

## 10. Science Eye

Every human on our globe is made of an octillion vibrating quarks which are dive-bombed at two hundred million meters a second by nine quintillion neutrinos every day while constantly enveloped with multiple types of electromagnetic radiation.(1-3) Far less glamorous is that each body comes from the same elements found in soil, and will all revert to dirt.

By widest definition science is possession of knowledge as distinguished from ignorance or misunderstanding.(4) By that definition my entire book is dedicated to science. However, science in this chapter reflects common definitions: knowledge concerned with the physical world and its phenomena, branches of systematized knowledge made into specific objects of study, and generally accepted knowledge that has been accumulated and formulated with reference to discovery of established truths or laws.

### Science Deniers

Many people, including otherwise intelligent people in our twenty-first century subscribe to one or more anti-scientific ideas, ideas without any evidence whatsoever, or ideas with more evidence against them than for them. Now I'm unconcerned with irregular ideas such as Earth being flat, Earth being only six thousand years old, and others of no consequence to how anyone lives their life. Other subjects such as quantum physics are highly important for specialists, but unimportant for laymen. Unnecessary argumentation wastes time and breeds needless conflict. But science and fact-denying that negatively impacts others must be addressed.

### Astronomy

“Of all sciences cultivated by mankind, astronomy is acknowledged as, and undoubtedly is, the most sublime, interesting, and useful. For by knowledge derived from this science, not only the bulk of Earth is discovered .....; but our very faculties are enlarged with the grandeur of the ideas it conveys, our minds exalted above contracted prejudices”-----Astronomer James Ferguson, 1757.(5)

### Biology/Ecology/Zoology

Most people talk and behave as if non-human animals are far different than Homo sapiens in many ways. Yet from a scientific standpoint, especially biology, only one factor makes humans superior. That is, intelligence, which allows us to become educated.

In some cultures it is an insult to be identified with certain animals, such as rats, pigs, or dogs. Yet trained rats are the best method available to clear minefields, saving tens of thousands of humans from being killed or maimed.6

Be self-aware that you too are an animal and dependent on the web of nature. Always do your best to think and act accordingly.

### Panpsychism

Traditional cultures believed that astronomical bodies like our sun were alive, intelligent, and conscious, having emotions and free will. This was the default position throughout history, even among scientists. In the Middle

Ages people generally assumed that the universe was alive; the whole universe a living being. This is panpsychism, formerly called animism.

However, in the 17<sup>th</sup> century the mechanistic revolution arose, breaking with the previous world view. Afterward, all nature was seen as strictly mechanical, the universe a machine made of nonconscious matter. Nobody actually debated our sun's consciousness. It was suddenly assumed to be nonconscious by prevailing materialist philosophers. Consciousness became isolated into the only physical containers we know that contain it: brains. So we were left with this idea that consciousness only exists in these tiny little areas of the universe. Before the 17<sup>th</sup> century this cerebro-centric view of consciousness was apparently nonexistent.

Why reembrace panpsychism now? Due to a crisis within science: the existence of human consciousness. And nobody understands how brains generate consciousness. Moreover, panpsychism has now entered the realm of serious debate within the scientific community. Panpsychists postulate a mind in all self-organizing systems, which exist at every level of complexity. It does not apply to systems that are not self-organizing, such as chairs, tables, computers, motorized vehicles, et cetera. Some things do not organize themselves. They are organized by US.

Though consciousness need not be associated with brains, a needed criteria for consciousness is ability to make decisions among various possibilities. Our sun could certainly make decisions that have effects. Consider his solar flares and coronal mass ejections. The directions which he projects them greatly affect what happens in our solar system. Our sun influences what happens on Earth, modulating her in eleven year cycles and in more subtle ways. And eleven year cycles were periodically absent. So our sun is unlike clockwork mechanisms that just go on predictably; he is extremely variable. Nobody knows what he will do next, which is why NASA has space weather forecasts. Besides, our sun is essentially electrical; plenty of that electrical activity is highly indeterminate.

Our sun's mind could influence his physical activity via electrical activity. Consider that our minds interact with our brains via the interface of electromagnetic fields between them. Alpha waves, Gamma waves, Theta waves, et cetera are associated with different types of consciousness. Overwhelming evidence supports the electrophysiological basis of mental activity. The interface between minds and brains is via electrical patterns, which explains our consciousness. You can also affect people's consciousness by electromagnetic stimulation of the brain. Though memories being stored in brains is a dogma of science, there's very little evidence for it, and it's surprisingly difficult to demonstrate. Scientists have tried for a hundred years to do so, failing time and again. Perhaps they failed because memories are not stored inside brains. Brains may be more like TV receivers than video recorders, tuning into influences from their own past states, which travel via morphic resonance: the influence of like upon like within self-organizing systems across space. Morphic resonance is the idea that there is a kind of memory in all nature.

Also, all self-organizing systems may have a collective memory. For example, each animal species may draw upon a collective memory of its kind. So perhaps our entire galaxy has a galactic mind, stars being like cells in a body, each galaxy like a cell in a universal body (or Anima Mundi as coined by Plato). Learning to communicate with our sun directly would be far cheaper than satellites and solar probes. Replacing reductionist science with holistic science could take us much further than any other rival cosmology.<sup>7</sup>

### Psychic Powers?

Magician "The Incredible Randi" had for years offered a one million dollar prize to anyone who could demonstrate under controlled conditions, that they indeed possess any type of psychic power. Either those making

such claims refused to take the challenge, said they would but backed out, or took the challenge and failed.(8) All psychic powers have been debunked. A common claim that is closely akin to extrasensory power is the claim of having intuition. See Testing “Intuition” in my chapter XXV.

### Psychology (“Social Science”)

People assume that the fields of psychiatry and psychology are based on science without researching the facts. There I have authored a full length dissertation on these issues in Chapter XIX of this book. I adjure you to read it.

### Quantum Entanglement

Particle entanglement, a seemingly otherworldly discovery pertaining to quantum mechanics (the second of the two major branches of science), is the most inexplicable phenomena in all science.(9,10). It is considered the strangest, most counterintuitive concept in physics. Albert Einstein not only denied the existence of entanglement, but the existence of the entirety of quantum physics, stating “The world simply cannot operate that way.” Yet quantum mechanics has been completely verified. In fact, quantum theory was used to create one of the first lasers, and create transistors, which led to the computer revolution, all made possible by the equations of quantum theory.

Per entanglement, it is a very powerful connection that exists between pairs of particles. Even if they're very far apart, they're somehow always coordinated. Nature's fundamental building blocks can be connected and influence each other simultaneously, as if the space between them doesn't exist. Two objects can mirror each other without any apparent connection. You could have situations where causes and effects happen simultaneously. It would be like having two particles, each hidden under a cup. Looking at one mysteriously causes the other to reveal itself too, with matching properties. The equations imply that a source of photons could create pairs in such a way that when we measure one, causing it to snap out of its fuzzy state, the other mysteriously snaps out of its fuzzy state at the same instant with correlated properties.

Another way to think of the paired particles is to imagine a game that's somehow rigged. Suppose you have a pair of quantum dice. You throw them and observe: they show 6-6. Shake again, throw, and observe. Now they're both ••. Shake again, throw, and observe. Now they're both •. These particles can be separated at any arbitrary distance such as Princeton and the Andromeda galaxy. A choice to measure something here is somehow instantaneously effecting what can be said about this other particle.

While Einstein finally conceded to quantum mechanics theory (albeit considering it incomplete) since it was inescapably verified, he still denied the existence of particle entanglement, labeling it with the disparaging term “spooky action at a distance.” Therefore, two giant telescopes were simultaneously focused on two remotely distant galaxies to make measurements on subatomic particles, which verified entanglement. In another experiment to prove particle entanglement, they focused a laser onto calcium atoms, causing them to emit pairs of photons that quantum theory equations said should be entangled. After hundreds of thousands of measurements, it was verified that the particles were indeed spookily entangled. The verification of particle entanglement destroyed Einstein’s notions of space and time. In fact, progressive labs around the world are now racing to harness quantum entanglement to create revolutionary new technologies like quantum computers. They would be able to do many marvelous things regular computers cannot.

The first people to react to this extraordinary result were a group of free thinking physicists calling themselves the “Fundamental Physics Group”. They wrote books describing quantum entanglement as the deep connectedness of everything in the universe; the great cosmic oneness. This implies that all things are empty insofar as they lack any inherent essence or existence. This emptiness applies not just to people and things, but also to the analytic categories that describes them. This emptiness results from the dependent origination of all things. In other words, all phenomena lack their own inherent existence because their very existence depends on the conditions that give rise to them.

Quantum physics possesses two truths: conventional truth (determinate reality brought about via observation) and ultimate truth (an indeterminate reality expressed as probabilities). Particle entanglement in specific proves that there is a whole new hidden reality beyond our comprehension. So we should realize that the more we learn of science, the more we should realize how ignorant we are. Instead of being able to harness our universe and be masterful, we ourselves are perpetually mastered. This should be quite humbling.

### Radiometric Dating

Radiometric (or radioisotope) dating is a method used to date materials such as rocks by attempting to use observed rates of decay of one element into another, such as uranium into lead and potassium into argon to get supposedly accurate results. Yet not only do various radiometric dating methods contradict one another, the methods contrast sharply with an hourglass clock analogy. In an hourglass we know how much time passed by seeing how much sand has fallen to the bottom. Radiometric daters likewise try to check how much “sand” fell from the “top” (parent isotope) into the “bottom” (daughter isotope).

Yet unlike an hourglass which can be tested against trustworthy clocks, this dating has three unprovable assumptions: A) We cannot know whether or not the artifact’s original state was filled with daughter isotopes, had some of them, or had none; B) We cannot know whether or not said artifact had lots of contamination and interference, a little, or none, during its long history, which would have dramatically effected its present state; C) We cannot know whether or not the decay rate was constant, had sped up dramatically, or had slowed down dramatically. In summary, radiometric dating is near worthless.

### Radium

Greetings. Now radium was discovered in 1898 by Marie and Pierre Curie, which discovery was released to the public in 1902. But all they really knew about radium was that it was extremely radioactive, glowed in the dark, and constantly gave off this slight warmth. After Marie and Pierre discovered that radium could destroy human tissue, it was immediately put to work destroying cancerous tumors, of which it did a great job. Because of this supposed life saving nature, radium was viewed as this wondrous medical marvel, and championed as history’s great find. Without bothering to find out if radium had any detrimental effects, it was assumed that radium was incredibly healthy. The reasoning was, if it could destroy cancer cells, it could surely solve anything. It was the new wonder element.

Doctors and anyone else who sold anything medical used it as a cure all. Any kind of affliction you can think of had some kind of radium product to fix that ailment. There were radium wound dressings, radium water, radium clinics, and radium spas. It was everywhere, particularly in the United States. It seemed like a beacon of light, literally, to anyone who was suffering. But what they didn’t realize was that radium was actually slowly killing people from the inside out.

In April 1917 the USA joined World War I. All the men were sent to war, and the girls were left at home to help with the war effort however they could. Working class females across America flocked to all the factories, trying to get any job available. But there was one particular job that everyone wanted: dial painting, since it paid three times average factory wage. Dial painting wasn't a salary job. You were paid per watch face that you painted.

So the quicker you were the better you got paid. You were working with one of the most valuable materials on Earth at this point. Radium centered businesses began popping up all across America, mostly on the east coast, which was closer to the war effort. I will focus particularly on one of these factories: The Radium Luminous Materials Corporation in Newark, New Jersey. The girls that worked there painstakingly painted luminous numbers on tiny watch dials. They need to be painted with radium because the radium would make it glow in the dark for military use so that soldiers could see them at night, but not as bright as a lightbulb, which would allow them to be seen by enemy soldiers.

Each girl was required to mix her own paint. They would dab a radium powder: radium mixed with zinc sulfide, which would give this amazing glow. The paint was called Undark paint, which glowed with greenish white luminosity. Due to the tiny size of the dial numbers, the girls needed really slim paintbrushes. As the girls worked, the paintbrush hairs would inevitably spread, and they could not function properly. And so they used a technique called lip pointing, where they would wet the bristles in their mouth to put the hairs back together. Each time they did this they would swallow a miniscule amount of radium powder.

The girls were told it was completely safe to do so. They would sometimes question their supervisors about it, and each time were told it was perfectly healthy; probably even good for you. But the bosses and people higher up in the factory knew otherwise. They knew that radium could have detrimental effects and was known to be hazardous. Other employees were only allowed to handle radium with tongs, protective lead aprons, goggles, and suchlike. The company knew that radium was bad for people, as the company founder needed part of his finger amputated to get the radium out, but they still let the girls lip point. Some even told the girls that the radium would make them more beautiful and make their cheeks glow.

Some of these girls did literally have this glow to them, as they were regularly covered in radium powder. But what they didn't know is that this radium was concurrently eating their bones from the inside or growing the beginning stages of tumors that would become the size of basketballs. Some girls even wore their evening dresses to work if they knew they were going out to dance that night because they would leave glowing. It was 1922 when the first girls started showing signs of illness. Another colleague named Molly had to quit her job because she became so ill. She had no idea what was causing it.

It all started when she had an aching tooth. And so Molly went to the dentist, expecting them just to remove the tooth and that's it. They pull the tooth out, but the ache won't stop. The wound in her gum refuses to heal. It's an open abscess in her mouth. Then the next tooth starts hurting. And then the next. Molly's dentist pulls out every single tooth that's causing an issue. Yet it just gets worse. Her mouth was constantly seeping with puss from abscesses and ulcers, causing her to have constant horrific breath which couldn't be stopped. And her legs, arms, and everything else hurt besides. By May 1922 Molly had lost most of her teeth. One day she went to the dentist again. While the dentist went into her mouth to pull another tooth, her entire jaw crumbled in his hand. He literally removed part of her jaw by lifting it out of her mouth without effort. Still, nobody knew what was wrong with her.

By this point other factory workers had also acquired these symptoms. Some of them were having aching jaws, some were having aching limbs. Others couldn't get out of bed in the morning since it hurt so much. But this was years after they first started working at the factory. On September 12<sup>th</sup>, 1922 the infection spread to Molly's throat, where it ate through her jugular vein, and Molly literally choked to death on her own

blood. She was just twenty-four. Molly was the first of many girls to die from radium's effects. Across New Jersey more and more girls were going to their doctors with similar symptoms. But each case was different enough to not link it to the last. Since people were making massive amounts of money off of radium, nobody wanted to question it.

In December 1922 cases began to be reported, but reported as phosphorus poisoning. Finally, in 1924 it was proven that radium caused these horrific illnesses. Yet after authorities found that radium was the cause, management lied and said they constantly warned the girls about safety hazards. And once radium is in the body it cannot be removed. It has a half-life of 1,600 years (a half-life is the time it takes for the concentration of any substance to decrease by half). Nothing known to science can neutralize radium. So tragedies continued. In 1925 Dr. Levin from that company got blackened legions on his hands, then suddenly died at age 36 from pernicious anemia. An autopsy proved that he was inundated with radium. Other young women were bedridden in hospitals with hollowed out bones and covered in black and blue spots. In the 1930s a woman named Catherine Wolf Donahue developed a grapefruit sized tumor on her hip, and her jaw began to fall apart. She had worked at a dial painting factory in Ottawa, Illinois.

Eventually, over 14,000 people would die in factories in America every single year. Radium's discoverer Marie Currie herself had destroyed her health and eye-sight from radioactive elements, causing her to die prematurely in a sanatorium. Her co-discoverer husband Pierre died prematurely after slipping and falling under a wagon-wheel which crushed his skull. What an end to the so-called miracle of science.

{Credit goes to Kate Moore's book *The Radium Girls*, and Georgia Marie's video on it} 11,12



