David Gorlæus (1591-1612)

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Chapter 4

Gorlæus’ Place in the History of Seventeenth-Century Thought

Gorlæus died in the spring of 1612. We do not know where and why he died, nor whether he had been ill for some time before passing away; perhaps he had contracted malaria, as presumably did his father, who also died in 1612.¹ All we have is his tomb and his two posthumous publications, the *Exercitationes philosophicae* (published in 1620) and the *Idea physicae* (published in 1651). From the unfinished state of the concluding part of the *Exercitationes*, we may conclude that Gorlæus was still working on his longer treatise when he died. One in fact senses that his decision to deviate from his standard type of exposition and to jot down a paraphrase of a number of positions defended in a recent theological disputation at Leiden concerning the origin of the soul and the transmission of evil must have been due to his wish to conclude his manuscript before it was too late.²

As we have seen above, the *Idea*, printed in 1651, contained ideas that were too similar to those expounded in the *Exercitationes* and appeared too late to elicit much of a reaction.³ With the *Exercitationes*, the story is different: it enjoyed, notably between 1620 and 1650, quite a reputation at home and abroad.

Who decided to publish the *Exercitationes* in 1620, eight years after Gorlæus’ death, is not clear. After all, by then, Gorlæus’ parents had also passed away, and Gorlæus’ aunt and his cousin Carel van Gelder, a lawyer, were taking care of the estate. It might have been Van Gelder, the executioner of the will of David van Goorle, Sr., who had the book published. One could also imagine an involvement of Abraham van Goorle, Jr., David Gorlæus’ paternal cousin. Jaeger has suggested that Petrus Bertius, the former regent of the Theological College at Leiden as well as a friend of both Arminius and Gorlæus’ uncle Abraham, may have organized this publication – but we have already seen that there is no evidence to corroborate that claim.⁴ What is conspicuous, however, is that whoever it was who edited the work had no interest in revealing himself or his motivations. Contrary to the *Idea physicae* of 1651, the *Exercitationes* do not carry any preface or introduction. Whether this absence of any explanation points to an awareness of the doctrinal incompatibility of its contents with the contra-Remonstrant orthodoxy that had been imposed on the entire country in 1619 at the Synod of Dort cannot be determined, although it is likely.
Once, however, that the manuscript had been printed and released, it entered the public domain and started, like any other book, to lead a life of its own. As has been shown in chapter 1, the life of this particular book was even more independent of the author's intentions than most other books, as none of its readers, with the exception of a very few, could associate the author's name with any definite social status, ideological or religious stance or the vaguest biographical data.

This last chapter is therefore dedicated to the reception of Gorlaeus' work in the seventeenth century. It is of course impossible to provide a complete Wirksungs geschichte in a few pages. What will be offered, by contrast, is a rough sketch of the way in which Gorlaeus' ideas were absorbed into, and thereby influenced, seventeenth-century thought in the domains of philosophy and science.

4.1. INTERNATIONAL RESPONSES TO GORLAEUS:
THE PARISIAN CASE

A valid idea of the fortune of Gorlaeus' Exercitationes and its international reception can be obtained by examining a circumscribed case study. Paris, one of the early seventeenth century's most important European centers of learning, offers itself here. For this reason, we shall now turn to examine the role Gorlaeus' Exercitationes played in a series of Parisian authors in the years 1620-1650.

We recall from chapter 1 that seventeenth-century readers tended to view Gorlaeus as a novator – a category invented to capture those philosophers who, unhappy with the prevailing Aristotelian system, had proposed an alternative to it. Contrary to other categories, this one was accepted by friends and foes alike, who used it either as a term of endearment or of abuse. To those who had grown weary of the received philosophy of the schools, the novator was a welcome harbinger of hope. To those, by contrast, who continued to uphold Aristotle as the measure of all solid thought, the novator constituted a nuisance.

It has been mentioned in chapter 1 that Marin Mersenne (1588-1648) repeatedly referred to Gorlaeus in the period in which he still behaved as a verbose and polemical soldier of the ecclesia militans; that is, before his transformation into the irenic Secretary of the Republic of Letters. In those days, he regarded Gorlaeus as one of the authors who had to be combated and condemned. In his commentary on Genesis (1623), he listed him alongside Campanella, Bruno, Telesio, Kepler, Galileo, Gilbert, Bacon, Fludd and Hill – most of these philosophers being either Protestants or else Catholics who had been convicted, condemned or even burnt by the Inquisition. In La vérité des sciences (1625), Gorlaeus is mentioned in the company of Bodin, Carpenter, Hill, Olivi, “and various others.” In L’impiété des déistes (1624), finally, Mersenne provided a sketch of an encyclopedia in which he
intended to refute all kinds of lies, and notably those of “Gorlaeus, Carpenter, Basson, Hill, Campanella, Bruno, Vanini and several others.” The announced encyclopedia was, unfortunately, never published. However, Mersenne does hint at what he finds “impertinent” about these authors. He laments Carpenter’s and Gorlaeus’ subscription to the principle that “all things are made and derived from nothing,” Gorlaeus’ and Hill’s atomism and notably the view “that inside bodies there are atoms which have quantity and figure.”

But not everyone in the Paris of the 1620s disliked the novatores. For the same reasons that Mersenne attacked him, Gabriel Naudé (1600–1653), an influential librarian and scholar, seems to have liked him. In his well-known princely Advice on Establishing a Library of 1627, Naudé (who was repeatedly asked to set up learned libraries) dedicates a specific chapter to the organizing principles of a large library as required in an age of knowledge proliferation. After speaking of theology (for which he proposes a systematic ordering of the books), he turns to philosophy, a discipline for which he deems a chronological set-up to be the most effective method of organization:

In Philosophy, one has to start with that of Hermes Trismegistus, which is the oldest philosophy, continue with Plato’s, Aristotle’s, Ramon Lull’s and Ramus’, and finish with the novatores Telesius, Patrizi, Campanella, Bacon, Gilbert, Bruno, Gassendi, Basson, Gomez, Carpenter, and Gorlaeus, who are the most important authors in a flood of others.

In their different ways, Mersenne and Naudé document the fact that Gorlaeus was known and read in Paris already in the 1620s, and was considered an important figure both by traditionalists and libertins. Maybe it was Hugo Grotius (1583–1645) who brought Gorlaeus to Paris, where he was a regular visitor to the Cabinet Dupuy. At any rate, Gorlaeus’ reputation continued throughout the century. Take, for example, Jean Bachout, who, in 1651, translated and introduced Jean d’Espagnet’s Enchyridion physicae restitutae (1623). In his Discours, which recommended the Enchyridion and at the same time revealed its author’s hitherto anonymous identity, Bachout invoked the idea, much en vogue in those years, that Aristotle had for centuries managed to remain a kind of philosophical dictator only because he had wilfully obfuscated the more noble and ancient philosophies of the Egyptians, Chaldeans, Presocratics and even of his own teacher Plato, whose myths still contained some of the ancient splendor of truth. Fortunately, Bachout continued, recent times had seen the rising of valiant men who boldly sought to recover the hidden truth. Italy had begun in this enterprise thanks to Telesio, Patrizi and Campanella. But then, other countries had joined in:
Germany and England, too, have had several men who only followed Aristotle’s opinions in those places where they found them at their most reasonable, as did Bacon, Fludd, Gorlaeus, Taurellus, Carpenter and others, of whom some have proposed new principles.¹⁰

As for France, so Bachout concluded his introduction, she had offered above all three men to this enterprise: Ramus first, subsequently d’Espagnet (to whose very book Bachout’s Discours is prefaced), and finally Descartes. Notable about this list is not only Gorlaeus’ appearance among these important new philosophers, but also the fact that Taurellus (whom we otherwise never encounter in such lists of novatores) is placed next to him. It is evident that Bachout must have been aware of the Utrecht Crisis of 1641, in which the names of both Gorlaeus and Taurellus were invoked in the context of Cartesianism.

Obviously, it is one thing to be aware of Gorlaeus’ name and work, and to place his Exercitationes in its appropriate slot within a princely library, and quite another to use him and to apply his ideas. That his book was actually read and used can be shown by our fourth French example, that of Charles Sorel (1582-1674). Among the numerous works written by this novelist and polymath, the four parts of his Science universelle (published in 1634, 1637, 1641 and 1644) combine Baconian themes such as the methodology of (collective) scientific experimentation and the perfectibility of man with topics and ideas taken from other new philosophers, and notably from the atomists among them. In this particular work, as well as several others, we encounter small chapters containing, as it were, short doxographies of the novatores. It is not only the encyclopedic inclination of the polymath that led Sorel to write such chapters.¹¹ Adapting a Baconian model for his own ends, he also treated the thoughts of others as the quarry in which to find the materials for the erection of his own natural philosophy. In his doxographies, he illustrated the way in which novatores had often mixed truth with fancy in their desire to do away with Aristotle, but nevertheless deserved our applause for having opened the doors to a new, empirical and much more fruitful approach to the investigation of nature. One of his shorter chronologies reads like this:

One must praise the great courage of Telesio, for having been the first to dare to censure the ancient errors. […] Patrizi must also be strongly commended for having enlightened his age with respect to numerous absurd views concerning celestial and terrestrial bodies. These men, together with Cardano and some others […] have revealed that the true number of the elements is only two, […] a view with which Gorlaeus and the author of the Enchyridion [d’Espagnet] agree. Copernicus, Galileo, Giordano Bruno and Descartes teach us all that we can imagine and suppose with respect to the number, situation and the movement of the principal bodies of the universe."
In this short survey, Gorlaeus is mentioned merely as one among those who subscribed to the sixteenth-century Italian naturalists’ limitation of the number of elements. A more detailed appraisal is found in Sorel’s *De la perfection de l’homme* (1655), which contains a long section dedicated to the history of the new philosophy and opens with a long praise of the *novatores*. Toying with a Baconian motif, Sorel insists that at least since the discovery of the New World, it should have been obvious that there are more secrets to nature than had been fathomed by the Greeks. Empirical research was therefore necessary. “Although the very name ‘novator’ is loathsome to a number of people, one has to take into consideration that whereas one has to worry about this phenomenon in matters of theology, this is not the case in natural and human philosophy.” Once again, Sorel lets his history begin with the Italian naturalists Telesio, Patrizi and Cardano. After a very thoughtful and partly critical evaluation of Ramus’ contributions, Sorel turns to astronomy (Copernicus, Tycho, Kepler and Galileo), and adds a separate and surprisingly positive evaluation of Giordano Bruno, whom he casts as an ‘astronomical novator’, omitting his metaphysical and theological ideas. After speaking of Bernard Palissy’s empirical work on chemical substances, Sorel turns his attention to Gorlaeus, who receives a section on his own:

Following a chronological order, we shall now come to *novatores* who have written in Latin and some others who have preceded them and who have followed the rules of philosophy. Among the moderns who deserve to be mentioned here, there is a certain David Gorlaeus, a Dutchman, who has written a book called *Exercitationes philosophicae*, where he engages in a fight against the entire theoretical philosophy of the Peripatetics. After dealing with metaphysics, he turns to physics. He treats all corporeal qualities, proposing a number of views of which some are genuinely new, while others are simply proposed anew. He shows that what one calls Heaven is nothing but the extension of air, and that there are only two elements, earth and water, and that fire is no element at all, but a simple accident. One cannot entirely grant him this point, because fire is only to be esteemed to be an accident with respect to the fire which we artificially produce. One must recognize that there is a different type of fire which is a veritable substance, which, if it is not an element, must at least be taken to be one of the principal bodies constituting the world.

Once again, Sorel limits himself to mentioning Gorlaeus’ two-element theory, omitting his metaphysics – although it is there that he would have found the foundations for an atomist conception that, when he finds it in other authors, tends to enthuse him, but about which he remains strangely silent in this particular case. Moreover, although he applauds Gorlaeus for being a *novator* in some respects and
a renovator in others, he rejects the suggestion that real, natural fire is merely an accident of the other elements. While he does not belabor this point, both the role played by the sun and by celestial heat in his own system, and our own critical remarks about the odd status that the real accident of heat plays in Gorlaeus’ natural system, render Sorel’s caveat quite comprehensible.

In the light of this criticism, one might wonder why Sorel should have decided to dedicate a separate section of his doxography to Gorlaeus at all. The answer, I think, lies hidden in Sorel’s earlier work, and notably in his exhaustingly prolix *Science des choses corporelles* of 1634, whose programmatic subtitle almost echoes Gorlaeus’: “où l’on connoist la Verité de toutes les choses du Monde par les forces de la Raison et l’on trouve la refutation des Erreurs de la Philosophie vulgaire.” Although in this particular treatise, Sorel cites no recent philosopher by name, his extended discussion of the elements resembles Gorlaeus’ reasoning so strongly that it is hard to reject the idea that Sorel wrote his own treatise with Gorlaeus’ close at hand. Take, for example, his lengthy chapter XII, “On the number of the elements,” which ends, as it were, with two summaries. The first reads as follows:

We have thus found that earth, water, air and fire are four different bodies, but they are neither the four elements nor all simple bodies. Earth, water and air are thought to be simple, while fire is a composite. Earth and water serve for the composition of all bodies, without air being a part of their substance even though it is sometimes found among them. Fire is also just the same air, when heated, and must be counted among the first bodies only inasmuch as it is an agent, but is no part of the composite.16

The overlap with Gorlaeus’ theory of the elements is obviously very strong, but – one might object – so is their joint debt to Cardano. Gorlaeus’ specific influence on Sorel becomes manifest however in the latter’s attempt to reduce his two-plus-one theory of the elements to an atomistic theory of the dry and the wet, whereby warm and cold are described as mere modifications of these two essential properties.17

Sorel provides us with a good example of the type of influence that the *Exercitationes* managed to exercise in the period 1620-1650 in certain quarters. In Sorel’s view, Gorlaeus’ two-element theory was closer to practice and experience than the transmutationalist four-element theory of the Aristotelian tradition. “One has to make tests,” Sorel wrote in 1634, “to find out how many simple bodies make up mixtures.” What tests did he have in mind?

If you press plants or the flowers and the fruits of trees, water will ooze out, and what is earthen will remain. If the flesh of an animal is sliced up, the blood and
the humors will flow out, and what is solid will remain separated. Here, then, you have water and earth; but where is the air and the fire?\footnote{18}

Such commonsensical observations are obviously neither sophisticated nor irrefutable, and they clearly do not add up to a ‘test’. But fortunately, it is not the early Sorel’s experimental methodology that is at stake here, but rather the role that Gorlaeus’ theory of the elements plays in it. What emerges is that Sorel, who wished to put Baconian experimentalism, an improved theory of matter and a new cosmology under the yoke of a new science of his own devising, viewed Gorlaeus’ atomistic theory of the elements as a fruitful contribution to this program. It is typical for Sorel, and \textit{mutandis mutatis} for other seventeenth-century philosophers too, that Gorlaeus’ importance diminished once Descartes had published his work; this explains his diminished role in Sorel’s later doxographical chapters. Not that Sorel was entirely convinced by Descartes’ picturesque natural philosophy. He did, however, consider him the boldest of the \textit{novatores}, and the most wide-ranging: “Among the \textit{novatores}, one finds none that has removed himself farther from common thought,” he explained. Moreover, Descartes’ philosophy was all the more persuasive as he illustrated it with “paintings” and “pictures […] full of these little bodies, which are so little known, but which are represented there with such assurance as if he had seen them clearly.”\footnote{19}

The 1655 version of Sorel’s doxography of the new philosophy culminated with Descartes’ natural philosophy, on the one hand, and with the recent triumphs of chemistry and astronomy, on the other. Gorlaeus’ natural philosophy, while retaining an honorable place in the gallery of the \textit{novatores}, was by then slowly turning into a mere precursor of greater and more radical models of nature.

\section*{4.2. Dutch Responses to Gorlaeus and the Rise of Cartesianism}

The Parisian case study shows the role that was attributed to Gorlaeus’ \textit{Exercitationes} in the international panorama of the \textit{novatores}. But let us return to the Netherlands and examine the influence of his thought in his country of origin, and in particular the real or perceived link between his own thought and that of Descartes. Although nowadays, only two copies of Gorlaeus’ \textit{Exercitationes} can be found in Dutch public libraries, this book was at the time, in Theo Verbeek’s words, “in everybody’s hands.”\footnote{20} One finds it used in university lectures, discussed in academic disputations and referred to in the philosophical literature. Even a philosophy professor such as Adriaan Hereboord, whose own philosophy took a very different direction, did not hesitate to recommend Gorlaeus’ metaphysics in his “Advice on the method of studying philosophy” of 1648.\footnote{21}
It is particularly noteworthy that a series of leading philosophers, including Isaac Beeckman, Henri Reneri, Henricus Regius and Jacob Ravensperger, who in one way or another are all linked to Descartes’ years in the Netherlands, owned or used the *Exercitationes*. The intriguing possibility of its influence, not only on these Dutch thinkers, but on Descartes himself, therefore emerges with force.

The wide academic diffusion of Gorlaeus’ *Exercitationes* in the Netherlands is shown by the use made of it by Jacob Ravensperger (or Ravensberg, 1615/6-1650). Interestingly, Ravensperger was the son of a theologian from Steinfurt who in 1614 had been appointed as the University of Groningen’s first professor of theology and whose lot in the Netherlands was decidedly more fortunate than that of his Steinfurt colleague Vorstius at Leiden. His son, Jacob, studied in Groningen, where he took his degree in philosophy in 1639. In 1641, he became professor of mathematics at Utrecht University. It seems that he tried to maintain an equidistant attitude towards the two quarreling camps during the Utrecht Crisis (1641-43); although incidentally, Regius’ disputation that ignited it all happened to be dedicated to Ravensperger as well as to the Utrecht theologians. His own extant student disputations show an open-minded attitude. For example, he did not hesitate to cite Descartes’ law of refraction and vortex theory. In 1648, his appointment was enlarged to include physics. In 1650, however, he died, at the age of 35. In his funeral oration, his colleague Daniel Berckringer praised not so much his genius or eloquence as his wide-ranging curiosity and his vast erudition, which spanned physics, mathematics and medicine, and reached peaks in metaphysics and scholastic speculations.22

Scholars have worried about the question of whether Ravensperger should be labeled an Aristotelian or a Cartesian in the context of the Utrecht landscape. Once again, however, it should be remembered that philosophy in the Netherlands had progressed far beyond Aristotle by the 1630s and was influenced by a host of non-scholastic authors. To demonstrate this point, let us take a look at the disputation *pro gradu* (that is, for his philosophy diploma) that Ravensperger defended at Groningen in 1639. In its 85 theses, he discussed an impressive array of issues ranging from logic and metaphysics to physics, arithmetic, geometry, astronomy, geography, optics and finally ethics and politics; addressing such different issues as the structure of ontology, the number of elements, the epistemological reliability of the telescope and the aristocratic status of the equestrian families of the Roman Empire. In addressing these problems, he quotes an impressive range of ancient and medieval authors (Plato, Aristotle, Seneca, Lucretius, Aquinas, Scotus, Aureolli, etc.), Catholic and Protestant scholastic authors in the domains of philosophy and theology (Zabarella, Toletus, Fonseca, Suárez, Keckermann, Goclenius, Timpler, Burgersdijk, Calvin, Piscator, Bellarmine and many others), but also more modern, ‘scientific’ voices (including Copernicus, Kepler, Rheticus, Ramus,
Alsted, Fludd, Commandino, Bacon, Gilbert, Sennert, Lansbergen, and Galileo). Gilbert and Galileo are in fact described as “heroes of our century.”

What is of interest in the present context is that among the novatores, we repeatedly encounter also our Gorlaeus, whose Exercitationes philosophicae is treated as an authoritative text, although Ravensperger disagrees with it as often as he agrees. On the question of “Whether there exists only one theoretical science,” for example, Ravensperger sides with Aristotle and Seneca, who denied such a singularity, against Gorlaeus and Antonio Bernardi della Mirandola (1502-1565). On the question of “Whether there exists an objective, single and adequate concept of being,” which he thinks we may affirm, he rejects the view of the nominalists, Thomists and “some recent authors, such as Johannes Combach and David Gorlaeus.” With respect to the question of “Whether fire and air are elements,” Ravensperger takes no position between the “the common and Peripatetic view,” which affirms it, and the negationist positions of Cardano, Timpler and Gorlaeus: “Choose what you wish!” In the subsequent question, on “Whether air is by nature neither hot nor cold,” the disputant openly sides with Gorlaeus, “affirming that air is no element.” Turning to arithmetic, where Ravensperger raises the question of whether material, quantitative units and numbers should be comprised in the category of transcendental number and unity or are possibly even identical with it, we encounter Gorlaeus once again, among the authors who takes the second, more radical view.

Two aspects of Ravensperger’s use of Gorlaeus deserve to be mentioned here. First, it is noteworthy that, in contrast to the Parisian authors we have just examined, his interest is not limited to Gorlaeus’ two-element theory. As his references document, he has examined the entire Exercitationes, extracting from it useful theses for his own general philosophy, metaphysics, physics and arithmetic. What is curious, of course, is the absence of any interest, on Ravensperger’s part, in Gorlaeus’ atomistic ontology. The second point that must be mentioned here is the nonchalant self-evidence with which Gorlaeus, the first-year theology student, appears in the company of authorities whose name recognition has remained intact. It is obvious that in the 1630s, Gorlaeus was an author who was not only widely read but also used at Dutch universities. A detailed examination of the dissemination of his ideas remains, however, a desideratum.

In 1641, with his doctoral title from Groningen in hand, Ravensperger moved to Utrecht University where he would teach mathematics and later also physics, and where he arrived just in time to witness the explosion of the Utrecht Crisis surrounding Descartes and his teaching. In this Crisis, Gorlaeus would once more play an important part. Let us therefore move – together with Ravensperger, as it were – to Utrecht, and begin by taking a look at Henricus Reneri (1593-1639), Utrecht’s first professor of philosophy. Reneri has variously been described as “the
first among the Batavians whom Descartes got to know,” which is false, since the latter’s friendship with Isaac Beeckman began ten years earlier; or as “the first Cartesian,” which is also somewhat inaccurate given that Reneri was not only three years older than his alleged master, but, as his extant publications indicate, also combined Cartesian ideas with a range of ideas of a different provenance. What linked Reneri and Descartes was certainly a profound friendship, a common native language and a number of shared ideals. But clearly, the relationship was not symmetrical, as Reneri’s admiration for Descartes was boundless.

Reneri, originally a Catholic Walloon, had first been trained in philosophy in Louvain and then in theology in Liège, where his reading of Jean Calvin’s *Institutio Christianae religionis* provoked his conversion to Protestantism. He therefore took to the Netherlands, where he enrolled as a student of theology in Leiden in 1616; that is, five years after Gorlaeus. In the years to come, we encounter him in the various roles of private tutor, student of medicine and mathematician. At the same time, we also know that he was engaged in chemical, optical and meteorological experiments and made inventions in the fields of thermometry and optics. In 1628 or early 1629, he encountered Descartes, whom he befriended; so much so that between May 1632 and February 1634, Descartes moved to Deventer, the city where Reneri was teaching at the time. But Descartes was not the only Frenchman who encouraged his scientific activities and influenced its methodology and theoretical underpinnings. In the same period in which he first met Descartes, Reneri also encountered Pierre Gassendi, who was touring the Low Countries in 1628-29.

Descartes and Reneri continued their close collaboration after Reneri had moved to Utrecht in 1634, where he taught philosophy at the Illustrious School, which was upgraded to a full university in 1636. Once again, Descartes followed what appeared to have been at the time his most important contact in the Dutch university world. We know that Reneri took lessons in mathematics from Descartes while helping him with the distribution of the *Discours de la Méthode*. He also gave private lessons in which he used Descartes’ *Discours* and the *Essais* that were attached to it. In a letter to Mersenne, Reneri wrote that Descartes “is my light, my sun, and what Vergil said in his *Bucolics*, I can say about him: ‘He will be for me forever a god.’” Remarkably enough, when he died in 1639, the funeral oration that his colleague Antonius Aemilius delivered, spoke more about Descartes and the promises of his philosophy than about the deceased Reneri. “In short,” Verbeek concludes, Reneri seems to have been “the main herald of Descartes’ glory.”

And yet, when one reads Reneri’s inaugural lecture of 1634 and his extant university disputations, one finds that they contain remarkably few Cartesian elements. What one encounters instead is a combination of an empirical, indeed experimentalist, attitude that owes perhaps more to Bacon than to Descartes, with
philosophical notions that are taken from a plethora of sources.\textsuperscript{34} In fact – and with this we return to our present theme – from his disputations, Gorlaeus is precisely one of these non-Cartesian sources. Although it is impossible to offer a water-tight proof of this line of influence, in light of the fact that Reneri’s disputations almost never cite the authors whose views are being used, we cannot only point to doctrinal parallels but fortunately we also know that Reneri owned a copy of Gorlaeus’ \textit{Exercitationes}.\textsuperscript{35}

The way in which Reneri absorbed Gorlaeus’ ideas into his university teaching can be exemplified by the disputation \textit{On the Elements}, which Reneri had a Hungarian student of his defend in 1635. Gorlaeus’ specific imprint is recognizable from the very beginning, as Reneri rejects the traditional distinction between elements and mixts, arguing that this distinction does not do justice to “air, which is neither an element nor a mixed body constituted by the elements.”\textsuperscript{36} But as the disputation proceeds, we quickly discern other influences too. The traditional view of the elements is also false, Reneri has his student explain, because the assumption that mixts can be resolved into these elements is contradicted by the fact that gold cannot be resolved into anything else by nature or by art. From this Reneri concludes that “a connection between the elements can be produced such that their link can afterwards no longer be resolved by natural causes.”\textsuperscript{37} This view, which owes much to iatrochemistry and entails a molecular understanding of matter, is, in turn, combined with an atomist definition of elements. The traditional division of all bodies, including elements, into prime matter and form is unnecessary, as “no phenomenon is observed in the elements that requires more than matter and its diverse dispositions with respect to quantity, figure, motion and quiet.”\textsuperscript{38}

Reneri then returns specifically to the question of the number of elements. The number four, he explains, has of course always had a great appeal: the combination of the four qualities are said to lead to the four elements; which, in turn, are linked to the four temperaments, humors, ages and seasons. Reneri shows, however, that this entire model of quaternaries relies on circular reasoning: one supposes, for example, that food is made up of the four elements in order to demonstrate that our body is also composed of the same number of elements.\textsuperscript{39} He also makes short shrift of the Aristotelian theory of gravity and levity, arguing that air is always heavy, even if we do not feel it (just as fish do not feel the weight of water).

Reneri’s corpuscular conception of the elements – which combines ideas found in ancient sources with notions found in Gorlaeus, Gassendi and Descartes’ \textit{Météores} – becomes ever more obvious as the disputation progresses. We hear that elements do not transmute, but have been generated entire and directly by God (theses 17-18). Moreover, each element possesses a specific figure (thesis 14), just as sensory experiences are caused by the figures of particles impinging on our organs. Following the model provided in Plato’s \textit{Timaeus}, which explains the burning taste
of certain foods by the puncturing of the tongue by pyramidal fire particles, but at the same time subverting it, Reneri explains that the heating and burning quality of certain liquors is not due to the presence of fire but to “certain figures and the smallness and mobility of the minimal parts of which these bodies consist,” which provoke a feeling “similar to that of fire.” The reason Reneri rejects Plato’s fire particles is because he rejects the notion that fire is an element. Air is not an element either. In arguing this point, Reneri would seem to rely once more on arguments provided in Gorlaeus’ *Exercitationes*: although air is found everywhere and fills the sky as well as all otherwise unfilled pores, it is not part of any mixture. However, Reneri adds a morphological (Democritean, Platonic, Gassendist, or indeed Cartesian) twist to this two-element theory: Earth and water, he suggests, cohere because they have fatter parts, while air is too fluid and subtle to attach itself to them. In his hands, mixture has become a matter of cohesion, and cohesion, in turn, a matter of atomic shapes. And while this definition of mixture goes beyond Gorlaeus’ (who, as we recall, did not explain the ability of elements to enter into mixture by means of their atomic shapes, but by other qualities), his two-matter theory remains faithful to the latter’s model: “Water and earth, considered in their purity, are the only elements properly so called, because they are simple and because one has to recur to them to explain the generation of all mixts and the resolution of anybody whatsoever into them.”

Of both Reneri and Regius – Descartes’ earliest supporters at Dutch universities – it is often said that they were fascinated by Descartes’ physics, but did not follow him in his metaphysical evolution. Reneri’s “lack of interest in metaphysics” and his unwillingness “to defend Descartes’ metaphysics” have been contrasted with his enthusiasm for the physical theories of his much-admired friend. By the same token, Descartes’ disgust over Regius’ *Fundamenta physicae* (1646), which presented a Cartesian natural philosophy without its metaphysical foundations, is famous as it was aired not only in vitriolic letters to his erstwhile friend, but also in Descartes’ preface to the French translation of his *Principia*. Against this apparently anti-metaphysical background, it is all the more surprising that Gorlaeus’ thesis of man as a composite being, an *ens per accidens*, should have made its appearance in a thesis defended under Regius.

Let us therefore turn to this second early Dutch friend of Descartes’. Henricus Regius (1598–1679), who was born in Utrecht six years after Gorlaeus, had, like him, taken his first diploma at Franeker University. He proceeded to study medicine in Groningen, Leiden and Montepellier. He eventually took his doctorate in Padua, having studied with such celebrities as Santorio Santorii and Cesare Cremonini. Upon his return to the Netherlands, Regius first worked as Utrecht’s town physician, then moved to Naarden, where he directed the Latin School, but also ran into difficulties with the local church authorities, who found his behav-
ior unorthodox. His initial unwillingness to sign, as his function demanded, the Reformed Act of Faith led to a visitation by members of the Amsterdam Classis of the Reformed Church, who in their report concluded that he was poisoned by Arminian and Socinian heresies. Although his skirmish with the Church came to an end after he apologized and signed the Act of Faith, suspicions of heterodoxy resurfaced a few years later.

In 1634, Regius returned to Utrecht, where he gave private lessons and resumed his duties as town physician; in 1638 he was appointed professor of theoretical medicine and botany. In the same year, his colleague Reneri introduced him to Descartes, whose Essays of 1637 he had admired and incorporated into his own private physics lessons and with whom he now initiated an intense correspondence. In his first, introductory letter to Descartes, Regius in fact suggested that it had been his private physics lessons, inspired by Descartes’ Essays, which had led to his appointment as university professor. Because of his keen interest in natural philosophy, the university asked him in 1640 to lecture additionally on natural philosophy, but given the presence of a more senior professor of philosophy at Utrecht University, Arnold Senguerd, this appointment was due to lead to frictions.

When Regius wished to expose in public his thoughts on natural philosophy, which he seems to have written down in a Compendium, Descartes advised him against publishing such a book (possibly, Verbeek suggests, out of fear “that his new friend might forestall him”), proposing a disputational format instead. By contrast, Utrecht University’s newly appointed rector, the theologian Gijsbert Voetius, who worried about tensions between rivaling philosophers, first advised him to dispense with publicizing his physics altogether, but in the end conceded to him the possibility of packaging his natural philosophy in medical disputations. Neither Regius nor Descartes nor Voetius could have foreseen that these disputations would lead to the stormy affair that would culminate in the public prohibition of Cartesian ideas at Utrecht University.

All of Regius’ disputations of 1641 dealt in one way or another with physiologia, a term that could possess a more narrow medical definition (thanks to Jean Fernel’s homonymous treatise of 1542), but which could also stand in as an equivalent of both physica and philosophia naturalis, being defined as a general theory of the operations of natural bodies. In other words, the polyvalent term ‘physiology’ allowed Regius to stay either within the boundaries of medicine or to foray into the territory of natural philosophy. In his first set of disputations, which he published under the overall title Physiologia sive cognitio sanitatis, he remained by and large within the domain of medicine. But in the second set, which was published under the overall title De illustribus aliquot quaestionibus physiologicis, he clearly entered the fields of physics, metaphysics and, in the perception of his contemporaries, theology, triggering what would become the Utrecht Crisis.
It is known that Descartes followed the composition of these disputations closely, suggesting various improvements.\textsuperscript{48} It is thus not surprising that the disputations have a Cartesian ring to them. Some doctrines are directly and consciously taken from the French philosopher. Citing the \textit{Dioptrics}, for example, Regius reproduces Descartes’ doctrine concerning the role of the pineal gland in the transmission to the soul of impressions conveyed by nerve fibers.\textsuperscript{49} His theory of matter seems also very much aligned with Descartes’: “While other physicians and philosophers have traditionally paid little attention to those insensible particles,” Regius writes with reference to those microscopically small corpuscles that defy sensory perception, “we believe that innumerable natural mysteries depend on them.”\textsuperscript{50} Indeed, his entire theory of matter appears to correspond to Descartes’: apart from the mind, which is an entity by itself, all material bodies can be reduced to variously shaped particles of a universal matter, whose motions and constellations explain physical properties. To help students memorize this doctrine, Regius composed a couplet, which sounds like an early shorthand manifesto of what Robert Boyle would later view as the program of the “mechanical philosophy”:

\begin{quote}
Mind, measure, quiet, motion, position and figure 
Are together with matter the origin of all things.\textsuperscript{51}
\end{quote}

This distich was amply ridiculed by Martin Schoock, one of Descartes’ fiercest detractors, as a kind of senseless prophetic oracle (although, as Erik-Jan Bos has document, it remained popular among university teachers and students well into the eighteenth century).\textsuperscript{52} But while for Schoock it was evident that Regius was nothing but Descartes’ mouthpiece, Descartes himself was aware of notable differences between Regius’ views and his own – differences that would eventually lead to their complete rupture.

At the same time, it should be remembered that, in the face of all the admiration that he nurtured for Descartes, Regius was an independent thinker who had lectured on physical and medical issues before he read Descartes’ \textit{Essays} in 1637 and became acquainted with their author the year thereafter, at the mature age of 40. In other words, unlike later Cartesians, he did not begin philosophizing on the basis of Descartes’ work. Among the various other authors who influenced his thought was Gorlaeus, whose \textit{Exercitationes} Regius had studied before reading any of Descartes’ works. For example, several of his positions sketched in 1640 in his correspondence with Descartes are so close to Gorlaeus’ ideas that we may suppose that he borrowed more doctrines from the \textit{Exercitationes} than just the definition of man as an \textit{ens per accidens}.\textsuperscript{53}

So, if in his physiological disputations, he rejected substantial forms and posited microscopically small particles instead, we need not automatically conclude that
he had acquired these views only recently and that they were exclusively due to Descartes’ influence. For example, Regius’ refutation of the traditional explanation of the temperament as a mixture of elements into a new homogeneous substance is closer to Gorlaeus than to Descartes, although his alternative definition is compatible with both authors:

Therefore we define a good temperament as follows: the location, figure, quantity and motion or quiet of the insensible parts which constitute the sensible parts in such a way that it fits the actions that have to be performed. From this temperament, or from the first qualities from which it is made up, all other qualities of the human body as well as all other homogeneous or heterogeneous bodies derive their origin.\(^{54}\)

As Regius then turns to explaining the various qualities of bodies within this framework, we can often point to both Descartes and Gorlaeus as potential sources. Regius’ notion that heat “is the various agitation of insensible particles; cold by contrast their quiet,” had been anticipated in Gorlaeus’ statement that heat was not only due to the sun but was also “produced by the motion and friction of bigger particles.”\(^{55}\) But whereas Gorlaeus hastened to add that “how this [transformation of motion into heat] happens, escapes me, and I marvel at it, just as I marvel at many other things,” and in contrast to Descartes, who in his *Principia* of 1644 was to provide a woodcut illustration to illustrate the agitation of corpuscles by the pressure of a sun rays, Regius remained silent about the mechanics of it all, allowing Schoock to express his hilarity at the vacuity of his explanations.\(^{56}\)

In the case of Regius’ first set of disputations, then, one is justified in wondering whether his corpuscular doctrines should be explained as a consequence of his acquaintance with Descartes, and could not be due to a previous commitment to atomistic notions.\(^{57}\)

While for most of these views, the question of their debt to Gorlaeus remains unanswerable, this is not the case for those notorious disputations of December 1641, in which Regius proposed that “man was an accidental being.” As stated before, in this second set of disputations, *De illustribus aliquot questionibus*, Regius entered with full force into a metaphysical twilight zone. From various reports, it would seem that these disputations were staged by Regius as a kind of showdown between the old and the new philosophy, with the public – students of medicine, philosophy and theology – forming opposing camps and shouting each other down.\(^{58}\) The disputations have a powerfully Cartesian tone to them. The first disputation attacks the notion of substantial forms: there is only one such form, namely the mind; all others do not amount to more than the behavior of particles.\(^{59}\) In a manner that is reminiscent of Gorlaeus, he subsequently tries to
explain away the principal qualities in terms of the shapes and particles of an extended substance (which he does not here equate with a Cartesian *res extensa*). He then turns to Harvey’s model of the circulation of blood, which he defends, and finishes with a praise of “mechanical” explanations.

The second disputation opens with a definition of nature from the point of view of the physician. It quickly turns once more into attack on those who “hallucinate” by defending Aristotle’s view of nature. In an even more clearly Cartesian manner, matter is now equated with a corporeal substance, whose essence is extension, as “matter does in reality not differ from magnitude.” Like Descartes, Regius also deduces from this identification of matter with extension that the small particles on which his physics rely “are not atoms, but are ever divisible” and capable of changing their shape. Why and how they change their shape, and how this leads to the generation of the ‘forms’, is left unexplained. There is, in a Cartesian manner, a rather hand-waving gesture towards local motion as the only cause of change, but the exact mechanism of this cause must have been explained orally, during the disputation. Most startling is the way in which Regius pretends that the truth of such mechanistic explanations is demonstrated by the generation of worms in the putrefaction of cheese. Spontaneous generation, one would have supposed, should for Regius’ contemporaries have constituted an obvious counter-argument to a mechanical explanation of life, not its proof. However, following the doctrines of “the author of the French dioptrics,” Descartes, Regius continues unperturbed, explaining that God had endowed the parts with different properties and that this explained the laws of nature.

It was however the third disputation, held on 8 December 1641, that led to the Utrecht Crisis. It may seem an historical irony that the respondent, Henricus van Loon, dedicated it to the three professors of theology Gijsbert Voetius, Meinard Schotanus and Carl Dematius, as well as to Henricus Regius and the above-mentioned Jacob Ravensperger. It has been argued that this dedication was “not without provocation”; but as such dedications usually required prior permission, one might, to the contrary, conclude that it was not the printed text as such that caused scandal, but the manner in which the disputation evolved.

In fact, from the *Testimonium Academiae Ultrajectinae*, we may gather that this third disputation was a particularly noisy affair, accompanied by a tumultuous response from an audience enriched by numerous spectators keen to witness the spectacle. It opened at once with the sketch of a Cartesian cosmos: since there is no vacuum, all motions must be circular. There is, moreover, no difference between natural and enforced motion. Finally, all motion “takes place according to laws of nature.”

Having thereby finished his account of matter, Regius turns to the other principle of hylemorphism, namely form. Form is in reality nothing else than the com-
position of particles. There is thus nothing additional to it, no “eduction of substantial forms from the potency of matter,” as “those who ignore the true forms” believe. But what, then, of the soul? “The special form [of man] is the human mind (mens),” Regius explains,

because thanks to it, together with the general form in the corporeal matter man is what he is. ‘Mind’ can in no way refer to the general or material form, given that it is (as an incorporeal substance) no body, nor can come about through the motion or quiet, magnitude, location or figure of the parts.

Then comes the notorious ninth thesis: “The mind and the body do not give rise to a single ens per se, but per accidens, because both are perfect or complete substances.” The tenth thesis makes these same point from a different perspective, as if to persuade those who had not yet understood: “If they are called ‘incomplete’, one has to understand this term only from the point of view of the composite, which is brought about by their union.”

Having redefined man, Regius turns his attention to cosmology (defending heliocentrism) and to a theory of the elements (abolishing the traditional four-element theory), concluding with the renewed accusation of hallucination addressed to Aristotelians who maintained the traditional quaternary scheme of qualities and elements.

In short, then, in this second set of disputations, Regius combined a dualistic view à la Descartes with a great portion of Gorlaeus-style nominalism and with the tenet, also taken from Gorlaeus, that man is merely an ens per accidens. The scandal was perfect; and not just the university authorities were displeased, but Descartes too: “You could not have put anything harder there,” he wrote to Regius.

At this stage, the university authorities intervened, led by the rector, the theologian Voetius. Ever since Descartes had been praised as the century’s new hero at Reneri’s funeral in 1639, Voetius had been worrying about Descartes’ growing influence at his university. Ironically enough, he had even tried, in 1640, to persuade Marin Mersenne to refute Descartes’ pernicious views, unaware of the close friendship that linked the two men. The alliance between Regius, whose heterodoxy had in Voetius’ eyes been demonstrated during the Naarden episode in the 1630s, and the philosophically deviant Descartes seemed dangerous, and the fact that Gorlaeus was invoked as an authority in this context made things even worse. The denial of the substantial unity of body and soul, which is not only what Gorlaeus’ thesis entailed, but also what Regius seemed to propagate in his disputation and what Descartes’ mind-body dualism implied, was unacceptable for a whole series of reasons, including that of the resurrection of bodies: for if the soul was a separate entity altogether, there was no need for the body, a mere heap of atoms, to be resurrected. For Voetius, in Verbeek’s words,
it was the unity of faith, and hence the moral unity of the Academy, indeed of the entire country, which was called into question: by denying, even indirectly, the dogma of the resurrection of bodies, Regius showed his overt sympathy with the Remonstrants – or worse!\textsuperscript{74}

Descartes protested that Regius was not the author of the disputed thesis about man being an \textit{ens per accidens}, arguing that it had been inserted by some imprudent student. Regius, however, at once admitted his authorship but initially tried to defend himself by saying that this doctrine was neither his own nor Descartes’ invention, but that he had taken it from Gorlaeus.\textsuperscript{75} As we have just seen, this made things only worse. An aggressive set of corollaries crowning student disputations defended by Voetius’ students on 18 and 24 December, and thus only a few days after Regius’ disputations, combated Gorlaeus together with Regius and Descartes. The first draft of the corollaries, which is reproduced in the \textit{Narratio} providing the history of the Utrecht Crisis, opens by giving the rich pedigree of the \textit{ens per accidens} theory that we have cited earlier:

The paradoxical claim [about man being an \textit{ens per accidens}] made […] by Taurellus (who was called an atheist physician by the Heidelberg theologians in their judgement on Vorstius’ \textit{De Deo}, which they sent to the delegates of the Synod of Holland in 1610), and which, due to the imprudence of youth, our compatriot David Gorlaeus took up in his \textit{Exercitationes philosophicae}, a book he wrote in a moment when, beginning his theological studies or rather preparing himself for them, he was attacked by doubts and hesitations, is contrary not just to physical truth (which we leave to the physicists to explain), but also to metaphysics, pneumatology and theology. We therefore wish to admonish our students that given one absurdity, many others follow, and what begins as a small error, eventually grows into a large one.\textsuperscript{76}

This first corollary thus elucidates the prehistory of Regius’ thesis and points to its heretical implications, which are considered threatening particularly to theology and metaphysics. As we have examined in great detail in our earlier chapters, it throws much light on Gorlaeus and the circumstances of the composition of his \textit{Exercitationes}.

The second corollary, which we need not analyze here, attacks Regius’ views regarding the daily and annual motion of the Earth. In the third corollary, Voetius returns to Gorlaeus’ atomism:

A philosophy that denies the substantial forms of things as well as their proper and specific faculties and active qualities, and therefore the specific and distinc-
tive natures of things (which in our days Taurellus, Gorlaeus and Basson have attempted to do), has evidently not been capable of being reconciled with the sacred physics of Moses. For this reason, we refer our students in the first place to Danaeus, Zanchi, to the authors of commentaries on Genesis, etc., as well as to the scholastic commentators of Petrus Lombardus and Thomas Aquinas.77

Importantly, this corollary ascribes the denial of substantial forms and their replacement by atoms or corpuscles not to Descartes, but to an earlier tradition that we have investigated above. By the same token, Regius’ own unwillingness to yield to Descartes’ pressure to give up his view of man as an ens per accidens even in the turbulences that followed, demonstrated his rootedness in a pre-Cartesian ontology and his fidelity to Gorlaeus, “his first source of inspiration.”78

To the ‘Remonstrant’ axis of Gorlaeus and Taurellus, Voetius added Sébastien Basson (c. 1573-after 1625), a Calvinist physician and university teacher, whose book was much read in the Netherlands and, in 1649, saw a second, Amsterdam edition. Isaac Beeckman was not alone in having appreciated a number of ideas that he encountered in Basson’s work (while rejecting others and lamenting the author’s lack of mathematical understanding), but Constantijn Huygens had personally recommended Basson’s atomist natural philosophy to Descartes, who in 1629 wrote to Marin Mersenne: “As far as rarefaction is concerned, I agree with this physician [Basson], and now side with him concerning the foundations of philosophy; but maybe I do not explain the ether like him.”79 Given that Gorlaeus had influenced Regius, and Basson had influenced both Descartes and Regius, they were, in Voetius’ eyes, all members of the same heterodox gang.80

In other words, then, in Vorstius’ eyes, the doctrines proposed by Regius and Descartes belonged to a current that had reached the Netherlands earlier. But does this observation not allow us to go beyond the ascertained influence of Basson on Descartes and of Gorlaeus on Regius, and to take the additional step of stipulating an influence of Gorlaeus on Descartes? Admittedly, Descartes himself protested, in his Letter to Dinet of 1642, that he had never heard of this author.81 Also, as we have seen, Gorlaeus’ atomism is not a direct ancestor to a mechanical conception of material interactions, as he attributes little importance to atomic shapes and motions and allows for travelling ‘real accidents’. Still, his rejection of substantial forms, his insistence on the agency of invisible corpuscles, his radical separation of mental entities from physical atoms, his understanding of substances and their modes and – even more importantly for Descartes – his attempt to derive his physics from an ontology, all render the assumption that Descartes would have found many of his ideas congenial quite attractive.82 Having inscribed himself at the same universities as Gorlaeus – Franeker first, then Leiden – and having lived with or frequented persons who possessed and used copies of the Exercitationes, it
would certainly not be far-fetched to imagine that Descartes had come across Gorlaeus’ name or even read his work. Moreover, as Hattab has argued, in Descartes’ eyes, “Gorlaeus’ thoroughgoing and metaphysically grounded atomism” may have “provided the conceptual resources for eliminating any vestiges of the Aristotelian hylemorphism” and at the same time allowed him to connect “the Gorlaean theory of modes to his [own] dualism” as the “metaphysical foundations” of his physics.\(^{83}\)

Might Voetius, then, have been right to see a shared ideology behind the thesis that triggered the Utrecht Crisis? And was it wrong of Regius to understand Descartes’ substantial dualism as resulting in the view that man was an accidental aggregate of body and soul? And what was Descartes’ own view on the matter? As Robert Pasnau points out:

To be sure, [Descartes] does not want to be read as defending Platonic dualism along Gorlaeus’ line. But is this because he does not believe it to be true, or because he does not dare say it, even if he thinks it?\(^{84}\)

Irrespective of the existence of such a direct influence, it is obvious that contemporaries perceived a link between Gorlaeus, Regius and Descartes. On 24 December 1641, both Gorlaeus and Basson were being refuted in a disputation conducted under Voetius, which defended the existence of substantial forms. Voetius there directly links their rejection of such forms to the idea, now also shared by Descartes and Regius, that animal bodies operate liked clockworks.\(^{85}\) In the same disputation, Taurellus and Gorlaeus are rejected for their notion that man is a composite being, with philosophical as well as theological arguments.\(^{86}\) In the same spirit, in his polemical anti-Cartesian tract of 1643, the \textit{Admiranda methodus}, Martin Schoock confirmed that Gorlaeus and Taurellus were authors with whom Dutch students and teachers were generally acquainted.\(^{87}\) This did not mean, however, that Schoock liked either of them. In fact, he derided Descartes’ seemingly arrogant attempt to replace Aristotle by comparing it with earlier attempts made by “Basson, incompetent falsifier of the views of ancient philosophers; Taurellus, whose maniacal debating lust has edged up to the limits of atheism, and Gorlaeus, his student who followed him with uneven steps.”\(^{88}\) The same association occurs when Schoock writes: “And let me not say anything of all those academies and schools in Europe which all, I am sure, will reject the philosophy of Descartes and prohibit it at the same time with the delirious thoughts of Taurellus, Gorlaeus and Basson.”\(^{89}\)

The evidence of the Utrecht Crisis allows us to conclude that in the eyes of Voetius and his associates, around 1610, a subterranean link had come into existence between Vorstius’ theology with its physicalist claims concerning God, on the one hand, and an atomistic ontology, on the other. Even in the years before the out-
break of the Utrecht Crisis, Voetius had held university disputations combating ‘atheism’; in these disputations, Arminians and Socinians in general, and Taurellus and Vorstius in particular, were regularly attacked. Voetius remained so aware, or suspicious, of this alliance that he could not help but conceive Descartes’ corpuscular explanations as an attempt to bring Arminian or Socinian ideas back into circulation. That the theologically heterodox Regius, friend of Descartes, relied in one of his disputations on Gorlaeus’ Taurellian thesis of man as an *ens per accidens* must obviously have confirmed Voetius’ fear.

4.3. **GORLAEUS FORGOTTEN AND REDISCOVERED:**

A CONCLUSION

In the period 1641-43, Gorlaeus’ name and some of his philosophical views were thus once more discussed and debated. Despite the fact that the author of the *Exercitationes* had died thirty years earlier, the Dutch academics involved in the controversy either knew or intuited how to place these views ideologically, and some, like Voetius, even remembered the author and his religious affiliation personally. As his academic disputations of the 1630s document, for Voetius, the Arminian question was still a burning issue, and seeing positions he associated with the Remonstrant movement being defended at his own university, Utrecht, was intolerable in his eyes. This is why Regius’ explanation that he had taken the thesis concerning man as an accidental being from Gorlaeus’ treatise was, as far as Voetius was concerned, not a mitigating, but instead an aggravating circumstance.

Merely ten years later, in 1651, Gorlaeus’ other treatise, the refreshingly short *Idea physicae*, was published in Utrecht. But alas, judging by the extant copies and the contemporary references to it, almost no one bought or read this book. Admittedly, its print run must have been quite small, but the silence with which Gorlaeus’ treatise was greeted also had intellectual reasons. Not only did the *Idea physicae* contain no essentially new ideas with respect to the *Exercitationes* but, more importantly, by 1651, Gorlaeus’ philosophy began to look somewhat obsolete. As for his atomism, there were newer and more exciting works around. Whoever wished to have metaphysical arguments for atomism could now turn to Pierre Gassendi, whose *Syntagma philosophiae Epicuri* had appeared in 1649. In the same year, Ludovicus (III) Elzevier republished Gassendi’s *Exercitationes paradoxicae* (1624), just as he had republished Sébastien Basson’s atomistic *Philosophia naturalis* (1621) the year before. Who instead preferred a metaphysical system leading to a corpuscular philosophy (which for all physical purposes was equivalent to atomism), could rely on René Descartes’ *Principia philosophiae* of 1644. Who, in turn, wished for a corpuscular theory of matter that dispensed with a metaphysical
pedigree, could buy the *Fundamenta physicae* (1646) of Descartes’ erstwhile friend Henricus Regius. Who desired to combine an allegedly revived Democritean system of atomism with a chemical theory, could use Jean-Chrysostôme Magnen’s *Democritus reviviscens*, which had first appeared in 1644 in a handsome quarto edition in Pavia, but was more cheaply reprinted at Leiden in 1648. Finally, Sennert’s *Hypomnemata* of 1636, which represented the culmination of this author’s conversion to an atomistic model of matter, was reprinted in 1650 both in Frankfurt and Lyon. In other words, the years 1644 to 1650 witnessed a veritable explosion of physical theories that relied on the shape and motion of microscopically small particles, whether these were defined as indivisible atoms or theoretically divisible corpuscles. Gorlaeus’ work had prepared the grounds for some of these systems – but having done this preparatory work, so it must have seemed to most mid-century readers, one could now dispense with him.

Moreover, Gorlaeus’ theory of matter, which started from a definition of *ens* that applied to God as much as to material particles and which featured mysterious ‘real accidents’ travelling from atom to atom, may have begun to look unconvincing in an age that had come to embrace the hope that geometrically defined, quantifiable and therefore visualizable particles would allow for a mathematization of nature and its laws and for a deduction of secondary, sensory qualities from the primary, geometrical properties of the ultimate corpuscles. In this sense, one could claim that it was the legacy of Isaac Beeckman, not of David Gorlaeus, that had come to triumph in the woodcuts that adorned the physics books of Descartes and a number of his followers.

Indeed, as Klaas van Berkel has repeatedly emphasized, Beeckman’s thinking has strongly visual overtones – a visuality (‘aanschouwelijkheid’) that would become even more strongly emphasized in the geometrical physics of Descartes, whom Beeckman had first met in November 1618. In fact, the profound differences that separate Gorlaeus’ from Beeckman’s atomism are both perplexing and startling, given the close parallels in the lives of the two Dutchmen. Beeckman (1588-1637) was merely three years older than Gorlaeus, and like him also descended from a Brabant family that had migrated to the Netherlands. In 1607, four years before Gorlaeus, he enrolled at Leiden’s faculty of theology, but ended up doing more mathematics than anything else and after a mental breakdown had to return home. In the fall of 1609, he moved once more to Leiden to continue his theological studies, but – possibly because of the intensely unpleasant atmosphere that reigned at the faculty at the culmination of the Vorstius crisis – he left Leiden again in the summer of 1610, not long before Gorlaeus arrived in town. Indeed, as Van Berkel writes,
it is curious to realize that while Isaac Beeckman left Leiden to return to Middelburg and [his brother] Jacob Beeckman travelled from Leiden to Franeker, the young David Gorlaeus moved from Franeker to Leiden, where he would write his *Exercitationes* and his *Idea*, both tracts in which atomistic doctrines are used […]. Beeckman later owned a copy of the *Exercitationes*.

There are in fact a few elements that the two young, theologically trained Dutch atomists share, for example their dislike of Aristotle’s natural philosophy and their use of a nominalist phraseology in their search for a limitation of principles. Like Gorlaeus, Beeckman reproaches scholastic philosophy for its unnecessary proliferation of forms, pleading instead for an economy of principles (“Male fit per plura quod bene fit per pauciora”). And like Gorlaeus, he inclines – at least during a certain period of his life – towards an atomistic model that allows for a dramatic reduction of material principles. But for the rest, there is very little the two thinkers have in common. Steeped in his experience as an artisan and later also as a physician, Beeckman is interested in explaining concrete phenomena; for his figured atoms, he draws his inspiration from Democritus and Lucretius, rather than from Protestant ontologists; and, above all, he attempts to combine his theory of matter with mathematics.

“There are very few physico-mathematicians,” Beeckman sighed after having encountered Descartes in 1619. ‘Physico-mathematics’ is in fact the key word for understanding Beeckman’s and Descartes’ shared project. It was only later that Descartes felt the need to have his physico-mathematical natural philosophy grow out of the metaphysical roots of a first philosophy. What Descartes may thus owe to Gorlaeus or to those Dutch friends who were acquainted with his *Exercitationes*, is the idea that one’s physical principles had to be deduced from a first philosophy, or ontology, and not induced from experience. But maybe Descartes’ debt is much bigger and more specific than this. For example, Helen Hattab has recently argued that Descartes embraced “Gorlaeus’ substance/mode ontology,” by explaining the entire natural world in terms of a single corporeal substance and its *modi*.

However that may be, the genesis and genealogy of Descartes’ ideas was of little interest to his followers. They were not curious about the evolution of their idol’s thought (about which Descartes himself was notoriously solipsistic), but, if anything, they took an interest in the vicissitudes of his life and the adversities he encountered. As Gorlaeus’ name had come up in one of the most intensely controversial moments in Descartes’ intellectual life, he was henceforth often reduced to this marginal part he had played in the early history of Cartesianism. It is only in this respect, for example, that we encounter him in Pierre Bayle’s *Dictionnaire*. In the passage that is dedicated to him, he is presented as an otherwise unknown philosopher whose views had however managed to trigger the Utrecht Crisis. Al-
though this was by itself sufficient for Bayle to feel some sympathy for this early opponent of the stubborn Voetius, he did not hide the fact that he had no patience for Gorlaeus’ philosophical language:

*Ens per se, Ens per accidens,* these are inexplicable expressions, veritable jargon of the Spanish logicians, which does not mean anything.\(^99\)

It is obvious that by the end of the seventeenth century, Gorlaeus’ intellectual world had in most quarters all but vanished, as had that of Voetius.\(^100\) Of course, Northern Europe’s *salon* avant-garde and the level of discourse that dominated the epistolary exchanges of the Republic of Letters must not be mistaken for a philosophical consensus. The philosophy that was taught and learned depended strongly on local traditions and circumstances. In chapter 1, we encountered the Franeker professor of philosophy Arnold Verhel who, in 1662, was still inveighing against “the zeal of the Ramists, the gainsaying of the Gorlaeans, the high-browed arrogance of the Cartesians, and the authority of certain teaching doctors.”\(^101\)

While in many places, it was above all Descartes, Hobbes and soon also Spinoza that one combated, this does not mean that there could not be institutions at which Ramus and Gorlaeus were still authors that were controversially debated.

Verhel’s anti-Gorlaeanism is, however, a bit of a surprise. After all, Gorlaeus’ terminology, which around 1610 or 1620 was cutting edge thanks to its original combination of a German ontological terminology with sixteenth-century Italian natural philosophical views, had for most readers lost its allure of novelty by the 1650s. The philosophical avant-garde, heavily influenced by Descartes, now tended to approach natural philosophy from an epistemological point of view. While Descartes had introduced his own ontology by way of the epistemological procedure first presented to the public in the *Meditations,* Gorlaeus had started with an ontology and had only subsequently added his nominalist epistemology. For Cartesians, at any rate, Gorlaeus’ ontological principles must have seemed unwarranted, and its vocabulary scholastic gibberish. As Gabriel Daniel, in his *Voyage du monde de Descartes* (1691) was to put it, such old and antagonistic currents of thought as Thomists, Scotists or Nominalists were now only debated at some backward teaching institutions. Modern thinkers, by contrast, had lost interest in these old distinctions:

We put them [the earlier philosophical currents] all in the same category, and in the same party, which we call ‘ancient philosophy’, to which we contrast ‘the philosophy of Descartes’, or ‘the new philosophy’. You [Descartes] have had the good fortune to erase, in a way, everything that appeared from the new philosophers at the same time as you.
Just as it had been customary in sixteenth-century Spain to call all heretics ‘Lutherans’, whatever their particular sect, so Daniel adds, one now called ‘Cartesians’ all those who tried to elaborate a new physics, including Gassendi (who in many respects could have been regarded as Descartes’ rival).  

These various circumstances help us explain why, until his rediscovery by Kurd Lasswitz, Gorlaeus fell into oblivion; if he was remembered at all, it was as the transmitter of Tauler’s obscure definition of man as an accidental being to the Cartesian disputes of the mid-seventeenth century, and thus as a bizarre figure who had featured during the birth pangs of Cartesianism. He thereby become a figure in what the historiography of early modern thought came to define as ‘a period of transition’ – a transition away from a medieval and Renaissance world dominated by scholastics, in which the sixteenth- and early-seventeenth-century novatores fulfilled the role of an avant-garde that paved the way for the new systems of a Descartes, Hobbes, Leibniz, Spinoza or Newton. Stephen Menn writes about these novatores:

[They] produced such new philosophies because there was a demand for a new philosophy, that is, a current expectation of what a philosophy should do, and a sentiment that the old philosophy was not doing it properly. Indeed, one may say that the chief philosophical legacy which the sixteenth century bequeathed to the seventeenth was not any particular new philosophy but this expectation of a new philosophy.

As we have seen in chapter 1, Gorlaeus was routinely attributed an honorable place in the gallery of these novatores, and sometimes even viewed as a precursor of Cartesianism. Morhof’s claim that Gorlaeus “had recognized before Descartes what Descartes later wanted to make appear as his own doctrines” is obviously wildly exaggerated. Reimmann’s alternative claim that “Cartesians afterwards accepted most of Gorlaeus’ theses into their system” is, for chronological reasons, equally implausible. On the basis of the evidence that we have presented in this book, I think it would be fair to combine Morhof’s and Reimmann’s assessments into the following, more modest claim: Gorlaeus’ derivation of physics from metaphysics, together with his distinction between indivisible material and spiritual entities, helped to prepare the ground in which Descartes’ system, as presented in the Principles of Philosophy, could take root and in which his mind-body dualism could develop. A direct influence of Gorlaeus’ philosophy on the development of Descartes’ thought is difficult to prove, although it is for the above-mentioned reasons quite plausible. By contrast, Gorlaeus’ influence on Descartes’ first Dutch friends can readily be documented. To this extent, then, we may speak of Gorlaeus as a precursor of Descartes’ “metaphysical physics” (to cite Dan Garber’s fortunate
expression) and possibly even of Descartes’ specific view on substances and modes (as Helen Hattab has argued).

In this sense, the findings of this book call out for some adjustments to our available histories of metaphysics, its relation to physics and the prehistory of Descartes’ philosophy. For they contradict the assumption that seventeenth-century Dutch attempts to include a definition of God in a reformed metaphysics are due to the *Disputationes metaphysicae* (1597) of the Spanish Jesuit Suárez. Taurellus’ *Philosophiae triumphus* not only preceded Suárez’ *Disputationes* by more than 20 years but, as Leinsle has shown in his masterful history of Protestant metaphysics, this philosopher “established on a nominalist basis a metaphysics that was both unique and independent” of Spanish metaphysics. Given that Taurellus’ impact on Gorlaeus’ own work preceded Suárez’ introduction into the Dutch syllabi, the currently available histories of seventeenth-century Dutch metaphysics will in this respect require some modification.

As for that other question relating to Gorlaeus’ role in the history of atomism, it is far more complex. He is, of course, one of the earliest neo-atomists and as such deserves the historical place that has been granted to him since his rediscovery by Kurd Lasswitz. However, given the complexity of the phenomenon of the early modern revival of atomism, it is not evident exactly how one must define his role.

This difficulty has to do with the problem of early modern atomism as a whole. Simply put, among the key elements that separate an Aristotelian or scholastic understanding of nature from that of modern science, our history books routinely single out theories of matter for their importance. As has been explained in chapter 2, the difference between the two views of nature may be sketched as follows. According to Aristotelian hylemorphism, natural substances are in the last analysis understood as composites of prime matter and substantial forms, where the latter inhere in the former only transitorily. Although the hylemorphic and the atomic understanding of matter would therefore appear to be diametrically opposed to one another, it would nevertheless be misleading to assume that there was a precise moment in the history of early modern science when a paradigmatic shift from the first model to the second occurred. Thomas Kuhn once described his personal experience of how, “one memorable” and “very hot” “summer day,” he managed to break into the logic of Aristotelian physics, interpreting this experience as the inverse of the gestalt switch taking place in the Scientific Revolution. While this personal experience is fully credible, it does not capture the spirit of the multiple and complex transformations that characterized the evolution of physics in the early modern period. There are some precise arguments for why this is not so.

The first argument against the assumption of such a radical rupture is that the atomic theory never entirely replaced hylemorphism, some version of which survived in chemistry and hence in natural philosophy until the end of the nineteenth
century. As late as 1875, for example, the chemist Thomas Sterry Hunt protested that mixture was no “juxtaposition, as conceived by the atomistic chemists,” but has to involve “interpenetration,” as the philosophers Aristotle, in antiquity, and Hegel, in the early nineteenth century, had rightly stressed.¹¹¹

The second argument has to do with the fact that in local contexts, beginning in fifteenth-century Italy, there existed some currents within Aristotelianism itself which took chemical mixtures to possess a corpuscular structure and which therefore combined atomic with hylemorphic notions.¹¹²

But not only did some local forms of atomistic or corpuscular thinking precede the seventeenth-century downfall of Aristotelianism by a long stretch; and not only did atomism remain a contested hypothesis until the end of the nineteenth century; the third argument to keep in mind is that early modern atomic and corpuscular ideas constituted a phenomenon of such heterogeneity that it would be quite implausible to consider it a single, unified paradigm. Giordano Bruno’s ensouled monads, René Descartes’ indefinitely divisible particles of res extensa, Pierre Gassendi’s indivisible atoms with their hooks and eyes, and the chemical atoms and corpuscles that were proposed in the period between Daniel Sennert and Robert Boyle have little in common with one another. The best proof of this fundamental heterogeneity is found in the way in which Voetius, when combating Regius’, Descartes’ and Gorlaeus’ replacement of substantial forms with atoms, invoked Sennert’s atomism as an acceptable alternative, according to which the atoms were the very carriers of the substantial forms!¹¹³

Although atoms are nowadays observed, analyzed, combined, and even split in laboratories and nuclear power plants, the concept ‘atom’ was not developed in what we would nowadays recognize as a ‘scientific’ context. In fact, the reality of atoms remained a bone of contention between groups of philosophers, chemists and physicists until the very moment that atoms were first proven to exist experimentally – a moment that roughly coincided with the experimental proof that the atom was not an atom at all, as it was not indivisible (a-tomos), but possessed a composite structure.

It may therefore be held that when the ancient Greek concept of ‘atom’ was revived in the Renaissance and the early modern period by chemists, physicians, natural philosophers and theologians (we may now add) who wished to explain with it certain natural phenomena or define the relation of God to the World, there existed as many valid empirical and logical arguments against the existence of indivisible chunks of matter as there existed arguments in its favor.¹¹⁴ From this, it necessarily follows that early modern proponents of atomism tended to have reasons that went beyond recognizably scientific ones to promote the existence of atoms. There were authors who, dissatisfied with the Aristotelian notion of purely potential prime matter or the unclear provenance of substantial forms, sought in
rivalling ancient schools of thought for an alternative. There were those others
who believed, more specifically, that Democritus, Hippocrates and Plato had de-
veloped a medico-philosophical theory of matter that was more ancient, venerable
and therefore superior to Aristotle’s. Some even believed that atomism went back
to Moses himself, and that Aristotle’s anti-atomism represented a corruption of an
original, divine philosophy. There were yet others who favored atomism because
they liked Democritus (whom they took to have been one of the fathers of chemis-
try), or Epicurus (whose ethics they preferred to Aristotle’s), or Lucretius (the style
of whose didactic poem, *De rerum natura*, they admired and imitated). There were
also those who had religious reasons for preferring atomism: like the members
of the medieval Islamic school of the Mutâzili in Basra, they felt that in a world
composed solely of God and atoms, all causality could be attributed exclusively to
God, and that this was more attractive than having to negotiate the complex re-
lationship of the primary (divine) causality with the secondary (natural) causality
that characterized the Christian-Aristotelian synthesis.

Where, then, must we place Gorlaeus in this intricate and fairly elusive story?
We recall from chapter 1 Kurd Lasswitz’ bafflement at reading the *Exercitationes*,
which in his eyes offered an unusual, indeed unique, type of justification for the
existence of atoms. Historiographical claims to the superiority of Democritus are
as absent from it as are experimental, chemical arguments or the kind of reasoning
from a divine geometry that one finds in Giordano Bruno’s Cusanian arguments
from the coincidence of opposites. What is indeed unique about Gorlaeus is his
universal atomism, which included God, angels, souls and material indivisibles as
its four types of indivisibles. Sure enough, Bruno’s atomism is also metaphysical,
and in light of the sojourn of Gorlaeus’ teacher De Veno in the same prison to
which Bruno was confined, it is tempting to search for Brunian echoes in Gor-
laeus’ works. However, there is nothing in the *Exercitationes* that resembles Bruno’s
archetypal understanding of the atom and God as two extremes mirroring each
other; nor are Gorlaeus’ atoms ensouled, dynamically unfolding entities. For some
years in the late 1580s, Taurellus and Bruno were both teaching at German univer-
sities, and both nurtured atomistic conceptions that possessed strong theological
conceptions. But Bruno’s immanent deity that grew, as it were, out of the ensouled
atom is a far cry from Taurellus’ transcendent God and his material atoms. Gor-
laeus is clearly the heir of the latter.115

It has been argued in this book that Gorlaeus wrote his *Exercitationes* under the
influence of Taurellus, as an attempt to establish an ontological basis from which
metaphysical and theological issues could be resolved in the hope that it would
benefit the Arminian conception of the relation and interaction between God and
his Creation. Still, we have seen that neither his *Exercitationes*, nor certainly his
*Idea physicae*, directly address theological matters, but at best allude to them. As
a new student of theology, Gorlaeus had to confine himself to metaphysics and natural philosophy or physics. However, by necessity, natural philosophy implicitly or explicitly relied on concepts taken from theology (as the science of God, Creator of all natural beings) and metaphysics, notably ontology (as the metaphysical doctrine of ‘being’ in general). And conversely – as the harsh reaction of Voetius demonstrates – changes in the principles of natural philosophy could not but have severe repercussions in theological doctrine. In a period that saw the confessionalization of physics – physics serving specific confessional concerns and theological doctrines driving physical doctrines in specific directions – the denial of substantial forms and the mechanization of causality with its abolition of teleological explanations could be, and was, in many quarters perceived as a “crisis of causality,” as Han van Ruler has documented in convincing detail.116

Given the extraordinary precocity and philosophical originality that Gorlaeus displayed at age 20, it is tempting to imagine him, later in life, producing a fully fledged physico-theological alternative to the model that was at the time being taught at the universities. As it stands, we possess an impressive testimony to an intellectually bold, independent and versatile young man, who died far too early; but yet managed to contribute, albeit posthumously, to the evolution of metaphysics and physics between 1620 and the mid-century, and to whom time was not given to work out a mature system that could compete with those that other members of his generation, such as Descartes, Gassendi or Hobbes, worked out in the 1640s, at an age that tends to be more suitable for the composition of systematic masterpieces.