

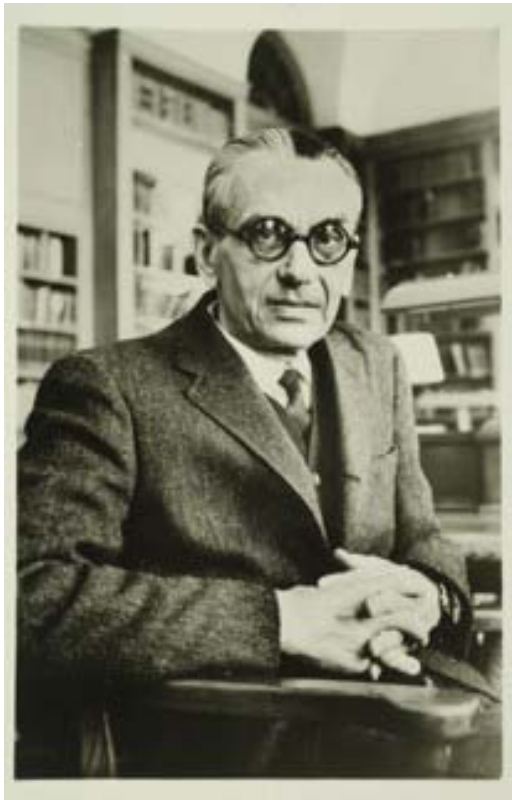
***Materia Prima: The Nature of the First Matter in the Esoteric and Scientific Traditions***  
*Presented at the Hidden In Plain Sight Conference at the Rosicrucian Order AMORC, San Jose, California, on July 23, 2010.*

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Kurt Gödel

### Abstract

The alchemists believed that no transformation—whether in the laboratory, in the body, or in the soul—could succeed without the presence of a mysterious ingredient known as the *Materia Prima* (First Matter). Nothing was more important to alchemist’s work than this energetic essence, which they believed could be extracted from any substance and actually rendered tangible and visible. This paper examines the nature and properties of the elusive First Matter. We will look at how the alchemists exposed it, accumulated it, and worked with it to accomplish the regeneration of the substance at hand. We will explore how the concept of the First Matter evolved in both the scientific and esoteric traditions to become a fundamental, although often unrecognized, tenet of both modern Hermeticism and modern physics.

### ***Materia Prima: La nature de la première matière dans les traditions ésotériques et scientifiques.***

*Présenté à la conférence « Dissimulé en pleine lumière » de l’Ordre Rosicrucien AMORC, San Jose, Californie, 23 juillet, 2010.*

Dennis William Hauck, Ph.D.

### Résumé

Les alchimistes ont cru qu’aucune transformation—soit en laboratoire, dans le corps, ou dans l’âme—ne pouvait réussir sans la présence d’un ingrédient mystérieux connu sous le nom de *Materia Prima* (matière première). Rien n’était plus important pour le travail de l’alchimiste que cette essence énergétique, qu’ils croyaient qu’elle pouvait être extraite de toute substance et pouvait devenir tangible et visible. Cet article examine la nature et les propriétés de cette subtile matière première. Nous examinerons la manière dont les alchimistes l’on exposée, l’ont accumulée, et ont travaillé avec pour accomplir la régénération de la substance sous main. Nous allons explorer la façon dont le concept de la matière première a évolué dans les

traditions scientifiques et ésotériques pour devenir un principe fondamental, bien que souvent non reconnu, de l'hermétisme et de la physique modernes.

***Materia Prima: La Naturaleza de la Primera Materia en la Tradición Esotérica y Científica***

*Presentada durante las conferencias en “Oculto a plena vista” en la Orden Rosacruz AMORC, San Jose CA. En Julio 23, 2010.*

Dennis William Hauck, Ph.D.

**Resumen**

Los Alquimistas creían que no transformaciones—ya sea en el laboratorio, en el cuerpo, o en el Alma—podría ser posible sin la presencia de un misterioso ingrediente conocido como Materia Prima (Primera-Materia). Nada era más importante para el trabajo del alquimista que su esencia energética, la cual ellos creían podía ser extraída de cualquier sustancia la cual daría vida a algo tangible y fisible. Este escrito examina la naturaleza y las propiedades de esta elusiva Primera Materia. Miraremos como los alquimistas la exponían, acumulaban y trabajaban con ella para obtener la regeneración de la sustancia inmediata. Exploraremos como el concepto de Primera Materia evoluciono en ambas, la tradición científica y la tradición esotérica, hasta llegar a ser un principio que en ocasiones no es reconocido en ambos, el Hermetismo moderno y la física moderna.

***Matéria Prima: A natureza da Primeira Matéria nas Tradições Esotéricas e Científicas***

*Apresentado na Conferência na Ordem Rosacruz, AMORC “Hidden In Plain Sight,” em San Jose, Califórnia em 23 de julho de 2010.*

Dennis William Hauck, Ph.D.

**Resumo**

Os alquimistas acreditavam que nenhuma transformação—seja em laboratório, no corpo ou na alma—pode ter sucesso sem a presença de uma substância misteriosa conhecida como Prima Matéria (Primeira Matéria). Nada era mais importante para o trabalho alquímico do que essa essência energética, que eles acreditavam que poderia ser extraída de qualquer substância e realmente se tornar tangível e visível. Este artigo analisa a natureza e as propriedades da elusiva Primeira Matéria. Veremos como os alquimistas expuseram, acumularam, e trabalharam com a matéria para conseguir a regeneração da substância em questão. Exploraremos como o conceito da Primeira Matéria se evoluiu tanto na tradição científica quanto na esotérica, para se tornar um princípio fundamental de ambos hermetismo moderno e física moderna, embora muitas vezes não reconhecido.

## ***Matria Prima: Die Natur der Urmaterie in der esoterischen und wissenschaftlichen Tradition***

*Diese Schrift wurde auf der Konferenz, "Hidden in plain sight," des Rosenkreuzordens, AMORC, in San Jose, Kalifornien, am 23. Juli 2010 praesentiert.*

Von Dennis William Hauck, Ph.D.

### **Zusammenfassung**

Die Alchemisten glaubten, dass keine Transformation—ob im Labor, im Koerper oder in der Seele—gelingen koennte ohne den mysterioesen Bestandteil der als *Materia Prima* (Urmaterie) bekannt ist. Es war nichts wichtiger zur Arbeit der Alchemisten als diese energiereiche Essenz die, so glaubten sie, von einjeglicher Substanz extrahiert werden, und sogar greifbar und sichtbar gemacht werden koennte. Diese Schrift untersucht die Natur und die Eigenschaften dieser schwer definierbaren Urmaterie. Wir werden sehen wie die Alchemisten sie enthuellten, sammelten und sie benutzten um die Regeneration einer vorliegenden Substanz zu erreichen. Wir werden erkunden wie der Begriff der Urmaterie in der wissenschaftlichen, sowohl als in der esoterischen Tradition zu Stande kam und zum fundamentalen, obwohl oft unerkannten, Lehrsatz des modernen Hermetismus und der modernen Physik wurde.

### **Introduction**

The relationship between the Hermetic tradition and the sciences is a theme that has run through most of my life, and I have always been intensely interested in the way in which both these fields approach the search for truth. The Hermetic path, based on the wisdom tradition and personal intuition, and the path of the sciences, based on hard logic and mathematics, seem to go off in two different directions. But it is becoming increasingly obvious that Hermetic wisdom and scientific knowledge are slowly converging on the same fundamental truths.

### **The Game of Mathematics**

These two ways of knowing converged in me while I was a graduate student at the University of Vienna. I had gone to Vienna to study in the school founded by the great logician Kurt Gödel (shown at left), who was a professor there when he published his famous *Incompleteness Theorem* in 1931. Gödel's work came at the height of arrogance in the field of mathematics, a time when mathematicians felt they could explain the whole universe using math. Bertrand Russell had published the first volumes in his ambitious *Principia Mathematica* project to prove step-by-step that mathematics was a complete and absolutely consistent system of knowledge. At the same time, Ludwig Wittgenstein was attempting to prove mathematics was based on a perfect system of logical statements.

German mathematician David Hilbert was grounding math in fixed axioms that would produce a unifying theory of everything. Hilbert was so sure of his results that he announced at a math conference in Göttingen, Germany, that for mathematicians, there were no unsolvable problems and all of nature could be explained completely using math. At the end of his speech, he shouted triumphantly "*Wir müssen wissen. Wir werden wissen!*" ("We must

know everything! We *will* know everything!”). He became famous for that passionate outburst, which became the new credo of mathematicians everywhere.

But sitting in the audience that day was Kurt Gödel, who a year later would publish a proof that in a single stroke destroyed all the pompous assumptions of Hilbert, Russell, Wittgenstein, and scores of other mathematicians around the world. Gödel showed that mathematics is a partial and forever incomplete system that will never be able to discover all the truths in the universe. For mathematicians, this was like calling the Queen of the Sciences a whore.

What did Gödel say that was so earthshaking? His proof shows that any axiomatic logical system such as arithmetic cannot be both consistent and complete because there will always be statements that are true but not provable with any formal theory.<sup>1</sup>

Gödel invented a kind of metamathematics to achieve a very objective view of the whole field. Think of it this way. Draw a circle around anything—any object, any person, any situation—and nothing in that circle can be explained completely without referring to something outside the circle. There will always be something you have to assume but cannot prove. Draw a circle around that chair, and you cannot answer even the simplest questions without leaving the circle. Who made the chair? How did it get here? Where did the materials come from that make up the chair? Where did that indentation in the seat cushion come from?

Now, draw a circle around the whole universe—everything in existence. It is built into the very fabric of our reality that you cannot explain the universe completely without referencing something outside the universe. In other words, in this universe there are *always* more things that are true than you can understand or prove. This has really profound implications of which few people are aware, because Gödel’s Proof not only applies to mathematics but to all branches of science and human knowledge.

Protests against Gödel’s ideas came from around the world. There were reports of mathematicians committing suicide when they read his proof, and untold scores of math students dropped out or changed their careers. Cambridge mathematician Alan Turing invented a machine that used only yes/no decisions to eliminate the grey areas in Gödel’s proof and sort out exactly what problems could be processed mathematically. Turing’s machine became the very first electronic computer, but it did nothing to sooth mathematicians’ souls, for it was soon proven that any algorithmic machine or computer is also inconsistent and incomplete.

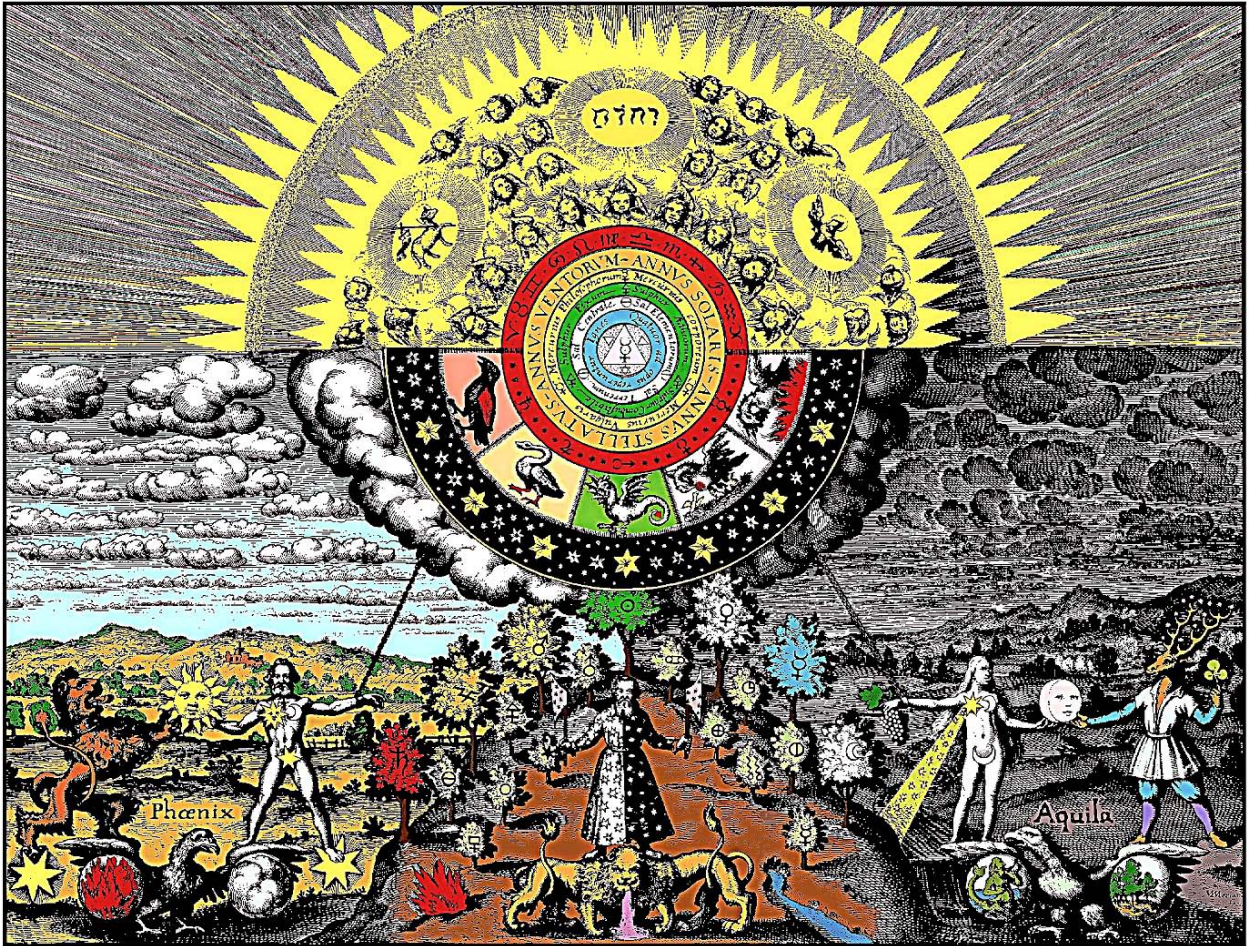
Bertrand Russell abandoned his *Principia* project. Wittgenstein first mercilessly attacked Gödel but later admitted that math was essentially a game and that no mathematical statements were “true” in any real sense. David Hilbert retired and worked to find applications where his theories could be applied. His famous credo died with him, though, and is now engraved on his gravestone.

In his final years, Gödel was working on a corollary to his theorem, which expanded on the fact that the ultimate complete truth about our universe could only be found outside the “circle” of our universe. He believed it could be proven that there was One Mind behind all the various appearances and activities of the world, and that this One Mind exists



independently of its individual properties projected into the world. He also stated that mind is not just localized in the brains of people but exists everywhere at once.

### The Emerald Tablet Engraving



I was spending a lot of time in the library tracking down published papers about Gödel's work, when one day I discovered a basement storage room of old alchemy manuscripts dating back to the sixteenth and seventeenth centuries, a period when Vienna and nearby Prague were the center of alchemy in Europe.

I was really taken in by the symbolic images in these old books, and one of the most intriguing was a Rosicrucian engraving by Matthieu Merian called *Tabula Smaragdinas* ("Emerald Tablet").<sup>2</sup> It was said to contain all the principles of alchemy in symbolic form, but what I saw in the engraving was a profoundly accurate representation of Gödel's ideas. Interpretations of the drawing even used some of the same terms Gödel used in his later work.

The engraving depicts the birth of the Philosopher's Stone from the First Matter as it leaves heaven (the spiritual realm of energy above) and is projected into earth (the material realm below). The first thing that strikes one about the picture is its sharp division into the Above and the Below.

In the Above, the larger Sun of the One Mind, whose rays encompass the whole universe, rises behind the Sun of Heaven or what is known by Hermeticists as “Mind the Maker.” This intermediate Mind the Maker is like an archetypal computer or matrix dominated by twenty-nine cherubs or archetypal forces, which can be seen as the crystallized thoughts or Word or Thought of the Divine Mind carried in the light from the One Mind.

The three smaller Suns floating amongst the angels represent the three heavenly substances expressed as the Holy Trinity. The center sun is the *Tetragrammaton* or “Ineffable Name of the Divine Mind” written in Hebrew; to the left is the sacrificial Lamb; and to the right is the Dove or Holy Ghost hidden in matter. Any alchemist of the time would recognize these as the Three Essentials or the alchemical principles of Sulfur, Mercury, and Salt respectively.

The Below is divided into the daytime (solar or masculine) left side and the nighttime (lunar or feminine) right side. This division on the horizontal axis represents the created world mirrors, the split of the human brain into left hemisphere (logical masculine consciousness) and the right hemisphere (feeling-based artistic feminine consciousness).

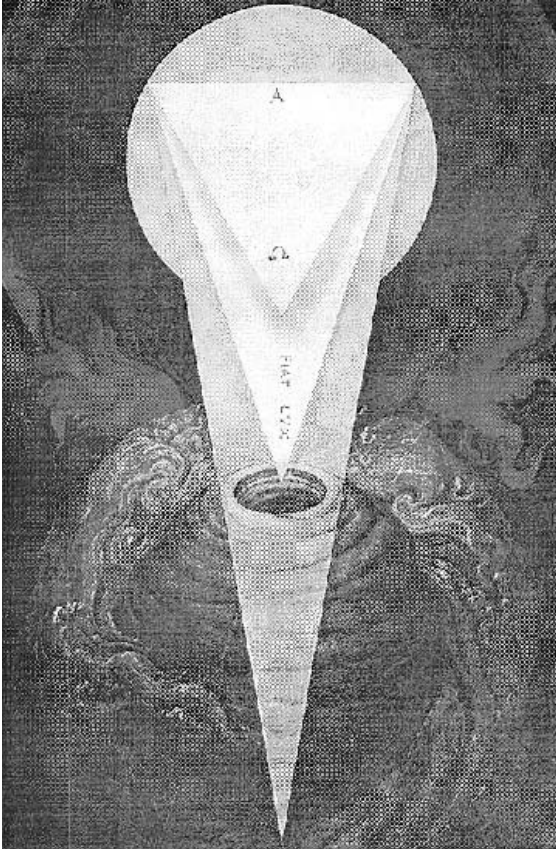
At the lowest level of the material realm are the Four Elements. Centered between them is the fifth element or Quintessence depicted as a hermaphroditic alchemist holding up two starry hatchets, which represent the higher faculty of discernment. The alchemist has cut the chains of unknowing that tied Sol and Luna to their duality and balanced the powerful forces of their separate sexualities. He has seen through the Clouds of Unknowing and realizes the powerful influences of the archetypal powers Above. The empowered alchemist is symbolic of a successful integration of the opposing horizontal forces to his left and right.

The alchemist stands on two lions who have a single head, which signifies the taming of the First Matter. The lion on the left is the red Fire Element Lion, and the one on the right is the green Water Element Lion - the alchemical union of Fire and Water. The alchemist is now able to enter the hidden vertical axis of reality.

The first area encountered as the alchemist travels along this vertical axis is the Ring of Stars in which seven larger stars predominate. This stellar ring presents the cosmic or universal archetypes embedded into the fabric of reality. This ring is followed by a semicircle of five scenes representing operations that lead to the Philosopher's Stone. From left to right: the Black Crow of Saturn, the White Goose of Jupiter, the Rooster of Mars, the Pelican of Venus, and finally, the Phoenix of Mercury.

Above the Ring of Stars and the Ladder of the Planets, and partaking of all realms in this diagram, is a central sphere made up of seven concentric layers. These layers symbolize each of the stages of transformation that must be peeled away to reach the Stone, which is the innermost sphere in which a triangle is inscribed with the symbol for the exalted Mercury, the perfected First Matter. At the middle of this symbol is a single dot representing the Source, the center of the entire engraving and around which both heaven and Earth—and this mandala—revolve.





## The First Matter in Alchemy

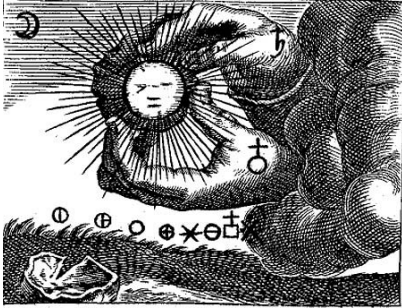
In the Middle Ages, there were at least ninety different definitions as to what the First Matter was, but in the Hermetic view, it is the primordial chaos that contains all possibilities. It can be looked on as an unorganized state of energy or proto-matter that is the same for all substances and exists in an invisible state between energy and matter. Again, according to the Hermetic teachings, the First Matter originated and is controlled by the light of consciousness from the One Mind.

The alchemists believed the First Matter was a real substance that could be extracted from matter and made visible and tangible. They even used it as an ingredient in their experiments, and the primary tool for manipulating it was the spiritual connection they made with the First Matter in which their consciousness transformed it. Prayer and meditation were part of the alchemist's lab work.

The earliest source of First Matter for alchemists was the black, fertile soil of the Nile Delta. The very word “alchemy” is from the Arabic *al-khemia* meaning “from the black dirt” of the Nile. Alchemists today still look for the First Matter in black soil. When I was an apprentice, my mentor, Merus Favilla, and I drove all the way from Prague to bring back some First Matter from the Black Forest in southwest Germany. He told me it was called the Black Forest not for the density of the trees there but for the reason the trees grew so thick there—the First Matter in its rich black soil. He also said that the reason for all the fables and fairy tales centering on the Black Forest was that the First Matter stimulated the light of imagination in people.

So with six gunny sacks and a shovel over my shoulder, we traipsed for many hours through the Black Forest until we came to a likely spot where the First Matter might accumulate. It looked virgin and undisturbed, and it was certainly off the beaten path. Merus pointed to a slight depression in the ground and said “Dig here!” After I dug through the crust, the soil below was surprisingly loose, so I knelt down and started pulling the black dirt out with my hands and piling it into a sack. I remember that the dirt had such a strong earthy odor that I started choking from it.

The first sack was about half full, and I was bent over with my hands deep in the dirt, when all of a sudden I felt something like a root move and started twisting around my fingers. I yelled and pulled out my hands, falling back on my butt and watching this snake wrapping itself around my right hand. “What's wrong?” he said from behind me. “There's a snake!” Calmly he said: “That's just a worm.” Just a worm? This thing was eighteen inches long and an inch thick. But as it turned out, he was right. There is a giant earthworm called the



*regenwurm* that lives only in the soil of the Black Forest. Its castings are so prized for growing beautiful roses that they sell for forty dollars a pound.

Anyway, we ended up with five sacks of First Matter dirt and took it back to Prague, where we added some nasty stuff to start it fermenting for many months. Eventually we would distill and coagulate from this a test tube full of gray gel he called “gur,”

which he never shared with me.

But dirt is not the only place alchemists look for First Matter. Since the First Matter was seen as the inner essence of substances, alchemists found it in liquids that ooze from materials such as dew<sup>3</sup> or the sweat of metals exposed to certain fumes.<sup>4</sup> Alchemists even looked for it in urine and manure.



In 1669, German alchemist Hennig Brandt distilled hundreds of liters of boys' urine, and was able to isolate a white, waxy essence that glowed in the dark. This was just how alchemists described the purified First Matter, and Brandt was sure he found it. He named it “phosphorus” (“light bearer”), which we now know is an element in the Periodic Table.<sup>5</sup>



For centuries alchemists associated the First Matter with displays of light and described it as the “star” or “spark” concealed inside a substance. It now seems as if mathematician-chemist Isaac Newton was looking for First Matter in his experiments in optics, where he disproved the common notion that prisms added the colors to light. He showed that colors are carried in the light itself and even separated out individual colors by passing the spectrum through slits in boards, and had even deeper insights into the nature of light that we will discuss later.

### **The Planck Portal**

The fundamental principle of the Hermetic viewpoint is that our world is the physical manifestation of a hidden spiritual reality. I think quantum physics has already proven this concept. Some of the terms are different, but it is precisely the same cosmology.



In fact, modern science has discovered *exactly* where this division between worlds is located. It can be found at the Planck level of reality, named for German physicist Max Planck, who is considered the founder of quantum mechanics. Planck was a very spiritual man who believed in an unknowable divine mind that existed beyond observation. This One Mind permeated everything and manifested through symbols, including mathematical laws (Mind the Maker).

The Planck level is the scale at which the universe was created and is home to an intangible world that determines our physical reality. This invisible layer of reality is the fabric of existence, and it carries archetypal information that originated with the Big Bang. According to astrophysicists, this information is embedded at the Planck level and consists of universal constants, mathematical formulae, and other symbols.

The Planck level is the portal through space/time that is defined by Planck Space ( $10^{-33}$  cm) and Planck Time ( $10^{-43}$  sec). Anything beyond those limits only exists in a chaotic quantum foam of pure potentiality, which is about as good a definition of First Matter as one could ask.

The quantum foam is a shimmering uncreated reality that is manifested by the light of mind, or what appears in our equations as a probability wave known as the collapsible wave function. An outside observer collapses the probability wave and manifests its symbolic or archetypal potential. In this view, subatomic particles are patterns of perception within the gooey, chaotic, First Matter quantum foam.

The most alchemical view in modern physics is called the Objective Reduction Interpretation



in which there exist multiple choices of consciousness that can access the information embedded at the Planck level. The more concentrated and focused this beam of inner light, the more complete the transformation or grounding of this hidden level of energy into matter.

### **The Light of Mind and Nature**

That brings us to the question of what is light really? In the most general sense, light is the electromagnetic spectrum

that ranges from the invisible infrared frequencies through visible light and disappearing again into ultraviolet rays. Seen this way, it is not hard to understand how light carries

information. We experience it every day with radio and television waves, cell phones, wireless Internet, GPS, and scores of other information technologies.

This property of light to communicate information is actually one of the primary



characteristics of the alchemical symbol of light, Mercury. In the Hermetic teachings, it is the light of mind as well as nature, and since ancient times, Hermes/Mercury has had the ability to travel both Above and Below, in both the spiritual and material worlds, communicating with both deities and humans, and existing in the borderline state between energy and matter. That

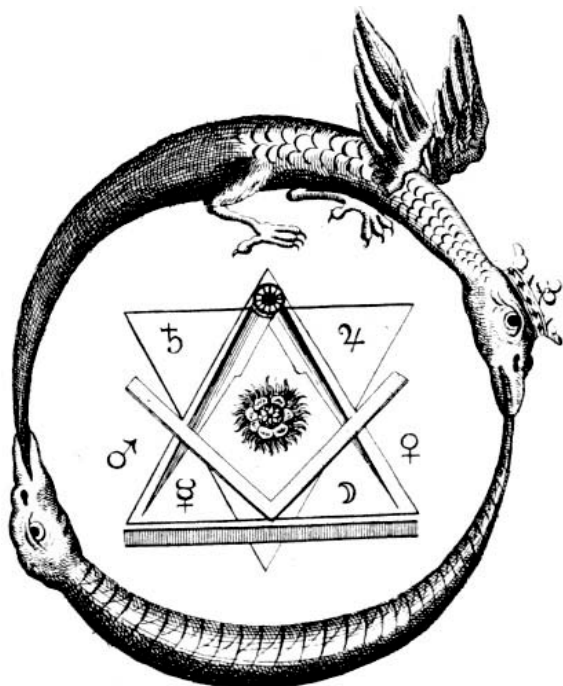
same thing is true in modern physics in which the basic component of light, the photon, can exist as both energy (a wave) and as matter (a particle).<sup>6</sup>

But the debate about the nature of light raged on for centuries in physics. French philosopher René Descartes, considered the father of the wave theory of light, believed that light traveled in an unseen sea of First Matter he called the “plenum,” a subtle substance of which the whole universe was composed. In experiments, he demonstrated that light behaved like a wave and showed that refraction could be explained by the varying speed of light in different media.

The particle theory of light was promoted by mathematician-chemist Isaac Newton, who postulated that light was composed of “corpuscles” of matter that were emitted from a light source in all directions at once. He published his results in his famous book *Opticks* in 1704, which was motivated by alchemical work that suggested light was the First Matter.

Newton’s alchemical studies also suggested that light might exist in two states at once, as both wave energy and particle matter, although the idea seemed too controversial for his peers, and he withheld publication. “The changing of bodies into light and light into bodies,” he noted, “is very comfortable to the course of Nature, which seems delighted with such transmutations.” As it turned out, there is no better personification of light than the symbol for Mercury, which alchemists named the Rebis, the “double-headed thing” that shows two opposite faces to the world.

Finally in 1905, Einstein resolved the mathematical problems with light by returning to Newton’s suspicion that light existed as both energy and matter. Einstein combined the wave and particle theories of light in a single concept in which photons exhibit wave–particle duality. His theory states that light has both a particle nature and a wave nature, and different experiments can be done to bring out one of the faces of light or the other.



In other words, the nature of light—or which face the Rebis shows the world—is determined by the conscious choice of the human observer as to which experiment to use in studying light. Some experiments “prove” the wave or energetic nature of light, while other experiments “prove” the materialistic nature of light.

### The Equation of the Universe

Albert Einstein was the epitome of the scientist-chemist and never lost sight of the fundamental mystery of the universe. He advised his colleagues to use both their heart and head and follow their intuition first. Most of his research was done in his *gedanken* experiments (thought experiments) in which he imagined such things as riding a beam of light through the universe. That is

how he resolved problems with the speed of light and formulated his special theory of relativity, in which the fundamental constants of nature are relative to the location of the observer.

Einstein proved an ancient tenet of alchemy that was previously unknown in physics: the fundamental idea of “All Is One” and the equivalence between energy and matter. His revolutionary equation of the universe is  $E=mc^2$  where E is energy, m is mass, and c is the speed of light. This theorem is a restatement of the Three Essentials concept of the alchemists in which Sulfur is energy, Salt is mass or matter, and Mercury represents light.

From this equation, the whole universe unfolds. In an endless cycle through time, energy becomes matter and matter becomes energy. From subatomic particles to stars, the universe is a cycle of birth and rebirth from the transformation of the First Matter through light. In fact, if that little “c” in  $E=mc^2$  stood for “consciousness” instead of the speed of light, there would be no difference at all between the alchemical viewpoint and that of modern science.

### The Ouroboric Cycle

The concepts of modern quantum physics are perfectly represented in one of the oldest alchemical symbols, the ouroboros, which is a serpent or dragon eating its own tail. It can be thought of as the engine that drives the universe through the transformation of the First Matter in a balanced cycle of destruction and creation.

From earliest times, these drawings carried the caption “All Is One.” It meant that behind the countless dualities of our existence—spirit and matter, male and female, life and death—the universe was really just One Thing.

Among medieval alchemists, the Latin phrase *Solve et Coagula* (“dissolve and coagulate” or “destroy and create”) was also associated with the ouroboros. The full phrase was *Solvite*



*Corpora et Coagulata Spiritus* (“dissolve the body and coagulate the spirit”). Remember that alchemists thought of spirits as invisible forces or what we would call energy.

This idea is reflected in modern cosmology in the singular primordial atom of Big Bang, from which burst forth our entire universe. This All Is One concept is also part of modern astrophysics in what is called the Egalitarian Principle, which states that the universe is the same everywhere. Even four billion years after the Big Bang, the universe could fit in a coffee cup, and it had the same consistency it does today—ten billion years later. On average, the amount of mass and energy present in any section of space is the same, and the same physical laws apply throughout the universe.

In modern physics, the concepts of undetectable dark energy and dark matter are nearly identical to the alchemists' ouroboric description of the First Matter. Physicists believe dark matter and dark energy are responsible for the basic structure of the universe, and have proved that billions of bits of the invisible energy interpenetrate ordinary matter (including our bodies) every second. In fact, over 90 percent of the mass/energy in the universe is concealed in this invisible substance, and it seems that the interplay between dark matter and dark energy is responsible for the creation of new subatomic particles as well as the creation of new stars that balance out the death of old stars in the universe.

The total mass/energy of the entire universe is  $10^{53}$  kg. Amazingly, gravity has a negative mass/energy value of  $10^{-53}$  kg. The result is zero. In other words, the universe sums to nothing. It came from nothing and remains nothing. What an ingenious way to create something out of nothing.<sup>7</sup>

It is hard for us to accept such an alchemical explanation of nature, but our billiard ball materialistic concept of reality is completely false and has polluted our thinking and cultural beliefs. No scientific experiment in the history of physics has ever shown that “hard” material particles exist or even can move. However, there are now hundreds of experiments that prove material particles move by being teletransported through time – disappearing from one place to reappear in another place without moving along a continuous path.

Contrary to what our senses make us believe, the world is not solid and fixed but is constantly being created out of a chaotic, formless, invisible quantum foam that is guided by the conscious expectation of what is there. That is a more perfect description of the First Matter than any alchemist could ever conceive.



Whether the “conscious expectation” that creates reality comes from our minds or the ultimate One Mind is still open to debate in modern physics. For alchemists, however, the divine light of mind – the same light we share in purified consciousness and what they called the True Imagination – is the fundamental force and ultimate source of creation on all levels of existence.

### **First Matter and the Metals**

Another mathematician-chemist, Dr. John Dee, created a symbol depicting the information carried by light from the moment of creation. He called it the Monad, from a Greek word meaning the ultimate One or the singular entity from which all properties are derived. It is

said that if you drop the Monad cipher into a great sea of First Matter, then the universe as we know it would emerge.

Dee entered Cambridge at the age of fifteen and soon became one of the leading mathematicians in the world. He was also a practicing alchemist and had the largest library of alchemy books in the world. John Dee is the reason you took geometry in high school. He became a champion of Euclid's geometry and campaigned to make it part of the curriculum of every college and school.

Dee was convinced Euclidean geometry was sacred and originated from the One Mind just as Pythagoras taught. He believed it held the key that would unlock the universe. And modern astrophysicists agree with him. Just eight years ago, evidence was discovered from several independent studies that the universe is not curved, as assumed in the last century. It is neither negatively curved like a saddle nor positively curved like a ball. While space can be curved locally, such as in the vicinity of stars, the overall shape of the universe is flat, and Euclidean geometry is the way it was laid out.

Dee used Euclidean geometry to create and prove the Monad in a work entitled *The Hieroglyphic Monad* written in 1564. He used the ancient ciphers of alchemy as geometric figures and applied Euclidean geometry to capture their deeper meaning and relationships. Dee said his proof would revolutionize all areas of human knowledge and urged astronomers to stop peering through their telescopes trying to understand the heavens and instead spend their time meditating on his Monad.

“To begin the work of this Monad,” said Dee, “the aid of Fire is required.” At the bottom of the Monad is the astrological sign of Aries, which signifies Fire. Aries is the first sign of the zodiac and is associated with the burst of life force in the Spring, at which time the Great Work begins.

The bottom and the top of the cipher are connected by a cross known as the Cross of the Elements. It is here that the workings of manifested reality play out. In this section of the Monad, all the glyphs of the seven planets and their associated metals (Saturn/Lead, Jupiter/Tin, Mars/Iron, Venus/Copper, Mercury/Quicksilver, Moon/Silver, and the Sun/Gold) intersect. By tracing the connecting lines and arcs in different ways, one can locate all the symbols of these five planets and thereby reveal the invisible forces behind Nature.

The merged planetary ciphers are arranged left to right and top to bottom around the Cross of the Elements. According to Dee, by placing the planetary ciphers in their proper relationship, the archetypal symbols come alive. In this arrangement, the Sun is the only symbol that is always the same, and in that sense, incorruptible like gold. No matter which way the Monad is turned—upside down, left to right, right to left, or its mirror image—the cipher of the Sun and gold is always exactly the same.

The heart of the Monad and the one cipher that encompasses all the others is Mercury. In alchemy, Mercury stands for the principle of transformation and is considered the First Matter of the metals. Just as is depicted in the Monad, Mercury is part of all the metals and elements of alchemy and melds them together as one. Dee embedded the spirit of Mercury at the heart of his master symbol and believed he had successfully captured the essences of all the archetypal elements and metals.



People today have a hard time understanding why alchemists were so obsessed with metals. But imagine what the world would be like without metals. Quite simply, civilization would not exist. The metals are truly a miraculous gift from the deities and represent the purest expression of the universal archetypes of transformation that we can access.

Over time, the alchemists developed specific steps to exposing and working with the First Matter of materials, although most alchemy texts scramble these steps so they are only understandable to other alchemists. As I mentioned earlier, the key to deciphering alchemical stages and texts is their motto *Solve et Coagula*.

### **Consciousness Is A Force in Nature**

In another alchemical dictum, we can see the real difference between alchemy and the scientific method. *Ora et Labora* (“meditate or pray while working”) shows the importance the alchemists felt their own consciousness had in their work. “Haste makes waste” was originally an alchemists motto – slow down to allow feelings and intuition to catch up – and it goes back to the ancient Egyptian idea of “intelligence of heart.” Going slow increased one’s integrity, just as the slow firing of crucibles and glassware increased their integrity and strength.<sup>8</sup>

Wolfgang Pauli, another mathematician-chemist from Vienna, urged his colleagues to slow down their thoughts and allow for other ways of finding truth. Completely dedicated to the search for truth, he became known as the “Conscience of Physics” and was merciless in his criticism of others' work if he found errors when they published too soon. He had no patience for academic politics and rarely published his work, instead freely sharing his profound mathematical insights with other researchers.

Pauli was one of the founders of quantum physics and won the Nobel Prize for his Exclusion Principle (that no two electrons can exist in the same quantum state), which became the cornerstone of the new field of quantum chemistry. He also discovered the existence of neutrinos and was instrumental in the development of quantum field theory. It is obvious from his correspondence with other physicists that he made scores of other important discoveries for which he was never credited.

In the same year Gödel published his famous proof, Pauli experienced a growing inner conflict between his mathematically precise logical mind and his profound intuition that often led to direct gnosis of the deeper meaning of physical laws. He was suddenly overwhelmed by powerful truths coming from what he called “visions of my soul” in dreams.

Pauli was a student of alchemy and said that the Great Work of both alchemy and physics was to unite mind and matter. He reached out to Carl Jung for help in understanding what was happening because of Jung's work in alchemy. As a psychologist, Jung believed the First Matter represented the chaotic energy sealed up in the human unconscious that created





archetypal patterns of transformation in the collective unconscious of our culture. The two men began a close collaboration on the alchemy of the unconscious and the relationship between mind and matter. In Jung's masterwork *Psychology and Alchemy* you will find over 400 of Pauli's dreams documented, and their discussions on consciousness were collected in *Atom and Archetype*.

Throughout his life, Pauli was witness to the power of mind over matter. Many astonishing synchronicities followed him wherever he went, and he was famous for his bizarre ability to break crucial experimental equipment and computers simply by being in the vicinity. It got to the point that Pauli took devilish pleasure in seeing this happen and even took credit for it a few times. Physicists still refer to this phenomenon as the "Pauli Effect."

Pauli was not alone in accepting the alchemical idea that consciousness was a force in nature. About the same time Gödel was working on his proof, theoretical physicist Werner Heisenberg showed that precise knowledge and exact measurement are not possible on the atomic level. He showed that the act of conscious observation and measurement of one magnitude of a subatomic particle—whether it is its mass, its velocity, or its position—causes the other magnitudes to blur. Apparently, the impossibility of exact knowledge of a single particle of matter is a fundamental property of nature. This startling defeat for empirical measurement became known as the Heisenberg Uncertainty Principle, and it is now a basic tenet in quantum physics.

We now realize that at the quantum level, the observer is no longer external and neutral to the experiment but becomes part of it, just as the alchemists believed. In quantum physics, the outcome of an experiment depends what view is taken by the person doing the experiment. The Uncertainty Principle implied that the deepest facts of nature are not objectively verifiable and therefore not subject to mathematical treatment. It meant that the scientific method would never be able to achieve complete and ultimate knowledge of the universe. It was like Gödel's Proof for physics.

More recently, nuclear physicist David Bohm developed the Ontological Interpretation of quantum mechanics in which mind and matter are viewed as opposite polarities in the universe. He demonstrated that electrons possess a "proto-mind" or primitive intelligence that seems to read active information in experiments. Bohm believed mind had been present in the cosmos from the beginning and is part of the fabric of creation. He also introduced the notion of the Implicate Order, which is the ground or undivided wholeness of the One Mind

of the universe from which the manifested world, which he called the Explicate Order, emerged. Eventually Bohm would conclude that human consciousness and the physical brain itself could be transformed by contact with the greater mind of the universe.

## Conclusion

The alchemists were philosophers in the truest sense—literally, “lovers of wisdom.” If you think about it, the possibility of wisdom is really our only hope and the only path to discovering deeper truth in the world. But very often wisdom lies outside the narrow game of mathematics and the scientific method.

That is why I call myself an alchemist. I feel lucky to have found a path that embraces all levels of knowing. And I want to urge all of you to become alchemists too. I mean—don’t give up your day jobs—but start thinking like an alchemist. Open up your mind to alchemical principles, start paying attention to the true signatures of people and situations, experiment with how changing your attitude effects your reality, and how your thoughts become things. Stop thinking with your nervous system and open your heart to the amazing mystery behind everything we do.

## Notes and References:

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<sup>1</sup> One example of improbability is the liar's paradox. If I make the proposition that “This statement is false” it causes a loop of logic that will smoke the circuits of any computer. That sentence cannot be proven true or false, because if it is true, then it is false and if it is false, then it is true. Other examples of improbability include hundreds of basic axiomatic assumptions in mathematics that we know to be true but have no way of proving.

<sup>2</sup> The *Tabula Smaragdina* engraving was first published in Daniel Mylius’s *Opus Medico-Chymicum* (“*The Medical-Chemical Work*”) in 1618. [Enhanced and colored by the author.]

<sup>3</sup> The *Mutus Liber* (“*Silent Book*”) is a famous series of wordless drawings showing the extraction of the First Matter from dew. Recently, the author of the book was shown to be Isaac Baulot, an apothecary born in La Rochelle, France, in 1612. The last plate of the book carries the mysterious phrase *oculatus abis* (“having seen, thou departest”), which is an anagram of his name. Another detailed study of isolating the First Matter from dew can be found in a modern book by another French alchemist, Armand Barbault, called *Gold of a Thousand Mornings* (1975).

<sup>4</sup> One early device designed to make metals sweat First Matter was designed by the Egyptian alchemist Maria Prophetissa at the turn of the first millennium. It consisted of a cylindrical tube that funneled fumes of sulfur or mercury to a grate on which sat various metals.

<sup>5</sup> At the Relativistic Heavy Ion Collider at Brookhaven National Laboratory, physicists might have captured the elusive First Matter described by alchemists. While attempting to reproduce the state of matter in the first microseconds after the Big Bang, scientists accelerated electrically charged gold atoms close to the speed of light and then smashed them together. Their equations predicted a hot gas made up of diverse baryonic particles, but instead they produced a glowing primordial liquid. The strange liquid was absolutely pure energy that exhibited perfect consistency, such that any part was exactly like any other part.

<sup>6</sup> We know today that light was once completely material and solid in nature. For sixty thousand years after Big Bang, light was a physical substance two hundred times denser than lead.

<sup>7</sup> Somehow the One Mind enfolded nothingness back on itself to form space and concealed the First Matter in emptiness. The equations prove that there is a trillion times more energy ( $10^{94}$  grams of mass/energy) in the empty space within a single hydrogen atom than in all matter, planets, and stars, within twenty billion light years of Earth.

<sup>8</sup> Why the disdain for fast thinking in alchemy? Thoughts were considered things that crystallized—like salt compounds—from inner feelings and unconscious impressions. But thoughts piled up and got in the way of free-flowing spiritual energy. In fact, medieval alchemists believed the salt in tears came from the breakdown of thoughts by emotions.

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