

# TRAJECTORIES

Newsletter of The Institute for the Study of the Human Future

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Fall 1981

## FASTER THAN LIGHT . . .

### BELL'S THEOREM RINGS TRUE

by Robert Anton Wilson

Several times in this newsletter and in my books I have discussed Bell's Theorem, a mathematical demonstration by John S. Bell (1964) showing that, if quantum mechanics is correct, all local theories of reality are false. In this context, local theories can be defined for the ordinary reader as theories which assume that space and time are real. It is not at all extravagant to say that what Bell *implies* tends to support philosophies like those of Plato, Kant and Buddhism, in which everything inside the space-time continuum is an epiphenomenon or side effect of a more basic reality which is beyond space and time.

The latest attempt to see if laboratory experiment is part of the same universe as Bell's math was recently performed by Aspect, Grangier and Roger at the University of Paris. Seven previous experiments had yielded four results consistent with Bell and three that were inconsistent. The Aspect-Grangier-Roger test was intended to remove ambiguities by more rigorous protocol, and, in the opinion of physicists I have consulted, is the most decisive test thus far. It totally supports Bell's predictions.

Now, there is no *necessary* connection between Bell's math and Kantian-Platonic-Buddhist philosophy; such linkages are inferences, and semantic hairs can be split every step of the way. Nonetheless, *in general* the Bell non-locality theorem is consistent with a variety of "mystical" ideas and totally inconsistent with "common sense" notions that we inhabit a world of *real*

objects in *real* space and *real* time. Bell seems powerfully to suggest the mystic's "All is one;" indeed, physicist Nick Herbert jokingly describes the Bell math as saying "Here is there."

If Special Relativity made space and time relative, Bell seems to make them almost hallucinatory.

Practical consequences of Bell's Theorem are even more startling than such philosophical deductions. In a recent paper, Dr. Herbert reviews three attempts to construct faster-than-light communication systems based on Bell. Herbert argues that all three contain internal contradictions and are unworkable. The amusing result of this, however, is urgent practical problems. (How would your grandmother in 1900 respond to a message sent by you in 1985?)

Another possible line of interpretation uses Bell's math to explain the puzzling phenomenon of what Carl Jung and Wolfgang Pauli called "Synchronicity" (meaningful coincidence). If reality is non-local in Bell's sense ("All is one," or "Here is there"), if space and time are human creations, everything is connected with everything as in the Monism of Hegel and Whitehead. There are, in such a universe, no real coincidences; and nothing is irrelevant. A ketchup bottle falls in your kitchen because a bear coughed at the North Pole, to use Charles Fort's metaphor: except that it would also be true in reverse. (Compare Thomas Pynchon's joke "Antiparanoia is the eerie feeling that nothing is connected to anything." A "higher paranoia," or non-pathological paranoia, so to speak, would be the only proper attitude in Bell's non-local reality.)\*

The ultimate consequence of Bell's work, when it is generally understood, can only be that "common sense", already damaged beyond repair by modern physics, will be practically abolished. However one interprets Bell, this fact seems inescapable: In his universe *you* cannot be separated from *anything*. Sherwood Anderson's metaphor "We are all Christ and we are all crucified" is just one aspect of this new paradigm. Other consequences I leave to the reader's imagination: Just try thinking for ten minutes about a reality in which space and time do not exist outside our heads.

The consequences in social terms of Copernicus, Darwin, and Einstein are just becoming understood. No Futurist can afford to ignore the social consequences of Bell's Theorem. Dr. Herbert is already planning a book to be called HOW TO SURVIVE THE COMING PARADIGM SHIFT.

Jung would find a charming synchronicity in the quote that occurs to me as a fitting climax to this article. It is from John Donne: "No man is an island . . . Send not to ask for whom the bell tolls; it tolls for thee."

Bell's Theorem tolls the end of duality. The Observer and the Observed have vanished, leaving only Whitehead's "seamless unity."

\*It has not escaped our attention that such a *non-pathological* "paranoia" is often characteristic of mystics and of certain drug states. Maurice Nicoll and Dr. Andrew Weil describe this heightened sense of unity as "*metanoia*," from a New Testament Greek word meaning to think in a larger way.



## SLICING THE PIE . . .

*New Scientist* (May 81) points out that all Future scenarios fall into four groups (1) high growth, high equality (a big pie fairly shared), (2) high growth, low equality (a big pie hogged by the rich), (3) low growth, high equality (a small pie fairly shared), and (4) low growth, low equality (a small pie hogged by the rich). It is encouraging that *New Scientist* recognizes four alternatives; ten years ago, it was virtually a dogma that only the two low-growth scenarios were possible.

Recently, the *San Francisco Chronicle* printed a letter from ISHF Vice-Pres. Robert Anton Wilson, criticizing a low-growth scenario by Ernest Callenbach, author of *Ecotopia*.

*Wrote Wilson: "It is by no means certain that we must 'share smaller pies' and accept a decline in our 'standard of living' as Callenbach says. However popular this neopuritan view may be with some segments of our society, it has not been demonstrated to the conviction of all of us. For instance, R. Buckminster Fuller and his associates at the World Game Center . . . insist that we can have a higher standard of living for everybody than ever before in history . . . Since millions of Americans are already living in poverty, and hundreds of millions elsewhere are starving or perpetually on the edge of starvation, it seems premature to accept lowered expectations and Callenbach's kind of medievalism without considering the alternatives."*

## THE EXPLORER

"Without exception, all human beings are born naked, hungry, helpless and intensely curious." -- R. Buckminster Fuller.

"An experiment was recently performed which placed a trained athlete in close proximity to a baby. Whatever the baby did...the athlete precisely copied...Well before the baby was prepared for his scheduled nap, the athlete was exhausted..."

"The infant is engaged, wherever he is put and under whatever restrictions, in systematically exploring his particular universe. He will move directly to its outer limits, touch everything that is within reach, shake it, taste it, if possible knock it over to see what will happen next..."

"I find these activities instructive. How much light, for example, they cast upon the question of whether man should spend his substance in getting into the farther reaches of space. For better or worse, there seems to be no escape from it. Almost from the moment of birth, the human being is an explorer..."

August Hecksher, *Christian Science Monitor*, Oct. '81

## A BIRDIE TOLD US

A Usually Reliable Source informs us that, yes, John Anderson is planning to run for President again in 1984 (no surprise) and that Anderson is seriously considering making his campaign center on the two issues of World Hunger and Space Colonization, offering the latter as a cure for the former. Mind you: our source does not say that Anderson has firmly decided to take that stand, just that he's considering it.

## BOOK REVIEWS

The Case for Space Colonization Now!! by Oscar Falconi, Research Publications, Box 1113. Sunnyvale, Ca. 94088. \$1.25

This is the best brief presentation we have ever seen of the case for space colonization, and argues that such colonies are not only wise and prudent but should be our number one priority. Logical, concise, non-technical and very persuasive -- and it costs no more than a hamburger in a fastfood shop! Highly recommended.

Will the Soviet Union Survive Until 1984? by Andrei Amalrik, Harper and Row, New York, 1981

The author, who spent 3-1/2 years in a Soviet prison camp for his views, claims the Russian bureaucracy is so "stagnant" that it will collapse totally in the near future. He sees some chance of Soviet survival if the leadership liberalizes, but does not think that is likely. Worth reading as the view of a dissident announcing that the Emperor has no clothes.

# SPIN, SPIN, SPIN . . .

## MAKING OPERA SPIN

By Dean Gengle

"Someday, I am told, all these things will be done by computer; I have no desire to see it."

—5,000 Nights at the Opera:  
The Memoirs of Sir Rudolph Bing

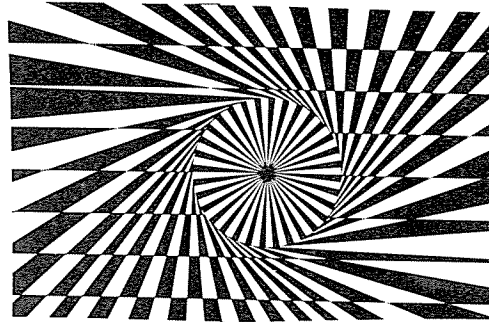
Sir Rudolph is no longer around, but most of the "things" he supposed would be done by computer are still, today, being done the old way at most Opera companies. Most companies have automated their box office and ticket selling methods; some have even automated their mailing lists and patron donation lists. But there is a long way to go before the cost/benefit advantages of the computer are fully applied to the production of Opera. Such advantages may eventually spread the splendor of live Opera to even wider audiences than the companies currently reach.

I use Opera in explaining SPIN concepts to non-computer-oriented friends. Some of them, like Sir Rudolph, are what C.P. Snow called "natural luddites." These people generally identify with "The humanities" rather than the sciences, and many even identify themselves as "artists." Therefore, the use of Opera in my examples can sometimes sneak past their preconceptions of what computers—especially microcomputers—are.

First, the notion of SPINs. SPIN is a way of referring to Special Interest Networks. A SPIN is a deliberately-created network of people using three specific technological tools: *the inter-*

*national telephone grid and all its support systems; microcomputers and/or terminals; and modems (which stands for "modulator/demodulator) which connect the computers to the phone grid. Eventually, SPINs will also use cable television hookups, satellite transmission channels, and pocket-radio signals as well. For now, however, anyone anywhere (practically) can set up a quite powerful SPIN using the three off-the-shelf technologies listed. These technologies and related software are available right now.*

What is the advantage of linking the telephone to a microcomputer? There are several:

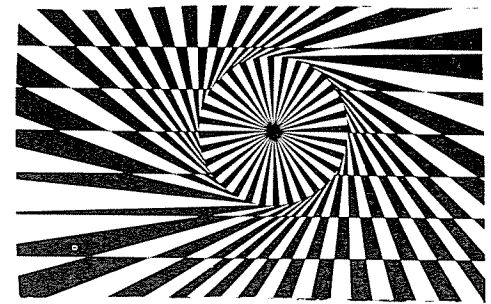


(1) The microcomputer allows incoming messages to be stored and retransmitted at each person's convenience (this is called "asynchronous communication" or "asynchronous conferencing").

(2) The microcomputer allows written material to be bounced around without the costs associated with postage, paper and duplication.

(3) The microcomputer makes information that is useful available to the entire network of users, thereby creating a backlog of data. That backlog, in turn, becomes a source of wealth, as new patterns and connections are found/created out of the collected information.

(4) There is an immediacy to the process when a microcomputer is used for conferencing. *There is only a miniscule delay between the composition of a message and its distribution throughout the network.* Whatever is entered is available along with everything else that has been entered



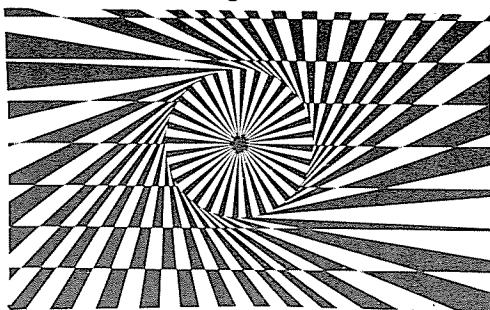
(5) At its best, the microcomputer linked with the telephone becomes a self-organizing medium that reflects the combined thought of its users, sometimes creating synergetic structures that are surprising, even to the creators of individual items of information.

(6) The microcomputer is cheap (when compared with equivalent methods of getting information to others), and it's getting cheaper.

In addition to the direct, more-or-less technical advantages of SPINs, there are other, more indirect benefits of SPINs, of a sociological nature. These have to do with the way human beings solve problems in different settings. In general, there are problem solving advantages to SPINs that are not found in other task-oriented social structures: 1) The network structure tends to encourage the full use of new ideas on both an individual and a group level. 2) Networks tend to minimize the results of failure for both the individual and the network. 3) The network structure tends to promote the penetration of new ideas across socio-economic barriers, while preserving ethnicity within groups. 4) Networks tend to maintain flexibility and, hence, are quick to adapt to new situations. The implications of this for global-problem solving should be obvious. 5) Finally, networks put a structural premium on egalitarian relationships rather than on bureaucratic impersonalism and pecking orders.

These, in a nutshell, are the technological and network aspects of SPINs, respectively. The *special interest* part brings us back to Opera.

All the Artistic Directors of Opera companies throughout the world constitute one special interest group. The problems they face are nearly identi-



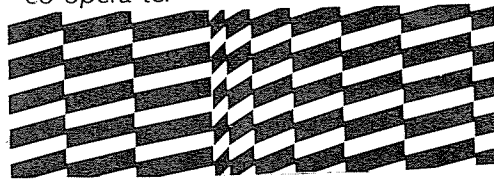
cal in each locale. The Artistic Director has responsibility for planning each Opera season. This planning must take into account what sets the company has. How much money is available for new sets? For payment of singers, staff? How much rehearsal time is available? Which singers are available for particular parts involved in those productions finally mounted? What "mix" of works will draw the most patron support? How much will be new for the season, and which things will be dropped from the repertoire?

Now, in matters such as budgeting time and physical resources, the microcomputer is well-tested and quite adaptable to just about any planning task.

Creating an Opera SPIN could solve several interlocking problems at once. For example, in the list above, finding out which singers are available for which parts at what times of the year is a major coordinating task, involving the singers, the agents of the singers, the Artistic Directors, and a host of intermediary communicators. This is in part why Opera companies plan several years in advance of the actual performing seasons. And, even then, a single change of circumstances for a single singer can wreak havoc with a company's whole season.

By creating an Opera SPIN—an international linkage of Opera companies via computer and telecommunications—coordination problems will be reduced, and the time it takes to plan will correspondingly be reduced. The key is the immediacy with which sharing of crucial information can take place during the planning process of each company, as the planning is actually going on. The SPIN also makes possible whole new kinds of fringe benefits, such as international Opera series, the maximizing of resources such as sets and costumes, and the sharing of costs for mounting new productions, which are enormous when borne by a single company.

One friend of mine, who works for an Opera company in a major U.S. city, commented that SPINs were all very well and good, but getting Artistic Directors to cooperate that way would be a major hurdle. After all, he insists, Opera is where the term "prima donna" came from, but I reminded him that "opera" is at the heart of "co opera te."



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