Gebser's relevance to the global crisis

International Gebser Society Conference
Rice University, Houston, TX
October 13 –15, 2011

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More than half a century ago Gebser foretold the coming of a global crisis.[1] Now it is here. The robust sense of continuity that had characterized the postwar era is gone.

Rationalistically-rooted voluntarism keeps spinning scenarios about future developments without respite, but we can probably agree that only a clairvoyant or someone as lucky as a jackpot winner could hit upon the consensus narrative that will satisfy latter-day macro-historians, poring over the first half of the 21st century.

Nonetheless, for a Gebserian, one thing appears to be certain: If the chaos that has grabbed the world by its throat were to lead to a new, more sustainable world, it would entail an intense, mass-scale transformation into integral consciousness.

But we are very far from any collective understanding that current reality will have to make space for another one that is potentially fuller, clearer, and more satisfying for the individual. Few see or are willing to admit that the fundamental material cause of the current convulsive state of affairs is that the interwoven demographic and economic growth has run into constraints. Simple as this process may sound in this reduced, abstract formulation, its phenomenology is stochastic and complex.

At present, global society confronts environmental, energy and other resource problems along with those that an outdated, growth-dependent monetary-financial system represents. While solutions are sought in each of these domains through new policies, reforms, and plans, the most important circumstance is being overlooked. A cluster of inextricably interrelated problems outside the range of familiar experience constitutes a predicament. Whereas a problem or a series of relatively independent problems may be solved through rational maneuvering, a predicament must be lived through; it has to be endured.

This is the case *per force* because the hallmark of a comprehensive crisis is that the solutions offered to end it correspond to interests so divergent that they cannot be synthesized through negotiated compromise.

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[1] "The restructuration of the entire reality has begun; it is up to us whether its final irruption, its final consolidation, will occur with our help, or despite our lack of insight. If it occurs with our assistance, then we shall avoid universal catastrophe; if it occurs without our aid, then the valid completion of the present mutation will cost greater pain and torment than we have suffered during the past sixty years" (J. Gebser, The Ever-Present Origin, Ohio University Press, Athens, OH, 1984 -- henceforth EPO -- p. 532.) Given the mid-20th century completion of EPO, the "past sixty years" includes the two world wars and the Great Depression. For a deep sense of disquietude and ominous presentiments about what the end of the perspectival world could entail, see also EPO, p. 158, n. 23.

Environmental protection illustrates this principle. Developed countries as a block want to see the introduction of drastic measures to protect the environment by curtailing dependence on fossil fuels, but if the developing world -- constituting four-fifths of humanity -- does not join in this effort, planet-wide pollution will increase; and climate change will intensify. Since effective measures to head off an environmental disaster would hamper economic growth over a period of unknown length, developing countries with massive segments of their population still in deep poverty cannot accept such measures.[2]

Similar fundamental conflicts surround the ever more urgent transition to renewable energy, substitution for fast-depleting industrial metals, and the complete overhaul of international monetary and financial arrangements; along with many other subsidiary problems that ramify through the planet's socioeconomic sphere.

What is likely to happen? Is the past prologue as Antonio mused in the *Tempest*? Yes, it is in a limited way. Mark Twain hit the nail on the head when he said "History does not repeat itself but it does rhyme." I hope to make this proposition clear.

But let us begin with Gebser. His relevance in the present context is twofold. First, he confirms the existence of the crisis; and, second, he inspires a radically new approach to analyze it.

Indeed, throughout EPO we see persistent references to an approaching cataclysmic rupture as unbridled materialism linked with the spatial view of life deforms human aspirations; as in the amalgamation of labor with its cyclopean extrasomatic extensions the latter begins to dominate, stifling individuality, blocking the recognition that mental man's progress entails irreversibly accumulating costs. Although never referring to it by name, everything Gebser said about the self-disabling nature of growth in material welfare and progress in general, corresponds perfectly to the ecological economist's notion about the second law of thermodynamics, the principle of nature that imposes a scale limit on the global economy.[3]

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[2] The *Energy Information Administration* (EIA) of the U.S. Department of Energy publishes periodic forecasts on global energy demand and the structure of supply by sources. According to EIA's *International Energy Outlook, 2010*, the share of renewable energy sources in "world marketed energy consumption" will increase from 10 percent in 2007 to 14 percent in 2035. That is, the overall drastic increase in projected energy demand will tend to keep renewable sources from acquiring a decisive gain in aggregate supply. In the meantime, coal consumption is expected to increase at an annual rate of 1.6 percent, from 132 quadrillion Btu in 2007 to 206 quadrillion Btu in 2035, with non-OECD countries accounting for 95 percent of the increase. "Coal-fired generating capacity in China more than doubles in the Reference case from 2007 to 2035, and coal use in China's industrial sector grows by 55 percent" (ibid). The *Intergovernmental Panel on Climate Change* (IPCC) – established by the United Nations and the World Meteorological Organization – prepares reports on climate change.

[3] Time is a varying and unpredictable intensity, as well as a quality, according to Gebser (EPO, p. 285). Therefore, it is much more than mere mechanical, clock, or chronological time. And therein lies Gebser's implicit connection with thermodynamics. The second, so-called entropy law is so far the only known law of nature that is not tied to mechanical time and is concerned with spontaneously occurring qualitative change in an isolated or closed (i.e., partially isolated) thermodynamic system. This assertion adds up to

Confirming the world's arrival at a critical juncture of history from outside the domain of economics and allied social sciences is important because the prevalent, mental consciousness-imbued economic ideology sees the solution to all problems (including those caused by economic growth) in further growth. What is more, progress is being credited for man's diminished dependence on natural resources.[4] Established cathedra treats dissent from these *prima facie* absurd creeds of self-deception as impertinent solecism, worth no more than rolling one's eyes.

During the mid-20th century halcyon days of the current world economic order, Gebser was not alone in predicting its eventual demise. Keynes, the key economic thinker responsible for the now expiring global system, saw through its transitory character although not for reasons of natural resources and ecology. These were not yet problems during the 1930s.

To develop a new methodology to analyze the crisis in common social science/economic terms, it is helpful to adopt Gebser's systatic approach, which emphasizes structure and the temporal element at the expense of narrow empiricism and sectored rationality. The proposed approach begins with a definition.

Since both humans and the objects they craft are molecular in nature we can combine the flux of human biomass and human-produced structures into a single material entity, called the "global population plus economy" (GLOPPE). The sound of this word may well conjure up the impression a detached cosmic observer may have when looking in our direction: Matter seems to bubble up with growing intensity on that spinning piece of spherical rock as it soars through the celestial realm at a speed that those billions of self-absorbed, fast-multiplying autocatalytic energy nodes could not possibly comprehend.

Although GLOPPE maximizes generality through the elimination of dualistic subdivisions (that is, between the economy and the environment, between humans and their economy), it is not an empty abstraction. Indeed, GLOPPE is a material entity that possesses weight (human biomass plus the mass of human-produced structures). It is the ultimate macroscopic variable we should consider in order to have a clear idea about the nature and extent of the crisis our generation faces.

GLOPPE is a dissipative thermodynamic phenomenon.[5] Its temporal evolution may be described as relative, that is, dynamic steady states, separated by mutation-like phase transitions over historically significant periods. Let me briefly outline the implied hermeneutic of universal history for the past half millennium:

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considering time in the economic process a varying and unpredictable intensity that changes (degrades) the quality of matter in the terrestrial sphere. See, N. Georgescu-Roegen, The Entropy Law and the Economic Process, Harvard University Press, Cambridge, MA. 1971, p. 140.

[4] For a rebuttal of the idea that low percentages of energy and raw material in developed country GDPs signal humanity's growing independence from nature, see http://www.energybulletin.net/53380.

[5] Hence, no system of differential equations using clock time as the independent variable could possibly describe its temporal evolution. For this definition of a thermodynamic process, see, N. Georgescu-Roegen, The Entropy Law and the Economic Process, Harvard University Press, Cambridge, MA., 1971, p. 139.

Discovery of the Americas completed geological globalization, thus marking the birth of global society.[6] GLOPPE has grown ever since and by the end of the 18th century (the era of "breaking forth of time"[7]) it was in need of a global organizational framework in order to continue to grow. The world's first chaotic transition, similar in character and function to the one which has begun with the current global crisis, lasted from 1789 through the mid-1830s. It led to the creation of free markets for commodities, money, and labor, ushering in the world's first global system (GS1), *laissez faire/metal money/zero multilateralism*.

After some grave initial social and institutional problems, GS1 turned into a great success in terms of increasing per capita global output. That is, within GLOPPE, the global economy grew much faster than world population.

But, by the early 20th century, GS1 became an obstacle for GLOPPE's further growth. A new episode of extended macrohistoric crisis, a new chaotic transition, which lasted from 1914 to 1945, resulted in the establishment of the second and current global system (GS2), *mixed economy/minimum bank reserve money/weak multilateralism*.[8]

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[6] References to historic economic performance are based on a study by Professor Bradford DeLong (UC Berkeley), *Estimating World GDP One Million B.C. – Present*, 1998. For details, see, http://delong.typepad.com/print/20061012_LRWGDP.pdf.

[7] "Breaking forth" was the rending asunder of "the static, spatial construction that had been attained since 1500" (EPO, p. 301). It was marked by the 1782 discovery of the steam engine by James Watt and the outbreak of the French Revolution in 1789. This short period saw the creation of conditions under which both extrasomatic and somatic energy could be used for a rapid increase in material welfare, a process that had always comprised cumulative positive and negative aspects, with the latter gaining the upper hand in our era.

As argued in an earlier paper (http://ppogany.svrpress.com/GebserConferencePaper2010.pdf), the word "energy" could be substituted for "time" when Gebser talks about the "the breaking forth of time." He makes direct references to the equivalence between time and energy (EPO, pp. 25, 341, 395-6), but the same conclusion may be reached indirectly, by interpretation:

The "discovery" of time in the late 18th century in Gebserian terms coincided with the discovery of energy, as witnessed by the appearance of thermodynamics as a science. Further, the broad interpretation of the concept of energy, which includes matter, requires space-time. Its bending indicates the presence of mass, which (per the general theory of relativity) has an energy equivalent.

The equivalence of "time" and "energy" in Gebser's work may be made explicit by recognizing the commonality of the role they play in breaking up the limited spatial conception of the world. Just as "time" is crucial in eliminating dimensionality (leading to achronon); "energy" is indispensable in comprehending all that may be found and may occur as a process in space. While the consideration of time creates the possibility of integral understanding (synairesis), the consideration of energy provides a method (systasis) to achieve such understanding.

Let us note that the "breaking forth of time" was followed by the "irruption of time," which has two subperiods: "Intrusion of time" and "collapse of time." We live in the era of the "collapse of time." It is the worldwide crisis, prompted in essence by the unrecognized phenomena of a secular rise in energy (including material) costs, which dampen economic growth prospects.

[8] *Mixed economy* was developed during the American *New Deal*. It signifies a private-ownership-based, capitalist economic system in which the government plays important roles to stimulate growth while maintaining stability. *Minimum bank reserve money* refers to the fractional reserve banking system that is bent on maximizing the expansion of interest-bearing loans as a permanent stimulus to economic expansion. Technically, only a fraction of the demand deposits is covered in depository institutions (mainly banks) by vault cash and deposits at the country's central bank. *Weak multilateralism* characterizes the

GLOPPE has roared ahead during the last 60 years and per capita income has increased significantly. But now it is on an accelerating collision course with its physical constraints.

Many analysts argue that even the current global population of seven billion, with its economy of $75 trillion in annual world GDP (2010, PPP basis), is beyond the planet's biophysical-social carrying capacity. Consequently, if the Earth's occupancy grows to ten billion by the end of the century, as it is widely expected to do, and if there is no letup in pursuing the goal that every living soul should enjoy the same level of material wellbeing as people in the developed world, the planet's habitability will surely be destroyed, provoking the dreaded Malthusian "positive checks" -- death from wars, famine, and disease.

For a world population of 10 billion to have the same per capita GDP as Switzerland has now, to exemplify developed-country-level-of-living, aggregate GDP would have to increase nearly six-fold to about $430 trillion -- a Pollyannic daydream. How could an economy of that size be sustained in terms of exhaustible energy sources, metals and minerals, tropical forests, biodiversity, water resources? And major dependence on the Earth's net primary productivity (i.e., "going totally green") seems unfeasible even at the current level of economic activity.

GLOPPE is already encountering obstacles. These may be divided into resources, the environment, and GS2's growth-dependent social and economic institutions.

As far as resources are concerned, the issue is not that the planet is about to run out of oil, other fossil fuels, and vital industrial metals but that their supplies are likely to become too costly to support desired levels of economic growth. It is a virtual certainty that mankind is about to come face to face with cascading demands for substitution in both the energy and material input sectors.

Running out of cheap oil is the species' first encounter with the disturbing countenance of unchangeable physical reality. Consequently, as the world moves toward full employment, the price of oil rises to a level that disrupts further growth. Then the exchange value of the economy's plasma falls until recovery gathers momentum. The current form of global self-organization (GS2) is such that it cannot break this dizzying roundabout. The ways in which markets function, economic institutions operate, and private incentives and national interests manifest themselves add up to a constellation of

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prevalent UN-centered framework of international cooperation. Its major agencies in the financial/development/trade realm (i.e., the International Monetary Fund, The World Bank, and the World Trade Organization) have very limited authority over individual nations and practically none over global-power-wielding multinational firms.

self-canceling incentives and counterincentives: Substitution away from a substance that is also a complement to practically everything we use is not in GS2's repertoire.[9]

The notion of global warming provides the simplest path to appreciating how the environment limits GLOPPE. Many studies suggest that the combination of rising sea levels, heat waves, above average and below average precipitation, intense storms, hurricanes, and "climate surprises" will curb global economic growth primarily by endangering human health, by damaging agriculture, water resources, energy and industrial infrastructures and financial services through stepped up demand for insurance. Dealing with all these problems; that is, the defensive expenditure of resources, weakens the prospects for increasing consumption.

As physical limits to growth (resource depletion and environmental degradation) begin to have a constraining effect on private-profit-dependent economic performance, GS2 institutions are bound to malfunction. Nowhere is this phenomenon more apparent than in monetary/financial arrangements.

GS2 assigned the role of global currency to the U.S. dollar, first by equating it to gold then; after 1971, by making it into a freely-traded fiat money. Since worldwide demand for liquidity had to outstrip the money supply of even the largest economy, during the past 40 years, the dollar was maintained in an appreciated position relative to the level at which a balanced trade could exist between the U.S. and the rest of the world. As a matter of course, U.S. imports grew faster than exports; accumulating the nation's external debt (ca. 14 trillion dollars at this writing). To compensate for the deindustrialization-induced income loss, the Federal Government stepped up spending on defense and public services. Tax cuts and targeted tax and subsidy programs further added to the debt. While piecemeal data over the past decades would lead one to the conclusion that the U.S. trade account (or, more precisely, the U.S. current account) and Federal budget deficits are unrelated, the sheer fact that the U.S. has accumulated a national debt of approximately $14 trillion and roughly the same amount of external debt calls for reflection, an exploration of the hypothesis that a hidden nexus exists between external and internal imbalance.[10]

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[9] World oil production may have "peaked" (i.e., has reached its maximum) and predictions coming from the community of independent energy analysts place the year of peak natural gas production within the next two decades. And "peak hydrocarbons" is not alone in weakening long-term growth prospects. According to research conducted under the aegis of Netherlands' *TNO Defense, Security and Safety*, the threat of material scarcity is real and imminent in the following elements and/or their compounds: "Precious metals," i.e., Silver, Gold, and the platinum group (Ruthenium, Rhodium, Palladium, Osmium, Iridium, in addition to Platinum); "minor metals" Gallium, Germanium, Indium, and Tellurium; the "tungsten group" (i.e., Tantalum, Zirconium, Niobium, and Molybdenum, in addition to Tungsten) and most of the Lanthanides or "rare earth metals," which total 15 with the inclusion of Lutetium. (See, A. Diederen, Global Resource Depletion, Managed Austerity and the Elements of Hope, Eburon Academic Publishers, Delft, The Netherlands, 2010).

[10] Although economists generally consider the two deficits kissing cousins, no known policy measure or high-profile advice has ever reflected such an integral comprehension. Government policies designed to deal with the "budget deficit" and "trade deficit" run on separate tracks, attesting to a lack of recognition that these two manifestations have a common source, viz: a systemically guaranteed aggravation of disequilibrium between the U.S. economy and the economy of the rest of the world. To repeat, the parallel

Econometrics, the archetypal effort to squeeze everything under the sun into a simplified rational framework, cannot possibly lead to consensus in this matter.

The macrohistoric *sui generis*, namely that out of nowhere an amorphous Boyg[11] has appeared on the seemingly infinite road to eternally accelerating economic growth, simply cannot be explained by finding a historical parallel, by fishing in our narrow tank of numerical information. Only a refreshed epistemological standpoint approximating Gebser's integral-systatic approach, seeing through the situation in its totality, as if it were transparent could help. We would need to rely, to some extent, on what Aristotle considered the "nous," a kind of intuitive understanding beyond sense perception, econometric reification in our context. But evincing the reality that the Boyg indeed exists is not at hand.

GS2's existential basis includes the unshakeable conviction that whatever obstacles to growth may appear in the form of resource shortage, the market will always adjust to them and impart the incentives necessary to get them out of the way. Bottlenecks? Maybe! An absolute ceiling? Never!

If you think about the current economic situation in these terms, it becomes apparent that political slogans like "let's live within our means" (in reference to huge U.S. budget deficits) and "jobs, jobs, jobs" and "growth, growth, growth" miss the point. GS2's monetary institutions guaranteed that the American public would consume more than it produces, that is, it would live beyond its means; and, this circumstance would create the motive and opportunity to increase national debt.

And as far as business-as-usual, long stretches of accelerated economic growth is concerned, the Boyg bars the way. Initially, with empty barrels that used to contain cheap oil.

GS2 itself is in crisis. Mixed economies rely on deficit spending and on reducing interest rates to stimulate growth. In the pivot and system administrator country, both policy tools have been exhausted. There is too much government debt to allow massive new job-promoting work programs; and, on the monetary side, interest rates could hardly go any lower.

If the world were a washing machine, we could say that our global system is in the spin cycle.

The three facets of the crisis; that is, resources, the environment, and institutions, converge in an interdependent, mutually reinforcing fashion. For example, the increased frequency and intensity of natural disasters come at a time when governments are broke,

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buildup of U.S. external and internal debts represents two aspects of the same process. Its irreversible character has been disguised by the illusion that automatic self-correcting mechanisms would turn both deficits into surpluses.

[11] Boyg is the formless troll in Norse mythology. It was used by Ibsen, Graham Green and Joan Robinson to symbolize an unconquerable obstacle.

reducing the scale and quality of repairs, handicapping the introduction of preventive measures. Since governments in a mixed economy have neither the mandate nor the means to "green" the resource base decisively; heavy reliance on burning fossil fuels to generate energy will continue, contributing to problems associated with global warming.

The overall global crisis is none other than a new chaotic transition. In Gebser's words, it is "the grand and painful path of consciousness emergence" (EPO, 542). It may well lead to a third *global system* to create a more sustainable balance between GLOPPE and humanity's ecological niche. GS3 may be called, *two-level economy/maximum bank reserve money/strong multilateralism.* Micro-activities would be subject to globally-determined and nationally allocated macro-constraints; money creation would be curbed and disciplined.[12]

World history interpreted as the periodization "GS1 --> GS2 --> GS3" is at once "thermodynamic" and "Gebserian." It is thermodynamic because growing far-from-equilibrium systems involved in the process of complexifying self-organization as they dissipate their environment must go through disequilibrium phase transitions in order to reach the next dynamic steady state, a new era of economic and social coherence.

It is "Gebserian" because GS1 and GS2 may be considered substructures of the dominant, increasingly deficient mental consciousness; and the establishment of GS3 may be regarded as the institutional/behavioral epiphenomenon of mass mutation into integral-arational consciousness. The "GS1 --> GS2 --> GS3" view of history is Gebserian also in the sense that mutation from one global system to the next goes through overdetermination rather than through subsequent switches. That is, GS2 has overdetermined GS1 and GS3 will overdetermine GS2. Indeed, GS1 has not disappeared. We can recognize it in our days from anti-government rallying cries to restore *laissez faire* capitalism, from related attempts to undo the social safety net and vitiate collective bargaining.

And hopefully, when GS3 becomes everyday reality, it will include some of its predecessor's best features, such as the truly innovative entrepreneurial dynamism in service of a comfortable life.

I would like to leave you with the thought of what may be considered the hermeneutic task of economists.

In his 1948 "Foundations of Economic Analysis," Paul Samuelson laid the theoretical groundwork for turning "neoclassical synthesis[13]" into GS2 economics. His introductory

[12] The maximum reserve system boils down to the nation's government issuing money, rather than the banking system creating it by making loans. Banks would keep rather than lend out demand deposits. Under GS2, most of our money is private debt that must grow faster than debt is extinguished; otherwise the money supply would shrink, curbing economic growth. This feature of GS2 well reflects the system's Achilles' heel: Accelerate or collapse!

[13] School of economic thought (the current mainstream) that combines neoclassical micro-foundations with the Keynesian perspective on macroeconomic issues.

textbook with its cryptic, end-all title, "Economics," was published in the same year. Although it has been revised several times, it has remained basically unchanged, serving also as the boiler plate for competing efforts on the undergraduate textbook market. Samuelson's "Economics" may be considered GS2's *text,* a simplified transcript of its ideology; a catechism-like corpus of information required for the practice of faith. Understanding the *text* means understanding how the economy works, including the range of empirical policy prescriptions. Its academic tradition-rooted matrix of terms, signs and codes determines the feasible set of socioeconomic discourses.

But naturally, the world moves on and the valence between an implacably shifting reality and the stationary *text* continues to decay. *Text*-specified policy tools have lost traction and their application might just do more harm than good. Increasing U.S. national debt tends to increase the risk of default; decreasing it contracts the economy, tending to increase the debt. Allowing mergers among large corporations kills the market; disallowing them could undermine the survival of important sources of production and employment.

Instead of glossing over these failures and shortcomings, economists ought to awaken their historical consciousness from its dogmatic slumber and begin to deconstruct the *text* along with its *Zeigeist*. That would be an appropriate prelude to a long-term global research program aimed at comprehending the new age that will be characterized by a different set of forces than the one that has prevailed during the past threescore years.