Quaker Eco-Bulletin

Information and Action Addressing Public Policy
for an Ecologically Sustainable World

Volume 8, Number 4 **July-August 2008**

We Need a Ladder: Avoiding Depression While Downsizing

Ed Dreby

Humpty Dumpty climbed up a wall.
Humpty Dumpty seemed certain to fall.
But a group of economists, proving their worth,
Built a ladder so Humpty could climb back to Earth!

A dot-com bubble. A housing bubble. A financial bubble. Lester Brown of the Earth Policy Institute refers to the challenge for politicians to deflate the "bubble economy" before it bursts, because the modern global economy has become so overgrown in relation to its geo-bio-physical foundations.[1] George Soros, one of the world's leading financiers, is trying his best to warn us about the crash-prone position of the global economy.[2] What is now being experienced as the pain of a recession in the US is very real. Yet it is modest compared with the chronic suffering and structural economic violence experienced in much of the world.[3]

The only policy prescription currently available for dealing with a recession is to restore growth by boosting spending for consumption and investment. If increasing consumption in the wealthy regions of the world is the only option, how are those who are truly impoverished in other places to improve their prospects without causing even more damage to the fabric of life? Is it wishful thinking that a group of economists might "build a ladder" so our inflated economy can return safely to Earth without crashing? Why do we need a ladder? What would it take to build it? What might the rungs of that ladder be?

Contraction and Convergence

Contraction and Convergence is a policy framework for reducing global greenhouse gas (GHG) emissions, advocated since 1990 by the London-based Global Commons Institute, based on the twin principles of physical limits and equal rights.[4] It calls for an international agreement based on steadily declining GHG limits over several decades for high emitting nations, and an emissions ceiling for low emitting nations, so that within the time frame of the agreement every nation would attain an annual GHG emissions limit based on the same per-capita allowance. While acknowledging the challenge posed by differing population growth rates, "contraction and convergence" is proposed as the only feasible basis on which the low GHG-emitting nations might agree to forego carbon-intensive economic development.

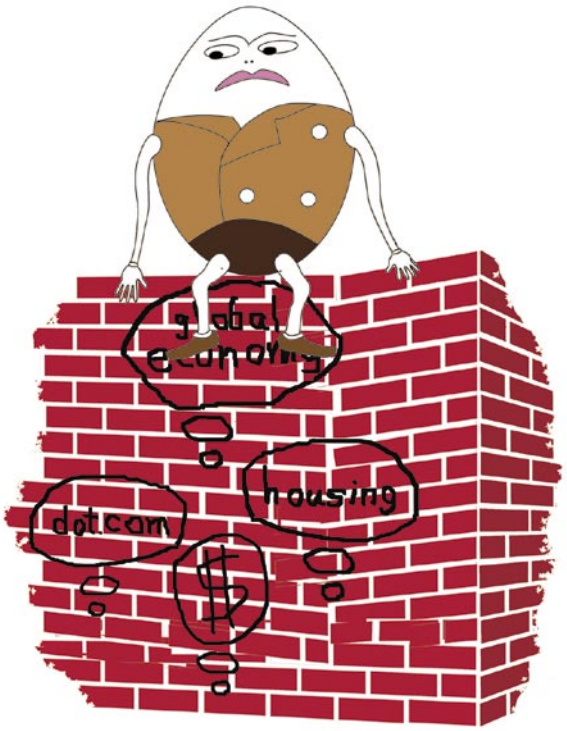
Climate change is now widely recognized as a threat to everyone, which can only be addressed globally in terms that are acceptable to both industrialized and developing nations. Yet conflicts about limiting GHG emissions may be the "tip of the iceberg" of conflicts over rights of access to the global commons in a time of diminishing availability of many essential resources—fresh water, food, and important minerals—in addition to fossil fuels. Ecological Footprint Analysis illustrates both the inequitable and the excessive use of the Earth's productive and assimilative capacities.[5]

The prospect of using, or destroying, the remaining scarce resources in armed conflicts to contest control over these resources, is painful to contemplate. According to Richard Heinberg, this is not just possible, but perhaps even likely, especially if military force continues to be used to maintain the widening gap between rich and poor, and the consumption of the rich continues to deplete the Earth's natural resources.[6]

Prospects for a different outcome would assuredly be enhanced by the contraction and convergence of the human enterprise as a whole. The Global Commons Institute has developed a number of scenarios about how contraction and convergence of GHG emissions might be accomplished. Developing a comprehensive contraction and convergence scenario presents greater challenges, foremost of which is how to manage the process of economic contraction in the industrialized societies.

Problems with Economic Growth

Our economics establishment seems to be almost entirely focused on maintaining economic growth by any means, including those that exacerbate the socio-economic and environmental problems that growth generates. It seems totally unrealistic that economic inequalities could somehow be reduced, while the wealthier segments of the global economy continue to increase their material prosperity. The impossibility that economic growth can be sustained indefinitely on a finite planet is simply ignored or denied.



Quaker Eco-Bulletin *(QEB)* is published bi-monthly by Quaker Earthcare Witness (formerly FCUN) as an insert in *BeFriending Creation*.

The vision of **Quaker Earthcare Witness (QEW)** includes integrating into the beliefs and practices of the Society of Friends the Truths that God's Creation is to be held in reverence in its own right, and that human aspirations for peace and justice depend upon restoring the Earth's ecological integrity. As a member organization of Friends Committee on National Legislation, QEW seeks to strengthen Friends' support for FCNL's witness in Washington DC for peace, justice, and an Earth restored.

QEB's purpose is to advance Friends' witness on public and institutional policies that affect the Earth's capacity to support life. QEB articles aim to inform Friends about public and corporate policies that have an impact on society's relationship to Earth, and to provide analysis and critique of societal trends and institutions that threaten the health of the planet.

Friends are invited to contact us about writing an article for ***QEB.*** Submissions are subject to editing and should:

- Explain why the issue is a Friends' concern.
- Provide accurate, documented background information that reflects the complexity of the issue and is respectful toward other points of view.
- Relate the issue to legislation or corporate policy.
- List what Friends can do.
- Provide references and sources for additional information.

QEB Coordinator: Keith Helmuth

QEB Editorial Team: Judy Lumb, Sandra Lewis, Barbara Day

To receive ***QEB***:
Email: QEB@QuakerEarthcare.org
Website: <QuakerEarthcare.org>
Mail: write to address below

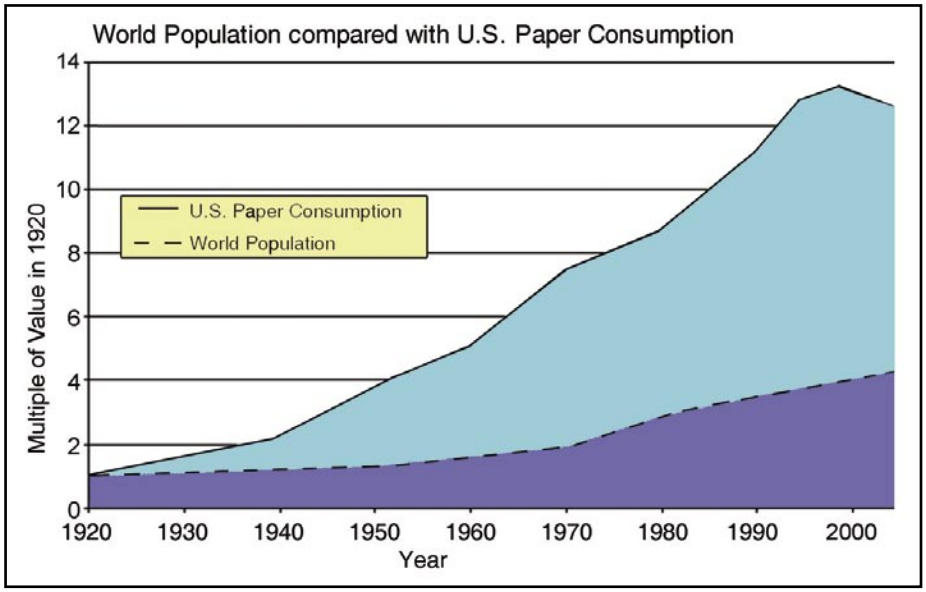
Projects of Quaker Earthcare Witness, such as ***QEB***, are funded by contributions to:

Quaker Earthcare Witness
173-B N Prospect Street
Burlington VT 05401

Quaker Economist Kenneth Boulding was an exception to the establishment norm. In 1965 he gave a short talk, "Earth as a Spaceship," in which he began to spell out the essential differences between the "cowboy economy" of an illimitable earth, and a "spaceship economy," which would become essential for the survival of civilization.[7] His ideas provided a foundation for the emerging discipline of ecological economics. Herman Daly, a leading ecological economist who was inspired by Boulding, points out that much of our current growth is "uneconomic" because the economy, although expanding by conventional measures, is clearly producing greater costs than benefits for people and the planet.[8]

Why does the commitment to growth continue? It is widely understood that if the economy doesn't grow, stock values will fall, investment will decline, unemployment will increase, consumer spending will decline, inventories will pile up, people will suffer, and a downward spiral into depression may result. One example of structural economic violence is the trauma of being trapped in the downward spiral of a market economy. Because restoring growth is the only known way to prevent a depression, this is what we do.

A steady rate of economic growth creates an exponential increase in the overall scale of the economy. This is illustrated by a graph my wife, Margaret Mansfield, and I made for a workshop some years ago.[9] It compares paper consumption and population growth since 1920 to show that high rates of consumption were causing greater environmental impacts than the increase in population. While world population quadrupled, U.S. paper consumption increased almost thirteen times.



We found the increase in paper production somewhat akin to the increase in the US Gross National Product, which had averaged about 3% a year. At an annual growth rate of 3% there was, in effect, an exponential increase in the overall scale of the economy, which doubled about every 25 years. What does 3% annual growth mean if 25 new houses were built in my town in 2001? To sustain 3% growth, the rough equivalent of one additional house would have to be built in each successive year, i.e., 26 in 2002, 32 in 2008, and 50 in 2025 for a total of 925. By 2050, it would be double that! How long would it take before there is no more vacant land? Yet if housing construction does not keep pace, we risk a recession with all the harmful results.

Although orthodox economics does not view growth as a problem, an increasing number of economists, among whom Kenneth Boulding was one of the first, view an economic system that requires growth for stability and prosperity to be ecologically unworkable.[10] While we need the economy to stop growing to prevent more ecological damage and allow the biosphere to recover, we also need the economy to keep growing in order to prevent the financial system from taking a plunge and causing a huge depression. Meanwhile prices are rising because the demands for oil, gas, and many other material resources on which we rely, like food and water, are beginning to exceed the supplies.

What Changes are Needed?

Kenneth Boulding was a strong advocate for using markets to influence behavior. Yet he also referred to the pathologies of the market system. For example, he described the widening wealth gap as a two-decked spaceship consisting of first class and steerage. Peter Barnes identifies three dominant pathologies of markets as: 1) their destruction of nature, 2) their widening of the wealth gap and 3) their failures in humanity's "pursuit of happiness."[11] Using the computer terminology we are now familiar with, Barnes describes these pathologies as the predictable outcomes of the economy's current operating system. To correct them, Barnes says that we need to change the operating system.

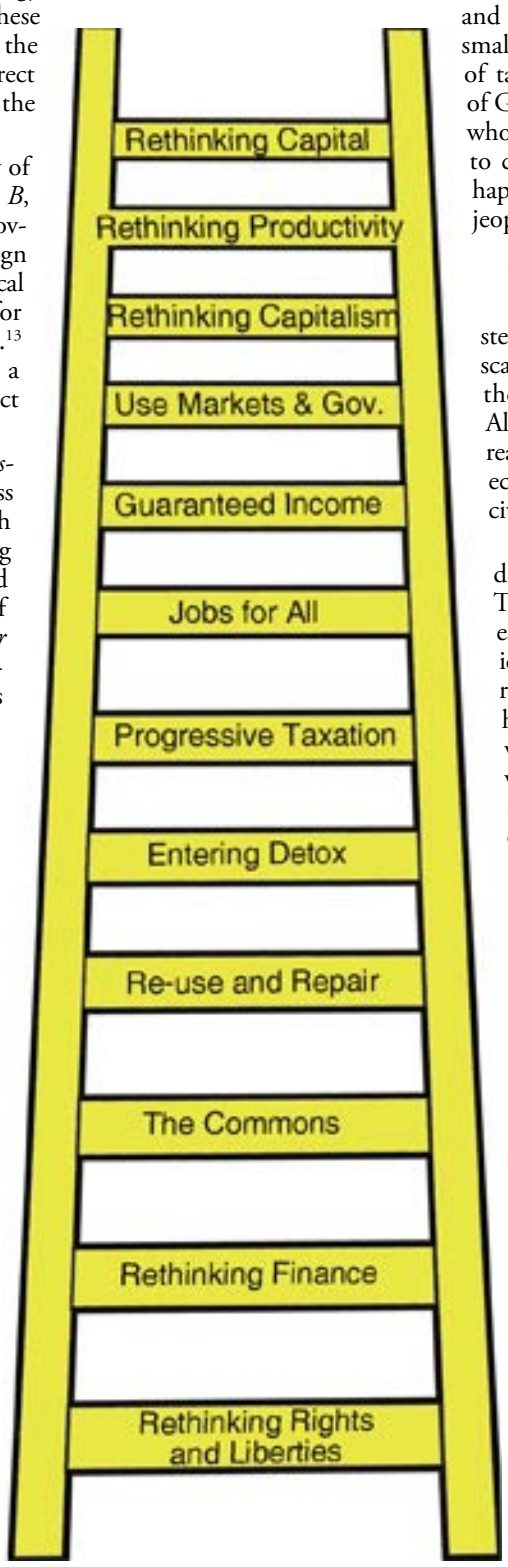
Among those who write about the folly of the growth ideology, Lester Brown, in *Plan B*, proposes many ways of beginning to shift government policies in a more ecologically benign direction.[12] Herman Daly and other ecological economists offer a detailed conceptual basis for an alternative, no-growth economic system.[13] Peter Barnes, in *Capitalism 3.0*, proposes a new form of institutional ownership to protect natural resources.[14]

Howard and Elizabeth Odum, in *A Prosperous Way Down*, identify paths toward a less energy and material intensive economy, such as decreasing urban concentration, increasing lower intensity agriculture, decreasing unearned income, and constructing fewer buildings of higher quality.[15] Richard Heinberg, in *Power Down*, deals directly with what he sees as inevitable contraction due to diminishing supplies of petroleum and other fossil fuels.[16] He points unequivocally to the inability of the current monetary and financial systems to function except in a growth economy. But his focus is primarily on the need to manage diminishing supplies and rising costs of oil, not on managing an overall contraction.

None of these authors is explicit about what seems to be an obvious practical necessity. We are all familiar with the admonition about reducing excessive consumption, but our current operating system requires consumption to increase or the economic computer will crash. In order to carry out a comprehensive version of contraction and convergence for reducing humanity's economic inequities and ecological impacts, wealthier industrial societies must shift from expanding the scale of their economic activity to reducing it.

How can the economic operating system be changed so wealthy industrial societies can orchestrate a reduction in material consumption while promoting non-material prosperity? What policies and strategies would manage a prolonged, intentional recession, while preventing a depression and promoting societal well-being? They must at the very least: 1) protect against insufficient demand and financial melt-down, 2) use the benefits of markets to meet basic needs and provide employment, and 3) promote investment to optimize the scale and productivity of all our capital stocks?

Perhaps there would be more consideration of economic contraction by high-consuming societies if there were a collective rethinking of our economic mythology, and an effort among economists to propose both a vision and some key steps for making a transition to a smaller economic scale. There might be less fear of talking about contraction and convergence, of GHG emissions and of human enterprise as a whole, if there is a ladder for Humpty Dumpty to climb safely to Earth, where the pursuit of happiness and fulfillment can go forward without jeopardizing the future.



Climbing Safely to Earth

I would like to suggest twelve possible steps toward managing a transition to a smaller scale. Some may seem foolishly unworkable, though all have been previously proposed. Also, they have been vigorously opposed for reasons rooted in the prevailing ideologies of economic growth, limited government, and civil liberties.

My twelve suggestions are obviously not discrete steps to be taken one after another. They involve fundamental, interrelated changes in our current mythologies about economics, public policy, human rights, and human responsibilities. The suggested changes in how we think about capital and productivity would provide a rationale for changes in how we think about income, employment, prices and taxes. These changes require less reorientation of our societal mythology as would the changes involving capitalism, property rights, finance, and human rights.

Theologian John Cobb suggested that to preserve hope we need to believe that miracles are possible. What now seems utterly unimaginable may become a reality if we are willing to suspend our disbelief and try to make it happen.[17] Among the miracles that may be needed to avoid catastrophic resource wars is a commitment by wealthy consumer societies to voluntary contraction. For me, developing these suggestions has been an exercise in imagining the kind of miracles that can sustain faith and nurture hope.

Rethinking Capital

In my 1960s college course in Introductory Economics, "capital" referred to the physical means of production, i.e., the factories in which goods were produced from raw materials and labor. Land, labor, and capital were viewed as analytically exclusive factors of produc-

tion. Manufactured capital used to be called "real" capital. Capitalists were entrepreneurs who owned the factories. Financial capital was a tool for creating real capital and was provided by financiers.

At this same time, Kenneth Boulding was asserting that capital, in its most basic sense, is better understood as a physical stock that provides a flow of a productive resource or service to the economy.[18] From his perspective, natural capital, human capital, and social capital all provide productive resources, without which the economy cannot function. Raw materials and the assimilation of wastes come from stocks of natural capital. Skilled labor comes from stocks of human capital. Organizational capabilities come from stocks of social capital. In addition, stocks of publicly owned manufactured capital, such as roads and bridges, provide essential products and services, without which private enterprise could not function.

Investment traditionally meant using a surplus to improve the stock of real, i.e., manufactured, capital. Although not reflected in the way we tend to think about taxes, a significant component of public expenditures involves maintaining and increasing the stock of publicly owned manufactured capital. Currently, we are depleting our stocks of non-renewable natural capital and using renewable resources at a rate that exceeds their yields, thus consuming renewable natural capital and diminishing the yield of these stocks, rather than investing to maintain, improve, and increase their yield. Likewise, we are failing to maintain much of our publicly owned real capital, and neglecting many opportunities to invest in our stocks of human and social capital, except to invest in the capacity for endless consumption.

Rethinking Productivity

Our exploitation of stored energy from the sun in the form of fossil fuels has given us a false impression that energy is infinite, but the laws of thermodynamics universally apply. Energy can neither be created nor destroyed. Most energy on Earth comes from the sun through the transfer of heat and the capture of photons through the miracle of photosynthesis or the use of photo voltaic cells. Our supplies of energy and raw materials are natural capital, which will soon become the limiting factors in our economies. In the not too distant future, our energy supply is apt to depend entirely on our ability to capture energy, directly or indirectly, from the light of the sun, the heat of the earth, and the gravity of the moon. Likewise, our material resources will increasingly come from what we are able to cultivate and harvest.

Two years ago, sewers came to our neighborhood. I dug a trench myself and had my plumber install the pipe. My neighbor had a plumber do his entire installation with a backhoe. The task of digging and filling took me about 12 hours, while digging and filling my neighbor's trench took the backhoe about three hours. By today's standard, the backhoe operator was four times as productive as I was. But although I burned more food calories than the backhoe operator, there was a huge difference in the amount of energy expended with the backhoe, both in the fuel used and in the energy embodied in the backhoe, trailer, truck, etc. In terms of net energy use, I was many times more productive.

If this understanding was widespread, it would become clear that "productivity" should not be measured in output per person-hour, but output per net Calorie or BTU. Increasing productivity would then mean providing a particular good or service with less expended and embodied energy. Full cost accounting of expended and embodied energy would become an essential tool of micro-economics.

Rethinking Capitalism

If capital investment is understood as wealth used to increase the ability to create real wealth, then improving the sustainable yield of a field or forest, increasing someone's skills or their ability to learn new skills, strengthening the cohesiveness of a community, promoting the attitudes and values that are basic to effective citizenship—these are all forms of improving capital stocks that are as vitally important for society as building a new factory, installing a new wind farm, or expanding mass transit.

Energy and other resources are required for maintenance and replacement, as well as for improvement or expansion of capital stocks.

EARTH AS A SPACE SHIP
Kenneth E. Boulding
May 10, 1965
Washington State University
Committee on Space Sciences

In the imagination of those who are sensitive to the realities of our era, the earth has become a space ship, and this, perhaps, is the most important single fact of our day. For millennia, the earth in men's minds was flat and illimitable. Today, as a result of exploration, speed, and the explosion of scientific knowledge, earth has become a tiny sphere, closed, limited, crowded, and hurtling through space to unknown destinations. This change in man's image of his home affects his behavior in many ways, and is likely to affect it much more in the future.

It is not only that man's image of the earth has changed; the reality of the world social system has changed. As long as man was small in numbers and limited in technology, he could realistically regard the earth as an infinite reservoir, an infinite source of inputs and an infinite cesspool for outputs. Today we can no longer make this assumption. Earth has become a space ship, not only in our imagination but also in the hard realities of the social, biological, and physical system in which man is enmeshed. In what we might call the "old days," when man was small in numbers and earth was large, he could pollute it with impunity, though even then he frequently destroyed his immediate environment and had to move on to a new spot, which he then proceeded to destroy. Now man can no longer do this; he must live in the whole system, in which he must recycle his wastes and really face up to the problem of the increase in material entropy which his activities create. In a space ship there are no sewers.

Let me suggest, then, some of the consequences of earth becoming a space ship. In the first place, it is absolutely necessary for man now to develop a technology that is different from the one on which he now bases his high-level societies. High-level societies are now based on the consumption of fossil fuels and ores, none of which, at present rates of consumption, are likely to last more than a few hundred years. A stable, circular-flow high-level technology is conceivable in which we devote inputs of energy to the concentration of materials into useful form, sufficient to compensate for the diffusion of materials which

How much energy should be spent to: maintain, replace, expand or improve various capital stocks? produce goods and services for people to use? At what point should we: build fewer houses in order to have more fields? make fewer cars in order to plant more trees? use less manure for fertilizer in order to produce more biogas? use less water for vegetables in order to have more water for fish?

When the Earth seemed to have no limits, it may have made sense to develop and expand manufactured capital stocks as the path to progress, and to fund entrepreneurs through the private accumulation of financial capital as a way to accomplish this.

When the Earth is crowded with humans, and energy and physical resources become the limiting factors of production, the goal of capitalism must shift to allocating energy and other resources to maintain and improve all capital stocks at their optimum size relative to one another. A major technical challenge will be devising reliable and valid ways to assess the quality and quantity of various capital stocks and the sustainable yield they can provide at various levels of investment.

From this perspective, the issue of human population would be understood as optimizing the scale of the human capital stock. The issue of protecting wildlife species and habitat would be understood as optimizing the ability of natural capital to provide ecosystem goods and services. The issue of whether nature is inherently valuable or only of value for its uses to human beings would become a moot point, because we would understand that the economy is as much a part of nature as anything else. We would reject the arrogance of enlightenment science and respect the wisdom of the earth and the ages.

Enlightened global capitalism would then be understood as the theory and practice of investing wisely to sustain the commonwealth of life.[19] How can we get the most overall benefit from the flow of resources that all our capital stocks are able to provide, in light of the resources needed to maintain them and our understanding of ecology and thermodynamics? What is the optimum use of available energy and capital stocks to maximize human betterment and the well-being of the biosphere, which is perhaps what should be understood as real wealth? How can the context in which markets function be redesigned so they help us find wise answers to these questions rather than producing uneconomic growth and wastefulness?

Using Markets and Governments to Manage the Economy

In a time of scarcity, we must allow higher prices to lower demand in order to reap the benefits of markets. The idea that we must restore growth to alleviate current suffering ignores future consequences. We need policies to protect society from insufficient demand and financial melt-down, and to protect individuals from the structural violence of unemployment and destitution. Then we could allow higher prices to change behavior without doing real damage to those who are most vulnerable, and we might be more willing to allow markets to function to our long-term benefit. The changes that are needed will not come without pain, but if we avoid pain now, it will be worse at a later time.

We must overcome the current obsession with preventing government from interfering with markets by recognizing this for what it is: profit-seekers wanting to prevent government from interfering with profit-seeking. Yet the profit-seekers want government to interfere with everyone else when they want government to protect them. We must expect government to be the instrument through which we can create a more enlightened form of capitalism. To make this possible we must give government more leverage to influence our personal economic choices, as well as the actions of corporations.

A Guaranteed Income

While downsizing the economy, a major challenge in the prevention of a depression will be to maintain a suitable level of purchasing power. In his last book, Kenneth Boulding examined how income from interest, profit, rent and wages related to levels of employment.[20] These relationships become especially pertinent, if total income contracts rather than expands. At present, low wages and

takes place in their use. At the moment we take fuels and burn them, we take concentrated deposits of iron ore for instance, and phosphates, and we spread these throughout the world in dumps, and we flush them out to the oceans in sewers. The stable high-level technology will have to rely on the oceans and the atmosphere as a basic resource from which materials may be concentrated in sufficient quantity to overcome their diffusion through consumption. Even this, of course, will require constant inputs of energy. There is no way for the closed system to prevent the increase of entropy. Earth, fortunately, has a constant input of energy from the sun, and by the time that goes, man will probably have abandoned earth; and we have also the possibility of almost unlimited energy inputs from nuclear fusion, if we can find means of harnessing it usefully.

Man is finally going to have to face the fact that he is a biological system living in an ecological system, and that his survival power is going to depend on his developing symbiotic relationships of a closed-cycle character with all the other elements and populations of the world of ecological systems. What this means, in effect, is that all the other forms of life will have to be domesticated, even if on wildlife preserves.

The consequences of earth becoming a space ship for the social system are profound and little understood. It is clear that much human behavior and many human institutions in the past, which were appropriate to all infinite earth, are entirely inappropriate to a small closed space ship. We cannot have cowboys and Indians, for instance, in a space ship, or even a cowboy ethic. We cannot afford unrestrained conflict, and we almost certainly cannot afford national sovereignty in an unrestricted sense. On the other hand, we must beware of pushing the analogy too far. In a small ship, there would almost have to be a dictatorial political system with a captain, and a planned economy. A voyaging space ship, like a battleship, almost has to be a centrally planned economy. A large space ship with three billion passengers, however, or perhaps ten billion, may have a very different social structure. Large social organizations are very different from small. It may be able to have much more individual freedom, a price system and a market economy of a limited and controlled kind, and even democratic political institutions. There must be, however, cybernetic or homeostatic mechanisms for preventing the overall variables of the social system from going beyond a certain range. There must, for instance, be machinery

high unemployment risk creating insufficient demand. A guaranteed income is an assured way of maintaining purchasing power and letting markets shift the allocation of resources to meet basic needs.

By orienting purchasing power toward meeting basic needs, market mechanisms can continue to provide efficient allocation and promote innovation while minimizing structural economic violence. Providing a guaranteed income would protect against the structural economic violence stemming from job loss, low wages and other consequences of the power employers have over their employees. A guaranteed income would largely eliminate the need for a minimum wage, and encourage small scale entrepreneurs. It would enable market mechanisms to serve the general welfare and help to optimize the yield of society's human capital.

Jobs for All

Another challenge of downsizing would be how to maintain, and indeed to expand, the level of useful employment. People will cause trouble, if they are prevented from doing something useful. As Kenneth Boulding might say, this is no way to run a space ship.

A simple solution is to create a framework that provides a job opportunity for everyone. Subsidy shifting from "bads" to "goods" could include subsidies to small businesses and non-profits to pay low level wages for on-the-job training positions and programs, while allowing market mechanisms to reward the more effective programs.

Jobs for all would be another protection against structural economic violence, and a means of improving the stocks of human and social capital. It would also provide a means to invest in improving stocks of natural capital and public capital, and to promote entrepreneurship for these purposes. This could be accomplished primarily through the private and non-profit sectors.

Restoring Progressive Taxation

Our wealthiest citizens and corporations are using their political power to starve the economy's public sector with the mantra that taxes are too high and government is the problem, while at the same time they are benefiting the most from its services. This has been going on as a core strategy of neo-conservatives for such a long time that it is beyond outrage.

The idea that tax breaks for the wealthy have nothing to do with the increasing extremes of wealth is utter nonsense. From the 1930s until the Kennedy administration's tax cuts, the distribution of income and wealth in the US was relatively stable. Since then, taxes on higher incomes have been significantly reduced, and the gap between rich and poor has steadily widened. Paying for a guaranteed income and jobs for all, and investing in our natural, human, and social capital would be easier, if there were a conscientious effort to restore progressive taxation.

Entering Detox

Entering a detox program seems essential in both a literal and figurative sense. Literally speaking, we must eliminate the poisoning of the biosphere not only by GHGs, but also by radioactivity, persistent organic pollutants, heavy metals, and other substances that accumulate in the food chain and are genetically, reproductively or neurologically disruptive. The kind of attention paid to lead in the 1970s and to chlorofluorocarbons in the 1980s needs to be given in a more rigorous way to a vast number of other toxic substances, many of which are synthetic and thus can be readily eliminated or controlled if we so choose.

Figuratively speaking, we must stop ourselves from over-dosing on stuff. The addiction to stuff, and indifference to frugality and waste, is no more a part of human nature than cleaning one's plate, saving string, or returning milk and beer bottles, all of which were widespread practices in the first half of the 20th century. Advertising and marketing intentionally created the throw-away consumer culture. Advertising and marketing continue to promote frivolous uses of gasoline and other toxic-to-life products. We must be willing to use the same media to change these messages.

The need for major investments in less damaging technologies is very real, but the net effect must be to use far less energy and material resources than at present. We cannot sustain the growth economy with green investments without turning them brown. Industrial societies must scale back. Maximizing efficiency and conservation will be essential. Perhaps our Testimony on Simplicity will help turn Friends from misfits into patterns and examples.

for controlling the total numbers of the population; there must be machinery for controlling conflict processes and for preventing perverse social dynamic processes of escalation and inflation. One of the major problems of social science is how to devise institutions which will combine this overall homeostatic control with individual freedom and mobility. I believe this problem to be not insoluble, though not yet solved.

Once we begin to look at earth as a space ship, the appalling extent of our ignorance about it is almost frightening. This is true of the level of every science. We know practically nothing, for instance, about the long-run dynamics even of the physical system of the earth. We do not understand, for instance, the machinery of ice ages, the real nature of geological stability or disturbance, the incidence of volcanism and earthquakes, and we understand fantastically little about that enormously complex heat engine known as the atmosphere. We do not even know whether the activities of man are going to make the earth warm up or cool off. At the level of the biological sciences, our ignorance is even greater. Ecology as a science has hardly moved beyond the level of bird-watching. It has yet to become quantified, and it has yet to find an adequate theory. Even to an economist, its existing theoretical structures seem fantastically naive, and when it comes to understanding the world social system or the sociosphere, we are not only ignorant but proud of our ignorance. There is no systematic method of data collection and processing, and the theory of social dynamics is still in its first infancy.

The moral of all this is that man must be made to realize that all his major problems are still unsolved, and that a very large and massive intellectual effort is still necessary to solve them. In the meantime we are wasting our intellectual resources on insoluble problems like unilateral national defense and on low-priority achievements like putting a man on the moon. This is no way to run a space ship.

Kenneth E. Boulding Papers, Archives (Box # 38), University of Colorado at Boulder Libraries. Used with permission from Elise Boulding.
<colorado.edu/econ/Kenneth.Boulding/spaceship-earth.html>

Beyond Recycling to Re-use and Repair

The current focus on recycling, however necessary, is far from adequate, and obscures the essential way forward. Many products are deliberately made to wear out, and are prohibitively expensive to repair. If we were serious about "reuse, repair, and recycle," we would eliminate much of what we currently congratulate ourselves for recycling. We would replace throw-aways with re-usables. We would make products easy to repair, and teach people how to repair them. We would make it easy to get replacement parts. We would make it cost less to repair something than to replace it. Frugality would be restored as a virtue.

We would design products to enable their components to be re-used. We would design materials to facilitate recycling, but we would only recycle the materials in those items that could not be repaired or disassembled for reuse. We would be serious about getting the most benefit from the least use of energy and material resources. The technical analysis and design for this kind of effort is available.[21] We can ask our economists how to use market forces to move in these directions as soon as possible.

Re-inventing the Commons

In *Who Owns the Sky?* Peter Barnes asked why anyone should assume that a private entity should be entitled to profit from polluting the atmosphere when the costs are borne by everyone, indeed, by all life.[22] In *Capitalism 3.0* he proposed a different form of ownership as a way of "re-inventing the commons," and "building a commons sector."[23]

The prevailing mythology of capitalism that Peter Barnes refers to as "surplus capitalism" sees corporate finance, profits and property rights as its defining characteristics. Yet every modern industrial economy uses a distinctive combination of provisions for the allocation of resources, ownership of capital, management of the money supply, and governance of markets.

Re-defining what constitutes the commons and determining who protects the commons, manages the commons, and benefits from the commons is essential for reforming capitalism. This reformation must be grounded in the Earth as we now know it to be, rather than as it was construed to be several centuries ago. This is a huge task. We will need much collective wisdom to undertake it.

Rethinking Finance

Something happened in recent times to shift the common understanding of real capital from machines to money, from manufactured capital and other forms of real capital that are subject to the laws of physics, to financial capital that vested interests have managed to design so the laws of physics do not apply. Since the international gold standard was eliminated in 1972 and banking deregulation ensued, the private financial industry can create virtually as much money as the financial markets will bear.[24]

Richard Heinberg writes, "…it would be difficult to change the growth imperative from modern economies without also changing the national monetary systems. That is because most money is loaned into existence by banks and thus based on debt, and implies a commitment on someone's part to pay interest on that debt. If the economy does not grow, new money would not be available to pay interest on existing loans; many of these loans will thus be defaulted upon, and a crash will occur…. If we are to achieve a reduced scale, steady state society, we will need to change our monetary system to one that is not based on debt and interest."[25]

Heinberg's view is one that Kenneth Boulding held for many years, and that an increasing number of prominent figures espouse, including Herman Daly,[26] Richard Douthwaite,[27] and Bernard Lietaer.[28] However, orthodox theory does not view our debt-based monetary system as a primary determinant of either growth or depression. It would be preferable to devise constructive ways of downscaling within the existing monetary and financial structures. Perhaps economists will find a way to do this.

Rethinking Rights and Responsibilities

Our conceptions about human rights and civil liberties are far more rooted in the 18th century, and less suited to our current circumstances than we realize. In the 1960s, Kenneth Boulding proposed giving every person of reproductive age 10 birth certificates that could be bought or sold, and requiring 10 birth certificates in order to bear a child.[29] Many Friends were outraged. He agreed that this was not a nice idea, but asked if they could propose a better way of assuring that the human population does not increase. At the time the human population was three billion. Now it is six billion. Can we really feed nine billion? Is it better just to let people starve?

Supplies of clean water are not keeping up with demand. Water tables and aquifers are being over-harvested. Purifying water is energy intensive. If everyone has a right to clean water, do we decide the amount of water to which each one has a right? How do we decide what is an appropriate share of water for other species?

A clear consensus seems to be emerging that health care is a basic right to which all should have access. Hopefully, this will soon be achieved. But it will not be possible to provide all forms of health care to everyone, so some hard choices will need to be made. The medical and pharmaceutical establishments are little scrutinized about pollution. Should treatments and practices that contribute to altering the chemical composition of the biosphere be restricted or eliminated?

Knowing that many of the things we now buy and use (like gasoline) have harmful and potentially lethal effects, how much freedom of choice can be permitted if we are to prevent ourselves from harming or killing one another? How much regulation of the way we use our money will be needed to prevent the destruction that collectively we are otherwise certain to cause?

Knowing that the imagery we are exposed to influences us in ways we are not aware of, how can we preserve freedom of speech and other forms of expression without exposing ourselves to influences that may lead us to destroy ourselves? How much censorship of what we see and hear will be needed to change our beliefs, thoughts, and impulses from wanting more to wanting less?

What Can Economists Do?

It is not easy for anyone living in the U.S. right now to imagine that these suggestions would be taken seriously. They offer a vision that is very different from the way things are now and the way we are heading.

"Rethinking Productivity" would direct many people into more time-consuming physical work. "Using Markets and the Government" would force us to make painful choices and changes without blaming politicians. "A Guaranteed Income" and "Jobs for All" may sound attractive, but for many Friends, "Restoring Progressive Taxation" to pay for them would mean significantly higher taxes. The suggestions after that become progressively more difficult to imagine in the context of society's current mythology. There may be much better ways of accomplishing the same goals.

Structural economic violence is already increasing as our institutions become steadily less suited to our circumstances. It is impersonal and largely hidden. Unless the violence touches us personally, we can usually ignore it by crossing to the other side of the road or staying on our side of the tracks. This is as true for the economics establishment as it is for so many of us, myself included. Yet the violence will hit steadily closer to home unless it is reduced by changing the economic structures that cause it. If denial and self-interest continue until shattered by events, the effects may be overwhelming.

Using market mechanisms to help us make difficult choices seems much better than using force or to giving in to despair, as long as everyone is able to buy bread for the table and find something useful to do. Economists can suggest what markets can and cannot be expected to accomplish, and how the framework in which they operate can best be structured. They can use their distinctive analytic toolkit to suggest changes in policies and institutions that will enable us to downsize without causing a depression. As a society we may not be willing to look down until we can see a ladder we can use to climb to safety and come to a new understanding of what it means to prosper. Perhaps the most difficult issue for economists will be adapting the monetary and financial systems to downscaling.

What Can Friends Do?

Perhaps the most difficult issue for Friends, as for people of other faith communities, will be those involving human rights and responsibilities. With all the wisdom and discernment we can muster, we must confront the difficult dilemmas of preserving freedom of belief, thought, and personal expression, while limiting the dysfunctional aspects of human communication and behavior that have created our current planetary crisis.

As Friends, we can use our distinctive spiritual toolkit, our spiritual foundations, forms of worship and testimonies, to help one another anticipate and negotiate the dislocations that will accompany downscaling. Being grounded in corporate worship, we can preserve and strengthen our spiritual vitality and help others avoid psychic depression. An essential first step, which many have already taken, is to not let fear paralyze us into inaction or keep us from imagining a life that would be materially sufficient and spiritually more fulfilling than the path we humans are on now.

We can maintain hope by believing in miracles despite the overwhelming tasks ahead. In a cocoon, imaginal cells miraculously emerge from the distintegration of the caterpillar's cellular structure, and assemble themselves to form a butterfly.[30] This gives me hope to think that some of our efforts will contribute to the emergence of imaginal cells from which human societies will form that function in harmony with the biosphere.

Once to every soul and nation comes the moment to decide….
New occasions teach new duties. Time makes ancient goods uncouth.
They must upward still, and onward who would keep abreast of Truth.[31]

***Ed Dreby** is a member of Mt Holly (NJ) Monthly Meeting. He is a former Friends school administrator and social studies teacher. He was clerk of Earthcare Working Group of Philadelphia Yearly Meeting from 1996–2007, a member of the National Council of Churches Eco-Justice Working Group from 1997–2002, and a founding member of Quaker Eco-Witness and Eco-Bulletin. He is currently active with Earthcare Working Group of Philadelphia Yearly Meeting, Friends Committee on National Legislation, Quaker Earthcare Witness, and project leader of Friends Testimonies and Economics.*

References

1 Brown, Lester, 2005. "Rising to the Challenge" in *Seeds of Violence, Seeds of Hope*, ed. Ed Dreby (*Seeds*). Vol I, p 28. *Seeds* is available online at <quakerearthcare.org/Projects/FTE/FTE.htm> or in hard copy from <drebymans@igc.org>.
2 Soros, George 2008. *The New Paradigm for Financial Markets: The Credit Crash of 2008 and What It Means.* New York NY: Public Affairs.
3 Mansfield, Margaret, 2005. "Structural Violence and Friends Testimonies," in *Seeds*, Vol I, pp 20 ff.
4 Meyer, Aubrey, 2007. "The Case for Contraction and Convergence" in *Surviving Climate Change,* ed. David Cromwell and Mark Levene, London: Press, pp 29 ff (Global Commons Institute <gci.org.uk>).
5 Knowlton, Hollister, 2005, "Ecological Footprint Analysis" in *Seeds*, Vol I, p. 23.
6 Heinberg, Richard, 2004. *Power Down*, Gabriola Island BC, Canada: New Society Press.
7 Boulding, Kenneth, 1965. "Earth as a Spaceship" reprinted here p. 4.
8 Daly, Herman, 2007. "Boundless Bull" in *Seeds*, Vol III, p. 34.
9 Dreby, Ed and Margaret Mansfield, 2006. "Trees as Metaphors" in *Seeds* Vol II, p. 30.
10 Boulding, Kenneth, 1966. "The Economics of the Coming Spaceship Earth" in *Environmental Quality in a Growing Society*, Baltimore MD: Johns Hopkins University Press, pp. 253 ff.
11 Barnes, Peter, 2006. *Capitalism 3.0*, San Francisco: Berrett-Kohler, p. 25.
12 Brown, Lester R. 2008. *Plan B 3.0: Mobilizing to Save Civilization*. New York NY: W.W. Norton and Company.
13 Daly, Herman, and Joshua Farley, 2004 *Ecological Economics: Principles and Applications*, Washington, D.C: Island Press.
14 Barnes, Peter, 2006. *Capitalism 3.0*, San Francisco: Berrett-Kohler.
15 Odum, Howard and Elizabeth, 2001. *A Prosperous Way Down*, Boulder CO: University Press of Colorado.
16 Heinberg, Richard, 2004. *Power Down*, Gabriola Island BC, Canada: New Society Press.
17 Cobb, John, 1996. Presentation at Drew University, October, 1996.
18 Boulding, Kenneth, 1965. *Meaning of the 20th Century*, New York NY: Harper and Row.
19 Brown, Peter G., 2001, *The Commonwealth of Life,* Montreal, Canada: Black Rose Books.
20 Boulding, Kenneth, 1992. *Toward a New Economics*, Northamptom MA: Edward Elgar.
21 McDonough, William and Michael Braungart, 2002. *Cradle to Cradle*, New York NY: North Point Press.
22 Barnes, Peter, 2001 *Who Owns the Sky?* Washington, D.C.: Island Press.
23 Barnes, Peter, 2006 *Capitalism 3.0*.
24 Dreby, Ed, 2007. "Money and Growth" in *Seeds*, Vol III, pp. 56 ff.
25 Heinberg, Richard, 2004. *Power Down*, p.100.
26 Daly, Herman and John Cobb, 1994. "Afterward on Money, Debt, and Wealth" in *For the Common Good*, 2nd edition,1994, Boston MA: Beacon Press.
27 Douthwaite, Richard, 2000. *Ecology of Money*, White River Junction VT: Green Books.
28 Lietaer, Bernard, 2002. *The Future of Money*, New York NY: Random House.
29 Boulding, Kenneth, "Economics of the Coming Spaceship Earth", pp 404 ff
30 The Imaginal Cell Story. <theinfinitegames.org/e06/>.
31 Lowell, James Russell, 1845. "Once to Every Soul and Nation" in *Worship in Song*, 1996, Philadelphia PA: Friends General Conference, p. 273.