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Mennonites, science and progress in the Dutch Enlightenment **

(1) Progress, science and society

In his venerable thesis Robert Merton argued that the great progress of experimental science in seventeenth-century England was a consequence of the disproportionately large number of Protestant dissenters in the Royal Society. The values of ascetic Protestantism, the urge to self-denial, and a theology that saw the possibility of building a bridge between human, temporal action and the transcendent world were the engine pushing science forward. More specifically, commercial expansion and international navigation served as a spur to the development of astronomy and time keeping. The most general claim of Merton's thesis is that the persistent development, or progress, of science occurs only in societies of a certain order, a thesis that has a close affinity with the Mertonian claim that science has a particular "ethos."¹ The Merton thesis, which continues to be a starting point even for the most recent work on science and dissenters in England, has been so much discussed and debated² (and misunderstood), that it is easy to see why English speakers might assume that he was a lone figure in interwar sociology and historical sociology of science. This was far from so. In important ways his work extends on Max Weber's analysis of Protestantism and the rise of capitalism, and there were a whole series of thinkers who considered the social origins of modern science, including Franz Borkenau, Henryk Grossmann, Boris Hessen, Ernst Troeltsch, R. H. Tawney, and most notably Edgar Zilsel, who argued:

Science was born when, with the progress of technology, the experimental method eventually overcame the prejudice against manual labour and was adopted by rationally trained scholars.³

The fact that Zilsel, Hessen and others took a Marxist approach to the problem helps to explain why the liberal Merton stood out in the English-speaking world during the cold war, when the history and philosophy of science was strongly committed to approaches that, for lack of a better term, can be called internalist. In many respects this larger body of European work only enhances the importance of the sorts of questions Merton was asking about the relationship between science and social change, even if it changes fundamentally the nature of the answers to those questions. At bottom, questions about the progress of science become questions about social change. The sites of social change for

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** *The research and writing of this paper was supported by the Social Sciences and Humanities Research Council of Canada.*

¹ Robert K. Merton, *Science, Technology and Society in Seventeenth Century England* (Bruges: St Catharine's Press, 1938). According to Merton, the ethos of science was characterized by universalism, communism, disinterestedness and organized skepticism, terms he defined in "The Ethos of Science," in *On Social Structure and Science*, ed. Piotr Sztompka (Chicago: University of Chicago Press, 1996), pp. 267–276, and "Science and the Social Order" in *ibid.* pp. 277–285.

² For examples see Paul Wood, "Stepping Out of Merton's Shadow," in *Science and Dissent in England, 1688–1945*, ed. Paul Wood (Aldershot: Ashgate, 2004), pp. 1–18; I. Bernard Cohen, ed., *Puritanism and the Rise of Modern Science: The Merton Thesis* (New Brunswick, NJ: Rutgers University Press, 1990); Steven Shapin, "Understanding the Merton Thesis," *Isis* 79 (1988), pp. 594–605.

³ For a good discussion of this strand of thinking, not restricted to Zilsel, see Nicholas Jardine, "Zilsel's Dilemma: Essay Review of E. Zilsel, *The Social Origins of Modern Science*," *Annals of Science* 60 (2003), pp. 85–94. Quotation cited on p. 88.

Merton's thesis were those of seventeenth-century dissenting England; this paper proposes that a close examination of other sites, those connected with Mennonites in the Dutch Enlightenment, might further enhance our understanding of social change and the progress of eighteenth-century natural philosophy and natural history.

(2) Mennonites and the Dutch Enlightenment

Mennonites have their origins in the Anabaptist movement, the radical or left wing of the Reformation in the early sixteenth century. The early origins of Anabaptism are highly differentiated, and included some who were deeply committed to pacifism and others, notably Thomas Muenzer of the Peasant's War (1524–5) and the notorious Muensterites who sought to usher in the Kingdom of God by the very temporal means of the sword in Muenster in 1534. Anabaptism spread quickly, especially throughout various parts of the German-speaking world, and in 1536 a Dutch Catholic Priest, Menno Simons, converted to the movement and became an important early leader (though he never pretended to be its founder), hence the name Mennonites. From the start the various forms of Anabaptism were all strongly anti-confessional, so there is little point in trying to determine, as some have sought to do, who were true to some idealized version of Anabaptism ideas and who were not. Fairly soon though some common threads emerged: Biblicism — since there was no common body of inherited dogma the Bible was the final authority; pacifism (*Matthew*, ch. 5, p. 43–44); the refusal to take any kind of oath (*Matthew*, ch. 5, p. 33–37); adult baptism only for those who choose it. The refusal to take oaths amounted to a rejection of the authority of the state; the rejection of infant baptism was a rejection of the churches (both Protestant and Catholic) that invested the temporal powers with transcendent authority. Consequently, any number of Christian states were zealous in their persecution of Anabaptists, including Mennonites, some of whom fled the Netherlands in the 1550s to settle in the Vistula River delta in the vicinity of Gdansk. The last Mennonite martyr in the Netherlands died in 1574, not long after the ascent of William of Orange in 1572 and shortly before the formation of the United Provinces in 1575. Mennonites, or *Doopsgezinde* (literally, baptism minded), in the Netherlands were tolerated, though prohibited from holding administrative and judicial offices and prohibited from political and military functions. Many settled in rural areas and took up agriculture; many others settled in cities and took to commerce, which turned out to be fortuitous, given that the winds of capitalism were beginning to stir in the sixteenth century and by the seventeenth were filling the sails of the Dutch Golden Age.

A group so closely associated with the sixteenth-century turmoil seems out of place in the received view of the Enlightenment. All the more so given that Mennonites are often associated (at least by many North Americans) with self-consciously anachronistic, rural communities that strive to be separate from the modern world, though relatively few live in such a way now. Yet there is a growing body of literature that shows that Mennonites were indeed very active in the Dutch Enlightenment.⁴ Voltaire knew this, witness his memorable depiction in *Candide* of an eighteenth-century Dutch

⁴ Michael Dreidger, "An Article Missing from the *Mennonite Encyclopedia*: 'The Enlightenment in the Netherlands'," in: *Commoners and Community: Essays in Honour of Werner O. Packull*, ed. C. Arnold Snyder (Kitchener: Pandora Press, 2002), pp. 101–120; Wiep van Bunge, "The Radical Enlightenment in the Dutch Republic: Spinoza and the Meaning of Secularization," an unpublished paper presented at "Radical Enlightenment," a conference at the Clark Library, Los Angeles, 17–18 Oct. 2003; Joris van Eijnatten, *Mutua Christianorum Tolerantia: Irenicism and Toleration in the Netherlands: The Stinstra Affair, 1740–45* (Florence: Olschki, 1998); *ibid.*, *Liberty and Concord in the United Provinces: Religious Toleration and the Public in the Eighteenth-Century Netherlands* (Leiden: Brill, 2003); Andrew Fix, *Prophecy and Reason: The Dutch Collegiants in the Early Enlightenment* (Princeton: Princeton University Press, 1991); Leszek Kolakowski, *Chrétiens sans église: la conscience religieuse et le lien confessionnel au XVIIe siècle*, transl. Anna Posner (Paris: Gallimard, 1969); Wijnand W. Mijndhardt, "The Construction of Silence: Religious and Political Radicalism in the Dutch Enlightenment," in *The Early Enlightenment in the Dutch republic, 1650–1750*, ed. Wiep van Bunge (Leiden: Brill, 2003), pp. 231–262; Christiaan Sepp, *Johannes Stinstra en zijn tijd: eene bijdrage tot de geschiedenis der kerk en school in de 18de eeuw*, 2 vols. (Amsterdam: Sepp & Zoon, 1865–66). The natural sciences do not have a prominent place in this body of work, though Dreidger does acknowledge their importance. One of the few discussions in English is that by the historian of science Michael H. Shank, "Sciences, Natural," *Mennonite Encyclopedia* vol. 5 (Scottsdale, PA: Herald Press, 1990), pp. 802–803.

Mennonite in the character Jacques, the man who was never christened (not baptized as an infant). Jacques is the only Dutch person to aid the hapless *Candide*, who fled to the Netherlands because he had heard everyone there was rich and Christian, and the notorious Dr. Pangloss. Jacques's tolerance and generosity stand out in Voltaire's satire of the cruelty, sham, stupidity and intellectual dishonesty that thrived in the age of reason, and undoubtedly this is why Jacques had to die, by drowning, in the opening chapters of *Candide*. But even the honest Jacques was not wholly isolated from his time and place: after all, he offered jobs to Candide and Dr. Pangloss in his "Persian-rug" factory (rugs, which Voltaire wryly observed "are widely manufactured in Holland.")⁵ Mennonites were important actors in the Dutch economy of the late seventeenth and eighteenth century, and as such they found themselves faced with the Dutch dilemma of an "embarrassment of riches."⁶ As their prosperity increased, the sober, simple life for which they were known became less evident and it has been claimed that their faith, which had once been marked by the notion that the world could and ought to be made a better place, had become restricted to the personal experience of belief.⁷

Mennonite contributions to natural philosophy and natural history tell a different story, one that begins to emerge quite clearly in the late seventeenth century in the Collegiants and the life of Galenus Abrahamsz (1622–1706). The Collegiants were a predominantly Mennonite group, a kind of church that has been described as ultra-liberal, though such terminology is not especially helpful when applied to the seventeenth century. Collegiants were thoroughly anti-confessional and they are perhaps most well-known for welcoming Spinoza into their midst after he was excommunicated from the Portuguese Jewish synagogue. A number of Mennonite Collegiants assisted Spinoza: Jarig Jelles financed the publication of Spinoza's commentary on Descartes; Simon Joosten De Vries supported him with a stipend of 300 gulden per year; Jan Henryk Glazemaker translated Spinoza (and Montaigne, Seneca and the Koran, the latter from the French), and Jan Rieuwertsz, a publisher and printer, published Spinoza's *Opera Posthuma*, to which Jelles wrote an introduction. The leading figure was Galenus, a preacher, author, medical doctor, and alchemist and entrepreneur.⁸ The faith of Galenus and his colleagues has been described as a rational religion, one created as a means for the educated and freethinking classes to marginalize religion so that it would not interfere with their lives. However, in contrast to such a position, the distinguished Polish intellectual Leszek Kolakowski has argued:

for those who took religious reform seriously this position was not needed. They either left the world to its own devices and considered it unreformable (this was the position of those in a socially hopeless situation, e.g. bankrupt aristocrats), or they sought to improve the world by Christian means. This was the position of Collegiants and many Mennonites.⁹

As we shall see, Dutch Mennonites freely availed themselves of the tools of natural philosophy and natural history in their attempts "to improve the world by Christian means." Three sites of such improvement were: gardens, Teyler's Museum, and the Mennonite Seminary in Amsterdam.

⁵ Voltaire, *Candide, or Optimism*, transl. and ed. Robert M. Adams, 2nd edn (New York: Norton, 1991), p. 6. Voltaire may have chosen this death for Jacques as an oblique reference to the Swiss reformer Ulrich Zwingli, who is alleged to have quipped that drowning was an appropriate end for Anabaptists, see "Mennonites," *Encyclopedia Britannica*, 11th edition, vol. 11, p. 132

⁶ Simon Schama, *The Embarrassment of Riches: An Interpretation of Dutch Culture in the Golden Age* (London: Fontana, 1991).

⁷ This claim is made in an otherwise very helpful article by Huib Zuidervaart, "'Meest alle van best mahoniehout vervaardigd.' Het natuurfilosofisch instrumentenkabinet van de doopsgezinde kweekschool te Amsterdam," 1761–1828," *Gewina* 29 (2006), pp. 81–112. I am grateful to Huib Zuidervaart for sharing with me a pre-publication copy of this article. He and I have both independently been researching the place of experimental philosophy in the Amsterdam Mennonite Seminary in the eighteenth century.

⁸ For Galenus Abrahamsz see Ruud Lambour, "De alchemistische wereld van Galenus Abrahamsz (1622–1706)," *Doopsgezinde Bijdragen* 31 (2005): 93–168, and idem, "De iconografie van doctor Galenus Abrahamsz (1622–1706)," *Doopsgezinde Bijdragen* 31 (2005), pp. 169–182.

⁹ Leszek Kolakowski, "Dutch Seventeenth-Century Anticonfessional Ideas and Rational Religion: The Mennonite, Collegiant and Spinozan Connections," [1963] transl. and intro. James Satterwhite, *Mennonite Quarterly Review* 64 (1990), pp. 259–297, 385–416.

(3) Gardens of industry

Some of the most striking examples in the rich history of Dutch formal gardening were to be found in estates built by Mennonites. Particularly noteworthy is that of David van Mollem (1670–1746), known as Zijdebalen (silk bales), for the way in which it integrates natural history, industrial technology and biblical imagery. Built on the bank of the Vecht River near Utrecht, Zijdebalen was part of an area known as *Menistenhemel* (Mennonite heaven) due to the beautiful estates built there by members of the Van Lennep, Rutgers, de Neufville and Wolff families, all of whom were wealthy Mennonites.¹⁰ Van Mollem, the designer, owner and resident of Zijdebalen, inherited the property from his mother in 1709. David's father Jacob van Mollen (1623–1699) purchased the site, which had the advantage of waterpower, for a silk factory that turned out to be a great success thanks in no small part to his use of a new machine for unrolling bales of raw silk, a heavily labour intensive practice.¹¹ The elder van Mollen may have been too preoccupied running his business to build up the estate, but by 1709 his son had plenty of capital for his garden.

Zijdebalen was small in comparison with great landed estates that drew their wealth from agriculture. It was a long, narrow property with a river frontage of about eighty metres and a depth of about seven hundred metres. The construction of the garden, complete with mazes, intricately arranged woods and plants, fountains, a 'dry basin' of rare plants, grottoes, fishponds, walkways, waterways, bridges, arches, pavilions, latticework, arbours, obelisks, aviary of rare birds, Italian theatre, and an orangery, not to mention the numerous vases, marble statues, painted perspectives and other ornaments, was a project of several decades. The design was geometric, in this respect following French tradition,¹² and so arranged that observers reported varying perspectives and views with almost each step; the perspectives also greatly enhanced the size of the garden, so much so that even an observer from England, with its tradition of very big gardens, considered it large, as did Albrecht von Haller in 1725.

Among the many features of note in van Mollem's garden are the two grottoes, one of shells the other of minerals, for the way in which they integrate nature and artifice. Shells, which were themselves considered an example of nature's handiwork, were arranged on the walls and ceiling of the grotto in architectural and decorative motifs. In the other grotto inanimate nature, largely precious minerals, was arranged in the shapes of plants and flowers. The grottoes amounted to outdoor natural history cabinets that displayed the riches of nature and human art united so as to reveal the bounty of God's creation.

The most remarkable feature of the garden must have been the waterworks, an elaborate artifice and technical marvel that drove the fountains (an Italian observer compared them favourably to the fountains in the parks of Rome), a relative rarity in the Netherlands where water pressure was not easily come by. In one respect the waterworks were essential for the entire garden, as they also drove the machinery of the factory that created the wealth that let it be built. This garden, with its verdant orangery and rare plants, a recreation of Eden's paradise that knew no winter, was created through human industry. Indeed, honourable and honest labour provided a moral justification for what might otherwise be regarded as a very lavish, even ostentatious, display of a superabundance of wealth — very far indeed from the sober and simple life that typified Mennonites. Yet there were moral justifications offered for such gardens. Nicolaas Bidloo, court physician to Peter the Great and a Mennonite, offered

¹⁰ These estates are the subject of the anonymously published *De Zegepraalende Vecht* [The Triumphant Vecht] (Amsterdam: de Wed, Nicolaus Visscher, 1719), which includes scores of engravings by Daniel Stoopendahl. Erik de Jong notes that this was the first Dutch book to promote the splendours of country living. My discussion of Zijdebalen is based largely on de Jong's *Nature and Art: Dutch Gardens and Landscape Architecture, 1650–1740*, transl. Ann Langenakens (Philadelphia: University of Pennsylvania Press, 2000), esp. pp. 98–118. As it turns out, there was more than one *Menistenhemel*, the other being the banks of the Spaarne River near Haarlem, where prosperous Mennonites such as Pieter Teyler (see section 5) built country villas and grand gardens.

¹¹ I have been unable to determine further details about this invention.

¹² De Jong (p.111) notes that van Mollem's library included a first edition of the A. J. Dézailler d'Argenville, *La théorie et la pratique du jardinage* (Paris: J. Mariette, 1709), a work that quickly became the standard treatise on French gardening.

precisely this, stating that “gardening was a useful, honourable, and enjoyable recreation” that used labour and intellect to recreate Paradise and reflect God’s glory.¹³ Gardens displayed the fruits of human industry and God’s creation, they inspired contemplation and devotion to God. It is very important to recall that van Mollem’s garden was integrated with a working and very profitable factory, located on site. Visitors may have been less welcome in the factory, given worries about industrial espionage, but would surely have been aware of its presence almost directly adjacent to the mineral and shell grottoes and they would have noticed the same canal that watered the garden also drove the mill. The work ethic of various sorts of Protestantism has generated libraries full of commentary, but even so we should not assume a general correspondence between work and virtue, at least not without some direct evidence. We have that in Galenus Abrahamsz writings on Christian ethics, a book which he concludes with two chapters: one on Christian diligence and its attendant virtues sobriety and wisdom; the last on laziness and all the harm it causes.¹⁴ David van Mollem’s garden embraced technology to create wealth that would be used to display the glories of God’s creation, of natural history writ large, and, perhaps not incidentally, reflect his own virtue.

(4) Teyler’s museum

Van Mollem’s garden is an outstanding but by no means singular case of a Mennonite seeking moral and ultimately social improvement in connection with natural history. The most well-known case—and one that really is singular—is that of Teyler’s Foundation, created through the legacy of Pieter Teyler van der Hulst (1702–1778). This Foundation oversaw the creation and running of Teyler’s Museum, the oldest museum in the Netherlands and one devoted to the arts and sciences. Pieter Teyler was a Haarlem Mennonite born into a family that was active in the silk industry (an industry in which many Mennonites were involved). By 1728 he was running his own silk factory and also involved in finance, which became an increasingly important part of his business activities and eventually overshadowed altogether his income from the silk trade, which became less profitable over the course of the eighteenth century. He also married in 1728, to Helena Wijnands Verschaave, who passed away in 1754. Theirs was a childless union and presumably this is why Teyler decided, when he prepared his will in 1756, that his entire estate was to be maintained in perpetuity and the proceeds be devoted to the furtherance of religion, the promotion of the arts and sciences, and helping the poor and those in distress. As executors of his will he choose a board of five Mennonite directors. The board would appoint new directors as needed so that there would always be the requisite five; in due course some who were not Mennonites did serve as board members. To carry out Teyler’s wishes the Foundation created two societies, Teyler’s First or Theological Society and Teyler’s Second Society, which was for the promotion of the arts and sciences. In 1785 the Foundation also built and ran Teyler’s *hofje*, a home for twenty-four women who lacked the means for adequate housing. But it is the Museum and the Second Society that are of particular interest here.¹⁵

One of the first things the Foundation did was build a museum to house the considerable collection of books, prints, drawings, coins and natural historical items Teyler had acquired in his lifetime. The so-called oval museum was designed by the Amsterdam architect Leendert Viervant and completed in

¹³ Quotation from De Jong, p. 110. For Bidloo, Mennonites and the moral justification of gardening see also Piet Visser, “De artes als zinnebild: Over doopsgezinden en hun relatie tun kunst en wetenschap,” *De zeventiende eeuw* 5, no. 1 (1989), pp. 93–103.

¹⁴ Galenus Abrahamsz, *Een Christelyke Zede-Konst, of Korte Beschryvinge van de voornaamste Deugden en Gebreken*, part II of: *Eenige nagelaten Schriften van Dr. Galenus Abrahamsz. Bestaande* (Amsterdam: Pieter Arentz en Kornelis vander Sys, 1707), pp. 174–179, see also 154–160. I am grateful to Piet Visser for referring me to this book.

¹⁵ Teyler and his Foundation have been the subject of several books and articles, including ‘*Teyler*’ 1778–1978: *Studies en bijdragen over Teyler’s Stichting naar aanleiding van het tweede eeuwfeest* (Haarlem: Schuyt, 1978), which includes a number of essays, notably that of Wijnand Mijnhardt, “Veertig jaar cultuurbevordering: Teylers Stichting 1778–1815,” pp. 58–111. There are also a number of helpful essays in the book published to accompany the 2006 exhibit on Pieter Teyler at Teyler’s Museum: Bert Sliggers, Jaap Vogel, Paul Beliën, Alle Diderik de Jonge, Piet Visser and Eric Ketelaar, *De idealen van Pieter Teyler: Een erfenis uit de verlichting* (Haarlem: Gottmer; Teyler’s Museum, 2006), which also has a number of useful appendices, including a reprint of Teyler’s will.

1782; it directly adjoins Teyler's house and continues to be an important part of the museum today. In the same year the Foundation took into its service Martinus van Marum, who was made a member of the Second Society and in 1784 became librarian and curator of the physical cabinet — an outstanding collection of late eighteenth and early nineteenth-century scientific instruments — and the splendid palaeontological and mineralogical collections of the Museum. There was plenty of money for these purposes, as Teyler's estate amounted to the princely sum of two million gulden, which generated a huge annual income of, on average, sixty-six thousand gulden over the first forty years.¹⁶ The most notable item of the physical cabinet is the van Marum's electrostatic generator, built in part by the noted instrument maker John Cuthbertson, the largest of its kind ever constructed. Van Marum was not a Mennonite and his aim was to make the Society into something more like the Parisian Academy of Science, with which he had strong connections (he introduced Lavoisier's chemistry into the Netherlands¹⁷). This led to some friction between van Marum and the Directors and, on occasion the First Society, though the problem was never the purchase of the instruments and minerals, but their purpose. Van Marum's aim was more straightforwardly utilitarian, though tinged with an odour of careerism; the First Society and the Foundation also believed the collection was useful, but useful for the moral purpose of revealing the wonders of God's creation to all, with a patrician bent (the art collection of the Museum was very much about furthering good taste).¹⁸

Teyler's was in every sense an exceptional institution, one from which one cannot draw simple generalizations that reflect more generally on Mennonites and science. However, one might usefully ask if Teyler's specific concern with the promotion of natural history was exceptional and what connection, if any, it had with his being a Mennonite. From what we do know about the situation in Haarlem, it seems that Teyler's interest in natural knowledge was not unusual among his co-religionists. Independent societies for the promotion of the arts, sciences and letters flourished in the eighteenth-century Netherlands, and Haarlem was no exception.¹⁹ Bert Sliggers has reconstructed the membership of Haarlem's *Natuurkundig College* (college for natural philosophy, an independent society) for the period from 1737–1788, and has found that of nineteen members fully twelve were Mennonites (five of whom were textile manufacturers). Teyler, not a member of the *Natuurkundig College*, was exceptional for being extremely rich, but his interest in science was by no means singular among bourgeois Mennonites in Haarlem, who dominated that city's scientific society.

¹⁶ Mijnhardt, "Veertig jaar cultuurbevordering," p. 73. The income of Teyler's estate was sufficient to wholly fund the construction, operation and acquisitions of the museum, which had a major addition and was largely rebuilt in the nineteenth century, the library, and eventually the physical laboratory (a home to both Lorentz and Zeeman in the twentieth century) for a full two centuries. It was only in the 1980s that Teyler's turned to the Dutch government for funding.

¹⁷ T. H. Levere, "Martinus van Marum and the Introduction of Lavoisier's Chemistry in the Netherlands," vol. I of R. J. Forbes, *Martinus van Marum: Life and Work*, 6 vols, (Haarlem: Willink, 1969), pp. 158–286. In the same volume, R. J. Forbes describes, without supporting evidence, van Marum as a devout Mennonite, "Science in van Marum's World," vol. I, pp. 127–157; he was not.

¹⁸ See Mijnhardt, "Veertig jaar cultuurbevordering," and Gerhard Wiesenfeldt, "Politische Ikonographie von Wissenschaft: Die Abbildung von Teylers 'ungemein großer' Elektrisiermaschine, 1785/87," *NTM* 7 (2002): 222–233.

¹⁹ B. C. Sliggers, "Honderd jaar natuurkundige amateurs te Haarlem," in: *Een elektriserend geleerde, Martinus van Marum, 1750–1837*, ed. A. Wiechmann and L. C. Palm (Haarlem: Joh. Enschedé en zonen, 1987), pp. 67–102, esp. p. 97. See also Lissa Roberts, "Going Dutch: Situating Science in the Dutch Enlightenment," in: *The Sciences in Enlightened Europe*, ed. William Clark, Jan Golinski and Simon Schaffer (Cambridge: Cambridge University Press, 1999), pp. 350–388; W. W. Mijnhardt, *Tot Heil van't Menschdom: Culturele genootschappen in Nederland, 1750:1815* (Amsterdam: Rodopi, 1988); H.A.M. Snelders, "Professors, Amateurs, and Learned Societies: The Organization of the Natural Sciences," in: *The Dutch Republic in the Eighteenth Century: Decline, Enlightenment, and Revolution*, ed. Margaret C. Jacob and W. W. Mijnhardt (Ithaca: Cornell University Press, 1992), pp. 308–323. For a notable discussion of the publishing activities of an Enlightenment Mennonite see Piet Visser, Piet, "'Redelyke regtzinnigheid': Prolegomena over de betekenis van Marten Schagen (1700–1770) voor de Nederlandse Verlichting," in: *Balanceren op de smalle weg*, ed. Lies Brussee-van der Zee et al. (Zoetermeer: Uitgeverij Boekencentrum, 2002), pp. 216–284.

(5) Natural philosophy in the seminary

Societies for natural philosophy, natural history and letters also flourished in Amsterdam, as one would expect, and again, Mennonites were very much involved in these activities. Already early in the eighteenth century a group of them invited Daniel Fahrenheit to give them lectures on natural philosophy supplemented by experiments. In 1721 Fahrenheit used W. J. s'Gravesande's *Physices Elementa Mathematica* (2 vols. 1719–1721), a decidedly Newtonian work, as a textbook to accompany the lectures and demonstrations. Meetings of this sort continued for decades, though of course others besides Fahrenheit gave lectures, and in 1759 a Swedish observer remarked that the gatherings had an almost institutional character.²⁰ Soon, natural philosophical lectures would be offered in an Amsterdam institution: the Mennonite Seminary (*Doopsgezinde Kweekschool*), founded in 1735.

The Mennonite Seminary seems an unlikely place for the cultivation of natural philosophy, but in the mid-eighteenth century it was the only formal institution in Amsterdam to do so. There was no university and the Atheneum Illustre, an institution of higher learning and forerunner of the University of Amsterdam, did not teach natural philosophy at all between 1717 and 1779. The presence of natural philosophy within the seminary is all the more striking considering that the sole purpose of the institution was to train preachers.²¹ The seminarians took their Greek and Hebrew at the Atheneum Illustre; even church history — a matter of huge importance to Mennonites, who saw themselves as a church that was truer to the original teachings of Christ than other forms of Protestantism — was not a seminary subject. Initially only theology was taught and in 1761, Klaas de Vries was appointed to teach “experimental philosophy.” One might have expected a seminary to concentrate on natural history, but the emphasis here was entirely on experimental philosophy.²² This subject continued to be taught by de Vries's successors, Heere Osterbahn, who taught from 1766–1786, Jan van Swinden, who taught from 1786–1800 and again from 1811–1826, and Gerrit Hesselink from 1800–1811.

Nothing is more revealing of the Seminary's dedication to experimental philosophy than its physical cabinet, a collection of scientific instruments without equal in Amsterdam and the equal of collections at the University of Leyden,²³ that is to say of anything in the Netherlands. This was not just a commitment on the part of the Seminary, but of the Amsterdam Mennonites who paid for the running of it. On 1 October 1761 eighteen Mennonites signed a document pledging to donate eight thousand one hundred gulden, each of them donating either six hundred or three hundred gulden.²⁴ These sums, though dwarfed by the vast income Teyler's fortune would generate, were a lot of money.

All of this raises the question: why this strong commitment not just to natural philosophy, but experimental philosophy? There were strong traditions of physico-theology, or natural theology, throughout the eighteenth century, though often these looked to natural history as a starting point for contemplating the marvels of God's handiwork. Experimental philosophy of the sort taught at the Seminary had a decidedly Newtonian slant: experiments displayed the regularities and laws of nature, or the law-like aspects of the natural world. They did more than that, they revealed the manipulability of nature and, at least, pointed to the applications of natural philosophy. So experimental philosophy is not just physico-theology (though it is that too), it also raises the possibility of social amelioration and emancipation through technical and economic innovation. Given the very active Mennonite participation in eighteenth-century Dutch commerce and industry, one might surmise that sermons which revealed a knowledge of the workings of machines and instruments of various sorts might strike a sympathetic chord, to say the least.

²⁰ Zuidervaart, “Meest alle van best mahoniehout vervaardigd,” pp. 83–84.

²¹ The first paragraph of the “Reglement voor't Kweekschool,” dated 7 November 1737, clearly states the institution is for “Jongelingen, die mogten genegen zyn zich te schikken tot den Predikdienst...” This document is in the Gemeentearchief te Amsterdam (hereafter GA), Archief van Verenigde Doopsgezinde Gemeente van Amsterdam met voorgangers (ADG), inventory # 398; the version of the “Reglement” dated 24 April 1827 also begins by stating that the school is for youths who would dedicate themselves to become preachers in Mennonite communities, GA, Algemeene Doopsgezinde Sociëtat, inventarisnummer 274.

²² Though the school's library had holdings in natural history, see S. Muller, *Catalogus van de Bibliotheek der Vereenigde Doopsgezinde Gemeente te Amsterdam* (Amsterdam: F. Muller, 1854).

²³ Zuidervaart, “Meest alle van best mahoniehout vervaardigd,” pp. 88–89.

²⁴ The original document is available at GA, ADG, inventarisnummer 401.

In 1826 the seminary stopped teaching natural philosophy and in 1828 it auctioned its physical cabinet. Our best and almost only source of its contents is the auction catalogue.²⁵ Why, after so many years of teaching the subject did the Seminary eventually choose to abandon it? To some extent a curriculum is always in flux and fashions come and go — though more than six decades of teaching the subject is a great deal more than a fashion. Part of the problem was financial. Maintaining a Seminary was expensive, and maintaining a cabinet of instruments that needed regular repair and maintenance was not cheap, financial obligations to the state increased greatly and almost overnight during the French occupation, and in the wake of the Napoleonic period Amsterdam became a less prosperous place. Also, there was a change of leadership at the Seminary and the new director, Samuel Muller seemed to be more inclined to German critical traditions than something with the flavour of natural theology.²⁶ Finally, the seminary underwent expansion at just about the time the instruments were auctioned, which would have provided much needed cash.²⁷ There may also be another explanation. In the wake of the Dutch Patriot movement, in which many Mennonites were active, and the Napoleonic wars Dutch Mennonites may have grown more conservative, as did Dutch society as a whole. A group that had once been at the forefront of Enlightened ideals was now assimilating into, or accommodating itself to, Dutch Calvinist culture.²⁸

(6) Concluding remarks

There is no doubt that Mennonites were very active in various ways in the promotion of natural philosophy and natural history in enlightened Dutch society, be it by display and spectacle, as in David van Mollem's gardens, or in the participation of independent scientific societies, through patronage — the striking example is Teyler's Museum — and in Newtonian experimental philosophy as physico-theology. It is most unlikely that these activities represented some sort of inward looking, or pietistic turn in their theology. More likely they were in keeping with broader Enlightenment ideals of intellectual, moral and social amelioration, though a great deal more study needs to be done on how this worked itself out. The early nineteenth-century turn to conservatism among Dutch Mennonites and Dutch society in general is a reminder that there is nothing inherent in the nature of things that guarantees social progress, just as there is nothing inherent to science that guarantees its own progress. Given the high number of Mennonites who were active or sympathetic with the Patriot movement of the late eighteenth century, which sought to turn the Republic into a more fully democratic society, it would be most interesting to see what connections there are between Mennonite political radicalism and the promotion of science. These are all subject demanding more study, for this paper is itself very much a work in progress.

²⁵ *Catalogus van eene uitmundende verzameling optische, phijsische, mathematische en andere Instrumenten...Al het wek verkocht zal worden op Dingsdag den 23sten December 1828...* A copy of the catalogue is available in GA, ADG inventarisnummer 1376.

²⁶ On Muller see Johanna Elisabeth Verbeek, 'Menniste Paus': *Samuel Muller (1785–1875) en zijn netwerken* (Hilversum: Verloren, 2005).

²⁷ Rapport van den Bouw-Herr... 18 December 1828, GA, ADG, inventarisnummer 2178.

²⁸ Sjouke Voolstra, " 'The Hymn to Freedom': The Redefinition of Dutch Mennonite Identity in the Restoration and Romantic Period (ca. 1810–1850)," in *From Martyr to Muppy (Mennonite Urban Professional): A Historical Introduction to Cultural Assimilation Processes of a Religious Minority in the Netherlands: The Mennonites*, ed. Alastair Hamilton, Sjouke Voolstra and Piet Visser (Amsterdam: Amsterdam University Press, 1994), pp. 187–202.