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**CONCERNING THE SPIRITUAL IN CYBERSPACE**

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Summary

Cyberspace technologies provide new opportunities and questions concerning the spiritual. This paper looks the spiritual in 20th century art and science as the basis for examining the spiritual implications in cyberspace, itself the outgrowth of art and science. This is followed by a discussion of the virtual worlds of William Gibson and Frank Tipler. The emerging discipline of studies in consciousness is introduced as a link between the spiritual and the digital, and the prophetic work of the Jesuit Teilhard de Chardin discussed for his concept of the 'noosphere'. The spiritual implications of a conscious Internet are then examined.

Keywords: spiritual, cyberspace, consciousness, Gibson, Tipler, Teilhard de Chardin, artificial life, virtual cosmogenesis

**The Spiritual in 20th C Art and Science**

In this paper I shall use a simple categorisation of the spiritual, a distinction between the religious, the occult and the transcendent. The 'spiritual' will be a broad term that covers these three distinct areas. The religious is intended to convey traditional and organised religious spirituality such as Christianity, Islam, or Buddhism; the occult an esoteric preoccupation with such matters as the paranormal, reincarnation, clairvoyance and disembodied beings; and finally the transcendent as dealing with a shift in personal identity from the physical and temporal to the infinite and eternal, or with mystical union, or with 'nirvana'. Clearly the boundaries between the religious, the occult, and the transcendent (as used here) are blurred, but can be useful in looking at the spiritual in art and science. The twentieth century has seen the development and promotion of alternative forms of spirituality, some of which have had a significant impact on modern art. The key movements in Europe at the beginning of the century include Theosophy, founded by H.P. Blavatsky and H.S. Olcott, Anthroposophy, founded by Rudolf Steiner, and the work of G.I. Gurdjieff and P.D. Ouspensky. All three movements had explicit teachings on the arts, though Steiner and Gurdjieff made the arts more central to the lives of their students than Theosophy, which focused on the preparation for the new World Teacher (a conflation of the second coming of Christ and the Buddha). There is not space here to even introduce the teachings of these three movements, other than to say that all three have an occult leaning (as defined earlier), Gurdjieff and Theosophy share some transcendental elements, and Anthroposophy and Gurdjieff include strong Christian themes.

In examining the spiritual in 20th century art we are indebted to art historian Roger Lipsey for ground-breaking work in his book *An Art of Our Own — The Spiritual in Twentieth-Century Art*. One of the premises of his work is that the arrival of the abstract in modern art allowed a new exploration of the spiritual, he is also clear that Theosophy was amongst the important spiritual influences of the time. However the tension between the spiritual and artistic is immediately present in his choice of title, for it comes from a quote from Brancusi:

In the art of other times there is a joy, but with it the nightmare that the religions drag with them. There is joy in Negro sculpture, among the nearly archaic Greeks, in some things of the Chinese and the Gothic ... oh, we find it everywhere. But even so, not so well as it might be with us in the future, if only we were to free ourselves of all this ... It is time we had an art of our own.

The 'all this' we need to free ourselves from, and which 20th century Western artists and writers have done so thoroughly is the religious baggage of previous centuries. In Modernism and later art movements the 20th century does have an art of its own, but Lipsey is interested in where the spiritual lies within it. If the modern artist rejects traditional religion, what is the source of the spiritual? In the first decades of the century the answer, using the terminology of this paper, is in the occult, though 20th century innovation in art also maintained its ancient function: to act as a religious vehicle. This function of art will always remain while mainstream religions are part of mainstream culture, and innovators like Antonio Gaudi simply prove that religious art will always be fertile. However we are interested in new art and spiritualities that arise in conjunction with new thinking in the 20th century (particularly science) and how these meet in cyberspace. Returning to Gaudi: mainstream religion has lost ground to the two other types of spirituality categorised here, the occult and the transcendent. If the occult was the cultural preoccupation in the early part of the 20th century, there can be no doubt that in the latter part it has been the transcendent. We see this markedly with the American Abstract Expressionists after WW2, and I would argue that the transcendent is again the preoccupation with the artists of cyberspace.

The transcendent can show itself as a transcendence of the biological organism; many indeed speak of a post-biological world, or of 'obsolescence of the body'. This is the theme of the work of performance artist Stelarc. His visually stunning performances raise all kinds of questions regarding transcendence of the body, surrender of personal will, and the acceptance of pain, all of which are traditionally spiritual questions. In interview however he is rather wary of the direct spiritual implications of his work; even though he practised yoga for twenty years he does not want direct parallels to be drawn. Fakir Musafar is another performance artist, though working without electronics, but is less reticent than Stelarc about the spiritual — indeed he criticises Stelarc for his silence on this area. Musafar's work turns us back to the occult (as defined here): it has its roots in out-of-body experiences, shamanism, and fetishism. An overwhelming spiritual experience at the age of seventeen (after fasting and a form of self-immolation) led to a conviction that he had lived before in a completely different culture and time, and that the erotic and bodily were deeply linked to the spiritual. He comments:

That beautiful experience colored my whole existence. From that day on I wanted everyone to have that kind of liberation. I felt free to express life through my body. It was now my media, my own personal "living canvas," "living clay." It belonged to me to use. And that is just what I have done for the past thirty years. I learned to use the body. It is mine, and yours, to play with! I wrote a poem after the experience. It said:

*Poke your finger into Red,  
Feel the feeling through.  
And when the feeling is no more,  
Feel no-feeling too!*

Musafar is significant as an artist who occupies the spiritual territory of the fakir (usefully defined for us in the work of G.I.Gurdjieff), that is one who's path is through the body rather than through mind or heart. The transcendent implications in his poem, and the occult nature of his out-of-body experiences reminds one again that we cannot apply these categories too strictly however.

An important contemporary piece that has implications for the spiritual in cyberspace is Char Davies' *Osmose*, an "immersive virtual space" inspired partly by a mind-altering experience as a deep-sea diver. The work has transcendent overtones, rather than religious or occult, and operates via interaction with the user's breathing. Meditation on the breath is one of the fastest routes to transcendence in Buddhism, and in many languages the word for breath has the same root as the word for soul. Davies emphasises both breath (with its transcendent dimension) and balance (with its integrating dimension) in her VR piece, giving osmosis as the metaphor driving its conception: "transcendence of difference through mutual absorption, dissolution of boundaries between inner and outer, intermingling of self and world, longing for the Other." While transcendence is a theme here, so is integration, particularly of mind and body: "Our culture's privileging of the mind over matter has contributed to devaluation of the body, as well as women and various 'others.'" Her comment points up one of the paradoxes of the spiritual: transcendence in religious and mystical thinking is as often about integrating mind and body (Yoga, Walt Whitman) as about transcending it (Buddhism, Plato). This paradox is at the heart of spiritual issues in cyberspace; the recent "Religion Issue" of *Mediamatic* (for example) shows this in a number of essays. This paradox may not go away, but recent developments in science have made great contributions to understanding the issues involved.

Books (mainly by physicists) have appeared in the last four years with titles such as *The Mind of God*, or *The God Particle*, or with subtitles such as *Science, Religion and the Search for God*, or *Modern Cosmology, God, and the Resurrection of the Dead*. Many more are also in print that relate science, usually the 'New Physics' that arises from quantum mechanics, to spirituality. It is a reasonable assertion today to say that the subjective entered science with quantum mechanics (this is enshrined in a minimal kind of way in what is known as the Copenhagen Interpretation). Whether the spiritual does or does not is a question that is highly debatable; the erudite New Age guru and writer Ken Wilber denies it, while a more cautious approach may be to suggest that it gave the scientists the first real excuse to talk about the spiritual. In addition to the approaches based purely on quantum mechanics there is another approach, called the anthropic principle, which finds wider evidence for the central role of human existence or consciousness in the structure of the universe. An example is the ratio of fundamental constants to each other, such as that of the mass to the charge on the electron: the tiniest change in this ratio would mean that the universe as we know it would be impossible. This theme is developed fully in Tippler and Barrow's *The Anthropic Cosmological Principle*.

Though many scientists, through the confrontation with quantum theory and other developments in the 'new' physics, were having to re-evaluate science itself, and in many cases found parallels in religion or mysticism, it was the physicist Fritjof Capra who first brought the parallels to popular attention in 1975 with his book *The Tao of Physics*. Gary Zukav, trained in the liberal arts rather than physics, followed with *The Dancing Wu Li Masters* in 1979. If we relate the works of Capra and Zukav to our simple taxonomy of the spiritual, then the parallels they draw are mainly to the transcendent, with references here and there to the occult.

Roger Lipsey's thesis in his *An Art of Our Own* is that the

transforming event for the spiritual in 20th century art was the development of abstract art. The transforming event for spirituality in 20th century physics is clearly quantum theory. What then can we say about the spirituality of the late 20th / early 21st century cyber artist, who effortlessly integrates the artistic and scientific progress of the 20th century? Do we agree with Roy Ascott that all art up to and including Modernism and Postmodernism is largely a failure and is both to be swept aside and consummated in cyberspace? These are difficult questions and rely as much on an understanding of science as they do of culture.

### Gibson and Tipler: Jack In / Download

We cannot investigate the spiritual in cyberspace without reference to the man who coined the term: William Gibson. His seminal science fiction novel *Neuromancer* in fact raises many of the fundamental questions about cyberspace, though they are not in the first instance spiritual questions. One scene that poses the most difficult technical question is on the virtual beach towards the end of the story. If we really wanted to build a virtual reality that imitated beyond any doubt the real world (or a real beach) then we need to use physics – right down to the molecular level. The appearance and behaviour of objects depends on this: the exact distribution of momenta and articulations in the suspension of a car determines the way it corners for example; the exact distribution of pigments and carriers in the car's paintwork determines its finish (and whether the car looks new and expensive or old and cheap). A convincing reality requires modelling at the molecular (or even atomic) level, and for this you would need a processor for every molecule or atom. 'Molecular computing' as it is called does look in fact like a possibility, but even if we could build an information processor at the molecular size, we would land up needing one per molecule in our model: in other words you would need a whole universe to model a universe! Think back to Gibson's beach as Case and Molly survive on washed-up ration tins — she comments that it (reality) is 'seamless'. *Would you need a computer the size of the beach (and the sea and the sky) to simulate it?* The grains of sand fall off her ankle, it smells of brine, the teeth on his French nylon zipper are clogged with salt.

There is one escape from this restriction: procedural modelling. This is a technique whereby, for example, cities can be constructed using a rule-based system: by abstracting out the main principles whereby cities grow and their elements are constructed and appear to us, we can generate cities (or beaches) 'on the fly'. In addition we need (in visual terms) to be able to render any view of these constructed environments on the fly, but this is a separate problem requiring only that there is adequate processing power. An inadequate processing system might result in 'picture loss' if turning one's virtual head rapidly, or when directing one's gaze beyond the boundaries of the virtual world (what has Wintermute constructed for Case and Molly beyond the bluff at the end of their beach?) There is, sadly, an objection to the procedural modelling let-out: yes, it would require a computer some orders of magnitude smaller than the universe, but it would need to be orders of magnitude faster; and we know that the speed of all interactions are limited by the speed of light.

This objection to Gibson's vision of cyberspace is only a technical one however. Behind it there is a more fundamental one of cosmogenesis, which is a spiritual one: who or what has put the virtual show together. Before tackling this question, let us look at an even more radical version of cyberspace: that of Frank Tipler.

Frank Tipler is a physicist and author of *The Physics of*

*Immortality*. Tipler's ideas can be summarised as follows: modern cosmology predicts the elimination of biological life as we know it, either through the 'heat death' (lack of energy in fact) in an ever-expanding universe, or its consumption in the inferno of the 'big crunch' (the final singularity of the universe as it contracts again). In any case organic life on Earth has only some billions of years to go before the Sun wipes it out. However, the anthropic principle requires that life (consciousness) is central to the cosmos, and therefore the future evolution of it must be such as to ensure its existence (in some form or other) for eternity. From this premise Tipler deduces that we shall all be resurrected by God to live for ever in the far future: what's more he claims to have the scientific 'proof' for the existence of God and our immortality. Here is the conclusion to his book:

The Omega Point Theory [the name is taken from Teilhard de Chardin's writings] allows the key concepts of the Judeo-Christian-Islamic tradition now to be modern physics concepts: theology is nothing but physical cosmology based on the assumption that life as a whole is immortal. A consequence of this assumption is the resurrection of everyone who ever lived to eternal life. Physics has now absorbed theology, the divorce between science and religion, between reason and emotion, is over.

I began this book with an assertion on the pointlessness of the universe by Steven Weinberg. He repeats this in his latest book, *Dreams of a Final Theory*, and goes on to say "... I do not for a minute think that science will ever provide the consolations that have been offered by religion in facing death."

I disagree. Science can now offer precisely the consolations in facing death that religion once offered. Religion is now part of science.

To show that his premises lead to his (startling) conclusions, Tipler has to make a number of radical assumptions along the way. Firstly, life, including the personality of every person that ever existed, can exist as a digital simulation; secondly that robot 'probes' can colonise the universe (thus disseminating digitally encoded life) and engulf the universe with intelligence before its collapse has gone too far; third that this intelligent life can engineer the final collapse in an asymmetrical way (harnessing the features of chaos theory) in order to provide huge amounts of usable energy, fourthly that this collective intelligence (called the Omega Point) will be benign enough to collect all possible data regarding each one of us and initiate our eternal simulation on vast computers; and finally that the last infinitesimally small period of time before the final singularity will feel 'subjectively' to us like an eternity.

Each of these major assumptions then requires another group of assumptions to make them work: for example that colonisation of the universe will be achievable through matter /anti-matter engines (no-one knows at this point how to build one), and that mind is computable so that we can be 'uploaded' into computers (Roger Penrose, for one, disagrees with this). Our resurrection then depends on the fact that living persons now (and in the past) can be photographed billions of years in the future from the light-rays bouncing off the edge of the universe, and that will give the Omega Point sufficient information to run an exact simulation of us, preferably choosing us in our prime.

But what if it would it take a universe to model a universe, as I

suggest? Gibson as a fantasy writer does not need to worry about this, and Tipler clearly has not contemplated this possibility, merely extrapolating from the present progress in computer power to the assumption that an infinite computing power will be available in the far future. If my objection is right though, we can only create a virtual universe that is a low-resolution universe: we can only to model the salient features and leave out or fake the rest. (For a further discussion of faking it see my paper on virtual reality *Virtual Reality: Give Us a Visual Clue.*) This would mean restricting the possibilities for the virtual inhabitants, not expanding them as Tipler suggests.

While I believe that the anthropic principle deserves a place in modern thought, it is undermined in this work by Tipler's obviously emotional attempt to avoid his own, and others', mortality. The really interesting part of his work, and of a growing number of other scientists', is their willingness to use (some would say hijack) the language of religion. In terms of the categories of spirituality developed above, Tipler's work is clearly religious (or theological) rather than occult or transcendent.

One of the interesting spiritual implications of Gibson's or Tipler's virtual universes lies in their origins. The cosmogonies that we are familiar with from Genesis or Plato's *Timaeus* have competed with modern theories of evolution, and we have the same problem in virtual cosmogony. Is our virtual world designed by a person playing as God, is it designed by committee, or does it evolve from an initial set of conditions (a virtual Big Bang)? In religious terms we are confronted with the equivalents of monotheism, polytheism, and Deism. Deism is the late Enlightenment / early Darwinist belief that God created only the starting conditions and then stood back and watched the universe unfold (though according to some he lost interest and got involved in more promising projects). One way of tackling the cosmogenesis problem is to ask the question of how consciousness enters the virtual universe. For Gibson it is easy: we use the traditional carrier of human consciousness, the human body/brain, and merely connect it electrically with the simulation: we jack-in to the virtual universe. Stelarc and Char Davies show us this technology in its early stage. Tipler poses a much more difficult scenario however, as the body is discarded and consciousness itself is downloaded. To consider this problem we need to take a brief look at our current thinking on consciousness.

## Consciousness

It is only possible to give here a brief summary of the positions of the key players and the key debates on consciousness, but the main positions can be usefully categorised as materialist and dualist. Francis Crick, famous for his part in the discovery of DNA, probably best represents the materialist or reductionist view of consciousness, summed up in his 'astounding hypothesis' that we are nothing more than a pack of neurons, and that all consciousness is merely neuronal activity. He seeks to find the neural correlates of perceptions (he works mainly with the sense of sight), thus tackling the qualia problem (i.e. explaining the 'redness' of red), and eventually to find the neural correlate of consciousness. Daniel Dennett, a philosopher, is a more moderate materialist who rejects the Cartesian duality of mind and brain, and wishes to replace the concept of a Cartesian theatre (where all sensory input are ultimately unified into a holistic perception) with the Multiple Drafts Model. This only accepts that perceptions are conscious when 'noted down' in memory, and proposes a continual editorial process as a model for consciousness (the 'word-processing' model?).

The dualists in some way or other are forced to accept Descartes view of a 'ghost in a machine', or some kind of distinction between brain and mind. Roger Penrose, is not happy

with the term dualist, arguing that scientific advances since Descartes, particularly quantum theory, make the term less useful than in an era of Newtonian mechanics. Penrose believes that quantum-mechanical effects in the brain allow for the entry of important aspects of consciousness that cannot be explained by the 'classical' science of Crick and Dennett, these being indeterminacy (allowing for free will) and coherence (allowing for the holistic nature of consciousness). Penrose suggests that the transfer of quantum mechanical phenomena into the classical region of the brain is a result of physics that we do not yet understand, and proposes that structures called microtubules are the location for these effects. The basic problem that dualists face is this. how to explain that a non-material entity such as mind can influence the brain as matter (downward causation) and how matter can impinge on mind (upward causation). Downward causation is only a real problem if one privileges free will (most scientists consider this to be something of an illusion) while the problem of upward causation is simply a recasting of the basic problem of consciousness. Another way of putting the classical dualist position is that consciousness 'accrues' to organisms under the right conditions, this doesn't however provide an explanation. The more engineering-minded of consciousness scientists duck the philosophical issues for the time being and construct machines which could eventually be conscious, then, they say, we'll cut them up and see what makes consciousness tick. Dennett is pursuing a mild form of this, focusing on cognitive robots that specialise in vision, but the computer scientist Igor Aleksander for example has gone further in deliberately constructing a machine to be artificially conscious. It is called Magnus; it consists of an artificial neural net (ANN) of some 16,000 neuron equivalents, and is designed to tell us what it is like to be Magnus.

Where both materialists and dualists probably agree is that the complexity of an organism, whether biological or technological, has a bearing on the potential for consciousness. Materialists can approach this position via chaos theory, and posit that consciousness is an emergent phenomenon requiring a certain level of complexity within the organism. Dualists also agree that consciousness accrues to organisms depending on their complexity. Let us look at an influential writer on spirituality whose work supports this view: Teilhard de Chardin.

## de Chardin and the Noosphere

Teilhard de Chardin (1881 – 1955) was a Jesuit priest and a palaeontologist with a special interest in evolution. His conviction that evolutionary theory was correct and applied to man (at least as far as he was an organism) ran, of course, headlong into his Church training, and hence he struggled with it in a way that a lay scientist would not have had to. The Church prohibited him from publishing his honest and unique attempt to reconcile his science and religion, with the result that his major works were published only after his death. In *The Phenomenon of Man* he shows how man was not merely the arrival of a new species, but an event for the whole planet: the creation of a new 'layer.' The first layer (itself composed of substrata) is the geosphere, the second the biosphere, and with man came the noosphere. Biogenesis gave rise to living organisms, psychogenesis gave rise to an animal with a mind, and noogenesis gives rise to a planetary mind or consciousness. The noosphere arises from us communicating with each other, and as this communication reaches speed and critical mass the noosphere is created. Through this idea de Chardin accommodates both the biologists' discoveries and the Church teaching of the elevated position of man:

With that it bursts upon us how utterly warped is every classi-

fication of the living world in which man only figures logically as a genus or new family. This is an error of perspective which deforms and uncrowns the whole phenomenon of the universe. To give man his true place in nature it is not enough to find one more pigeon-hole in the edifice of systematisation or even an additional order or branch. With hominisation, in spite of the insignificance of the anatomical leap, we have the beginning of a new age. The earth 'gets a new skin'. Better still, it finds its soul.

De Chardin could not anticipate the exact nature of future communications systems, but many commentators now think that the Internet is the key structure that allows for the formation of the noosphere. Jennifer Cobb Kreisberg has introduced de Chardin to the Wired readership; Paul Groot has introduced him to the Mediamatic readership; both in connection with the Net. So can we conclude, like Kreisberg and Groot, that de Chardin predicted that the planet would 'find its soul' through the Internet? And what could this mean? Let us explore this question through from the perspective of consciousness.

### The Conscious Net?

The brain has of the order of 10 billion neurons giving a storage capacity of 10 to the 15 bits of information. The complexity of the brain may in fact be much higher than this if the work of Hammerof is proven correct: he proposes that the microtubules in each neuron interact with those in other neurons throughout the brain, giving a massively higher connectivity. (We may remember that Aleksander's Magnus has only 16,000 artificial neurons in comparison.) The Internet may have the potential to reach such connectivity, so why should it not eventually become conscious, fulfilling de Chardin's prophecy of the planetary soul? From both the materialist and dualist understanding of consciousness there are no immediate reasons why not, but I have reservations. Let us look at look at the relationship between consciousness and complexity in terms of what the Artificial Life people call the four F's: feeding, fighting, fleeing, and reproduction.

In a world of finite resources complexity grows as a survival strategy (according to Darwinian thinking). If you wished to evolve complex life, then a very simple strategy is to make its prime requirement, energy, scarce. The hunt for energy (food) then requires the evolution of complex sensory apparatus, and the ability to model the natural environment in order to anticipate the changing patterns of availability, favouring the development of mind and intelligence. This satisfies chaos theory, but what about dualism? Simply this: it is interesting to have to search or hunt for food. A fine balance then evolves between the anxiety that grows when insufficient food is found to maintain the integrity of the organism, and the delight in its procurement and consumption (energy is delight, said Blake).

As populations increase, and different species evolve different strategies for energy gathering, fighting for food becomes inevitable, but provides another major stimulus for the growth of complexity. Fighting may not always provide 'delight', but it always provides drama. A pacifist may find this a hard proposition, but without the possibility for conflict I believe that consciousness would fade and die. Fleeing is a natural counterpart to fighting: if the odds are hopeless then the intelligent thing to do is flee, and in complexity terms this provides stimulus for well-developed motor systems. In terms of dualism we have the introduction of a psychological element that is essential to the drama of life: fear. I believe that fear is another essential component of consciousness.

As organisms of any kind, however good their self-repairing systems are, must die (Plato points this out when he calls the

body a "composite thing"), offspring are essential. For all the higher life-forms on this planet sexual reproduction seems to be the norm, despite the biologists' inability to find a good reason for it. For humans this introduces one of the major complexifying factors in behaviour: love.

From chaos theory we learn that it is not enough that an organism is complex in terms of quantity (in this context the mere number of neurons or interacting elements), but it has to be in structure. Our four F's show how complex structures arise in life through the pressures on individuals, and the tensions between competition and cooperation in all four aspects. From this perspective we arrive at the first of several arguments against the conscious Net: there is only one Net. With no one to play with, or to fight with, or to mate with how would interest, aggression, fear, or love arise? And how would the necessary complexity for consciousness arise? Remember that quantity is not enough; structure is needed.

A second objection arises from research into synthetic actors by the Thalmann team in Geneva. They encode a virtual universe of sets and actors, and attempt to give the actors personalities through limited autonomy and personal goals. All this information is present within a single computer system, and has to be available to different subsystems at different times, in this respect no different to the Internet. It became a problem to keep the actors 'interesting' if they had complete access to the database. How can you make a detective movie with synthetic actors if they know the murderer from the start? How can there be any dramatic tension if a synthetic actor can 'see' through a wall to the vicious killer or terrified blonde on the other side? It turned out that the only solution to maintaining any kind of drama in the virtual universe is to keep its actors ignorant to some degree; they do this by endowing them with an artificial vision as an analogue to our own.<sup>20</sup> For the Net to engage in any of the life-dramas necessary for complexity/consciousness it would have to 'partition' itself in a similar way and set parts of itself in competition with other parts quite at odds with the whole origin and ethos of the Net.

The third objection to a conscious Net is the lack of a body, or at least an interesting one: what can you do if your physical manifestation is a sphere? There are no articulations and nowhere to go (except round and round in circles). It would have to find energy of course, but would its search be interesting? Would it have the fun of waiting behind a rock to pounce on a rabbit? Or of wandering like a cow through fields of sweet-smelling juicy grass? Or browsing through the delicatessen counter at the supermarket? None of these I suggest. For these reasons, I am not sure that the Net, or some equivalent noosphere has the right conditions for consciousness as we know it. However, the inexorable progress towards intelligent robots does satisfy all the conditions for artificial life, and we can empathise with the kind of consciousness they may potentially possess. But the Internet, or any similar monolithic neuronal structure with no body (worth speaking of), or similar companions to interact with, could not have consciousness as we know it. De Chardin was not suggesting this of course. His "confluence of thought" would surely create a unique consciousness; Tipler is moving in the same direction with his "Omega Point". I think that we are left with two possibilities: firstly that the Net as conscious being would 'partition' itself into multiple personalities and act out dramas in a virtual world similar to Gibson's, but if any of us tried this wouldn't it be treated as a sign of insanity? The second is that the Net would become God. Though I don't propose to debate this further, isn't it perhaps what de Chardin, and countless others perhaps, are looking for? Isn't it perhaps the driving obsession behind the technology?

## The Spiritual in Cyberspace

To sum up: the cyberspace technologies of the Internet and immersive Virtual Realities present us with spiritual possibilities and questions that are not all new, but are sharply accentuated. However the highly speculative work of Gibson, Tipler and Teilhard de Chardin are all amenable to a criticism based in actual research programmes, whether in consciousness, VR, or synthetic cinema; likewise a broad base of spiritual tradition is needed. On a practical note, Web sites like SpiritNet provide a forum for debate and dissemination concerning the spiritual on the Internet, while immersive realities like Char Davies' *Osmose* challenge the assumption that mind should be privileged over body. The transcendence of the body is probably the key spiritual question in cyberspace; the question whether God will emerge from a glorified telephone system is attractive, but probably less amenable to proper debate. As electronic artists the immortality of our artefacts may be assured, but isn't the prospect of our own digital immortality terrifying?

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