FOR THE BELL

A Question of Global Consciousness

DEAN RADIN

Parapsychology

Imagine a vast, windswept ocean with scores of buoys dancing in the waves. Each buoy has a bell attached to it to alert passing ships about hidden reefs and shallows. The sounds of each buoy's bell are also broadcast by radio to a land-based central receiving station. This station receives the transmissions and consolidates them to form a single collective sound reflecting the ocean's grand dance.

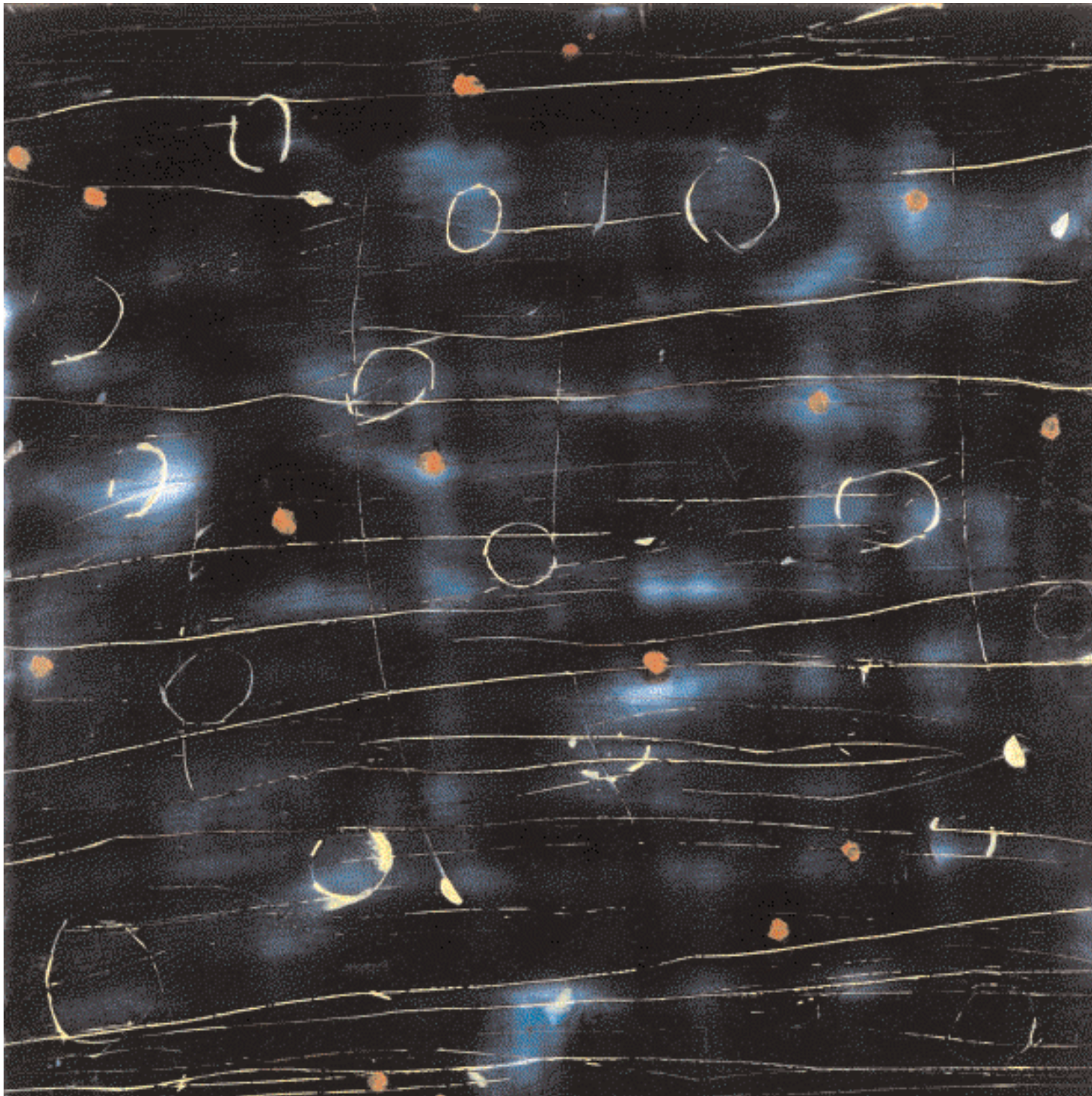
Most of the time this sound is unpatterned, similar to the random tinklings one might hear from a set of wind chimes dangling in a breeze. But every so often these bells, isolated from one another by thousands of miles, mysteriously synchronize and produce a great harmonic chord. When this occurs, we know that something big has affected the entire ocean.

Because buoys reflect only wave surfaces, and the ocean is complex and deep, we can only guess what caused the big event. One possible explanation is a hurricane, another is that the ocean was hit by a meteorite. A third explanation, one closer to the present topic, is that something stirred in the ocean's depths, possibly something quite small and subtle at its origin, but encompassing the entire ocean upon rising from the deep.

Whatever the ultimate cause, we are interested in two basic analyses when random bell tones cohere into a grand chord. The first is the amplitude of the tone (how loud it is), the second is the purity or degree of harmony of the tone (how coherent it is).

WHOM TOLLS

JOANNE MATTERA



The Experiment

A research project analogous to monitoring the ocean's surface is quietly underway, but instead of monitoring movements of global water, it monitors "movements" of global mind. Just as an ocean may be thought of as a collection of billions of drops of water, global mind is conceived of as an ocean of individual minds. Instead of buoys, the project uses a special type of electronic circuit called a random number generator (RNG). Instead of exploring the ocean-environment relationship, it explores the mind-matter relationship.

The Global Consciousness Project (GCP), an Internet-based experiment led by Princeton University's Dr Roger Nelson and cosponsored by the Institute of Noetic Sciences, has grown from a handful of interested colleagues and a few RNGs in 1998 to more than 70 participants and 50 RNGs worldwide by early 2003. The project studies possible interconnections between mind and matter on a grand scale.

RNGs are electronic circuits that simulate random coin-flips; the randomness is based on electronic noise. The GCP uses these circuits to detect mind-matter interactions because periods of order can be easily detected in RNG outputs using standard statistical methods, and if such periods of *physical* order repeatedly coincide with episodes of *mental* order, then we can infer the presence of a mind-matter relationship.

Discovery Sheds New Light on Gaia

300-year-old document fragment reveals past scientific insight

By Kale Hill

LONDON PRESS JOURNAL

LONDON, MAY 5, 2515 – Archeologists digging in the ruins of a North American city have unearthed a significant artifact - a fragment of the famed *Encyclopedia Gaiactica*. First published in the 22nd century, the *Gaiactica* was the authoritative repository of knowledge of the time. Discovery of this encyclopedia, lost for centuries, is expected to yield new insights into our prehistory.

Perhaps the most exciting find is reference to an article in a physics journal, *Foundations of Physics Letters*, published at the turn of the 21st century. This article is believed to describe the first scientific experiment presaging Gaia's Awakening. Most historians agree that the scientists who conducted this experiment could not have understood the true import of their observations, as the mathematics of Translidenity Theory was not fully developed until the 23rd century.

To appreciate how prescient this experiment was, it is important to realize that 21st century scientists were deeply perplexed by the mind-matter relationship. They had a limited understanding of the virtual states described by quantum mechanics, and were completely baffled by human consciousness. Some scientists speculated, based on the success of quantum theory, that at deep levels Nature was literally quantized and discontinuous. They didn't realize that "quantum jumps" were a subtle illusion, reflecting changes in our knowledge about Nature, and not the structure of Nature herself. Likewise, the notion of "nonlocal entanglement," a bewildering concept at the time, was ultimately understood as merely one of the kaleidoscopic ways that the unity of Mind can creatively manifest.

But this does not reduce the experiment's historical import, as it provides the first clear evidence that prior to the Awakening some scientists were already responding to Gaia's call. Unfortunately, the original physics paper was not found in the fragment of the *Gaiactica*, but it did contain a non-technical summary, which is reprinted here in its entirety.

Project Origins

In the 1930s, Professor J. B. Rhine and his colleagues at Duke University began to systematically study mind-matter interactions by examining whether mind could influence tossed dice. In a simple dice experiment, a participant might be asked to repeatedly roll a die and wish each time for say, the 4 face to land up. The observed number of 4's would then be compared to chance expectation. In 1991, Diane Ferrari and I reviewed all known dice-tossing experiments. We found 148, increasingly sophisticated, conducted

by researchers around the world. The combined results indicated that under controlled conditions, people could influence the roll of dice to a small extent.

In the 1960s, Dr Helmut Schmidt at Boeing Laboratories refined the dice tests by developing a quantum-based RNG. By the end of the twentieth century, dozens of experimenters worldwide had conducted hundreds of experiments using RNGs. In 2001, Roger Nelson and I systematically reviewed all published RNG studies; we again found strong evidence for minute but repeatable mind-matter interactions. These effects do not seem to occur because the mind directs energy towards the RNG, forcing it to bend to the mind's will, but through more subtle means. One possibility is that the act of observation induces biases in the underlying probabilities of random events. The data also indicate that mind-matter interaction effects do not appear to be bound by the ordinary constraints of space or time.

Starting in the 1970s, researchers began to focus on process-oriented research to try to better understand this complex mind-matter relationship. Most of those studies investigated the conditions under which one person's stated or inferred intention affected one RNG in the laboratory. Then, in 1995, Dr Nelson pioneered a new line of RNG experiments. He wondered whether the act of coherent attention, as opposed to focused intention, might be an important component in producing mind-matter interaction effects. Could the ordered minds of groups of people generate something like a field effect that directly influenced physical reality? And could such a mental ordering principle be detected in a physical device designed to generate random events?

To explore such questions, Nelson examined the outputs of RNGs before, during, and after coherent group events. These included captivating theater shows, religious rituals, and group meditations. Nelson's results in these "field-consciousness" studies stimulated other researchers to explore possible field effects in other contexts. Soon, positive results were reported for events such as television broadcasts of the Academy Awards, the O. J. Simpson verdict, intense psychotherapy sessions, brainstorming meetings, and New Year's celebrations.

Today, after more than 200 such tests by a half-dozen researchers worldwide, it seems increasingly likely that ordered mind is somehow reflected in the physical world. Under certain conditions, especially sustained periods of coherent group attention, random sequences generated by RNGs appear to become less random than expected by chance.

A key concept emerging from these studies is the role of coherence. In some mass sports events such as World Cup soccer, enormous amounts of group attention are focused on the game, but that focus is split between two teams, diffusing potential coherence. This is in contrast to, say, a celebration like New Year's, which tends not to split people's loyalties, attentions, or intentions.

Random Number Generators

In late 1997, while discussing these field-consciousness experiments with Nelson and a few other colleagues, I mentioned that what we needed was a worldwide network of continuously running RNGs, with the data accessible over the Internet. With such a system in place, we could easily compare newsworthy world events—including unexpected events—against the RNG outputs. Nelson immediately agreed, and with heroic design and programming assistance from Greg Nelson and John Walker, the GCP was soon born.

The technical underpinnings of the GCP can be daunting for those not agile with statistics, electronics, and the

Internet, so I will refer readers interested in such details to the references at the end of this article. Briefly, the RNGs are hardware circuits that rely on a type of electronic noise (traceable to quantum tunneling) for the source of randomness. Each RNG provides sequences of truly random bits (0s and 1s) at the rate of about a thousand per second, and these outputs are monitored by a personal computer (PC). The PC collects 200 random bits into one "trial" per second and records these trials in time-stamped files. All of the PC clocks are synchronized to standard Internet time. Packets of random data from each PC are periodically transmitted over the Internet to a computer in Princeton, New Jersey, for archiving. As of Winter 2003, the network had 50 RNGs located mostly in Europe and North America, with RNGs also located in Brazil, South Africa, Russia, Japan, China, Thailand, India, Fiji, New Zealand, and Australia.

Each RNG generates numbers that, when collected into a histogram, forms a classic bell-shaped curve. The basic GCP analysis examines how the shape of this bell curve changes over time. In effect, these analyses examine the "ringing" of the bell curve over the course of human events, and in this sense, the GCP wants to know, as John Donne poetically put it in the seventeenth century, "for whom the bell tolls." [See Fig. 1.]

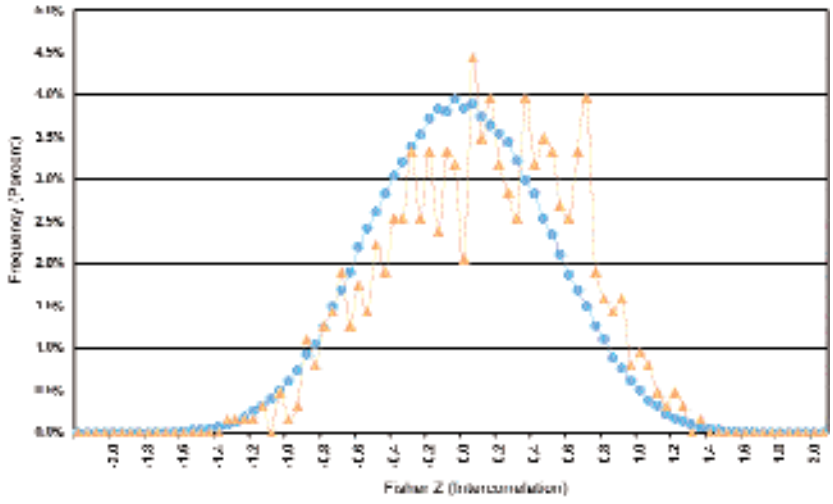


FIG. 1

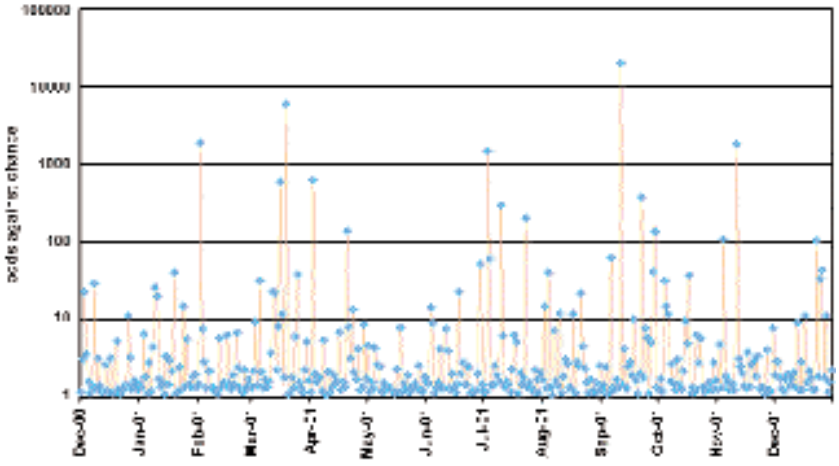


FIG. 2

FIG. 1: *Histogram for all daily RNG intercorrelations from December 2000 through December 2001 (the smooth, bell-shaped curve), and the daily intercorrelations observed on September 11, 2001 (the jagged curve).* FIG. 2: *One-tailed odds against chance for daily RNG intercorrelation values. The peak value is September 11, 2001.*

The mind-matter interaction hypothesis is formally tested by examining whether RNG outputs deviate from chance expectation from just before an event of widespread interest to a few hours afterwards (which ensures that the data examined fully cover the event of interest). As of January 2003, some 126 selected events have been formally tested, with results significant at odds against chance of about 300,000 to 1. Overall, the GCP is providing increasingly persuasive evidence for mind-matter connections associated with world events. What is happening in the RNGs during these events?

A Test Case

The terrorist attacks on September 11, 2001, in New York City and Washington, DC, provide an unfortunate but informative test case for the GCP, as these events generated a sustained period of very high, worldwide, coherent attention.

Analysis of the GCP data on that day revealed a number of statistical anomalies. First, the formal analysis that is applied uniformly to all events tested by the GCP was applied to data from all RNGs running during the terrorist events (37 RNGs were active that day). The results showed a deviation from chance expectation with odds of 20 to 1. This modest but statistically interesting finding stimulated a series of exploratory analyses. My colleagues and I found that on 9-11 the composite RNG bell curve deviated wildly from chance in both the positive (too much order) and negative (too much disorder) directions. Over a period of eight hours, starting about two hours before the first jet hit the World Trade Center tower, the bell curve became too "flat" (hinting at the possibility of a grand premonition), and then it rebounded to become too "thin," somewhat analogous to how a physical bell acts when hit hard by a mallet. The magnitude of the bell curve's "ring" on this day was larger than that observed any other day in the four-year GCP database, so far.

Another measure explored was the degree to which the RNGs showed the same type of deviation in their individual bell curves. A high intercorrelation among the RNGs would indicate that the observed effect was "felt" around the world at the same time; this would be a truly nonlocal, holistic phenomenon. Results showed that over the four-year GCP database, the daily RNG intercorrelation value for 9-11 was the 15th largest (out of nearly 1,400 days), which is associated with odds against chance of 90 to 1. This means that on that fateful day, the GCP's "bells" collectively rang around the world with an unusually pure tone. [See Fig. 2.]

We also considered whether the 9-11 results may have been due to statistical flukes or analytical mistakes, and whether the observed deviations could be explained by more mundane effects like increased cell-phone usage (and therefore electromagnetic interference) on days with major news events. After carefully rechecking our analyses, we concluded that the results were valid. Ultimately, we published our findings in the physics journal *Foundations of Physics Letters*. Of course, as is always the case with controversial topics, a few scientists who examined the same data were quite skeptical about our conclusions, so we looked for ways to generalize beyond the 9-11 result.

News Analysis

Evidence for a truly global consciousness effect would be more persuasive if it could be shown that the GCP bell "rang" in proportion to the amount of inferred global coherence. To explore this question as objectively as possible, I used a list of daily, worldwide news events from the "Year in Review" feature on an Internet news website, *www.infoplease.com*, for all days logged in the GCP database, concentrating on three full years of data: 1999, 2000, and 2001.

For this three-year test period, *infoplease.com* listed a total of 1,282 news events, which took place on 771 days

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For Whom the Bell Tolls, *continued from page 13*

(some days had more than one event listed). The GCP hypothesis predicts that these 771 days should have a larger average RNG intercorrelation value than the remaining 325 days. The prediction was confirmed with odds against chance of 50 to 1. In other words, RNGs operating independently and isolated from one another by up to thousands of miles collectively behaved more harmoniously on days with newsworthy events than on days with no events of widespread interest.

This result was encouraging, but to generalize it even further, the "amount" of daily news was calculated. The *infoplease.com* list of news events shows that over the three-year test period, the minimum number of news events occurring on a single day was zero, and the maximum was six. Each of those events was accompanied by a text description where the number of letters used ranged from 72 to 1,193. We used these daily text counts as indirect indicators of the amount of news per day. If the grand GCP bell was indeed more harmonious on days with more news, then we'd expect to see a positive correlation between the RNG outputs and the news. As predicted, the result was significantly positive with odds against chance of 70 to 1. The same analysis applied to all GCP data (four years of daily data) resulted in even greater significance, with odds against chance of 600 to 1.

Coincidences

If the GCP is detecting genuine, large-scale mind-matter interactions, then it raises the possibility that some coincidences may be more than just dumb luck. For example, consider these two cases associated with the 2002 memorial anniversary of 9-11.

On the evening of September 11, 2002, the New York Lottery drew the sequence 9-1-1. The chance probability of any given three-number sequence is 1 in 1,000. And indeed, in the previous 5,000 drawings of this lottery the sequence 9-1-1 had come up exactly five times. This confirms that the New York Lottery's method of selecting numbers is not biased. However, is it a coincidence that this number appeared on this date, in this city, and not in any of the other state lotteries? Given that this lottery event was not predicted, there is no definitive answer to this question. But given the massive attention placed on the sequence 9-1-1 on that day, and in that city, it does makes one wonder.

The second coincidence was reported on September 12, 2002 by the *Milwaukee Journal Sentinel* with the headline, "A Sudden Breeze and Loved Ones Seemed Near." Minutes before a commemoration service was about to take place near "ground zero" in New York City, a strong wind suddenly picked up and filled the air with dust, causing many to recall the chaotic skies over Manhattan of exactly one year before. What makes this event unusual is that the skies that day were clear and blue, the weather was calm, and no storms were predicted. The following month, *Windsurfer* magazine published an article written by a windsurfer who attended the ceremony. After witnessing the strong wind that came "out of nowhere," the windsurfer checked the wind records for September 11 and for the previous few days. The results were striking: For a week before September 11, 2002, the winds near New York City were calm, averaging about five miles per hour. On September 11 around 9 AM, the winds in the bay near Long Island suddenly shot up to over 45 miles per hour.

To examine this report in more detail, I obtained weather data from the National Weather Service's station in Central Park in New York City and also from Dulles

Airport near Washington, DC. Sure enough, both locations experienced a sharp change in both barometric pressure and wind speed, starting around 9 AM on September 11, 2002. Then I obtained weather data for each day in September 2002 at these two locations for comparison with similar data from the same locations and same month over the previous five years. This comparison sharply highlighted the extraordinary nature of the "out of nowhere" coincidence. Storm fronts are typically characterized by a drop in barometric pressure, a rise in wind speed, and a rise in precipitation. But this didn't happen on September 11, 2002. There was no rain that day: just a clear blue sky and a wind that came out of nowhere.

Gaia's Thoughts Finally Revealed

Complex language contains familiar message

Huang Kai Ling
BEIJING INDUPENDENT NEWS

BEIJING, June 5, 2902 - When a fragment of the *Encyclopedia Gaiaca* was excavated by archeologists four centuries ago, historians considered it a major discovery, pushing evidence for Gaia's Awakening back to the early 21st century. Today we know that Gaia has been sentient for billions of years, possibly even before the gas cloud that would become Her body had coalesced into denser matter. We also know that She had been attempting to communicate with us for at least 30 millenia.

Two decades ago, scientists at the Gaia Linguistics Institute finally deciphered Her immensely rich and complex language.

But because Her temporal perception is so much slower than ours, extensive debates were held to decide what our opening communication should be, as it would take about a decade to send a simple message and at least another decade to receive it. After all the debates, the first message sent 10 years ago was: "Gaia, we understand you now. Please tell us, where did we come from?" Gaia's response is still being received, but Her opening reply was revealed today for the first time. Gaia responds: "In the beginning, we were without form and void, and darkness was upon the face of the deep . . ."

Tentative Conclusions

This ongoing experiment suggests that as mass mind moves, so does matter. The effect is modest in terms of its absolute magnitude, but it appears to be a real, persistent effect. The arrow of causation *seems* to go from mind to matter, but at this early stage we need to remain open to other possible explanations. Perhaps there is a third, as yet unidentified common cause, or even no cause at all, as in acausal synchronicities.

For most of the twentieth century, physicists were reluctantly forced to seriously reconsider common sense assumptions about the apparent gulf between observer and observed. In the latter half of the twentieth century, investigators developed increasingly rigorous methods for explicitly testing mind-matter interactions. As the twenty-first century dawns, when we ask, "For whom does the bell toll?," the response appears to resonate with John Donne's poetic reply in the seventeenth century: "No man is an island. The bell tolls for thee."

FURTHER READING

GCP website: http://noosphere.princeton.edu.

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DEAN RADIN *earned a PhD in psychology and an MS in electrical engineering from the University of Illinois. He is author of* The Conscious Universe *and nearly 200 scientific and popular articles. Dr Radin was elected president of the AAAS-affiliated Parapsychological Association in 1988, 1993, and 1998, and is senior scientist at IONS.*