

# BRIDGING Science *and* Spirit

*The Genius of William A. Tiller's  
Physics and the Promise of Information Medicine*

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CONSCIOUS  
CREATION<sup>LLC</sup>

A bridge is a place that is no place  
at all, that is in itself *between*:  
you belong, quite simply, to the bridge.  
And then you keep walking  
and reach the other side.

—Erica Wagner

*in Chief Engineer. Washington Roebling,  
The Man Who Built the Brooklyn Bridge.*<sup>4</sup>



## BRIDGE PILLAR 1: Of Truth and Revolutions—Mankind Is Set Spinning and the Birth of the Miraculous Science

*Bless the LORD, O my soul.*

*Who layeth the beams of his chambers in the waters:  
who maketh the clouds his chariot: who walketh upon  
the wings of the wind: Who laid the foundations of the earth,  
that it should not be removed for ever*

—PSALM 104:1, 3, 5

Of all discoveries and opinions, none may have exerted a greater effect on the human spirit than the doctrine of Copernicus. The world had scarcely become known as round and complete in itself when it was asked to waive the tremendous privilege of being the center of the universe. Never, perhaps, was a greater demand made on mankind—for by this admission so many things vanished in mist and smoke! What became of Eden, our world of innocence, piety and poetry; the testimony of the senses; the conviction of a poetic-religious faith? No wonder his contemporaries did not wish to let all this go and offered every possible resistance

to a doctrine which in its converts authorized and demanded  
a freedom of view and greatness of thought so far unknown,  
indeed not even dreamed of.

–JOHANN WOLFGANG VON GOETHE in *Copernicus' Secret*<sup>5</sup>

**[1]**  
**“Copernicus set off a revolution in science.”**  
 When Heaven and Earth Moved

We hear about the next big revolution in science almost daily, whether it be artificial intelligence, gravitational waves, space travel for the ordinary man, or the possibility of humanity’s new abode on Mars. We are like a family looking through travel brochures.<sup>6</sup> Years down the road, the next big thing takes over, and today’s news fades into the dust of time and memory.

Tiller wastes no words with the title of his book, *Psychoenergetic Science: The Second Copernican-Scale Revolution*.<sup>7</sup> It is helpful to consider the significance of the word “revolution.” What does it mean that science is revolutionary? Who decides what is revolutionary in the first place? What sets that science apart?

If you want to know how science works, there is a great advantage in actively working as a scientist, trying to tease out the structure of nature from among the ambiguities of observations made at the cutting edge of a field. A complementary approach is to examine some historical cases in depth, because the passage of time affords a helpful perspective.<sup>8</sup> Tiller appropriates Nicolaus Copernicus’s science as the first revolution.

Let’s journey back to 1512 in Varmia, Northern Poland. Not far from the brackish waters of the Vistula Lagoon stands Frauenburg Cathedral (known today as Frombork). Inside the dim light of Frauenburg Cathedral’s entryway, we imagine the solitary figure of Copernicus, his head bowed reverently toward the triptych of the Virgin Mary. As the sun sets, he ascends the circular stone steps as he

has often done before, to implore the night sky. If he is lucky, it will be cloudless without mists rolling in from the nearby waters of the Vistula. Training his eye through a thin metal tube—it was nearly a hundred years before the invention of the telescope—Copernicus scans the heavens, paying particular attention to the red-hued planet. Over many weeks, he has surveyed its march across the skies on an easterly course, its trajectory slowing down until it almost seems to waver and stop briefly. Then the planet reverses its direction and has gradually moved backward in a loop-the-loop toward the west, as though an unseen hand is beckoning it. Why did Mars behave so peculiarly?

Back in his chamber, Copernicus placed his quill on Earth. Using the accepted Claudius Ptolemy's geocentric cosmology, he set Mars swinging around Earth—the presumed fixed center of the universe, with a second circle, called an “epicycle,” riding on the first one. Calculations using the combined circles of Ptolemy's arrangement provided Copernicus with an approximate solution for Mars's changing positions in the sky.<sup>9</sup> But this was not acceptable to him. What he must have done, to account for what he observed, was change the way the model worked.

Copernicus inked his quill and assuredly placed it on the *Sun* as the still point and set *both* Earth and Mars orbiting. In this heliocentric cosmology, Earth, being closer to the Sun, moves faster than the red planet. At times, Earth overtakes and passes Mars as both orbit the Sun. At those times, Mars appears to make a backward loop in the sky for a few months, in a direction contrary to its normal movement, called “retrograde.” Now if Mars is retrograde, then that means one thing: Earth must not be standing still at a geocentric point (center of the Universe), as everyone believed. Instead, it and the other planets

must revolve around the Sun.

As Copernicus studied his calculations by candlelight, the wick's tip, nearly at the bottom of the wax column, abruptly flared as though in confirmation, the large flame casting a golden glow on his earnest face and reflected in his dark eyes. He had deciphered the solar system!<sup>10</sup> With heliocentrism, the entire entourage of planets arrange themselves so that the planet with the shortest orbital period, Mercury, orbits closest to the Sun, and Mars as well as the rest, such as the sluggish Saturn, fall in order proportionately. It also explained the mystery in Ptolemaic astronomy. Mars, Jupiter, and Saturn periodically stop their eastward progress in the heavens and move westward in retrograde orbits. Copernicus's cosmos *required* retrograde motion, while Ptolemy's merely *allowed* for it. Copernicus's system had a logical coherence that Ptolemy's lacked.

But there was a problem. If the massive and heavy Earth was whizzing around the Sun and spinning on its axis every day at a thousand miles an hour, surely we on Earth would be spun off into space.<sup>11</sup> And just think, clouds and birds would be left behind.<sup>12</sup> Our senses tell us we are still on Earth and, therefore, all this spinning makes no sense!

A bigger issue was that Copernicus was a canon of Frauenburg Cathedral, which meant he was one of the sixteen members of the cathedral chapter, that is, its board of directors.<sup>13</sup> Thus, not only did Copernicus's heliocentric cosmology defy common sense, it also ran up against the view of the Catholic Church and Psalm 104:5, "Who laid the foundations of the Earth, that it should not be removed for ever."

Copernicus proceeded cautiously, carefully concealing his data and scientific manuscript from the Church. He wrote a short report that he circulated among his closest friends. This report, called *The Commentariolus (Little Commentary)*, expounded his heliocentric

theory.<sup>14</sup> Nurturing it secretly over decades in his spare time, Copernicus advanced his blueprint for the “marvelous symmetry of the universe.” In an ironic twist, one evening in 1539, a young German mathematician, Georg Joachim Rheticus, a Lutheran Protestant drawn by rumors of a celestial revolution to rival the religious upheaval of Martin Luther, stood at his door. Copernicus, now sixty-eight years old, feared his ideas would die with him.<sup>15</sup> Defying the Church, he let Rheticus study his discoveries. Rheticus convinced his mentor to publish his radical data.

Published in 1543, Copernicus’s opus, *De revolutionibus orbium coelestium* (*On the Revolutions of Celestial Spheres*), was pivotal even if it was not accepted by the Church.<sup>16</sup> The traditional Jewish and Christian religions wrestled with traditional doctrine and the revolutionary implication about the cosmos’s heliocentricity. Sooner or later, the Judeo-Christian world had to make a titanic shift in mindset and belief. No longer the center of God’s Creation, the Earth became just one of the planets. By extension, this also diminished the primary position of God’s highest Creation, humankind. The scale of Copernicus’s heliocentric universe was earth-shaking. But crucially, it is a Truth that stands for all time. Few scientific discoveries withstand the test of time.

Copernicus was a revolutionary because he showed us that there was an intellectually respectable alternative to the accepted conception of the universe at that time. The Sun as the center of our universe is as true now as it was when Copernicus and his mentee Rheticus revealed their data.

Inevitably, someone pointed out that the evidence in Copernicus’s manuscript substantiated this radical view. The Church responded: “So what?” That “someone”—Galileo Galilei—paid a heavy price:

house arrest for the last decade of his life.

Such rejection of sound science is familiar even today, is it not? We need to stop assuming that skeptical authorities necessarily have a knowledge deficit and require more facts.<sup>17</sup> When doubt is wrapped up in prevailing political beliefs and cultural attitudes (what Germans call the "zeitgeist"), facts often not only fail to persuade but may further entrench skepticism. Skepticism is a potent mindset that became a part of science itself. And it all started with a fiery Frenchman.



[2]  
**“Descartes’s legacy continues to  
 live in modern science.”**

A Night of Dreams and the Birth of the Miraculous Science

The date was November 10, 1619, a bitterly cold night in Ulm, Germany. A young French philosopher, his head “filled with enthusiasm,” retired for the night in a stove-heated room and dreamed three dreams.<sup>18</sup> The first two—a pounding head and frightening visions—seemed hallucinogenic. In the third dream, René Descartes saw an encyclopedia, the famous *Corpus Poetarum Latinorum*, on a table. He opened it randomly to find counsel and stumbled on the line *Quod vitae sectabor iter?* “What path shall I follow in life?”

The next morning, Descartes duly recorded in his daily journal that his third dream revealed a vision of “*mirabilis scientiae fundamentum*,” the foundations of a marvelous science. He vowed to make a pilgrimage to the shrine of Our Lady of Loretto in thanks, for he was convinced that his dream was divine Providence. Descartes glimpsed the project that was to be his life’s work. Disappointed in science, Descartes recalled “how many diverse opinions touching on the same subject matter there may be, all supported by learned men, though not more than one of them can ever be true.”<sup>19</sup> Determined to find the truth, his self-set task from that day onward was singular: to discover a sure scientific method, based on the mathematical model, that could be applied to nature, including to animals and man.

Considering the cultural conditionings prevalent at the beginning of the seventeenth century—in particular, out-of-date ideas of science of the perceptible world, the work of Descartes appears to have been historically necessary. In addition to being a scientist and mathema-

tician, he became a philosopher. Philosophy allowed him to reach beyond known rules. To an unprecedented degree, Descartes took the view that nature could be successfully conquered only by redescribing reality in the language of mathematics, thus purging the visual world of all that was merely visual, and then by testing these descriptions in experiments.

In *The Discourse on the Method*, one of his best-known books, Descartes boasted that his philosophy, in contrast to the Socratic tradition of questioning, critical thinking, and contemplation of Truth, is fundamentally a “practical philosophy” whose precepts yield “knowledge which is very useful in life.”<sup>20</sup> By following his methods, Descartes wrote, we could discover the basic mechanical principles of natural phenomena and then, like skilled craftsmen, intervene and put those principles to work in the world. By so doing, he promised, in one of his most striking phrases, we could “render ourselves the masters and possessors of nature.”<sup>21</sup>

Instead of the contemplative model of the Greeks, Descartes offered a new vision of the natural world that continues to shape our thought today: a world of matter possessing a few fundamental properties and interacting according to a few universal laws. This natural world included an immaterial mind that, in human beings, was directly related to the brain. In this way, Descartes formulated the modern version of the mind–body problem.<sup>22</sup> The mere fact that you think or doubt proves your own existence. His famous phrase, *Cogito ergo sum*, “I think, therefore I am,” captures this ethos.<sup>23</sup>

As was the task of philosophy, Descartes was looking for absolute truth. To this end, he created his method of doubt. Anything that was open to doubt, he argued, could not be the absolute truth. Descartes’s *Discourse on the Method* has been called the dividing line in the history

of thought. Everything that came before it is old; everything that came after it is included in the formulation of the so-called “new science.”<sup>24</sup>

What’s left of Descartes today? A great deal. Descartes’s influence goes far beyond algebraic notation, analytic geometry, and other mathematical innovations, such as the Cartesian coordinate system. For better and worse, the modern world is in a deep sense a Cartesian world, especially with regard to our emphasis on logic and a mechanistic interpretation of nature. To appreciate the extent of Descartes’s continuing presence, consider the triumph of scientific rationality and its handmaiden, technology.<sup>25</sup>

If Copernicus, through his studies in astronomy, moved the stage from the center of the universe off into one of the side rooms, Descartes made us doubt *all* we see. I bestow upon Descartes a new title: *Homo dubitat*, The Man Who Doubts.

Tiller says: “Skepticism has bound up man. Beliefs shackle him down. Man is limited in his own perceptions. It started with Descartes. His method has served science for over 400 years. But man has grown, and it is time to let go of the limitations of Cartesian thought.”

# The Cartesian Coordinate System

