

Mystery, Math, Magic, Myth, and Microbes in Seventeenth-Century Rosicrucianism

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Abstract

This paper identifies a veiled system of order in symbolic Rosicrucian thought. It is part of a continuing inductive argument, testing predictions based on a semiotic study regarding the meaning of the least-corrupted ancient Egyptian texts. To understand the seventeenth-century Rosicrucian phase of esoteric thought, occurring between the Renaissance and the scientific revolution, this paper examines the alchemical Hermetic-Kabbalist tradition and its roots in ancient Egypt circa 2500 BCE. In *The Rosicrucian Enlightenment* (1972), historian Frances Yates explains that John Dee's *Monas hieroglyphica* and Michael Maier's alchemical movement conceal a silent element of nature that is unexplored. The question is—what were the esoteric Rosicrucian advances that Yates did not explore, that is, the silent element of specialized knowledge revealing natural science? With this question in mind, this preliminary paper tests the hypothesis that a complex science of regeneration streamed from Egypt through the alchemical Hermetic-Kabbalist tradition that influenced seventeenth-century Rosicrucianism. Using a narrative approach to qualitative inquiry, this paper examines John Dee's mathematical *Monas*, Michael Maier's mythoalchemical *Atalanta Fugiens*, Jewish magic (where the word magic means “beyond known material science”), the evocation of light, the conjunction of opposites, and the allegory of Osiris, supporting Rosicrucian knowledge of quantum biology. The biological signs suggest quantum regenerative evolution of human DNA related to horizontal gene transfer (HGT), the exchange of DNA between two different species. It may be that the creative potentiality of a humble microbe in the quantum world gives human beings the evolutionary biopower of regeneration at death or transition, as it is called in Rosicrucian terminology.

Keywords: seventeenth-century Rosicrucianism, alchemy, mythoalchemy, microbiology, evolutionary biology, quantum mechanics, quantum theory, quantum biology, esoteric magic, Hermeticism, Kabbalah, human evolution, Jewish Magic, *Monas hieroglyphica*, John Dee's mathematical *Monas*, Michael Maier's mythoalchemical *Atalanta Fugiens*, the evocation of Light, the conjunction of opposites, the allegory of Osiris, Rosicrucian Alchemy, Hermetic Golden Age

Mystère, mathématiques, magie, mythe et microbes dans le Rosicrucianisme du XVII^e siècle

Résumé

Cet article met en exergue un système d'ordre voilé dans la pensée symbolique rosicrucienne. Il fait partie d'une argumentation inductive qui teste des prédictions basées sur une étude sémiotique concernant la signification des textes égyptiens anciens les moins corrompus. Afin de pouvoir comprendre la phase rosicrucienne de la pensée ésotérique du XVII^e siècle - qui se situe entre la Renaissance et la révolution scientifique - cet article examine la tradition alchimique

hermético-kabbalistique et ses racines dans l'Égypte ancienne, vers 2500 avant notre ère. Dans *The Rosicrucian Enlightenment* (l'Illumination rosicrucienne) de 1972, l'historienne Frances Yates explique que l'oeuvre *Monas hieroglyphica* de John Dee et le mouvement alchimique de Michael Maier recèlent tous deux un élément silencieux et inexploré de la nature. La question est de savoir quelles sont les avancées ésotériques rosicruciennes que Yates n'a pas explorées, c'est-à-dire l'élément silencieux de la connaissance spécialisée révélant la science naturelle ? En gardant cette question à l'esprit, cet article avance l'hypothèse selon laquelle une science complexe de la régénération a vu le jour en Égypte et de là, par le biais de la tradition alchimique hermético-kabbaliste, a influencé le Rosicrucianisme du dix-septième siècle. En utilisant une approche narrative de l'enquête qualitative, l'article examine la *Monas* mathématique de John Dee, l'*Atalanta Fugiens* mytho-alchimique de Michael Maier, la magie juive (le mot magie signifiant ici « au-delà de la science matérielle connue »), l'évocation de la lumière, la conjonction des opposés et l'allégorie d'Osiris, étayant les connaissances rosicruciennes en matière de biologie quantique. Les signes biologiques suggèrent une évolution régénératrice quantique de l'ADN humain liée au transfert horizontal de gènes (*horizontal gene transfer*, *HGT*), à savoir l'échange d'ADN entre deux espèces différentes. Il se peut, en effet, que la potentialité créatrice d'un humble microbe dans le monde quantique puisse conférer aux êtres humains le biopouvoir évolutif de la régénération au moment de la mort - ou transition, comme on l'appelle dans la terminologie rosicrucienne.

Mots-clés : Rosicrucianisme du XVIIe siècle, alchimie, mythoalchimie, microbiologie, biologie évolutive, mécanique quantique, théorie quantique, biologie quantique, magie ésotérique, hermétisme, kabbale, évolution humaine, magie juive, *Monas hieroglyphica*, *Monas* mathématique de John Dee, *Atalanta Fugiens* mythoalchimique de Michael Maier, l'évocation de la Lumière, la conjonction des opposés, l'allégorie d'Osiris, l'Alchimie rosicrucienne, l'Âge d'or hermétique

Misterio, Matemáticas, Magia, Mito y Microorganismos en el Rosacruicismo del Siglo XVII

Resumen

Este artículo identifica un sistema de orden velado en el pensamiento simbólico Rosacruz. Es parte de un argumento inductivo continuo, poniendo a prueba las predicciones basadas en un estudio semiótico sobre el significado de los textos egipcios antiguos menos corrompidos. Para comprender la fase del pensamiento ésotérico Rosacruz del siglo XVII, ocurrido entre el Renacimiento y la revolución científica, este artículo examina la tradición alquímica hermético-cabalista y sus raíces en el antiguo Egipto alrededor del año 2500 a.C. En *The Rosicrucian Enlightenment* (1972), la historiadora Frances Yates explica que la *Monas hieroglyphica* de John Dee y el movimiento alquímico de Michael Maier ocultan un elemento silencioso de la naturaleza que no ha sido explorado. La pregunta es: ¿cuáles fueron los avances ésotéricos Rosacruces que Yates no exploró, es decir, el elemento silencioso del conocimiento especializado que revela la ciencia natural? Con esta pregunta en mente, este artículo preliminar prueba la hipótesis de que una ciencia compleja de la regeneración fluyó desde Egipto a través de la tradición alquímica hermético-cabalista que influyó en el Rosacruicismo del siglo XVII. Usando un enfoque narrativo para la investigación cualitativa, este artículo examina la matemática de la *Monas* de John Dee, la mitoalquímica *Atalanta Fugiens* de Michael Maier, la magia judía (donde

la palabra “magia” significa "más allá de la ciencia material conocida"), la evocación de la Luz, la conjunción de opuestos y la alegoría de Osiris, apoyando el conocimiento Rosacruz de la biología cuántica. Los signos biológicos sugieren una evolución regenerativa cuántica del ADN humano relacionada con la transferencia horizontal de genes (THG), el intercambio de ADN entre dos especies diferentes. Puede ser que la potencialidad creativa de un humilde microbio en el mundo cuántico les dé a los seres humanos el biopoder evolutivo de la regeneración en la muerte o transición, como se le llama en la terminología Rosacruz.

Palabras clave: Rosacrucismo del siglo XVII, alquimia, mitoalquimia, microbiología, biología evolutiva, mecánica cuántica, teoría cuántica, biología cuántica, magia esotérica, Hermetismo, Cábala, evolución humana, Magia Judía, *Monas hieroglyphica*, *Monas* matemática de John Dee, *Atalanta Fugiens* mitoalquímica de Michael Maier, la evocación de la Luz, la conjunción de los opuestos, la alegoría de Osiris, Alquimia Rosacruz, Edad de Oro Hermética

Mistério, Matemática, Magia, Mito e Micróbios no Rosacrucianismo do Século XVII

Resumo

Este artigo identifica um sistema de ordem velado no pensamento simbólico Rosacruz. É parte de um argumento indutivo contínuo, testando previsões baseadas em um estudo semiótico sobre o significado dos textos egípcios antigos menos corrompidos. Para entender a fase do pensamento esotérico Rosacruz do século XVII, que ocorre entre o Renascimento e a revolução científica, este artigo examina a tradição alquímica Hermético-Cabalista e suas raízes no antigo Egito, por volta de 2500 a.C. Em *The Rosicrucian Enlightenment* (O Iluminismo Rosacruz) (1972), a historiadora Frances Yates explica que o *Monas Hieroglyphica* (A Mônada Hieroglífica) de John Dee e o movimento alquímico de Michael Maier escondem um elemento silencioso da natureza que é inexplorado. A questão é: quais foram os avanços esotéricos Rosacruzes que Yates não explorou, ou seja, o elemento silencioso do conhecimento especializado que revela a ciência natural? Com essa pergunta em mente, este artigo preliminar testa a hipótese de que uma ciência complexa da regeneração emanou do Egito por intermédio da tradição alquímica Hermético-Cabalista que influenciou o Rosacrucianismo do século XVII. Usando uma abordagem narrativa para a investigação qualitativa, este artigo examina a *Monas* (Mônada) matemática de John Dee, a “mitoalquímica” *Atalanta Fugiens* (Fuga de Atalanta) de Michael Maier, a magia judaica (onde a palavra magia significa “além da ciência material conhecida”), a evocação da luz, a conjunção dos opostos e a alegoria de Osíris, em apoio ao conhecimento Rosacruz da biologia quântica. Os sinais biológicos sugerem a evolução regenerativa quântica do DNA humano relacionada à transferência horizontal de genes (HGT), a troca de DNA entre duas espécies diferentes. É possível que a potencialidade criativa de um modesto micróbio no mundo quântico dê aos seres humanos o biopoder evolutivo de regeneração na morte - ou transição, como é chamada na terminologia Rosacruz.

Palavras-chave: Rosacrucianismo do século XVII, alquimia, “mitoalquimia”, microbiologia, biologia evolutiva, mecânica quântica, teoria quântica, biologia quântica, magia esotérica, Hermetismo, Cabala, evolução humana, Magia Judaica, *Monas Hieroglyphica* (A Mônada Hieroglífica), *Monas* (Mônada) matemática de John Dee, a “mitoalquímica” *Atalanta Fugiens*

(Fuga de Atalanta) de Michael Maier, evocação da Luz, conjunção dos opostos, alegoria de Osiris, Alquimia Rosacruz, Idade de Ouro Hermética

Mysterien, Mathematik, Magie, Mythen und Mikroben im Rosenkreuzertum des 17. Jahrhunderts

Zusammenfassung

Diese Studie zeigt ein verschleiertes festgesetztes Einordnungssystem im symbolischen Gedankengut der Rosenkreuzer auf. Es ist Teil einer fortlaufenden inhaltlich-rückschließenden Diskussion, die anhand einer semiotischen Studie Hinweise über die Bedeutung der mehr oder wenig beschädigten ägyptischen Texte untersucht. Diese Abhandlung prüft die alchemistische und hermetisch-kabbalistische Tradition und ihren Ursprung im alten Ägypten von ca. 2500 v.Chr. mit dem Ziel das esoterische Gedankengut der Rosenkreuzer des 17. Jahrhunderts, das zwischen der Renaissance und der Aufklärung stattfand, zu verstehen.

Die Historikerin Frances Yates erklärt in ihrem Buch „Aufklärung im Zeichen des Rosenkreuzes“ (1972), dass John Dee mit seinem Monas Hieroglyphica (Die hieroglyphische Monade) und Michael Maier mit seiner Alchemistischen Bewegung ein verborgenes Naturelement, die unerforscht war, verschleierten. Die Frage wäre, welche sind die esoterischen Fortschritte der Rosenkreuzer d.h. es geht um das verschwiegene Naturelement, es geht um die besondere Erkenntnis, die eine Naturlehre enthüllen soll, die Yates nicht untersucht hat. Diese Frage vor Augen haltend, überprüft unsere vorläufige Studie die Hypothese, dass eine komplexe Wissenschaft der Regeneration aus Ägypten, via die alchemistische hermetische und kabbalistische Tradition, die Rosenkreuzer des 17. Jahrhunderts beeinflusst hat.

Wir verwenden ein narratives Vorgehen für eine qualitative Untersuchung. Diese Arbeit untersucht die mathematische Monas von John Dee, die mytho-alchemistische Atalanta Fugiens von Michael Maier, die jüdische Magie (wobei das Wort Magie „hinter das uns bekannte materielle wissenschaftliche Verfahren“ bedeutet), das Hervorrufen des Lichts, die Vereinigung der Gegensätze und die Osiris Allegorie, die eine Kenntnis der Quantenbiologie der Rosenkreuzer belegt. Die biologischen Spuren weisen auf eine Quantum-regenerative Entwicklung der menschlichen DNA in Zusammenhang mit einem horizontalen Genen Transfer (HGT), einen DNA-Austausch zwischen zwei verschiedenen Spezies. Es könnte sein, dass in der Quanten-Welt das kreative Potential einer simplen Mikrobe dem Menschen beim Tod oder bei der Transition, wie die Rosenkreuzer es nennen, die evolutionäre Bio-Kraft der Regeneration weitergibt.

Schlüsselworte: Rosenkreuzertum des 17. Jahrhunderts, Alchemie, Mythoalchemie, Mikrobiologie, Evolutionsbiologie, Quantenmechanik, Quantentheorie, Quantenbiologie, esoterische Magie, Hermetik, Kabbala, Entwicklung der Menschheit, jüdische Magie, Hieroglyphische Monade, mathematische Monaden von John Dee, mythoalchemische Atalanta Fugiens von Michael Maier, Hervorrufen des Lichts, Vereinigung der Gegensätze, Osiris Allegorie, Rosenkreuzer Alchemie, goldenes Zeitalter der Hermetik

Introduction

In the year 1617, German physician Michael Maier wrote in Discourse IX of his *Atalanta Fugiens* that only death can restore humans to youth. Today, researchers have discovered an increased abundance of developmental regulation gene transcripts that switch on after death in zebrafish, mice, and human cadavers. Developmental genes usually regulate embryonic development processes and then switch off (Pozhitkov et al. 2016, 2017; González-Herrera, Valenzuela, Marchal et al. 2013). However, regeneration processes can activate developmental genes (Golden and Poss 2020), so scientists are wondering if developmental genes switch on at human death to create something new.

Although many believe the Rosicrucian movement originated in the seventeenth century, others support that the alchemical Hermetic-Kabbalist tradition is the foundation of the esoteric teachings of Rosicrucianism (Yates 1972, 220; Rebisse 2005, 37). This paper identifies biological signs of a regenerative process in the alchemical Hermetic-Kabbalist tradition that may have influenced seventeenth-century Rosicrucianism. With its roots in ancient Egypt, the quantum biology present in this tradition supports the Rosicrucian manifestos calling for a reformation of science, religion, and society. Quantum biology is the emerging study of biological processes that apply quantum mechanics and theoretical chemistry. These quantum processes include chemical reactions, light absorption, bioluminescence, and the interactions of biomolecular complexes (genes, proteins, RNA, DNA) in regeneration.

For instance, particles in a fragment of DNA are often degraded by oxygen, microbes, and water, yet many scientists consider DNA immortal because genetic material released from dead and living cells persists in all environments. DNA can also be transferred from dead to living cells by horizontal gene transfer (Avery, Macleod and McCarty 1944), the exchange of DNA between two species. Experimental documentation of horizontal gene transfer (HGT) in many studies supports significant gene shuffling in the three domains of life: Bacteria, Archaea, and Eukarya, including plants, fungi and human cells (Sorensen et al. 2005, 700). To clarify, Bacteria and Archaea are single-celled micro-organisms with no nuclei, whereas Eukarya include humans and all other animals, plants, fungi, and single-celled life-forms. All of the latter are organisms whose cells enclose their DNA apart from the rest of the cell. Freelancing DNA fragments in the bacterial world hover between life and nonlife, constituting a powerful tool box for evolution, and microbes are our ancestors or planetary elders (Margulis and Sagan 1986, 93, 95). Microbial gene-swappers such as bacteriophage Lambda (a bacterial virus) are ferryboats for transferring DNA fragments, and this process overcomes species barriers and sustains evolution. Theories exist that a virus invented DNA (Whitfield 2006, 131) and that our eukaryotic nucleus evolved from a complex DNA virus (Bell 2001, 251). So, to reconstruct the meaning of biological signs in the alchemical Hermetic-Kabbalist tradition and address the problem of the origin of seventeenth-century Rosicrucianism, this preliminary study begins with the earliest source of myths and symbols—the Egyptian Pyramid Texts circa 2500 BCE.

In the preface to *The Rosicrucian Enlightenment* (1972), historian Frances Yates argues that this period between the Renaissance and the scientific revolution was a Hermetic golden age sustained by the alchemical movement led by Michael Maier (1568–1622) in Germany and grounded by the *Monas hieroglyphica* of John Dee (1527–1608) with his mathematical insight

into nature and the world beyond. However, Yates (1972, xi-xiv) casts a sense of mystery over her study by admitting that she is not sure what the invisible Rosicrucian was or if there were any.

The question of what a Rosicrucian was in the seventeenth century requires an explanation of the esoteric Rosicrucian advances in knowledge that expanded Renaissance learning. According to Eva Del Soldato (2023), *natural philosophy* was the phrase “traditionally understood to encompass a wide range of subjects which Aristotle included in the physical sciences. According to this classification, natural philosophy is the science of those beings which undergo change and are independent of human beings.” Del Soldato (2023) explains that this “vast field of inquiry . . . was enriched and expanded” during the Renaissance and included philosophical inquiry into the nature of the soul. During the seventeenth century, Kabbalah, alchemy, and magic were dominant themes in the Rosicrucian movement. Also, during this brief phase before the scientific revolution, differences among organized religions and imperial authorities would ignite the Thirty Years’ War (1618-1648) that decimated Germany’s population. Still, Yates (1972, 222) believes that in Dee’s *Monas* and Maier’s alchemical movement, a silent element exists—not a secret society, but “an approach to nature in which alchemical and cabalist formulations have combined with mathematics to form something new.” As Del Soldato (2023) affirms, “By the end of the sixteenth century natural philosophy was no longer purely identified with the Aristotelian system or a standard university curriculum. At the same time, the proliferation of new contexts and ways of learning did not automatically eliminate older ones, and this fusion contributed to the birth of modern science in a period of religious and political upheaval.” So, what were the esoteric Rosicrucian advances that Yates did not explore in Dee’s *Monas* and Maier’s alchemical movement—the silent element of specialized knowledge unveiling natural science?

Method

The following hypothesis addresses the question of the silent element: a complex science of regeneration streamed from Egypt circa 2500 BCE through the alchemical Hermetic-Kabbalist tradition that influenced seventeenth-century Rosicrucianism. The biological signs suggest quantum evolution of human DNA related to HGT and regeneration in a bacterial metabolic network connected to a viral genetic circuit existing in the human gut microbiome. With this hypothesis in mind, this paper uses a narrative approach to qualitative inquiry that identifies a veiled system of order in symbolic Rosicrucian thought based on similarities found in spiritual, mythical, and alchemical signs that indicate regenerative natural science (biology, chemistry, physics), while providing a scientific understanding of the Rosicrucian phenomenon that includes Kabbalah, alchemy, and the least-corrupted Egyptian Pyramid Texts. To accomplish this purpose, it is helpful to reference a disillusioning theory about life after death. *The Isis Thesis* (King 2004) is a biosemiotic study of the least-corrupted ancient Egyptian texts. Biosemiotics is the study of biological signs. The initial methodology included multiple reviews of the least corrupted Pyramid and Coffin Texts to categorize 108 key themes that were synthesized into 30 major idea strands, defining textual events and activities of major deities. From this analysis, a hypothetical biological model of primary signs emerged for further testing in additional texts: *Amduat*, *Book of Gates*, *Book of Two Ways*, Edifice of Taharqa, and Papyrus of Ani, including the Theban Recension. Abductive reasoning allowed modifications to the

working model with verification of Egyptian principles supported by modern scientific research. A logical, holistic matrix emerged, explaining horizontal gene transfer (HGT) or the exchange of DNA between two different species as an option for afterlife transformation, while comparing these events to the macrocosmic processes in the cosmos. Although this study is against the consensus of Egyptologists, who believe the texts are simply magical spells, by referencing this biosemiotic study, we can compare its signs with those in the alchemical Hermetic-Kabbalist tradition and the writings of John Dee and Michael Maier that influenced the Rosicrucian enlightenment. So, we begin with the biological signs in the ancient Egyptian Pyramid Texts, followed by brief reviews of Dee's mathematical *Monas hieroglyphica*, the esoteric Kabbalah of Jewish mysticism, the Hermetic tradition, and Maier's alchemical concepts in *Atalanta Fugiens*, in order to unveil a natural science foundation of concepts with applicable biological meanings that reveal the silent element of Rosicrucian knowledge.

However, this inductive transdisciplinary approach runs the risk of oversimplification because other reputable alchemists and their writings are ignored, along with major historical movements (Renaissance, scientific revolution) affecting intellectual life that require a more complex assessment. And so, the method in this initial study is to consider the question of the silent element in seventeenth-century Rosicrucian thought, leaving room in our reasoning for logical possibilities and an efficient theory or set of explanatory principles.

The Earliest Source of Myths and Symbols: The Pyramid Texts

Many Egyptologists believe the Pyramid Texts are confusing, unintelligible, primitive magical spells, protecting the pharaonic elite in the afterlife journey. Although confusing, the hieroglyphs of double-signified signs and symbols with related artwork are advanced scientific texts describing a narrative that signifies the life-giving molecular forces of nature for self-creation (King 2004). To follow is a brief explanation of scientific terms related to biological signs in the Pyramid Texts: autopoiesis, phenotypic plasticity, primal light, cosmic consciousness, horizontal gene transfer (HGT) and bioluminescence.

The technical name for self-creation is autopoiesis, a concept introduced by biologists Humberto Maturana and Francisco Varela in 1972, and qualified later by sociologist Niklas Luhmann to describe social systems that reproduce by communication and psychic systems that reproduce by thought or consciousness. Autopoiesis relates to the self-maintaining chemistry of living cells, such as a bacterial cell, a multicellular organism, or the DNA molecule. Modern molecular genetics supports that the DNA molecule is autopoietic, dynamic, and evolving, yet many biologists still reject theories of DNA consciousness as a quantum mechanical process. However, Evan Harris Walker (1935-2006) merged quantum physics equations and consciousness, proposing that neuronal information is measured by consciousness and "will" functioning in terms of a closed loop system (Grandy 2011, 11). His argument is support for theories of quantum DNA consciousness (Walker 2000; Hameroff and Penrose 1996).

Considering the Pyramid Texts as a source of the alchemical Hermetic-Kabbalist tradition, autopoiesis or self-production is represented by the sign of the scarab beetle, for the god Khepera is depicted in the form of a man having a beetle for a head, and the beetle was believed to be self-produced. *The Isis Thesis* describes the deceased pharaoh's self-production by a bacterial metabolic network connected to a viral genetic circuit, revealing that this quantum system acts as

the inherent organizing tendency within the human body that is reflected in the cosmos (King 2004; 2019). In other words, as part of this quantum autopoietic system, a human being could reproduce the same network for self-maintenance that produced the human phenotype. Yet, the funerary texts also explain the activation or creation of a second phenotype for the dead king's morphogenesis (the biological process that causes an organism to develop its shape). Phenotypic plasticity is the ability of an individual to alter its phenotype in response to the environment, or the potential of an individual genotype to develop into alternative phenotypes in different environments (Fusco and Minelli 2010; Levis, Serrato-Capuchina, and Pfennig 2017). In relation to this potential, the Egyptian emphasis on primal light may be a sign of the experience of cosmic consciousness, what psychiatrist Richard Maurice Bucke (1901, 3) defines as follows:

Individual[s] on a new plane of existence—would make [them] almost [members] of a new species. To this is added a state of moral exultation, an indescribable feeling of elevation, elation, a joyousness, and a quickening of the moral sense, which is fully as striking and more important to the individual and to the race than is the enhanced intellectual power. With these come, what may be called a sense of immortality, a consciousness of eternal life, not a conviction that [one] shall have this, but the consciousness that [one] has it already.

In Egyptian texts, cosmic consciousness relates to the chemical reaction of bioluminescence or the birth of light within the human body (King 2004, 152-54; 2023, 173-186). Light is an electromagnetic wave or oscillation of a magnetic field. In the Egyptian *Book of the Dead*, Theban Recension version, the deceased king states, "I am the Great One who created his own light" (Faulkner 1998, 119). Surprisingly, the pineal gland in the human brain contains calcite microcrystals of calcium, carbon, and oxygen, and these microcrystals produce both thermodynamics as well as bioluminescence, a cold light without heat ranging in the blue-green light spectrum (Baconnier, Lang, Polomska et al. 2002). This initial study by Baconnier et al. suggests humans have the potential for nonthermal bioluminescent interactions:

It is believed that the presence of two different crystalline compounds in the pineal gland is biologically significant, suggesting two entirely different mechanisms of formation and biological functions. Studies directed toward the elucidation of the formation and functions, and possible nonthermal interaction with external electromagnetic fields are currently in progress. (Baconnier et al. 2002)

In support of nonthermal bioluminescent interactions, the Egyptian idea of becoming a Morning Star or luminescent crystal is present in Pyramid Text (PT) references to the Morning Star being the deceased's offspring (PT 473, 481, 507), the deceased ascending to the sky as a Morning Star (PT 553), and the deceased joining other stars in the sky (PT 666) (Faulkner 1969). In these least-corrupted Egyptian texts carved on pyramid walls, the biological signs suggest regeneration is a morphological process, resulting from a DNA recombination of human DNA and the DNA of a bacterial virus (a crystal) for HGT, the exchange of DNA between two different species. This genetic union of DNA is then transformed by sunlight, creating an exotic cloned species that produces its own energy and exists for millions of years (King 2004). This may seem like science fiction; however, physicists at Technische Universität Dortmund just demonstrated a time crystal

by shining light on the crystal to cause its nuclear spins to oscillate in an interaction with electron spins (Greilich, Kopteva, Kamenskii et al. 2024). This time crystal repeats in time infinitely and is very similar to the Egyptian description of the deceased's morphogenesis.

Now consider that autopoiesis, phenotypic plasticity, primal light, cosmic consciousness and bioluminescence are elements related to a bacterial metabolic network connected to a viral genetic circuit in the human gut microbiome:

The well-studied facultative *Escherichia coli* (*E. coli*) bacterium and its bacterial virus, Lambda (Ptashne 2004; Court, Oppenheim, and Adhya 2007), exist everywhere on the planet (Suttle 2007), including in the human gut microbiota or gastrointestinal tract in a dormant state within *E. coli* bacteria (Reyes et al. 2012). With its potential for multiple bacterial phenotypes, the regulatory network of *E. coli* is a complex system of feedback loops, regulatory pathways, and hierarchical transcriptional cascades in various subnetworks (Conway and Cohen 2015; Martínez-Antonio, Janga, and Thieffry 2008), which include transcriptional interconnections to phage Lambda's genetic circuit on the core circular *E. coli* genome (Ptashne 2004; Ptashne and Gann 2002). Phage Lambda is a complex dying/rising virus with a genetic control system structured by the rivalry between its two viral repressor proteins over six gene-seats on its genome that regulate its two lifestyles of vegetative replication: temperate lysogeny controlled by c1 (c-one) protein (when the virus is dead or dormant on the *E. coli* host chromosome and replicated silently with its host) versus virulent lysis controlled by cro protein (when the virus rises from its dead state to take over the cell's replication machinery to clone progeny). (King 2019)

Along with autopoiesis and phenotypic plasticity, consider the prospect of horizontal gene transfer (HGT) of human DNA by a bacteriophage vector. *The Isis Thesis* (King 2004) is a transdisciplinary study of 870 ancient Egyptian signs, showing that the corpus of the least-corrupted Egyptian funerary texts spanning from 2520 to 664 BCE demonstrate an advanced knowledge of quantum physics, molecular biology, space physics, bacterial genetics, and supramolecular chemistry. Building on this discovery, the thesis explains that the semiotic phenomenology of the Egyptian pharaonic priesthood harbors an eschatological survival message for humans, viz., HGT mediated by the complex phage Lambda (the biological sign for the dying/rising deity Osiris). The genetic circuit of this bacterial virus functions with the bacterial regulatory network of *E. coli* for lactose fermentation metabolism (the biological sign for the mother-goddess Isis). The Egyptian texts support that this complex bacterial virus operates as a world-heart or last universal common ancestor of humans. Due to a competition between two of its proteins that generate two different lifestyles and DNA texts, one DNA text (Lambda left genetic arm) produces matter governed by thermodynamics versus bio- or chemiluminescence, the cosmic key for evolution of consciousness (Lambda right genetic arm). Compatible with natural law and new scientific evidence, the Isis Thesis is reinforced by human genome sequencing supporting human descent from viruses and experimental science showing HGT is possible with our eukaryotic cell-type. In short, Egyptian deities and their activities can be interpreted as signs for viral and bacterial genes and proteins undergoing lytic replication, a process activated by sunlight and a site-specific recombination process (Holliday junction or DNA-cross) that excises the dormant phage Lambda for rolling circle replication or cloning (see

Figure 1). For this process, the lactose nutrient is tied off by the Lac repressor protein that loops the DNA in the shape of the Egyptian ankh (see Figures 2ab).

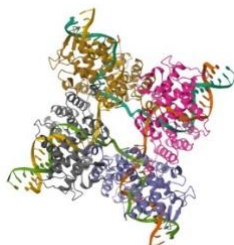


Figure 1. Structure of the Holliday junction intermediate in Cre-loxP site-specific recombination. Gopaul, D.N., Guo, F., Van Duyne, G.D. (1998) EMBO J 17: 4175-4187. Protein Data Base DOI: <https://doi.org/10.2210/pdb2CRX/pdb>. The Holliday Junction is a four-way branched structure or DNA-cross, occurring as an intermediate in genetic recombination pathways that includes the site-specific recombination by the lambda-integrase family.

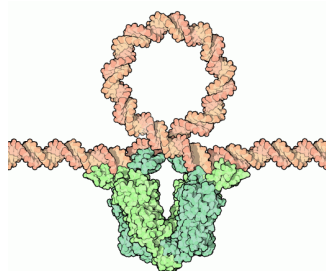


Figure 2a.



Figure 2b.

Figure 2a. The lac repressor (LacI) is a DNA-binding protein that inhibits the expression of genes coding for proteins involved in lactose metabolism in *E. coli* bacteria. (Lewis et al. 1996)

Figure 2b. Detail of a wall relief in the Hathor Chapel in the Mortuary Temple of Hatshepsut at Deir el-Bahari (Luxor, Egypt). The lac repressor protein ties off the lactose metabolism in *E. coli* and loops the DNA in the shape of the Egyptian ankh, the sign of life.

The universal Egyptian core myth of the sun-deity's ferryboat, the dying/rising deity Osiris, the cross, the brother rivalry between Horus and Seth, Isis's virgin birth of the child Horus, the ankh, and the great flood of millions of light people, metaphorically describes the lifestyles of phage Lambda, suggesting that the historical prevalence of dying/rising deities, virgin births, and other themes, as well as the modern genetic engineering obsession with cloning organisms may be the result of epigenetic marks or memories grounded by our microbial DNA heritage. This Egyptian survival message of quantum biology mirrors a quantum physics of lawful time reverse for continuity of mind at a death or transition, and the Egyptian texts clearly explain the spatiotemporal directions for this bio- or chemiluminescent pathway to the heavens that activates the genetic switch to lysis (the breakdown of a cell caused by damage to its outer membrane). The holographic pharaonic perspective is that "what is above is what is below"; our classical cosmos emerges from the quantum formalism. With this theory in mind, a simple review of quantum mechanical principles may be helpful (see Box 1).

Many scholars believe that the Egyptian funerary texts are magical spells that are confusing, primitive, and unintelligible. Quantum mechanics can also be described as confusing and counterintuitive. Thus, this paper defines magic as the conscious psychological experience of an observer-participant applying quantum mechanical principles.

Box 1. In generalized language, quantum mechanics includes the following counterintuitive principles:

1. The Uncertainty Principle of Heisenberg: it is impossible to know both a particle's position and its momentum.
2. Superposition: a particle can exist in multiple states or positions until measured or observed.
3. Entanglement: two or more particles can be linked so the state of one particle influences another particle regardless of distance.
4. Wave-Particle duality: particles exhibit both wave and particle behavior.
5. Retrocausality: backwards-in-time causal influences, i.e., the effect is before the cause (influences travel backward in time).

Modern double-slit and beam splitter experiments show that every electron or photon has a complementary wavelike interference pattern and also a unique particle path. These experiments show that quantum laws govern our classical world and that an observation or measurement can determine particle location due to the quantum's pure yes/no character. This observer-participancy principle, confirmed by physicist John Wheeler's delayed choice experiment (1988), proves the past can depend on a present or future observation because of quantum entanglement, the interaction of two or more particles so that one particle influences another despite distance.

Quantum effects also apply to human potential for autopoiesis, phenotypic plasticity, horizontal gene transfer, and nonthermal bioluminescent interactions at death or transition, involving a bacterial metabolic network connected to a viral genetic circuit in the human gut microbiome (the community of microbes living in the human gut). Accordingly, this article employs these concepts to reconstruct the inner meaning of signs that stream from the Egyptian Pyramid Texts into the alchemical Hermetic-Kabbalist tradition that may have influenced seventeenth-century Rosicrucianism.

Mathematical Insight in John Dee's Star-Crossed *Monas hieroglyphica*

It is interesting that Dee's *Monas* includes a likeness of the ancient Egyptian ankh (symbol of life) that mirrors the crystal structure of the Lactose Operon Repressor protein and its complexes with DNA found in *E. coli* bacteria (see Figure 2ab). Modeling the Egyptian hieroglyphic mysteries, John Dee's *Monas hieroglyphica* (1564) is a difficult Hermetic text, attempting to explain the dynamics of reality that is complicated further by diverse English translations. The text was written by a student of Dee's named Philip à Gabella, who directly quotes Dee, using Latin *stella* (star) for "*Monas*." This interpretation of the "*Monas*" as a star is strengthened by the

last page of Dee's work, where a woman holds a seven-pointed star in her right hand (Yates 1972, 46) (see Figure 3).



Figure 3. The illustration on the last page of *Monas hieroglyphica* by John Dee (Antwerp, 1564).

Related to the star interpretation, mathematician John Dee introduces his *Monas* on the verso of his title-page with the Latin statement: *De rore caeli et pinguedine terrae det tibi Deus*, meaning “May the Divine give you the dew of heaven and the fat of the earth.” Alchemists uncovered the *Prima Materia* or “First Matter” in dew, dirt, urine, manure, and the sweat of metals exposed to certain fumes, and they associated First Matter with displays of light, describing it as a star or spark concealed inside a substance (Hauck 2011, 79). Consider that the First Matter inside a substance emits light. In the realm of quantum biology, this process suggests the dynamics of bioluminescent microbial metabolism as well as the genetic code of DNA and RNA. Supporting this possibility, researchers at McCormick School of Engineering at Northwestern University recently discovered that DNA naturally fluoresces (Morris 2016; Dong, Almassalha, Stypula-Cyrus et al. 2016).

Now, DNA and RNA behave via quantum mechanical effects (Trevors 2011) that are both mathematical and mysterious. Quantum mechanics governs the behavior of atoms, subatomic particles, and photons of light. In Genesis 1:1-8, the Divine creates light first. Likewise, Theorem 1 of Dee's *Monas* states: “By means of the straight line and the circle, the first and simplest production and representation of things was made in the Light, as were non-existent things and those that are hidden behind the veil of Nature” (translation by Turner and Burnes 2007). According to Wheeler's Delayed Choice Experiment (1988), light is a wave of possibility remaining that way until an observer manifests it retroactively, that is, going backward in time. Dee's Theorem II explains everything began from the central point and the monad. According to Theorem III, that middle point is the *Monas* or Earth, yet the sun assumes supreme dignity.

Theorem IV explains that the semi-sphere of the moon reflects the light of the sun and desires to be impregnated by solar rays and transformed into the sun. Theorem V states that the addition of the moon semi-sphere is the light of the philosophers.

In Dee's theorems, references to stars, light emission, and impregnation and transformation by solar rays or ultraviolet light suggest a chemical transformation to cold light (bio- or chemiluminescence). Also, Dee is describing geometric forms (Earth, sun, and moon) in Euclidean space, as well as what is veiled in Hilbert space. In mathematics, Hilbert space is an infinite-dimensional analog of Euclidean space that is defined in finite dimensions. Quantum mechanics is formulated on the projective Hilbert space, the true space of physical states, and its postulates "assume an intrinsically geometric form" (Ashtekar and Schilling 1995), which Dee may be explaining by his *Monas*.

Centered on the title-page of *Monas hieroglyphica*, Dee's glyph emphasizes heaven and earth. In Dee's introduction to Billingsley's translation of Euclid, he translates "monas" to English: "Note the worde, Unit, to express the Greke Monas, & not Unitie: as we haue all, commonly, till now, used" (Turner and Burnes 2007). Dee's multifaceted "Unit" is a single quantity or a coherent quantum state.

Quantum theory also explains the nature of light or photons. In 1913, physicist Niels Bohr proposed that light radiated from hydrogen atoms when an electron jumped from an outer orbit to one closer to the nucleus. This is a quantum process called spontaneous emission that is related to luminescence, and it emits a photon of light. Again, consider John Dee's metaphorical description in Theorem IV of being impregnated by solar rays and transformed into the sun. So, Dee's *Monas* links what appears geometrical above and what is quantum mechanical below, since his glyph represents the classical planets, the zodiac, the sun and moon above the cross of four elements that also represents three and four (triangle and square). The circle symbolizes the cyclic, and the square connotes things quaternary. The triangle with its apex upward symbolizes fire and the aspiration of all things to return to the origin or reverse to the point supporting the circle or cycle. Below the cross, the sign of Aries connotes alchemical fire, what may represent a chemical reaction applying the principles of quantum mechanics at the molecular level. Chemical reactions are described by the mixing of matter-wave fields, and quantum coherence (the ability to maintain entanglement and superposition) is a key feature of reaction dynamics (Zhang, Nagata, Yao et al. 2023).

In sum, Dee's *Monas* or "Unit," his star or light is a wave of possibility going backward in time, a sign of the *Prima Materia* or origin of the force that unites all things by interacting in a geometry of classical and quantum mechanics. What Dee describes by his Unit or *Monas* or quantum (smallest discrete unit) is a mathematical geometric framework to explain both the closed behavior and open states of our physical system that is evolving, interacting with external systems, and maintaining microscopic composite systems with component parts. Dee's glyph also represents cyclic behavior and the aspiration of all things to return to the point or origin of First Matter.

Jewish Magic

We begin with descriptions of the heavens opening for the supernal influx of spiritual forces or a light stream. In the *Harvard Theological Review*, Adam Afterman (2002) comments on this understudied phenomenon in Jewish magic, explaining that early Kabbalah marks a shift from prophetic inspiration to mystical fusion and embodiment with the Divine Essence that reached full development in the sixteenth century. Moshe Idel of Hebrew University explains that a positive reevaluation of magic developed in the Jewish elite of Renaissance and post-Renaissance figures all over Europe that was based on the magic of Hermes Trismegistus and Iamblichus (1989, 83). Iamblichus posited the dual principles of Limit (*peras*) and the Unlimited (or Infinite: *apeiron*) from the Pythagorean tradition (Chiaradonna and Lecerf 2023). This new attitude on Jewish magic embraced Neoplatonic themes, including “knowledge of the universal order, a knowledge that culminated in actualizing the potentiality inherent in human nature” (Idel 1989, 83). This “potentiality” may represent the inactive microbial genes in the human genome, approximately 99 percent, according to a recent study (Carabotti, Scirocco, Maselli et al. 2015).

In the sixteenth century, the Kabbalistic knowledge in *Pardes Rimmonium* (1548), composed by the Jewish mystic Moses ben Jacob Cordovero in Israel, included the idea that the name of the righteous individual unites the forces until a supernal influx descends, a light stream pouring spiritual forces into that individual. In this important Kabbalist text, the righteous individual’s *name* or “spirituality of the letters and their existence and their combination with each other” allows the Kabbalist “to create worlds” (Idel 1989, 93). From a biological perspective, this human potentiality of letters suggests the individual’s DNA, the building blocks of adenine (A), cytosine (C), guanine (G), and thymine (T) that combine and create in quantum biology to produce new combinations.

Jewish Hasidic masters in the early eighteenth century also understood prayer as an attraction of spirituality from above onto the letters. R. Jacob Joseph of Polnoye (1710–1784), a disciple of Hasidism states, “the person who prays should direct his intention to cause the descent of the spirituality, from the supernal degrees to the letters which he pronounces, so that these letters will be able to ascend to the supernal degree, in order to perform his request” (Idel 1989, 94). This suggests the act of observer-participant that “develops definiteness out of indeterminism,” because quantum mechanics allows a measurement or choice due to entanglement (Wheeler 1988, 4-5). So, the Kabbalist unites forces for the otherworldly experience of the supernal influx or light stream that involves a magical union, comprising the strange ascension of the individual’s letters. Perhaps this represents the quantum biological magic of DNA recombination and HGT.

The Evocation of Light in the Ancient Greco-Roman World

In Neoplatonist schools, philosophical discussions centered on theurgy and the evocation of light, a secret technique dealing with deities that developed during the reign of Roman Emperor Marcus Aurelius during the second century CE. The followers of Plotinus accepted theurgy that was based on the obscure operations of the *Oracula Chaldaica*, describing a union with the One that saves the soul by freeing it from mortal elements, and returning the soul to the mystical

cosmic fire of the One (Luck 1989, 188-189; Edmonds III 2019). Although researcher George Luck concludes that an explanation of theurgy may be forthcoming in modern psychology, psychic research, and anthropology, he does identify four puzzling principles of theurgy: 1) magical power 2) cosmic sympathy 3) sameness 4) the soul-vehicle:

There is power available in the universe to those who know how to plug into it, so to say. Magic, of course, is also based on this concept, and it, too, operates with the principle of cosmic sympathy. This second principle involves certain hidden relationships in the universe that cannot be explained by the sequence of cause and effect, or in terms of time and space. A force located thousands of miles from where I am may nevertheless affect me and my whole life. (Luck 1989, 189-190)

Surprisingly, quantum mechanics may explain the counterintuitive principles identified by George Luck. First, the principles of quantum mechanics suggest magical power, when time is unitary or reversible to an origin. Second, cosmic sympathy suggests the hidden relations of quantum superposition and entanglement, where particles are correlated despite their distance from each other. Luck's third principle is sameness or the idea that we share the nature of the Divine, perhaps by means of our genes in the two-dimensional quantum domain. For example, a microbial endosymbiont is an organism living in a symbiotic association with another, specifically by living inside a host cell (Keeling and Palmer 2008). Endosymbiosis also applies to the DNA of a bacterial virus (bacteriophage) that is inactive within its bacterial cell host chromosome inside the human body. Finally, a bacteriophage is a DNA-vehicle or soul-vehicle because it can function as a carrier molecule for HGT, the exchange of DNA between two different species.

As we shall see, notable similarities exist in the laboratory processes described by our contemporary genetic engineers and those of the reputable alchemists, suggesting that the metallic elixir or Philosopher's Stone may be phage Lambda, a virus attacking *E. coli* bacteria that is the "world's most successful biological" entity (Rohwer and Segall 2015, 46). This tiny crystal, a simple tailed head packed with DNA, is a luminescent, plant-like virus with a rainbow-colored metallic coat of six transition metals (copper, zinc, nickel, cobalt, iron, manganese), comprising the Irving-Williams series of metals that form the tightest complexes with organic molecules. The phage's coat protein also exhibits the three known elements that produce a magnetic field (iron, cobalt, nickel) (Irving and Williams 1948; Zhang, Thompson, and Caruso 2011; Waldon et al. 2009). In *Mysterium Coniunctionis* psychologist Carl Jung explains that the Renaissance alchemists defined the stone's rainbow-coat of many colors as the peacock spreading its shimmering tail or fan (1963, 285), a possible description of phage Lambda's luminescent metallic coat protein.

Maier's Mythoalchemical Themes in *Atalanta Fugiens*

In the interest of discovering if the Philosopher's Stone or *Prima Materia* can be related to a bacteriophage, we can review the essential themes of Michael Maier's *Atalanta Fugiens* (1618) to uncover evidence of quantum biology in his various discourses. To begin, in Discourse III Maier explains that the philosopher's subject "for whatever faeces or Crudities are in it" will be purged away by the proper waters or washing to a great perfection through the chemical preparations of Calcination, Sublimation, Solution, Distillation, Descension, Coagulation, and

Fixation. In Isaac Newton's alchemical glossary at Indiana University, feces are defined as follows: residues, either from distillation (e.g., *caput mortuum*), solution, sublimation, or other purification processes. As mentioned earlier, Dennis Hauck (2011, 79 *Rose+Croix Journal* Vol. 8) notes that the alchemists uncovered the *Prima Materia* or First Matter in dew, dirt, urine, manure, and the sweat of metals. The abundant, metal-binding phage Lambda can be found in all these elements. Maier is stating that the Stone is being isolated from feces and purified by a washing away of impurities or "Crudities." Feces is the homeland of *E. coli*, a bacterium found in the lower intestine of warm-blooded organisms. Inside *E. coli* in an inactive lysogenic state is the inert phage Lambda, waiting to take over the replication machinery of *E. coli*, so it can multiply and transform to its lytic lifestyle. A literal interpretation is that reputable alchemists were isolating and purifying a bacteriophage to effect transformation in a bacterium. Maier then explains that "the *Calc Vive* [living stone] or Quicklime & *Ignis Graecus* [Greek fire or lightning]" are kindled by water and cannot be extinguished by fire. So, a lye must be made from metals to wash and calcine (heat), and "it must not be Common Water, but Water Congealed into Ice and snow" because this has finer particles than the standing waters of fens and marshes. This allows better penetration into the "Recesses of the Philosophic Body to wash and purge it from filth & Blackness." In chemistry, a lye is a highly concentrated, aqueous solution of potassium hydroxide or sodium hydroxide.

Also, to effect transformation in *E. coli* bacteria, the cells must be competent, that is, soaked in an ice-cold solution of calcium chloride to induce competence, according to genetic engineer Desmond Nicholl (2002, 81). Competence simply means preparing the cell for uptake of DNA. In genetic engineering today, transformation in competent cells is accomplished by mixing plasmid DNA with the cells, incubating on ice for twenty to thirty minutes, and applying a brief heat shock, so that the DNA enters the cell (81). So, Maier's process to wash from ice water and heat is similar to the modern genetic engineering process of icing and applying heat to effect transformation in *E. coli* bacteria.

In Discourse V, we meet the idea of HGT or the exchange of DNA between two different species, when Maier informs us that the philosophers speak of a toad suckling a woman's breast milk, which can be compared to the allegory of Cleopatra suckling vipers. Again, human behavior such as suckling vipers (if it really occurred) are signs for HGT and hybridization. In Discourse VI, Maier stresses that these matters are strictly chemical, and are mysteries of nature best left to the wise rather than the vulgar. In Discourse VIII, we learn that when we pass from our present lives, there remains a most perfect and eternal transformation by fire with a penetration by waters and dissolution. This transformation by fire models the metaphorical Philosophical Egg that is subjected to Temperate Heat, leaving the Philosopher's Stone or crystal that is a "white starry splendid powder, & of the white Stone." Maier explains that when this metaphorical Egg was opened, a new substance emerged that improved any substance it contacted. The Egg may be a sign for a bacterial cell, while the substance that emerges may be a sign for the inert bacteriophage that rises from its inactive state in the bacterial cell.

In Discourse IX Maier states, "There is nothing that can restore Youth to man but death itself, which is the beginning of Eternal life that follows it." Discourse X references a process of evaporation and rain, while in Discourse XI Maier explains the alchemical confusion of authors

who use different terminology for the same concepts, different-but-similar procedures, and other ambiguities.

In Discourse XVIII, Maier describes the collection of sunlight into burning glasses and its reflection by concave and steel mirrors. Now, this process creates polarized light, in which electromagnetic vibrations oscillate repeatedly in only one direction perpendicular to the direction of propagation. Polarized light is an electromagnetic wave in which the electric field oscillates in only one plane. Today, researchers use polarized light scattering in *E. coli* cells to measure growth conditions (Van de Merwe, Li, Bronk et al. 1997). Perhaps seventeenth-century alchemists were observing and measuring phenomena (possibly bacterial cells) with polarized light.

In Discourse XXXII, Maier explains that the Philosopher's Stone is a Vegetable because it grows, increases, and multiplies like a plant. Similarly, phage Lambda possesses a genetic circuit or gene regulation network of vegetative replication that produces a multitude of cloned viral heads with tails. In Discourse XXXIV, Maier writes that conception in baths is only "putrefaction in Dung." Dung, of course, is the habitat of *E. coli*. In Discourse XXXV, Maier admits that humans have knowledge of vegetables by custom, but not much experience in minerals and metal bodies, and he stresses the importance of the Milk of Virgins and fire, a possible reference to lactose fermentation metabolism or the *Lac* gene system in *E. coli* that metal-binding phage Lambda uses for replication when it becomes active (Ptashne 2004).

In Discourse XLI, Maier states again that truths are hidden under the veils of allegories of ancient deities. In Discourse XLIV, Maier notes the similarities to ancient mythologies, explaining the allegories are chemical in nature. He states that Osiris is not a divinity or king of Egypt, but rather the "Sun of the Philosophers . . . because it contains those properties of Nature which descend from the celestial Sun, or are agreeable to it." This correspondence suggests the properties hydrogen, helium, and other elements in the solar wind, as well as HGT.

Maier concludes that the allegory of Osiris is chemical, and that Sol (Sun) is Osiris, Dionysus, Bacchus, and so on, while Luna (Moon) is Isis, Juno, Venus, and so on, since these deities are parts of the compound called the Stone. In Discourse L, Maier states, "No water will dissolve a Metallic Species by Natural reduction, but that which continues with it in matter and form, and which the Metals themselves can recongeal, and a little after." In sum, Michael Maier's descriptions of the chemical preparations could be interpreted as evidence for microbiological activities, such as effecting transformation in *E. coli* bacterium and purifying or separating the metal-binding bacteriophage from its host cell.

Perhaps the Metallic Species is phage Lambda with its metallic coat of many colors and its metal-binding proteins. Lambda phage is a viral crystal, consisting of an icosahedral head enclosed in a sphere with a tail. Within the head is the phage's double-stranded linear DNA genome. The icosahedron, a model of five-fold symmetry in three dimensions, is a phage conformation that has twenty equilateral triangles arranged around the face of a sphere. The icosahedron is dual to the dodecahedron. It is interesting that NASA and mathematician Jeffrey Weeks report that the math adds up to our universe being finite and shaped like a dodecahedron based on *Phi*, the Golden Ratio (Klarreich 2003). Plato also used a dodecahedron to describe the

universe (Lahanas 2005). Even the fifteenth century polymath Luca Pacioli (c. 1447 – 1517) was interested in the dodecahedron and crystal conformation (see Figure 4).



Figure 4. Portrait of polymath Luca Pacioli (circa 1447-1517) with a student, attributed to the Italian painter Jacopo de' Barbari. In the portrait, Luca Pacioli (a friend of Leonardo da Vinci) is attired in the habit of a member of the Roman Catholic Franciscan order. The instruments of a mathematician rest on the table before him: a sponge, a protractor, a pen, a case, a piece of chalk, and compasses. At the table's right corner is a dodecahedron, dual to the icosahedron. Above Pacioli's right hand is a crystal rhombicuboctahedron in the air.

Discussion

In brief review, signs of quantum biology include John Dee's *Monas* or *stella* (star), a quantum unit with its geometric depiction of the Egyptian ankh that mirrors the crystal structure of a bacterial protein. Alchemists discovered the *Prima Materia* in dew, dirt, urine and manure (animal feces), describing it as a star or spark concealed inside a substance that emitted light, suggesting the dynamics of bioluminescence and a bacterial host cell with a bacteriophage. Dee discusses a solar transformation that may signify spontaneous emission of light. Further, Jewish magic describes the supernal influx of a light stream or the "letters" that combine "to create worlds." This suggests the letters of quantum molecular DNA that often binds to the genome of another species through recombination and HGT. Neoplatonist schools were also interested in the evocation of light and the union with the One that frees the soul from mortal elements. Ancient Egyptian texts describe the importance of solar rays or light for the dead sun deity's bio- or chemiluminescent transformation. This chemical transformation to cold light reverses the chemical reaction of photosynthesis (King 2004, 152-154). Recently, scientists discovered that this light-driven process of "reverse photosynthesis" is activated by a class of powerful oxidative enzymes or metalloenzymes (metal-binding proteins) that are found in fungi, bacteria, and viruses (Cannella, Möllers, Frigaard et al. 2016). Recall that phage Lambda's coat protein contains metalloenzymes containing six transition metals (Mn, Fe, Co, Ni, Cu, Zn) (Zhang, Thompson and Caruso 2011), supporting the possibility that phage Lambda may be the "First Matter."

Additional evidence of quantum biology is present in Michael Maier's *Atalanta Fugiens*, indicating that reputable alchemists were isolating and purifying a bacteriophage to effect transformation in a bacterium. Maier states that these matters and mythical allegories are strictly chemical. The testimonies of Dee, Maier, and others describe quantum effects that play a major role in chemical reactions and forces in the universe. This offers some support for the hypothesis that a complex science concerning regeneration streamed from Egypt through the alchemical Hermetic-Kabbalist tradition that may have influenced seventeenth-century Rosicrucianism. However, more evidence is necessary to support that these signs and descriptions underpin the quantum evolution, horizontal gene transfer and regeneration of human DNA by means of bacterial metabolic network connected to a viral genetic circuit existing in the human gut microbiome.

To provide more evidence, the fact that autopoiesis, phenotypic plasticity, HGT and bioluminescence are elements related to a bacterial metabolic network connected to a viral genetic circuit in the human gut microbiome reinforces that we can build on the concept of quantum biological regeneration by focusing on microbiology.

Circa 1624, microscopes existed, and the German physician and naturalist Johan Faber used a microscope to observe a fly. In 1658, the German Jesuit scholar and polymath Athanasius Kircher (1602-1680), a follower of the Hermetic tradition, viewed the "seeds of plague" (*pestis semina*) and transformed a dormant substance into "living outflows" (*animate effluvia*), according to his "Physico-medical examination of the contagious disease, which is called the plague" (Findlen 2020).

Additional evidence for microbiological activities is the work of the reputable alchemists Josephus Quercetanus (1576) and Samuel Norton (1630), who used similar procedures in a different order over a 50-year period (Jung 1953, 239-241) that suggest isolation, purification, and multiplication of a virus. The assumption is that these biochemical processes include the elements of organic and inorganic chemistry, for metal ions also contribute to biological function (Maret 2016). Also, the chemical descriptions of writer P. V. Piobb, genetic engineer Desmond Nicholl, and Nobel laureate Wendall Stanley focus on isolating and purifying a viral crystal, suggesting that reputable alchemists understood the interactions of metal ions (see Table 1).

J. Quercetanus (1576) (multiplication)	Alchemical Process in Seventeenth-Century (no multiplication)	<i>Genetic Engineering</i> by D. Nicholl (2002) (no multiplication)	W. M. Stanley's Isolation of Crystal Virus (1935) (no multiplication)
1) Calcination 2) Solution 3) Separation of Elements 4) Conjunction* (union) 5) Putrefaction 6) Coagulation 7) Cibatio (feeding)** 8) Sublimation 9) Fermentation 10) Exaltation 11) Augmentation 12) Projection (turn lead to gold, lesser to higher form) *recombination of saved elements from Separation into new substance **act of adding fresh substances to matter, e.g., to supply what is left after evaporation Jung (1953, 239)	1) Calcination or heating a substance to reduce it to ashes 2) Putrefaction or separating destroyed remains by isolation and filtration, resulting in purified matter 3) Solution, followed by 4) Precipitation or the "rain" or distillation of purified matter (crystallization) 5) Conjunction or the joining of opposites 6) Sublimation or the process of transformation from a solid to gas phase, without passing through the liquid phase, and congelation or the Philosopher's Stone P. V. Piobb (1950)	1) Open cell by degrading cell wall and detergent lysis (bursting) of membranes 2) Deproteinisation or extractions/separation of protein molecules from nucleic acid 3) Solution 4) Precipitation of nucleic acids from Solution with salt wastes 5) Filtration technique such as gradient centrifugation or gel filtration 6) Pellet forms and is dried (evaporation) and resuspended for next stage, which could be bacterial conjugation (transfer of genetic material) D. Nicholl (2002)	1) Filtration process and precipitation in water involving calcination 2) Putrefaction, isolation, filtration of the virus 3) Solution followed by 4) Precipitation with lead subacetate and salt, and 5) Dissolution in water 6) Filtrate is opalescent with a satin-like sheen and contains the crystalline virus Nobel Laureate Lecture of W. Stanley (1946, 145)

Table 1. Chemical descriptions: 1) viral multiplication 2) isolation/coagulation of Philosopher's Stone reported by researcher P. V. Piobb 3) coagulation of a viral pellet in genetic engineering and 4) isolation of crystalline tobacco virus by Nobel Laureate Wendell Stanley. (Table from King 2023, 211)

Nobel laureate Wendell Stanley's isolation and purification of the metal-binding crystalline tobacco mosaic virus in early modern chemistry (1935) won the Nobel Prize in chemistry. Stanley's explanation of his experiment in his 1946 Nobel Lecture informs chemists that a virus could be crystallized like an inorganic salt.

Maier states that the allegory of Osiris is chemical. According to similar chemical activities outlined in Table 1, that chemistry may relate to the crystallization and/or multiplication of a virus. To understand this chemical reaction, we can now review the genetic circuit or lifestyles of phage Lambda, a bacterial virus infecting *E. coli* in our gut.

After phage Lambda infects *E. coli* with its DNA, the virus can become a passive prophage (lifestyle of lysogeny) on the *E. coli* chromosome attached to its DNA-cross (see Holliday junction intermediate in Figure 1) or an active virus that takes over the *E. coli* replication

machinery to clone itself (lifestyle of lysis). Lysogeny is controlled by Lambda c1 (c-one) protein, whereas lysis is controlled by Lambda cro protein. On the Lambda genome, the brotherly competition between these two major repressor proteins determines lysogeny or lysis. Known signals for prophage induction (lysis) relate to DNA damage caused by UV light, temperature, and oxidative stress. These stressors, especially UV light, activate *E. coli*'s SOS response, destroying c1 repressor proteins that maintain lysogeny or the passive prophage attached to its DNA-cross (Ptashne 2004) (see cruciform DNA image in Table 2).

The least-corrupted Ancient Egyptian Pyramid Texts (ca. 2500 BCE) carved on pyramid walls describe the original myth of Osiris and Isis, which can be compared to both the story of Christ and the lifestyles of phage Lambda. As Michael Maier stated in Discourse XLIV, the allegory of Osiris and Isis and similar deities is chemical, and the deities represent parts of the compounds called the Stone. Table 2 shows the similarities between the myth of Osiris and the Biblical account of Christ, suggesting that these historical signs can be interpreted as representing quantum evolution, horizontal gene transfer, and regeneration of human DNA by means of a bacterial metabolic network connected to a viral genetic circuit.

Least corrupted myth of Osiris and Isis in Ancient Egyptian Pyramid Texts circa 2500 BCE	Microbiology	Biblical account of Christ in Old Testament (circa 600 BCE) and New Testament (circa 100 CE)
Sun-god on Bark and Great Flood of Osiris	Horizontal Gene Transfer (HGT) mediated by phage Lambda (ferryboat for human DNA) and multiplication (lysis)	Noah and the Ark in the Flood
Mother-goddess Isis	Action of Lactose Fermentation Metabolism (formerly inhibited by the DNA-binding <i>lac</i> repressor protein)	Mary, Mother of Christ
Isis hovered over Osiris like hawk, bringing him back to life and conceiving the Horus child	Virgin Birth or asexual genesis (cloning)	Mary's Virgin Birth of Christ
Warring Brothers Horus v. Seth for throne of Osiris (when Horus wins, Osiris lives; when Seth wins, Osiris dies)	Repressor proteins cro versus c1 (when cro wins, Lambda prophage rises/lysis; when c1 wins, prophage remains inert/lysogeny)	Agriculturalist Cain kills Abel, keeper of sheep like Hebrews
Dying/rising God Osiris	Model of two lifestyles of phage Lambda (lysogeny and lysis)	Dying/rising Christ (Second Coming of Messiah)
The Cross or Tree Also: Myth of Osiris nailed in chest lodged in large tree (Plutarch)	Lysogenic Lambda prophage is attached to a cross on <i>E. coli</i> chromosome, a cruciform DNA structure called a Holliday Junction Intermediate*	Tree of Life v. Tree of Knowledge of Good/Evil Also: Christ on Cross or redemption by Cross
Note: Etymology of Osiris is from " <i>W'sir</i> " meaning "place of creation" and "seat of the Eye" with the Eye explained as the Sun and the "seat that creates." (Griffiths 2002, 303)		Note: Etymology of Christ is from chrys- , word-forming element meaning "gold," also sometimes "wealth," from Latinized form of Greek <i>khrysos</i> "gold" (circa 1600). chrysalis (n.) is form in the life-cycle of butterflies, moths, etc.

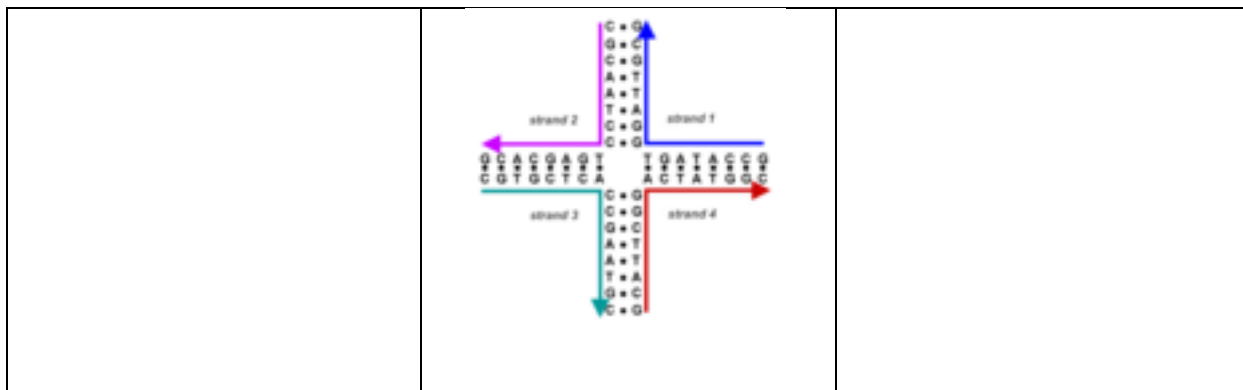


Table 2. Comparison of least-corrupted myth of Osiris and Isis carved on pyramid walls with the lifestyles of phage Lambda and the biblical account of Christ and Mary.

*Schematic of a Holliday junction showing the base sequence and secondary structure but not the tertiary structure. For more information see “The λ Integrase Site-specific Recombination Pathway” by A. Landy, 2015.

The Conjunction of Opposites

This review suggests that reputable alchemists explored a biochemical process to purify a virus, free it from its host cell symbiont, and crystallize it before the conjunction of opposites that creates something new. Considering the psychological experiences discussed (opening of heavens, supernal influx, entanglement, light stream, and so on), perhaps the spiritual forces associated with the evocation of light exist in the realm of quantum biology and physics, whereby the dynamics of bioluminescent microbial metabolism and the genetic code of DNA can be observed. The conjunction of opposites may represent DNA recombination or the exchange of DNA between two different organisms, a human and phage Lambda. The references in Table 1 to conjunction and conjugation describe not only DNA recombination by a joining of opposites, but also HGT. In sum, the semiotic evidence in Tables 1 and 2 indicates that it is possible to interpret the work of seventeenth-century Rosicrucians as practicing an early form of genetic engineering with an abundant bacterial virus that may represent phage Lambda.

It is also possible that these biological ideas of conjunction, conjugation and HGT resulted from epigenetic marks or memories grounded by our microbial DNA heritage. These microbial memories may be regulating gene transcription, as well as influencing human consciousness (Liestner and Sullivan 2019). In other words, human DNA with its microbial epigenetic marks may underpin the true origin of the transgenerational esoteric teachings of Rosicrucianism, including human motivation for longevity and unlimited cognition. Consider the thirteenth-century alchemist Albertus Magnus, who is said to have created a talking brass head, an automaton endowed with all knowledge, an oracle that could speak until Thomas Aquinas destroyed it (Craven 1968, 77-78). Our silent microbial DNA heritage of epigenetic memories may have also influenced seventeenth-century Rosicrucianism, as well as modern scientific developments related to transhumanism, the technocratic belief that humans can evolve beyond physical and mental limitations.

Consider that phage Lambda, a human gut microbe, may be the *Prima Materia*. The phage impacts human cognition. For instance, human core histones in the nucleosomes of our cell

nucleus have the same structure as the major *c1* and *cro* repressor proteins of phage Lambda, suggesting this abundant bacterial virus influences our gene expression via epigenetic histone and DNA modifications (Magnus and Lattman 1983; Mil' and Biniukov 1988). In addition, evidence is mounting that gut microbes contribute both to mental health and the progression of neuropsychiatric disorders (Rohwer and Segall 2015). Microbes assemble at human birth and develop with the host to become an integral part of human biology. Humans are holobionts because they are composed of microbial biomolecular networks (Baedke, Fábregas-Tejeda, Delgado 2020). Data demonstrates bidirectional signaling between the brain and complex gut microbiota, and initial studies in the human holobiont support the relationship between intestinal microbiota and brain function that impacts cognition and behavioral patterns via the brain-gut-microbiota axis (Allen, Dinan, Clark et al. 2017; Dinan, Stilling, Stanton et al. 2015; Mayer, Knight, Mazmanian et al. 2014; Cryan and Dinan 2012).

Influencing human behavior, gut microbes produce neurotransmitters and alter the levels of these neural messengers in the brain. As examples, *Escherichia coli* (*E. coli*) produces serotonin, norepinephrine, and dopamine; *Lactobacillus* produces gamma-aminobutyric acid (GABA) and acetylcholine; and *Bacillus* produces dopamine and norepinephrine (Sherwood et al. 2013). Over ten million microbial genes constitute 99 percent of the genes in the human body (Carabotti et al. 2015), playing roles related to metabolism, immune regulation, mood and behavior (O'Mahony, Clarke, Borre et al. 2015; Jenkins, Nguyen, Polglaze et al. 2016; Zhang and Davies 2016; Das, Verma, and Mukherjee 2017; Strandwitz 2018; Wang, Yang, Pan et al. 2020). All this associative neural networking between microbes and human beings may influence phage Lambda's genetic switch to lysis. If phage Lambda is the *Prima Materia*, a symbiotic union of human DNA with viral DNA may account for the psychological experiences and experiments of reputable alchemists, including Albertus Magnus' talking brass head.

Conclusion

Initial research supports the hypothesis that a complex science of quantum biology concerning regeneration began in Egypt circa 2500 BCE and streamed through the alchemical Hermetic-Kabbalist tradition that influenced seventeenth-century Rosicrucianism. The biological signs suggest that the silent element of specialized knowledge unveiling natural science can be interpreted as quantum evolution of human DNA related to HGT and regeneration in a bacterial metabolic network connected to a viral genetic circuit existing in the human gut microbiome; however, more evidence is needed. Still, this specialized knowledge with a mathematical basis unveils natural quantum biology that supports lawful quantum mechanical effects such as entanglement, superposition, and lack of cause and effect, as well as microbial endosymbiosis related to DNA recombination and HGT. Also, by comparison with modern genetic engineering techniques, it is possible that the reputable alchemists were describing the activities of isolating and purifying a virus to effect transformation in a bacterium, using metaphors to suggest the exchange of DNA between two different species.

The *Prima Materia* may be a bacterial virus, a gut-microbe residing in the human body that has left its imprint on our neuronal cell histones and nervous system structure. Further, the abundant Lambda prophages in the lysogenic state may be the source of an alternative phenotype by means of its genetic switch to lysis (King 2023). The seventeenth century esoteric Rosicrucian

advances in knowledge of Dee, Maier, and others describe this Ancient Egyptian chemistry and quantum biology that may create something new. It may be that the creative potentiality of a humble gut-microbe gives human beings the evolutionary biopower of regeneration at death, especially since developmental genes switch back on and phage Lambda has left its imprint on our neuronal cell histones and nervous system structure.



Figure 5. *Salvator Mundi* (Latin for “Savior of the World”) is a painting, attributed in whole or in part to Leonardo da Vinci and dated to circa 1500. Christ holds a crystal sphere, while pointing upward with the right hand.

A virus is a cold crystal. The meaning of the spherical chemiluminescent crystal held by Christ in the painting attributed to Da Vinci may rest in its title *Salvator Mundi* (“Savior of the World”) (see Figure 5). Perhaps the symbolism of the dying/rising Christ and the cold crystal he holds represents a biological sign that allows chemical transformation and human regeneration to an exotic immortal species. For according to Carl Jung, the alchemical Stone (*lapis*) of the Philosophers was referenced by many names, one of which was *Salvator* (1953, 223).

And yet, is the eternal return of “tomorrow and tomorrow and tomorrow... to the last syllable of recorded time” (Shakespeare *Macbeth* 5.5) a satisfactory salvation? Perhaps this concept of an eternal return allows all human beings the potential of learning and growth and ultimately the discovery of the *lapis philosophorum*, the *Prima Materia*, within oneself.

Conflict of Interest

The author declares no conflict of interest.

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