

Chymia:
Science and Nature in Medieval
and Early Modern Europe

Edited by

Miguel López Pérez, Didier Kahn
and Mar Rey Bueno

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P U B L I S H I N G

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THE WORLD-SPIRIT AND QUINTESSENCE IN THE CHYMICAL PHILOSOPHY OF JOSEPH DU CHESNE

HIRO HIRAI*

RADBOUD UNIVERSITY NIJMEGEN, THE NETHERLANDS

1. Introduction

Renewed interests in the work of Paracelsus (ca. 1493-1541) began some twenty years after his death, giving rise to the so-called “Paracelsian revival” movement.¹ Early followers of the Swiss physician contributed much to its development by collecting, editing and translating his manuscripts. Then original writings defending the whole of Paracelsus’s philosophy began to appear around 1570. The most important work among these was certainly the masterpiece of the Danish physician Petrus Severinus (1540/42-1602), *The Idea of Philosophical Medicine (Idea medicinae philosophicae)* (Basel, 1571).² The impact of this work was such that Severinus was severely attacked by the head of the anti-Paracelsians Thomas Erastus (1524-83) of Heidelberg, in his *Disputations on Philipp Paracelsus’s New Medicine (Disputationes de medicina nova Philippi Paracelsi)* (Basel, 1572).³ The debates on this new medicine, which was supported by a host of chymical philosophers, soon bore a European character and lasted at least until the first decades of the seventeenth century. In the middle of the controversy a bitter conflict emerged in France between the traditional Galenists of the Paris faculty of medicine and the Protestant physicians at the court of King Henry IV. One of the royal physicians, Joseph Du Chesne (1546-1609), also known under his Latinized name Quercetanus, played the role of advocate for the community of chymical philosophers.⁴ But his Paracelsianism was moderate, far from the militancy of his early German fellows. His primary concern was the defense of chymical art and its medical application. His

attitude towards the Swiss physician can best be summed up in his own words:

“But as far as Paracelsus is concerned, I never proposed to take up the defense of his theology nor considered supporting him in all issues as if I had adopted his words under oath. But in addition to the witness with which Erasmus showed respect to him in some letters, I would dare say and maintain that in medicine he taught almost divinely many things that the thankful posterity can neither admire nor commend sufficiently [...]”

Born as a physician's son in Gascogne, the young Huguenot likely studied surgery in Montpellier before working as a military surgeon. In 1574 he settled in Geneva and began to frequent the Paracelsian milieu, especially the circle of Theodore Zwinger (1533-88), the renowned professor of medicine at the University of Basel.⁶ Du Chesne became an ordinary physician as well as a diplomatic agent to King Henry IV around 1591. Upon publication of the treatise *On the Matter of the True Medicine of the Ancient Philosophers* (*De priscorum philosophorum verae medicinae materia*) in 1603,⁷ he was attacked with an anonymous work *Apology for the Medicine of Hippocrates and Galen against the treatise of Quercetanus* (*Apologia pro Hippocratis et Galeni medicina adversus Quercetanni librum*) (Paris, 1603).⁸ The real author of this work was Jean Riolan the elder (1539-1606), the dean of the Paris faculty of medicine. Du Chesne soon countered by publishing the treatise entitled *For the True Hermetic Medicine* (*Ad veritatem hermeticae medicinae*) (Paris, 1604), which explains the foundations of his natural philosophy, not as yet revealed extensively. This work was widely read in Europe and its influence on his contemporaries was considerable. Although deserving of careful study in its doctrinal dimension, it has not been explored sufficiently by historians.⁹ The aim of the present study is to analyze Du Chesne's matter theory expounded in the *Ad veritatem hermeticae medicinae* and to place it in the historical and intellectual context of Paracelsian chymical philosophy.

2. The *Ad veritatem hermeticae medicinae* (1604)

Du Chesne's treatise is not a well-organized work due to its polemical nature.¹⁰ Here I shall focus on his discussions related to the basis of his natural and medical philosophy. Let us first consider the place of Hermes since this name appears in the book title itself. According to Du Chesne, Hippocrates and many philosophers who followed him learned the

foundations of sciences from the Egyptians who possessed not only the most advanced astronomy and mathematics but also the universal knowledge of all disciplines including medicine. For Du Chesne the Egyptians had learned their sciences and arts from Hermes Trismegistus. As a result all philosophers and physicians must rely on the teachings of this mythical figure. Indeed Du Chesne observes the flowering of the “Hermetic” art among his contemporaries. Note that such admiration for the “ancient wisdom” (*prisca sapientia*) with the particular emphasis on Hermes was shared by many of his Platonic forerunners in the Renaissance.¹¹ Du Chesne adds a new perspective, however, in noting that the knowledge of the ancients had been improved over the centuries through the accumulation of new inventions. The best example of this advancement of learning was the internal use of chemically prepared mineral and metallic medicines previously neglected by Galen, the champion of traditional medicine. It is not unreasonable to consider that this kind of positive recognition for the advancement of learning was to be inherited some years later by Francis Bacon (1561-1626), an attentive reader of chymical literature.

After the general history of medicine Du Chesne gives a long list of the “Hermetists” who are related to Zwinger’s medical circle in Basel (*Academia Basiliensi medicinae*) and the wider German community of chymical philosophers. At the top of the list he places Theodore Birckmann who introduced him to Paracelsianism. Du Chesne also avows to have learned from “the great Danish Petrus Severinus the first and very sophisticated foundations of his studies in this field.”¹² Indeed Birckmann and Severinus represent two lights to the eyes of Du Chesne.

3. Nature and the World-Soul

Now let us look at Du Chesne’s explanation of the notion of nature, which provides the basis of his natural philosophy and matter theory. Why is the study of this notion important? Its value is evident for Du Chesne since the knowledge of natural materials that are used in medicine comes from nature itself. Following Plato, he argues that the first principle, by which and from which everything is made, is God. From this principle comes the second which is properly called “nature” (*natura*). Du Chesne asserts that the second principle was diffused into all things by the word of God “Fiat” at the moment of the Creation. He notes that the Christians and the pagans were, however, accustomed to applying the term “nature” to almost everything. Even Aristotle, he adds, divided nature into two categories,

calling the first one “naturing nature” (*natura naturans*) and meant by it God himself:

“Thus the first naturing nature is God while the second, which is properly called “nature,” is divided further into universal and particular. Universal nature is the ordinary power of God, which is diffused through the whole world. In this sense one says that nature receives this or that and nature does this or that as Augustine teaches in the *City of God*, book 2 [...].¹³”

Du Chesne proceeds to explain the subdivision of nature into universal and particular. For him universal nature represents the virtue that God implanted in all creatures. From this virtue each creature receives its own particular signature of divinity in its particular nature. Note that this idea is essential to Du Chesne’s doctrine of “the signature of things” (*signatura rerum*).¹⁴ Thus for him, just as for most Paracelsians, the world is full of signatures which bear witness to the obscure manifestation of divinity. That is why, argues Du Chesne, the ancients said that everything is full of gods.¹⁵ Then he presents another view of universal nature as influences through which celestial bodies act upon the sublunary world. Although he cites Thomas Aquinas as a representative of this interpretation, Du Chesne’s main aim is to demonstrate the harmony of opinions among the eminent ancients regarding universal nature. For this purpose, he introduces the idea of the “World-Soul” (*anima mundi*) under the authority of Plato and Hermes:

“Moreover this is the universal nature about which Plato talks in the *Timaeus* when he says: “Nature is a certain force diffused into everything, a mediator and a nurse of bodies, being by itself the principle of motion and rest within them.” Hermes says in almost the same words that nature is a certain force resulting from the primary cause and diffused into all bodies, being by itself the principle of motion and rest within them. The Pythagoreans said that this force was God. Then Virgil the great follower of the Pythagorean school wrote: “Spirit nourishes from inside.” The Platonists called it “World-Soul”.¹⁶”

Du Chesne notes, however, that the Platonists did not explain concretely how this universal soul governs sublunary things. Calling upon the Hermetists whom he considers more accurate and penetrating, he states that the sublunary world is a great living body, composed of the four traditional elements (fire, air, water and earth). The parts of this world-animal are mutually connected as members of a single animal, such that every part of the world is animated and sustained by this universal soul. If

the animal body draws life from its soul, then the same process is realized more admirably in the greater world-animal which is nobler than simple beasts. The idea of universal animation is not unique to Du Chesne.¹⁷ Indeed the doctrine of the World-Soul is widespread among the Renaissance Platonists. What makes his discussion particular is the fact that the invention of this idea is not explicitly attributed to the Platonists but to the Hermetists, that is, the chymical philosophers. Under their authority Du Chesne even identifies heaven embracing all with the universal soul which cherishes and sustains every perishable natural body. He does not neglect to relate it with the famous theory of the “World-Spirit” (*spiritus mundi*), advanced by the Florentine Platonist Marsilio Ficino (1433-99):

“[The Hermetists] add that from the soul of the world come all the forms of things and the virtues and powers by which all these things are vivified, sustained and subsist. The soul and the body are connected as one [entity] thanks to a spirit that unites both sides since it belongs to the nature of both. Similarly the soul and the body of the world are united together by the mediating and interposing ethereal spirits [...].¹⁸”

After establishing the identification of the World-Spirit with the World-Soul, Du Chesne goes on to introduce a Biblical dimension. For him the authority of Moses is more important:

“But by the World-Soul the Platonists indicated to us rather some spirit that fosters, animates, preserves and sustains everything like a certain trace of that spirit of Elohim, which moved or rested over the [primordial] waters. Being aware of the story of *Genesis*, Plato was able to remember it and build his [doctrine of the] World-Soul from it.¹⁹”

Uniting the Ficinian World-Spirit with the Biblical spirit of God (*spiritus Dei*) of *Genesis*, 1.2, Du Chesne tries to place Plato as “the Attic Moses” in the middle of the pantheon of the ancient sages. Indeed the belief in “the ancient theology” (*prisca theologia*) was re-activated by Ficino and developed in the stream of Renaissance Neoplatonism.²⁰ But Du Chesne goes even further to regard Hermes as an assiduous student of Moses’s writings just as in the case of Plato:

“After this virtue of the life-giving spirit, that great [Hermes] Trismegistus, [who was] the most versed and trained in Moses’s sacred writings above all the other philosophers, presented these divine statements in the second book which is entitled *Asclepius*: “Everything is, he says, made and

governed by the spirit in the sphere of the spirit. The spirit fulfils everything. The world nourishes bodies, the spirit animates them. Everything in the world is directed and stirred by the spirit.” He adds later: “[...] everything needs this spirit as we have often said above. Indeed it sustains everything, vivifying and nourishing according to the dignity of each. Life and the very fertile spirit are produced from the sacred fountain.” From these divine words it is clear that this ethereal and life-giving spirit is diffused everywhere and is inserted into everything. So it would not be absurd to deduce and derive the actions, forces and powers of all natural things from the spirits as their causes.²¹”

This argument manifestly allows Du Chesne to focus on the role of the “spirits” (*spiritus*). These spirits are supposed to be enclosed in the kernel of natural things and be responsible for chymical reactions observed in laboratory operations. Furthermore, they are considered to hold the secret of life and health.²² As will be shown below Du Chesne advances the idea of the quintessence as the carrier of these spirits. But before considering the nature and role of this special entity it is necessary to learn the basis of his matter theory more closely.

4. Seeds, Principles, Elements and Quintessence

Now let us turn to Du Chesne’s discussions on the “principles” (*principia*), which he calls “hypostatical” (*hypostatica*), and the “elements” (*elementa*) of natural things.²³ He first tries to show a concordance among the ideas of the ancient Greeks, especially Plato and Aristotle, regarding the existence of three principles. He identifies these principles with the Paracelsian triad (Salt, Sulfur and Mercury). Then he explains the constitution of the physical world by dividing it into two globes (superior and inferior). The former is composed of fire and air, the latter of water and earth. These four bodies are not understood as the material causes as in the case of the Scholastic philosophers but are regarded as the cosmological matrices and receptacles of natural things. Indeed this development closely follows the idea of Paracelsus, which was then systematically explained by Severinus.²⁴

Next Du Chesne divides natural bodies into two kinds: simple and composite. The simple bodies are further split into two groups: material and formal. The formal bodies are all active, invisible and spiritual entities. Du Chesne puts them into three categories: the elements, the three principles and the astral “seeds” (*semina*). But their ontological status is not identical since the seeds and the principles reside inside the elements.

There is also a clear hierarchy among them. The first rank is given to the astral seeds which in their turn cause the activity of the three principles. It is because of these seeds and principles that the elements, too, are seen as formal and active entities although they are by nature nearly inert with only passive qualities attributed to them. What is significant is the following point: all these formal bodies can still be considered “material” upon receiving their own material cover or vestments. Through this cover they become perceptible, even visible. Thus for Du Chesne every natural being has a double nature: one visible and material, the other invisible and spiritual. This same idea stems from the teachings of Paracelsus, which Du Chesne learned from Severinus’s neatly systematized version.

Du Chesne clearly denies the possibility of capturing the astral seeds separately by the dissolution of natural things in laboratory operations. Nonetheless he thinks it reasonably possible to obtain the hidden body of the three principles, which can be regarded as their receptacle.²⁵ This is the “quintessence” (*quinta essentia*):

“The artist not only can separate these elemental bodies but also can reduce them into nothing so that, once the passive and material elements separated, those three hypostatical, formal and active principles remain. Contracted into one [entity], these [principles] form a mixed body which philosophers call “quintessence” or “quartessence.” This [essence] is free of any corruption and rich in perfection and life-giving spirits. By contrast the elements alone, separated from the three principles, give only impurities, corruptions and mortification.²⁶”

To my knowledge, the idea of the “quartessence” (*quarta essentia*) or the fourth essence, instead of the traditional alchemical idea of the quintessence or the fifth essence is unique to Du Chesne. The visualization of the three principles is thus realized by obtaining this singular substance through laboratory distillation. Du Chesne makes this modification because he believes that the number of four, given to both the elements and their qualities by Aristotle, is superfluous. Again Du Chesne justifies his idea by the authority of Moses:

“Since Moses did not make any mention of fire in the book of *Genesis*, 1.1, where he teaches the Creation of all things, we confirm the opinion of the divine prophet more willingly than the reasoning of the pagan philosopher [Aristotle]. We do not recognize any other fire than heaven and the aether, thus called because it burns and is ardent as we have already shown. Therefore heaven must be called “the fourth formal and essential element” or rather “the fourth essence,” extracted from the other elements. In fact

the Hermetists reject the fifth being or the quintessence since there are not four elements from which the quintessence is drawn, but only three from which the fourth essence is extracted [...].²⁷

In Du Chesne as in Paracelsus and Severinus fire loses the status of element and is replaced by “heaven” (*caelum*) or “firmament” (*firmamentum*).²⁸ But at the same time heaven takes on a fiery character. What is more significant is the next point: Du Chesne regards the quartessence as a “composite” or “mixed” entity, resulting from the three other elements (air, water and earth) as a fourth body, although it is paradoxically said to be the “simplest” being of all. For him this purest and simplest essence constitutes the body of heaven, which is simple, subtle and endowed with powers to generate, foster, grow and perfect all sublunary things.²⁹ By its supreme subtlety and purity, this heavenly body permeates all natural beings and bestows on them their own specific form and virtues. In such manner heaven fashions all inferior beings. It is this heaven which sends the invisible seeds of natural things into the bowels of the earth. That is why they are called “the astral seeds.”³⁰ Du Chesne explains this relationship with celestial bodies, stating that God gave to heaven the astral seeds which the celestial bodies in their turn spread into the bosom of the three inferior elements (air, water and earth), nourishing them and informing them.

5. The Quest for the Universal Medicine

Upon materializing the heavenly essence which holds the secret of sublunary life, the quest for the universal medicine seems like a real possibility to Du Chesne. For him the true medical philosopher must eliminate the material cover of the three principles by distillation to obtain this essence crucial to the preservation of health and life. Du Chesne even goes on to identify it with “the celestial stone of philosophers” (*lapis caelestis philosophorum*), an idea against which Riolan the elder reacted violently. Responding to the ignorance of his detractor, Du Chesne explains:

“As it is very simple, pure and incorruptible, [the universal medicine] is called “quintessence” (although we prefer to call it “quartessence”) and “the celestial stone of philosophers.” Since that anonymous author did not have any knowledge of this [entity], he misunderstood that, talking about the stone of philosophers, that is, this universal medicine, I was thinking of the transmutation of metals as if such a transmutation were the supreme

medicine of the human body. He was also ignorant of the fact that in the microcosmic man lie hidden the mines of imperfect metals from which many sicknesses are propagated; necessarily a good, pious and wise doctor should reduce them into gold and silver, that is, the perfect purification through the virtue of that very remarkable and precious medicine if we want to reach sanity and good health [...].³¹

After establishing the existence of the universal medicine, Du Chesne tries to explain its origin through the interpretation of the Creation story of *Genesis* in chymical terms especially used for distillation. Here again his *modus operandi* is always the same: to demonstrate the concordance of the eminent ancients such as Plato and Aristotle with the Hermetists, that is, the chymical philosophers under the authority of the Bible. For Du Chesne the knowledge of the Hermetists is in total agreement with the true philosophy of Moses who, hearing the words of God, recorded them in the book of *Genesis*.³²

6. Humanism, *Prisca Theologia* and Paracelsianism

We have seen so far the essential points of Du Chesne's chymical philosophy. The key to his chain of reasoning is without doubt the belief in the *prisca theologia*, typical of Renaissance humanist culture. Indeed before him Severinus paved the way by adopting the humanist method and calling upon the *prisca theologia* belief in order to establish the legitimacy of Paracelsian medicine as a real heir of the ancient wisdom. But he did not really address the question of its compatibility with religion. The new orientation of Paracelsianism, based on the humanist *prisca theologia* belief in its very Christianized form, was probably one of the most important contributions made by Du Chesne. The influence of the French medical humanist Jean Fernel (1497-1558) can be recognized in this new direction. Indeed Fernel made recourse especially to Ficinian Platonism to construct his own natural philosophy in which a Christian perspective had significant weight.³³ It is also noteworthy that, before settling in Geneva, Du Chesne went to Germany and matriculated at the University of Tübingen where he studied philosophy under the humanist professor Jacob Degen *alias* Schegk (1511-87). He admired Schegk as his "second father" whose method of learning was seminal in his formation years.³⁴ De Chesne's work thus bears witness to the impact of humanist culture, transmitted through the lens of Fernel, Schegk and Severinus. This provides us with a good example of interaction between Renaissance humanism and Paracelsian chymical philosophy.

Finally let us briefly touch on the influence of Du Chesne. His discussions inspired his fellow Paracelsians to develop diverse chymical interpretations of *Genesis* and some related theological issues. In this connection two writers are most worth mentioning among the early seventeenth-century followers of Paracelsus. One is Oswald Croll (ca. 1560-1608) who was active at the court of Emperor Rudolf II (1552-1612) in Prague and composed an extremely successful treatise *Basilica chymica* (Frankfurt, 1609). The other is the English theosophist Robert Fludd (1574-1637) who was involved in a number of bitter polemics with the prominent protagonists of the “new science” such as Johannes Kepler (1571-1630) and Pierre Gassendi (1592-1655). His major publication was the famous *Utriusque cosmi... historia* (Oppenheim, 1617-21). In their most accomplished and influential works of the Paracelsian movement the chymical interpretation of *Genesis* played a crucial role. Needless to say, both Croll and Fludd closely followed the footsteps of Du Chesne.³⁵

Notes

* I thank Didier Kahn, Kuni Sakamoto and Clare Felton Hirai for their help in the preparation of the present study based on my *Le concept de semence dans les théories de la matière à la Renaissance: de Marsile Ficin à Pierre Gassendi* (Turnhout: Brepols, 2005), 267-94.

¹ Lynn Thorndike, *A History of Magic and Experimental Science* (New York: Columbia University Press, 1941), 5: 617-51. See also Allen G. Debus, *The Chemical Philosophy* (New York: Science History Publications, 1977); idem, *The French Paracelsians* (Cambridge: Cambridge University Press, 1991); Didier Kahn, *Alchimie et paracelsisme en France à la fin de la Renaissance (1567-1625)* (Paris: Droz, 2007).

² See Jole R. Shackelford, *A Philosophical Path for Paracelsian Medicine: The Ideas, Intellectual Context, and Influence of Petrus Severinus, 1540-1602* (Copenhagen: Museum Tusulanum Press, 2004); Hirai, *Le concept de semence*, 217-65.

³ See Charles D. Gunnoe Jr., “Thomas Erastus and His Circle of Anti-Paracelsians,” in *Analecta Paracelsica*, ed. Joachim Telle (Stuttgart: Steiner, 1994), 127-48; idem, “Erastus and Paracelsianism: Theological Motifs in Thomas Erastus’ Rejection of Paracelsian Natural Philosophy,” in *Reading the Book of Nature*, ed. Allen G. Debus and Michael T. Walton (Kirksville: Sixteenth Century Journal Publishers, 1998), 45-65.

⁴ On his life and work, see *Dictionary of Scientific Biography*, 4 (1971), 208-10; Debus, *Chemical Philosophy*, 100-109, 148-53, 160-68; Kahn, *Alchimie et paracelsisme*, 233-50, *passim*.

⁵ Josephus Quercetanus, *Ad Jacobi Auberti... brevis responsio*, repr. in *Theatrum chemicum* (Strasburg: Lazarus Zetzner, 1659), 2: 151: "Ad Paracelsum vero quod attinet, equidem mihi nequaquam proposui illius theologiae patrocinium suscipere, neque ipsi in omnibus astipulari unquam cogitavi, tanquam in eius verba iurassem. Sed praeter id testimonium quo Erasmus illum quibusdam epistolis ornavit, ausim ego dicere et tueri, multa illum pene divinitus in re medica docere, et quae nunquam satis admirari et praedicare grata posteritas possit [...]."

⁶ On Zwinger, see Carlos Gilly, "Zwischen Erfahrung und Spekulation: Theodor Zwinger und die religiöse und kulturelle Krise seiner Zeit," *Basler Zeitschrift für Geschichte und Altertumskunde* 77 (1977), 57-137 and 79 (1979), 125-223.

⁷ Josephus Quercetanus, *Liber de priscorum philosophorum verae medicinae materia* (Saint-Gervais: Eustache Vignon, 1603). This treatise and its French translation of 1626 have been digitized by the Bibliothèque Inter-Universitaire de Médecine (BIUM) of Paris for the project "The Medical Context of Scientific Revolution." See <http://www.bium.univ-paris5.fr/histmed/medica/cote?32649x01>

⁸ [Anonymous], *Apologia pro Hippocratis et Galeni medicina adversus Quercetani librum* (Paris: Hadrian Périer, 1603).

⁹ See Reijer Hooykaas, "Die Elementenlehre der Iatrochemiker," *Janus* 41 (1937), 1-28, esp. 8-15; Debus, *Chemical Philosophy*, 161-66; Hiro Hirai, "Paracelsisme, néoplatonisme et médecine hermétique dans la théorie de la matière de Joseph Du Chesne," *Archives internationales d'histoire des sciences* 51 (2001), 9-37; Didier Kahn, "L'interprétation alchimique de la Genèse chez Joseph Du Chesne dans le contexte de ses doctrines alchimiques et cosmologiques," in *Scientiae et artes: Die Vermittlung alten und neuen Wissens in Literatur, Kunst und Musik*, ed. Barbara Mahlmann-Bauer (Wiesbaden: Harrassowitz, 2004), 641-92.

¹⁰ Josephus Quercetanus, *Ad veritatem hermeticae medicinae ex Hippocratis veterumque decretis ac therapeusi* (Paris: Abraham Saugrain, 1604). Hereafter the reference is indicated as *Ad veritatem*, 1.2, 3 [bk. 1, ch. 2, p. 3].

¹¹ *Ad veritatem*, 1.1, 4-6. Cf. Strabo, *Geography*, 17.1; Diodorus of Sicily, *Historical Library*, 1.15.9-1.16.2. See also André-Jean Festugière, *La révélation d'Hermès Trismégiste* (Paris: Gabalda, 1942-50); Frances A. Yates, *Giordano Bruno and the Hermetic Tradition* (London: Routledge, 1964); Sylvain Matton, "L'Égypte chez les 'philosophes chimiques' de Maier à Pernety," *Les études philosophiques*, avril-juillet (1987), 207-26; Antoine Faivre and Frederick Tristram, eds., *La présence d'Hermès Trismégiste* (Paris: Michel, 1988); Anthony Grafton, *Defender of the Text: The Traditions of Scholarship in an Age of Science, 1450-1800* (Cambridge MA: Harvard University Press, 1991), 145-77; Martin Mulsow, ed., *Das Ende des Hermetismus* (Tübingen: Siebeck, 2002).

¹² *Ad veritatem*, 1.1, 9: "[...] magno illi Petro Severino Dano, prima et elegantiora meorum in hac scientia studiorum redimenta accepta fero."

¹³ *Ad veritatem*, 1.12, 148-49: "Prima igitur natura naturans Deus est. Secunda, vero, quae proprie natura est, subdividitur in universalem et particularem. Universalis ordinaria est illa Dei potentia, per totum orbem diffusa, a qua dicitur natura hoc vel illud pati, item hoc vel illud agere, ut docet Aug. 2 *De civitate Dei*

[...].” Aristotle himself did not invent the idea of *natura naturans* and *natura naturata* but it is of the medieval origin. See *Historisches Wörterbuch der Philosophie* 6 (1984), cols. 504-509; Hermann Siebeck, “Über die Entstehung der Termini *natura naturans* und *natura naturata*,” *Archiv für Geschichte der Philosophie* 3 (1890), 370-78; Henry A. Lucks, “*Natura naturans–Natura naturata*,” *New Scholasticism* 9 (1935), 1-24; Olga Weijers, “Contribution à l’histoire des termes *natura naturans* et *natura naturata* jusqu’à Spinoza,” *Vivarium* 16 (1978), 70-80.

¹⁴ See Josephus Quercetanus, *De signaturis rerum internis specificis, ab hermeticis philosophis multa cura, singularique industria comparatis, atque introductis*, in *Liber de priscorum*, 89-130. On the idea of *signatura rerum*, see Massimo L. Bianchi, *Signatura rerum: segni, magia e conoscenza da Paracelso a Leibniz* (Rome: Ateneo, 1987); Wilhelm Kühlmann, “Oswald Crollius und seine Signaturenlehre: Zum Profil hermetischer Naturphilosophie in der Ära Rudolfs II.,” in *Die okkulten Wissenschaften in der Renaissance*, ed. August Buck (Wiesbaden: Harrassowitz, 1992), 103-23.

¹⁵ *Ad veritatem*, 1.12, 149. Cf. Aristotle, *On the Soul*, 1.5, 411a7-11.

¹⁶ *Ad veritatem*, 1.12, 149-50: “Praeterea ea est natura universalis, de qua Plato loquitur in *Timaeo*, quum ait: *Natura est quaedam vis infusa per omnia, corporum moderatrix et nutrix, principium motus et quietis per se in ipsis*. Quam naturam Hermes Trismegistus iisdemmet fere verbis dicit esse vim quandam a prima causa subortam diffusam per omnia corpora, per se, principium motus et quietis in ipsis. Hanc vim Pythagorici dicebant esse Deum: ideoque Virgilius magnus Pythagoricae disciplinae sectator, sic scribebat: *Spiritus intus alit, etc.* Platonici animam mundi eam vocarunt.”

¹⁷ On the idea of the World-Soul in the Renaissance, see Hiro Hirai, “Âme de la terre, génération spontanée et origine de la vie: Fortunio Liceti critique de Marsile Ficin,” *Bruniana & Campanelliana* 12 (2006), 451-69; idem, “L’âme du monde chez Juste Lipse entre théologie cosmique romaine et *prisca theologia* renaissante,” *Revue des sciences philosophiques et théologiques* 93 (2009), 251-73; idem, “The World-Soul, Providence and Eschatology: Seneca’s *Naturales Quaestiones* in Justus Lipsius’s *Physiologia Stoicorum*,” in *Seneca e le scienze*, ed. Francesco Citti and Marco Beretta (Florence: Olschki, forthcoming).

¹⁸ *Ad veritatem*, 1.12, 150-51: “Quin et addunt ab anima illa mundi formas rerum, virtutes, potestatesque omnes proficisci, quibus res omnes foventur, sustentantur ac subsistunt. Ac quemadmodum anima et corpus in unum colligantur, spiritus tanquam vinculi utrumque coniungentis beneficio, quod utriusque naturae sit particeps: sic anima et corpus mundi vincta sunt ac cohaerent, mediantibus ac intercedentibus spiritibus aethereis [...].” On Ficino’s theory of the spirit, see Daniel P. Walker, *Spiritual and Demonic Magic from Ficino to Campanella* (London: The Warburg Institute, 1958); Sylvain Matton, “Marsile Ficin et l’alchimie, sa position, son influence,” in *Alchimie et philosophie à la Renaissance*, ed. Jean-Claude Margolin and Sylvain Matton (Paris: Vrin, 1993), 123-92; Hiro Hirai, “Concepts of Seeds and Nature in the Work of Marsilio

Ficino,” in *Marsilio Ficino: His Source, His Circle and His Legacy*, ed. Michael J. B. Allen and Valery Rees (Leiden: Brill, 2002), 257-84.

¹⁹ *Ad veritatem*, 1.12, 151: “At per mundi animam Platonici potius spiritum quendam nobis significarunt, omnia foventem, animantem, conservantem ac sustentantem, quasi quoddam spiritus illius Elohim, qui ferebatur aut incubabat super aquas, vestigium. Cuius etiam Plato, utpote historiae *Genesis* non ignarus, meminisse potuit, et animam inde suam mundi construere.”

²⁰ On the *prisca theologia*, see Daniel P. Walker, *The Ancient Theology: Studies in Christian Platonism from the Fifteenth to the Eighteenth Century* (London: Duckworth, 1972); Cesare Vasoli, “Dalla pace religiosa alla *prisca theologia*,” in *Firenze e il concilio del 1493*, ed. Paolo Viti (Florence: Olschki, 1994), 1: 3-25; idem, “Il mito dei *prisca theologi* come *ideologia* della *renovatio*,” in idem, *Quasi sit Deus: studi su Marsilio Ficino* (Lecce: Conte, 1999), 11-50; Wilhelm Schmidt-Biggemann, *Philosophia perennis: Historical Outlines of Western Spirituality in Ancient, Medieval and Early Modern* (Dordrecht: Springer, 2004); Kuni Sakamoto, “Creation, Trinity and *prisca theologia* in Julius Caesar Scaliger,” *Journal of the Warburg and Courtauld Institutes* 73 (2010), forthcoming.

²¹ *Ad veritatem*, 1.12, 152-53: “Ex qua spiritus vivificantis virtute magnus ille Trismegistus prae omnibus aliis philosophis in sacris Mosis scriptis versatissimus et exercitatissimus, divina haec eloquia protulit libro 2 qui *Asclepias* vocatur: *Spiritu* (inquit) *agitur et gubernatur omnis in orbe spiritus. Spiritus implet omnia: mundus nutrit corpora, spiritus animat. Spiritu ministrantur omnia et vegetantur in mundo*. Postea addit: [...] *hoc spiritu ut ante sepe diximus, omnia indigent. Omnia enim portat, pro cuiusque dignitate omnia vivificat et alit. A fonte sancto producitur vita et spiritus faecundissimus*. Ex quibus verbis utique divinis aperte liquet, aethereum hunc et vivificum spiritum ubique in omnes res infusum ac insitum: unde non sit absurdum, omnium rerum naturalium actiones, vires ac potestates a spiritibus tanquam causis deducere ac derivare.” Cf. *Asclepius*, 6, 16, 17, 18.

²² On the chymical quest for the spirits, see Norma E. Emerton, *The Scientific Reinterpretation of Form* (Ithaca: Cornell University Press, 1984), 179-93; Allen G. Debus, “Chemistry and the Quest for a Material Spirit of Life in the Seventeenth Century,” in *Spiritus*, ed. Marta Fattori and Massimo L. Bianchi (Rome: Ateneo, 1984), 245-63; Antonio Clericuzio, “The Internal Laboratory: The Chemical Reinterpretation of Medical Spirits in England (1650-1680),” in *Alchemy and Chemistry in the 16th and 17th Centuries*, ed. Piyo Rattansi and Antonio Clericuzio (Dordrecht: Kluwer, 1994), 51-83; Hirai, *Le concept de semence*, passim.

²³ Robert Boyle’s use of the term “hypostatical principle” comes from Du Chesne’s discussion. Cf. Hiro Hirai and Hideyuki Yoshimoto, “Anatomizing the Sceptical Chymist: Robert Boyle and the Secret of his Early Sources on the Growth of Metals,” *Early Science and Medicine* 10 (2005), 453-77.

²⁴ See Hirai, *Le concept de semence*, 186-87, 234-35, 299, 306; idem, “Les *logoi spermatikoi* et le concept de semence dans la minéralogie et la cosmogonie de Paracelse,” *Revue d’histoire des sciences* 61 (2008), 245-64.

²⁵ *Ad veritatem*, 1.14, 171-72.

²⁶ *Ad veritatem*, 1.14, 172: “Quae quidem elementalia corpora artifex non solum separare seorsim potest, sed et in nihilum redigere: ita ut separatim passivis et materialibus elementis, tria tantum illa hypostatica formalia et activa principia remaneant, quae in unum corpus contracta, corpus mixtum efficiunt, quam quintam aut quartam essentiam vocant philosophi, quae omni corruptione caret, perfectione et vivificis spiritibus abundans, cum contra sola elementa, a tribus principiis separata, nihil nisi impuritates, corruptiones et mortificationem minantur.” On the notion of the quintessence, see F. Sherwood Taylor, “The Idea of the Quintessence,” in *Science, Medicine and History*, 1: 247-65; Paul Moraux, “Quinta essentia,” in *Realencyclopädie*, 24.1 (1963), cols. 1171-1263; Robert Halleux, “Les ouvrages alchimiques de Jean de Rupescissa,” *Histoire littéraire de la France* 41 (1981), 241-77; Michela Pereira, “Quintessenza alchemica,” *Kos* 1.7 (1984), 33-54.

²⁷ *Ad veritatem*, 1.14, 174-75: “At quum Moses nullam fecerit libro *Genesis* cap. 1 (in quo creationem rerum omnium docet) ignis mentionem: nos libentius divini vatis sententiae, quam ethnici philosophi ratiocinationibus astipulamur: nec alium idcirco ignem agnoscimus, quam caelum et aethera a flagrando, et ardendo dictum, ut iam docuimus. Itaque caelum quartum formale ac essenziale elementum, aut quarta potius essentia, ex reliquis elementis extracta: (quintum enim esse, seu quintam essentiam iam respuunt Hermetici, quod quatuor non sint elementa, unde quinta educatur essentia, sed tria tantum, ex quibus quarta elicitur essentia) dici debet [...].”

²⁸ See Hirai, *Le concept de semence*, 206-207, 234-35. On the new status of heaven and the cosmic heat in its Hippocratic dimension, see Hiro Hirai, “*Prisca Theologia* and Neoplatonic Reading of Hippocrates in Fernel, Cardano and Gemma,” in *Cornelius Gemma: Cosmology, Medicine and Natural Philosophy in Renaissance Louvain*, ed. Hiro Hirai (Rome: Serra, 2008), 91-104; idem, “Il calore cosmico in Telesio fra il *De generatione animalium* di Aristotele e il *De carnibus* di Ippocrate,” in *Thylessius Redivivus: Bernardino Telesio tra naturalismo rinascimentale e scienza moderna*, ed. Emilio Sergio et al. (Naples: Rubbetino, forthcoming).

²⁹ *Ad veritatem*, 1.14, 175. Hooykaas, “Die Elementenlehre,” 12, notes the strangeness of the quintessence’s “composite” nature despite its being the purest and simplest substance of all.

³⁰ *Ad veritatem*, 1.14, 176.

³¹ *Ad veritatem*, 1.14, 178: “Quae cum sit simplicissima, defaecatissima et incorrupta, quinta essentia dicitur (quam nos malumus quartam essentiam vocare) et lapis caelestis philosophorum. Cuius quidem cum nullam adhuc cognitionem habuerit anonymus: male putavit, cum de lapide philosophorum loquerer, hoc est, universali illa medicina, me de transmutatione metallorum cogitasse, quasi

eiusmodi transmutatio summa esset corporis humani medicina. At nescivit perinde in homine microcosmico latere imperfectorum metallorum fodinas, unde tot morbi enascuntur, ut necesse sit a bono et fideli medico non ignaro, in aurum et argentum reducere, nempe in perfectam purificationem virtute tam insignis et pretiosae medicinae, si sanitatem ac prosperam valetudinem consequi velimus.”

³² On the chymical interpretation of *Genesis*, see Debus, *Chemical Philosophy*, passim; Norma E. Emerton, “Creation in the Thought of J. B. Van Helmont and Robert Fludd,” in *Alchemy and Chemistry in the 16th and 17th Centuries*, 85-101; Michael T. Walton, “Genesis and Chemistry in the Sixteenth Century,” in *Reading the Book of Nature*, 1-14; Hiro Hirai, *Le concept de semence*, passim; idem, “Interprétation chymique de la création et origine corpusculaire de la vie chez Athanasius Kircher,” *Annals of Science* 64 (2007), 217-34.

³³ On Fernel, see Hirai, *Le concept de semence*, 83-103; idem, “Alter Galenus: Jean Fernel et son interprétation platonico-chrétienne de Galien,” *Early Science and Medicine* 10 (2005), 1-35; idem, *Medical Humanism and Natural Philosophy: Renaissance Debates on Matter, Life and the Soul* (Leiden: Brill, forthcoming).

³⁴ See Walter Pagel, *New Light on William Harvey* (Basel: Karger, 1976), 56. On Schegk, see *Dictionary of Scientific Biography* 12 (1975), 150-51; Hiro Hirai, “The Invisible Hand of God in Seeds: Jacob Schegk’s Theory of Plastic Faculty,” *Early Science and Medicine* 12 (2007), 377-404.

³⁵ On the case of Croll, see my article “The Word of God and the Universal Medicine in the Chymical Philosophy of Oswald Croll,” in *Alchemy in the Age of Rudolf II*, ed. Ivo Pirs et al. (Prague: Artefactum, forthcoming). On Fludd and Gassendi, see Sylvie Taussig, *L’Examen de la philosophie de Fludd de Pierre Gassendi par ses hors-texte* (Rome: Serra, 2009).