

NETVIEW

GLOBAL BUSINESS NETWORK NEWS VOLUME 9 NUMBER 1





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NETVIEW

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This issue of *Netview* is on the theme of identity. The root of the word, the Latin *idem*, refers to the quality of sameness, and “identity” has come to be used as a synonym for individuality or personality. Enclosed in that idea is a notion of an absolute quality that can be viewed and reliably comprehended—identified.

However, in a way that is exacerbated by developments in the field of information technology, our society is coming to question these conceptions of identity. Increasingly, our common concept of identity no longer necessarily refers to a single, uniform entity—so what now can be said to comprise an identity? Is it how people think of me in one environment or the character I choose to be in another? And how can we safeguard such an uncertain quality—especially in the virtual environment? The articles in this issue think about these questions and others from a range of different perspectives.

Our lead article is by GBN individual network member Sherry Turkle who looks at the psychology of computer-mediated communication on the Internet. She argues that our behavior online—life as we are increasingly living it on the screen—emphasizes our culture’s tendency to think about identity in terms of multiplicity and flexibility.

In “GBN Worldwide,” Napier Collyns and Hardin Tibbs both pay tribute to Pierre Wack. Most of us have heard of Pierre as the creator of the scenario process, and know of his legacy to GBN: Napier’s and Hardin’s memories and anecdotes reveal some more personal facets of this fasci-

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nating individual, giving insight into his unique and powerful character.

Dorion Sagan and Lynn Margulis have composed a “Letter From... Massachusetts” on the need for universality in education. It questions how our education teaches us to think about the nature of the world around us—and so of our place and identity within it.

This month’s “Webview” is by Eric Hughes, who was one of the founders of cypherpunks, the cryptography activists, and is a long-time friend of GBN. In this column he tackles the issues around understanding, creating, and then protecting an identity in cyberspace.

Finally, a heads-up: plans are afoot to make some changes to GBN publications. Primarily, we’re aiming to cut down the amount of paper we send you, enabling us to focus more on the content. If you have any thoughts on *Netview* or any of the publications—on their content or presentation—we’d love to hear from you. Please send your comments to Esther Eidinow, (aspasia@gbn.org).



NETVIEW

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GBN’s publications are designed to share ideas and learning and promote interaction across our entire network of organizations and individuals. For *Netview*, GBN invites members to submit short articles; letters to the editor; speeches; news (especially new books, publications, and projects); and interview ideas (who in the network would you like to interview or learn more about?). We also welcome commentary and works-in-progress for *e.press* on our World-View Web Site and lengthier articles or essays for issues of *Deeper News*®. All submissions are reviewed by GBN’s editorial board; compensation and editorial support are provided for published selections.

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multiple
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multiple subjectivity
and
VIRTUAL COMMUNITY
at the end of the freudian century

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ideas & opinions



Pierre Wack
1922-1997

Napier Collyns (GBN Emeryville) and Hardin Tibbs (GBN Alliance member) have written these pieces in memory of Pierre Wack, the creator of the scenario planning process, who died at the end of last year.



Napier Collyns Writes:

Pierre Wack died on December 22, 1997 after a long illness, in a nursing home near the cathedral city of Chartres.

I visited Pierre a month or so before he died. Before I arrived, I spent three hours in the cathedral with a remarkable guide, looking at its extraordinary stained glass windows. I arrived at Pierre's bedside in a mood of considerable excitement. As I settled to talk with him, I noted he felt a similar sense of expectation. He was very excited to see me: I was his first visitor for two-and-a-half months who "brought some food for his mind" (in the words of his wife).

Our conversation was reminiscent of the many we had enjoyed in the 25 years since I first met Pierre at Shell. In those years, we worked on many projects together, including the preparation in 1972 of the first "real" scenarios for Shell with their dramatic "predetermined elements" presaging a major worldwide discontinuity. These were created by Pierre with the help of many remarkable colleagues, not least Ted Newland, without whose intuitive insights Pierre would never have been able to see so far.

To work with Pierre was to know one was in the presence of a man who was truly remarkable (the adjective which both he and Gurdjieff used to define a person who has an understanding of the world different from ordinary folk).

Even in his office at Shell he invariably had a stick of incense glowing. His contemplation thus aided, he saw truths about the future that others could barely imagine. As Louis van der Merwe (no mean systems thinker himself) has often told me, Pierre was a natural systems thinker who was always at the depth of the triangle, searching for the deep structure of events and what he called the *tendances lourdes* (what we at GBN now call "driving forces"), a phrase influenced by his favorite French historian, Fernand Braudel.

Pierre led a remarkably full life and his friends all have memories of many exciting explorations taken together. His final years were devoted to creat-

ing a remarkable home at Curemonte in the Dordogne where Pierre bought himself a fourteenth-century castle with a marvelous winding stone staircase and extraordinary stone fireplaces. He loved the stones (*pierres*) and photos of them were the first things he showed me after he found the place. Pierre used to say that the staircase spirals in a direction that defines the castle as one of hospice, not combat (it spirals the wrong way for right-handed combatants to be able to fight to defend it). He later found a companion and new wife, Eve, who devotedly cared both for Pierre and their home, contributing a beautiful and absorbing garden, including a Japanese corner, designed by Pierre and intended as a repository for his ashes among the bamboos.

My wife and I recently returned from a visit to Curemonte accompanied by another of Pierre's old friends, Don Michael. We spent the time looking



Pierre and Napier together in their Shell days

through Pierre's manuscripts and books, trying to imagine how Pierre would have liked to be remembered. Although much of Pierre's thinking was ephemeral—related to particular circumstances at a certain time—and has probably now disappeared with his passing, we found a number of items which can be kept for posterity: notes in his handwriting, transcripts of talks he gave, a few videotapes, some of the books and articles which fashioned his ideas, and finally, a brief note he wrote after his guru died in India—this last piece makes clear the connection between the way Pierre worked at Shell and how he had been influenced by the deep thinkers with whom he had studied.

We categorized these items under three headings: the personal, the esoteric, and the professional. Our plan is to bring the professional papers to the new GBN office in The Hague (the hometown of Royal Dutch/Shell) and to create the Pierre Wack Memorial Library, where members of GBN and students of scenario thinking can come and look for the deeper meanings of Pierre's work.

Pierre's ways of thinking and seeing were probably unique and we hope they will give insights to students for many years to come. We intend to have the material sorted and the library established by the fall of this year when, hopefully, Pierre's two children, Nathalie and Jean-Pierre, will

come for a small opening ceremony. We will leave the handwritten and personal papers under the care of his wife in Curemonte.

We hope to continue to add to the library by collecting papers and reminiscences from people who knew Pierre throughout his life. There will be an opportunity for all of us who worked with Pierre at Shell to get together in the Shell Training Center at Lensbury by the Thames on Saturday, October 17. We also hope to collect papers and reminiscences from colleagues at Harvard and in South Africa who worked on scenarios with Pierre after he left Shell. We also have been given transcriptions of the conversations Pierre had with Art Kleiner as Art prepared to write his book, *The Age of Heretics*. We would welcome any other stories or memorabilia from anyone who reads this article and the accompanying piece by Hardin Tibbs.

Of course, in many ways, GBN (to which Pierre devoted so much time and friendship toward the end of his life) aspires to be a living memorial to him and his way of thought. To achieve this, we all need to reflect on his words, not once but many times, and to try to understand what he really meant when he talked about “the gentle art of re-perceiving.”

Pierre Wack: A Remarkable Source of Insight by Hardin Tibbs

On December 22 last year, the world lost one of its least known but most remarkable business thinkers. After a long and fascinating life, Pierre Wack died of cancer in his native France at the age of 75.

Pierre was the elder statesman of scenario planning, which, thanks to his efforts, is now a mainstream strategy tool. He is best known as the man who led the team at Royal Dutch/Shell that saw an oil price shock coming in the 1970s, not once but twice. Astute readers of the *Harvard Business Review* in the mid-1980s will remember his classic description of how he did it, written during a stint at Harvard after he left Shell.

Creating scenarios is a superficially simple yet deceptively difficult discipline. The idea is straightforward enough: to create pictures of possible future conditions as a guide to long-range strategic planning. This is safer than trying to forecast, because forecasts are almost always wrong.

Most business writers today explain scenario planning as an exercise in mapping uncertainty. Yet Pierre Wack saw it as an exercise in isolating

certainties—or, as he called them, predetermined elements. Behind this distinction lies a crucial difference in philosophy that makes Pierre’s scenarios still among the most successful in business history.

Pierre is remarkable because he added substantially to the theory and practice of scenario planning during his time at Shell. He is best known for this impressive intellectual contribution, and many people are unaware that there was another dimension to his thinking. In fact, his deeper perspective was quite different from that of many scenario planners who followed him and adopted his methods, even in Shell.

The root of the difference lies in beliefs about time and the future. The conventional view is that the future is unknown and unknowable, both in practice and intrinsically. It cannot be researched because it does not exist yet, and in any case we have no access to it. And it cannot be deduced by calculation, because there is no math that will do this, and because the future is fundamentally indeterminate—it simply hasn’t been decided yet. We live in a universe in which the only reality is now—and even the present cannot be fully known, because it is too complex and vast.

Conventional scenario-making responds to this viewpoint by assessing the range of things that could possibly happen, and depicting them as a set of scenarios—different descriptions of how different the future could be. This is reasonable and effective up to a point, but it has weaknesses. One is that, in principle, almost anything could happen, so where do you draw the line? The other is that trying to decide strategy against multiple possible conditions leads more readily to hedging and caution than it does to powerful entrepreneurial initiatives—for these, you need actually to believe something about the future.

Pierre Wack’s view was substantially different. He did not subscribe to the view that the future was intrinsically unknowable—he believed that it could be known, with difficulty, if it was approached with a sufficiently searching gaze. The visual metaphor is not incidental: almost all the examples and imagery used by Pierre are visual. He described himself as the “eyes of the pack,” running ahead and reporting back to Shell what he had seen. If, he said, “your seeing is perfect and complete at the right scale of observation, there is immediate understanding.” Even his HBR article was titled “The Gentle Art of Reperceiving.”

How did Pierre form this view of the future, and what made it convincing enough to him to form the basis of his guidance to a global corporation?

To answer this, we have to go back to his early life in France during the German occupation in World War II.

Pierre was strongly influenced during his teenage years by the mystic philosopher and teacher Georges Gurdjieff, whom he regularly visited at his wartime retreat at Fontainebleau, south of Paris. Gurdjieff, who died in 1949, was one of this century's preeminent, although little known, spiritual teachers. He had studied under Sufi masters in the Middle East—Sufism being the mystical branch of Islam—and developed his own form of teaching, which he brought to the West. Gurdjieff's teaching, "the work," as it became known, was aimed at leading its adherents to a state of "self-remembering," in which they became directly conscious of the "inner self."

This involved a variety of rigorous and demanding spiritual exercises, including practice in "seeing" as clairvoyants do. The key to such things as martial arts, or even splitting a rock with a sledgehammer, according to Gurdjieff, was the ability to "see" exactly where and when to strike for maximum effect. The objective was an absolute economy of effort and action made possible by profound insight. For a number of years, Pierre was immersed in an atmosphere where this sort of thing was not simply esoteric theory, but the stuff of everyday experience.

As a result, he came to combine a sensitivity to expanded perception with his own highly rational and logical style of thinking. The hallmark of his approach to scenarios was a unique blend of deep perception and intellectual rigor. This may seem paradoxical, because we usually think of mysticism and spirituality as being the enemy of intellect and clear thinking. Most of us are more familiar with the restricted thinking of religious dogma than with the clarity of heightened perception. But the fact is that many profound intellectual breakthroughs stem from special moments of sudden insight rather than from plodding deduction.

Pierre's interest in mysticism and spiritual development continued throughout his career. Even while at Shell he spent several weeks a year with his guru in India. His guru told him that the scenario work was his "yoga." Pierre explained that this meant the scenario work was his special personal challenge of perception and mental acuity.

Pierre told a related story about a respected Japanese gardener he met while on sabbatical in Japan. The gardener pointed to a smooth bamboo trunk as thick as a person's arm. He explained that if a small pebble was

thrown at it and hit the trunk even slightly off-center, it would glance off, making hardly any sound. If, on the other hand, the pebble hit the trunk dead center, it would make a very distinctive “clonk.” To be sure to hit the trunk in this way, said the gardener, it was necessary to “hear” this distinctive sound already in one’s mind and focus on it—much in the style of Zen archery.

Pierre told this story to illustrate that seeing the future is about being in the right state of focus to put your finger unerringly on the key facts or insights that unlock or open understanding. Thus scenario-making is about acute perception, or better, about re-perception—becoming free of old perceptions and prejudices at the same time—hence the title of his Harvard paper.

If these are the experiences that formed Pierre’s outlook and world view, how did this translate into his approach to scenarios?

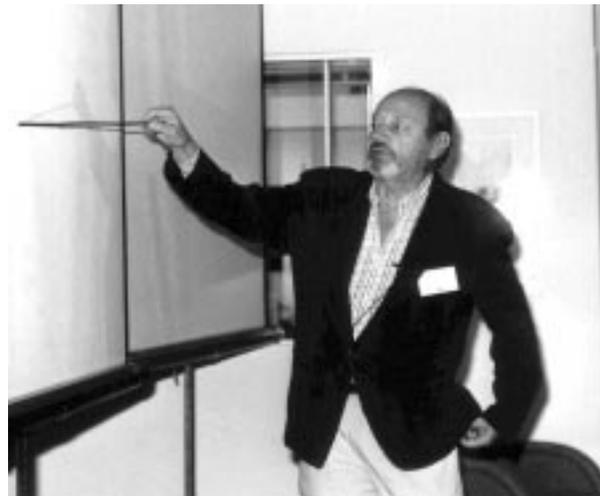
The usual approach to building scenarios is to research the existing strategic environment—which is seen as inherently uncertain—and identify what is most uncertain and most important to you. Then you try to figure out how these uncertainties could develop in the future, and by putting these possible outcomes together, you develop scenarios.

But now consider looking at the problem in a different way. Pierre’s starting point was the idea that by looking in the right way, the future could be “seen.” This does not mean that Pierre was claiming to be clairvoyant or to have mystical perception of the future—any more so than the average strategic planner. But he did accept the possibility of such expanded awareness, and this informed his sense of what scenarios are or can be.

If we look at the existing strategic environment—which is the only field of research available for understanding the future—with the objective of “perceiving” the future, what would we be looking for? Most obviously, we might be looking for things that by already existing, constrain or determine the future in important ways. And it was exactly this kind of feature in the strategic environment that Pierre did look for, and valued most highly in creating scenarios. He called these features “predetermined elements” because, by existing in the present, they directly predetermine aspects of the future in ways that can be understood through systemic logic or reasoning.

Pierre usually explained predetermined elements in terms of a river. If there is very heavy rain in the upper reaches of a river like the Nile or the Ganges, after a delay there will inevitably be flooding in the lower reaches of the river. If we know about the rainfall, we can predict the later flooding with certainty, because it is an inevitable future implication of something that has already happened. This kind of predetermined element can take a variety of forms—for example, it may be an event that locks in a later consequence, it may be something that precludes a future event, or it may be a major trend that has such inexorable momentum that it will not be deflected in the scenario timeframe.

Pierre referred to uncertainty-based scenarios as “first generation” scenarios, useful as a starting point, but as being no more than a first scan of the terrain. “If all you have done” he said, spreading his arms to imply a range of scenarios, “is imagine an array of possible futures, you have not yet done your job properly. You must go further, and narrow the range of possibilities.” This narrowing was to be done by a search for predetermined elements, leading to the more selective and useful scenarios he called “second generation.” For instance, we may well find unsuspected predetermined elements by looking deeper into the systemic connections among first generation uncertainties. Pierre was quick to admit that this is tough to do, even assuming you accept it’s possible in principle. Only the concept of “seeing” the future, grounded in his personal experience, gave Pierre the conviction to attempt the deeper task.



Pierre Wack, 1993

The implication of Pierre’s perspective is that it may be possible, given the right conditions, to create scenarios that are more than simply an imaginative projection and are truly a window onto the future. In the conventional view of scenarios, this cannot be done—or if it can, it would be as Peter Schwartz (Pierre’s successor at Shell) has said, “a formidable intellectual task.” The difference is that Pierre was not treating this possibility as primarily an intellectual task, but as a perceptual one.

Scenario-making must pass muster intellectually, but it can also be more than simply an intellectual activity. It can draw on intuition—whether we take intuition to mean a form of deeper perception, or simply a creative

leap of re-perception experienced by a highly prepared and informed mind.

There is no substitute for all the normal essentials of scenario planning—for research and hard thinking, for a willingness to open up our point of view to new perspectives, for an acceptance of uncertainty, and for the recognition that we are always dealing with the psychology of decision making (all things Pierre alerted us to in the first place). But we can also be open to the possibility that intuition will guide us to what is important in the welter of detail—just as Gurdjieff encouraged his followers to “see” where to hit the rock—and in so doing we may raise our scenarios to a higher level of perception than is possible using intellect alone.

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The remarks quoted here were made by Pierre during his visit to Emeryville in 1993, some during presentations and some in later conversation.

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letter from...



Massachusetts

GBN network member Lynn Margulis is a distinguished university professor in the department of geosciences at the University of Massachusetts at Amherst. Dorion Sagan is a writer and magician. Together, under the name Sciencewriters, they create a wide variety of materials on various aspects of science for a broad audience. They last wrote for Netview in the Winter 1997 issue on "Origins," where they discussed the origins of life and of new kinds of live beings. In this article, they make a case for the need for universality in education.

The first version of this paper was written for the Chronicle of Higher Education which, the authors feel, rejected it because it hit too close to home. The current version celebrates the first meeting of Gaia, the scientific society for research and education in earth system science, launched February 9, 1998, at The Royal Society (U.K.). The Gaia Society welcomes all students of the Earth, scientists from astronomy to zoology and their colleagues, to share the quest not just for data, but for knowledge and understanding through observation, analysis, and communication.

As is evident from its spelling, the concept of university derives from that of the universe, from Latin *universus* meaning entire or whole. Indeed, *universus* is itself a compound word, from *uni*, meaning "one," and *versus* meaning

"turned toward": implicit is the idea of man's role in the universe.

During the period of the early Renaissance, when many of the world's great universities were being established, the idea of wholeness—of man's role in and understanding of the universe and the relationship between them—was manifest in the widely held conception of the universe as a large man, while the individual was seen as a reflection of the cosmos as a whole. The study of the universe—of nature—was therefore deemed to be an essential part of education—almost a primary text: e.g.,

Galileo called nature "a great book which is always open before our eyes."

Indeed, the Renaissance founders of modern learning involved this con-

ception in their educational process: the seven liberal arts were associated with the seven planets, and they looked to the great synthesizers and universalizing texts of the past with reverence and awe. As historian Frances A. Yates points out in her book, *Giordano Bruno and the Hermetic Tradition*, one of these synthesizing figures was Hermes Trismegistos, whom the Renaissance scholars, following the Church fathers, looked to as the epitome of ancient knowledge. Hermes Trismegistos was claimed at the time to be an Egyptian prophet, particularly famous for his prediction of Christ's birth (we know now that "he" was in fact a composite

Academic Apartheid and the Universal University

by Dorion Sagan and Lynn Margulis

of second century AD Greek philosophers, and that the supposed prescient Egyptian texts were actually Greek and written after Christ's death). Hermes Trismegistos' most famous saying was the universalizing, "as above, so below."

A lot has happened since then. The once-universalizing university has become increasingly splintered, fractured, and fragmented. The spiritual and the mundane have long since found it necessary to divide such that, for example, the Free University of Brussels was created by the Freemasons as a sanctuary from what they considered to be the intellectual oppression of the Catholic Church in secular affairs. As the hermetic eye on the pyramid of the dollar bill reminds us, the Bill of Rights appended to the Constitution of the United States specifically prescribes separation of church from state. But this severance of church from state was news. Religious thought and writings were synonymous with higher knowledge in the Greco-Christian world. (Religion comes from "*re-ligare*," literally meaning "to bind again"; the Greco-Christian culture, transcending tribal and linguistic boundaries, did just that.) But transcendent feelings and scientific rationality are not always separate.

Born in 1548 near Naples in Nola, Giordano Bruno was a philosopher and cosmologist, whose views about the make-up of the universe proved highly unpopular with contemporary authorities. In 1593, he was extradited from Venice to Rome on charges of heresy, immoral conduct, and blasphemy, and, for denouncing the Inquisition, was burnt at the stake in 1600. If Bruno

was fatally maligned for his views, including that of the universality of spirit, so Galileo was held in house arrest for his heliocentric views, and Descartes found it necessary to postulate an almost entirely mechanical universe in order to make it politically safe to practice analytical science. The cries of animals were, wrote Descartes, to be compared to the squeaks of wheels needing oiling. A despiritualized universe of *res extensa* ("extended matter") could be picked apart and prodded, dissected with impunity, while the hallowed remnant of European religious spirit was relegated to the negligible space of the *res cogitans*—the thinking substance connected to God that Descartes identified with the pineal gland, at the time known only from human cadavers.

The seemingly necessary split between religion and science led to subsidiary splits. C.P. Snow, in his famous book *The Two Cultures*, lamented the rift between the sciences and the humanities. He pointed out that while intellectuals would laugh at a scientist unfamiliar with the classics, unfamiliarity with the basic topography of the scientific landscape merited no similar scorn. But it should, claimed Snow. In the twentieth century, he remarked, not knowing the second law of thermodynamics represents a lack of education similar to having never read Shakespeare.

The second law of thermodynamics says that entropy, a measure correlated with heat, will increase in isolated systems. Statistical mechanics suggests that because there are more probable states than improbable states, the loss of



energy to heat is bound to happen. Atomically, heat is motion and thus the movement of atoms and molecules into more statistically probable configurations leads to uniformities of temperature from which work can no longer be derived. Providing an arrow of time, the second law is related not only to all of evolutionary history but to the very possibility of telling stories, Shakespearean or otherwise.

The universalism advocated by Snow in his original “culture-wars” broadside remains relevant, particularly with regard to science education, today. Taken together, philosophy (taught in secondary schools in France), science, history, and language excite the mind synergistically. Alone, even these broad areas of discipline may become impoverished. And even within these broad areas, specialization takes its toll.

The well-educated and interdisciplinary British atmospheric chemist James Lovelock was initially stumped at how the biosphere could regulate itself away from chemical and thermodynamic equilibrium for thousands of millions of years. What produces butyl mercaptan in the atmosphere? How can there be so much methane when it reacts so strongly with oxygen?

Contacting one of us (Lynn Margulis), Lovelock learned that microorganisms were the agents responsible for the continuous influx of these chemically and thermodynamically highly improbable gases. He went on to propose the Gaia hypothesis, which treats geology and atmospheric chemistry as a natural outgrowth of biological activity. But, although the notion of a living Earth is

in accord with the basic tenets of folk wisdom, an academic apartheid (as Lovelock came to refer to it) definitively separates “biological science” (biochemistry, genetics, molecular biology, and other disciplines) from “physical science” departments (physics, geology, astronomy, atmospheric, and meteorological sciences) in modern universities.

The separation precludes the teaching and learning of Gaian science; indeed, the very term Gaia, from the Greek for “mother Earth,” was (and still is) scorned by university scientists. Lovelock adopted the label Gaia for his brand of Earth system science on the advice of his Wiltshire neighbor, the novelist William Golding, who wrote *Lord of the Flies*. Accepting Golding’s suggestion of the old, venerable name for the Earth, Lovelock took it to be far more succinct and euphonious than his previous verbose appellations (e.g., “a homeostatic mechanism with cybernetic tendencies”).

Lovelock popularized the concept of environmental regulation, especially of atmospheric chemistry and temperature, in his 1979 book (*Gaia: A New Look at Life on Earth*, Oxford University Press). But the name “Gaia” bridled the culture of reductionistic scientism, paranoiacally fearful of vitalism, animism, or other academically dangerous returns to an insufficiently despiritualized science. Made increasingly aware of the political problems inherent in academic syntheses, Lovelock began to present the same data under the rubric of “geophysiology”—whose root word “geo,” Earth, is the etymological twin of Gaia. Today, geophysiological research programs identifying the role

of life in processes once thought (mostly for the sake of convenience) to be strictly geochemical, or physical, are underway on several continents.

We must murder to dissect, but the world itself, like the university meant to reflect and understand it, needs to be of a piece, to be whole to live up to its potential.

Historically, microbes that swim and photosynthesize have been considered “unicellular animals” by zoologists and “one-celled plants” by botanists. But a close study of evolution, formalized by modern taxonomy, reveals that they are neither plant nor animal: these respective disciplines have both appropriated the same organism for their own. And this is not an isolated case.

After centuries of specialization, it is time to make a more concerted effort at intellectual reunification, at connection and reintegration. We should not applaud, for example, as renowned biologist Ernst Mayr has done, “the emancipation” of biology from the physical sciences. Perhaps from a budgetary perspective flight from disciplinary tribalism spells inadequate funding or reduced institutional rank ordering. But the connection of all of evolutionary science, the great twentieth century connector, needs to be furthered and not considered the academic equivalent of servitude. Nature, after all, is not divided into atmospheric chemistry, agriculture, botany, ecology, geology, microbiology, cell biology, physics, and zoology—our ways of looking at it are. Turning towards the one from different points of view is what the university should be about.

Our territorial instincts or budget preoccupations ought not to blind us to the fact that we are all examining different aspects, and in some cases even the same aspects, of one world.

The rapidly developing worldwide communication system speaks to us loudly on this score. Daily we are reminded to return to the concept of university, the central core of universal learning.

Indeed the satellite imagery and communication network implores us to include the new *re-ligio*. Our rebinding this time is by electromagnetic radiation and silicon chips. This computer-satellite international science and technology imperative has profoundly changed the old Greco-Christian “western civilization.” Whether self-consciously or reluctantly, the system begins to embrace those formerly ignored or marginalized by both church and state of Euro-North America, anglophone or not. Everyone now knows the Earth is the only living planet we have so far known, suspended in the blackness of space. Everyone learns to speak binary. As one university, the “virtual” penetrates the crevices of the natural world, the plethora of “real” universities may even come to understand themselves for the first time.

THE PROCESS OF IDENTIFICATION

BY ERIC HUGHES

In 1992, Eric Hughes—a long-time friend of CBN—was one of the founders of cypherpunks, the cryptography activists. He has been thinking about digital signatures and online identity ever since. He is currently chief technology officer for SigNet Assurance Company, which specializes in intermediated online trust management. He has a mathematics degree from U.C. Berkeley and spends far too much of his time reading.

The itinerary of facts becomes as easy to follow as that of railways or telephones, thanks to the materialization of the spirit that thinking machines and computers allow. When information is measured in bytes and bauds, when one subscribes to a data bank, when one can plug into (or unplug from) a network of distributed intelligence, it is harder to go on picturing universal thought as a spirit hovering over the waters. Reason today has more in common with a cable television network than with Platonic ideas.¹

Bruno Latour,
We Have Never Been Modern

A MOST PRIZED POSSESSION

The *poteau mitan* of my laptop is made of a modem, an infrared connector, an ethernet bridge, and a TCP/IP stack. It connects my keyboard, which I touch with the fingers of my hands, to cyberspace, which I do not. I daily invoke Legba-Eudora to open the door of my computer to the firmament. I fetch my email and suddenly the lwa ride my computer. Each of them variously sends me messages. The families of spirits enter into my mailbox.

Yet I believe that each of these spirits is somehow human and corresponds to a

person I know or might someday meet. I do not see my friends in the machine, but I believe that the ghosts therein are of them.

AND THE NAME WAS MADE SILICON, AND DWELT IN OUR OFFICES

Identity in the open digital network, i.e., the Internet, is a reduction of an innate social process to a collection of algorithms, routers, software, and user interaction. The previously unproblematic network of kinship, introductions, faces, bodies, and names becomes impenetrable to a computer designer when facing the task of designing and implementing a system which contains the concept of human identity. Engineers know how to create artifacts. Identity is not an artifact, though, and programmers cannot code up identity directly. No art or technology makes identity; it can never be an artifact.



Cyberspace proper is a matrix of communications between people, mediated by electronic networks. Cyberspace in extension is the mental space induced by these communications. Cyberspace reuses the mind's capacity for the understanding of social facts, those truths about shared mental beliefs about society. The mind is able to understand, for example, a debate as a single object, to decide that some utterances are part of the debate and that other utterances are not. One cannot touch skin to the surfaces of a debate; nevertheless, the debate is still present.

Cyberspace contains debates, conversations, bank accounts, imaginary geographies, and sociality.

In that sociality is human identity. Identity is first and foremost a social fact, an embedding of a human body into a web of bodily proximities, conversations, recognitions, and memories. It exists in the various minds of a social body. It exists as the coherent mutual collection of beliefs about the links between bodies and personalities.

Yet there are no bodies in cyberspace.

FOR YOUR BUMPERSTICKER

Computers don't digitize people. People digitize people. (The computer, however, makes the process of digitization swift, immediate, and, assuming that one can point and click accurately, near certain.)

A LESSON THEY DIDN'T TEACH IN KINDERGARTEN

If someone wants to remain anonymous online, it's one of the easiest things in the world. Passing through multiple remailers, service providers, jurisdictions, proxies, and other administrative domains creates an effective economic barrier to identification. If they *don't* want you to know who they are, you *won't* know. Not terribly social, mind you.

The principle of tracking is unavailable online. If I have seen someone just recently, they must still be nearby; the possibility of a search remains. The very foundation of cyberspace, however, is communication at a distance. By severing a link, the anonym achieves enormous speed over me. One moment they are immediately present and the

next they vanish. I can never travel as fast as a disconnection.

The principle of detective work for identification online also fails. A person I meet on the street is present with their whole body. They may wish to project something particular and try to draw attention to it, but I may observe and remember anything I care to. Later, I will ask around and figure out whom I met. Interactions online, though, are always partial. I do not see the whole person but only what they wish to project. I can never learn enough ancillary facts to deduce beyond the mask.

The process of identification online, therefore, is ineluctably a cooperative process. In order for identification to happen, one person must present information suitable for identifying themselves, and the other party must consider that information sufficient to believe the identification. Without both sides willing, no identification takes place.

PRACTICAL EGOMANIA

When I wish to identify myself online, the information I present about myself must be unique to me in relation to others and persist in accuracy about me over time. Natural uniqueness and persistence stem from references to private conversations and to shared experiences, from particular personality quirks, and from the effort required to change one's e-mail address. Software, however, does not understand such subtleties, so if one desires automatic identification, the designer must create both artificial uniqueness, by requiring that a person make a secret, and artificial persistence, by requiring them to maintain it. The secrets are typically

called passwords or private keys, but the technology matters less for identity than their origin in artifice.

Artificial identity is a separate identity. It may come to identify a human by a process of association, but a history properly creates the identity, the history of the conjoined secret and person. The secret is no more an identity than the body's flesh is a complete person. A secret is the capacity to have an identity online, just as a brain is the prerequisite to have a mind and a persona. A secret becomes an identifier for a person only through memories of experiences with the secret and the person together.

Artificial identity does not lead directly to automation. Software does not understand the range of possible associations. The designer must select a particular process or range of processes for associations and must also select representations in bits for them. The automation of artificial identity thus consists of two restrictions: the restriction of human identity to a secret string of bits and the restriction of the process of association to a small set of possibilities.

However narrowing this might seem, restriction is a key enabler of computers as mediation devices rather than merely as conduits. Without the restrictions in place, computers do not cope with the welter of possibilities. With restrictions, though, the system builder has an achievable software goal which permits communication on a scale impossible with other means of organization. Indeed, the principle of restricting messages to attain large scale structure is not unique to online identity. The oldest example is banking, where

people exchange simple messages about numbers and parties and yet create a monetary system which mimics conservation of a mass of precious metals. If there is a single governing principle about the effect of the Internet on large scale social structure, it is that systems of restricted messages can achieve goals in scale where ad hoc methods cannot generalize.

EFFICIENCY IS A MASK

Identifying information I receive online comes to me only as a string of bits; I am responsible for making sense of it all. "What semantics is the machine giving off now?" is the wrong question; meaning is in the mind of the receiver, as is the act of determining identity. The messages don't come with necessary interpretations, merely suggested ones and sometimes exhorted ones. I give meaning to this information by linking it to my memories and to my experience. Without any experience of the process of association which created an identity, I cannot believe that a purported identity is true. The experience may be indirect and heavily mediated, but it cannot change the situation that identity is always relative to some social group and can never escape it. I may be using a digital certificate to ascertain identity, but I believe the certificate because I trust the confluence of some large companies, designers, technical experts, the press, and an apparent absence of controversy for my assurance the system is not tainted and that this particular manifestation of it is valid.

A particular contraction of this process of trust occurs when I give over decision making about the veracity of identity to someone else. This third party

acts as a proxy between the conversational parties. The significance of the proxy relationship is concentration. I can use the proxy the same way that other people do. The total number of proxies is some characteristic fraction of the whole population. Less system-total effort need be expended in a system with proxy intermediaries. The identity proxy relationship, in addition, is recursive. Proxies can learn each others' identities from other proxies. The combination of reduction and layering yields the concentration effect.

The concentration does not create a central cabal unless explicitly designed to. Rather, the effect of the concentration is that some parties are very well connected and some are tangentially connected. People in the center have little issue with reliability, but those on the fringes are more tenuous. At the very periphery, proxies can offer complete anonymity, if desired. The proxy stands fully in place of the anonym in its relationship to the rest of the system. This structure enables an interactional anonymity, not merely a communicative one. Any activity the proxy can engage in, likewise can the anonym. The inevitability of this strong kind of anonymity is a necessary outgrowth of proxy intermediation.

DOES AN ONLINE PICTURE CAPTURE YOUR SOUL? OR, HOW MANY SUPERHEROES CAN CHANGE COSTUME INSIDE A PHONE BOOTH?

Online identities are necessarily partial identities. A full human identity can be mediated through online interaction, but an online identity is a separate entity, albeit closely related to the human. The online identity, because it exists as a result of a restriction in identity creation, will be an identity for

some purpose coherent with the (restricted) process which created it. Online identities are functional identities and exist, amongst other reasons, to do online banking, to check e-mail, to gain access to some forum or publication, or to be a character in some virtual landscape.

Yet the nature of all secrets is that they may become public and cease to be secrets. No container that humans make cannot be undone by another. The security issue militates a partiality in time as well. We might say that secrets are immortal but not eternal.

Various kinds of identity failures have different names, depending upon the severity and duration of the failure. Impersonation is a single act of unauthorized identity usage; identity theft, a sustained and relatively complete set of failures. Even though online identity is partial, the consequences of an impersonation may be dire. If someone can clean out your bank account in a single session, the loss is real and severe. The rush to transact everything online upon the basis of single online identifiers should be measured. Apparent prior examples of successful deployment fail upon subsequent analysis. Credit card numbers, for example, a badly kept secret at best, are sufficient today only because they do not comprise a complete online identity. The ever-rising use of transactional histories to determine out-of-pattern purchases is identity mediated by experience, not merely by the secret.

AN ILLUSTRATION

The letter of credit (LC) illustrates amply the principles of network identity. The LC is a proxy relationship

where a bank stands in for a payer. The letter is a token of cooperation to do the transaction which the payer, who is otherwise *de facto* anonymous for repayment, offers to the payee. The proxy structure concentrates evaluation into the banking system, as the payee's bank typically tells the payee whether they'll accept the payer's letter.

The bank officer pays an LC based on supporting documents. The bank has no *direct* knowledge of any of the details of the sale. The supporting documents are assertions made by third parties about the progress of the sale. The supporting documents are digitizations of facts in the world. There are no bodies in cyberspace, but neither are there cargo ships, containers, or warehouses. People digitize everything, be it facts about identity or facts about a shipment of grain loaded aboard a ship.

The LC contains an insurance function in case there is a failure in one of the supporting documents needed to pay off the letter. One of the primary causes of such failure is forged documents. The signature on such documents is a partial and functional representation of identity to act or to assert. The signature itself is a miniaturization, almost a digitization, of the identity of the signer, but only the signer as authorized to sign a document on behalf of his or her company. The insurance relationship runs along the same lines as the other social relationships. Failure of identity, like other aspects, reuses the existing relationships to capture the human interactions which the documents represent.

The LC is an old cultural form; its origins are in thirteenth-century maritime trade. Yet the conditions for the LC to

flourish translate straightforwardly to the open network. The cost of distance for wooden ships set a barrier beneath which prosecution of a claim for damage was not worthwhile. Likewise, the cost of distance over the network sets a similar threshold, albeit at a lower level, but nevertheless still at some threshold. The threshold effect itself gives to the *de facto* anonymity for transactions. In order to construct transactability at the larger scale of the network, proxies must act on behalf of the "unseen" counterparties. Regardless of the differences in size and scope, the LC and a system of online identities for commerce are structurally identical.

Indeed, even the cost of communication transforms straightforwardly from old to new. The LC is mediated through papers only; these papers represent speech acts whose digitizations are electronic messages. Communication cost of old manifested as a difficulty in determining facts directly; reliance upon others was necessary to gain information. Communication cost anew manifests as a welter of messages too fast for human understanding; reliance upon others is necessary to gain an assurance of the truth of some data. In truth, these are the same effect. Regardless of the particular level of communication, as long as there is remoteness in the ability to react, not merely to sense, there will be a need for intermediation toward trusted facts.

¹ p. 119, Bruno Latour, *We Have Never Been Modern*, Harvard University Press, Cambridge, 1993.

Arie de Geus was recently awarded the Booz-Allen Hamilton/Financial Times Lex Prize for his book, *The Living Company*. The book was also named one



of the top three business books of the year by Bridge News, a division of Knight-Ridder/Tribune Business News. Arie was also recently awarded an honorary doctor of letters degree by Westminster University in the U.K.

Joel Hyatt and Peter

Schwartz were two of the featured speakers at "The Politics of the Long Boom," a discussion of the political implications of the global economic boom that is poised to transform the planet over the next 25 years. The event was hosted in Washington, DC and sponsored by *Wired*, Intellectual-Capital.com, and GBN.

John Perry Barlow was honored along with film director Milos Forman by the Southern California Chapter of the American Civil Liberties Union with the Torch of Liberty Award. John also wrote an article for the January issue of *Wired* magazine on "Africa Rising," an optimistic assessment of Africa's future as an information economy. John recently accepted a fellowship at Harvard University's Institute of Politics for the first quarter of 1999.

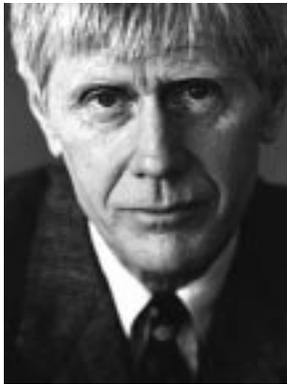
William Gibson wrote an episode of *The X-Files* which aired February 15, called "Kill Switch."

Sun Microsystems has acquired from Thompson CFS and Greenleaf Medical the complete worldwide rights to the patent portfolio and technical assets of VPL Research, the pioneer of virtual reality technology and networked 3D graphics. VPL Research was a leader in the early development and commercialization of virtual reality technology and products. VPL founder and GBN individual network member **Jaron Lanier** gained recognition for coining the term "virtual reality" and became its guru. Sun will both incorporate and make available to its partners the technology protected by the VPL patents, which extends beyond virtual reality to networked 3D graphics, human body-based input, and 3D window systems in its own Java 3D API and networked 3D graphics products.

Robert Maynard, late publisher of the *Oakland Tribune*, has been inducted into the California Press Association's Hall of Fame. Maynard, an individual network member who died of cancer in 1993, was one of the nation's first black publishers of a metropolitan daily newspaper. He first rose to prominence as a national correspondent for the *Washington Post*. In 1979, he was named editor of the *Tribune*, which he purchased for \$22 million from the Gannett chain in 1983. Maynard also founded the Institute for Journalism Excellence in Oakland, a nonprofit center to train reporters, editors and news managers.

In March, GBN hosted a GBN Presents party for **Esther Dyson** to celebrate the publication of her latest book, *Release 2.0: A Design for Living in the Digital Age*.

The Commanding Heights: The Battle Between Government and the Marketplace That Is Remaking the Modern World, by **Daniel Yergin**, was published in February by Simon and Schuster. From *The New York Times Book Review*: "It is an extraordinarily ambitious undertaking, combining the history of milestone events in countries as diverse as France and India, the biography of leaders as different as Margaret Thatcher and Deng Xiaoping and the evolution of ideas ranging from Keynesian economics...to the Chicago school of free markets. But it is also a brilliantly successful project, a colorful and even suspenseful story of how the world has been transformed over the last half-century."



Orville Schell's work on Tibet has been prominently featured in various media in recent months. His article, "Virtual Tibet:

Where Mountains Rise from the Sea of Our Yearning," was published in the April edition of *Harper's*. He was also featured in a December, 1997 article in the *Marin Independent Journal*. The story, "America Imports, Incorporates Asian Culture," focused on the trend of Asian "chic," including the American preoccupation with the plight of Tibet. "It has a lot to do with our post-industrial sense of disenchantment," says Orville, who is writing a book on American views of Tibet. "The attraction...has to do with

Tibet's complete isolation from our over-busy world, and Americans are in love with the idea that there's a place where the gross national product is measured not in Coupe de Villes and VCRs, but in spirituality and enlightenment." Orville also spoke on American and Chinese views of Tibet at the World Affairs Council in San Francisco in May, and a recent PBS program, *Frontline: Dreams of Tibet*, featured him as correspondent. The show focused on the West's growing awareness of an endangered Tibetan religious and cultural heritage in the face of repression by China.

Jaron Lanier's article, "Music, Nature, and Computers," originally published in the summer, 1997 issue of *Terra Nova*, was excerpted in the March issue of *Harper's*. Jaron



was also commissioned by the St. Paul Orchestra to write a new symphony and it debuted April 3 in St. Paul, Minnesota.

Stewart Brand, George Dyson, **Danny Hillis**, and **Paul Saffo** were the featured panelists at the ninth Roundtable in Multimedia in April addressing "Shortened Horizons and Long Term Values: Making the World Safer for Hurry by Slowing Parts Way Down," sponsored by the Council for Technology and the Individual in Marina del Rey, California.

The second edition of **Fons Trompe-naars's** and **Charles Hampden-Turner's** *Riding the Waves of Culture: Understanding Diversity in Global Business* was recently published by McGraw-Hill, and includes new chapters on South Africa and on diversity within the U.S.

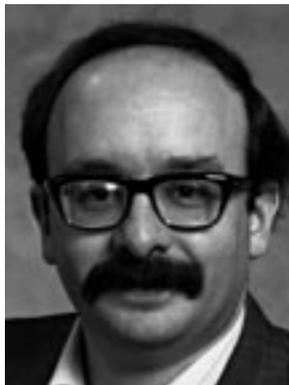
Stewart Brand organized a conference in April to explore the notion of "Time and Bits: Managing Digital Discontinuity." From *Wired Online's* review: "While most consider digital data to be the ultimate repository of information, participants at this weekend's 'Time and Bits' gathering held at the Getty Institute in Los Angeles warn us that in reality, we're rushing headlong toward disaster. Where stone tablets could be expected to survive for tens of thousands of years, participants point out a floppy disk or mag tape may only last some 10 years. And the hardware and software required to perceive or experience the information will be lucky to survive even that long. The 'Time and Bits' conference brought together an assemblage of forward thinkers to ponder the fate of our fragile cultural heritage in an increasingly digital era. The gathering culminated...in a panel discussion including such luminaries as conference organizer Stewart Brand, cofounder of The WELL and founder of the *Whole Earth Catalog*; **Doug Carlston**, cofounder and CEO of Brøderbund Software; musician and artist **Brian Eno**; *Wired* magazine's executive editor, **Kevin Kelly**; Internet archivist Brewster Kahle; and Disney's chief of research and development **Danny**

Hillis." The panel also included individual network members **Jaron Lanier** and **Bruce Sterling**.

Gary Snyder attended ceremonies in Tokyo at the Bukkyo Dendo Kyokai Association for the promulgation of Buddhism in March. He was invited to participate in recognition of his work as an international interpreter of Buddhist teachings to the world.

The HBO series, *From Earth to the Moon*, produced by Tom Hanks, included an episode featuring **Rusty Schweickart's** Apollo 9 mission.

Walter Parkes and wife/partner Laurie MacDonald were honored by the National Association of Theater Owners at its annual ShoWest exhibition as ShoWest Producers of the Year. The award is in recognition of their work on such films as *Men in Black*, *Twister*, *The Peacemaker*, *Awakenings*, *Sneakers*, and *Project X*. Their latest film, *Deep Impact*, opened nationwide in May.



Amory Lovins was recently named one of five recipients of the 1997 Heinz Awards. The awards, bestowed by the Heinz Family Foundation, are designed as a tribute to the life and legacy of U.S. Senator John Heinz. The awards honor individuals who "define the essence of the American spirit and its inspiring belief in the

power invested in each of us to improve the world around us," according to the foundation.

In other news, **Amory** and the Rocky Mountain Institute released a 39-page study, "Climate: Making Sense and Making Money" in November. The peer-review drafts had been warmly received in the private sector and strongly influenced the reorientation of U.S. climate policy toward profits, markets, enterprise, innovation, competitive advantage, and economic opportunity. Drawing on extensive practical business experience, the study shows that protecting the climate is not costly but profitable; codifies scores of specific obstacles to buying profitable energy efficiency, both in public policy and at the level of the firm; shows how to turn each obstacle into a business opportunity; and demonstrates that this can permit large and rapid carbon reductions even at present energy prices. The study can be ordered in hard copy from RMI's Web site (www.rmi.org), or downloaded free in Adobe Acrobat format (reader provided) from the Web site's "What's New" section. Comments are also welcome.



John Kao made his theatrical producing debut with *Golden Child*, a new play by David Henry Hwang that premiered in San Francisco and had a recent run on Broadway. John and Laurel Kao are now the proud parents of Jackson Kao, born June 23, 1998. We wish them hearty congratulations.

Carl Weinberg facilitated a workshop on "Implementing Renewables" in May at the Solar Power Conference on the island of Hawaii. The conference also

featured the dedication of the world's largest solar electric hotel roof project, a 10,000-square-foot installation of photovoltaic cells atop the Mauna Lani Bay Resort.

Smart Thinking for Crazy Times: The Art of Solving the Right Problems, by **Ian Mitroff**, was published in March by Berrett-Koehler Publishers. In the book, Ian demonstrates that the majority of serious management errors can be traced to one fundamental flaw: misdirected thinking, or the time, talent, and resource drains that result from solving the wrong problems. He explores the process of using critical thinking to ask the right questions and solve the right problems in any company or situation.

Richard Rodriguez is this year's recipient of the Peabody Award, which honors quality and excellence in television broadcasting. Richard was chosen in recognition of his work on PBS.

Karen Stephenson

is a member of the faculty of the 1998 Advanced Executive Program, August 17-28 at The Anderson School at UCLA. The program is designed for executives to gain an enhanced perspective of their organizations and their strategic positions in the global marketplace.



In April, **Lynn Margulis** was awarded the Nevada Medal for her distinguished services to science. Her book, *What Is Life*, coauthored with Dorion Sagan,

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was selected to be part of the *Utne Reader Loose Cannon*—a list of 150 books, films, musical works, etc. that “broaden, deepen, and define the experience of being alive.” The full list appears in the May/June issue of the *Utne Reader*. The list includes artists and thinkers from all ages, including Shakespeare, Jane Austen, Billie Holiday, and E. F. Schumacher.



Nancy Ramsey was the keynote speaker for the World Bank’s Take Our Daughters to Work Day in Washington, DC in April. About 1,800 daughters attended. The program was designed around a “university” that included 30 different issue-based workshops. Among the sessions were an introduction to conflict resolution conducted by graduate students from the George Washington School of International Relations and live hook-ups with bank offices in Nigeria and elsewhere. Nancy also was a co-conductor of an education workshop. The program’s participants were among 55 million young girls who participated worldwide in a day initiated by the Ms. Foundation to address the issue of maintaining self-confidence in girls aged 11–16.

GBN Emeryville bids a fond farewell to **Jamais Cascio**, director of digital discourse.

Jamais is leaving after four years to pursue a TV and film writing career in Los Angeles.



GBN Bookshelf



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- Kevin Kelly, "New Rules for the New Economy, Part I," *ABN Report on Learning, Leadership and the Future* 5, no. 10 (December 1997): 3–6, 24.
- Kevin Kelly, "The Third Culture," *Science* 279 (13 February 1998): 992–993.
- Kevin Kelly, "Wealth is Overrated, and Other Heresies as Pronounced by Peter Drucker" (interview), *Wired* 6.03 (March 1998): 160–161.
- Art Kleiner and George Roth, "How to Make Experience Your Company's Best Teacher," *Harvard Business Review* 75, no. 5 (September–October 1997): 172–176.
- Amory Lovins, Foreword to *Reinventing Electric Utilities: Competition, Citizen Action, and Clean Power* by Ed Smeloff and Peter Asmus (Washington, DC: Island Press, 1997).
- Amory Lovins and L. Hunter Lovins, *Climate: Making Sense and Making Money* (Old Snowmass, CO: Rocky Mountain Institute, 13 November 1997).
- Michael Maccoby, "Is There a Best Way to Build a Car?" (book reviews), *Harvard Business Review* 75, no. 6 (November–December 1997): 161–172.
- Lynn Margulis and Dorion Sagan, *Microcosmos: Four Billion Years of Evolution from Our Microbial Ancestors* (Berkeley: University of California Press, 1997; originally published 1986).
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- Donella Meadows, "Places to Intervene in a System," *Whole Earth*, no. 91 (Winter 1997): 78–84.
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- Daniel Yergin, Dennis Eklof, and Jefferson Edwards, "Fueling Asia's Recovery," *Foreign Affairs* 77, no.2 (March–April 1998): 34–50.

WorldView Program 1998 (The Next Six Months)

Members can keep up-to-date with the GBN calendar of events by using the member's WorldView Web Site (WWS) at <http://members.gbn.org>. If you have any questions, please send e-mail to WWS@gbn.org.

WorldView Meetings

October 12–14 The Futures of Europe, Windsor, U.K.
December 1–3 The Future of Design, Los Angeles

Focused WorldView Meetings

August 24–26 ABN/GBN The Next Leap: The Future of Asia,
 Sydney, Australia
September 14–15 The Future of Risk/Risk Management, Las Vegas

GBN Presents

Fall '98 Emeryville: TBA

Scenario Training Seminars

Developing and Using Scenarios

August 16–20 Wellington, New Zealand
August 21–September 3 Rio de Janeiro, Brazil
September 14–18 Amsterdam, The Netherlands
October 18–23 San Francisco Bay Area
November 15–20 San Francisco Bay Area

Developing and Using Scenarios in the Public Sector

August 30–September 4 San Francisco Bay Area

Leading Scenario Projects

September 13–15 San Francisco Bay Area

Scenarios for Strategy

September 16–18 San Francisco Bay Area

Information

For more information on WorldView events, please contact Kathee Shatter, manager of WorldView services (kathee@gbn.org). For more information on Scenario Training Seminars, contact Jenny Beery, manager of operations, Training (beery@gbn.org).



