Logoi Spermatikoi and the Concept of Seeds in the Mineralogy and Cosmogony of Paracelsus

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Abstract: Paracelsus’s concept of seeds is an important contribution to Renaissance theories of matter. Unlike the alchemists’ notion of metal seeds, it has a strong Christian orientation, based on a particular interpretation of the biblical Creation story. It is in this cosmogonical aspect that Paracelsian seeds are more akin to the seminal reasons of Augustine than to the logoi spermatikoi of the Stoics or Plotinus. The present study examines the Augustinian background of this Paracelsian concept and Marsilio Ficino’s intermediary role in its origination.

Keywords: Paracelsus, seeds, logoi spermatikoi, seminal reasons, Plotinus, Augustine, Marsilio Ficino.

Introduction

Historians have recently started taking an interest in the influence of Stoic physics on scientific thought in the sixteenth and seventeenth centuries. However, when faced with the difficulty of surveying all writings containing Stoic ideas – a difficulty on which Gérard Verbeke has remarked – the best approach is without a doubt to identify and trace the Stoic themes that were gradually

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incorporated into Western thought.\(^1\) It appears to me that, compared to the well-known related doctrine of *pneuma* (spiritus, mind, or *Geist*),\(^2\) the theory of *logoi spermatikoi* is not as exhaustively explored.\(^3\)

This theory is an ingenious invention of Stoic physics. Granted, the pre-Socratic philosophers freely used the metaphor of “seed” (*sperma*) in reference to the origin of material or quantitative existence in their theories of nature. For instance, Anaxagoras used the word “*sperma*” to refer to the beginning of natural things, while the ancient Pythagoreans considered the first step of the formation of the entire universe to be a “seminal point.”\(^4\) As for the notion of the seminal principle, which was regarded as a kind of creative force, it was developed in embryological speculations.\(^5\) It was with the Stoics that the active principle of the universe explicitly became *seminal* for the first time, unifying the role of creative power and that of the origin of being. This was the doctrine of the *logoi spermatikoi*.

In the monistic, deterministic system of the Stoics, the *logoi spermatikoi* were responsible for the transmission and preservation of the specificity of each type of natural thing. The influence of this doctrine can be found in the Hellenistic and Latin philosophers, as well as among the Christian apologists of the first century.

A.D., most prominent of which were Plotinus (205-270 A.D.) and Augustine (354-430 A.D.). Plotinus used the Stoic idea of *logoi spermatikoi* while modifying and spiritualizing its materialist content. Likewise, Augustine’s theory of “seminal reasons” (*rationes seminales*) is based on the *logoi spermatikoi* of the Stoics and of Plotinus. It was through the Augustinian tradition that the idea of the *logoi spermatikoi* was transmitted to the Latin world of the Middle Ages.7

Once scholastic Aristotelianism came to dominate Western intellectual life, the idea of the seminal principle became less prominent. Its role was often replaced by a composite of various natural forces, a typical example of which was the idea advanced by Albert the Great (c. 1193-1280): a combination of the forces of the four elements, the celestial bodies, and the prime mover.8 As for Thomas Aquinas (c. 1225-1274) with his theory of the “substantial form,” he preferred the potentiality of matter to seminal reasons that are immanent to matter. The perpetuation of the concept after Aquinas is therefore little studied by historians.

Medieval alchemy, which favored sexual analogies and explicit hylozoism under the influence of Stoic biocosmology, retained the metaphor of the seed in its theory on the formation of metals and minerals. The most popular version was that of the two principles of sulfur and mercury,9 which were often seen as being active or

8 - Albert the Great, De mineralibus, i, 1, 8. On Albert the Great’s seminal reasons see Macarius Wengel, Die Lehre von den rationes seminales bei Albert dem Grossen (Würzburg: Mayr, 1937); Bruno Nardi, Studi di filosofia medievale (Rome: Storia e letteratura, 1960).
volatile. The alchemists called them the “seeds” of metal. Using Aristotle’s embryology as a model, they assumed that sulfur had an active force similar to male seed, and that mercury embodied the feminine role, called “menstruum” or “female seed.” Despite the biblical analogy that developed over time around the notion of seed among Christian alchemists, the term “seed” largely came to refer to concrete matter that the alchemist could manipulate in the laboratory.

In the sixteenth century, we once again encounter a large number of ideas derived from the seed in diverse scientific fields, and called by different names: “seeds” (semina), “seeds of reasons” (semina rationum), “seminal reasons” (rationes seminales), “seminary” (seminarium), “seminal principle” (principium seminale), etc. To simplify the discussion, let us provisionally group them together under “the concept of seed.”10 In mineralogy, there was also a trend in which the concept was used to explain mineral formation at least until the triumph of Newtonian atomism in the eighteenth century. Frank D. Adams has already shed light on this point, but without examining its philosophical origins.11 More recently, David R. Oldroyd and Norma E. Emerton have examined the issue by tracing it back to Stoicism.12 In reality, the work of these two historians largely depends on that of Walter Pagel, who emphasized the importance of the concept of seed in the natural philosophy of the Swiss doctor Theophrastus von Hohenheim, called Paracelsus (c. 1493-1541).13

Paracelsus applied his concept of seed not only to the generation of living beings, but also to the formation of inorganic things, and

10 - On the concept of seed in the Renaissance, see Hiro Hirai, Le concept de semence dans les théories de la matière à la Renaissance: De Marsile Ficin à Pierre Gassendi (Turnhout: Brepols, 2005).
used the theory in his etiology. He even links seeds to activities of the mind such as will, passion, and imagination. Although Paracelsus did not leave us any works that were exclusively on his concept of seed, he dealt with it on multiple occasions, scattered throughout his writings, neither claiming its originality nor citing any authority in connection with it.

Given the close resemblance between his worldview and alchemical thinking, it would be natural to assume that his seed concept is derived specifically from medieval alchemy. Hence, Pagel writes, by generalizing the hylozoist seminal principle of the alchemists, Paracelsus introduced invisible seeds as the germs of every natural body.\(^{14}\) It was in this connection that Pagel emphasizes the influence of the Stoic doctrine of the logoi spermatikoi.

It is a well-known fact that Paracelsus added salt to sulfur and mercury as the third principle of all things. This was his famous theory of the \textit{tria prima} (Sulfur, Salt, and Mercury).\(^{15}\) According to Pagel, by looking for the logoi that reside in matter, Paracelsus found them in the seeds and the intelligence that they contained. To him, the \textit{tria prima} were immanent to seeds as their main constituents. Conceived as invisible, spiritual forces, the \textit{tria prima} were the true principles of all natural things. Recalling that the Alexandrine alchemists, influenced by the Stoics, identified in the \textit{pneuma} and \textit{logoi spermatikoi} the seeds and the souls of terrestrial things, and specifically metals, Pagel concludes that several Stoic ideas were revived in Paracelsus’s concept of seed.\(^{16}\)

However, the sexual allegory used by the alchemists is largely absent from Paracelsus’s \textit{tria prima} theory, as he no longer calls sulfur and mercury “male seed” and “female seed.” Did he simply remove the sexual association from these principles, creating a


different seminal entity in its place? Moreover, the alchemists’ concept of seed usually refers only to the formation of metals, while that of Paracelsus addresses a broad range of natural phenomena, including the Creation of the world. Could it be that Paracelsus’s concept was inspired by currents of thought other than the Stoics’ doctrine of *logoi spermatikoi* transmitted by way of medieval alchemy? The concept appears to feature largely in Paracelsus’s writings on mineralogy. Hence, this article analyzes the place and nature of the Paracelsian concept in its own context, and compares it to the main variants of the doctrine of *logoi spermatikoi* in order to assess its true relationship with Stoic physics.

**Logoi Spermatikoi according to the Stoics, Plotinus, and St. Augustine**

Before examining Paracelsus’s concept of seed, let us provide a brief overview of the main features of the doctrine of *logoi spermatikoi* in the three main systems: Stoic, Plotinian, and Augustinian.

With the Stoics, the doctrine of *logoi spermatikoi* was determined by the nature of their physics, which in turn were intended to explain plurality and teleology in a monistic system. To them, matter is completely formless and indeterminate, but not without an active principle: because the *logoi spermatikoi*, as the generative principles, are immanent to matter. They in turn originate from God, the craftsmanlike fire, who is Himself the *Logos Spermatikos* of the world. Derived from the analogy of animal sperm, the *logoi spermatikoi*, which were conceived as corporeal, were said to contain the powers and laws for the growth of individuals. As latent causes, these *logoi* direct the progressive development of all living and non-living things in accordance with the passage of time.

When Plotinus appeared on the scene, he naturally adopted the doctrine of *logoi spermatikoi*, which already formed an integral part of the Platonic tradition influenced by Stoicism. The first characteristic of his *logoi spermatikoi* is the fact that they are not corporeal, but incorporeal (or spiritual), residing in the soul, whether the soul of the world or of a particular being. As they are utterly immaterial, they are the productive and vegetative agents of the soul, the dynamic forces and the internal laws of development that are subject to divine providence. A corporeal being is produced through the addition of a *logos spermatikos* of the soul to formless matter. There are therefore as many *logoi* as there are individual beings. Plotinus applied this theory to organic and inorganic nature. To him, the *logoi* embodied a mediatory function between the soul and corporeal beings.

The theory of seminal reasons of Augustine was the most powerful Latin vehicle for the transmission of the doctrine of *logoi spermatikoi* to the Middle Ages. He used synonyms for seminal reasons such as “seeds” (*semina*), “primordial seeds” (*primordia semina*), “germs” (*germina*), and “implanted reasons” (*rationes insita*). He introduced this theory in order to resolve various physical, metaphysical, and theological problems, and tried to reconcile the biblical teachings with experiences of everyday life. By Christianizing the idea of *logoi spermatikoi*, he explained the development of natural, normal, and abnormal phenomena, spontaneous generation, the controversies around the book of Genesis, the intellectual development of human beings and, finally, miracles.


According to Augustine, God instantly created all things in the original Creation in seminal form through the seminal reasons, and creatures can come into existence when willed to do so by God. What followed the six days of Creation was the vital, organic unfolding of a history, the elements of which existed in a seminal state from the very beginning. For this reason, the Creator Himself communicates with natural things through the seminal reasons, which give beings intelligibility and rationality. They are immaterial and remain distinct from both matter and the corporality of visible seeds.

The Concept of Seed in the Mineralogy of Paracelsus

Let us now examine the concept of seed in Paracelsus, the most complete development of which can undoubtedly be found in his mineralogical treatise, *De mineralibus* (written in c. 1526-1527). In this slender book, Paracelsus explains his theory on the formation of minerals in detail, based on his vision of the Universe. From the beginning, he emphasized the importance of studying the end in order to understand the beginning, while introducing the idea of “ultimate matter” (*materia ultima*) and “prime matter” (*materia prima*).

To him, ultimate matter is the final state of development of each natural entity, while prime matter is the original state of the entity. “Prime matter” is not used in the sense of the “first, formless matter” of the Greeks and the alchemists. These two types of matter (prime and ultimate) are simply the start and the finish of natural development. As ores, the minerals extracted from mines therefore exist as ultimate matter. Paracelsus blames Aristotle, Avicenna,
Albert the Great and their successors for disregarding ultimate matter in their description of the formation of minerals.23

Paracelsus then explains the formation of minerals from the point of view of his theory of the tria prima, or three principles. He states that all minerals and metals, like all other natural things, are formed only from these three principles. However, each of these three principles is multiple so that each metal formed from its own Sulfur, Salt, and Mercury. In fact, Paracelsus states that there are as many different types of Salts, Sulfurs, and Mercuries as there are natural things in the world. Salt lends color, balsam, and solidity (“coagulation”); Sulfur gives body, substance, and structure; and Mercury lends virtues, power, and arcana. These three principles necessarily combine to form and perfect a mineral body.24 They are distinct from the natural substances of the same name, the names “Sulfur,” “Mercury,” and “Salt” being symbolic terms related to their functions. They should therefore not be understood in the same way as the material causes of the scholastics by placing them at the same level as the Aristotelian elements.

As to the four traditional elements (fire, air, water, and earth), to Paracelsus they are no longer the material causes of natural things, but are the “mothers” (Mütter), cosmological matrices from which natural things are born and grow.25 By using this notion of the four mothers, Paracelsus places the formation of minerals in the context of the biblical Creation. He states that at the beginning God created the element “water,” endowing it with the power to give rise to minerals on an ongoing basis. In doing so, God designated water as the “mother” of minerals. God also placed in it the tria prima for future minerals. Paracelsus states that the tria prima are placed in the element “water” as the soul, the spirit, and the essence of this element.26

23 - *De mineralibus* (Huser, VIII, 334 and 344 = Sudhoff, III, 31 and 42).
24 - *De mineralibus* (Huser, VIII, 344-345 = Sudhoff, III, 42-43).
Minerals play the role of the “fruits” (Früchte) of their mother. As God admirably created the element “water” as the mother of the minerals, the resultant minerals must be its progeny. Note that the notion of “growth” (wachsen) is important in Paracelsus’s natural philosophy. To him, all things that grow have a kind of life force in the form of the spiritus vitae. In addition, he preferred to think of growth in plant-like terms rather than animal-like terms; the growth of minerals is therefore described in plant-like language. According to Paracelsus, minerals have a liquid body called a “tree,” which grows in a highly branched form throughout the world. This plant-like image of metallic veins seems to originate from the beliefs of the miners among whom Paracelsus was raised. This ancient belief was also strengthened by the influence of medieval alchemy. Works from the first half of the sixteenth century such as Ein nützlich Bergbüchlein (c. 1500) by Ulrich Rülein von Calw of Freiberg, Bermannus (1530) by Georg Agricola, De la pirotechnia (1540) by Vannoccio Biringuccio, and De subtilitate (1550) by Girolamo Cardano have much common ground with the writings of Paracelsus.

Thus Paracelsus introduces the concept of seeds through which God’s plan is transmitted to the mineral kingdom in order to form each individual mineral. How, then, should we understand the relationship between seeds, which communicate this Divine design to future minerals, and the element water, which is the mother of the minerals? Paracelsus writes:

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Thus, the first was with God, the beginning, that is, the ultimate matter. God transformed this ultimate matter into prime matter. Like a fruit that must engender another fruit, it contains a seed: the seed is in the prime matter. Hence, the ultimate matter of minerals is transformed into a prime matter, that is, a seed, and this seed is the element water. God determined that water should exist; He created it in nature for it to produce ultimate matter, which is in water and takes what is in it, subjected to its power and its preparation. He separates that which belongs to metals into metals and classifies each metal according to its kind. [He also separates] what belongs to stones, and likewise also rocks, and likewise the marcasites and other species. Next, God created time so that there might be a harvest time for wheat and an autumn for fruit. In the same way, He also created for the element water a harvest and an autumn so that all things should have their harvest time and their autumn. Hence, water is an element and a mother, a seed and a root of all minerals.\textsuperscript{30}

In this way, according to Paracelsus, God indirectly created the final state (ultimate matter) of individual minerals in the form of prime matter, and ultimate matter is latent in prime matter. It should be noted that prime matter and ultimate matter are therefore determined by God’s Creation and by divine providence. Paracelsus states that the seed is the prime matter in same way that a fruit includes in itself the seeds of future fruits, and the prime matter resides in the element water. A mineral exists in a dormant state as a seed contained in the prime matter, which, in turn, resides in the element water. Although Paracelsus sometimes says that the seed is

\textsuperscript{30} - De mineralibus (Huser, VIII, 337 = Sudhoff, III, 34-35). “Nun ist das erst gewesen bei got, der anfang, das ist ultima materia, die selbige ultimam materiam hat er gemacht in primam materiam. Als ein frucht, die ein ander frucht sol geben, die selbige hat ein semen: der sam ist in prima materia. Also ist nun der mineralium ultima materia in ein primam materiam gemachet, das ist in ein sam und der samen ist elementum aquae, und hats resolvirt, das ein wasser ist. Nun zu dem hat er im die natur geschaffen, das sie sol die ultimam materiam machen, die selbig ist im wasser und nimbt, was im wasser ist, das selbig under sein gewalt und praeparation. Was zu metallen gehör, das separirt in metallen und ein jeglich metall für sich selbs. Was zu edlen gesteinen gehör also auch in sein art.Was zu steinen gehört der gleichen. Und also mit den marcasiten und andern speciebus. Dan hat got die zeit beschaffen, das ein ernde ist im korn, ein herbst im obst, so hat er auch beschaffen dem element wasser sein ern und herbst auch. Also das alle ding zu seiner zeit sein ern und herbst haben. Also ist das wasser ein element und ein muter, ein sam und ein wurzen der mineralien aller.” According to Pagel (1961), Paracelsus: An Introduction, 119-120, the first “ultimate matter” in the quote is not the ultimate matter of individuals, but the primordial matter of the world. It is that which was in the beginning with God like the spiritual Logos in verse one of the first chapter of the Gospel of John.
the water, this seed is most probably not the same as the element itself, because water is the seed’s matrix (mother).

In another place, Paracelsus describes in more general terms the relationship between the seed and the element water:

When someone who has all the seeds in the world all mixed up together in a bag and sows them in his garden: this is what nature is like. And nature gives each seed its own fruit in the end, such that each seed realizes its essence and perfection without harming any others. This should not only be understood in this sense, but also in the case of water, as if it was a bag containing all the seeds and all these seeds were sown – thus each genus and each species grows according to its nature and properties. Thus God ordained the miracles of His Creation in the four elements, and these are the elements from which the fruits come so that man may use them, created by God, each individual type with its own character and essence.31

To Paracelsus, the element water is a matricial “sower’s bag” containing the mineral seeds, while nature, also seen as a sower’s bag, contains all the seeds of natural things. Each type of mineral grows according to its seed, in accordance with the specificity of its type already programmed in the form of the tria prima contained in the seed. Its propagation takes place through the power and the preparation of the Creator. As a plant seed bears its fruits in the harvest season, the mineral seed also bears its mineral fruits in the term biologically predetermined by God.32 The development of each individual mineral is simply the organic unfolding of that which is contained in the seed from the very beginning. The predominant idea is that of “predestination” (praedestinatio).33 This is

31 - De mineralibus (Huser, VIII, 343-344 = Sudhoff, III, 41-42): “Als wan einer het in einem sack durch einander aller der samen, so nun auf der welt seind, bei einander. Und so ers nun in garten seet, so ist die natur do und gibt einem ietlichen samen sein eigne frucht zum end, also das ein ietlicher semen in sein wesen kompt und perfektion, dem andern on schaden. Wie nun nicht alein hie also verstanden sol werden, sonder auch im element wasser, als wer es ein sack, in dem alle samen werent und würden geseet, so wechst ein ietlichs genus und species in sein art und eigenschaft. Also hat nun got verordnet die wunderwerk seiner geschöpf in die vier elementen. Und das seind element, aus dem die frucht gön, als das dan der mensch gebrauchen sol, und von got geschaffen, ein ietliche art in ir eigenschaft und wesen.”

32 - Paracelsus, De mineralibus (Huser, VIII, 337 = Sudhoff, III, 35).

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in conformance with the doctrine of logoi spermatikoi: the seed is the message-bearer of the specificity of each mineral. It is possible to say that the seed is the “vehicle” of the tria prima that are immanent and dormant in the seed like genetic code.

On the one hand, it should be recalled that the tria prima of Paracelsus are spiritual, dynamic powers, akin to the doctrine of Plotinus, while also being immanent to matter as with the Stoics and the alchemists. On the other hand, it is uncontestable that Paracelsus’s “sower” is the Judeo-Christian God who sowed the primordial Word at the beginning of Creation. This biblical inspiration requires a different image of the world than that of the Stoics and Plotinus. In order to clarify this point, it would be necessary to examine the origin of the mineral seeds in turn, but Paracelsus does not tell any more on the subject in De mineralibus.

Seeds in Paracelsus’s Interpretation of Genesis

Let us now examine Paracelsus’s other writings for additional information that might explain the origin of mineral seeds in the context of the biblical Creation. For instance, in the treatise De matrice, the fourth book of his Opus Paramirum (1531), Paracelsus states that all creatures were brought into being by the invisible matrix. In his view, the primordial waters over which the Spirit of the Lord hovered (Genesis 1:2) is the first matrix (mother) of the world, that is, the first receptacle for the seed of the world.34 Although the identity of this primordial seed of the world is not specified, it is possible to assume that it is either the very Spirit of the Lord from Genesis, or what this Spirit conveys.

In the treatise entitled Labyrinthus medicorum errantium (1537-1538), Paracelsus writes of the origin of the primordial seed in the context of the creatio ex nihilo. According to him, God created all things by bringing about “something” (etwas) out of “nothing” (nichts). He clearly identifies that “something” with seed.35 This “something” is specified in The Book of the Generation and the Fruits of the Four Elements (date of writing unknown), in which Paracelsus says that in the beginning of Creation, that nothing was

34 - Paracelsus, De matrice, in Opus Paramirum IV (Sudhoff, IX, 191).
35 - Paracelsus, Labyrinthus medicorum errantium, chap. 5 (Huser, II, 213 = Sudhoff, XI, 187).
transformed into the “great Iliaster” (großen Yliaster).\textsuperscript{36} To him, this spiritual Iliaster consisted of four parts that developed into the four matricial elements through the intervention of the tria prima. Hence, the initial Iliaster is the seed of these four elements, and is the “something” in question. He further states that minerals already existed in the Iliaster, even though they were not yet formed. Likewise, the seeds of natural things were contained in the four elements.\textsuperscript{37} Hence, the archetypes of mineral seeds already resided in the seeds of the four elements, i.e., in the Iliaster.

Finally, in the treatise De meteoris (date of writing uncertain), Paracelsus develops this point around the notion of the primordial Word of God based on his interpretation of Genesis. In his view, the body of each element was created out of nothing simply by the Word “fiat” of God. Through this Word, this nothing, out of which “something” was created, became the substantial body of the element. To Paracelsus, each element has a ternary body due to the tria prima, just as the Word “fiat” is a ternary entity that corresponds to the Holy Trinity.\textsuperscript{38} Here, it is clear that Paracelsus is referring to the theological concept of the Word of God according to which this Word was with God at the beginning and was sown in the form of “fiat” as the seed of the world.\textsuperscript{39} To Paracelsus, God created the seed of the elements out of nothing through the Word of God. This seed then turned into four elements, which contained all creatures in seminal form, i.e., the seeds of things. Previously, these seeds were in the seeds of the elements, and originally in the Word of God, the seed of the world, not created but co-eternal with God.

\textsuperscript{36} - Paracelsus, Philosophia de generationibus et fructibus quatuor elementorum, I, i (Huser, VIII, 55 = Sudhoff, XIII, 9) and III, i (Huser, VIII, 97 = Sudhoff, XIII, 56).

\textsuperscript{37} - Paracelsus, Philosophia de generationibus, I, vi (Huser, VIII, 58 = Sudhoff, XIII, 12-13).


There are therefore three major steps in this unfolding of seeds: 1) Word-seed, 2) seeds of the elements, and 3) particular seeds of natural things. It should be recalled that according to Augustine, the “unchangeable and eternal reasons” (rationes incommutabiles et aeternae), the archetypes of seminal reasons, of all creatures were first in the Word of God.40

Although Augustine did not say as such, it is possible to understand that even minerals that have not yet been created and are eternal were in the Word of God in a state of “unchangeable and eternal reasons.” Here is an important passage from his treatise The Literal Meaning of Genesis, which elucidates this seminal unfolding:

Nevertheless, under one aspect these things are in the Word of God, where they are not made but eternally existing; under another aspect they are in the elements of the universe, where all things destined to be were made simultaneously [. . . ]; under another aspect they are in seeds, in which they are found again as quasi-primordial causes which derive from creatures that have come forth according to the causes which God first stored up in the world [. . . ].

In all these things, beings already created received at their own proper time their manner of being and of acting, which developed into visible forms and natures from the hidden and invisible reasons which are latent in creation as causes. Thus the crops came forth on the earth, and man was made as a living being, and so of the other creatures, whether plants or animals, belonging to the work of God as He works even at this time. But these beings have duplicates of themselves, as it were, carried invisibly within them by reason of the hidden power of reproduction that they possess. They have this power through their primordial causes, in which they were placed in the created world when day was made, before they came forth in the visible shape proper to their kind.41

Although Augustine only gives living beings as examples of creatures, it should be recalled that with Paracelsus everything that grows has a kind of life force in the form of the spiritus vitae. The above quote from Augustine can therefore also apply to the mineral kingdom. Granted, it is very difficult to say whether Augustine

41 - Augustine, De Genesi VI, x, 17, 189-90.
was a direct source of inspiration to Paracelsus, but the way in which Augustine describes the will of God being transmitted over time from Creation to today by means of seminal reasons is similar to the way in which the seeds of things act according to Paracelsus. Likewise, both Augustine’s seminal reasons and Paracelsus’s seeds originate in the Word of God, and the biblical Creation acts as a common framework for both systems. From that point on we notice many similarities.

The Intermediary Role of Marsilio Ficino

In closing, let us examine a point that has been little studied by historians to date. It was through the Latin translation by Marsilio Ficino of Florence (1433-1499) that Renaissance scholars were able to read the teachings of Plotinus for the first time. It is natural to assume that the writings of Plotinus would favor a revival in the doctrine of logoi spermatikoi, but Ficino’s own writings contain a singular elaboration of the Plotinian concept.

In order to refer to the seminal principle in his cosmological metaphysics, Ficino amply used multiple terms, including “seeds of things” (semina rerum), “seeds of forms” (semina formarum), “seminal reasons” (rationes seminales), “seminary of the world” (seminarium mundi), and “semenal reason of the world” (ratio seminaria mundi). Already in the Commentary on Plato’s Symposium (written between 1468 and 1482 and published in Florence in 1484), Ficino developed his concept of seed and established the hierarchy of hypostatic substances based especially on Plotinus and Proclus.

42 - De Genesi ad litteram was published by Johann Amerbach in Basel in 1506, then by Johann Froben, under the direction of Erasmus of Rotterdam, in Basel in 1528.
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According to Ficino, after transcendental God, whose substance is at the center of the universe, comes divine Intelligence. From this Intelligence emanates the soul of the world, surrounding it. From the soul of the world comes nature, and from nature the body or matter with its full extension. Thus, the metaphysical universe is made up of the five hypostatic substances, which are arranged concentrically and are connected by the “divine species” (species divinae). The archetypical Idea can be found in the Good, which is the substance of God. From this come the “ideas” (ideae) that connect God to the divine Intelligence. The Intelligence and the soul of the world communicate through the “reason-principles” (rationes) that leave the Intelligence and enter the soul. The soul and nature are connected through the mediation of the “seeds” (semina). Finally, nature and matter communicate through “forms” (formae). These divine species (ideas, reason-principles, seeds, and forms) share a common source and nature is full of invisible seeds.

Then, in his Platonic Theology on the Immortality of Souls (Florence, 1482), Ficino admitted the seeds of forms hidden in the prime, formless matter. According to Ficino, the life force of these “spiritual and life-giving seeds” (semina spiritualia et vivifica) that compensates for the lack of corporeal seeds, draws the substantial forms of the elements from the bosom of formless matter. Then, in De vita coelitus comparanda, the third book of De vita libri tres, a work that was widely read and highly influential in the sixteenth century, Ficino, much like Plotinus, advanced the idea of seminal reasons located in the soul of the world (anima mundi). The passage reads:

Moreover, the soul of the world, by its divine power, has at least as many seminal reasons as there are ideas in the divine intelligence. By means of these seminal reasons, it produces the same number of species in matter. This is why each species corresponds to its own idea through its own seminal reason. And often, through this special reason, it can easily receive something of the idea, if it was produced from the idea through this reason. This is why, if at any moment a species degenerates in its form, it can be formed once

47 - Ficino, Platonic Theology, IV, i.
more through this intermediary reason, very close to it, and easily reformed by this intermediary of the idea.\textsuperscript{48}

De vita coelitus comparanda was originally intended to be a commentary on Plotinus’s Ennead IV, 3, 11, but Ficino only published the Commentary on Plotinus’s Enneads (Florence, 1492) much later. In this work, he amply applied the seminal principle to his cosmology. He wrote that, through the seminal reasons, the world receives everywhere its generative power from the soul of the world. Hence, nature contains in itself as many seeds as things.\textsuperscript{49}

This frequent use of the concept of seeds is remarkable. This feature is primarily Plotinian, with certain modifications due to some fairly heterogeneous ideas. According to Brian P. Copenhaver, Ficino certainly linked the theory of \textit{logoi spermatikoi} to Thomas Aquinas’s doctrine of the substantial form.\textsuperscript{50} From my side, I have shown in a previous study that he also adopted the notion of the “seeds of things” (\textit{semina rerum}) from atomist Lucretius (c. 98-55 B.C.). In addition, we know that Augustine was one of Ficino’s favorite authors, although Ficino did not mention him in connection with his concept of seeds; his work drew more on that of Plotinus.\textsuperscript{51} What is particularly significant from our point of view, however, is the fact that Ficino advanced the idea of the omnipresence of invisible, spiritual seeds in nature throughout his writings.

It should be recalled that in \textit{De vita coelitus comparanda}, Ficino also expounded his famous theory of the \textit{spiritus mundi}, which became immensely successful in the sixteenth century. It was to

\textsuperscript{48} - Marsilio Ficino, \textit{De Vita Libri Tres}, III, i (Carol V. Kaske and John R. Clark, Marsilio Ficino: Three Books On Life [New York: Renaissance Society of America, 1989], 242): “Accedit ad haec quod anima mundi totidem saltem rationes rerum seminales divinitus habet, quo ideae sunt in mente divina, quibus ipsa rationibus totidem fabricat species in materia. Unde unaquaque species per propriam rationem seminalem propriae respondet ideae, facileque potest per hanc saepe aliquid illinc accipere, quandoquidem per hanc illinc est effecta. Ideoque si quando a propria forma degeneret, potest hoc medio sibi proximo formari rursus perque id medium inde facile reformari.”

\textsuperscript{49} - Marsilio Ficino, \textit{Opera Omnia} (Basel, 1575), 1634, 1640, 1697 and 1737.

\textsuperscript{50} - See Brian P. Copenhaver, “Renaissance Magic and Neoplatonic Philosophy: Ennead 4. 3-5 in Ficino’s \textit{De vita coelitus comparanda},” in Garfagnini, Marsilio Ficino e il ritorno di Platone, vol. II, 351-369.

this universal *spiritus* of the world that he attributed a “seminary power” (*virtus seminaria*), derived from the seminal reasons of the soul of the world, through the heavens and their constellations. According to Ficino, whoever knows things that are “spirituous,” i.e., things rich in *spiritus*, that smell good, shine, or are warm, can effectively benefit from the gifts of heaven through the seminal reasons, which coordinate the ideas of the divine Intelligence. Thus, he advanced the possibility of capturing, even of manipulating, the seminary power conveyed by the *spiritus* that is also in natural things. He bases these notions in particular on the idea of quintessence, which originates from the tradition of pseudo-Lullian alchemy of the late Middle Ages.\(^{52}\) This approach to the natural domains through the central notion of *alchemia medica* would clearly favor a good reception of his theory of the *spiritus mundi* with natural philosophers and doctors who were familiar with the thought of Paracelsus.\(^{53}\)

**Conclusion**

Although the biological aspect of Paracelsus’s mineralogy shows several hylozoist elements influenced by medieval alchemy and the beliefs of miners, his concept of seeds falls largely under the interpretation of the biblical Creation story.\(^{54}\) According to

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Paracelsus, God created the minerals in order for them to be born daily from their own seeds. These mineral seeds reside in the element water, which is their matrix. The seeds are the vehicles for the set of the *tria prima* (Sulfur, Salt, and Mercury). At the time of Creation, they were latent in the seed of the four elements (the Iliaster), which, in turn, was created out of nothing through the Word “fiat” of God. This Word, which was not created but coeternal, was sown by God as the universal seed of the world at the beginning of Creation. It is clear that Paracelsus relied on the notion of the Word-seed of God as it originated in Christian theology. We have seen a very similar idea to that of Paracelsus in the theory of Augustine concerning the seminal unfolding from the primordial Word of God to the particular seeds of natural things. Even though Paracelsus did not directly know about the teachings of Augustine, the long Augustinian tradition likely provided him with the essential ingredients for developing his concept in the context of biblical cosmogony.

Before Paracelsus, Marsilio Ficino adopted Plotinus’s idea of the seminal principle, which was derived from the Stoic doctrine of *logoi spermatikoi*. He developed it considerably in establishing his concept of seeds in his own philosophical writings. His cosmological metaphysics is characterized by the omnipresence of invisible, spiritual seeds in nature. This omnipresence of spiritual seeds is close to Paracelsus’s vision, although in principle Ficino’s theory still has its roots in the writings of Plotinus.

One may assume that Paracelsus was initially inspired by Ficino regarding this omnipresence of invisible, spiritual seeds in the same way as his contemporary, Jean Fernel (1497-1558), who conceived Ficino’s seeds as the instruments of the Word of God, who, as the “sower,” introduced procreative power into the sublunar world by means of these divine seeds. However, Fernel did not go so far as to identify this Word with the seed of the world. Preoccupied with interpreting the Creation story of Genesis, Paracelsus established

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his concept of seeds in a much more Christian framework. In my view, this is the result of the Christianization of the logoi spermatikoi after the manner of Augustine. Thus, the Paracelsian concept of seeds testifies to the complexity of the paths by which the themes of Stoic physics were included in writings as late as the sixteenth century, when they came to fruition.