

**Ways of Knowing:
A Visit to the London Science Museum
By Michael Mannion**

It was the kind of day that makes you feel that anything is possible.

The white facades of the columned buildings that line Queen's Gate in Knightsbridge were drenched in the morning light. The piercing blue sky pulsed vibrantly. I drank it all in as I waited for the cab that would take me to the home of a friend.

On the ride, we drove past the Albert Memorial which stands near the southern boundary of Kensington Gardens. This richly decorated tribute to the prince-consort of Queen Victoria is nearly 200 feet tall. The figure of Prince Albert is under a canopy near the top. There are 178 marble reliefs of artists and writers surrounding the pedestal on which the prince stands (not one woman among them.). Sculptures at the corners of the pedestal symbolize Agriculture, Commerce, Engineering and Industry. Other statues at the outer corners of the memorial represent the peoples of the world who were once under the domination of the British Empire in Europe, Africa, Asia and the Americas.

The grandiose monument reminded me of the beginnings of capitalism, the Industrial Revolution, and the age of imperialism, a period which was the origin of many of the crises we face today, 200 years later. In some respects, we have not made much progress at all in the past two centuries. In many parts of the planet, today's unrestrained global capitalism resembles that of the early 19th century. The widespread use of coal in England two centuries ago caused great environmental damage and made many people ill. Shockingly, at the beginning of the 21st century, the technologically advanced United States is still dependent on coal, deriving more than 50 percent of its electricity from this polluting energy source.

The drive took me past many of the corporate towers of the emerging economic system of the 21st century—Citibank, Visa, EMC2. The characterless, austere glass and steel towers have none of the gaudy excess of the monuments of the Victorian era. But in these sterile towers, thousands of men and women, the heirs of imperialism, empire and superpower dominance, are creating the global economy in which the needs of corporations—legal persons—are placed far above the needs of living persons, who are too often treated as nothing more than raw material.

There were very few trees along the route from London to the suburbs. England had once been rich in forest land but the trees are long gone. The same is true for most of Europe. In North America, little remains of the great forests that stood before the arrival of the Europeans. In the United States, industry is determined to cut down every last tree that remains of the old-growth forest—about five percent of what once graced the continent. At times, the obsession to destroy the forests seems to rival Ahab's vengeful quest to destroy the White Whale, as described in Melville's novel *Moby Dick*.

The people of the old world and the new have created, and are still creating, the conditions that are destroying the air we breathe, the water we drink, the foods we eat, and the intricate interrelated living systems of the natural world that support and sustain us. These life-threatening social developments are of great concern to people all over the planet. On every continent, voices are being raised questioning what we are doing to the planet; sounding alarms over ecological crises; attempting to awaken humanity from the deadly trance it is in. Women and men in every nation have a profound understanding that we must change our ways of living now—not 10 or 20 years from now. We do not have that luxury. Time is running out. Many voices are summoning us to act to save our planet, and ourselves, before it is too late.

Many such thoughts and observations flowed through my mind on the drive. My upbringing and education had rooted me firmly in the “reigning paradigm” of materialism, the philosophical theory that physical matter is the only reality. In this view, everything can be explained in terms of physical matter, including thoughts, emotions, the mind itself, and beyond that, consciousness. Materialism was more in harmony with Western science than earlier thought systems and, after the nineteenth century, metaphysical speculation about the nature of reality could not compete with the description of reality that was obtained through scientific experimentation.

The worldview of my teachers was shaped by the Western scientific tradition of the past 400 years—Galileo, Newton, Descartes, Einstein. Part of my thinking was in turn shaped by them. Without being aware of it consciously, my view of reality determined what I thought could be real and also what was unreal or illusory. All of us, whether we know it or not, have a worldview—a picture of reality—that anchors us in this life, that gives us emotional equilibrium. In general, we are not aware that we have a quite definite image of reality until someone or something shakes it and threatens it. The stories of those who report their extraordinary experiences challenge the dominant worldview, as do examinations of anomalous phenomena that defy scientific explanation.

There is no place in this materialist view of reality for such things as ESP, extraterrestrial life and other anomalous phenomena. The paranormal or the parapsychological might be a worthy subject for a light-hearted, half-hour TV show or an idle discussion, but science had surely explained away and surpassed such old-fashioned, superstitious notions.

Yet, scientists have not actually “explained away” anomalous phenomena. They have simply refused to investigate them. Why? Because in terms of their worldview, they cannot be real. Since they cannot be real, they do not merit an investigation. There is a great irony here. The scientific revolution began with Galileo and the experts of his day would not look into his telescope to see the moons orbiting Jupiter. Why wouldn’t they simply look for themselves? Because in their worldview, there could be no moons around Jupiter. Therefore, there was no reason to peer through Galileo’s telescope. So here we are, 400 years later, with the scientific heirs of Galileo behaving in much the same manner as the authorities who scoffed at the legitimacy of science centuries ago.

Some in the scientific community are taking an interest in phenomena that we do not understand but that could have important implications for society. For example, studies have shown that focused meditation by TM groups has had the positive impact of lowering the crime rates in different U.S. cities. In addition, people associated with the Dalai Lama have demonstrated that their focused meditation seems to have helped prevent or minimize violence.

Increasingly, the power of what some call the “collective consciousness” is coming to be recognized by serious researchers. Scientists such as Robert Jahn and Brenda Dunne at the Princeton Engineering Anomalies Research (PEAR) lab are studying it, demonstrating how focused thought can change the functioning of random event generators. Other organizations, such as the Institute of Noetic Sciences, are funding investigations into the power of intentionality, healing at a distance, and prayer. Rupert Sheldrake’s work involving what he calls “morphic fields” also demonstrates the effects of “collective consciousness” acting at a distance.

It is always important to remember that naming is not knowing. We have given many names to anomalous phenomena, but we have not made much headway in their comprehension.

Whatever destiny, fate, divine intervention or luck may turn out to be, most of us are aware of instances in our lives when an unseen hand seems to have guided us, to have prompted us to do something, or to refrain from taking an action. At the moment, we may have been puzzled by what we chose to do or not to do. “Why am I doing this?” we may even ask as we take the unexpected course of action. Our decision may not even make much sense at the moment. But in retrospect, we see that our lives are radically different because we pursued the course we did—which was not the path we would have taken under ordinary circumstances.

After a wonderful visit with an old friend, I arrived back at the hotel, and relaxed in my room for awhile. But within a few hours, I became restless. Although it was the late afternoon and the day had become chilly and gray, a walk was just what was needed.

The streets of London were quiet as I wound my way behind the Royal Albert Hall, admiring the beautiful buildings that belonged to various schools of the Royal Academy. Unfamiliar with the neighborhood, I decided to just walk, not caring which way I went. Shortly after turning onto Exhibition Road, I came upon the Science Museum (formally known as the Museum of Science and Industry) and decided to see what it had to offer.

The ground-floor displays were a tribute to and a glorification of the machines that are the foundation of mechanistic technology. Most of the exhibits were devoted to equipment whose purpose was to create energy. They were massive devices, Rube Goldberg-esque in their cumbersome complexity. A 1788 steam engine designed by Boulton and Watt is among the major exhibits. The museum housed an impressive display of examples of a technology derived from the concept of Man Against Nature. These devices were all designed to overcome or counteract nature by force. There was no attempt to work with

nature evident in the design of the machines. As I walked along the huge hall, the machines became smaller and smaller, but the basic elements remained quite similar.

There is an abrupt transition in the museum from one hall, which contains machinery from the 18th and 19th centuries, into an adjoining hall devoted to the exploration of outer space. Numerous rockets were on display, as were a model of the Lunar Excursion Module, a Soviet spacecraft and the U.S. Apollo 10 Command Module. In glass cases along the walls, manikins dressed in space suits offered close-up views of other aspects of the technology of the space program.

It suddenly was clear that the technology of the space program—which had always seemed so advanced to me—was the logical extension of the machinery of the 18th and 19th centuries. In a moment, my view of our most modern technology changed dramatically. In one of the displays, the outer covering of a space capsule was partially removed to reveal the inner structure of the craft. The tangled mish-mash of wires and tubing had none of the elegance associated with sleek modern technology. The space capsules, the devices, the artificial suits all looked quite primitive. The NASA Apollo displays seemed as dated as the steam engines and motors of 200 years ago.

It had never been so obvious to me that the mindset of the human beings who created the Industrial Revolution was also the mindset of those who created the technology of the 20th century. And it is this mindset, misusing mechanistic technology, that is creating the ecological holocaust now underway on Earth. The machines from the different centuries are basically the same because they were created by human beings with the same basic character structures. The rigid character structure of people of today cuts them off from nature. Because they have lost contact with nature, both within themselves and in the outer world, they can conceive of and carry out the destruction of the environment.

The power of the forces opposing those who are attempting to save the planet are not just economic or political. It is true that most of the major social institutions in the world today resist altering the status quo. However, the resistance to change is not limited to institutions. It is also rooted in the rigid character structure—the unyielding minds and bodies—of the average person living on earth today.

Yet change is not impossible. Increasingly, extraordinary experiences are waking up people and changing their lives dramatically. Could learning about such extraordinary experiences serve to wake up other people? Can the stories of other people change the way in which human beings view what is happening on our planet so that they take positive action before it is too late? Or must one have one's own extraordinary experience before fundamental change can take place?

Amidst the displays of the powerful machines of the last 200 years, these were daunting questions. I decided to leave the Science Museum and continue walking and wondering. However, after a very short stroll, I came upon a side entrance to the Natural History Museum and went right in.

Ahead was an escalator that rose up into what looked like an asteroid. At the foot of the escalator were statues of human beings from pivotal points in human history, the most recent figure being that of an astronaut. While riding up the moving stairway, ancient questions appeared and disappeared on the walls—Who are we? Where did we come from? Are we alone in the Universe?

The escalator deposited visitors in the Earth Galleries, in which the history of the planet is portrayed. There are also displays of the geology and minerals of the earth. There are many multimedia exhibits showing images of volcanic activity, such as that at Mt. Pinatubo; climate, weather and seasonal vegetation patterns on the planet; and the effects of earthquakes. In addition, there are interactive exhibits in the “restless earth” area that show how natural phenomena continually reshape the globe.

After viewing the television footage on the volcanic eruption at Pinatubo, I entered a room in which the impact of the terribly destructive 1995 Kobe earthquake in Japan was presented. The power of the quake was successfully recreated. Having experienced two earthquakes in San Francisco (at magnitudes of 4.5 and 5.0), I had memories of personal experiences to compare with the exhibit.

Throughout this section of the museum were panels and posters informing visitors about important environmental issues. A deep concern for the earth, and for our continued existence on it, was an underlying theme of the exhibits. It was a welcome relief, I thought, from the glorification of mechanistic technology in the Science Museum. The scientists who put the earth galleries together appeared to care about the Earth and to understand that there is a crisis at hand.

Just then, one of Albert Einstein’s oft-quoted remarks came to me. He had once observed that the mind that has created a problem will not be the mind that solves the problem. Although the scientists of today sincerely desire to solve the environmental problems we face, it is unlikely that they will be able to do so. It is their method of thinking and problem-solving that created the crisis to begin with. It dawned on me that despite its best intentions, as expressed in the well-conceived and executed displays in the museum, mechanistic science could not find the answers that are needed..

To many people, technology is akin to magic. In Western society, a great mystique has grown up around science and technology but there is nothing mysterious about it. As we learn more about biology, chemistry and physics, the knowledge gained is applied mainly to the creation of consumer products and improvements in the technologies of the workplace. Most of us have a sense of awe about modern science simply because we do not have the slightest idea of how things work.

For example, we walk into a room, turn on the computer, connect with the Internet and communicate with people halfway across the world. But few of us can explain just how this is accomplished. Almost everyone in the West has driven an automobile, yet how many can explain why a car accelerates when the gas pedal is pressed? To a culture that views all-too-human technology as magic, it only seems logical to turn to the wizards of technology

to solve the problems they have created. But technology is not magic and technicians and scientists are not wizards.

The automobile is one of the most significant causes of pollution on earth today. Ironically, when the automobile was introduced a century ago, it was seen as the answer to the public health threat posed by animal wastes from horse-drawn forms of transportation in urban areas. The civilian use of atomic energy was heavily promoted and funded in the 1940s and 1950s with huge subsidies from the federal government in the United States. Consumers were told atomic power would provide electricity that would be too cheap to monitor. Today, we are saddled with the unsolved problem of thousands of tons of nuclear waste that we do not know how to store safely; aging, brittle nuclear power plants that hang over our heads like so many Swords of Damocles; and electricity produced by nuclear plants that is the most expensive energy available.

Unfortunately, there are many other examples of the double-edged gifts of mechanistic technology. In the last 50 years, industrial agriculture has produced greater amounts of food but in doing so has polluted our drinking water and poisoned the soil, depleting it of its vital qualities. With the development of genetically modified foods, industrial agriculture has created yet another threat to human beings and to the environment.

The visit to the museum reinforced two ideas: (1) that the science and worldview that created the problem cannot solve the problem; and (2) that the tools of mechanistic science are the products of the mechanistic thinking and rigid character structure that created them. These two factors play large roles in explaining why today's science cannot solve the crisis it has brought about.

After having walked through all the exhibits, I turned and looked back at the entire gallery. What did I see but displays devoted to volcanic activity, violent weather, earthquakes, desert development, drought and many other forms of earth catastrophes. During the 4.5 billion years of earth's existence, there have been five great extinctions, in which almost all life on the planet perished. We are in the midst of the sixth great period of extinction and we are playing a central role in the disaster.

As I looked at the gallery from a distance, it was clear that everything portrayed in the exhibits, all the great earth upheavals, are examples of what is coming our way. In fact, many of these events are already upon us. The dramatic worldwide climatic change is a prime example. The disturbing environmental phenomena that are now manifesting themselves—drought, freak storms, torrential rains, tornados, extremely powerful hurricanes and blizzards—will only increase in intensity and destructiveness if we continue on our present path.

There are many ecological crises facing us. For many individuals and organizations, the single most important immediate thing that we absolutely must do for the health of the entire planet is to save the rainforest now. If we do not do this within the next decade, they believe, we will be too late. The damage from the loss of the rainforest will be global and severe. The rain forests are "the lungs" of the planet and we and countless other life forms

will not survive without our lings.

One difficult dilemma presented itself to me. Our society has placed science on a pedestal and, in terms of the physical world, considers science to be the only valid way of knowing. People believe this even though very few understand what the scientific method is or how it is used. But knowledge can be gained through other ways of knowing, that is, non-scientific ways of knowing. If science cannot solve the problems it has created, and there is not a general acceptance of other ways of knowing about the world we inhabit, what then do we do?

As I left the earth galleries, I decided to exit the museum through the main entrance. The impressive Romanesque cathedral-like museum designed by the architect Alfred Waterhouse took seven years to complete. The twin-towered museum stretches for 755 feet along Cromwell Road in Kensington and the terra cotta blockwork of its massive façade is elegant and beautiful. The arched ceiling of the main hall is well over 100 feet high and the artwork in the ceiling panels is exquisite. The sole exhibit in the Central Hall is that of an enormous 85-foot long dinosaur skeleton called Diplodocus. The soothing aesthetics of the remarkable structure called to me.

Just before I entered the Central Hall, something down a corridor on my right caught my attention out of the corner of my eye. At first, I resisted going to see what it was. It was getting late and I was becoming tired. But the feeling that I should turn back and see what was down the hallway grew stronger and stronger. Remembering my friend's suggestion to pay attention to feelings I might otherwise ignore, I retraced my steps and went to see what was at the end of the corridor.

What had beckoned me? The Rain Forest.

At the end of the hallway, at the beginning of an exhibit on the ecosystems of the planet, was a small multimedia display about the rain forest. Above the entrance, a large sign urged all visitors to enter the exhibit with one thought in mind: to see the rain forest as a living thing; to feel the living in all the plants and animals that dwell there.

The rain forest is not an object. It is not a tourist attraction, like the Statue of Liberty or the Eiffel Tower. It is alive. When we are urged to preserve and protect the rainforest, we are being encouraged to protect life in all of its great diversity. We are being summoned to protect Life Itself.

The synchronicity or coincidence of this exhibit catching my attention as I hurried from the museum was too obvious to overlook. I entered the exhibit and listened to the sound effects of water flowing in a brook, wind in the trees, and birds singing. Letting my mind clear itself of thoughts for a moment, I felt the sense of the rain forest both as living and as home to the living.

How marvelous that my walk had led me to these two museums. I entered both buildings through secondary entrances and walked randomly from one exhibit to another. My

wanderings through the exhibits had been against the planned flow of visitor traffic. I had come upon the displays in an order not intended by the designers of the institutions. But it could not have been more effectively designed to help me understand better. Thoughts of a guiding, unseen hand came to mind but I resisted them.

I left the museum energized. On my way back to the hotel, my thoughts were focused on the great efforts that human beings have made over the millennia to understand themselves and the world in which they live. The many ways of knowing mankind has devised lay before me with the potential to provide a context within which to better comprehend myself, our world and perhaps even Life Itself.

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