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FOREWORD

By David W. Orr

AT THE END OF HIS LIFE, SCIENCE-FICTION WRITER and historian H. G. Wells was no optimist. Surveying things from his vantage point at the close of World War II and not long before his own death he wrote: "The end of everything we call life is close at hand and cannot be evaded" (H. G. Wells, 1946, p. 1). And 58 years later, Martin Rees, England's Astronomer Royal and professor at Cambridge University, was no more optimistic, giving humankind 50-50 odds of making it to the year 2100 (Rees, 2003, p. 8). Indeed, any moderately well-informed high-school student could easily assemble a list of dozens of ways things could all come undone, ranging from whimpers to bangs. Gamblers at some intergalactic casino would not likely bet much on us. And what can be said for such a violent bunch that seems so intent on mutilating its own earthly home? We are a long shot, but so, too, were those small, unimpressive mammals scurrying about amidst the invincible dinosaurs of their time. If such intergalactic bets *are* being placed, there are a perceptive few who might see a modern-day equivalent to that earlier time when the long shot paid off. The small, vulnerable and unimpressive mammals won for many reasons, including their agility, resilience, adaptability and intelligence-to-body-mass ratio.

All informed citizens know about the perils ahead, including rapid climate destabilization, species extinction, pollution, terrorism and ecological unraveling in its many forms, and the human, political and economic consequences. But fewer have stopped to look at

the wider topography, where something quite remarkable is occurring. Below the radar screen and outside the cultural buzz, a revolution is beginning to gather steam at the grassroots and in out-of-the-way places around the world. While the headlines report one military excursion or another on the chessboard of geopolitics, or yet another "triumph" for the juggernaut of globalization, people and small organizations with long names and short budgets are beginning to construct a different world. As unimpressive as those small furry mammals were relative to the giants of a distant time, the outline of something far better is beginning to emerge in communities and organizations around the world.

It is happening first at the periphery of power and wealth, where revolutions often start. It is evident in farmers beginning to mimic natural systems in order to preserve their soil and land. It is evident in a new attitude emerging everywhere about the value of biological diversity and species protection. It is evident in the rapid development of technologies that harness sunlight and wind. It is evident in the burgeoning interest in green building, green architecture, green engineering and green communities. It is evident in a growing number of businesses selling "products of service" and preserving natural capital as a matter of conscience and profit. It is evident in a new religious sensibility across the full spectrum of faith traditions that regards stewardship of the Earth as obligatory. It is evident in education and the emergence of new ways to think about the human role in nature that stretch our perspective to whole systems and out to the far horizon of imagination.

The "it" is often called "sustainability," an indefinite term. But by whatever name, this revolution is more sweeping by far than that which we associate with the Enlightenment of the 18th century. The sustainability revolution is nothing less than a rethinking and remaking of our role in the natural world. It is a recalibration of human intentions to coincide with the way the biophysical world works. It is a slowing down to the rhythms of our bodies, convivial association and nature. The concern for our longevity as a species represents a maturing of our kind to consider ourselves first as "plain



INTRODUCTION

Portrait of the Sustainability Revolution

Every generation needs a new revolution.

—Thomas Jefferson

We must not be afraid of dreaming the seemingly impossible if we want the seemingly impossible to become a reality.

—Vaclav Havel

IN BORNEO, villagers are replacing polluting diesel generators with small-scale hydro-generators and tapping local streams to produce clean and affordable electricity for their communities.¹ In Astoria, Oregon, local government, businesses and residents have used ecological design practices to transform an abandoned toxic mill site into a convivial community.² In Bavaria, Germany, the world's largest solar power plant, a 30-acre facility generating 10 megawatts of electricity — enough to meet the demand of 9,000 German homes — is online.³ And in Curitiba, Brazil, city planners have created a model public transportation system covering eight neighboring cities and carrying 1.9 million passengers a day.⁴ Although these events may appear to be isolated incidents, they represent thousands of initiatives taking place worldwide that are the vanguard of the Sustainability Revolution.

Not since the Industrial Revolution of the mid-18th to mid-19th centuries has such a profound transformation with worldwide impact emerged onto the world stage. Like its industrial counterpart, the Sustainability Revolution is creating a pervasive and permanent shift in consciousness and worldview affecting all facets of society.

The Sustainability Revolution draws its significance and global impact from a wide spectrum of interests with common fundamental values. Like the Industrial Revolution, the Sustainability Revolution is far-reaching and is having a profound impact, shaping everything from the places we live and work to the foods we eat and the endeavors we pursue as individuals and as communities.

Though still largely underground and misunderstood, the Sustainability Revolution is affecting the economic, ecological and social aspects of societies worldwide. Amid the invasion of SUVs, Costcos, Wal-Marts and supermarket chains, we see glimpses of this transformation in the increasing numbers of hybrid cars, wind turbines and solar panel installations; the resurgence of farmers' markets and organic foods in cities and towns across Europe and the US; the introduction of ecoliteracy curricula in some schools and universities; the building of cohousing projects that restore community ties; and the large number of grass-roots groups from around the world working on issues such as habitat restoration, climate change, labor rights, local currencies and the protection of local economies. These changes, though inconspicuous, are blazing a trail toward a new awareness that treats the fabric of life of our planet with respect and seeks to balance economic goals and ecological health.

The present unsustainable path marked by an unrelenting economy that methodically depletes the Earth's ecosystems will have to change. In 2003, for example, 11,000 cars were added to China's roads every day, a total of 4 million new cars in one year. At this pace, by 2015, 150 million cars are expected in China — 18 million more than were driven in the United States in 1999.⁵ As Lester Brown points out, if Chinese car ownership and oil consumption were to equal US rates, 80 million barrels of oil a day above current

world production would be needed; and if Chinese per-person paper consumption were to match the US level there would not be enough paper (or forests) available.⁶

Clearly the Chinese, together with the rest of the over six billion people in the world, face a predicament that calls for a significant ecological, economic and social shift. The Sustainability Revolution presents an alternative that supports economic viability and healthy ecosystems by modifying consumption patterns and implementing a more equitable social framework.

Anatomy of Social Revolutions

To better understand the structure of the Sustainability Revolution, we turn to the anatomy of social revolutions. From 1750-1850 the Industrial Revolution caused a lasting shift from an agricultural and commercial society relying on animals and simple tools to an industrial society based on machinery and factories. The Industrial Revolution was marked by technological innovations, increased production capacity and economic specialization. As with other social revolutions, the changes in the Industrial Revolution and the current Sustainability Revolution involve three distinct phases: genesis, critical mass and diffusion.

Genesis

The genesis of the Industrial Revolution was in the accumulation of precious metals brought back to Europe from the New World. These commodities stimulated the creation of industry, expanded trade and established a money economy in Great Britain. The Sustainability Revolution dates back to the concepts first explored in 1972 at the United Nations Conference on the Human

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Environment in Stockholm, Sweden, and gained prominence in the 1987 Brundtland report, *Our Common Future*.

The Brundtland report created a framework for addressing ways of protecting the Earth's ecosystems while taking into consideration economic and social justice concerns. Sustainable development was defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."⁷

Critical mass

The critical mass phase of the Industrial Revolution involved the use of power resulting from the improvement of the steam engine by James Watt in 1769. This development had a profound impact on the efficiency of factory production, transportation services and the economic infrastructure of nation states. Although the Sustainability Revolution's critical mass has yet to fully materialize, key milestones were the 1992 Earth Summit in Rio de Janeiro, Brazil, and the development of the personal computer and the Internet.

The Rio summit brought together 182 world leaders and propelled sustainability onto the international stage. Through the Rio Declaration and Agenda 21, the summit developed frameworks for charting future actions. The personal computer and the Internet have had a significant impact on the Sustainability Revolution by facilitating the dissemination of information and the organization of sustainability-oriented groups, which now have better access to media outlets traditionally controlled by well-established institutions.

Diffusion

Although the Industrial Revolution began in Great Britain, it spread throughout Europe and then to the United States and beyond. The use of electricity, the gasoline engine and factory-based production methods was rapidly adopted by other cultures. These changes resulted in urban centers that today are found worldwide.

The Sustainability Revolution emerged in the United States and European Union countries as they grappled with the limits of natural

resources and is quickly spreading to developing nations, though it has yet to become a pervasive mainstream phenomenon. Some of the most innovative projects in areas such as renewable energy, agriculture and finance are taking place in the developing nations. One example is a national biogas program in Thailand that converts animal waste into methane for electricity production.⁸ Another project is the Grameen Bank in Bangladesh, which in 1976 through collateral-free loans to the very poor sparked the microcredit movement, which has spread to over 40 countries and proven to be a successful anti-poverty program for developing nations and for the inner cities of industrialized countries.⁹

Kiva
peer-to-
peer online
lending

In addition to such initiatives, there now is worldwide awareness of issues such as climate change, pollution, ozone depletion and habitat destruction that are international in scope and will require a concerted effort by all nations to resolve.

Movements and Revolutions

Whereas movements tend to have narrower objectives and are led by a charismatic leader, such as Mahatma Gandhi in the non-violence movement and Martin Luther King in the civil rights movement, social revolutions have wider objectives and are led by a large and diverse number of individuals. The anti-globalization, organic foods, green building, renewable energy and other “green” movements all are working within the broader context of the Sustainability Revolution. Though including aspects of social movements, sustainability is in fact a revolution with a new value system, consciousness and worldview.

The Industrial Revolution was defined by technological breakthroughs including James Watt’s improved steam engine (1769), Edward Cartwright’s power loom (1783) and Eli Whitney’s cotton gin (1793). These inventions contributed to increased production and economic growth in the textile, iron, rail and steamship industries that have left an indelible mark on our current society. The impact of the Industrial Revolution has been broad and lasting.

The developments that have shaped the Sustainability Revolution have transformed the fields of communications (computers, the Internet, e-mail, wireless phones, digital cameras); finance (global trade, international stock and commodities markets); transportation (hybrid cars, overnight parcel delivery, lower-fare jet

travel); building (green building, renewable materials, solar energy); and medicine (imaging technology, human genome decoding, cloning); and led to the organization of citizens' groups working on causes such as stream restoration, pesticide control, renewable energy and organic produce.

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Although sustainability often is marked by environmental causes and protest campaigns, its values represent a broad context of issues that have spread underground in all sectors of society throughout the world.

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The Sustainability Revolution evolved as a reaction to the Industrial Revolution's degradation of the environment and our well-being. The rampant environmental impacts and the recognition of the limits of natural resources combined to produce a new ethos embodied in the Sustainability

Revolution. Government environmental clean-up programs such as Superfund and protection programs such as the Clean Air Act, Clean Water Act, Safe Drinking Water Act and Endangered Species Act were created as a result of concern for the damaging effects of the Industrial Revolution.

The Five Characteristics of the Sustainability Revolution

The Sustainability Revolution has five key characteristics or dimensions. These are: (1) remarkable similarities among sustainability groups in overall intentions and objectives; (2) a large and diverse number of such groups; (3) a wide range of issues addressed by these groups; (4) leadership by a group of decentralized visionaries rather

than a single charismatic figurehead; and (5) varying modes of action: oppositional and alternative.

Similar Intentions and Objectives

The mainstream often confuses sustainability with ecological concerns, pitting conservation groups against business interests. This situation leads to a deadlock, with polarized viewpoints and inability to compromise. Sustainability has thus been framed in a narrow perspective, often associated with a single issue backed by proponents with a liberal mindset. Although sustainability often is marked by environmental causes and protest campaigns, its values represent a broad context of issues that have spread underground in all sectors of society throughout the world.

Although there are some disagreements among sustainability groups, there are remarkable similarities in their intentions and objectives. These include: concern for the environment, the economy and social equity; understanding of our dependence on the health of natural systems (clean air, clean water, healthy soils and forests, biodiversity) for our survival and well-being; knowledge of the limits of the Earth's ecosystems and the detrimental impact of unchecked human activities (population, pollution, economic growth); and a long-term, intergenerational perspective in actions and goals.

Large and diverse

The Sustainability Revolution is international in scope. Its ideas are promoted by environmental and social service groups, nongovernmental organizations, foundations and loosely organized community groups. All facets of society, including government, industry, the private sector, education and the arts, and all socioeconomic backgrounds, nationalities, religions and cultural affiliations are represented.

Paul Hawken estimates that there are 30,000 sustainability groups in the US and tens of thousands of groups worldwide.¹⁰ Social researcher Paul Ray describes sustainability advocates as "Cultural Creatives" and estimates there are 50 million in the US

and 80 to 90 million in the European Union, with a \$230 billion market in the US and \$500 billion worldwide.¹¹

Range of issues

The Sustainability Revolution has no single ideology but instead a collection of values centered around healthy ecosystems, economic viability and social justice. Sustainability encompasses a wide array of issues including: conservation, globalization, socially responsible investing, corporate reform, ecoliteracy, climate change, human rights, population growth, health, biodiversity, labor rights, social and environmental justice, local currency, conflict resolution, women's rights, public policy, trade and organic farming. These issues cross national boundaries, socioeconomic sectors and political systems, touching every facet of society and driven by life-affirming values that influence policies and initiatives at the local, regional, national and international levels.

Decentralized leadership

As with other social revolutions, the leadership in the Sustainability Revolution is made up of hundreds of thousands of citizens and community leaders from around the world. As Hawken reminds us, "No one started this worldview, no one is in charge of it, no orthodoxy is restraining it [It is] unrecognizable to the American media because it is not centralized, based on power, or led by charismatic white males."¹²

The strength of the Sustainability Revolution lies in its decentralized, nonhierarchical organizational pattern, which encourages diversity and alternative approaches to the ecological, economic and social challenges of our time. The Sustainability Revolution has spread remarkably quickly and effectively into cultures worldwide.

Oppositional and alternative actions

While some sustainability groups oppose trends seen as detrimental to their core values, others present alternative models. Oppositional actions focus on areas such as globalization,

biotechnology and habitat destruction, while alternative actions include voluntary simplicity, supporting local economies and community-building.

The oppositional component of the Sustainability Revolution is increasingly visible through demonstrations at conferences such as the G-8 Summit in Genoa, Italy (2001), the World Trade Organization (WTO) in Seattle, Washington (1999) and Cancun, Mexico (2003) and the Free Trade Area of the Americas (FTAA) in Quebec, Canada (2001) and Miami, Florida (2003).

Nevertheless, important shifts are occurring in a much less dramatic fashion through alternative approaches ranging from local renewable energy projects to Community Supported Agriculture (CSA) programs to corporate initiatives implementing sustainable frameworks such as The Natural Step, which provides a scientifically based organizational model.¹³ At the international level, in 2004 the World Social Forum attracted over 80,000 social activists from 132 countries to Mumbai, India, to discuss issues from globalization to patriarchy, militarism and racism, challenging participants: "Another World is Possible! Let's Build It."¹⁴

A Revolution of Interconnections

The Sustainability Revolution provides a vital new approach to tackling the issues confronting the world today. By taking a comprehensive look at the interconnections among ecological, economic and equity issues ranging from global warming to pollution, health and poverty, we are more likely to seek and implement lasting solutions.

The Sustainability Revolution marks the emergence of a new social ethos emphasizing the web of relationships that link the challenges we currently face. As Carolyn Merchant points out, "An ecological transformation in the deepest sense entails changes in ecology, production, reproduction, and forms of consciousness In the ecological model, humans are neither helpless victims nor arrogant dominators of nature, but active participants in the destiny of the webs of which they are a part."¹⁵