



OUR DAILY BREAD
Resources for Spiritual Questers

Spiritual Astrophysics
An Ode to Stephen Hawking and Swedenborg's Science of Spirit

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Stephen Hawking died last month. The celebrated theoretical physicist and cosmologist who long ago became entirely paralyzed died with Lou Gehrig's disease, attained a cultural fascination with a scientist that approached that for Einstein. The subject of the 2014 film nominated for best picture, "The Theory of Everything," Hawking's runaway 1988 bestseller *A Brief History of Time: From the Big Bang to Black Holes*, has sold more than 10 million copies and has been translated into 35 languages.

But whereas Einstein never let go of his sense of a purposeful cosmos, Hawking, who was still holding out a small possibility for purpose in *Brief History of Time*, completely abandons the prospect in his final major book, *The Grand Design* (2010). There is no purpose; before the Big Bang there was nothing; after we die, it's lights out.

Encountering mindsets like that of Hawking was a kind of crisis pivot point for Swedenborg when he was 46 years old. In Leipzig, Germany to see his *Principia* through the press, he became profoundly disturbed at the lack of belief in a purposeful creation and in continuing life beyond the physical among the intelligentsia there. He decided that a meaninglessness worldview arose from a lack of knowledge about the soul's immortality and about the divine force behind the natural world. He decided to work on that and produced right away two small books the next year. *On the Infinite and Final Cause of Creation* treats philosophically how the infinite creates finite frameworks for life production. *On the Interaction between the Soul and Body* analyzes the soul-body relationship and argues for conscious immortality.

There have been at least a score of groundbreaking scientists on the order of Hawking, but most science historians would agree that the two most important paradigm-shift thinkers have been Isaac Newton and Albert Einstein.

In that same *Principia* being published in Leipzig, Swedenborg constructed an atomic theory of matter 200 years before Einstein by describing and diagramming *atoms within atoms*, such that the smaller or more fundamental particles have higher energies and move internally in increasingly rapid vortical patterns the smaller they are. The appearance of solidity is provided by the speed at which these tiny parts move, and due to the spiral form of the motion there is a polarity that explains the magnetization of solids. But solidity is largely an appearance: it is all an energy system. This model is

remarkably similar to what science has subsequently been discovering. The modern atom with its rapidly circulating electrons appears to be solid in the same way he suggested. And modern physics has also realized that the smaller and smaller constituents of atoms have higher and higher energies—quarks for example possess energy in vastly greater strength than normal atomic or nuclear processes. That’s Einstein.

As for Newton, Swedenborg studied him in college and tried to visit him on his first trip to England, but the Cambridge don was out of town. It was Newton’s own *Principia* published the year before Swedenborg was born that proposed an invisible force called gravity. There really was something like the apple falling from a tree story, according to Newton’s most recent biography Peter Ackroyd. Newton applied his second law of motion to a falling apple and concluded there was only one explanation why the apple would accelerate in motion in space: some force was being applied to it. Already convinced he had proven motion *only* occurs through force, in a flash he realized that there is an *unseen* force—which he came to call gravity—acting generally in space. He surmised this *unseen* force had to have some extension in space in which it was operating, and it was known that things fall from the highest points on earth.

Next came Newton’s paradigm shift insight: if the force of gravity reaches to the top of the highest places on earth, might it not reach beyond earth to the Moon? If so, that could explain the orbit of the Moon around the earth. The Moon’s movement could be a consequence of this unseen gravitational that had accelerated to the point of stability in its orbit around the earth. He was right in a very fundamental way: there is an unseen force acting upon everything in the solar system. Newton’s paradigm shift is that he was the first one to argue the entire cosmos operates in an orderly causality system.

Swedenborg worked with Newton’s theory to make his own famous “first” in the history of astronomy. Swedenborg memorably deduced the earliest version of the nebular hypothesis theory about the formation of our solar system. That is, the planets in our solar system are flung-off chunks of the solar mass that ultimately got captured in their great escape by gravity. The gravitational pull from the sun led finally to a stable relationship of orbits around the sun. Thus, our solar system all started as part of the sun, and Swedenborg was the first one who figured that out.

In any event, Swedenborg was so sure that material reductionists were not only wrong but

tragically wrong he altered his own life trajectory. Those two little books in 1735 started a thirty-eight year journey shaping an understanding not only of physical nature but also of an order of reality senior to the physical in which lie true causes. And so he worked on a spiritual philosophy until his death in 1772.

To be seriously playful or playfully serious, as a theologian and practitioner of Swedenborgian spirituality, I'd like to propose three Swedenborgian Laws of Spiritual Motion.

I. A Spiritual Gravity Acts Upon our Soul without Ceasing

Spiritual gravity is a process happening inside of us all the time, because we are unceasingly involved *in forces of attraction*. The center of our being is constantly withstanding a multitude of forces in the form of attractions and desires that exert a pull upon our will non-stop.

In a theosophy as old as time, Swedenborg sees the human soul as a place of collision of values that become the action site in a growth process. Put more directly, he believes in good and evil, in heaven and hell, as forces that are every bit as real and as lawful as math and physics. The amount of unseen force would blow our mind if we could actually “see” it somehow as an illustration in action. But the fact is, we are feeling it, and we are so used to feeling it that for many people it is not something to be noticed. It is just life.

There's good spiritual gravity, and there's bad spiritual gravity, or upward spiritual force and downward spiritual force—or, to put it in the more common way, angels and demons tug at us all the day long. As spiritual isometrics, we build muscle or lose muscle strength due to how engaged we are willing to be with working against those forces that would suck us into lower-minded and lower-hearted actions, speech, and thought.

The Ten Commandments are essentially illustrations of positive and negative attractions. Envy, covetousness, adultery, murder, stealing: these are all broad categories of how negative states of desiring, negative attractions. A tremendous emphasis is placed in Swedenborgian spiritual physics on

squarely dealing with temptation toward negative attractions. Temptation is an old-fashioned word somewhat out of vogue, but its reality and essence is an ever-present feature of the human condition.

Spiritual gravitational forces are exerted upon the essence of our being, of our consciousness constantly. We don't have to produce all the force to succeed in the midst of these forces. All the power to do so will come from God, yet there is an absolutely crucial role of solidarity with our loves and attractions that connects or disconnects us with divine power. A Swedenborgian maxim is: "Pray as if it is all up to God, and work as if it is all up to you."

II. Second Swedenborgian Law of Spiritual Motion: Perception Modifies Gravitational Force

Swedenborg laid tremendous emphasis on the power of the mind to alter our spiritual reality for the better. A great deal of Swedenborgian theology can be summarized in a bumper-sticker that says, "Truth Leads." We are designed to be able to see farther than we can actualize through our wills, because our wills remain conflicted. We all can envision much higher spiritual integration than we are currently able to pull off, and that's by design: our spiritual sight is always out ahead of our capability and shines the light onto the Promised Land.

There's so many ways that this works for us. Cognitive restructuring is psychotherapeutic school of counseling that works on changing belief structures in order to change life experiences. In cognitive restructuring, we deconstruct fundamentally false ways of thinking and replace them with belief structures that empower effective living. For example, it is easy for us to develop flawed assumptions and conclusions about life from our early life experiences that we never confront and transform. Such as feeling we are unlovely and unlovable. Very common, and really no one is likely to be completely free from this sort of fear along the way. In cognitive restructuring you systematically and with intelligent intentionality shape a functional positive self-esteem that dramatically changes one's energy for life and ability to see creative ways of expressing our loves and talents in effective ways in our personal and social worlds.

Other examples abound from the schools of positive thinking or as Robert Schuller liked to call it, possibility thinking. A great example is running the four-minute mile. In addition to Hawking, another celebrated Englishman died this week: Roger Bannister, who ran in the first four-minute mile race back in the year of my birth, 1954. One of the most iconic sports milestones, runners had been stalking it for many years. But a funny thing happened after Bannister broke the record. Suddenly, within months, a couple of other runners broke the four-minute barrier, and soon lots of runners were hopping over that barrier. Were runners all of a sudden going through an axial leap in physical ability? No, they were breaking a belief barrier. Runners perceived that it could be done, and it altered their actual energies for it. We are so designed that changes in our mind can produce significant changes in the force fields of our abilities and capacities. Or, to put it in some playful Swedenborgianese: Perception modifies gravitational force in our spiritual lives.

III. Third Swedenborgian Law of Spiritual Motion: In Spiritual Motion Greater Mass Produces Lesser Weight

A final nugget about spiritual gravity is that the more we receive of God's life into our being, the more spiritual mass we have. Newton's Second Law of Motion says that Force equals Mass times Acceleration. Swedenborgian spiritual physics declares a correspondential law that says the greater our spiritual mass becomes in relation to the infinite mass of God's holy center, the more powerful the attraction—or force of gravity. Ironically, the greater the mass of the right kind in relation to the divine, the lighter we become. The weight of it all becomes lighter as we progress. It becomes less and less as if we are picking it up, and more and more as if we are being lifted up. That's due to the booster rockets kicking in for acceleration as we regenerate.

The reason is that the force pulling us back is loosening. Becoming inwardly conjoined in love for others and for God in specific moments and situations is increasingly shifting into an energy system that increasingly feels like a kind of current. We are still pedaling the cycle but it is as if a motor has become installed in the gear shaft. This is what the Jesus meant when he said, "Come to me, all

you who labor and are heavy laden, and I will give you rest. Take my yoke upon you and learn from Me . . . for My yoke is easy and My burden light.” (Mt. 11:28-30) The more we accrue a spiritual mass of love the lighter we seem, and the swifter we flow in divine providence.

So, let us give thanks for the work of great scientists such as Isaac Newton, Emanuel Swedenborg, Albert Einstein, and Stephen Hawking. Let us appreciate the great gifts of Professor Hawking. In his own way, he marveled at the cosmos and pondered it deeply. I wonder what he is beholding now.

Short Thought #1

Ian Barbour, a professor emeritus at Carlton College who held faculty positions in both religion and in science, technology, and culture, is widely regarded as the most influential shaper of the science and spirituality conversation in recent decades. He is especially known for his taxonomy identifying the four fundamental paradigms of the interface between science and religion:

Conflict (Each side sees the other as basically wrong-headed and not reliant upon a truth methodology that can be trusted. Especially in place in the creationism vs. evolution argument, but can be seen in other ways historically in terms of a derisive view of the truth claims of the other side. Galileo, Darwin, Dawkins, young earth creationists)

Independence (Stephen Jay Gould a significant voice. Sees each conversation as discrete from each other addressing different issues entirely. Religion pursues morals, ethics, meaning and purpose questions, whereas science investigates empirical analyses of the material world),

Dialogue (science raises questions its methods cannot answer; religion seeks to address those questions; each possesses resources for engaging to answer “what is?” and have contributions to share with one another through which each might be amply enriched)

Integration (there is enough overlap between each field’s endeavor for truth such that not only might a genuine search for truth in one illuminate the quest for truth in the other, but that an integration of knowledge systems from both realms could very well yield the superior approach to “what is?”)

Historically, Swedenborgians have been integrationists, and so was I for the past 25 years. But during the last year, I have changed my sense of things on this issue and now put myself in the dialogue room. I don’t believe I know science well enough to be an integrationist, and I know of only one Swedenborgian scientist who is working hard to be in this conversation. I feel more humility and restraint is needed from religious enthusiasts, because there is no integrity in spouting conclusions that you don’t actually understand. We should all care about the truth, whatever that proves to be. However, I feel I have contributions to make from the theology side, and I believe strongly in the subject area as a potential place for personal and collective spirituality. My contribution comes in the form of this sermon: taking some science precepts and trying to find the dialogue points with theology and spirituality as I understand it.

Question: Do you think what we learn in science relates at all to your spiritual life? Are understandings about the material universe pertinent to your inner spiritual world?

Short Thought #2

The number of people in history who have made contributions of celebrated distinction to both science and religion is very, very small—if the standard is not mere professional competence but historical significance such that the contributions in each sphere—science and religion—would make history books. Swedenborg abides among a tiny group as few as three or four who have made such potent contributions in both spheres of discourse as to be recognized as historically noteworthy.

The principle that guided Swedenborg in his rather amazing journey of investigation, discovery, and interpretation was his search for what I like to call deep causality. It was the pursuit of deep causality that caused him to cross over from being primarily a natural scientist into becoming a theosopher. One example of how seeking deep causes leads to powerful insights is how he came to affirm a deep cause principle he called contiguity to how our solar system was developed. Nearly all science philosophers in his day were caught up in the Cartesian split between material and immaterial realities and nearly all of the big names, such as Descartes and Malebranche and Leibniz believed in a compartmentalized cosmos and reality schema. Swedenborg, however, felt he could see that a deeper reality was likely true: that everything connected. He called this his principle of contiguity. With this as guiding insight, Swedenborg became the first person to figure out that all the bodies of our solar system originated from the same mass: that the planets were separated long ago parts from the original solar mass. He was able to theorize the solar system as one dynamic unit because he had come to a deep causality principle that everything connects, and it simply then made sense to figure out how the planets connected to the sun and to each other. They all were part of an original solar mass. He was the first one to figure that out, and he struck upon it because he was focused on deep causes.

Short Thought #3

Swedenborg's intensive anatomical research especially on the brain led to some historically significant discoveries, such as being the first to correctly deduce the function of the cerebrum and the first to correctly deduce that the brain undulates inside the skull in concert with the lungs, not with the heart beat, which had been the conventional position. In a recent book published by MIT Press called *Brain, Vision, Memory: Tales in the History of Neuroscience*, Princeton cognitive science scholar Professor Charles Gross presents Swedenborg as an unbelievably prescient intellect working in neuroscience 250 years ahead of his time. Herbert Benson of the Harvard Medical School, the author of the bestseller and classic work *The Relaxation Response*, confesses that Swedenborg understood the physiology of meditation two centuries ahead of his time. The fact that he also developed a raja yoga controlled breathing method of stilling the mind for concentration is not only another example of Swedenborg as a perceptive explorer of “deep causes,” but also one that gave him greater capacities to perceive deep causes.