

Food, Friends, and Faith; Cornerstones of Sustainabilityⁱ

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Galileo was the first person to raise a telescope to the skies and see beyond the limited boundaries of the early Catholic Church. His way of thinking was considered dangerous at the time because it was thought that ordinary people wouldn't be able to cope with the new knowledge that Galileo was teaching. The Church didn't want their ideas challenged because their rigid beliefs concerning Heaven and Hell allowed the Church to maintain influence and control over the people.¹ Galileo eventually was forced to recant his heliocentric view of the universe and spent the last years of his life under house arrest. However, the world was forever changed by his willingness to think beyond the accepted boundaries of his times.

Once again, the world is being challenged to look beyond the limited boundaries of archaic thinking that places humanity at the center of universal wisdom with dominion over a knowable, manipulatable, mechanistic world. The challenge today is not coming from any single intellectual giant but from a multitude of thoughtful, insightful people who have looked at the world around them and have concluded that a society driven by a mechanistic worldview quite simply is not sustainable. They have concluded that we humans are not at the center of wisdom nor do we have dominion over a world apart from us. Instead, we humans are but one aspect or part of a complex, dynamic, living global system. Certainly, humanity has an influence from within the living world, but we most certainly do not control it.

Once again, those who question the conventional wisdoms of today are considered dangerous to society. Questions of sustainability are kept on the periphery of public concerns. Scientists maintain their reputations, capitalists reap their fortunes, and politicians win reelection by perpetuating the myth of human supremacy over the other living and nonliving things of the earth. We have exploited the earth's bountiful resources, polluted its pristine environment, and even distorted the natural behavior of the human species, all in the name of scientific objectivity and the ultimate supremacy of humanity over nature.

The institution most threatened by today's questions of sustainability is not a recognized religion but instead is neoclassical economics. This new pseudo-religion of economic self-interests is perpetuated and supported by a belief in the ability of science to fix any problem we may create and find a substitute for anything we might use up. Those people who have the courage to think beyond the bounds of today's science and economics are routinely marginalized by the economic, political, and academic establishments. Like Galileo, they eventually may be

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forced into intellectual exile and some may even recant their views. However, the world will be forever changed by their willingness to think beyond the accepted boundaries of their times.

Transformational change never comes from those in positions of economic or political power, or from intellectuals subordinate to the powerful. The current system is working for them; it's the source of their power. Change always comes from common people when they sense the need for fundamental change in their everyday lives. Galileo may have shaken the peoples' blind faith in the Church, but freedom came only when people found the courage to act on their newly acquired knowledge of the world around them. The need for fundamental change is even greater today than in the time of Galileo. The very future of humanity may well be at stake. There is a compelling need to expose the myths of today's science and economics and to tell the truth about sustainability. Furthermore, if people are to find the courage to act, the story of sustainability must be put into words that everyone can understand and can begin to make a part of their everyday lives.

Fortunately, the most important questions of sustainability are straightforward and the answers to those questions are mostly a matter of common sense. How can we meet the needs of the present without compromising opportunities for the future? The answer: by creating a society that has ecological, social, and economic integrity. In everyday words, sustainability is about creating a better way of life – individually, socially, and ethically. The cornerstones concepts of sustainable living can be found in our everyday encounters with food, friends, and faith.

Food is among the most basic of all human needs. We really are what we eat. If we have nothing to eat, we become nothing. In addition, we are biological beings; our well-being is inextricably dependent on the well-being of the other living things on earth. If we destroy the biological diversity of the earth, we destroy the future of humanity. There are already too many people on the earth to return to hunting and gathering. Therefore, the sustainability of human life – at any level remotely comparable to that of today – depends on the sustainability of our supply of food, specifically the sustainability of agriculture.

A sustainable agriculture must be capable of maintaining its productivity and value to society indefinitely – forever. Therefore, it must be ecologically sound, socially responsible, and economically viable. It's basically a matter of common sense. If an agricultural system degrades and eventually destroys the productivity of the land – its natural ecosystem – it loses its ability to produce, and thus is not sustainable. If agriculture fails to meet the basic needs of society – as consumers, producers, and citizens – it will not be supported by society, and thus is not sustainable. An agriculture that is not profitable, at least periodically, is not financially viable, regardless of how ecologically or socially responsible it might be, and thus is not sustainable. All three are equally necessary and none alone is sufficient.

Today's dominant system of agriculture has evolved from the mechanistic scientific worldview that has undergirded the industrial era of economic development. The dominant agricultural strategies of at least the last fifty years have been specialization, standardization, and consolidation of control. The basic idea was to improve the efficiency of agriculture by transforming farms into factories without roofs and fields and feed lots into biological assembly lines. The industrialization of agriculture has yielded impressive results, at least in terms of

productivity and economic efficiency. However, it has resulted in an agriculture that degrades its natural resources, depletes its human resources, and destroys economic opportunities for the future. Today's industrial agriculture fails every test of sustainability.

Sustainability ultimately is a matter of energy. Our houses, automobiles, clothes, food, all things of use to us... require energy to make and energy to use. In fact, all material things are concentrated forms of energy. That's what Einstein's famous equation $E=MC^2$ is about: E equals energy, M is matter, and C is the speed of light. All useful human activities – working, thinking, creating... – also require energy. In fact, the brain accounts for about one-fifth of energy used by the human body. The sustainability of human life on earth depends on sustaining the usefulness of energy.

According to the first law of thermodynamics, energy can neither be created nor destroyed, which might suggest that sustainability is inevitable. However, according to the second law of thermodynamics, each time energy is used, some of its *usefulness* is lost – the law of entropy. Whenever energy is used, it always changes in form, specifically from more concentrated, organized forms to more dispersed, disorganized forms, as when gasoline explodes in the engine of an automobile. In fact, this natural tendency to disperse is what makes energy useful. Each time it is used and reused, it becomes less concentrated and less organized, and thus, less useful.

Energy can be reconcentrated and restored, but this requires energy, which is then unavailable for other uses. No matter how efficiently energy is used and reused, energy inevitably tends toward uselessness, toward entropy. Solar energy is the only source of new energy available to offset the loss of useful energy to entropy. Consequently, the sustainability of human life on earth ultimately depends on capturing and storing sufficient quantities of solar energy to offset the loss of useful energy to entropy.

As American agriculture has become more industrial, it has become increasingly dependent on fossil energy and other non-renewable energy resources. The total food system currently claims about twenty-percent of all fossil energy used in the U.S. with farming accounting for about one-third of the total. In fact, our industrial food system requires about ten calories of fossil energy for every calorie of food energy produced.

Agriculture also accounts for more than twenty-percent of total greenhouse gas emissions – even more than transportation. Agricultural pollution represents negative energy, in that it destroys the usefulness of other energy resources or requires energy to mitigate its negative impacts. Industrial agriculture also pollutes the air, water, and soil with toxic agrochemicals and livestock manure. In fact, agriculture has become the number one source of nonpoint source pollution in the U.S., creating huge “dead zones” in the Chesapeake Bay and Gulf of Mexico. Food is a cornerstone of sustainability. There is growing evidence that our industrial food system is not ecologically sustainable.ⁱⁱⁱ

ⁱⁱⁱ The ecological, social, and economic consequences of agricultural industrialization have been well documented in best-selling books, such as *Fast Food Nation*ⁱⁱⁱ and *Omnivore's Dilemma*.ⁱⁱⁱ Less popular books, such as *The End of Food*ⁱⁱⁱ and *America's Food*,ⁱⁱⁱ covered virtually all aspects of the industrial food systems in great detail. Video documentaries such as *Future of Food*,ⁱⁱⁱ *Broken Limbs*,ⁱⁱⁱ *Food Inc.*ⁱⁱⁱ and *Fresh; The Movie*ⁱⁱⁱ provided gripping

Ecological integrity is not sufficient to ensure the sustainability of humanity. The people who must produce our food – and everything else that enhances the usefulness of nature – are not born as productive individuals. People must be nurtured, educated, and socialized, by families, friends, communities, and by society before we become “useful” people. All of this takes a particular kind of physical energy; it takes social energy. Perhaps more important, we are social beings. We need positive relationship with other people, even when we receive nothing of any tangible or material value in return. We need family and friends. We need to love and be loved. We also need to feel we are treated with equity and justice within the larger society. A true family, community, or society is something more than the sum of its individual members; relationships matter. It takes attention, time, and energy to establish and maintain positive relationships among people. When we fail to expend the time and energy necessary to sustain good relationships, we suffer the inevitable consequences in our overall quality of life.

The industrial era of economic development has been about the creation and accumulation of material wealth, not building personal relationships. We Americans, in particular, have succeeded in amassing great wealth, now controlling about one-third of all global assets with only about five-percent of global population. However, our success in achieving a desirable overall quality of life has been far less impressive. Various studies rank the United States between 15th and 23rd in overall happiness, typically ranking well below “less developed” countries such as Costa Rica, Bhutan, and Malaysia.

The failure of wealth to bring overall well-being is not unique to the United States. A 2004 review more than 150 scholarly studies relating wealth and happiness confirmed a growing consensus among researchers that wealth is not the same as happiness. Beyond some very modest level of material well-being – the researchers suggest around \$10,000 per capita income for developed economies – there is little if any correlation between wealth and happiness.² A 2003 British cabinet office report confirmed that “Despite huge increases in affluence compared with 1950, people throughout the developed world reported no greater feelings of happiness.”³

Robert Putnam, a Harvard Political Scientist, clearly documented our growing social disconnectedness in his book, *Bowling Alone*.⁴ He evaluated a multitude of measures of social involvement, including from voting in elections, belonging to civic and professional organizations, joining bowling leagues, and perhaps most important, visiting friends and neighbors. He concludes that Americans are only about thirty to fifty percent as socially connected in the late 1990s as we were in the late 1950s. For this same period of time, he also documented the rising cost of law enforcement and growing numbers of prisoners, increasing number of lawyers and rising costs of civil litigation, and escalating cases of mental depression and suicides – particularly among adolescents and young adults. All of these trends are logical consequences of increasingly dysfunctional relationships.

We also see the impacts of social neglect in today's economy. At no time since the “gilded age” of the early 1900s has the gap between the wealthy and the rest of us been so great. The

images of the negative ecological and social impacts of industrial agriculture. These books and documentaries all tell the same basic story: our industrial food system is simply not sustainable.

income of the top one-percent amounts to more than the total income of the bottom one-half of Americans and the wealthiest one-percent control more than one-half of all wealth. In the words of Alan Greenspan, former Chairman of the Federal Reserve Board, “The income gap between the rich and the rest of the U.S. population has become so wide, and is growing so fast, that it might eventually threaten the stability of democratic capitalism itself.”⁵

A growing body of evidence is confirming our common sense. We know that once our basic needs are met, our happiness depends far more on the quality of our personal relationships – within families, communities, societies – than on our income or wealth. No amount of additional money can offset our need for positive relationships with friends and family members, and equally important, our need to be treated with equity and justice within our society. Friends and family are cornerstones of sustainability. There is mounting evidence that our industrial society is not socially sustainable.

Economists in general have shown little interest in questions of sustainability because contemporary economics is based on the archaic belief that science and technology will always be capable of finding substitutes for anything we use up or solving any problem we create. They believe all we need to do to create a sustainable agriculture or a sustainable society is to provide the appropriate economic incentives. However, things have economic value only because they are useful, and their usefulness ultimately is derived from energy. All economic value is derived from either natural or human resources – from nature or society – the only sources of useful energy. Once all of the useful energy in nature and society is used up, there will be no source of additional economic value.

The fundamental problem in relying on economic incentives to ensure sustainability is that economics places a premium on the present relative to the future. Economic value is inherently individualistic. It places no value on purely social, non-instrumental relationships. In addition, there is no way for an individual to realize economic value after he or she is dead. Since life is inherently uncertain, we value things we can enjoy today more highly than things we might or might not be able to enjoy in the future. That's why people are willing to pay interest on borrowed, to have money to spend today rather than wait until sometime in the future. That's also why people demand interest on loaned money; to offset the risks of delayed gratification.

At a compound interest rate of seven-percent, fifty-cents invested today will be worth a dollar ten years from now. Consequently, a dollar that will not be received or paid until ten years from now is only worth fifty-cents today. A dollar we expect to receive seventy years in the future is worth only a penny today. It simply makes no economic sense to invest in anything for the sole benefit of someone else, certainly not for someone of some future generation. Based on everything we know about nature and society, economics places too little value on the future to ensure sustainability.

Sustainability is ultimately about intergenerational equity – about meeting the needs of present and future generations fairly and equitably. We have no economic interest in distant future generations, because we will not be members of those generations. We have no social interest in those generations, because we may not know anyone who will be alive then, and may not even have any descendents in those generations. The only sense in which we are concerned

for those of the distant future is in a sense of our moral or ethical responsibility for the future of humanity.

The noted psychologist, Abraham Maslow, wrote about the hierarchy of human needs – ranging from our physical needs for food, to our need for social relationships, and finally to our need for self-actualization. If we look beyond the short run, however, we need friends as much as we need food, and we also need a sense of purpose and meaning in life as much as we need food or friends. Without a sense of purpose there is no sense of personal potential to be realized or “actualization.” Furthermore, purpose is fundamentally a matter of faith. Food makes life possible but friends and faith make life worth living.

The existence of purpose cannot be proven or disproven by science. Most people probably never question whether life has purpose, but scientists do. Most scientists are philosophical materialists, at least in the practice of their professions. In his classic 1919 book, *Modern Science and Materialism*, Hugh Elliott, states, “The age of science is necessarily an age of materialism; ours is a scientific age, and it may be said with truth that we are all materialists now.”⁶ Elliott emphasized three main principles of materialism. The first principle is the uniformity of law: When the conditions at any moment in time are precisely the same as those prevailing at some earlier moment, the results also will be identical to the earlier results. Thus, science attempts to link effects with their causes. The second principle is a denial of “teleology” or purpose. He writes, “Scientific materialism warmly denies that there exists any such thing as purpose. It asserts that all events are due to the interaction of matter and motion, acting by blind necessity in accordance with those invariable sequences to which we have given the name laws.”⁷ Elliott refers to the human species as a “mere incident of the universal redistribution of matter and motion.”

Quantum physics casts some doubt on the precise predictability of events, but does nothing to suggest that events unfold for any particular purpose. Modern science treats the unfolding of a human life as nothing more or less than the natural consequences of physical actions and reactions, without any particular purpose or meaning. The third principle of materialism denies any form or existence other than things having some kind of palpable material characteristics and quality, which “stands in direct opposition to a belief in any of those existences which are vaguely classed as ‘spiritual.’”⁸ Individual scientists may believe differently, but science denies the rationality of faith. Without faith, there is no purpose. Without purpose, there is no logical or rational concern for sustainability.

Sustainability obviously will require a fundamental change in thinking. Albert Einstein once wrote that we can't solve problems using the same thinking we used when we created them. The industrial paradigm of economic development reflects a mechanistic way of thinking. Machines are very efficient means of extracting useful energy, but they are fundamentally incapable of self-renewal or regeneration. Sustainable strategies for the future must be based on an organismic worldview – the world as a living ecological system.

Living systems are capable of self-renewal and regeneration and thus capable of offsetting the loss of useful energy to entropy. Green plants have the ability to capture energy from the sun and store useful solar energy in their tissues. Plants are biological solar energy collectors. People

are also capable of capturing solar energy; we just use windmills, water impoundments, and photovoltaic cells. People, being biological beings, are inherently dependent on the energy stored by green plants. Strategies for sustainable economic development, including sustainable agriculture, must be based on the biological principles of living systems.

Farms, businesses, governments, all organizations of the future must be managed as living organisms, rather than the inanimate mechanisms. Mechanisms function according to physical laws, expressed as mathematical formulas. Living systems function according to general principles. When we apply a specific production practice or management strategy to a particular plant, animal, or person we never know for sure how they will react. We know “in principle” how living things will respond, but not how a particular plant, animal, or person will respond in a particular situation.

Living systems are holistic. The whole of a farm, for example, is something more than the sum of its parts; it is a *whole*. Living systems have properties that emerge from the whole that are not contained in their individual parts; relationships matter. Sustainable organizations must also respect the ecological principle of *diversity*. Diversity is also necessary for biological systems capture, store, and recycle the solar energy needed for resistance, resilience, renewal, and regeneration. The payoff from holism and diversity is realized through the principle of *interdependence* or mutuality. Interdependence makes it possible to create sustainable systems out of elements or parts that individually and separately are simply not sustainable.

Families, communities, and societies are also living systems and function according to principles rather than physical laws. Relationships among true friends and within sustainable communities must be built upon the social principle of *trust* rather than relying on laws and contracts. Laws are only effective in constraining those who are incorrigible or incapable of being socially responsible. People must choose to be honest, fair, and responsible in their dealings with each other. We humans are fallible beings; we need mercy as well as justice. Sustainable relationships must be based on *caring* and kindness. We must be empathetic, respectful, and compassionate. Finally, people must find the *courage* to be trusting and caring. It takes “moral courage” to sustain positive relationships in a world where trusting and caring are seen as naïve or idealistic.

We also must respect the basic principles of economics. The most basic economic principles reflect the fundamental nature of individual human behavior. We value things individually that are *scarce*, not things that are necessary but also abundant, like air and water. We want to get as much usefulness as we can from whatever we have; we want to use our time, money, and energy *efficiently*. We also need to be able to make independent decisions; we value our *sovereignty*. We need not accept the economic dogma that our self-interest serves the common good, but we must respect the basic principles of economics if we are to meet our individual needs and sustain our local and national economies.

Finally, sustainable societies must have ecological, social, and economic integrity – all three. The same basic principles must permeate all aspects of life. The principles of holism, diversity, and interdependence must permeate local societies and economies. The principles of trust, kindness, and courage must also be reflected in ecological and economic relationships. And, the

principles of scarcity, efficiency, and sovereignty must be used in managing natural ecosystems and maintaining social relationships. Sustainability requires a renewed commitment to integrity based on new ways of thinking about how the world works and our place within it.

The science of sustainability will be a quest for understanding of the principles that guide complex living systems rather than mechanistic laws that define specific causes and effects. The science of sustainability must respect the value of human relationships among friends and within families, communities, and societies. Perhaps most important, the science of sustainability must respect the existence of a purpose for the continuation of life on earth, including human life. For without purpose, there is no logical, rational reason to be concerned about sustainability. If there is no purpose of human life, there is simply no reason for concern for the future of humanity.

Obviously, such changes in thinking will not be quick or easy. Neither can we expect change to come easy for those in positions of economic and political power and influence. They have too much invested in maintaining the status quo. However, we must remember that transformational change never comes from those in positions of power. Change comes from common people who sense a need for change in their everyday lives. Furthermore, hope for a sustainable future can be found even today among common people who are finding the courage to change their lives and lifestyles to reflect common sense approaches to sustainable living. These pioneers are framing the issues of sustainability in terms of commonplace concepts – like food, friends, and faith.

Hope for a sustainable future can be found in the millions of farmers and consumers who are creating a new, sustainable food system. These farmers may label themselves organic, biodynamic, ecological, natural, holistic, or choose no label at all; but they were all pursuing the same basic purpose. They are creating systems of farming that can maintain their productivity and usefulness to society indefinitely – a permanent agriculture. At least six “sustainable agriculture” conferences in the U.S. and Canada draw 1,500 to 2,500 people each year. Those attending include both families and their customers – and friends. Conferences drawing more than 500 to 700 people are becoming almost commonplace and virtually every state in the U.S. has an organic or sustainable agriculture organization, most hosting conferences that draw 100 to 250 people. Various natural food retailing surveys have shown that approximately one-third of American consumers today are looking for alternatives to industrial foods, specifically foods that have ecological, social, and economic integrity.⁹

Hope for a sustainable future can be found in the millions of people around the world who are finding ways create new sustainable communities. There are thousands of “intentional communities” in existence today, and many others in the formative stages.¹⁰ Communities come in all shapes and sizes, but they are set apart by the fact that they first define the quality of life they want to live and then find ways of making a living that will allow it to happen. They give as high a priority to ethical questions of right livelihood, spiritual expression, land use, and the role of service in life, as they give to economic well-being.

Among more conventional communities, a number of *eco-municipalities* across Canada and the United States are working to develop “ecologically, economically, and socially healthy communities for the long term.” They are using the Natural Step framework, which was developed in Sweden in the late 1980s.¹¹ The Natural Step seeks to minimize the accumulation

of naturally occurring and manufactured wastes, while maintaining the productivity of natural ecosystems and sustaining a healthy, productive local society. The Business Alliance for Local Living Economies is an international alliance of more than 80 independently operated local business networks dedicated to building local living economies.¹² A *living economy* is defined as one in which economic power resides locally, for the purpose of sustaining healthy community life and natural life as well as long-term economic viability.

Hope for a sustainable future can be found in our common sense, that living sustainably is simply a better way to live. Our common sense tells us that we are not just physical or material beings; we are also social and ethical or spiritual beings. People throughout human history have shared this same common sense. Aristotle, for example, believed the ultimate goal or purpose of human life was happiness, which he called *eudemonia*.¹³ Eudemonia is inherently social in nature, in that it is realized only within families, friendships, communities, and society. Furthermore, he believed that human happiness required a life of virtue. He thought someone *flourished* by doing things simply because they were the “right thing to do.” He suggested that such people were using their human capacities to the fullest by living in accordance with their purpose; they were happy.

Hope for the future can be found in the fact that all scientists and philosophers really need to do is to tell the truth. We need to expose the myths of today's science and economics and tell the truth about what it will take to achieve sustainability. A society driven by a mechanistic worldview quite simply is not sustainable. We humans are not at the center of wisdom nor do we have dominion over a world that exists apart from us. We are an integral aspect of a complex, dynamic, living world. We can influence the world – for either good or ill – but we cannot control it. To live sustainably, we must learn to live in harmony with the other living things of the earth. We know these things; we simply need to tell the truth.

Those who have the courage to think beyond today's scientific and economic boundaries can expect to be routinely criticized and marginalized by those in the economic, political, and academic establishments. Like Galileo, we eventually may be forced into intellectual exile and some may even recant their views. However, the world will be forever transformed by our willingness to think beyond the accepted boundaries of our times. The great transformation will come about as common people come to understand how they can create a fundamentally better way of life by changing how they relate to everyday things, such as food, friends, and faith.

End Notes:

¹ Emma Hughes and Lucy Shaw, Galleo's Legacy, <http://www.cogs.susx.ac.uk/users/desw/galileo/life/legacy.html>.

² Ed Diener and Martin EP. Seligman, "Beyond Money. Toward an Economy of Well-Being," *Psychological Science in the Public Interest*, 5 (1), 2004, 1–31.

³ Oliver James, "Children before cash; better childcare will do more for our wellbeing than greater affluence," *The Guardian*, May 17, 2003.

⁴ Robert Putnam, *Bowling Alone* (New York: Simon and Schuster, 2000).

⁵ Alan Greenspan, as quoted in Christian Science Monitor, "Gap Between Rich and Poor Gaining Attention," <http://www.csmonitor.com/2005/0614/p01s03-usec.html>, June 15, 2005.

⁶ Hugh Elliott, "Materialism," in *Readings in Philosophy*, eds. John Herman Randall, Jr., Jestus Buchler, and Evelyn Shirk (New York Harper and Row, Publishers, Inc., 1972), 307.

⁷ Elliott, "Materialism," 309-310.

⁸ Elliott, "Materialism," 309-310.

⁹ Allison Worthington, *Sustainability, the Rise of Consumer Responsibility*, The Hartman Group, Bellevue, WA, Spring, 2009.

¹⁰ Fellowship of Intentional Communities, <http://fic.ic.org/>.

¹¹ Sarah James and Torbjorn Lahti. *The Natural Step for Communities: How Cities and Towns Can Change to Sustainable Practices* (Gabriela Island, BC: New Society Publishers, Inc., 2004).

¹² BALLE, Business Alliance for Local Living Economies, "Mission and Principles Statement," <http://www.livingeconomies.org/aboutus/mission-and-principles>.

¹³ *The Internet Encyclopedia of Philosophy*, "Aristotle (384-322 BCE.): Politics," by Edward Clayton, <http://www.iep.utm.edu/a/aris-pol.htm#H5>.

Aristotle himself discusses it in Book II, Chapter 3 of the *Physics* and Book I, Chapter 3 of the *Metaphysics*.