

Innovations for Sustainable Prosperityⁱⁱ

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We live in an ever-changing world. In fact, change is said to be “the only constant in life.” For example, a host of new technologies are always emerging to keep life interesting. So change is a normal and usual aspect of life. However, some changes are not normal or usual. Some changes are truly revolutionary. In fact, every two hundred years or so throughout human history, western society has gone through great transformations that changed our understanding of how the world works and our place within it – eventually changing virtually every aspect of life. I believe we are currently living during such a time of change.

I believe the changes we are experiencing now are at least as important as those of the Industrial Revolution of the late 1700s, and perhaps as important as the beginning of science in the early 1600s. I'm an old man and I have seen many changes during my 75 years. But, the changes I've experienced are not even remotely comparable to the changes I believe today's young people will see during their lives.

This is a time not unlike the late 1700s when the British colonies of what is now the United States of America declared their independence. In 1775, a delegate to the second colonial Virginia convention, Patrick Henry, rose to address other delegates who were urging restraint and patience in their ongoing conflicts with Great Britain. He said: *“Different men often see the same subject in different lights; and, therefore, I hope it will not be thought disrespectful... if, entertaining as I do, opinions... very opposite to them, I shall speak forth my sentiments freely, and without reserve. This is not a time for ceremony. In proportion to the magnitude of the subject ought to be the freedom of the debate. It is only in this way that we can hope to arrive at truth. Should I keep back my opinions at such a time, through fear of giving offence, I should consider myself as guilty of treason towards my country, and of an act of disloyalty toward the majesty of heaven.”* He closed his remarks with the now famous statement: *“I know not what course others may take; but as for me, give me liberty or give me death!”*

I know some of you here today hold opinions very different from my own. We see the same subject in very different lights. In the spirit of Patrick Henry, I hope it will not be thought disrespectful if I speak my sentiments freely and without reserve. I believe we are living through a very important time in human history. This is not a time to stand on ceremony, and in proportion to the importance of the subject ought to be the freedom of the debate. None of us should be so egotistical as to believe that only we are capable of discerning the truth of such matters. Only by speaking and defending our individual “truths” with courage and conviction, but also with humility and tolerance, can we expect to arrive at “the truth.”

Over the years, I have come to the conclusion that people don't make “really big” changes such as those required of us today unless three conditions exist. First, they have to become convinced that what they are doing now isn't working for them and isn't going to work in the future. People have to have a good reason to change. But, that's not enough. They also must have a clear concept or idea of what they could do instead that would be fundamentally better than what we are doing now. Without a clear vision of something better to change to, most people just

keep on doing what they have been doing. Finally, they must believe that “something better” is possible, even if not quick and easy. They must have hope. Lacking any one of the three pre-conditions for change, most people just keep on doing what they are doing.

I believe the great transformation of today is being driven by the question of sustainability: “How can we meet the needs of the present without diminishing opportunities for the future?” When we ask this question earnestly and honestly; I think we must come to the inevitable conclusion: what we are doing now isn't even meeting the needs of most people today, and most certainly isn't leaving equal or better opportunities for those of the future. My truth: We can't keep doing what we have been doing. Our current way of life is not sustainable.

Sustainability ultimately is a matter of energy. Our houses, clothes, cars, our food, require energy to make and energy to use. In fact all material things are simply concentrated forms of energy. Human imagination, creativity, and labor also require energy; the brain uses something like 20% of the energy used by the human body. In addition, we are not born as productive individuals but as helpless babies. We must be nurtured, cared for, socialized, civilized, and educated by society before we become useful to society. All of this requires human energy.

The first law of thermodynamics states that energy can neither be created nor destroyed. So sustainability might seem inevitable; we could use the same energy over and over. However, the second law of thermodynamics, the law of entropy, states that whenever energy is used to do anything useful, some of its usefulness is lost. Whenever energy is used, it always changes in form, specifically from more concentrated and organized energy to less concentrated and less organized energy – as when gasoline is ignited in the engine of an automobile. The energy isn't destroyed but is less concentrated and less organized and therefore less useful. No matter how efficiently we may use and reuse energy, we inevitably are using up its usefulness.

Back to the transformation: The economic growth of the past 200-years, the industrial era, was made possible by an abundance of cheap energy – first the old-growth forests, then surface mining of coal, and for the past 100-years, shallow reservoirs of oil and natural gas. But the old-growth forests are gone. We are blowing the tops off mountains and polluting mountain streams to get the remaining coal. We fracturing and poisoning the crust of the earth and the oceans to squeeze out the remaining oil and natural gas. We are not out of fossil energy, at least not yet, but we are rapidly running out of energy that we can afford to use – economically or environmentally.

The only sustainable source of energy left is solar energy. However, energy from all sustainable sources combined – wind, water, solar panels, biofuels – will be less plentiful and far more costly than fossil energy has been. The days of cheap, abundant energy are over. The industrial era was an aberration or anomaly in human history that is not likely to be repeated. We can't continue doing what we are doing. Our current way of life is not sustainable.

Nowhere is the lack of sustainability and the need for transformation more apparent or more urgent than in agriculture. I could cite volumes of ecological and socioeconomic research and gigabytes of government data documenting the negative impacts of today's specialized, standardized, large-scale industrial agriculture on the natural environment and on the social and

economic quality of life in rural communities. The evidence clearly links industrial agriculture to soil erosion, air and water pollution, the demise of family farms, and the economic and social decay of rural communities. Admittedly, there is no consensus on this matter. The indictments of industrial agriculture are countered with data showing the declining portion of consumer incomes spent for food and the variety of food products available year-round in modern supermarkets, coming from every corner of the earth. Any environmental and social costs of industrial agriculture must be weighed against its benefits in terms of cheap food.

I concede that the productivity and economic efficiency of so-called modern agriculture is impressive. However, it has failed in its most fundamental mission, which was to make good food accessible and affordable to everyone: to provide food security. I spent the first half of my 30-year academic career promoting industrial agriculture before I concluded that food security would never be possible with industrial agriculture. A larger proportion of people in the United States are food insecure today, meaning hungry, than in the 1960s – before the latter phases of agricultural industrialization. Furthermore, the quick, convenient, cheap foods produced by the industrial food system are making people sick – particularly those at lower income levels. We have documented epidemics of diet related diseases in the United States, including obesity, hypertension, heart disease, and a variety of cancers. We now spend twice as much on healthcare as we spend for food.^[1] It's past time to bring the industrial era in agriculture to an end – my truth.

Having said these things, I doubt that I have changed anyone's mind about the sustainability of the economy in general or the food system and industrial agriculture in particular. Some of you probably agree but many, if not most of you, likely disagree. I suspect no line of reasoning, set of statistics, or collection of scientific studies will change your minds. These are complex ecological, social, and economic issues that simply cannot be proven or disproven by modern science. We have to make up our own minds, find “our truth,” and admittedly, we shouldn't form or change our opinions lightly. Those of you who are comfortable with the ways you are farming and your way of life obviously see no reason for change. So I want to direct the remainder of my remarks primarily to those who don't feel particularly comfortable about what you have to do to make a living in today's economy and feel a need for a better way to farm – a better way of life.

For those who want to contribute to the great transition, regardless of their reasons, a new vision for a better future in farming is emerging. The sustainability movement has created opportunities that have never before existed in agriculture or elsewhere. These new and better ways of farming are leading the way to a better way of life and a better world for the future. Best-selling books documenting the great transformation include: *Fast Food Nation*^[2] and *Omnivore's Dilemma*,^[3] *The End of Food*^[4] and *America's Food*^[5]. There are books covering virtually every aspect of the need for change and the emergence of a new vision to guide the transition. Video documentaries such as *Future of Food*,^[6] *Broken Limbs*,^[7] *Food Inc*^[8], and *Fresh; The Movie*^[9] not only provided gripping images of the negative impacts of an industrial food system but also feature real-life stories of the promises and opportunities in a new sustainable food system.

The farmers in the sustainability movement 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 producing food that has ecological, social, and economic integrity. They are

creating systems of farming capable of maintaining their productivity and usefulness to society indefinitely – a permanent, sustainable agriculture. At least eight “sustainable agriculture” conferences in the U.S. and Canada draw 1,000 to 3,000 people each year. Conferences drawing 500 to 700 people are becoming almost commonplace and virtually every state in the U.S. has a grass-roots organic or sustainable agriculture organization.

Tens-of-thousands of new sustainable farmers are supported by tens-of-millions of consumers who are searching for alternatives to the industrial foods they find in today's supermarkets and fast food franchises. For the past two decades, organics has been the fastest growing sector of the U.S. food market. However, as organics is becoming aligned with the industrial food system, many consumers are turning to local farmers and local markets to ensure the integrity of their food.^[10] Multi-farm CSAs or “food hubs” could well be the model for new community-based national and global food systems.^[11] Food industry studies indicate approximately one-third of American consumers are willing pay premium prices for healthful and nutritious foods that have ecological, social, and economic integrity.^[12]

It's critical to understand that the new vision is not about doing the same things better for the same reasons. It's about doing better things for different reasons. It not about being more efficient economically; it's about being sustainable – ecologically, socially, and economically. The new vision will require continual innovations, as suggested by the theme of this conference, but innovations very different from the technological innovations of the past. The new innovations will be innovative ways of thinking, not just innovative ways of doing. We must start thinking more about we should and shouldn't do and less about what we can or can't do.

The innovations of the future must focus on sustainable prosperity rather than ever-more income and wealth. The new vision must be rooted in the realization that most of us don't need more income, profits, or economic growth; that we already have enough “stuff.” Ironically, the most prominent economist of the 20th century, John Maynard Keynes, anticipated the current time of change back in the 1920s. He thought the *economic problem* would be solved within a hundred years, which would be about now. He understood that the economy is means of meeting our basic material or tangible needs. He didn't consider the economic problem to be *the permanent problem of humanity*, but only a temporary problem that eventually would be solved.^[13] The permanent problem of humanity, he wrote, is to learn the “true art of living,” to use our freedom from pressing economic concerns to “live wisely and agreeably and well.”

As it turned out, Keynes was actually too conservative. The “economic problem” in the so-called developed world was solved as early as the 1960s. For example, a 2003 British Cabinet Office report concluded that “despite huge increases in affluence compared with 1950, people throughout the developed world reported no greater feelings of happiness.”^[14] Numerous studies have shown that beyond some fairly modest level of material well-being there is no relationship between further increases in income or wealth and increases in happiness or overall quality of life.^{[15] [16]} Certainly, people in some areas of the world still need more income and economic growth. However, the so-called developing nations need not aspire to economies needed to support American lifestyles.

A 2004 review of more than 150 scholarly studies concluded that beyond per capita incomes of around \$10,000 to \$15,000 in developing nations there is little if any correlation between increasing wealth and the overall happiness or well-being.^[17] Other research indicates people in nations with less disparity or inequity in incomes and wealth tend to be happier, regardless of absolute levels.^[18] Even the affluent are happier in more economically equitable societies. *Developed* countries might do far more to increase collective well-being or happiness by improving economic and social equality rather than promoting economic growth. There are more than enough resources on earth to meet the basic needs of people in both developed and developing countries of the world, just not enough to sustain the levels of economic growth we have come to expect. It's time for people in developed and developing nations alike to turn our attention to the true art of living – to live wisely, agreeably, and well.

It's time to return to the historic purpose of human life, in agriculture as well as society in general. It's time to return to the pursuit of happiness. Since the word “happiness” has been so misused and abused in the pursuit of wealth, perhaps it would be better to call the new mission *sustainable prosperity*.^[19] The word prosperity is derived from the Latin word for “doing well.” Prosperity, or doing well, has social, psychological, even spiritual dimensions as well as an economic dimension. Prosperity depends on positive relationships, respecting and being respected, loving and being loved, contributing useful work and being equitably rewarded, and having a sense of belonging and trust within the larger community and society. Sustainable prosperity does not require continual increases in incomes or economic growth.

There are endless possibilities for improving prosperity or quality of life even with a sustainable, “steady state” economy. Ecological economist, Herman Daly, defines a steady-state economy as “one that develops qualitatively... without growing quantitatively in physical dimensions; a constant metabolic flow of resources from depletion to pollution maintained at a level that is both sufficient for a good life and within the assimilative and regenerative capacities of the containing ecosystem.”^[20] A steady state economy would depend on *qualitative* rather than *quantitative* development or progress to sustain a life of prosperity for all.

John Stuart Mill, a prominent 19th Century economist, also believed in the prospects for continuing human progress or prosperity within what he called a “stationary state” economy. He wrote: “It is scarcely necessary to remark that a stationary condition of capital and population implies no stationary state of human improvement. There would be as much scope as ever for all kinds of mental culture, and moral and social progress; as much room for improving the Art of Living, and much more likelihood of its being improved, when minds ceased to be engrossed by the art of getting on.”^[21]

People through human history have known that once our basic material needs are met – food, clothing, shelter, health care, – the quality of our life depends far more on the quality of our relationships – friends, family, community, society – than on the quantity of income or wealth. We are social beings; we need to love and be loved. We are also moral beings. Our happiness depends on our having a sense of purpose and meaning in life. We need to feel in our hearts that what we are doing is significant; that it's right and good. The challenge of sustainable prosperity will be met through innovations that improve social and spiritual dimensions of our lives, rather than innovations that continue to drive a futile quest for evermore income or wealth.

This is not some New Age utopian vision that is unattainable. It is a very realistic possibility: there is reason for hope. The ancient Greek philosopher Aristotle believed that happiness was a natural consequence of “right relationships” among friends and within families and communities. Alex Des Tocqueville, in writing about democracy in America in the early 1800s, termed concern for the well being of others as “self-interest rightly understood.” The Dali Lama calls it being “wisely selfish” – understanding that our well-being is dependent on the well being of the other living and nonliving things of the earth. All we need to do is return to those things people have always known to be right and true. We need only to return to the historical pursuit of happiness – true and lasting prosperity.

The change we need may not be quick or easy and we may have no reason to be optimistic, but we have reason for hope. In the words of Vaclav Havel – philosopher, reformer, and former president of the Czech Republic: *Hope is not the same as joy when things are going well, or willingness to invest in enterprises that are obviously headed for early success, but rather an ability to work for something to succeed. Hope is definitely not the same thing as optimism. It's not the conviction that something will turn out well, but the certainty that something makes sense, regardless of how it turns out. It is this hope, above all, that gives us strength to live and to continually try new things, even in conditions that [to others] seem hopeless. Life is too precious to permit its devaluation by living pointlessly, emptily, without meaning, without love and, finally, without hope.*^[22]

I am an old man. I don't expect to see the great transformation completed in my lifetime, in agriculture or in society in general. My hope is in the millions of young people, including young farmers, all across this continent and around the world – like many of you here at this conference. You know that what we are doing is not sustainable, and you are helping create a new vision of a better world. Others of you sense something is not right, you are not sure what or why, and you are willing to at least consider something different. Others, hopefully, are open to the possibility of change, even if you don't think change is necessary. Even in openness, there is hope.

Creating a new agriculture and a new world will not be quick or easy. It will require a very different kind of innovation to sustain prosperity than it has taken to extract wealth from nature and society. However, many of us are convinced it's the only kind of innovation that any longer makes sense; in this there is hope. And even if in the end we fail, while daring greatly, we should always remember: life is simply too precious... to live without hope.

End Notes:

^[1] Prepared for presentation at the Nuffield Canada International Triennial Conference – 2014, Halifax, NS Canada, June 19, 2014.

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^[11] Center for Medical and Health Services, *NHE Fact Sheet*, https://www.cms.gov/NationalHealthExpendData/25_NHE_Fact_Sheet.asp.

^[12] Eric Schlosser, *Fast Food Nation: The Dark Side of the All-American Meal* (Boston & New York: Houghton Mifflin Co., 2001).

^[13] Michael Pollan, *The Omnivore's Dilemma: A Natural History of Four Meals* (New York: The Penguin Press, 2006).

^[14] Paul Roberts, *The End of Food* (Boston & New York: Houghton Mifflin Co, 2008).

^[15] Harvey Blatt, *America's Food: What You Don't Know About What You Eat* (Boston: The MIT Press, 2008).

^[16] *The Future of Food* <<http://www.thefutureoffood.com/>>

^[17] *Broken Limbs*, <<http://www.brokenlimbs.org/endorsements.html>>

^[18] *Food Inc.*, <<http://www.foodincmovie.com/>>

^[19] *Fresh; the Movie* <<http://www.freshthemovie.com/>>

^[101] For ongoing report with links to examples, Elbert van Donkersgoed, *Locavore News*, a free email newsletter, LocavoreNews-subscribe@terraoeur.com

^[111] United States Department of Agriculture, “Working List of Food Hubs,” <http://www.ams.usda.gov/AMSV1.0/getfile?dDocName=STELPRDC5091437>.

^[121] Allison Wortington, *Sustainability, the Rise of Consumer Responsibility*, The Hartman Group, Bellevue, WA, Spring, 2009.

^[131] John Maynard Keynes, *Essays in Persuasion*, (Miami, FL: BN Publishing – no copyright date) pp. 366-368.

^[141] James Oliver, “Children before cash; better childcare will do more for our wellbeing than greater affluence,” *The Guardian*, May 17, 2003. <http://www.guardian.co.uk/society/2003/may/17/children.healthandwellbeing>.

^[151] 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.

^[161] Bill McKibben, *Deep Economy*, (New York: Times Books, Henry Holt & Co.), 2007.

^[171] Ed Diener and Martin Seligman, “Beyond Money,” *Psychological Science in the Public Interest*, 5 (1), 2004, 1–31.

^[181] Richard Wilkinson and Kate Pickett, *The Spirit Level; Why Greater Equality Makes Stronger Societies*, (New York: Bloomsbury Press), 2009.

^[191] Tim Jackson, *Prosperity without Growth; Economics for a Finite Planet*, (Oxford: Earthscan, Taylor Francis Group Ltd.) 2011.

^[201] Herman Daly, “Ten Policies for a Steady State Economy,” *Center for Advancement of a Steady State Economy*, <http://steadystate.org/top-10-policies-for-a-steady-state-economy/>.

^[211] John Stuart Mill, *Principles of Political Economy with some of their Applications to Social Philosophy*, Book IV, Chapter 6, <http://www.econlib.org/library/Mill/mlP61.html>.

^[221] Vaclav Havel, *Disturbing the Peace* (New York: Random House inc.), 1990, Chapter 5.