Learning from Ivan Illich to Embrace Vision and Eschew Plans

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As I write this, the world is deep within the grip of a global pandemic, and our society has taken extreme precautions to preserve human lives. During the first nine months of 2020, less than 0.013% of the global population has died from a disease that brought the world economy to its knees. If the coronavirus continues to *ravage* the global population at the average rate that it has since January 2020, its death toll will rival, and perhaps even surpass the annual number deaths due to automobile accidents worldwide. (Djurkovic, 2020) Meanwhile, according to a recent report by the World Wildlife Foundation, monitored wildlife species have experience a 68% global average decline in number between 1970 and 2016. (Living Planet Report 2020, 2020) As is usually the case, the report ends with a "Roadmap For People And Nature," with suggestions, based on "Pioneering modelling" that provides a "proof of concept" that we can *bend the curve* to "restore biodiversity and feed a growing human population." This is just what we need, a diagnosis of a serious problem and proposed, science-based solutions that halt and perhaps reverse much of the damage we have done while feeding an ever-growing human population. In other words, with a few tweaks, we can save the world and continue down the path we have been on at least since the Industrial Revolution. Independent of whether it was truly uttered by Marie Antoinette, the adjuration, "Let them eat cake!" certainly captures the spirit of our time. It is fine to desire cake but let us not lose our heads over it!

The most destructive effect of development is its tendency to distract my eye from your face with the phantom, humanity, that I ought to love.

— Ivan Illich speaking to Majid Rahnema (Rahnema, 2008)

To not be distracted from concentrating on the person you are with reminds me of Leopold Kohr's comment about how bigness makes you worry about what is happening across the country in a place that has no direct connection to what is going on around you.

Sparks kindled by some spontaneous combustion of minds and flitting aimlessly through people's brains which act as involuntary conductors because in modern crowd life we stand too closely together to escape infection. They are uncontrollable phenomena of large-scale existence, transmitting themselves across the entire surface of the globe and creating the necessity in those they brush of participating intellectually in whatever movement may arise in whatever corner of whatever continent. (Kohr, 2001)

In these words, I see a clear parallel between a viral pandemic and a sort of intellectual pandemic brought about by globalism.

The COVID-19 pandemic has revealed the weakness of the many systems that were developed during the last century to manage our society. The vulnerability of our heavily interconnected world to shocks such as the pandemic was revealed in a thorough network study conducted by economists of the School for Advanced Studies in the Social Sciences in Marseille, France, and of the Sant'Anna School of Advanced Studies in Pisa, Italy. (Maciel, 2014)

In the wake of COVID-19, will we return to normal, much like we did after the Great Recession of 2008, with minor adjustments here and there, applied like bandages to a festering wound, or will we have learned something from our experience with the pandemic and search for new solutions to problems that plague society?

Expecting Solutions is Part of the Problem

> Illich might have said more about those fugitive 'stories, skills, and senses of form"; he might have tried harder to sketch in the details of a society based on 'nonmarketable values. (Scialabba, 2017)

Critics of Illich often criticize him for diagnosing societal ills without prescribing remedies, but just as he felt that doctors' prescriptions often made illnesses worse, Illich understood that any solutions he might propose would likely have unforeseen dire consequences. Rather than come up with plans and programs for change, perhaps it would be best for us to "learn to laugh at accepted solutions in order to change the demands which make them necessary." (Illich, 1978) Instead of looking for new ways to satisfy old demands, we should start by examining the very demands that we traditionally have aimed to satisfy. Like a latter-day Till Eulenspiegel, Illich mocked even seemingly sensible demands such as those from the left, which he characterized as "more jobs, equal pay for equal jobs, and more pay for every job.", because for him "these demands were beside the point." (Scialabba, 2017)

Are We Trapped in a Destructive Spiral?

Since many on the right consider redistribution of wealth an unwelcome intrusion of the government into private affairs, they encourage economic growth on the assumption that "a rising tide lifts all boats." This can only work assuming there is an unlimited supply of natural resources. For most of human history, economies were local and they aimed at subsistance. Since the industrial revolution, the economic aim has been perpetual growth, but this economic model is unsustainable and spirals outward beyond Earth's ability to replenish the natural resources we are consuming. The economic growth spiral began expanding outward around 1870, thanks to technological innovations like the steam engine that were quickly followed by electricity.

Following the analysis of the economist Robert Gordon (Gordon, 2016), innovation initially drove economic growth and was at least as important as advertising up until 1970, after which time the rate of major innovation declined, and advertising took the lead in created the demands, practically out of thin air, that are now driving growth. To defend the excessive consumerism that perpetuates the rapacious capitalism characterizing our age, one needs to justify or at least tolerate the ever increasing loss of wildlife habitats, the opressive ugliness of our built environment, the inexorable increase of the amount of greenhouse gases in our atmosphere, the exponential growth of human population, the widening gulf between rich and poor, the rise of terrorism, and the general feeling of loss and emptiness felt by so many in advanced industrial societies.

When we go back to the start of the industrial revolution, there was a problem in search of a solution: the flooding of coal mines. The solution was the great innovation of the steam engine. As we follow the spiral outward, we encounter new problems and their solutions: a need for cleaner, more convenient lighting led to the electric light bulb, city streets clogged with horse manure led to street cars and automobiles, etc. However, we soon confuse problems with solutions, and the solutions themselves become problems. Do more jobs drive a need for more workers or do more workers drive a need for more jobs? We even find that improvements in efficiency deemed necessary to preserve increasingly scarce resources, ironically lead to increased rates of usage of those scarce resources (i.e. Jevons' paradox (Owen, 2010)).

The Situation We Are In

Society has been warned of the "population bomb" over and over by the likes of Malthus and Ehrlich (Ehrlich, 2007). However, their catastrophic predictions have yet to be realized,

because the population bomb was always defused by human ingenuity. Many claim the *population problem*, assuming one exists, will take care of itself. Societies with high standards of living naturally choose to limit the growth of their populations. Look at many of the countries in Western Europe, for example, whose native populations are shrinking. The world already has more than seven billion people, and if demographic trends continue, the global population will likely peak at 10 billion around the middle of this century (Fengler, 2016). It appears our population is nearly as high as it will ever be. So, perhaps population is not a problem. In fact, some people even argue that population needs to grow in order to have more smart people to come up with new and better solutions to the problems we have created for ourselves. They are of course assuming that human intelligence is cumulative, which is by no means self-evident.

Depending on what you consider to be a sustainable world, population might already be too high by far. Humanity has bought itself time by having access to a source of abundant solar energy that was stored over the course of eons in the fossils of ancient organisms. Even if all people in the world's highest consuming nations reduced their consumption down to the level of the average Bangladeshi, the Earth couldn't sustain the current human population of over seven billion at even the current rate of resource consumption indefinitely.

Let us, for the sake of discussion, take as an axiom that all living cells are equal, independent of how they are packaged into multicellular organisms. By "equal," I mean they are equally entitled to their share of the power delivered to Earth by the sun. For want of a name, I have chosen to call this axiom *the principle of biocellular democracy*.

The sun provides the world with around 1370 watts/m^2. The total power spread over the globe that is available for life is then 1.22×10^{17} watts, and that power must be shared by all living things, and the basic constituent of all living things, the quantum of life, is the cell. The

amount of power that the sun provides, as huge as it is, must nevertheless be shared by an even more astronomical number of cells. According to this principle, humans are entitled to a fraction of that total power that is equal to the fraction of all living cells that comprise humanity. In a state of equilibrium, this idea should lead to a rough equipartition of energy between species. If more than three billion years of evolution have *wisely* apportioned that power between the over one million species living on Earth, then humans are entitled to about one millionth of that total power. If humans use much more than that, their activities will throw the entire biosphere out of whack.

Since the time they learned how to harness fire, humans have tended to use more energy than required to sustain their metabolisms. This imbalance of energy usage between metabolic and non-metabolic processes has exploded since the industrial revolution and the large-scale use of fossil fuels, and the degree of imbalance varies widely, depending on which nation you live in, and your economic status within that nation. The principle of biocellular democracy therefore demands a limit on per capita rate of energy consumption that is largely determined by population.

For instance, in the United States, the per capita consumption of power is more than sixty times the power needed to sustain a human metabolism, whereas in a country like Bangladesh, the per capita consumption of power exceeds the average human metabolism by only a factor of about two. So, if the world were populated by Bangladeshis, the world could support a population of around 300 million people, the current population of the United States, without disturbing the ecological balance. For Americans, their greedy use of power implies that the ecological balance that has held sway up until the industrial revolution couldn't be maintained if their population exceeded a mere 13 million, roughly the current populations of

Guinea or South Sudan. The graph in Figure 1 shows the population consistent with cellular democracy principle according to the per capita power consumption of most of the Earth's major nations; national flags indicate the results for Bangladesh, Mexico, and the United States. There was a number left off the graph, the population permitted if humans lived only on the power needed to sustain their metabolisms (i.e. a power overhead of 0 watts). That number turns out to be 1.2 billion. So, if you accept this principle of biocellular democracy, and if we all lived like our ancestors did before the harnessing of fire, the world could, at most, handle a human population just short of what it was in 1850 without disrupting the diversity of nature that so enchanted our distant ancestors. The world's richest countries, the countries that support a standard of living below which their citizens would probably prefer not to live, have a combined population of around a billion people, and according to this argument, that is eighty times more than Earth can be expected to handle in the long term – at least if we care about sharing the world on an equal footing with rest of the biosphere.
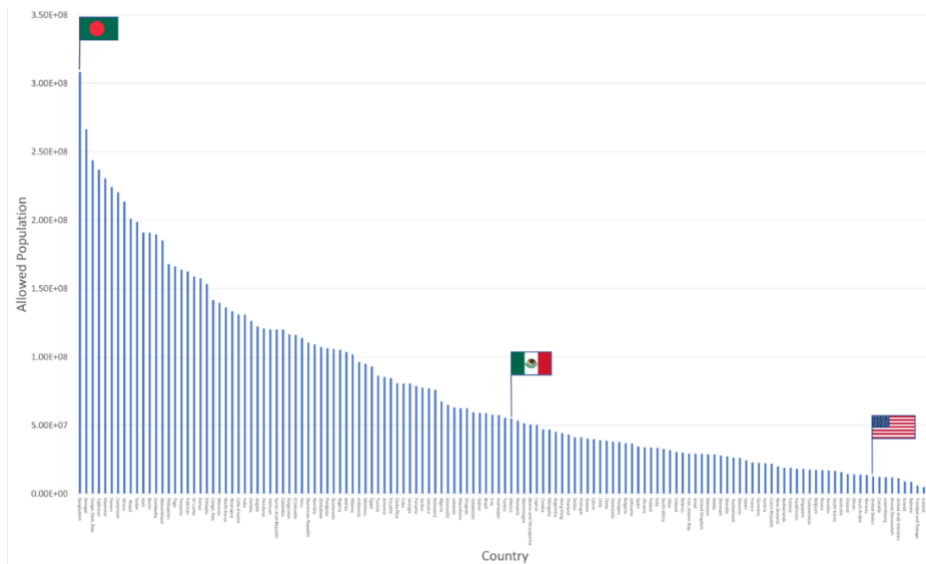

Figure 1 Population allowed according to the principle of biocellular democracy.

Acceptance of this argument hinges on whether one chooses to accept the principle of biocellular democracy. However, do we not always start an argument with something that seems self-evident, like the principle that all persons are created equal or that we have the right to life, liberty, and the pursuit of happiness? Such principles have not always been and are still not accepted universally, yet many people find them fundamental for a society to consider itself modern and civilized. Should we go on living as though the cells that comprise human beings are entitled to more of the sun's power than say the cells of elephants, cats, iguanas, cockroaches, or algae? As principles go, it sounds about as reasonable as most of the principles we take for granted. The problem with principles is that if you take them seriously, you must face the consequences resulting from their acceptance.

So, what are some of the consequences of the preceding argument? One might be tempted to think I am invoking Malthus here, but I most assuredly am not. In fact, my point of view is decidedly Illichian in the sense Illich expressed in "Energy and Equity" (Illich, Energy and Equity, 2013), though I am taking a more expansive view of the sources of psychic harm high energy usage can impose on humans beyond the sociological ones that mostly concerned Illich to include the irredeemable loss of so much of the biodiversity that not only provides humans with physical sustenance but also the spiritual nourishment that is frequently left out of analyses by contemporary economists and ecologists.

Is Innovation Running Out of Steam?

There is little we can reasonably expect to do about population over periods less than several generations, so declines in population growth that result from standard of living improvements cannot compensate for the increased consumption rates that seem to inevitably

accompany rising wealth. I hope few will dispute that the global situation that I have depicted above is dire, but many thought leaders in our society are optimistic about the future and confidently claim that if it is technological innovation that got us into the current mess, then we only need further technological innovation to get us out of it.

Elon Musk, no idler he, has given the world the Tesla PowerWall (Powerwall: Tesla, n.d.). Thanks to brilliant producers like him, many think a better world is sure to come. Technological enthusiasts in government and education often seem to collectively shout, *Wow, isn't our technological progress amazing*? They encourage us to believe the possibilities for improvement are endless, but are they? Most people wouldn't have imagined the internet 60+ years ago, but the internet we have today lies well within the limits imposed by the science we had that long ago. Current technology and the technology of the foreseeable future is running on the fumes of early 20th century science. For technology to go much further, apart from sexier more powerful internet capable watches, implantable brain enhancements, etc. we need new science. To makes optimistic projections on technological advancement is like talking about architecture using only bricks and mortar. You can make amazing structures with those materials: medieval cathedrals, baroque palaces, etc., but there are limits that you cannot exceed unless you employ steel beams and modern materials. It is that way with our current technology. We are doing impressive things with the science we have, and we will continue doing more, but the future innovations will be incremental improvements at best. We can't have radical new technology without new science - we need to go beyond the "bricks and mortar" of current science if we want to avoid running into a technological brick wall in the next few decades.

I think we will hit that brick (Power?) wall, because I doubt we will produce major new fundamental insights into the workings of the world (at least not according to the standard set by

relativity and quantum theory) that will be amenable to practical utilization for the benefit of humankind. Meanwhile, population grows, and resources become increasingly scarce. By the way, let us not forget the other inhabitants, plants and animals, that we share this planet with. No matter how clean and efficient our technology becomes, increasing numbers of us will result in more space occupied by humans and less habitat for our fellow earthlings. Isn't that a consideration that we should not lose sight of?

Growing up in the latter third of the 20th century, my outlook was formed by a zeitgeist commanding us to innovate our way out of our problems. We have been mesmerized by technological progress, but hasn't this technological triumphalism – the idea that technology is fundamentally good and every problem calls for a technological solution – revealed itself to be a false religion, or even worse, is it a pied piper leading us to drown in a river of misbegotten dreams?

Our leaders, both on the right and left sides of the political spectrum, parrot the quotidian call for ever more growth. Can they not see that growth is the problem? Unchecked growth is cancer. As much as we innovate, our problems will forever outpace our innovations if we continue to be seduced by the lure of ever more growth. These problems are driven by our growing population and its ever-expanding demands on Earth's resources. Benevolent technology, green technology if you will, is only a treatment for the disease of consumption overshoot, and though it may delay collapse, in the long run green technology will likely just raise the height from which we will ultimately fall. The only cure is to curb our addiction to growth. Otherwise an apocalyptic global crash lies inevitably around the corner.

Our current paradigm is to produce - produce more stuff for ever more people, train more workers to produce that stuff, and produce more consumers to consume that stuff. As Illich so

rightly observed, institutions that were designed to serve us have morphed into entities that exist primarily to perpetuate themselves, and to do so, they must indoctrinate us to a world view that only allows most of us to see problems and solutions in terms of how we can best use those institutions.

> Schooling I increasingly came to see as the ritual of a society committed to progress and development, creating certain myths which are a requirement for a consumer society, for instance, making you believe that learning can be quantified, learning can be sliced up into pieces and can become additive, that learning is something for which you need a process, within which you acquire it. But in this process, you are the consumer, and somebody else organizes the production of the thing which you consume and interiorize, which is all basic for being a modern man, for living in the absurdities of the modern world. (Cayley n.d.)

To imbue this worldview, we are encouraged to want things – more cars, more phones, more health, more education.... In fact, wanting is perceived as a public good. In this time of pandemic, I see people overcoming their commonsense desire to stay home to indulge their appetites for consumption by going to restaurants and stores, justifying this activity by the public good resulting from spending money that provides income for proprietors and their employees. Apart from the psychological damage this perpetually unsatisfied desire does to people, it is having a catastrophic impact on all living things. Our universities are filled with students desperate to earn degrees and pursue careers but who are bored by education. Their vision of the good life doesn't extend beyond having a high paying job. The sense of ennui the pervades our society, with so many earning good but meaningless livings in *bullshit jobs* has been perfectly described by David Graeber (Graeber, 2019).

Breaking Out of the Paradigm

More than any time in history mankind faces a crossroads. One path leads to despair and utter hopelessness, the other to total extinction. Let us pray that we have the wisdom to choose correctly. (Allen, 1979)

As funny and depressing as Woody Allen's words are, they will ring true so long as we continue to think and work within the current paradigm centered on needs, innovation, and growth. As much as I dislike it, I find it exceedingly difficult to think outside this paradigm - I frequently catch myself wondering "can't we make solar panels more cheaply from renewable resources, can't there be a killer app that will curb humanity's compulsive acquisitiveness, is there anything more adorable than a new baby…?" I need to get these thoughts out of my head as surely as the protagonist of Poe's *The Tell-Tale Heart* felt he needed to stifle the sound of the beating of the dead man's heart to keep from going stark raving mad. Rather than produce, we need to **reduce**. Instead of celebrating producers, we should revere the **reducers**. When will we hail reducers as heroes? Illich referred to the type of work these reducers would engage in as *counterfoil research*.

The energy crisis cannot be overwhelmed by more energy inputs. It can only be dissolved, along with the illusion that well-being depends on the number of energy slaves a man has at his command. For this purpose, it is necessary to identify the thresholds beyond which energy corrupts, and to do so by a political process that associates the community in the search for limits. Because this kind of research runs counter to that now done by experts and for institutions, I shall continue to call it counterfoil research. (Illich, Toward a History of Needs, 1978)

What kind of economy could reward a reducer more than a producer? We must find a new way of thinking and a new system of values. Otherwise, we will be doomed to repeat our mistakes and to make things worse. E. F. Schumacher perfectly expressed this quandary by

saying that it is "of little use trying to suppress terrorism if the production of deadly devices continues to be deemed a legitimate employment of man's creative powers." (Schumacher, 2014)

We Need to Take the Consumption Bull by the Horns

      The new normal must be shaped out of a concern about the global climate and a reevaluation of what it means to have a good quality of life. Improved efficiency, carbon sequestration, nuclear power, elimination of regulations, carbon fees or more tax incentives for renewable energy, and more regulation have accomplished far less than hoped, and science and technology, which have made such tremendous strides since the Enlightenment will likely not take us much further.

> Today, industrial societies are constantly and totally mobilized; they are organized for constant public emergencies; they are shot through with variegated strategies in all sectors; the battlefields of health, education, welfare, and affirmative equality are strewn with victims and covered with ruins; citizens' liberties are continually suspended for campaigns against ever newly discovered evils; each year new frontier dwellers are discovered who must be protected against or cured of some new disease, some previously unknown ignorance. The basic needs that are shaped and imputed by all professional agencies are needs for defense against evils. (Illich, *Toward a History of Needs*, 1978)

      After introducing the term crisis in a negative way, calling "a call for acceleration" that justifies "the depredation of space, time, and resources for the sake of motorized wheels" doing so "to the detriment of people who want to use their feet." Illich sees opportunity in crises like the current pandemic as an "instant of choice, that marvelous moment when people suddenly become aware of their self-imposed cages and of the possibility of a different life. And this is the crisis that, as choice that confronts both the United States and the world today." (Illich, 1978)

The difficulty we face is not only a lack of effective solutions but the lack of a proper framework that facilitates us to ask the right questions. The current paradigm cannot be the only one consistent with advancing the human condition, assuming it even does, and it surely is not the best one. We know that there exist alternative ways of doing things that are consistent with a happy and fruitful existence. People led worthwhile lives centuries before we were born. They lived fulfilling lives without cars, planes, 3D printers, and the "green revolution." Judging by the greatness of their painting, sculpture, literature, music, and architecture compared to our own, life perhaps seemed worth more to our remote ancestors than to ourselves.

Can We Accept Limits?

Illich advocated "limits on the maximum amount of instrumented power that anyone may claim, both for his own satisfaction and in the service of others." (Illich, 1996) Though Illich was speaking specifically about medical interventions, one could describe all technological interventions in this way:

> Most of the remedies proposed for reducing iatrogenesis are engineering
> interventions, therapeutically designed in their approach to the individual, the
> group, the institution, or the environment. These so-called remedies generate
> second-order iatrogenic ills..." (Illich, 1978)

Limits should not only be accepted for technology and power; we should also accept limits on the size of human communities.

> Until late in the eighteenth century, more than 99 percent of the world's food
> was produced inside the horizon that the consumer could see from the church
> steeple or minaret. (Illich, 1978)

I have always had a soft spot for small nations, perhaps most for the smallest nations of

all, the city states. It is the city states of Athens, Milan, and Florence to which we owe the

greatest aspects of western culture. The German kingdom of Saxony gave us Bach, the German

duchy of Saxe- Weimar gave us Goethe. Goethe, the poet, philosopher, and scientist - the

German Shakespeare and more - opposed the German unity movement, feeling that Germany

was fine as a loose association of kingdoms and duchies that shared much in culture and

commerce but fiercely maintained their political independence. Below, I quote the text of a

letter expressing Goethe's opinion on German National Unification (Hoppe, 2018).

> I do not fear that Germany will not be united; … she is united, because the German Taler and Groschen have the same value throughout the entire Empire, and because my suitcase can pass through all thirty-six states without being opened. … Germany is united in the areas of weights and measures, trade and migration, and a hundred similar things … One is mistaken, however, if one thinks that Germany's unity should be expressed in the form of one large capital city, and that this great city might benefit the masses in the same way that it might benefit the development of a few outstanding individuals. … A thoughtful Frenchman, I believe Daupin, has drawn up a map regarding the state of culture in France, indicating the higher or lower level of enlightenment of its various Departments by lighter or darker colors. There we find, especially in the southern provinces, far away from the capital, some Departments painted entirely in black, indicating a complete cultural darkness. Would this be the case if the beautiful France had ten centers, instead of just one, from which light and life emanated? — What makes Germany great is her admirable popular culture, which has penetrated all parts of the Empire evenly. And is it not the many different princely residences from whence this culture springs and which are its bearer and curators? Just assume that for centuries only the two capitals of Vienna and Berlin had existed in Germany, or even only a single one. Then, I am wondering, what would have happened to the German culture and the widespread prosperity that goes hand in hand with culture. — Germany has twenty universities strewn out across the entire Empire, more than one hundred public libraries, and a similar number of art collections and natural museums; for every prince wanted to attract such beauty and good. Gymnasia, and technical and industrial schools exist in abundance; indeed, there is hardly a German village without its own school. How is it in this regard in France! — Furthermore, look at the number of German theaters, which exceeds seventy … The appreciation of music and song and their performance is nowhere as prevalent as in Germany … Then think about cities such as Dresden, Munich, Stuttgart, Kassel, Braunschweig,

Hannover, and similar ones; think about the energy that these cities represent; think about the effects they have on neighboring provinces, and ask yourself, if all of this would exist, if such cities had not been the residences of princes for a long time. — Frankfurt, Bremen, Hamburg, Lübeck are large and brilliant, and their impact on the prosperity of Germany is incalculable. Yet, would they remain what they are if they were to lose their independence and be incorporated as provincial cities into one great German Empire? I have reason to doubt this.

If only the Germans had heeded Goethe's wise counsel, how different our history would have been! The most prosperous and peaceful places on Earth tend to be the smallest. The best pages in our history were written in small places: the city states of Greece and Italy, the kingdoms and duchies of old Germany, etc. Goethe saw the threat of unity on too large a scale, and history has proven him right. All peoples should follow Goethe's admonition, especially in this day of internet connectedness. We can achieve prosperity within small political entities. As E. F. Schumacher said, "Small is beautiful!"

How Can We Get to Where We Want to Be?

If I knew for a certainty that a man was coming to my house with the conscious design of doing me good, I should run for my life ... (Thoreau, 1986)

Given that the terrible state of the world that I have outlined above is a consequence of the paradigm that fosters the needs that drive our society and the institutions we rely upon to satisfy those needs, the best I have been able to do is to follow Illich, Schumacher, and Kohr to recommend that our needs and our living arrangements be much more circumscribed than western societies have considered desirable or even acceptable for well over a century. Again, the problem lies with the paradigm within which we all think and act. If so many economic and

environmental problems plague society, then our paradigm insists upon solutions offering step-by-step plans. Illich, Schumacher, Kohr, and others like Thomas Merton who defended *contemplation in a world of action* (Merton, 2003) have failed to make much of a dent in the global psyche, because they were reaching beyond the current paradigm, like the sphere in Flatland, who tried to explain the three-dimensional world to two-dimensional creatures (Abbott, 1991). The new paradigm they sought has no use for plans. In fact, plans are anathema to a real paradigm shift, since most people do not like other people's solutions to be imposed upon them.

So, how do we get to this new paradigm without some sort of plan or map? To even ask this question is fruitless, since no major paradigm shift in the past was facilitated by the issuance of any plans. What we need Illich has already provided. We have a *vision* of a better, more convivial world, which is far more potent than any prescription or plan, since necessary details will follow from the minds of the many individuals who share the common vision. We have only to think of great paradigm shifters like Christ, The Buddha, Mohammed, and Lao Tzu to understand how vision can transform the world. Vision leads, action follows.

A Personal Testament

Ivan Illich's observations about the plight of modern man are among the most important ever expressed. Before becoming familiar with Illich, I was much influenced by Christopher Lasch, who was also a sharp critic of what most people see as social progress, but his analysis was not nearly so radical as Illich's. Lasch's scholarly approach rather gently suggested changes were needed for a better society, whereas Illich screamed for a complete overhaul. We are trapped in a hamster wheel that rotates around an axis of progress. We must jump off the wheel. Those of us who agree with Illich's critique of modernity are faced with a seemingly impossible challenge: how can we help society move towards greater conviviality when every exercise of

our talents inevitably leads us further away from the improvements to society we are trying to achieve?

For most of my adult life, I have looked on the project of human progress with the same sense of confusion that one might look upon a friend who is in love with someone who does not seem at all right for him. I have been engaged in a nearly lifelong struggle between my unquestioning intellectual acceptance of the rightness of Enlightenment goals and accomplishments and my instinctive, heart-felt doubt about them.

Here is what I mean. I am a physicist, and it is in my nature to want to identify problems and come up with solutions. I exist within a culture, and I am shaped by a society that is predicated upon technological triumphalism, even though most of today's ills trace back to earlier technological remedies. I see problems all around me, and my instinctual reaction is to try to innovate solutions. I sympathize with Illich, so I attempt to come up with simple solutions that can make the world a better place and perhaps make me a little money, since I cannot deny the need of an income to survive in our capitalist society. I then inevitably come to the realization that we simply do not need more new technology, no matter how well intentioned. New antibiotics lead to more resistant germs, better security scanners lead to innovative ways to get around those scanners, better fuel efficiency leads to more driving, better medical imaging leads to more anxiety and invasive therapies, etc. The upshot of this painful realization is we do not need more technology, we need less. We need to limit rather than expand. We need to withhold rather than to offer.

> The researcher must first of all doubt what is obvious to every eye. Second, he must persuade those who have the power of decision to act against their own short-run interests or bring pressure on them to do so. And finally, he must survive as an individual in a world he is attempting to change fundamentally so that his fellows among the privileged minority see him as a destroyer of the very ground on which all of us stand. He knows that if he should succeed in the

interest of the poor, technologically advanced societies still might envy the 'poor' who adopt this vision. (Illich, 1978)

We cannot bring about necessary change by force; nothing good can come of that. All this honesty leaves me paralyzed. I feel compelled to do something yet doing nothing is perhaps a better course of action. The disturbing truth of Illich is that any exercise of my skills is probably antithetical to bringing about a better, more convivial society. My struggle, and the struggle of others equally well intentioned, is to figure out how to foster the emergence of a more convivial society, while surviving in the current one. Is there a resolution to this paradox?

I oftentimes feel powerless due to an overwhelming sense of cognitive dissonance. How can life become more convivial? I am a physicist. I was drawn to my profession, because as a very young man, I believed it was a profession that would allow me to experience the natural world at a very deep level. Unfortunately, I have found professional science to be quite at odds with that naive desire. Society has little use for physicists who devote themselves solely to delving into the mysteries of nature. Very little money goes towards that. At best, such quests are a sideline for researchers who are employed to develop new technologies that lead to new products to further transform us all from citizens to mere consumers. In other words, I am chained to a profession that pulls us away from conviviality. What I struggle with is how to earn enough to support my family without being overwhelmed by a feeling of existential nausea. I look at the world's problems, and I always want to come up with technical solutions - technical solutions to solve problems that are themselves brought about by technology. I can see the futility of that approach, and I either give up on my project or work on it only halfheartedly. What the world, at least the rich world, needs is not more technology but less, but how can we realize that truth when we are trapped within, contribute to, and profit from a system that is

founded on the eternal growth of unfulfillable needs that are stimulated by ever more technology? We are taught to produce - that satisfaction comes only from producing things, from making a mark. It may seem rather prosaic, but after so much discussion and soul searching I can offer nothing more and nothing less than this suggestion: to achieve conviviality for the day after normal, we must in all humility let go of the material world like the conscientious wanderer who, out of respect and love for the forests, streams, mountains, and valleys that adorn his wanderings, takes nothing and leaves nothing behind, no sign of his presence, no initials carved into a tree or stones stacked in a cairn, or any other hint of ego.

> Whom God would show the highest favor,
> He sends into the world to rove;
> He grants him every wondrous savor
> Of stream and field and hill and grove.
>
> The dullards in their houses lying
> Are not refreshed by morning's red:
> They only know of babies crying,
> Of burdens, cares, and daily bread.
>
> The brooklets from the hills are springing,
> The larks are soaring high with zest:
> Why should not I join in their singing
> With open throat and joyous breast?
>
> To God I leave the rule unswerving:
> Who brooks and larks and wood and fell
> And earth and heaven is preserving,
> Will safely guide my course as well.
>
> (Eichendorff, 1981)

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