

The Biology of Globalization

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adapted from first publication in
Perspectives in Business and Social Change
September 1997

The Globalization of humanity is a natural, biological, evolutionary process. Yet we face an enormous crisis because the most central and important aspect of globalization -- its economy -- is currently being organized in a manner that so gravely violates the fundamental principles by which healthy living systems are organized that it threatens the demise of our whole civilization.

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Lessons of Nature:

- **All living systems self-organize and maintain themselves by the same biological principles, which we can identify and abstract.**
- **Among the principles essential to the health of living systems are empowered participation of all parts and continual negotiation of self-interest at all levels of organization.**
- **Humanity constitutes a living system within the larger living system of our Earth.**
- **Essential to the health of humanity is empowered participation of all humans and negotiated self-interest among individual, local and global economies as well as the Earth itself.**

The problem is we have tried to tell the human story without telling the Earth's story.

--Thomas Berry

The Wake-up Call

What an astonishing thing it is to watch a civilization destroy itself because it is unable to re-examine the validity, under totally new circumstances, of an economic ideology.

--Sir James Goldsmith, *London Times*, Feb 1994

Although I have made a fortune in the financial markets, I now fear that the untrammelled intensification of laissez-faire capitalism and the spread of market values into all areas of life is endangering our open and democratic society. The main enemy of the open society, I believe, is no longer the communist but the capitalist threat.

--George Soros, *Atlantic Monthly*, Feb 1997

When globalized capitalism's leading players themselves warn us of the dangers of the system in which they have gained their enormous wealth, we had better pay attention. They are telling us clearly that the current course of economic globalization *cannot* continue without threatening the very survival of humanity.

Will our seriously imbalanced civilization survive? Historian Arnold Toynbee studied twenty-three past civilizations, looking for common factors in their demise. The two most important ones, it seems, were the extreme concentration of wealth (George Soros' warning) and inflexibility in the face of changing conditions within and around them (Sir James Goldsmith's warning).

We cannot go on playing global Monopoly when a cooperative game is called for by our obvious global problems. In 1994, Robert Kaplan warned that anyone who thought things were still going well was ignoring three-fourths of the world. His cover article ("The Coming Anarchy," *Atlantic Monthly*, February 1994) was illustrated by a burning globe. This year, same month, same weathervane magazine, the cover featured George Soros' article telling us that global corporate and financial capitalism is at fault.

The central problem at present is that the "democratic" congresses of some seventy nations including the United States, have voted away the sovereignty of their nations by agreeing to uphold the provisions of the World Trade Organization (WTO), which can meet in secret and challenge any laws made at any level in member nations (including their provinces, states, counties or cities) if they are deemed to conflict with its interests.

How could this happen? In the United States, the story goes back at least as far as the first few decades following World War II, a heady time in which we still believed in "life, liberty and the pursuit of happiness" while gradually our Congresses were bought off by corporate interests.

As Paul Hawken pointed out, "*Washington D.C. has become a town of appearances and images, where sleight of (political) hand has largely replaced the clumsy system of payoffs, outright bribes and backroom deals of old....One per-cent of American society owns nearly 60 percent of corporate equities and about 40 percent of the total wealth of this nation. These are the plutocrats who wield the power and control this pre-eminent "company town" while trying to convince the other 99 percent of the citizenry that the system works in our best interests, too.*" (*The Ecology of Commerce*, Harper Collins, NY 1993, p. 111)

In the course of the Cold War, had we been paying adequate attention, we would have seen that both communist and capitalist systems were subjugating local interests (individual and community) to national and global interests, however much we in the West were ideologically taught that our individual wellbeing was primary and our democracy good for our communities. Practice did not bear out theory; to wit: unemployment, poverty, crime, unsafe streets, drugs, unsafe foods, polluted air and water, ill health, spiritual crisis, despair and even rapidly increasing child suicide and murder.

Similarly, megacorporations, now globally legitimized by the WTO, the GATT (General Agreement on Tariffs and Trade) and the pending MAI (Multilateral t Agreement on Investment), are overriding the interests of nations, local communities and individuals. (*See Appendix B for more details.*) As Ralph Nader points out, "*Under WTO rules, for example, certain *objectives* are forbidden to all domestic legislatures... including [objectives such as] providing any significant subsidies to promote energy conservation, sustainable farming practices, or environment-ally sensitive technologies.*"

To understand this situation and to see what we can do to alter the course of events toward a healthy future for all humanity, we need to look at the inherent contradictions between these current economic developments and the democratic, ecologically sound economic system we *could* develop.

As a biologist, I find that the easiest way to comprehend this contradiction is by looking at humanity as a whole in its natural context, thus recognizing ourselves as a *living system* and comparing our current unhealthy economic situation with the economics of healthy living systems. In doing so we will see clearly why the "Wake-up" call is being sounded and how to respond with the biological resilience that is our evolutionary heritage, privilege and responsibility.

Therefore, I will discuss in some detail the natural organization of living systems, with their endlessly negotiated "political economies" as we are only now coming to understand them. If you bear with me in this discussion, a new and coherent understanding of our global crisis and its solutions will emerge very clearly. The challenge of crisis confronts us; our opportunity lies in responding positively and actively.

Global Community

The human being of the West has abandoned being human and has turned himself into an individual... community has died in them.

--Nicolas Aguilar Sayritupac, Aymara Indian, Lake Titicaca, Bolivia

To think of ourselves as a living system, we must see ourselves in community with all other people at local, national and global levels. While this may seem superficially easy, it is actually not. Western culture, now globally dominant, has systematically trained us, as Sayritupac accurately observed, to think and act as though we are separate individuals, often in competition with each other for scarce resources of one sort or another, primarily money, which has become the perceived means to all we want and need in life.

From the vantage point of an evolution biologist watching the human species, it's encouraging to see that community and community values are at last coming back to life in Western culture. Not as an alternative to individualism, which was an important human development, but to complement it in a healthy balance.

The new swell of interest in, even fervor for, a global human community with equitable and ecologically sustainable economics is vitally important for our species survival. Words such as "community" and "communal values" were consciously or unconsciously suppressed in our culture during the Cold War because of their linguistic similarity to "communism." Happily they are back in our vocabulary now that the Soviet stigma has been removed from them. We have, in fact, suffered greatly from their absence. The big question is whether we can restore community and communal values to our globalization process before all is lost.

The globalization of our species is not a choice; it is a natural, inevitable evolutionary process that began when humans settled on all continents. Human empire building over the past few thousand years continued the process by merging cultures over ever larger areas. In modern times, this empire-building process has been shifting from imperial nations with colonial empires to corporate cartels and other global corporate entities with economic empires which, in some cases, now dominate or overrule national political structures.

Yet, simultaneously, nations have joined in a United Nations effort with remarkable success in negotiating cooperative global systems such as telephone, postal and air travel networks, as well as the initiation of other global agreements on electronic/ satellite communications, oceans, etc. that are less democratic and of programs that seriously attempt to implement global health, education and peace. Because these efforts at the democratization of humanity conflict with the concentration of wealth and power, the United Nations is continually under intense pressure.

Thus we see that it is not globalization *per se* that is undesirable. The cause of the enormous crisis we face is the manner in which the most central and important aspect of globalization, its economics, is currently organized. For this reason, we *must* become more conscious participants in the process of globalization, to avoid letting a handful of powerful players lead us all to doom.

First and foremost, we must recognize globalization as a biological process -- something that is happening to a natural living system we call humanity.

Then we can see how an economics that violates the fundamental principles by which living systems are organized currently threatens the demise of human civilization.

Fortunately life is resilient, and we are witnessing a growing storm of protest rising from calmer discussions of economic globalization. These are healthy reactions that can help lead us to survival, for they indicate increasing recognition and concern that communal values have been overridden in a dangerous process that sets vast profits for a tiny human minority above all other human interests.

Most people looking at problems of "market-driven capitalism" are becoming aware on some level that the measure of human success must shift from money to wellbeing for all. To do this, communal values *must* be reclaimed and acted upon in a way that ensures a balance of global interests with *local* interests and with the interests of all other species.

The evolutionary process is an awesome improvisational dance that weaves individual, communal, ecosystemic and planetary interests into a harmonious whole.

Biological research of the past few decades, on the evolution of nucleated cells, multicellular organisms and mature ecosystems as cooperative enterprises, is updating our ingrained view of antagonistic competition as the sole driving force of evolution--a Darwinian view that was adopted as the rationale for an unjust dog-eat-dog world of antagonistic capitalist competition and ultimately the fascist holocaust. As Soros says, "*there is something wrong with making the survival of the fittest a guiding principle of civilized society. This social Darwinism is based on an outmoded theory of evolution.*"

As the more enlightened view gains prominence -- that life is far too intelligent and naturally cooperative to proceed simply by blind accident and dominance struggles--it will be increasingly translated, to our collective benefit, into a more enlightened view of our human society in all its social, economic, political and cultural ramifications.

My purpose is to help with that translation, for we humans, no matter how spiritual, are inescapably biological creatures, and the solutions we seek are readily available in nature's experience. We are a living system embedded in a larger living system, and we could benefit greatly from the lessons already learned in the five-billion-year dance of our planet.

Lessons of Nature

The only myth that's going to be worth thinking about in the immediate future is one talking about the planet -- not this city, not these people, but the planet and everybody on it.

--Joseph Campbell

Introducing Holarchy:

We can see more clearly what is going on if we look more closely at the individual, the community, the nation and global human society as living systems embedded within each other like Russian nested dolls or Chinese boxes. Arthur Koestler coined elegant terms for this concept: *holons* in *holarchies* (*Janus: A Summing Up*, Pan Books, London 1978). Each relatively self-contained system, such as a cell, an organism, a family or an ecosystem, is a *holon*, while *holarchy* refers to their interdependent embeddedness within each other, and was intentionally derived but distinguished from the term *hierarchy* to avoid its value implications of relative superiority.

Take the living system most intimately familiar to all of us: the human body. We've long known that our bodies behave as a community of cells, which are organized into organs and organ systems. The central nervous system functions as the body's government, continually monitoring all its parts and functions, ever making intelligent decisions that serve the interest of the whole enterprise. Its economics are organized as an equitable system of production and distribution, with full employment of all cells and continual attention to their wellbeing. The immune 'defense' system protects its integrity and health against unfamiliar intruders. It can be thought of as a kind of global political economy with organs as bioregional units, their different tissues as communities, cells as families or clans, and the organelles within cells as individuals (which many of them once actually were, as we will see shortly).

More recently, microbiology has revealed the relative autonomy of cells and their organelles in ever more exquisite detail: every cell constantly making its own decisions, for example, on what to filter in and out through its membrane, how to adjust its local production and distribution economics, which segments of DNA to reorganize or copy from its nuclear gene library for use in maintaining its cellular welfare, etc. Hardly the automatons we had thought

them to be!

Physiologically we can see that the needs and interests of individual cells, their organs and the whole body must be continually negotiated to achieve the body's dynamic equilibrium or healthy balance. Cancer is an example of what happens when this balance is lost, with the proliferation of a particular group of cells ignoring the needs of the whole, multiplying wildly at the expense of the body holon, ultimately defeating their own purposes by destroying it.

Body economics:

On the whole, our bodies work in remarkably harmonious health. But imagine what would happen if our bodies tried to implement an economic system such as we humans practice in our world at present:

How would your body fare if the raw material blood cells in bones all over your body could be mined as resources by more powerful "northern industrial" lung and heart organs, transported to their production and distribution centers where blood is purified and oxygen added to make it a useful product? Imagine it is then announced that blood will be distributed from the heart center only to those organs that can afford it. What is not bought is thrown out as surplus or stored till the market demand rises. How long could your body survive that system? Is it an economic system that could keep any living entity healthy?

Can we turn the United Nations into a governing body as dedicated to service as is our central nervous system? When will human diversity be recognized to be as necessary and creative as the diversity of our cells and organs? When will we be as concerned with the health of every local bioregion in our global body as our individual body is, or practice its cellular full employment policy? When will we implement its efficient and universally beneficial kind of economics?

Obviously metaphors have their limits and I do not for a moment suggest we slavishly emulate body models. But they *are* examples of living systems with healthy politics and economics, and we all have them in common, regardless of our worldviews, or of our personal, political or spiritual persuasions. Surely body metaphors are preferable to outdated and unrealistic mechanical metaphors of perfect societies that were supposed to run permanently and smoothly as well-oiled machines once we got them built correctly. The whole Cold War was rooted in competition over which side had that perfect social machinery!

The evolution of cooperation:

Our bodies are multicelled creatures which actually evolved from an earlier evolutionary phase of "multicreature" cells, whose story was pieced together by microbiologist Lynn Margulis. (*Symbiosis in Cell Evolution*, 1981; *Early Life*, 1982). The story of their evolution holds an extremely important lesson for humanity today.

In brief, it goes like this: Ancient bacteria, some two billion years ago, had blanketed the Earth by themselves, inventing all the ways of making a living still employed today (mainly

fermentation, photo-synthesis, respiration) and devouring its "resources" with downright human thoroughness.

Finding themselves in crisis, they began to invade each other for new resources in a phase I call bacterial imperialism, which we humans echoed so much later in our ignorance of their experience. This phase led to renewed crisis, because their early attempts at "globalization" into huge colonies were based on competitive exploitation of each other with no concern for all participating members' wellbeing.

Many such colonies died, until somehow they finally managed to evolve the cooperative scheme we call the nucleated cell: a huge bacterial community with a peaceful division of labor, which we call the nucleated cell.

All this was achieved, of course, without benefit of brains, in time to avoid the extinction of Earthlife eons ago. In fact, their "invention" of these huge cells is what makes you and me possible, for each of our cells, as well as those of all organisms larger than bacteria, is one of their descendent cooperatives. (*For details of this story, see "An Inspirational Tale of Ancient Times", below.*)

Life, as this story shows, is resilient and creative.

Some of the greatest catastrophes in our planet's life history have spawned the greatest creativity! And therein lies my hope for humanity.

It is worth looking at this cooperative evolutionary process up close. What is it that prevents your cells, or your organs, from pursuing their self-interest competitively such that relatively few "win" and most "lose?"

The superficial answer is that they are part of a cooperative community in which the health of every level in the body's holarchy promotes the health of individual cell and organ holons. But what is it that makes our individual cells and organs *behave* communally? If we can answer this critical question biologically, we will gain important insight for applying the lessons of nature to our human affairs.

Holarchic negotiations evolve:

One definition of the word *evolution* is the flow of interwoven steps in an improvisational dance. Although it comes from dance terminology, it actually fits biological evolution very well, since we can now see it as an ongoing process of interweaving, self-organizing holons in holarchy. The dance is not always smooth. Nature sometimes stumbles as it improvises, making crude moves, especially on the part of young aggressive species, such as our own, that attempt to take over the whole dance.

In fact, one can discern in evolution a repeating pattern in which aggressive competition leads to the threat of extinction, which is then avoided by the formation of cooperative alliances, as in the bacterial story above.

To show how this works, let me introduce a concept of *simultaneous self-interest at all*

levels of living systems holarchy, a concept I have not yet encountered among other evolution biologists. Darwin, as we well know, held the competitive individual to be the driving force of evolution (as we have applied this theory socially, it could be called the capitalist version of evolution), while later biologists countered with the *alternative* of species self-interest, wherein individuals within species demonstrated altruism and self-sacrifice for the common good (the communist version) but species as wholes were competitive with each other.

Richard Dawkins, refuting both these views, claimed they were in error because competition among selfish *genes* drove evolution (micro-capitalism?). But what if *all* these evolutionists are right *in sum*, rather than individually? That is, what if *every* level of organization in nature looked out for its self-interests simultaneously?

An Inspirational Tale of Ancient Times

In studying the Earth's evolution, the most fascinating story I know is that of ancient beings who created an incredibly complex lifestyle, rife with technological successes such as electric motors, nuclear energy, polyester, DNA recombination and worldwide information systems. They also produced--and solved--devastating environmental and social crises and provided a wealth of lessons we would do well to consider.

This was not a Von Daniken scenario; the beings were not from outer space. They were our own minute but prolific forebears: ancient bacteria. In one of his popular science essays, Lewis Thomas, estimating the mitochondria that are descendants of ancient bacteria in our cells as half our dry bulk, suggested that we may be huge taxis they invented to get around in safely (*Lives of a Cell*, 1974).

From whatever perspective we choose to define our relationship with them, it is clear we have now created the same crises they did some two billion years ago. Further, we are struggling to find the very solutions they arrived at--solutions that made our own evolution possible and that could now improve the prospects of our own far distant progeny, not to mention our more immediate future. I owe my understanding of this remarkable tale to microbiologist Lynn Margulis, whose painstaking scientific sleuthing traced these events back more than two billion years.

The bacteria's remarkable technologies (all of which still exist among today's free-living bacteria) include the electric motor drive, which functioned by the attachment of a flagellum to a disk rotating with ball bearings in a magnetic field; the stockpiling of uranium in their colonies, probably to heat their communities with nuclear energy; perfect polyester (biodegradable, of course), elaborate cityscapes we can only now see under the newest microscopes and their worldwide communications and information system, based on the ability to exchange

(recombine) DNA with each other--the first World Wide Web!

Yet, like ourselves, with our own proud versions of such wondrous technologies, the ancient bacteria got themselves deeper and deeper into crisis by pursuing win/lose economics based on the reckless exploitation of nature and each other. *The amazing and inspirational part of the story is that entirely without benefit of brains, these nigh invisible yet highly inventive little creatures reorganized their destructively competitive lifestyle into one of creative cooperation.*

The crisis came about because respiring bacteria (breathers) depended on ultraviolet light as a critical component in the creation of their natural food supply of sugars and acids, while photosynthesizing bacteria (bluegreens) emitted vast quantities of polluting oxygen which created an atmospheric ozone layer that prevented ultra-violet light from reaching the surface of the Earth. Cut off from their food supply, the hi-tech breathers, with their electric motor rapid transport, began to invade the bodies of larger more passive fermenting bacteria (bubblers) to literally eat their insides -- a process I have called bacterial colonialism.

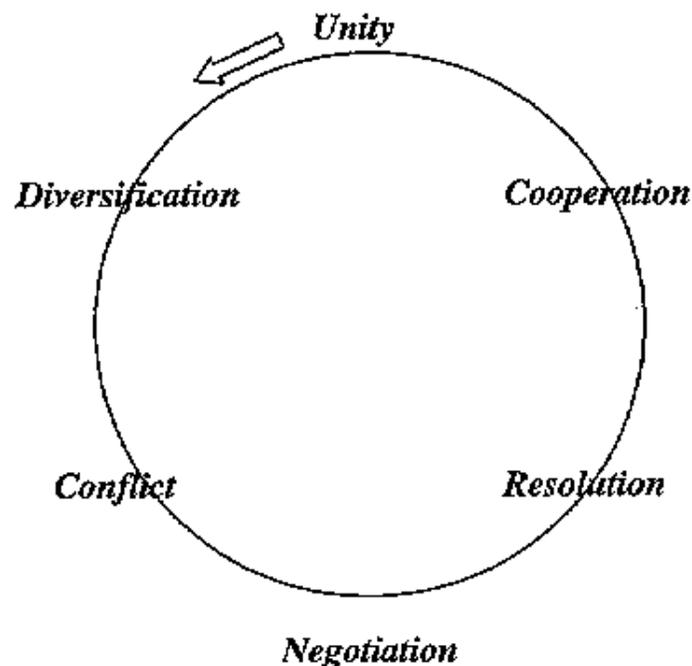
The invaders multiplied within these colonies until their resources were exhausted and all parties died. No doubt this happened countless times before they learned cooperation. But somewhere along the line, the bloated bags of bacteria also included some bluegreens, which could replenish food supplies if the motoring breathers pushed the sinking enterprises up into brighter primeval waters. Perhaps it was this lifesaving use of solar energy that initiated the shift to cooperation. In any case, bubblers, bluegreens, and breathers eventually contributed their unique capabilities to the common task of building a workable society. In time, each donated some of their "personal" DNA to the central resource library and information hub that became the nucleus of their collective enterprise: the huge (by bacterial standards) nucleated cells of which our own bodies and those of all Earth beings other than bacteria are composed.

This process of uniting disparate and competitive entities into a cooperative whole--a multi-created cell, so to speak--was repeated when nucleated cells aggregated into multi-celled creatures, and it is happening now for a third time as we multi-celled humans are being driven by evolution to form a cooperative global cell in harmony with each other and with other species. This new enterprise must be a unified global democracy of diverse membership, organized into locally productive and mutually cooperative "bioregions," like the organs of our bodies, and coordinated by a centralized government as dedicated in its service to the wellbeing of the whole as is the nervous system of our bodies. Anything less than such cooperation will probably bring us quickly to the point of species extinction so that the other species remaining may get on with the task.

adapted from E.Sahtouris' "*The Evolution of Governance*" IN CONTEXT, #36, Fall 1993; <http://www.context.org/ICLIB/IC36/Sahtour.htm>

This would necessitate ongoing negotiations among individual parts and levels of organization, and this is exactly what seems to be happening. Moreover, Nature's dance seems to be *energized* by the conflicting self-interests of various parts and levels, and choreographed by the compromises it has made in the course of evolution, and continues to make in every day of the present. At its best, the dance becomes elegant, harmonious, beautiful in its dynamics of non-antagonistic counterpoint and resolution.

The repeating pattern of evolution is the sequence from unity to diversification, which produces conflict that instigates negotiations, resulting in resolution leading to cooperation, and thus back to unity in the form of a higher level of organization.



Repeating pattern of evolution
(read counterclockwise from top)

The most important lesson learned in the course of its evolution, often the hard way, is that no level of holarchy may be sacrificed without killing the whole!

Let's explore this driving dynamic as it plays out in our everyday human experience. The Greek playwright Aristophanes said of marriage partners a long time ago: *Can't live with 'em; can't live without 'em*. Look at this familiar situation anew: A couple is a holon in which two individual holons (the partners) are embedded. This is thus a two-level holarchy, the levels being that of couplehood and that of the individuals. The couple will survive in good health only if *each* of the three holons' self interest is negotiated with the other two! Once you see this, then extrapolation to family is easy. Now try community.

My favorite creation myth from India tells that the cosmos began as a vast sea of milk in

which a tiny wavelet formed, and was torn ever after between wanting to be itself and longing to merge back into the sea. Is this not another metaphor for individual and community in the endlessly creative dialog and metalog of self-expression, already re-cognized in ancient times? *What matters in this dialog is that the contradictions do not become antagonistic.*

A mature ecosystem--say a rainforest--is a complex ongoing process of negotiations among species holons and between individual species and other parts and levels of the self-regulating holarchy comprised by the various micro and macro species along with air, water, rocks, sunshine, magnetic fields, etc. As Soros pointed out in the *Atlantic Monthly*, "*Species and their environment are interactive, and one species serves as part of the environment for the others. There is a feedback mechanism...*" among levels.

Let us now look at a fuller complement of the principles by which these interwoven living systems operate, so that we may get on with analyzing our global human crisis more effectively.

The Principles of Living Systems

Anyone who knows how to run a household, knows how to run the world

--Xilonem Garcia, a Meshika elder in Mexico

Xilonem Garcia, in this statement, expresses her intuitive knowledge that *anyone who understands the principles of living systems can apply them to any holon at any level of its holarchy.*

If we think about it, we can all be aware of such principles operating in our bodies. And we seem to intuit and practice them reasonably well at the family level. Not many people starve three of their children to overfeed the fourth, for example, or beautify one corner of their garden by destroying the rest of it. At the level of our local communities or towns, we begin to lose sight of those principles, and when we consider our nations or the world, we seem to have forgotten them entirely, despite the fact that these are living systems, too.

Main Features and Principles of Living Systems

- 1. Self-creation** (autopoiesis)
- 2. Complexity** (diversity of parts)
- 3. Embeddedness in larger holons and dependence on them** (holarchy)
- 4. Self-reflexivity** (autognosis--self-knowledge)
- 5. Self-regulation/maintenance** (autonomics)
- 6. Response ability--to internal and external stress or other change**
- 7. Input/output exchange of matter/energy/information with other holons**
- 8. Transformation of matter/energy/information**
- 9. Empowerment/employment of all component parts**
- 10. Communications among all parts**
- 11. Coordination of parts and functions**
- 12. Balance of Interests negotiated among parts, whole, and embedding holarchy**
- 13. Reciprocity of parts in mutual contribution and assistance**
- 14. Conservation of what works well**
- 15. Creative change of what does not work well**

Let us look, then, at a list of the main features and principles of all healthy living systems or holons, be they single cells, bodies, families, communities, ecosystems, nations or the whole world (*see above*). By understanding these principles, we can assess the health of any particular living system and see where it may be dysfunctional. This in turn will give us clues to making the system healthier.

I leave it to the reader to consider this list in detail, and to choose a familiar living system,

such as an organization or community, to analyze for its adherence to each principle in turn. Our purpose here is to learn to do such analyses in order to understand in what ways our living systems are healthy and in what ways they are not. We want especially, in this discussion, to apply these principles to the process of political, economic and cultural globalization--of forming our new "body of humanity."

As soon as we begin checking this list, we see that while globalization of humanity is bringing about a complex, self-organizing process and is embedded within our ecosystems (1,2,3), it does not meet most of the other requirements because only a relatively small part of humanity is involved in decisions and has the power to serve its own interests, often at the expense of other parts.

We must question how well it knows itself (4), for the process to date has not been fully conscious, at least among the vast majority of humans. Most of us feel swept along by its tides with far less than real knowledge of what the process is all about.

We have not adequately taken into account our embeddedness in and dependence upon the Earth holon with all its various sustaining ecosystems. As a result, our self-regulation is woefully inadequate. To wit, the input of matter and energy from our ecosystems into our human systems (7) has been unsustainably rapacious, transforming them to our use as though they were simply resources put there for our benefit. Our output back into those ecosystems has further despoiled them rather than restored them.

While our human system certainly has the complexity and diversity of parts common to all living systems, we have not recognized that as an asset. Rather, we have tried to make the system's human components as uniform as possible by imposing a Western consumer ethic and other Western cultural patterns of industrialization, education, fashion, etc. on the world as a whole.

We had better take into account that monoculture is a very strange concept we humans have introduced into Nature and that it does not make a lastingly workable living system. Monoculture fails in agriculture as in social culture, in economics as in religion. Social monoculture is rooted in an outmoded and ignorant fear of difference and of scarcity. It is time we learned to respect and cherish our human diversity as the creative source of harmonious complexity.

As we continue through the list it is readily apparent that our worldwide system of humanity is not functioning well as a living system. The system neither empowers nor employs all humans (9). While our communications (10) are technologically impressive, we do not use them to coordinate parts and functions (11) in ways that foster a balance of interests at all levels (12) of the human system (individuals, families, communities, bioregions, nations, world), nor is there yet an intent for reciprocity in mutual contribution and assistance (13). As for conservation (14) and creative change (15), we are entirely unused to seeing that both are necessary parts of a single system because of our pervasive either/or syndrome, which I would like to discuss in some detail.

The "either/or" syndrome:

The capitalist/communist drama that played out for most if not all of our lifetimes reveals a fundamental dramatic flaw: an odd and ultimately impossible ideological choice: to build society on the basis of individual interest *or* on the basis of communal interest.

Throughout the Cold War, our global alignment presented nations with this either/or choice between "left-wing" communism and "right-wing" capitalism. One simply could not be "for" both capitalism and communism, both left *and* right.

Even within our political democracies we divide ourselves into radical and conservative parties of various hues, and ask, or require, ourselves to make the choice to vote for one or the other of their left *or* right political programs. In essence, "right" is conservative, "left" is radical (and still "tainted" by association with communism).

In nature, no living system chooses *between* conservation and radical change as a way of life. Some living systems, such as squids and sharks, cockroaches and certain lizards, have functioned so well despite dramatic changes in their environments that they have survived virtually unchanged over eons, rather like bicycles in the jet age. Others, such as our own human species, have virtually leaped into change. But they have not taken their particular directions from some unflinching commitment to either conservation or change; they have simply done what was called for depending on circumstances. Most species combine conservation and change as circumstances demand. Fifty years of laboratory evidence shows that when they change, they do so by rearranging their DNA intelligently in response to circumstances in the environment (Sahtouris, E. *A Walk Through Time: From Stardust to Us*, Wiley, New York 1998).

Thus Nature *interweaves* conservation and change to protect what works and change what doesn't. And we would do well to adopt that strategy, as Alvin Toffler suggested some time ago in urging us to stop looking left and right, but rather to assess any idea in terms of whether it will lead us forward or backward (Toffler, A. *The Third Wave*, Wm. Collins, London, 1980).

In practice, it turns out, there was more in common between capitalism and communism than their professed either/or ideologies indicated. Alvin Toffler was the first author I recall talking about parallels between the Soviet East and the Capitalist West. Both, he pointed out, were unfairly exploiting the Third World to support their large industrialist economies. Now David Korten goes further, telling us " a modern economic system based on the ideology of free market capitalism is destined to self-destruct for many of the same reasons that the Marxist economy collapsed in Eastern Europe and the former Soviet Union." (Mander & Goldsmith, editors. *The Case Against the Global Economy and For a Return to the Local*, Sierra Books 1996). He spells out these common features as:

1. the concentration of economic power in unaccountable and abusive centralized institutions (state or transnational corporations);
2. the destruction of ecosystems in the name of progress;

3. the erosion of social capital by dependence on disempowering mega institutions;
4. narrow views of human needs by which community values and spiritual connection to the Earth are eroded.

Note that all of these illustrate systems in which the "top" level is empowered by *disempowering* local and individual levels. We are accustomed to understanding this about communist systems, but we have ignored the erosion of our own democratic principles in the process of capitalist globalization.

Another example of the *either/or* syndrome, the USA's President Clinton's *Commission on Sustainability*, in its initial meetings, actually argued whether discussions of ecological sustainability need involve economics. The debate occurred because we have created yet another apparent *either/or* situation: economics *versus* ecology--sometimes epitomized in the United States as "jobs versus spotted owls." In the brief time I was given to address this Commission, I pointed out that *ecology* in Greek is the *logos* or organization, of the *oikos* (society as "household"), and ecology the "household's" *nomos* or rules. Thus, they can hardly be at odds in any healthy society. The problem is not whether they need be linked, but that we *separated* them in the first place! (Recall here Xilonem Garcia's earlier quoted comment that "Anyone who knows how to run a household, knows how to run a world.")

Our latest version of the *either/or* syndrome seems to be in a growing debate on globalization *versus* localization, as is implied, for example, by the title just cited: "*The Case Against Globalization and Toward Local Economy*." While *most* authors of this recent IFG (International Forum on Globalization) book are really only opposed to the *way* in which globalization is happening, considerable numbers of people actually *are* arguing this situation in classical and ultimately unrealistic *either/or* fashion.

A balance of *all* levels:

It is of the utmost importance that we not let economic globalization override the interests of people and their local economies and ecosystems, for this would be a grave violation of the principles of living systems, as we have just seen. Local economies are holons within the global human holarchy, and must have the power to negotiate effectively, in their own self-interest, with other levels of that holarchy.

The solution to our currently imbalanced globalization is not to oppose globalization; it is to do globalization better.

We can easily see that balance among the interests of the global holon and those of the regional and local holon economies it comprises is as important as the balance between the interests of any local economy (as a holon) and those of the individual people and non-human species which comprise *it*.

Thus the appropriate response to the world corporate interests that railroaded the GATT (General Agreement on Tariffs and Trade) and the WTO (World Trade Organization) into existence under the rubric of "economic liberalism" without in fact giving it a democratic vote after adequate information, is clearly the strengthening of self-sufficient local

economies, as David Korten, Herman Daly, Edward Goldsmith and other members of the IFG have explained. It is also to launch a sufficiently strong movement to demand change in the GATT and /WTO themselves, and in the United Nations which spawned them as it earlier spawned the World Bank and the IMF (International Monetary Fund).

Taking our cues from our bodies, or from the Earth itself, with its diverse ecosystems, we can see that bioregionalism--basic local self-sufficiency economics which takes all species, including humans, into account -- is as necessary and important an aspect of healthy globalization as are equitable international trade relations. Certainly no one part of a healthy globalized economy will be able to exploit another. That means local economies will *have* to protect themselves against unfair trade and strong economies will have to permit that protection in their own interests of seeing a healthy global economy.

Soros points out in his *Atlantic Monthly* article that in nature, "*Cooperation is as much a part of the system as competition*" and again, "*The doctrine of laissez-faire capitalism holds that the common good is best served by the uninhibited pursuit of self-interest.*" But unless self-interest is "*tempered by a recognition of a common interest,*" the society, on which the market rests, "*is liable to break down.*" This is an excellent example of understanding living systems principles.

That is, "life, liberty and the pursuit of happiness" by all people must be possible within the global economy

Dynamics of Natural Democracy

My tradition helps us learn that individual and group needs must be met in ongoing ways for the People to survive as a People... As we try to consciously and conscientiously fit economics and business back into a holistic approach to life and living; there is much that can be learned from societies and communities that have never forgotten that wholeness;... communities that understand Life as flows of energy,... [in which] everyone receives basic support.... everyone contributes... no part is separate from any other part... the health of the whole enables the health of any part thereof... sickness of the smallest part impacts the whole.

--Paula Underwood, *World Business Academy Journal*, vol. 10 no 4, 1996

In historic terms, capitalism and communism are human social systems experiments that looked good in theory but proved problematic in practice. One has failed; the other is still being tested. Both have imbalanced the interests of individual and community by making one subservient to the other, rather than putting them in balance with each other.

It is of considerable interest that both capitalism and communism were in part inspired by the democratic political economy and social structure of the Native American *Haudenosaunee*, a union of native nations that the Europeans called *Iroquois*. Ben Franklin,

influential with the other founding fathers of the USA, on the one hand, and Friedrich Engels, who influenced Karl Marx, on the other, were inspired by this unique democracy. Unfortunately, neither the capitalist nor the communist systems inspired by the *Haudenosaunee* really understood her tradition as Paula Underwood describes it above.

It is still a lesson to be learned from many native cultures that humankind is but one holon within the Earth holarchy. In such awareness, we all would see clearly the advantage in negotiating (*not* eliminating) our human differences, and we would also cease and desist immediately our denial of planetary interests and our profligate destruction of the ecosystems sustaining us with ever more difficulty.

If we were an intelligent species--and that remains to be demonstrated, given our knowing destruction of our own life support system and our rather juvenile antagonisms over what belongs to whom--we would look to the planet that spawned us for guidance in human affairs, as was the original purpose of natural and political philosophy in ancient Greece. It would then become obvious that human affairs have reached the danger level at which cooperation *must* restore the imbalances of aggressive competition and hoarding if we are to survive.

What's to be done?

Survival means the survival of humankind as a whole, not just a part of it... If the South cannot survive, the North is going to crumble. If countries of the Third World cannot pay their debts, you are going to suffer here in the North. If you do not take care of the Third World, your well-being is not going to last, and you will not be able to continue living in the way you have been for much longer.

--Thich Nat Han, "The Heart of Understanding"

The global wave of protests against the unfair advantage of huge corporations and bodies such as the World Trade Organization (WTO) that represent their interests, as I said at the outset, is a healthy reaction necessary to rebalancing holarchy in our species is to survive the current crises. We have seen that globalization is the natural next phase of evolution. We are not entirely in control of this process and it is beyond our power to stop. We have already globalized transportation, communications, money, industries, food, weapons, pollution and other aspects of human culture, many of them peacefully.

Sir James Goldsmith, one of the wealthiest men in the world at the time, was quoted in a *London Times* article of 1994 (March 5). He said: "*What an astonishing thing it is to watch a civilization destroy itself because it is unable to re-examine the validity, under totally new circumstances, of an economic ideology.*" That ideology is now questioned and discussed ever more openly.

The main problem is being identified as imbalance in our global economics. All the WTO's member states authorize the WTO to do their business negotiations and all are bound by its

decisions. They can be forced to change any of their own present or future laws if, as the WTO provisions read, "the attainment of any [WTO] objective is being impeded" by its existence. The trade dispute panels of the WTO and NAFTA do not guarantee members' economic disinterest. Further, they keep all their proceedings, documents and transcripts secret. There cannot be any media or citizen participation, and no review or appeal is available.

This constitutes a loss of sovereignty among the member nations, whose agreements to join were railroaded through congresses with inadequate discussion. But it is not too late to redress these severe imbalances as the world's people wake up to them.

Under present WTO practices, Thailand has been told it cannot refuse to import US cigarettes for health reasons, and Indonesia may not keep the rattan it needs for domestic use. Neither children nor adults are protected from exploitative and unhealthy conditions of labor, and no member country may make any effort to protect its local industry and employment against erosion by unfair competition in the world market. Self-sufficient organic farming is literally outlawed, while poisonous chemicals are forced on countries, destroying the health of people, crops, land, air and water for the sake of short-term profits in high places. The US, after long grassroots efforts resulting in bans on tuna fish caught without ensuring the safety of dolphins, is now being forced to import it again. Europe fights hard against forced imports of genetically altered foods.

As each injustice comes to light, people become informed and active. The good news is that we don't *have* to do our economics inequitably to globalize. It is possible, as Hazel Henderson has pointed out for decades, to do win/win, rather than win/lose, economics. (*Paradigms in Progress: Life Beyond Economics*, 1991; *Building a Win/Win World*, 1996).

As Henderson points out, the UN's most powerful nations commandeered the World Bank and the IMF, then dominated the GATT discussions and set up the WTO together with corporations and financial institutions. Yet the UN's special agencies, during the same timespan, formed agreements and treaties on nuclear proliferation (IAEA), air traffic rules (IATA) and postal rates (GPU), also working doggedly on health, education and security issues, as well as accepting a great deal of criticism and recommendations for UN restructuring, which is now an official process. Obviously the UN can only be as good as its member states will make it and as NGO (Non-Government Organizations) can push it to be.

Polls show clearly that the people of the United States support the UN overwhelmingly, while their presumably representative government does not pay its dues and periodically threatens to quit. Interesting global power shifts would happen if it did. Henderson recommends a new UN funding structure by a tiny tax (.003%) on international currency transactions, global commons use fees, "sin taxes" on polluters, drug traffic fines and taxes on arms sales, to avoid the problems created by non-payment of dues by its members.

The UN, whatever its problems and whatever our view of it is, remains, as Henderson points out, "the world's major networker, broker, and convenor of new global negotiations." All the new problems of globalization are centered in its spinoffs, especially the newer GATT and WTO. So we must also see as a sign of hope the relentless popular pressure of NGOs that is proving itself increasingly an agent of change.

In 1995 the UN World Summit on Social Development in Copenhagen, covered by two thousand journalists, discussed replacing GNP measures with a people centered and ecologically sustainable "new development paradigm." The 1996 UN Habitat II Summit in Istanbul hosted a World Business Forum that set up a process for Global Standards. Inside the World Bank, its own staff is now in the process of creating significant progressive changes. Now, in 1999, NGOs are sponsoring the Hague Appeal for Peace.

In addition to such NGOs, labor organizations, religious organizations such as the United Religions Initiative and others devoted to interfaith peace and alliances, various conscious investment and pension funds, meetings such as the annual Gorbachev Foundation sponsored State of the World conferences and grassroots movements are all playing a role in global awareness and the restructuring of human society. These are just a few of many examples showing that we are growing wiser as a species in our self-organization at the global level.

Some capitalist entrepreneurs are uniting with each other to work out ways of doing alternative and responsible-to-community capitalism in organizations such as The World Business Academy, Business for Social Responsibility, the Social Ventures Network and the Conscious Business Alliance. Certain corporations are moving toward stakeholder ownership, very serious recycling, and holarchic decision making. Role models such as the Body Shop, Interface and Ben and Jerry's show us the possible future of all business enterprises.

The picture of globalization and the needs and aspirations of the human community are clarifying now and we can get on with the task of insuring our civilization against demise. We can prove ourselves a mature species, ready to learn from our parent planet's four and a half billion years of experience in evolving workable living systems.

The beloved American author Mark Twain tells the story of a young man returning from his first forays out into the world, amazed on hearing his father speak--surprised at all his father has learned while he was gone. It is of course a characterization not of new learning in the father, but in the son. The son's budding maturity lies in his new ability to listen to an elder's accumulated wisdom.

When we humans, after all a very young species, drop our adolescent arrogance of thinking we know it all and read the wisdom in our parent planet's accumulated experience of living systems design, we too will mature as a species, to our own benefit and that of all other species, as well as the planet itself.

See Also :

- "NEW POLITICAL TAGS: GLOBAL VS. NATIONAL" from the 12/22/97 edition of *The Christian Science Monitor*.
- Elisabet Sahtouris: Living Systems, the Internet and the Human Future talk presented 13 May 2000 at Planetwork, Global Ecology and Information Technology conference.