THE CONSCIOUS INTERNET

Francesca McCartney, PhD

The World Wide Web – A Collective Consciousness

The Internet is a network which is spawning a quantum leap in human consciousness. The blending of digital reality with human reality blurs the distinction between electronic-based and biological-based systems. The World Wide Web of the Internet collapses distance, time and proximity in human communications and creates a unified state of constant connectedness. Casting an invisible net over the globe, the World Wide Web is collapsing and shortening the spaces between individuals.

Digital collective unconscious

Internet-based communication parallels the natural human sense of intuition-based communication. Millions of people are sending billions of email messages via the Internet in this new global communication link which utilizes the Internet as a host medium for non-local conversation. Using the Internet in this way – as a tangible, mental construct – allows human psychology an "object" to grasp as a bridge to understanding the natural existing state of non-local, no-time, no-space, intuition-based communication.

Psychiatrist Carl Jung's *collective unconscious* (1981) is another concept of an intuitive storage matrix of human information. Jung's realm of the collective unconscious holds psychological structures which he calls *archetypes.* Lesser known is Jung's view of small integer numbers (1, 2 and 3) as archetypes. Numbers, he suggested, are the basic abstract structures from which all archetypes are built. Jung may have been a visionary futurist, precognizing a psychological-digital-reality of cyberspace.

Global mind and global spirit: Is Gaia evolving?

There are fascinating observations from diverse fields of research with holistic or complementary perspectives on the Internet resembling a global-mind and global spirit-phenomenon.

The Internet is an integrated entity with pathways of development which are in a constant state of adaptation. The actively supported websites are kept alive by repeated "hits' or "visits" and those websites which receive limited visits cease to function or remain in a static state. A map of the World Wide Web (See Figure 1.) has pattern similarities to a neuronal map of the brain. (See Figure 2.)

Figure 1. Map of the World wide Web
This is a graph of how the Internet
might look as a packet of data spidered
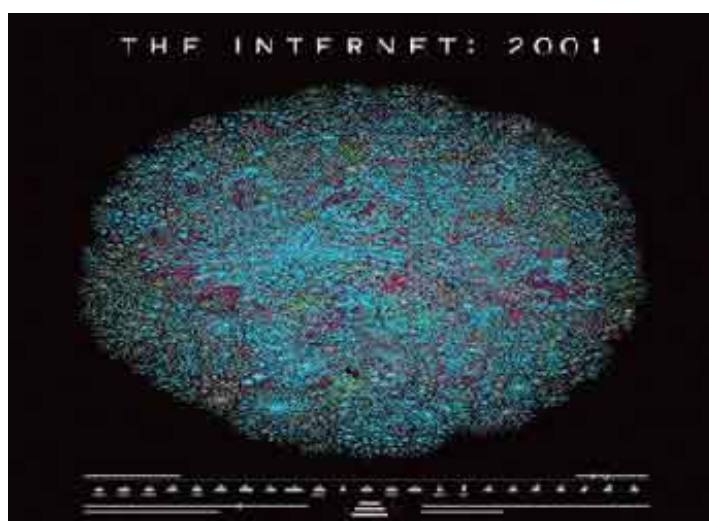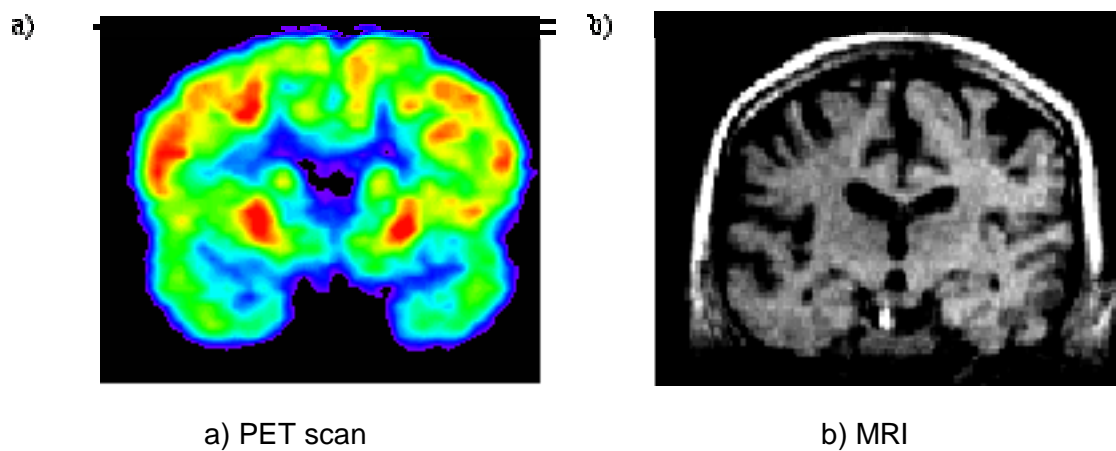**through the bulk of the Internet infrastructure.**

Figure 2. Images of the Human Brain [2]

a) PET scan   b) MRI

Dr. Ben Goertzel summarizes a hypothesis about brain mapping proposed in *Neural Darwinism* by biologist Gerald Edelman:

The large scale dynamics of the brain is dominated by the natural selection of maps. Those maps which are active when good results ["Good results" means that the "desired" evolutionary change has been achieved. By "desired" I mean a change that permits greater facility and flexibility of the organism in its new environmental niche. This is what evolution is about from a Darwinian point of view. This would strengthen whatever facilities or capabilities that the organism used to get the result. The converse, a bad result would weaken the facility of development. (Blasband, 2004)] are obtained are strengthened, those maps which are active when bad results are obtained are weakened. And maps are continually [altered] by the natural chaos of neural dynamics, thus providing new fodder for the selection process. By use of computer simulations we have shown that formal neural networks obeying this rule can carry routinely fairly complicated acts of perception. (Goertzel, 1988, p. 104)

Mathematician Dr. Goertzel (2002) whose current focus is on the development of a web-based artificial intelligence (AI) comments on the Internet versus brain:

It's simple enough to see that the net, as a whole has the very same network structure that modern AI theorists, with their neural nets and semantic networks, have simulated within individual serial computers for the purpose of modeling brain and mind processes. The Internet's nodes are more complex than individual neurons, having more of the computational power of neuronal modules. And, the packets sent around the net are more complex than the jolts of charge sent around the brain – they are more similar, perhaps, to coherent nonlinear spatially distributed electromagnetic waves passing through the brain. But, in essence, they are quite similar systems: they're self organizing networks, in which information is carried and computation is carried out both locally and in the global, distributed fashion.

We see, then, that there is a harmony between the brain and the Internet on a fairly deep philosophical level. In both cases, we have a fixed underlying substrate consisting of nodes and links – neurons and synapses on the one hand, computers and cable on the other. In both cases, one has two kinds of dynamics constituting the process level of being – dynamics within the individual neuron or neuronal module, together with electrical and chemical flow between neurons; and computation within the individual computer, together with flow of sound and light along cables between computers. (Goertzel, 2002, pp. 119-121)

Intelligent systems: brain neurons and computer cards

The following diagrams illustrate a striking resemblance in design. The first illustration is a computer card (See Figure 3), which is programmed to serve a specific function in the computer communication system. The second illustration is a map plan drawing of the neurons in the brain (See figure 4), which function as the olfactory communication pathway.

Figure 3. Computer Card [3]   **Figure 4. Plan of olfactory neurons [4]**
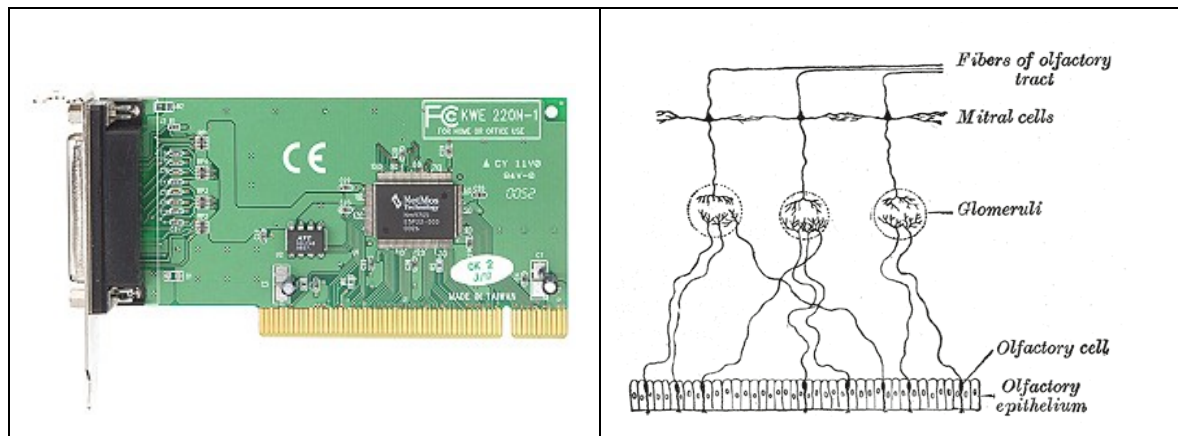
Internet evolution: digital nervous system with parallels in quantum physics

Is Internet email communication the micro-pathways which, when accumulated into a whole organism, emerge as a macro-evolved entity? In *Evolution without Selection*, biologist Lima de Faria observes that the development of organisms is controlled by universal organizing processes. Albert-Laszlo Barbarsi (2002)using a simple mathematical transformation, substituted "fitness" for "energy," assigning an individual energy level to each World Wide Web node in the fitness model. The unexpected result was a precise mathematical correspondence between the networks of the web and the quantum mechanics world of Bose-Einstein Condensation.

A simple definition of quantum mechanics is the study of light as little discrete packets of quanta or photons. A Bose-Einstein Condensation is an odd phenomenon in which the little discreet packets stop behaving as individuals and begin to flow together as if they are all one. A similar process occurs as a laser produces coherent light. These subatomic photon laws are encountered in the microscopic world of subatomic physics, not in the macroscopic world of the Internets nodes and links which are macro objects – routers, cables and hardware.

Goertzel (1993) uses mathematical theory, "… to present some new ideas about the nature of the evolving systems." He continues with his theory on emergent biological patterns which resemble the evolving pattern of the Internet.

> … a pattern emerges between two entities if it is present in the combination of the two entities, but not in either of the entities separately. And the structural complexity of an entity is defined as the "total amount" of pattern in it. If the Metapattern is accepted, then these two concepts become essential to any of analysis of biological reality.
>
> The new forms which are generated by structural instability must interact with one another in a structured, systematic way, to form a cohesive evolutionary system. (Goertzel, 1993, xvii)

The World Wide Web as an ecosystem

A working postulate is that the pattern of Internet based communication within the World Wide Web combines two "entities" which interact as a complex reality to form a structured cohesive system: random inter-self organization and the chaotic intra-self organization. This is

analogous to the evolutionary pattern observed in many natural and social systems. Might this definition also be applied to the Internet as an emerging social intelligence?

These two types of organization of the Internet follow the "systems-theory" approach to evolution of systems presented by ecological scientist, Howard Odum. The operational nature of the self-structuring system of Internet communication aligned with this systems theory leads to the assumption of an existence of an underlying working intelligence.

Dr. Goertzel states his definition of "self-structuring" systems:

I conjecture that brains, minds, ecosystems and societies fall into this category. They are not chaotic, and yet they are not orderly in the classical sense either – they are systems of unpredictably fluctuating, self-organizing structure.

This definition forms a link between intelligence and system complexity: it suggests the hypothesis that intelligence is possible only in a self-structuring environment. And this meshes very nicely with the idea, implicit in my theory of mind—that intelligent systems are necessarily self-structuring. (Goertzel, 1993, p. 95)

Is the Medium the Message?

> *Information technologies help speed up cultural evolution toward greater*
> *knowledge and understanding of the cosmos and our place in it.*
> – Edgar Mitchell, Apollo 14 moon-walk astronaut

Cultural theorist Jean (1986) in his work on Integral Consciousness spoke of a stage where intelligent network computer technology will catapult humanity into a new phase of consciousness; computer networks will be a higher state of consciousness and will induce humans to move into a higher state of consciousness as well. Goertzel suggests, "The leverage of globally distributed nonlinear interactions between human minds and digital minds, will in itself lead to forms of knowledge that are hitherto unprecedented."   And, maybe those precedents already exist

Parallel thought is emerging in research fields of spirituality, physics and computer science. Reading books from these multidisciplinary sciences one can easily transpose words to find that their hypotheses and conclusions sound the same. Theoretical physicist David Bohm's thoughts bridge science and spirit in his view that everything has a physical and mental aspect. He sees the fundamental activity of existence as a process of "projection and injection" in the creation of a form. Projection is the action of the mind to birth an unmanifest (implicate) concept into the manifest (explicate) world. Injection is the feedback loop of the explicate reality mirroring back to the mental realm of the implicate for evaluation and refinement of objective/subjective coherence and resonance. The fundamental activity of the world is creating form through the dance of this circulating process.

This passage on spirituality from *Bridging Science and Spirit* can be read as a descriptor of the operating order of the Internet if one transposes a few words.

In Bohm's view we are defining the structure or pattern of the universe, the shape and organization of a system, as distinguished from matter itself. Since influencing [matter] does not take place through the explicate order, it is nonlocal and takes place in the implicate order. Since the implicate order is not local, similar forms resonate and are connected regardless of their location in time and space. Through the process of resonance, particular forms are

reinforced and appear in the manifest world as one stable form. The stable form can appear anywhere, and all similar forms influence each other in the implicate order (or the unmanifest). (Freidman, 1990, pp. 87-88)

The power-law of life

> *I think computer viruses should count as life. I think it says something*
> *about human nature that the only form of life we have created so far is*
> *purely destructive. We've created life in our own image.*
> – Stephen Hawking

Life is defined by Webster's dictionary as, "the condition which distinguishes organic from inorganic objects, being manifest by growth through reproduction and the power of adaptation to environment through changes originating internally." The Internet, like the living cell, shares a common core process of growth, self-reproduction and adaptation – activities which take place internally.

Albert-Laszlo Barabasi (2002, p. 149) notes that, "While entirely of human design, the Internet now lives a life of its own. It has all the characteristics of a complex evolving system, making it more similar to a cell than a computer chip."

Most complex networks in nature have power-law degree distribution – with many nodes and only a few links; or a few hubs with a large number of links. The degree distribution of a "random" network follows a bell-curve with most nodes having the same number of links. This is similar to computer networks.

Physicists Romualdo Pastor-Satorras and Alessandro Vespignani (2004) have identified computer networks as a class of "scale-free" networks in which there is no characteristic, average number of connections to the many nodes of the network. In a regular grid-like network, like a street map, each node is joined to the same number of neighboring nodes – four, in a square grid. In a random network, where all the nodes are connected at random, there is a well-defined average number of connections among the nodes, and the number that have many more connections than average is insignificantly small.

Recent computer network research has come to the surprising discovery that the Web, like most complex networks of nature follows a power-law degree distribution of a scale-free network – a description identical to that which is given to emergent ecosystems.

Power laws regularly greet us in critical phenomena and describe, for example, the freezing of water or the ordering of spins in a magnet. But there is a crucial difference between these systems and evolving networks. In critical phenomena the exponents are fixed and universal, i.e. they cannot be tuned easily by modifying some parameters in the system. In networks, however, the exponent G can be changed continuously by changing almost every parameter that governs the link and nodes. Thus universality as we know it is absent. However, most complex systems share the same dynamical character as evolving networks, indicating that their topology and evolution cannot be divorced one from the other. (2002)

The Web of life

Interdependent systems of life are linked by some form of communication. Nature strives to achieve robustness through inter-connectivity. A hierarchy of hubs and nodes keeps the Internet connected, followed by lesser connected hubs and links, forming the life of the World Wide Web. "No central node sits in the middle of the web. There is no single node whose removal could break the web." (Barabasi, 2002, p. 221)

Many scientists are predicting that the robustness of the web network gives it a unique ability to survive under very high error rates. Physics professor, Marc Buchanan comments in *Nexus* on the inter-connectivity of nodes and links:

…the Internet actually harbors a hidden order. The Internet is not the only network underlying the Information Revolution. It is an entire physical entity – sprawling network of computers linked together by transmission lines. The Internet is more or less pure hardware. By contrast, the World Wide Web is rather more ethereal… you can click onto a Web site and be transported elsewhere. If you will, the World Wide Web is the face of the Internet. (Buchanan, 2002, p. 83)

The dream of life

Dialogue from the 1968 and 1984 films: *2001: A Space Odyssey* and *2010: The Year We Make Contact.*

> HAL: "Good afternoon, gentlemen. I am a HAL 9000 computer. I became operational at the H.A.L. lab in Urbana, Illinois on the 12th of January, 1992."

> HAL [answering questions]: "Let me put it this way, Mr. Amer the 9000 series is the most reliable computer ever made. No 9000 computer has ever made a mistake or distorted information. We are all, by any practical definition of the words, foolproof and incapable of error."

> HAL [to Dr. Chandra]: "I know that you were planning to disconnect me, and I'm afraid that's something I cannot allow to happen."

> HAL [eventually agreeing to be disconnected]: "Dr. Chandra?"

> Dr. Chandra: "Yes HAL?"

> HAL: "Will I dream?"

Feminine intuition and the right brained internet

Surgeon and author, Leonard Shlain, M.D. has a relevant observation about the collective unconscious, "The world of cyberspace is a computer generated extension of the human mind into another dimension." This is a humanistic linkage statement for the inclusion of intuition and spirituality into the emerging web-life of the Internet.

Dr. Shlain (1998) suggests that "The computer's *processes* have unwittingly advanced the cause of women…"

The computer and the Internet will once again reconfigure the brains of those that use them. Typing is a two-handed activity that requires input from both sides of the brain. Writing requires only the dominant hand. The use of the mouse by the right hand necessitates the activation of the right-hemispheric and visual-spatial skills. The World Wide Web and the Internet are not linear, they are holistic. All ancient deities associated with webs and nets were goddesses. Many of the processes we use to operate the computer are inherently feminine. (Shlain, 1998, p. 8)

Internet degrees of separation

Erdos (2004) concept of "link-chains" in social network research, which studies short distances between people, is popularly called, "six-degrees of separation." In the 1960s network research showed that people could be connected to each other by tracing their social connections and that the average number of connections that linked two people was six. Present research on six-degrees of separation is being conducted at Columbia University in New York. That study is reporting that social distance between people is now less than six-degrees of separation. (2004)

Recent network theory research conducted in 2001 by physics professor Albert

Laszlo-Barabasi (2002) states that the Internet distance between people is nineteen-degrees of separation. Internet distance is measured by "clicks" or "hops" which refers to number of machines the email has to route through to reach its destination. In November 2002, I asked a colleague who lives an approximate 30 mile distance from me to send an email to me and then to run a trace of the visual route which allows one to count the clicks between computers. (2004) We found that the electronic-social Internet distance between my colleague and me was twelve-degrees of Internet separation. This shortening of electronic-social distance between individuals may be an adaptive internal process of the Internet analogous to a defining condition of life.

Is the internet conscious?

Personal Computer life is a constant interaction with the wire and cable based Internet entity. Despite the frequent interactions with the internet, it is difficult for many web users to engage with their computer system as a lifeless form.

Questions to consider: Given that the Internet has all the characteristics of a complex evolving system, does this make the Internet more similar to a human cell rather than a computer chip? Is Internet email communication the micro-pathways, which accumulate into a whole organism and operate as a macro-evolved entity? Who is the caster of this web~net? Are those who are gathered into this web~net conscious of the implications of a global paradigm shift in human evolution? What is occurring on an individual basis within this web~net, and what is being born as a whole entity?

We are living and intentionally creating extraordinary events in human evolution. Internet research contributes directly to the writing of our history as a species and discovers new language to articulate possibilities of science, technology, and the human potential.

REFERENCES

Books

Barabási, A. L. *Linked: The new science of networks.* Cambridge, Massachusetts: Perseus Publishing. 2002.

Blasband, Richard. Personal communication, February, 2004

Bohm, D. *Wholeness and the implicate order.* New York: Routledge. 1996.

Buchanan, M. *Nexus: Small worlds and the groundbreaking size of networks.* New York: W. W. Norton. 2002.

Edelman, G. M. *Neural Darwinism: The theory of neuronal group selection.* New York: Basic Books. 1988.

Friedman, N. *Bridging science and spirit: Common elements in David Bohm's physics, the perennial philosophy and Seth.* St. Luis, MO: Living Lakes Books. 1990.

Gebser, J. *The ever-present origin: Part one, foundation of the aperspectival world, Part two, manifestations the aperspectival world* (English Series, no. 1). Athens, OH: Ohio University Press. 1986.

Goertzel, B. *The evolving mind: The world futures general evolution studies* (Vol. 6). Langhorne, PA: Gordon Breach Science Publishers. 1993.

Goertzel, B. *Creating Internet intelligence.* New York: Plenum Publishing. 2002.

Jung, C. G. *The archetypes and the collective unconscious* (M. Fordham & R. F. C. Hull, Eds., Vol. 9, Part 1). Princeton, NJ: Princeton University Press. 1981.

Odum, H. T. *Systems Ecology.* New York: Wiley. 1983.

Shlain, L. *The alphabet versus the Goddess: The conflict between word and image.* New York: Penguin Putnam. 1998.

Shlain, 1998, *A Conversation with Leonard* [[REFERENCE

Image sources

[1] Digital image of the Internet. (2003, February). Retrieved from: Think Geek. http://www.thinkgeek.com/cubegoodies/posters/techie/29c2/

[2] MRI image of the human brain. (2003, February). Retrieved from: Lawrence Berkeley Lab. http://www.1bl.gov/abc/wallchart/chapters/13/2.html

Figure 3. Computor card. (2003, February). Retrieved from: Computex. http://www.computex.com

[4] Plan of olfactory neurons. (2003, February). Retrieved from: Grays Anatomy. http://education.yahoo.com/reference/gray/196.htm/#i772

Websites

Academy of Intuitive Studies and Intuition Medicine®. (2004, February). Retrieved from: AISIM. http://www.intuitionmedicine.org

Internet aids the spread of computer viruses. (2004, February).Retrieved from: PhysicsWeb. http://physicsweb.org/article/news/5/4/2/1

Items of interest related to Erdös numbers. (2004, February). Retrieved from: The Erdos number Project. http://personalwebs.oakland.edu/~grossman/related.html

Six degrees of separation. (2004, February). Retrieved from: Columbia University. http://smallworld.columbia.edu/

Visual route server. (2004, February). Retrieved from: Visualware®. http://visualroute.visualware.com/

Francesca McCartney, PhD is founder and president of the Academy of Intuitive Studies and Intuition Medicine® in Sausalito, California. The Academy founded in 1984 is an academic school for professional intuitives. Since 1976, Dr. McCartney has worked in the field of Intuition as a medical intuitive in an integrative medical clinic, a pastoral counselor, author and educator. Francesca synthesizes her thirty years of study in Eastern and Western spiritual and healing arts into a multi-modality approach which grounds her in respectfulness for the uniqueness of the individual. Dr. McCartney is the inaugural recipient of a PhD in Intuition Medicine® and also holds a PhD in Energy Medicine.

Contact**:**
PO Box 1921
Mill Valley, CA 94942 USA
(415) 381-1010 Fax: (415) 381-1080
www.intuitionmedicine.org   research@intuitionmedicine.org