

Oliver W. Markley

Emeritus Professor of Human Studies and Studies of the Future
University of Houston-Clear Lake

"When one species attains a position of dominance over all the other species in the ecology of its planet, if it is both egocentrically greedy, and has a powerful set of technologies through which to amplify the expression of that greed, then unless that dominant species can find a way to limit or to transform itself and its greed-based systems into something more wholesome, it will foul its planetary nest as surely as the night follows the day ... perhaps even to its own extinction."

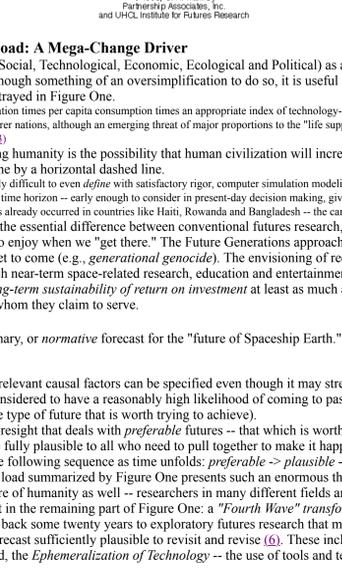
a statement synthesized from the writings of eco-anthropologist, Gregory Bateson and visionary science fiction writer, Olaf Stapledon

A "High Altitude" View of History -- Both Past and Future

By way of beginning, it is useful to consider the "great ascent" of human history as popularized by some contemporary Western futurists, such as Alvin Toffler, author of *Future Shock*, *The Third Wave*, and the book recently much trumpeted by Newt Gingrich, *Creating a New Civilization: The Politics of the Third Wave*. The basic idea here is deceptively simple. As schematically summarized by Figure One, there have been a sequence of transformative "cultural paradigms" that have dominated human habitation on the planet, each newer one gradually replacing the earlier ones by means of wave-like processes of diffusion whose speed is greatly accelerating with the passage of time:

- The **First Wave** from *The Nomadic Era* to the *Agricultural Era* took *millennia* -- thousands of years -- to spread over most of the surface of the planet;
- The **Second Wave** from the *Agricultural Era* to the *Industrial Era* took *centuries* -- hundreds of years -- to become the dominant, but still not universal cultural form;
- The **Third Wave** from the *Industrial Era* to the *Information Era* is, according to futurists such as Toffler, now thought to be taking place on the order of mere *decades* -- tens of years -- and is bringing on accelerating rates of change in many different sectors of society that will be difficult, if not impossible, to manage successfully using industrial era concepts, tools and techniques.

The possibility of a future **Fourth Wave** transformation, also diagrammed on Figure One, will be introduced after the idea and significance of "ecological load" have been discussed.



Exponential Increase in Ecological Load: A Mega-Change Driver

Futurists often use the acronym, "STEEP" (Social, Technological, Economic, Ecological and Political) as a guiding mnemonic to help them approach the goal of "360 degree vision" regarding changing trends and emerging issues in the environment. (2) Although something of an oversimplification to do so, it is useful to consider *ecological load* as an integrative proxy, or "mega-change driver," for all of the variables which, together, make up the STEEP trajectory portrayed in Figure One.

(Ecological load is formally defined as level of population times per capita consumption times an appropriate index of technology-based ecological impacts associated with consumption. As population biologist Paul Erlich has pointed out, this way of looking at ecology makes it clear that runaway population growth by poorer nations, although an emerging threat of major proportions to the "life support systems of Spaceship Earth," is outweighed by the consumption trends in richer nations. And it is these levels of consumption that set the growth goals of poorer and more populous nations.) (3)

Perhaps the most important threat now facing humanity is the possibility that human civilization will increase its overall ecological load past whatever level the planetary "carrying capacity" turns out to be. This hypothetical level is illustrated on Figure One by a horizontal dashed line.

wisdom and guidance humanity needs in order to navigate to a "safe landing" from the unsustainable growth trajectory shown in Figure One. (4) (Although carrying capacity turns out to be enormously difficult to even *define* with satisfactory rigor, computer simulation modeling and other types of studies suggest that if current ecological load trends continue unabated, the carrying capacity of the planet could be overshoot within the proverbial "seven generations" time horizon -- early enough to consider in present-day decision making, given the long lead times needed to alter the direction and momentum of key factors driving this trajectory. (4) And if planetary ecological load does overshoot the carrying capacity severely -- as has already occurred in countries like Haiti, Rwanda and Bangladesh -- the carrying capacity of the planet will *itself* decrease, due to interacting problems such as top soil erosion, desertification, species extinction, etc.)

The issue of ecological load brings to point the essential difference between conventional futures research, policy analysis, strategic planning, etc. and the *Future Generations* perspective. Conventional approaches try to make the future as good as it can be for us to enjoy when we "get there." The Future Generations approach, on the other hand, seeks to balance our needs and desires with those of our offspring, so as to avoid really wrecking things for the many generations yet to come (e.g., *generational genocide*). The envisioning of requirements for achieving sustainable life support systems in a space colony may provide considerable insight on such issues -- one of the many ways in which near-term space-related research, education and entertainment could contribute to the long-range well-being of "Spaceship Earth," our planetary *home-in-space*. It shows, for example, the importance of emphasizing *long-term sustainability of return on investment* at least as much as *maximization of short-term profitability* -- an absolutely essential shift now needing to be made by leaders in business and industry and by the investors whom they claim to serve.

A Normative Vision of the Future

The remaining part of Figure One is a visionary, or *normative* forecast for the "future of Spaceship Earth." To understand the concept of a "normative" forecast, it is helpful to note that applied futures research generally deals with three types of alternative futures:

- *Plausible* (a possible future in which relevant causal factors can be specified even though it may stretch the imagination to do so);
- *Probable* (a plausible future that is considered to have a reasonably high likelihood of coming to pass) ; and
- *Preferable* (what we would prefer; the type of future that is worth trying to achieve).

The word, "*Normative*," then, is a type of foresight that deals with *preferable* futures -- that which is worth spending time to envision, talk about, and work towards, even before all the details have been worked out regarding how it might "work," and become fully plausible to all who need to pull together to make it happen. The purpose of most normative futures research and forecasting, is thus to help facilitate the process of moving a specific vision of future reality through the following sequence as time unfolds: *preferable -> plausible -> probable -> realized*.

Because the runaway increase in ecological load summarized by Figure One presents such an enormous threat to the long-range well-being of Earth's ecology ("the sustainability of essential life support systems of Spaceship Earth") -- and thereby to the future of humanity as well -- researchers in many different fields are striving to discern normative visions for the future that would include specific ways in which this "dystopia" can be avoided. One way to do so is mapped out in the remaining part of Figure One: a "*Fourth Wave*" transformation from the Information Era to an Era of Global Consciousness (5).

The essence of this normative forecast goes back some twenty years to exploratory futures research that my colleagues and I did at the Stanford Research Institute (now *SRI International*), but recent technical developments have occurred, making the forecast sufficiently plausible to revisit and revise (6). These include specific ways in which to realize what R. Buckminster ("Bucky") Fuller -- who was the first to use the visionary phrase, "Spaceship Earth" -- called, the *Ephemeralization of Technology* -- the use of tools and techniques that are "light" rather than "heavy" in form. At this time, two categories of ephemeralized technology development stand out in importance: (7)

- "*Explicate*" technologies involving physical space, e.g., *Nano-technology* (8) (which, by working at the "ephemeralized" scale of 10⁻⁹ m -- a billionth of a meter -- may help lighten impacts on the ecosystems of the planet); and
- "*Implicate*" technologies involving non-physical space, e.g., *Noetic-technology* (which, by dealing with mind, consciousness, and transcendental ways of knowing, may provide a reliable tool set for tapping the wisdom and guidance humanity needs in order to navigate to a "safe landing" from the unsustainable growth trajectory shown in Figure One). (9)

Made feasible by the Ephemeralization of Technology as defined above, is a second key aspect of the envisioned "Fourth Wave" transformation: *Stabilization of Ecological Load*. In order to be plausible given current knowledge, this is envisioned as including both:

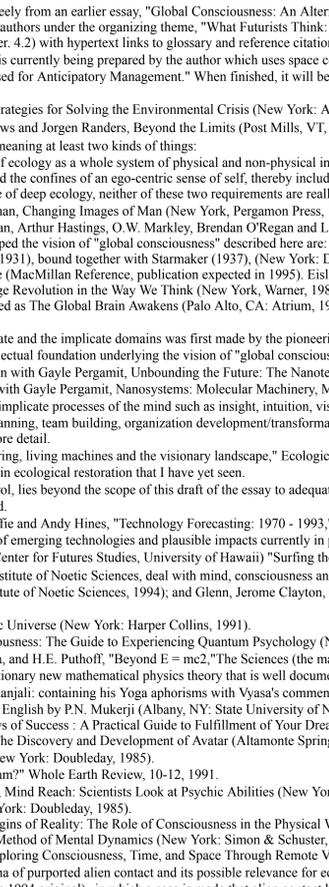
- a new paradigm in *bio-technology*, e.g., Ecological Restoration Engineering (modeling nature in the designed use of microbial populations) as in the "living machines" being pioneered by biologist John Todd and others; (10) and
- a new paradigm in *social values and ethics*, e.g., regarding domination and control. (11)

From the viewpoint of business and political leaders, however, perhaps the most important aspect of the envisioned Fourth Wave transformation is that it offers a way to sustain the exponential growth trajectory that has characterized the economic development of Western Culture. It is just that the economic growth would come to emphasize development of ephemeralized technologies and ecological sustainability, rather than "brute" technologies and ecological exploitation. In other words, *this may be a profitable way to reframe the so-called "doom and gloom" vision of the future and its calls for "limits to growth."*

Key Change-Drivers, Emerging Issues and Wild Cards for Scenario Development and Strategic Planning

With this overarching context in mind, the main forces, trends and illustrative "wild cards" (surprising developments which change things radically) that may create the future in the next thirty or so years are as follows (some were introduced earlier and are repeated for clarity):

- The technology-fueled behaviors that are driving the exponential increase in ecological load pictured in Figure One, and are led by the general unwillingness of leaders at all levels -- regional to planetary -- to recognize and/or respond constructively to the threat of overshooting the planetary carrying capacity for ecological load well within the time horizon of the proverbial "seven generations."
- Four key varieties of "enabling technologies" (12) all of which may be greatly abetted by nano-technology:
 - Energy conservation and sustainable energy production technologies;
 - New materials synthesis and old materials substitution technologies;
 - Genetic and biological engineering technologies, especially ecological "restoration" engineering;
 - Digitized information technologies, especially those dealing with computers, data management, telecommunications, and imaging -- the integration of which is leading to an almost explosive development of virtual reality and cyberspace applications, all of which are expected to affect and be affected by an emerging "noetic paradigm" noted below.
- A series of "tsunamis" which former president of the World Futures Studies Federation, James Dator, warns are "sweeping toward us from the future, which no governance system on Earth can manage or even adequately address:
 - Catastrophic population growth
 - Environmental degradation and geo-climatic changes
 - Western capitalism as neither a sustainable nor an equitable form of political economy or ecology
 - The "new" technologies of the present and the immediate future. (13)
- The emergence of a "noetic epistemology" in science and society; (14) an emerging synthesis of quantum physics and the psychology of consciousness, (15) especially as in Zero-Point Fluctuation Theory; (16) the possible (re)emergence of a credible art (and science)? of consciousness creation and dis-creation; (17) and the rise of a *noetic paradigm* and related technologies based on such developments.
- An emerging perception that mental space/time travel is not only possible, but may actually be present in our lives in ways that our beliefs (and derivatively, our experience of reality), do not normally allow us to recognize (e.g., in "dream travel."). (18) In some instances, however, the use of appropriate methods may overcome these limitations (as in "remote viewing" and "out of the body" travel) and ultimately prove practical for both exploration and profitable application. (19)
- The highly uncertain outcome of the (as yet neither much recognized nor much understood) set of trends and events involving purported alien and/or extra-terrestrial contact, that perhaps includes an ongoing program to genetically engineer and breed a hybrid alien/human species. (20) Being something of a "taboo topic" in our culture, here is a truly "wild card" future -- a potential tsunami of tsunamis -- that is virtually being ignored by futures researchers. Regarding *physical* space/time travel beyond the solar system, the recent theoretical physics "warp drive" analysis of Alcubierre, and its integrative "metric engineering" extension by Puthoff (21) not only brings an appreciation for how physical interstellar space travel by advanced alien cultures could conceivably take place, it points to a whole new vista of long-range possibilities for humans in space that are truly *astronomical* in scale.
- Increasingly wide-spread use of futures research and "partnership-oriented" change management methods, leading to "2nd Order" social innovations such as "boundary spanning public-private partnerships" and other types of "TeamNets," which, together with new "Green Business" practices and "social entrepreneurship" designs, may prove feasible to turn the above threats into realizable opportunities--the eroding 20th Century Industrial Paradigm and the emerging 21st Century "Mega-Tsunamis" not withstanding! (22) (Please see *Figure Two* for a rationalized sequence through which such transformational changes can co-evolve.)



Source: A. Levy, "Second-Order Planned Change: Definition and Conceptualization," *Organizational Dynamics*, 1986

To recapitulate, the normative (preferred) future for the *planet* put forward in this position paper would involve a "Fourth Wave" trajectory idealized in Figure One, leading to *sustainable well-being for the essential "life support systems of Spaceship Earth."* I do not consider that this future is plausible, however, without a transformation of the dominant social paradigm of "Western" culture in ways at least as surprising as the fall of the USSR, but that would be much deeper. (In Figure One, the "Fourth Wave" transformation is not represented as a smooth shift from a nearly vertical to a nearly horizontal line, but instead involves a sharp--but not precipitous--decline and subsequent recovery, which is seen as having more "real world" plausibility. Unsustainable increases in concentration of wealth are likely to be a key part of what triggers this "readjustment" in society.) (23)

How might future generations of the *people* on Spaceship Earth motivate themselves to make the changes necessary to voluntarily stabilize ecological load? Imagine a "New Overview Effect" (24) brought by a combination of many factors, including "space tourism" (in both "outer" and "inner" space) and the wide-spread availability of appropriate theory, tools and training to:

1. discover the vast potential that lies within, especially as regards the *implicate domain*, hypothesized as being "causally prior" to the explicate universe of physical space; (25)
2. engage in *transphysical* time/space travel in ways pointed to by Olaf Stapledon in *Starmaker*, and Robert Monroe in *Far Journeys*; (26) and
3. [Who knows if this visionary possibility will ever actually be realized?]: to participate in *physical* inter-stellar travel and galactic commerce, with a cultural posture more peaceful and partnership-oriented than war-like and exploitive. (27)

Concluding Comments

The metaphor of "Spaceship Earth" is criticized by deep ecologists and others who suggest that a more appropriate metaphor would be one that points to the planet as a vital, dynamic organism that is alive in its own right -- as is put forward by the recent ecological theory known as the "Gaia Hypothesis." (28) As president of the Mitsubishi Materials Corporation, Yumi Akimoto, put it: "If [Spaceship Earth] was an excellent metaphor for pointing out the limited resources of the Earth's environment, but on the other hand, this metaphor may have amplified the mistaken impression that one can grasp such a vastly complex system as the Earth's environment by a mechanistic, reductionist approach." (29) Because I agree with this critique, I should perhaps state that I choose to use the metaphor "Spaceship Earth" here because of its natural appeal and "image value" for the international aerospace community, who, in ways noted above, could make profound contributions to planetary ecology.

Finally, it may be important to state why I would be willing to take the risky professional step of "coming out" to the degree I have in writing the above, taking positions which, for many professionals, may require a great leap of the imagination and intellect to find credible. My primary motivation is this: a profound sense of urgency, summarized by the *leitmotif*/statement given at the beginning of this position paper. May this statement prove to be a successful *self-denying prophecy* -- i.e., a contingent forecast which, by showing the handwriting on the wall, leads humanity to avoid irreparably damaging the essential life support systems of Gaia/Spaceship Earth -- choosing instead to co-create an inspiring destiny involving a new era in space and a planetary society that is both humane and sustainable across the many generations to come.

END NOTES

1. This position paper is a background study for ongoing work being done at the UHCL Institute for Futures Research (UHCL/IFR) on Global Consciousness in support of various client and collaborating organizations, including: *The Millennium Project* of the World Institute for Development Economics Research of the United Nations University (UNU/WIDER), which is serving as a vehicle to coordinate futures research activities and outcomes on global/local themes from all regions of Earth. For more information: 4421 Garrison Street, N.W., Washington D.C. 20016, 202-686-5179. The Future Generations Alliance Foundation, which is sponsoring an extensive series of international conferences and symposia--the last one of which was on "Teaching and Learning about Future Generations," hosted in Toronto by the Ontario Institute for Studies in Education (OISE) in October, 1995; the next one of which will be on "North/South Issues From the Viewpoint of Future Generations," to be hosted in Galveston, Texas by the UHCL/IFR in March, 1996. Books published by the Foundation include: Why Future Generations Now, and Creating a New Future for Future Generations. For more information: 88 Kankoboko-cho, Muromachi-Hagashi-Iru, Shimogyo-ku, Kyoto 600, Japan; 81-75-212-4736; or in the U.S., 415-381-3373. The Strategic Avionics Technology Working Group (SATWG) -- a voluntary association of professionals working collaboratively to promote space commercialization, who held their last conference on "Changing United States Space Enterprise: A Call to Action," in Arlington, Virginia in October, 1995. For more information: NASA/JSC Code EA, 2101 NASA Road One, Houston TX, 77058; 713-483-8224. An ongoing UHCL/IFR research project for SATWG involves the development of three "space commercialization" scenarios having the following as organizing themes:
 1. Continuing decline of American competitiveness in space commercialization, with other nations gradually taking the lead -- especially in the long-range development of space-related tourism and moon-based commercial operations;
 2. Emergence of American leadership in the creation of innovative international partnerships for space commercialization, emphasizing "cooperative competition" and new modes of space business;
 3. "A New Overview Effect," created by space-related exploration, tourism and entertainment, coupled with ecological consciousness -- all leading to stabilization of ecological load on "the life support systems of Spaceship Earth."
2. The material presented here quotes freely from an earlier essay, "Global Consciousness: An Alternative Future of Choice," recently written by the author for a special issue of the international journal, FUTURES, which will feature positions by a number of authors under the organizing theme, "What Futurists Think: Visions of Generations Ahead."
3. An expanded version of this paper (ver. 4.2) with hypertext links to glossary and reference citations is envisioned, to be placed on the World Wide Web of the Internet, early in 1996.
4. A working paper currently on this is currently being prepared by the author which uses space commercialization as a case example. It is entitled, "STEEP Scanning and Strategic Intelligence Development: What It Is, How it Works, and How it Can Be Used for Anticipatory Management." When finished, it will be a chapter in the book now in preparation, *Social Intelligence: Accessing Information for Influencing the Future*, A Handbook of Strategies and Sources.
5. Paul, Healing the Planet: Strategies for Solving the Environmental Crisis (New York: Addison-Wesley, 1992).
6. Meadows, Donella, Dennis Meadows and Jorgen Randers, Beyond the Limits (Post Mills, VT, Chelsea Green, 1992).
7. Global Consciousness is a phrase meaning at least two kinds of things:
 - 1) Functionally adequate awareness of ecology as a whole system of physical and non-physical interactions across time;
 - 2) Expansion of consciousness beyond the confines of an ego-centric sense of self, thereby including transpersonal experiences and Self-identity that is transcendent in time and space.
 (As shown by the emerging discipline of deep ecology, neither of these two requirements are really independent of the other. Rather they are as two sides of the same coin.)
8. Markley, O.W. and Willis W. Harman, Changing Images of Man (New York, Pergamon Press, 1982); and in the 1974 *SRI International* report, "Societal Consequences of Changing Images of Man," by Joseph Campbell, Duane Elgin, Willis Harman, Arthur Hastings, O.W. Markley, Brendan O'Regan and Leslie Schneider.
9. Other works who strongly shaped the vision of "global consciousness" described here are: Stapledon, Olaf, Last and First Men (1931), bound together with *Starmaker* (1937), (New York: Dover, 1968). (The relevance of these are described in Markley, Oliver, "Global Consciousness," an essay in Graham Molitor (Ed.), *The Encyclopedia of the Future* (MacMillan Reference, publication expected in 1995). Eisler, Riane, The Chalice and the Blade: Our History, Our Future (San Francisco: Harper & Row, 1987). Harman, Willis W. *Global Mind Change: The New Age Revolution in the Way We Think* (New York, Warner, 1988). Russell, Peter, *The Global Brain: Speculations on the Evolution to Planetary Consciousness* (Los Angeles, Tarcher, 1983); recently updated and re-released as *The Global Brain Awakens* (Palo Alto, CA: Atrium, 1995). Also, Russell's *The White Hole in Time: Our Future Evolution and the Meaning of Now* (San Francisco, Harper San Francisco, 1992).
7. The distinction between the explicate and the implicate domains was first made by the pioneering physicist, David Bohm in writings such as *Wholeness and the Implicate Order* (London: Routledge and Kegan Paul, 1980). It forms a key part of the intellectual foundation underlying the vision of "global consciousness."
8. Drexler, K. Eric, and Chris Peterson with Gayle Pergamit, Unbounding the Future: The Nanotechnology Revolution (New York: Morrow, 1991);
9. Drexler, K. Eric, and Chris Peterson with Gayle Pergamit, Nanosystems: Molecular Machinery, Manufacturing, and Computation (New York: Wiley, 1992).
9. Noetic technology is based on the implicate processes of the mind such as insight, intuition, visioning, biofeedback, conditioning, reframing and creativity. These processes are increasingly being used in healing, creative problem solving, strategic planning, team building, organization development/transformation and anticipatory management -- as well as for entertainment. See the references in Notes 14 - 19 for citations describing Noetic Technologies in more detail.
10. Todd, John, "Ecological Engineering, living machines and the visionary landscape," *Ecological Engineering Wastewater Treatment Proceedings*, Vol 22, 335-343, 1991. The emerging tradition described here is perhaps the single most hopeful development in ecological restoration that I have yet seen.
11. The phrase, domination and control, lies beyond the scope of this draft of the essay to adequately treat. For now, however, suffice it to say that most of the methods cited in Note 22 were chosen with this aspect of the needed transformation largely in mind.
12. Coates, Joseph F., John B. Mahaffie and Andy Hines, "Technology Forecasting: 1970 - 1993," *Technological Forecasting and Social Change*, Vol 47, No.1, 1994.
13. For what is arguably the best survey of emerging technologies and plausible impacts currently in press, see Petersen, John L., *The Road to 2015: Profiles of the Future* (Corte Madera, CA: Waite Group Press, 1994).
13. Dator, James (Hawaii Research Center for Futures Studies, University of Hawaii) "Surfing the Tsunamis of Change," an unpublished 1995 speech.
14. The term noetic as used by the Institute of Noetic Sciences, deal with mind, consciousness and transcendental ways of knowing. See, e.g., Harman, Willis and Jane Clark (Eds), *The Metaphysical Foundations of Modern Science* (Sausalito, CA: Institute of Noetic Sciences, 1994); and Glenn, Jerome Clayton, *Future Mind: Artificial Intelligence--Merging the Mystical and the Technological in the 21st Century* (Washington, DC: Acropolis Books, 1989).
15. Talbot, Michael, *The Holographic Universe* (New York: Harper Collins, 1991).
16. Wolinsky, Stephen, *Quantum Consciousness: The Guide to Experiencing Quantum Psychology* (Norwalk, CT: Bramble Books, 1993).
16. Haisch, Bernhard, Alfonso Rueda, and H.E. Puthoff, "Beyond E = mc²," *The Sciences* (the magazine of the New York Academy of Sciences), pp 26-31, Nov/Dec, 1994. This is an essentially non-technical introduction for laypersons of a potentially revolutionary new mathematical physics theory that is well documented in some of the most rigorous physics journals now extant.
17. Patanjali, Yoga Philosophy of Patanjali; containing his Yoga aphorisms with Vyasa's commentary in Sanskrit and a translation with annotations including many suggestions for the practice of Yoga, annotated by Swami Hariharananda Aranya; rendered into English by P.N. Mukerji (Albany, NY: State University of New York Press, 1983);
17. Chopra, Deepak, *Seven Spiritual Laws of Success: A Practical Guide to Fulfillment of Your Dreams* (San Rafael, CA: Amber-Allen, 1994);
17. Palmer, Harry, *Rediscovering the Discovery and Development of Avatar* (Altamonte Springs, FL: Star's Edge International, 1994).
18. Monroe, Robert, *Far Journeys* (New York: Doubleday, 1985).
- Markley, Oliver W. "Why do we Dream?" *Whole Earth Review*, 10-12, 1991.
19. Puthoff, Harold and Russell Targ, *Mind Reach: Scientists Look at Psychic Abilities* (New York: Delacourte, 1977).
19. Monroe, Robert, *Far Journeys* (New York: Doubleday, 1985).
19. Jahn, Robert and Brenda Dunne, *Margins of Reality: The Role of Consciousness in the Physical World* (New York: Harcourt & Brace, 1987).
19. Silva, Jose, *The Silva Mind Control Method of Mental Dynamics* (New York: Simon & Schuster, 1990).
20. McOneagle, Joseph, *Mind Trek: Exploring Consciousness, Time, and Space Through Remote Viewing* (Norfolk: Hampton Roads, 1993).
20. Regarding the ongoing phenomenon of purported alien contact and its possible relevance for ecology and the future of "Spaceship Earth," see: Mack, John E., *Abduction: Human Encounters with Aliens* (New York: Ballantine, 1995 revised edition of the 1994 original)--in which a case is made that alien contact has been happening throughout history, and that overall, the message of the aliens is a deeply ecological one: Save Your Planet! Also, consider the following:
 - As reported by Gayle White in *The Atlanta Journal/The Atlanta Constitution* (September 30, 1995, page E5). "According to a Roper poll, which surveyed 5,947 adult Americans in late 1991, nearly 3 percent of those polled believe they have had at least one of four types of experiences consistent with a UFO abduction. Twenty-eight percent of those who reported alien encounters were Americans in the poll, nearly 3 percent of those who reported alien encounters were citizens who play an active role in community, civic and church affairs." (Verification from the Roper Organization not yet completed.)
 - Striber, Whitley, *Breakthrough: The Next Step* (Harper Collins, 1995)--among other things described in this book is how, after he published *Breakthrough* (Dove, 1987), Striber he got some 130,000 individual unsolicited letters, in most of which, the writers described their own abduction experience. He estimates that about a third of them are "hard" contact cases (i.e., involving forced abduction, pain, indignity, etc.). As did Mack, Striber attempts to represent (rationalize?) alien contact behavior as, for the most part, for the ultimate benefit of humans.
 - For a gripping, first-person account of repeated "hard" alien abductions, which also discusses a number of ethical and consciousness issues highly pertinent to the "normative global consciousness forecast" introduced here, see Beyond my Wildest Dreams: Diary of a UFO Abductee (Santa Fe, Bear & Co., 1995).
20. Recent social intelligence summary of "conspiracy theory" thinking on this topic (an important type of "fringe" literature to monitor when dealing with "taboo topics" of importance), is: "Pulling the Wraps off the UFO Cover-Up: Official ET Communication Gets Closer," by Richard J. Boylan, *Perceptions*, Sept/Oct, 1995, 49-54.
- A disclaimer by the author:

The citation of the above articles is not meant to indicate my belief in or approval of these purported phenomena, only my professional judgement that they are important data to consider when thinking about alternative futures for the human species and its planetary "spaceship world." As is true of journalistic reporters, it is the job of the futures researcher to not avoid covering important happenings simply because they are emotionally "unthinkable" from the viewpoint of conventional wisdom. Rival hypotheses, however, must also be considered as an explanation for these phenomena -- e.g., "bogus memory" (Hochman, John, "Recovered Memory Therapy and False Memory Syndrome," *Skeptical*, Spring 1994, 58-61; or some type of "archetype" in consciousness manifesting in physical form (Vallee, Jacques, "Consciousness, Culture and UFOs," *Noetic Sciences Review*, No. 39, Winter, 1995, 6f).
21. Regarding the theoretical possibility of faster than light space propulsion, see Alcubierre, Miguel "The Warp Drive: Hyper-Fast Travel Within General Relativity," *Classical and Quantum Gravity*, Vol. 11, May 1994, L73-77.
22. For a non-technical description of Alcubierre's analysis, see Szpir, Michael, "SpaceTime Hypersurfing," *American Scientist*, Sept-Oct, 1994, 422-423. Also, see: Puthoff, H.E., "SETI, the Velocity-of-Light Limitation, and the Alcubierre Warp Drive: an Integrating Overview," accepted for publication in *Physics Essays*, Vol. 9, No. 1, March 1996.
- The abstract of Puthoff's paper is as follows:

In SETI (Search for Extraterrestrial Intelligence) conventional wisdom has it that the probability of direct contact by interstellar travel is vanishingly small due to the enormous distances involved, coupled with the velocity-of-light limitation. Alcubierre's recent "warp-drive" analysis within the context of general relativistic dynamics, however, indicates the naivete of this assumption. We show here that Alcubierre's result is a particular case of a broad, general approach that might loosely be called "metric engineering," the details of which provide yet further support for the concept that reduced-time interstellar travel, either by advanced extraterrestrial civilizations at present, or ourselves in the future, is not, as naive consideration might hold, fundamentally constrained by physical principles. Key words: SETI, velocity of light, general relativistic dynamics, spacetime metric, interstellar travel, vacuum energy, Casimir Effect, vacuum engineering, warp drive, superluminal travel.
22. Sources that summarize the types of approaches that may have much promise include:
 - Wyant, Alice and O. Markley, *Information and the Future: A Handbook of Sources and Strategies* (Westport, CT: Greenwood Press, 1988; currently being revised and expanded as *Strategic Intelligence: Accessing Information for Influencing the Future*, A Handbook of Strategies and Sources. Weisbord, Marvin & Sandra Janoff, *Future Search: An Action Guide to Finding Common Ground in Organizations and Communities* (San Francisco: Berrett Koehler, 1995); and Weisbord, Marvin (Ed) *Discovering World Ground: How Future Search Conferences Bring People Together to Achieve Breakthrough Innovation, Empowerment, Shared Vision, and Collaborative Action* (San Francisco: Berrett-Koehler, 1993). Lipnack, Jessica and Jeffrey Stamps, *The TeamNet* Factor: Bringing the Power of Boundary Crossing Into the Heart of Your Business (Essex Junction, VT: Oliver Wyant, 1993); and The Age of the Network: Koehler, Principles for the 21st Century (Oliver Wyant, 1994); both books are now marketed by John Wiley & Sons. Eisler, Riane and David Loye, *The Partnership Way: New Tools for Learning, Healing Our Families, Our Communities, and Our World* (San Francisco, Harper San Francisco, 1990). Markley, Oliver W. "Rethinking the Legacy of Columbus: A Vision of Business University Collaboration between North and South," *FUTURES*, 26 (7), 771-780, 1994. Hawkin, Paul, *Ecology of Commerce: A Declaration of Sustainability* (New York: Harper Business, 1994). Glenn, Jerome C. and Theodore J. Gordon, *The Millennium Project*, Feasibility Report, Preview Edition (Washington, DC: The United Nations/World Institute for Development Economics Research, 1995).
 - 23. To illustrate how this "emerging issue" may be perceived by America's leaders, in a recent *Houston Chronicle* "op ed" essay, Steven Rattner discussed the fact that "since 1973, annual earnings of the bottom 10 percent of workers have dropped by 24 percent -- after adjustment for inflation -- while those of the top 20 percent have increased by 10 percent." Rattner, a managing director of Lazard Freres & Co., investment bankers, went on to recommend that "to reduce the income gap, we must do something about its source: the mismatch between the skills of the work force and the jobs that are available [emphasis added]." Although I find certain difficulties in applying his cyclic theory of social change in more than a heuristic or metaphorical way, I think the Indian social philosopher and visionary, P.R. Sarkar may have correctly anticipated the general form for that readjustment may take in his four-stage cyclic theory of social change: (Labor -> Military -> Intellectual -> Labor -> Military, etc.). It is summarized in Ravi Bartarya's "wildcard" forecast, *The Downfall of Capitalism and Communism*, 2nd ed. (Dallas, TX: Venus Books, 1990). (The first edition was published in 1978). For the theorist's original writings on this, see: Sarkar, P.R., *The Human Society*, Part II, revised edition (Calcutta: Ananda Marga Publications, 1984).
 - 24. Many astronauts and cosmonauts experienced a profound shift in consciousness as a result of seeing Earth, the "Blue Pearl," from outer space. This phenomenon called the Overview Effect, is one of many ways in which such increases in global consciousness may occur. See: White, Frank, *The Overview Effect: Space Exploration and Human Evolution* (Boston: MIT Press, 1987); currently being revised for re-publication under the sponsorship of the American Institute of Aeronautics and Astronautics.
 - The third scenario listed in Endnote One (when published, will describe how a "New Overview Effect" may contribute significantly to a widespread occurrence of global consciousness in the future. See also, *The Home Planet*, Conceived and edited by Kevin W. Kelley for the Association of Space Explorers (Reading, MA: Addison-Wesley Publishing Co. and Moscow: Mir Publishers, 1988).
 - 25. See Note 7.
 - 26. Stapledon, Olaf, *Last and First Men* (New York: Doubleday, 1931), bound together with *Starmaker* (1937) republished together in paperback form (New York: Dover, 1968).
 - 26. Monroe, Robert, *Far Journeys* (New York: Doubleday, 1985).
 - 27. In a recent briefing, Dr. Ken Cox, Chairman of the Strategic Avionics Technology Working Group (SATWG, the thus-far primarily American, but potentially international "TeamNet" of boundary spanning strategic alliances for promotion of commercial space development), asserted that: "In the next 1,000 years, humans will argue, work, and prosper within and perhaps beyond the Solar System." ("Strategic Thinking for Space: An Unfolding Story," a September, 1995 NASA Johnson Space Center briefing, emp hases added.)
 - Another leg of the argument for global consciousness involves questions such as:
 - If the current "hoped-for" global alien contact turns out to be valid, now may be a pivotal time in the establishing of which "alternative future history" in interstellar space our offspring will inherit. How well could the human future be if we continue our exploitive, war-like cultural orientation when interacting with ancient space-faring cultures having enormously advanced technologies as compared with ours?
 - Which would lead to a better future for the generations to come, the "space war" scenarios played out so vividly on Saturday morning TV cartoons (the medium that serves as an "imprinter" of future visions for so many children in America and elsewhere); or as an yet to be promulgated vision of a human race interacting with aliens with expanded consciousness and peaceful intergalactic commerce?
 - It seems a pity that, as the late anthropologist, Margaret Mead, so poignantly pointed out, the problem with utopian visions in art is that they are usually so boring. We need a way to make positive utopias more vivid. [Paraphrased from "Toward More Vivid Utopias," *Science*, 126 (32,820), 1957, 957-961.]
 - Should we not be thinking about the long-range future of humans in space beyond as well as within the solar system? What sorts of present attitudes and activities would yield the best future in space for future generations?
 - 28. Lovelock, James, *The Age of Gaia-- A Biography of our Living Earth* (Oxford Univ. Press, 1988).
 - 29. Akimoto, Yumi, "A New Perspective on the Eco-Industry," *Technological Forecasting and Social Change*, 49, 1995, 165-173.