faculty smoked in class, and doctors smoked even when with their patients. Rather suddenly, the US changed abruptly from being a country where our freedoms included freedom to smoke almost anywhere to one having just about the most restrictive policies on smoking in the world. The major changes in these two different areas buoy me up when I contemplate seemingly intractable problems involving people's behavior, expectations and deeply held beliefs about their rights. If the problems are explained honestly and directly, even the most hide-bound of us can change.

Tamara Dean wants to bring about changes in the way we use the energy of our muscles, and I am with her all the way. As an engineer I am embarrassed by the way we abandoned the development of human-powered tools and other devices as soon as the electric motor and internal-combustion engine came along. It annoys me that when I rake leaves or clip my hedge I am using far less power than my body could comfortably produce, but I am forced to use very old forms of shears and lawn rakes that constrain my

output to being a small fraction of what my neighbors can produce with electric shears and powered leaf gatherers. I know that it doesn't have to be that way: I have made a human-powered plough with which I can clear our driveway of snow in much less time than our neighbors take with their gasoline-powered snowblowers. I have been challenging generations of MIT students to produce better human-powered lawnmowers and brush-shredders and the like, and some have produced delightful devices. But as Tamara Dean shows, creating better systems is not

trivial. Our fossil-energy-powered competition has evolved over many decades of successive improvements, during which time human-powered devices have languished.

Therefore please read this book with high ambitions and expectations to bring about changes in our lives and in those of others, so that we can look forward to a future of greatly reduced adverse impacts on our environment, and of better health here and in places where impoverished people are presently scraping out a thin living. We could change the world!