https://doi.org/10.46938/tv.2020.472

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THE "PHYSICA MOSAICA" OF JOHANN HEINRICH ALSTED (1588–1638)

Abstract: *Some early modern scholars believed that Scripture provided more certain knowledge than all secular authorities – even Aristotle – or investigating nature as such. In this paper, I analyse one such attempt to establish the most reliable knowledge of nature: the so-called Mosaic physics proposed by the Reformed encyclopaedist Johann Heinrich Alsted. Although in his early works on Physica Mosaica Alsted declares that his primary aim is proving the harmony that exists between various traditions of natural philosophy, namely between the Mosaic and the Peripatetic approaches, and despite the fact that his biblical encyclopaedia of 1625 was intended to be based on a literal reading of the Bible, he never truly abandoned the Aristotelian framework of physics. What is more, in his mature encyclopaedia of 1630, he eventually openly preferred Aristotle to other natural-philosophical traditions. I argue, therefore, that Alsted's bold vision of Mosaic physics remained unfulfilled and should be assessed as an unsuccessful project of early modern natural philosophy.*

Keywords: *Johann Heinrich Alsted; Mosaic physics; natural philosophy; early modern science; Aristotelianism*

„Physica Mosaica" Johanna Heinricha Alsteda (1588–1638)

Abstrakt: *Někteří raně novověcí učenci byli přesvědčeni, že Písmo poskytuje jistější poznání nežli všechny světské autority – s Aristotelem včele – či zkoumání samotné přírody. Ve své studii se zabývám jednou z takových snah o získání toho nejspolehlivějšího vědění o přírodě: takzvanou mosaickou fyzikou, jak ji koncipoval reformovaný encyklopedista Johann Heinrich Alsted. Ačkoliv ve svých raných dílech, jež se Physica Mosaica týkají, Alsted za svůj nejvyšší cíl prohlašuje dokázání souladu mezi různými podobami přírodní filosofie, především mezi mosaickým a peripatetickým přístupem, a navzdory tomu, že jeho biblická encyklopedie z roku 1625 měla být založena na doslovném čtení Bible, Alsted ve skutečnosti nikdy neopustil aristotelská východiska přírodní filosofie. Co je ještě pozoruhodnější, Alstedova vrcholná encyklopedie z roku 1630 již přímo upřednostňuje aristotelismus před jinými přírodně-filosofickými přístupy. Tvrdím proto, že Alstedova smělá vize mosaické fyziky zůstala nenaplněna a měla by být hodnocena jako neúspěšný projekt raně novověké přírodní filosofie.*

Klíčová slova: *Johann Heinrich Alsted; mosaická fyzika; přírodní filosofie; novověká věda; aristotelismus*

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1. Introduction

In her pioneering study "Mosaic Physics and the Search for a Pious Natural Philosophy in the Late Renaissance," Ann Blair pointed out that the 16th and 17th centuries can be described as a time of persistent attempts to undermine Aristotelianism and replace it with alternative philosophies, namely Platonism and its Neo-Platonic varieties, Epicureanism, Stoicism, experimental natural philosophy (as in the case of Robert Boyle), or with the most pious philosophy that would be based on a literal reading of the Bible, i.e., Mosaic philosophy in the strict sense.[1] The authors who can be included in the last category, Blair specifies, were mostly Reformed philosophers seeking primarily to offer a new system of natural philosophy based on a philosophical commentary on the Bible or to draw new principles of physics immediately from the Holy Scripture.[2]

Although previous research had reached different conclusions, Sachiko Kusukawa and David S. Sytsma recently showed that it was indeed Jean Calvin (1509–1564) who guided the Reformed natural philosophers to a literal reading of Bible, i.e., to understanding Moses's narrative of the Creation as an accurate source of knowledge.[3] Sytsma, moreover, argues that Calvin by no means condemned physics, or natural philosophy: on the contrary, in his

This paper is published as an output of a research funded by the Faculty of Arts, University of Ostrava, project SGS03/FF/2019-2020 "Bílá místa dějin a současnosti filozofie: Osobnosti a témata na okraji kánonu." The author is grateful to the two anonymous reviewers for their comments, corrections, and suggestions.

[1] Ann Blair, "Mosaic Physics and the Search for a Pious Natural Philosophy in the Late Renaissance," *Isis* 91, no. 1 (2000): 32–37.

[2] Ibid., 48–50. Similarly, see Jaromír Červenka, *Die Naturphilosophie des Johann Amos Comenius* (Praha: ČSAV, 1970), 111–13. Both Blair and Červenka, however, argue that biblical literalists can be found also among Catholics, e.g., Benedictus Pereira. See Blair, "Mosaic Physics," 50–51; Červenka, *Die Naturphilosophie*, 109 (on pages 28–30, Červenka also discusses Melanchton's positive attitude to Mosaic physics). On the Patristic, scholastic, and Kabbalistic authors involved in this area of interest, see ibid., 105–10, and Bernd Roling, *Physica sacra: Wunder, Naturwissenschaft und historischer Schriftsinn zwischen Mittelalter und Früher Neuzeit* (Leiden: Brill, 2013).

[3] Sachiko Kusukawa, *The Transformation of Natural Philosophy: The Case of Philip Melanchthon* (Cambridge: Cambridge University Press, 1995), 205–6; David Sytsma, "Calvin, Daneau, and Physica Mosaica: Neglected Continuities at the Origins of an Early Modern Tradition," *Church History and Religious Culture* 95, no. 4 (2015): 457–76. Cf. also Červenka, *Die Naturphilosophie*, 110.

Institutio, he theologically justified the study of nature as a way to a proper understanding of the secrets of divine wisdom.[4]

This direct connection to Calvin can also be found in the work of Johann Heinrich Alsted (1588–1638), Reformed philosopher and theologian from Herborn, since he explicitly refers to Calvin's commentary on the Book of Genesis. Alsted agrees with Calvin that although Moses presented the physical topics in everyday language (*populariter*), he must be regarded as a reliable source of natural-philosophical knowledge.[5] The aim of this study

[4] Sytsma, "Calvin, Daneau, and Physica Mosaica," 463–64.

[5] Johann Heinrich Alsted, *Systema physicae harmonicae, quatuor libellis methodicè propositum, in quorum I. Physica Mosaica delineatur, II. Physica Hebraeorum, Rabbinica et Cabbalistica proponitur, III. Physica peripatetica, maximam parte incongesta e Julii Caesaris Scaligeri lib. 15 Exotericarum exercitationum pleniùs pertractatur, IV. Physica chemica perspicuè et breviter adumbratur* (Herbornae: [Christoph Corvinus], 1612), 13–14; Walter Michel, *Der Herborner Philosoph Johann Heinrich Alsted und die Tradition* (Frankfurt am Main: Universität Frankfurt am Main, 1969), 5; Sytsma, "Calvin, Daneau, and Physica Mosaica," 475. Most probably, Alsted refers to Jean Calvin, *Comm. Gen.* 1:16 and 2:10: "Here lies the difference; Moses wrote in a popular style things which without instruction, all ordinary persons, endued with common sense, are able to understand; but astronomers investigate with great labor whatever the sagacity of the human mind can comprehend. Nevertheless, this study is not to be reprobated, nor this science to be condemned, because some frantic persons are wont boldly to reject whatever is unknown to them. For astronomy is not only pleasant, but also very useful to be known: it cannot be denied that this art unfolds the admirable wisdom of God. Wherefore, as ingenious men are to be honored who have expended useful labor on this subject, so they who have leisure and capacity ought not to neglect this kind of exercise. Nor did Moses truly wish to withdraw us from this pursuit in omitting such things as are peculiar to the art; but because he was ordained a teacher as well of the unlearned and rude as of the learned, he could not otherwise fulfil his office than by descending to this grosser method of instruction"; "Moses does not speak acutely, nor in a philosophical manner, but popularly, so that every one least informed may understand him." The English translations are based on John Calvin, "Commentary on Genesis," in *Christian Classics Ethereal Library*, accessed January 15, 2019, http://www.ccel.org. For Protestant biblical literalism and the widely accepted principle of accommodation, i.e., "the position which held on the one hand that scripture did not contain anything which contradicted known scientific truths, but conceded on the other that the science which was to be found in scripture was 'accommodated' to the mental capacities of its initial audience," see Peter Harrison, *The Bible, Protestantism, and the Rise of Natural Science* (Cambridge: Cambridge University Press, 2001), 121–38 or Stephen D. Snobelen, "'In the Language of Men': The Hermeneutics of Accommodation in the Scientific Revolution," in *Nature and Scripture in the Abrahamic Religions: Up to 1700*, eds. Jitse M. van der Meer and Scott Mandelbrote (Leiden: Brill, 2008), 691–732. In Alsted's case, as we will see, accommodation does not by any means exclude the literal reading of Genesis 1 as an accurate narrative of cosmogony and natural history (as Sytsma already showed for Calvin and Lambert Daneau, cf. Sytsma, "Calvin, Daneau, and Physica Mosaica," 473–75). For a general introduction to Alsted's philosophical and theological work, see Gerhard Menk, *Die Hohe*

is thus to analyse the development of Alsted's philosophical views on nature and to contribute towards an understanding of early modern Mosaic physics, which as yet is an underexplored part of the history of science.[6] We will see that Alsted's bold project of the new, most reliable natural philosophy derived from Scripture turned out to be unviable, leading back to Aristotelianism, if not a complete cul-de-sac of this branch of early modern *philosophia naturalis*. I believe, however, that it is equally important to deal with successful and unsuccessful lines of development of the history of science (if one may use these simplifying and quite anachronistic labels). Only such an approach would enable us to see the emergence of modern science as a complex, labyrinthine, and painful process marked by many (now nearly forgotten) failures – in contrast to its idealized and simplified popular image.[7]

2. Alsted's Early Texts on Natural Philosophy: *Systema physicae harmonicae* (1612) and *Physica harmonica* (1616)

Alsted devoted already some of his earliest writings to natural philosophy. His very first text on this topic was published already in 1610; the *Compendium physicae* was, however, to a considerable extent based on excerpts from Julius Caesar Scaliger's *Exotericarum exercitationum libri XV de subtilitate*.[8] Therefore, for studying Alsted's authentic views on nature, the second, greatly expanded version of his treatise which was published in 1612 in Her-

Schule Herborn in ihrer Frühzeit (1584–1660). Ein Beitrag zum Hochschulwesen des deutschen Kalvinismus im Zeitalter der Gegenreformation (Wiesbaden: Selbstverlag der Historischen Kommission für Nassau, 1981); Michel, *Der Herborner Philosoph Johann Heinrich Alsted*; Howard Hotson, *Johann Heinrich Alsted, 1588–1638: Between Renaissance, Reformation and Universal Reform* (Oxford: Clarendon, 2000) where on pages 7–14 the author discusses the secondary sources related to Alsted and his thought.

[6] Cf., e.g., the most recent monograph focusing on the scientific revolution where only a few remarks – at best – can be found: David Wooton, *The Invention of Science: A New History of the Scientific Revolution* (London: Pinguin Books, 2016).

[7] Cf. David Wooton, *Bad Medicine: Doctors Doing Harm since Hippocrates* (Oxford: Oxford University Press, 2007), 14–15: "We know how to write histories of discovery and progress, but not how to write histories of stasis, of delay, of digression. We know how to write about the delight of discovery, but not about attachment to the old and resistance to the new."

[8] In fact, this text represents a disputation of Johann Bilenfeld from Bremen presided by Alsted. Cf. Johann Heinrich Alsted (praes.) – Johann Bilenfeld (resp.), *Compendium physicae; in quinque partes tributum; congestum maximam partem è Julii Caesaris Scaligeri Exotericarum exercitationum libri 15 de subtilitate; methodicè digestum* (Herbornae: [Christoph Corvinus], 1610), esp. 3–4 (besides Scaliger, other sources are listed as well, namely B. Keckermann).

born under the title *Systema physicae harmonicae* is of much greater value. The third, further amended and extended version was issued in 1616 in the same place and entitled *Physica harmonica*.[9]

Mosaic physics, or *Physica Mosaica*, which is absent in the first edition, constitutes one of the four parts of the second and third editions of the treatise; the other parts are dedicated to Rabbinic and Kabbalistic natural philosophy (*Physica Hebraeorum, Rabbinica et Cabbalistica*), the Aristotelian, or Peripatetic, tradition (*Physica Peripatetica*), and the alchemical conception of natural philosophy (*Physica Chemica*). Alsted repeatedly declares that the primary purpose of his works is to harmonize (put in *harmonia*; *conciliatio*) these four main traditions of natural philosophy which have existed since the early beginnings of this discipline.[10]

For the present purposes, the most important sections of both *Systema physicae harmonicae* and *Physica harmonica* are their very first parts, dealing with *physica*, or *physiologia*, or *philosophia naturalis Mosaica*, or *Christiana*, or *sacra*.[11] As Alsted argues, this conception of natural philosophy is directly derived from its author, or divine mediator, Moses; namely, from the first chapter of the Book of Genesis.[12] From Alsted's statements, it is evident that in his early writings he regarded Mosaic physics as the oldest and also the most reliable branch of natural philosophy ever: "This will be for us the Lydian stone, the Cynosure, and finally the key to natural science."[13]

Mosaic physics can, most generally, be divided into cosmogony (*cosmopoeiâ*) and natural history (*historia naturalis*).[14] In the cosmogonic passages, Alsted discusses the fundamental principles of all natural bodies (*principia rerum naturalium*): God, who is the external principle of creation (*principium creationis externum*) and the ultimate *causa efficiens* and *finis*; nature, which is the internal principle common to all bodies (the God-imprinted

[9] Johann Heinrich Alsted, *Physica harmonica, quatuor libellis methodice proponens, I. Physicam Mosaicam, II. Physicam Hebraeorum, III. Physicam Peripetaticam, IV. Physicam chemicam* (Herbornae: [Christoph Corvinus], 1616).
[10] Alsted, *Systema physicae harmonicae*, 8–9.
[11] Ibid., 8, 10.
[12] Ibid., 10, 12, 13.
[13] Ibid., 11, 179: "Haec nobis erit Lydius lapis, haec erit cynosura, haec denique clavis scientiae naturalis."
[14] Ibid., 12–13. As David S. Sytsma has shown, this general-particular distinction of natural philosophy can be traced back to the very first early modern Mosaic philosopher, Lambert Daneau and his work *Physica christiana, sive de rerum creatarum cognitione et usu disputatio e sacrae scripturae fontibus hausta* (Lyon: Pierre de Saint-André, 1576). See Sytsma, "Calvin, Daneau, and Physica Mosaica," 466, 475.

capability to propagate and germinate); and particular internal principles which are either constitutive (*materia prima* and *forma*) or transmutative (*privatio*).[15]

The further text explicitly connects primaeval matter, or *materia prima*, with the first verse of Genesis 1. In the beginning of creation, Alsted holds, matter constituted a basis of both the heavens and the earth (*materia coeli et terrae*); in fact, it was not uniform but of *duplex* nature, heavenly and earthly (*coelestis et terrestris*). Form, in correspondence with Genesis 1:2, was bestowed on matter by the Holy Spirit in order to give existence to simple bodies (*corpus simplex*), i.e., the elements.[16]

The universe is divided into the heavens (*coelum*) and the earthly region which consists either of the four elements (*elementa*; i.e., *ignis*, *aër*, *aqua*, *terra*), or of complex bodies based on the elements (i.e., the *elementata*).[17] The elements were created subsequently, first of all, during the first day of creation, fire as the vehicle of light; then air and water which were established during the second day (cf. Genesis 1:6–8).[18] The earth was, finally, created by separation from water during the third day of creation.[19] It should be noted that throughout the text, Alsted distinguishes between *aqua* and *terra informis* on the one hand, and *aqua* and *terra formata*. While the former corresponds to the duplex nature of primaeval matter (*materia terrestris* was a basis of both water and earth – i.e., of the two parts of the world created during the first day of creation; *materia coelestis* represented, on the other hand, the basis of light), the latter denotes the actual elements of water and earth created during the second and third day of creation. In the strict sense, therefore, in the beginning there were just three main constituents that gave rise to the elements themselves, namely *aqua*, *terra*, and *lux informis*.[20]

Concerning complex bodies, or *elementata*, Alsted lists minerals (although Moses himself omits to explicitly mention them, as Alsted points out), plants (cf. Genesis 1:11), and celestial lights (*luminaria coelestia*; cf. Genesis 1:14).[21] In the Mosaic part of *Systema physicae harmonicae* of 1612,

[15] Alsted, *Systema physicae harmonicae*, 14–17.
[16] Ibid., 14–24, 29–36.
[17] Ibid., 38, 40.
[18] Ibid., 32–34, 37–40.
[19] Ibid., 40–42.
[20] Ibid., 51; Alsted, *Physica harmonica*, 38–39.
[21] Alsted also discusses how the distinction between light and darkness was possible since the very first day of creation, although God created the celestial lights (and specifically the Sun) as late as the fourth day. He simply holds that God made one hemisphere of the Earth dark and

Alsted repeatedly maintains that the Sun, the Moon and all the stars consist of fire ("Elemental fire is in celestial lights"; "It is evident that elemental fire is both outside those lights and in them").[22] In some other passages of the same part of the treatise he, however, converges on an Aristotelian-like cosmology when he explicitly speaks about aether.[23] Yet from his discussion of the second day of creation, for instance, it seems that he describes aether and its properties in the same way as he describes the element of fire in other (and prevalent) paragraphs. In other words: Alsted enumerates four elements and simply replaces fire with aether. Moreover, postulating aether does not in any way match the preceding cosmogonic and cosmologic exposition of his conception of Mosaic physics. It is possible that Alsted was aware of this difficulty: for in his *Physica harmonica* of 1616 he simply leaves out the passages concerning the nature of celestial lights and only very briefly states that they have a beginning and matter (*initium et materiam*).[24]

Besides that, in the parts of both *Systema physicae harmonicae* and *Physica harmonica* dedicated to Peripatetic physics, Alsted emphasizes that the element of fire receives its heat (*caliditas*) from the Sun and the stars, although they themselves do not burn ("The Sun is not a subject of heat but a subordinate instrument of God's providence to deliver elemental heat to all things"), i.e., are not made up of fire. Most importantly, Alsted stresses that fire is found only in the sublunar sphere and that all the *meteora* including comets appear only below the Moon.[25] It seems, therefore, that with respect to Aristotelian physics Alsted was quite unwavering, while in relation to the Mosaic account of natural philosophy he was not entirely able to harmonize the narrative of Genesis with the common (Aristotelian-Ptolemaic) cosmological views. His rather inorganic libation to Aristotle could, therefore, be the main reason why in his early texts on Mosaic natural philosophy Alsted oscillated between fire and aether. (Note that in the Mosaic parts of his

the other light, for the main vehicle of light was the element of fire, created as soon as during the first day. See Alsted, *Systema physicae harmonicae*, 35–36.

[22] Alsted, *Systema physicae harmonicae*, 32, 43–45: "Ignis elementaris est in luminaribus coelestibus"; "Patet itaque, ignem elementarem esse extra luminaria ista, & in iis."

[23] Ibid., 40. Similarly, cf. the fourth part (i.e., *Physica Chemica*) of both the second and third edition: Alsted, *Systema physicae harmonicae*, 191; Alsted, *Physica harmonica*, 235 where Alsted speaks about *quinta essentia*.

[24] Alsted, *Physica harmonica*, 34.

[25] Alsted, *Systema physicae harmonicae*, 128–29; Alsted, *Physica harmonica*, 116–18, 142: "Sol non est subjectum caloris, sed instrumentum subordinatum providentiae Dei ad calorem elementarem omnibus rebus adferendum," or similarly "Calor non est in sideribus, sed in hisce nostris, et ab illis."

early treatises Alsted mentions aether always only in two places and does not explicitly make use of the distinction between the sublunary and the superlunary spheres.)

Regarding other complex bodies, in the following text Alsted deals with creatures endowed with souls that either lack reason (created during the fifth and the sixth days) or those that are gifted with it, i.e., humans. These passages focusing on natural history are also based on the first chapter of Genesis.[26]

The Aristotelian leitmotif of Alstedian Mosaic physics can also be observed in other aspects of his conception. Although he refers explicitly only to Patristic authorities (e.g., Basil of Ceasarea, Gregory of Nyssa, Augustine, John of Damascus)[27] or recent Mosaic philosophers (Lambert Daneau, Franciscus Junius, Johannes Piscator),[28] his Mosaic exposition is heavily indebted to Aristotle, first and foremost from the point of view of terminology. In an obviously Peripatetic manner, Alsted uses notions such as matter, form, and privation; the division of the four causes of any being; the distinction between two heavy and two light elements, etc.[29]

Still, it must be said that Alsted's endeavour to highlight the importance of the Mosaic narrative can also be documented in other parts of his early natural-philosophical treatises. In the section named *Physica Hebraeorum, Rabbinica et Cabbalistica* (especially in the last, Kabbalistic part), Alsted puts a strong emphasis on the first chapter of Genesis and its meaning for the proper interpretation of the Fifty Gates of Understanding (*portae intelligentiae*) that descend from the first and supreme, i.e., God, to the last created, i.e., man.[30]

The treatise on *Physica Peripatetica* is, besides the writings of Aristotle himself, based mainly on Julius Caesar Scaliger's *Exotericarum exercitationum libri XV de subtilitate*, Jacopo Zabarella's *In libros Aristotelis Physicorum commentarii*, Clemens Timpler's *Physicae seu Philosophiae naturalis systema methodicum*, and other predominantly Peripatetic sources (e.g., Albertus

[26] Alsted, *Systema physicae harmonicae*, 42–49.
[27] Among the early modern Mosaic philosophers, it was a common practice to rely also on Patristic hexaemeral literature. See Sytsma, "Calvin, Daneau, and Physica Mosaica," 467–71.
[28] Alsted, *Systema physicae harmonicae*, 10, 13, 30. For general information about contemporary Mosaic philosophers, see further footnotes.
[29] Alsted, *Physica harmonica*, 37.
[30] Alsted, *Systema physicae harmonicae*, 64–66; Alsted, *Physica harmonica*, 52–54.

Magnus, Benedict Pereira, Chrysostom Javelli, the Conimbricenses, etc.).[31] Nevertheless, Alsted's approach to Peripatetic physics also bears evidence to his sincere effort to prove the harmony between the various traditions of natural philosophy. The terminology used in this part is analogical to that used in characteristics of *Physica Mosaica*: God is understood as a universal principle of the universe (*principium universale*); nature as the common principle (*principium commune*); matter and form as internal constitutive principles (*principia constitutiva*), privation as a transmutative principle (*principium transmutativum*).[32] Similarly, in the Mosaic and the Peripatetic sections of *Systema physicae harmonicae* as well as of *Physica harmonica* the same conception of the universe can be identified, the basis of which lies in simple bodies (*corpus simplex*) – either the superior, simplest, perfect and immutable heaven (*coelum*) or the inferior, i.e., the four elements (fire, air, water, and earth).[33]

In the Peripatetic parts of his early writings, Alsted explicitly refers to the Mosaic account even in order to support the Aristotelian conception of nature. The Mosaic arguments are used, for instance, for proving the existence of internal time (*tempus internum*). Alsted rhetorically asks: If this kind of time did not exist, how would it be possible to speak about time during the first three days of Creation, i.e., before the celestial lights (namely the Sun) were established?[34] Moreover, Moses's narration gives a clue to the correct understanding of time and its beginning as such: "Let us say with Augustine: God created the world not in time but together with time."[35] The Bible is used as an indisputable source of natural-philosophical knowledge in general: Alsted argues that vine (*vitis*) existed before the flood; otherwise the proposition that God ceased to create new species cannot be true.[36]

[31] Alsted, *Systema physicae harmonicae*, 67, 72–73, 79. For the Aristotelian background of Zabarella's and Timpler's work, see Howard Hotson, *Commonplace Learning: Ramism and its German Ramifications 1543–1630* (Oxford: Oxford University Press, 2007), 227–30.

[32] Alsted, *Systema physicae harmonicae*, 72–74, 95.

[33] Ibid., 119–127.

[34] Ibid., 108. Cf. also ibid., p. 25. This Mosaic account can be found – as one of only a few cases – already in Alsted – Bilenfeld, *Compendium physicae*, 43–46.

[35] Alsted, *Systema physicae harmonicae*, 111: "Dicamus cum Augustino, Deum creasse mundum non in tempore, sed cum tempore." Alsted possibly refers to Augustine, *De civitate Dei*, XI, 6.

[36] Alsted, *Physica harmonica*, 180. Similarly, in *Physica* of 1630, Alsted holds that God did not create "herbas venenatas, animalia foeda et noxia" after the fall but already during the very first act of creation. Cf. Johann Heinrich Alsted, *Encyclopaedia Septem tomis distincta, I. Praecognita disciplinarum, libris quatuor. II. Philologia, libris sex. III. Philosophia theoretica,*

Similarly, questions related to primaeval matter (or *chaos*) can be solved by seeking information in the Bible. For instance, Alsted resolves, by a literal reading of Genesis, the question whether the primaeval matter was created *in loco*.[37] To sum up, the creation of the world, i.e., the *opera sex dierum* must be studied in order to properly understand God, the exclusive *causa efficiens* of the whole universe.[38]

From the point of view of the differences between *Systema physicae harmonicae* of 1612 and *Physica harmonica* of 1616, it is evident that the Peripatetic part was the only one to be substantially extended. Alsted added new paragraphs dealing with properties of mixed bodies and amended the treatises on particular categories of bodies, i.e., the specific levels of being – *vapores*, *fumi*, *meteora*, *lapides*, *metalla* (and other *fossilia*), *vegetabilia* (or *plantae*), *animalia*, and *homo*.[39] The second and fourth parts of the writings (i.e., *Physica Hebraeorum, Rabbinica et Cabbalistica* and *Physica Chemica*) were, on the other hand, only slightly changed between 1612 and 1616. This could testify to Alsted's rather secondary interest in these branches of natural philosophy.[40]

How has the exposition of Mosaic physics changed between 1612 and 1616? In *Physica harmonica*, Alsted stresses even more that the Mosaic narrative should be regarded as the Lydian stone against which all other philosophies of nature must be evaluated.[41] It is obvious that the text of *Physica harmonica* adheres even closer to a literal reading of the Bible – a significant part of the first chapter of the treatise on Mosaic physics is devoted to a verse

libris decem. IV. Philosophia practica, libris quatuor. V. Tres superiores facultates, libris tribus. VI. Artes mechanicae, libris tribus. VII. Farragines disciplinarum, libris quinque. Serie praeceptorum, regularum, et commentariorum perpetua. Insertis passim tabullis, compendiis, lemmatibus marginalibus, lexicis, controversis, figuris, florilegiis, locis communibus, et indicibus, ita quidem, ut hoc volumen, secundi cura limatum et auctum, possit esse instar Bibliotheca instructissima (Herbornae: [Georg Corvinus and Johann-Georg Muderspach], 1630), 785.

[37] Alsted, *Systema physicae harmonicae*, 81, 98. For similar reasoning, see the first and the fourth parts of the same treatise: ibid., 19, 187–88.

[38] Alsted, *Physica harmonica*, 172, 216.

[39] Alsted, *Systema physicae harmonicae*, 143–71; Alsted, *Physica harmonica*, 132–214.

[40] Moreover, Hotson argues that Alsted's interest in alchemy and its public defence disappears in the following years almost entirely. See Hotson, *Johann Heinrich Alsted*, 95–96. For possible sources of Alsted's conception of *Physica chemica*, see ibid., 92–94.

[41] Alsted, *Physica harmonica*, 5.

by verse recount of Genesis 1.[42] Throughout the text, Alsted stresses the facticity of *creatio ex nihilo* (analysing terms such as *in principio* or *creavit*).[43]

However, the Mosaic parts of *Physica harmonica* published in 1616 still bear evidence to Alsted's vacillation between Mosaic and Aristotelian natural philosophy. In this writing, again, he was not entirely able to abandon the Aristotelian philosophical framework and its terminology in order to present a coherent system of Mosaic natural philosophy. Although Alsted proposed a harmony of the four dominant traditions of natural philosophy, it is a serious question whether Mosaic physics, Rabbinic physics and Alchemical physics were treated as equal systems, or merely as teachings not repugnant to the prevailing Aristotelian discourse. In other words, while Alsted's exposition of Peripatetic physics would without any doubt stand without its Mosaic components (which were mostly related to cosmological and natural-historical marginalia, as we have seen), his entire Mosaic account rested strongly on Aristotle.[44]

3. The Biblical Encyclopaedia (1625)

Howard Hotson documented in detail the shift in Alsted's scholarly interest from philosophy to theology that took place around 1615, to be completed by his theological encyclopaedia *Methodus theologiae* (1623).[45] From the point of view of natural philosophy and of other 'profane' disciplines, it is, however, much more important to look into Alsted's biblical encyclopaedia which was published in 1625 in Frankfurt am Main under the title *Triumphus Bibliorum Sacrorum seu Encyclopaedia Biblica*.[46]

As Alsted declares, this encyclopaedia is primarily based on a literal reading of the texts of the Old Testament and the New Testament, as, in his opinion, the foundations of an entire philosophy can be found in the Bible.[47]

[42] Alsted, *Physica harmonica*, 8–12.
[43] Alsted, *Physica harmonica*, 18–19. Cf. also ibid., 272.
[44] For a similar evaluation, see Hotson, *Commonplace Learning*, 233–34.
[45] Johann Heinrich Alsted, *Methodus sancrosanctae theologiae octo libris tradita* (Hanau: Conrad Eifrid, 1623); Hotson, *Johann Heinrich Alsted*, 121–23. See further Howard Hotson and Maria Rosa Antognazza, *Alsted and Leibniz on God, the Magistrate, and the Millennium* (Wiesbaden: Harrassowitz Verlag, 1999), 19–32.
[46] Johann Heinrich Alsted, *Triumphus Bibliorum sacrorum seu Encyclopaedia Biblica exhibens Triumphum philosophiae, iurisprudentiae, et medicinae sacrae, itemque, sacrosanctae theologiae, quatenus illarum fundamenta ex Scriptura V. et N. T. colliguntur* (Francofurti: Bartholomaeus Schmidt, 1625).
[47] Alsted, *Triumphus*, 2–5.

Besides the Biblical references, Alsted frequently relies on his Mosaic predecessors and contemporaries, namely Konrad Heresbach (1496–1576), Levinus Lemnius (1505–1568), Francisco Vallés (1524–1592), Lambert Daneau (1530–1595), Otto Casman (1562–1607), Johannes Althusius (1563–1638), Conrad Aslacus (Kort Aslakssøn, or Axelson; 1564–1624), etc.[48] It must be noted, however, that Alsted also frequently employs Patristic authorities (e.g., Origen, Tertullian, Clemens of Alexandria, Gregory of Nazianzus, Basil of Caesarea, John Chrysostom, Ambrose, Augustine)[49] and – what is more important – does not entirely omit profane and "gentile" authorities (first of all, again, Aristotle).[50]

Furthermore, Alsted's biblical encyclopaedia is not "biblical" in a strict sense with respect to the sources of knowledge its author recommends. In fact, he recognizes two lights, metaphorically speaking: the light of grace (*lumen gratiae*) and the light of nature (*lumen naturae*), i.e., the Bible as the revealed truth and the created world, or the book of nature, (*liber naturae*) to be investigated by the senses, observation, experience, and induction.[51] For this reason, I disagree with Howard Hotson's characteristic of *Triumphus* as a work founded "exclusively on the text of Holy Scripture," i.e., a proof of the "collapse of Alsted's youthful eclecticism"; we can clearly see that Alsted

[48] Ibid., *Praefatio*. Most probably, Alsted was influenced by the following works: Konrad Heresbach, *Christianae iurisprudentiae epitome* (Neostadii in Palatinatu: Harnisch, 1586); Levinus Lemnius, *Similitudinum ac parabolarum quae in Bibliis ex herbis atque arboribus desumuntur dilucida explicatio* (Antverpiae: [s.n.], 1568); Francisco Vallés, *De iis, quae scripta sunt physice in libris sacris, sive de sacra philosophia* (Lugduni: Franciscus Le Fevre, 1588); Lambert Daneau, *Physica christiana* (Lyon: Pierre de Saint-André, 1576); Otto Casmann, *Cosmopoeia et Ouranographia christiana* (Francofurti: Palthenius, 1598); id., *Biographia et commentatio methodica, prior de hominis vita naturali, morali et oeconomica; indeque deducta ethica et oeconomica theosophica* (Francofurti: Palthenius, 1602); Johannes Althusius, *Civilis conversationis libri II* (Hanoviae: Antonius, 1601); Conrad Aslacus, *Physica et ethica mosaica* (Hanoviae: Typis Wechelianis, apud haeredes Ioannis Aubrii, 1613). See further Blair, "Mosaic Physics," 42–47 and Sytsma, "Calvin, Daneau, and Physica Mosaica," 457–76. For further information about early modern philosophers dealing, at least partially, with the Mosaic topic, see Červenka, *Die Naturphilosophie*, 116–25; Harrison, *The Bible, Protestantism, and the Rise of Natural Science*, 138–47; Peter Harrison, *The Fall of Man and the Foundations of Science* (Cambridge: Cambridge University Press, 2007), 107–38.

[49] Alsted, *Triumphus*, 14, 15, 17, 22–23, 89.

[50] Ibid. 92, 95, 102.

[51] Ibid., 3–5. As Alsted claims, these two ways were approved by the Apostle in *Romans* 1:16, 15:4.

did not cease to base his expositions on various and often contradictory sources.[52]

Concerning the structure and content, the division of Alsted's biblical encyclopaedia resembles in many ways the layout of his much more well-known masterpiece, *Encyclopaedia septem tomis distincta* published 1630 in Herborn and reprinted 1649 in Lyon.[53] The *Triumphus* consists of sections devoted to the preliminary *Praecognita* (i.e., *Archeologia sacra*, *Hexiologia sacra*, *Technologia sacra*, *Didactica sacra*); *Scientiae* (*Metaphysica sacra*, *Pneumatica sacra*, *Physica sacra*, *Arithmetica sacra*, *Geometria sacra*, *Cosmographia sacra*, *Uranoscopia sacra*, *Geographia sacra*, *Optica sacra*, *Musica sacra*, *Architectonica sacra*); *Disciplinae practicae* (*Ethica sacra*, *Oeconomica sacra*, *Politica sacra*, *Scholastica sacra*); *Disciplinae philologicae* (*Lexica sacra*, *Grammatica sacra*, *Rhetorica sacra*, *Logica sacra*, *Oratoria sacra*, *Poëtica sacra*, *Mnemonica sacra*); and the three superior disciplines, i.e., *Jurisprudentia sacra*, *Medicina sacra* and *Theologia sacra*. To the main body of the biblical encyclopaedia Alsted also adds a considerable amount of material related to other mixed disciplines.[54]

In order to investigate the natural-philosophical passages of *Triumphus* closely, we shall begin with the chapters devoted to *Physica sacra*. This discipline comprises the knowledge of natural bodies (*corpus naturale*) that is derived primarily from Holy Scripture, especially from Genesis 1. In the text of *Physica sacra* Alsted verse by verse renders and interprets the narrative of the six days of creation (e.g., argues that the Latin verb *creavit* means "ex nihilo fecit," etc.); moreover, he adds a literal recount of Genesis 2.[55]

In contrast to his earlier texts focused on natural philosophy, in *Triumphus* Alsted divides *Physica sacra* into ten individual parts: *physica generalis* (dealing with the principles of the world: first of all with the twofold primaeval matter, i.e., heavenly and earthly)*; physica specialis* (dealing with light and the stars); *botanica* (where Alsted only provides a list of plants based on references in Holy Scripture); *oryctologia* (a list and description of minerals and metals); *meteorologia*; *ichthyologia*; *ornithologia*; *theriologia*;

[52] Cf. Hotson, *Johann Heinrich Alsted*, 122. On pages 138–39, Hotson is, however, more specific when he states with reference to Alsted: "What he hopes to demonstrate is not that all the principles of the arts and sciences are found in scripture but that some principles of each art and science can be found in scripture."
[53] Similarly, see Hotson, *Johann Heinrich Alsted*, 137, 141–42; Hotson, *Commonplace Learning*, 196–97.
[54] Alsted, *Triumphus*, 11–15.
[55] Ibid., 61–67.

anthropologia; and *cosmologia* consisting mainly of a treatise on the four causes of the world, namely *efficiens* (God), *finis* (first of all God's glory), *materia* (primaeval matter), and *forma* (disposition of individual parts of the world).[56]

In general, Alsted's commentary on Mosaic (or biblical) physics in *Triumphus* oscillates between a biblical literalism on the one hand and a persisting inclination to Aristotelianism on the other – as in the author's early writings *Systema physicae harmonicae* and *Physica harmonica*. To give an example, in *Physica sacra*, Alsted claims that the Sun, the Moon, and the stars consist of light while, at the same time, praising Aristotle for estimating that the heavens are comprised of the fifth element.[57] And even more striking Aristotelian motifs can be found: e.g., the description of *vita vegetativa* in plants, *vita sensitiva* in animals and *vita intellectiva* in humans (which is divided into active and passive intellect and will).[58] Last but not least, in the 59th section of *Triumphus* focused on *Praedicamenta sacra*, Alsted argues that the ten Aristotelian categories can be derived from the text of Holy Scripture.[59]

Although Alsted declared his intention to rely primarily (if not solely) on the Bible, it is evident that in his Biblical encyclopaedia he includes not only other divine sources (e.g., the Fathers) but also profane authorities led by Aristotle himself. The sacred, or Mosaic, physics introduced in *Triumphus Bibliorum Sacrorum* can thus be regarded as another of Alsted's peculiar mixtures of a biblical account with an observable Aristotelian framework.

Let us state further that Alsted's laboured attempt to establish any discipline indeed on a literal reading of the Bible can be, by way of illustration, also demonstrated on his conception of *Medicina sacra*. This knowledge, Alsted claims, can be summed up primarily from the ninth chapter of the Gospel according to Matthew where Jesus forgives and heals a paralysed man. Besides God's will and mercy, the means to achieve good health is either proper nourishment, movement, and rest (*dieta*) or therapy (*remedium praeservativum*). The latter consists in discerning the disease (its moral or natural causes) and in choosing an adequate remedy. Its application must be pious: that means, it must not rely on profane medicine (as a negative

[56] Ibid., 67–104.
[57] Ibid., 69–70, 75–76. This oscillation may correspond with Alsted's current distinction of *coelum supremum*, *coelum medianum* (where the stars are located) and *coelum infimum* (the sphere of air). Cf. ibid., 71–72, 76.
[58] Ibid., 103–4.
[59] Ibid., 592–97.

instance, Alsted mentions Asa in 2 Chronicles 16:12–13) or on the Devil and his power, but exclusively on God and his prescriptions incorporated into the Bible. E.g., surgeons may be inspired by the story of the Samaritan narrated in the tenth chapter of the Gospel according to Luke, who bandaged wounds and poured oil and wine on them.[60]

4. The Mature Encyclopaedia (1630)

An exposition of physics also plays a significant role in Alsted's mature encyclopaedic project, *Encyclopaedia septem tomis distincta* published in 1630 in Herborn. The *Physica* is introduced in its third volume dealing with theoretical philosophy (i.e., *Metaphysica*, *Pneumatica*, *Physica*, *Arithmetica*, *Geometria*, *Cosmographia*, *Uranometria*, *Geographia*, *Optica* and *Musica*). Although Alsted speaks even here about the fourfold harmony between the Mosaic, Peripatetic, Alchemical and Poëtic (sic!) natural philosophy,[61] Aristotle becomes more than ever the principal authority for his reasoning, while the Mosaic aspects are significantly marginalised.

In the *Encyclopaedia*, *Physica* is understood as knowledge of natural bodies (*corpus naturale*), or substances (*substantia*) consisting of matter and form.[62] Although in the further description Alsted occasionally refers to Moses (e.g., claims that primaeval matter after its creation consisted of an inseparable connection of the heavenly and earthly parts; with respect to privation he mentions the Mosaic narrative and its parts related to *Tohu Vabohu* or *abyssus*),[63] all the substantial aspects of natural philosophy in the *Encyclopaedia* are understood in a Peripatetic way: Alsted operates with the four causes, the distinction between substance and accident, the division of the universe into sublunary and superlunary sphere, etc.[64]

In Alsted's view, the whole of nature is based on natural bodies (*corpus naturale*), which are either simple, i.e., the celestial sphere or the four elements (earth, water, air, and fire), or complex. Regarding the substance of

[60] Ibid., 281–86.
[61] The *Physica poëtica harmonica* was, in fact, already a part of Alsted's *Physica harmonica* of 1616. See Alsted, *Physica harmonica*, 271–81. Already in this earlier attempt Alsted focused on demonstrating the harmony between (mostly ancient) authors and natural philosophers with respect to their understanding of nature.
[62] Alsted, *Encyclopaedia septem tomis distincta*, 668–69.
[63] Ibid., 672–78. For *Tohu Vabohu* and *abyssus*, see Genesis 1:2.
[64] Ibid., 669–89. Some *alien* aspects, such as the Paracelsian triad of hypostatic principles, i.e., *sal*, *sulphur*, *mercurium*, can still be identified, too. Cf. ibid., 674–75.

the heavens, Alsted now departs from both his earlier Mosaic interpretation and from the standard Aristotelian cosmology when he identifies the matter of the heavens with substantial light (*lux substantialis*), or the quintessence (*quinta essentia*) created during the first day of creation. All the stars, including the Sun and the Moon, therefore, consist of light.[65]

From the point of view of the four sublunary elements, Alsted's exposition adheres firmly to Aristotelian physics (two heavy and two light elements; the theories of natural motion and natural place).[66] The very same can be stated about complex bodies: Alsted names the vegetative, sensitive and rational souls located in plants, animals and humans (or *animal rationale*) respectively.[67] In these passages, Alsted draws intensively on the works of Zabarella, Timpler, and first and foremost J. C. Scaliger.[68]

Although the Aristotelian pattern indisputably dominates in the first seven sections of Alsted's mature treatise on physics (i.e., *Physica generalis*; *De corpore simplici*; *Mictologia & Meteorologia*; *Nerterologia*; *Empsychologia & Phytologia*; *Zoologia, Therologia & Anthropologia*; *Physiognomia*), his – to some extent still persisting – fascination with the Mosaic account is revealed in the eight section, dedicated to cosmogony and cosmology. In *Cosmologia*, a brief and concise treatise, Alsted bases his description of the Creation on a literal reading of the Book of Genesis, the Gospel according to John, the Acts of the Apostles, and other biblical texts: God is understood as the efficient cause of the world, its architect who created heavens and earth *ex nihilo* (in the form of primaeval matter) and subsequently, during the six days of creation, the entire universe.[69]

Nevertheless, Alsted acknowledges Aristotelian natural philosophy even in this section, for instance when trying to harmonize the Christian doctrine of the temporariness of the world with Aristotle's statements from his *Physics*, *Metaphysics*, *On Generation and Corruption*, and *On the*

[65] Ibid., 689–91.
[66] Ibid., 691–99.
[67] Ibid., 730–63.
[68] Ibid. Compare also Alsted's early work *Systema physicae harmonicae* of 1612 (esp. pages 67–175) with Julius Caesar Scaliger, *Exotericarum exercitationum libri XV de subtilitate* (first edition Paris, 1557; I analysed the edition Francofurti: Impensis Claudii Marni & Consortum, 1612). For Alsted's sources in his late encyclopaedia(s) in general, see Hotson, *Commonplace Learning*, 202–24.
[69] Alsted, *Encyclopaedia septem tomis distincta*, 780–81. Note that Alsted's name appeared on a treatise named *Cosmologia* already in 1611. In this case, however, it was a disputation of Samuel Gessinius presided by Alsted. Cf. Johann Heinrich Alsted (praes.) – Samuel Gessinius (resp.), *Cosmologia* (Herbornae: [Christoph Corvinus], 1611).

Heavens.[70] On the other hand, he strictly defends the facticity of the six-day creation (or, of Moses's testimony) against such authorities as Augustine, Philo and Jean Bodin.[71] Holy Scripture, Alsted emphasizes, also serves as a proof that the world is just one; to sum up: "Scripture accurately describes the creation of the world."[72]

Finally, Alsted also incorporated a treatise dealing with *Physica Mosis, Jobi, et Davidis*, or *physica sacra* into his *Encyclopaedia*. In this concise text (only two folio columns, in fact) he briefly summarises the six days of creation based on an interpretation of Genesis 1 and natural-philosophical passages of the Book of Job and the Psalms (esp. 104). Nonetheless, Alsted states that "the key and the foundation of physics is the Hexameron, i.e., the first chapter of Genesis."[73]

In general, however, Alsted's conception of natural philosophy presented in the whole of his mature *Encyclopedia* shows that Aristotle and his successors had become the leading authority in this field for him.[74]

[70] Alsted, *Encyclopaedia septem tomis distincta*, 781. From the cosmological point of view, also in this section of physics light is understood as the quintessence; in other words, Alsted still oscillates between the Mosaic narrative and an orthodox Aristotelianism. Cf. ibid., 782.

[71] As a matter of interest, Alsted argues against Gerardus Mercator that the world was not created in July, but in March because this part of the year is the most beautiful and most suitable for yielding both animals and plants. Furthermore, in the *Chronologia* section of his *Encyclopaedia*, Alsted specifies that the world was created on the spring equinox, i.e., on 25th of March 3947 BCE. Cf. Alsted, *Encyclopaedia septem tomis distincta*, 782, 2108. For the canonical treatise related to the discussion of the exact date of the creation of the world, see James Ussher, *Annales Veteris Testamenti, a prima mundi origine deducti, una cum rerum Asiaticarum et Aegyptiacarum chronico, a temporis historici principio usque ad Maccabaicorum initia producto* (Londoni: Ex officina J. Flesher & prostant in ædibus G. Bedell, prope januam Medii Templi in platea dicta Fleetstreet, 1650), 1, who argues for 23rd October 4004 BCE.

[72] Alsted, *Encyclopaedia septem tomis distincta*, 784: "Scriptura accuratè describit creationem mundi."

[73] Ibid., 2350: "Clavis et fundamentum physicae est hexaëmeron, seu primum caput Genesis." Moreover, the subsequent chapter of *Encyclopaedia* is devoted to *Theosophia et philosophia Salomonis* where Alsted gives a list of philosophical and theological commonplaces which can be derived from Solomonic biblical texts (*Ecclesiastes*, *Proverbs*, *The Book of Wisdom*). See ibid., 2351–55.

[74] From the point of view of the earlier version of Alsted's mature encyclopaedia, the *Cursus philosophici encyclopaedia* of 1620, Jaromír Červenka and Howard Hotson have already shown that its conception of natural philosophy is mainly Aristotelian and that (quoting Hotson) a "closer examination reveals that Alsted has redistributed material from the Mosaic, Kabbalistic, and especially the alchemical physics to augment this Aristotelian core wherever possible." See Hotson, *Commonplace Learning*, 234–35; Červenka, *Die Naturphilosophie*, 38–39. For a general comparison of the 1620 and 1630 editions, see Hotson, *Commonplace Learning*, 196–99, 246–73. For other aspects of Alsted's natural philosophy in *Encyclopaedia*

5. Conclusion

In her above-mentioned paper, Ann Blair stated that albeit Mosaic philosophers shared a joint endeavour to establish a brand new natural philosophy which would be freed from a "slavish adherence to Aristotle, Plato, and every other philosopher," they "did not always practice what they preached and in the end also relied on Aristotelian categories."[75] Concerning the natural philosophy of Johann Heinrich Alsted, I argue that his indebtedness to Aristotelianism was even more essential. Although in his early works on this topic Alsted declares as his primary aim proving the harmony and equality between various traditions of natural philosophy, namely between the Mosaic and the Peripatetic approaches, and despite the fact that his biblical encyclopaedia of 1625 was intended to be built on the basis of a literal reading of the Bible, Alsted never truly abandoned the Aristotelian framework of his physics. What is more, in his mature *Encyclopaedia* of 1630, he eventually (to a remarkable extent) openly preferred Aristotle to other natural-philosophical traditions, including Mosaic physics which became evidently marginalised.[76] As Howard Hotson has shown, in the mature edition of the *Encyclopaedia* of 1630, the disciplines inconsistent with its philosophical core were relocated to the last, seventh volume dealing with mixtures of disciplines (*farragines disciplinarum*), or "a bizarre mêlée of miscellaneous and even contradictory material." In other words, Alsted eventually abandons, at least publicly, his early fascination with esoteric teachings (the art of memory, alchemy), and Mosaic physics, too, and resorts to the prevailing Aristotelian discourse.[77]

(namely the conception of space), see Cees Leijenhorst, "Place, Space and Matter in Calvinist Physics," *The Monist* 84, no. 4 (2001): 532–34.

[75] Blair, "Mosaic Physics," 35, 47. Similarly, see Donald Sinnema, "Aristotle and Early Reformed Orthodoxy: Moments of Accommodation and Antithesis," in *Christianity and the Classics: The Acceptance of a Heritage*, ed. Wendy Helleman (New York: University Press of America, 1990), 119–48.

[76] For a similar but rather laconic conclusion, see Michel, *Der Herborner Philosoph Johann Heinrich Alsted*, 6: "In Wirklichkeit wird nicht die Lehre der Bibel dargelegt, sondern Aristoteles in die Bibel hineingedeutet." Besides that, Michel proves that Aristotelianism played a crucial role also in Alsted's conception of metaphysics. Cf. ibid., 118–27.

[77] Hotson, *Johann Heinrich Alsted*, 37–39, 90–94, 152–53; Hotson, *Commonplace Learning*, 254–73 (for natural philosophy, see esp. 264–65). For general characteristics of Alsted's lifelong eclecticism with syncretic tendencies, see Hotson, *Commonplace Learning*, 237–39: "Alsted's writings, viewed philosophically, tend to be either uninteresting (because derived from a narrow range of authors) or incoherent (because derived from many incompatible

Let us mention that already the early modern writer Daniel Georg Morhof states in his work *Polyhistor* (first edition Lübeck, 1688) that neither Alsted nor any of his Mosaic contemporaries followed any specific rules, and that they either only commented on the first chapter of Genesis or reduced the Peripatetic and common natural philosophy to supposed Mosaic principles (*ad Mosaica illa reducunt*).[78]

Moreover, Alsted's unsuccessful attempt to establish physics primarily on the Mosaic basis can be seen as a confirmation of Johann Franz Buddeus's evaluation of Mosaic physics in general: "Many of those who tried to follow the rules of Christian philosophy did nothing else than confirm and support the scholastic doctrine which they extracted through and through from the Holy Scripture."[79]

Although Alsted's concept of *physica Mosaica* was indisputably unsuccessful rather than a viable and promising project of early modern natural philosophy, we should modify the evaluation of Alsted's (natural) philosophy expressed by the former generation of scholars as a "bigoted" or "decisive" Aristotelianism as too narrow and overlooking the non-Aristotelian components (and desires) of his philosophy.[80] Finally, as Peter Harrison argues, the inclination to Mosaic natural philosophy in its various forms testifies that modern science emerged during the early modern era also in dialogue with religion – that "consonance with scripture became an important means of supporting new philosophical speculations."[81]

ones). In the latter case one can admire the richness of the mixture, but one cannot expound it as a philosophical system."

[78] Daniel Georg Morhof, *Polyhistor, literarius, philosophicus et practicus*. Tomus secundus. Ed. quarta (Lubecae: Sumtibus Petri Boeckmanni, 1747), 160. For the background of Morhof's *Polyhistor*, see Wilhelm Schmidt-Biggemann, *Topica Universalis. Eine Modelgeschichte humanistischer und barocker Wissenschaft* (Hamburg: Felix Meiner Verlag, 1983), 265–72.

[79] "Plerique enim eorum, qui Christianam philosophandi rationem sequi videri voluerunt, nihil tamen fecerunt aliud, quam ut doctrinam scholasticam, quam a teneris hauserunt unguiculis, ex Scriptura Sacra confirmarent et stabilirent." See Johann Franz Buddeus, *Introductio ad historiam philosophiae [H]ebraeorum cum disseratione de haeresi Valentiniana* (Halae Saxonum: Typis & impensis Orphanotrophii Glaucha-Halensis, 1702), 258. For a critical discussion of Mosaic physics in the 18th century, see Johann Jakob Brucker, *Historia critica philosophiae*, Tomus IV, I (Lipsiae: Breitkopf, 1743), 610–43; Markku Leinonen, "De Physica Mosaica Comeniana: The Academic Thesis of Anders Lundbom," *Acta Comeniana* 39–40, no. 15–16 (2002): 107–25.

[80] Cf. Červenka, *Die Naturphilosophie*, 113–14; Pavel Floss, *Jan Amos Komenský: Od divadla věcí k dramatu člověka* (Ostrava: Profil, 1970), 42.

[81] Harrison, *Fall of Man*, 112. On this theme from the point of view of the emergence of modern science in general, see most recently Rob Iliffe, *Priest of Nature: The Religious Worlds of Isaac*

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