2010 BECHTEL LECTURES
Science and Mennonites in the Dutch Enlightenment[1]

Lecture One
Mennonites, Natural Knowledge, and the Dutch Golden Age

Ernst Hamm

Dutch Mennonites

The Low Countries have a very prominent place in the history of Anabaptism, thanks in no small part to the leadership of Menno Simons during those remarkable years in the 16th-century Netherlands when his name became attached to the movement he joined. The early decades of this small, far from unified, religious movement in an often hostile environment continue to be a focal point for Mennonites today who seek to understand their past, as they are for historians of Anabaptism. By the late 16th century most Anabaptists had left the southern Netherlands, particularly Antwerp, Ghent, Bruges, and their vicinities, and either had joined those Anabaptists already settled in the more tolerant provinces of the northern Netherlands, which by then had revolted against Spanish-Hapsburg rule and become one of the first modern European republics, or had moved to the no less tolerant Vistula Delta in what was then Royal Prussia under the Polish crown. Perhaps the Dutch experience was less compelling after the end of the time of very intense persecutions; in any case, there is little doubt that North American Mennonites have shown greater interest in the history of Mennonites from Switzerland and the Palatinate, and of the so-called Russian Mennonites (i.e., those who settled in the Russian empire starting in the late 18th century, coming from Prussia at the invitation of Catherine the Great).

People take an interest in their own history, and many of the Mennonites who first settled in North America in the 18th century were

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of Swiss and South Germanic origin; those who emigrated to Canada in the latter part of the 19th century and through to the mid-20th century tended to come from the Russian Empire, later the Soviet Union, and had little connection with the Netherlands. Russian Mennonites typically saw themselves as German, though Germans of a peculiar Mennonite sort.[2] Swiss Mennonites who had not lived in Swiss regions for centuries, Russian Mennonites who were Germans (with Dutch connections) and, to complicate matters further, had settled in what is now Ukraine – the historical, cultural, and linguistic web of Mennonites can be confusing. In the Netherlands things were simpler: Mennonites there tended to be Dutch and in important respects were already integrated with the surrounding culture, or at least had linguistic and cultural ties that allowed for the possibility of integration with the surrounding culture, a possibility that had become a reality by the late 17th century.[3]

Mennonites were important actors in the culture, economy, and intellectual and social life of the Netherlands from the 17th-century "Golden Age" through the 18th-century Enlightenment. If the history of enlightened Dutch Mennonites does not loom large for North American Mennonites, then these lectures will concentrate on an aspect of their world that has received even less of our attention: the natural sciences. There is no simple or single explanation as to why many Dutch Mennonites became involved in the sorts of activities we would call science, but I will argue that their engagement with science was deeply tied to their integration in the social, economic, and cultural life of the Netherlands. "Die Stillen im Lande" scarcely applied

[2] On Polish toleration see Peter J. Klassen, *Mennonites in Early Modern Poland and Prussia* (Baltimore: Johns Hopkins Univ. Press, 2009); on Mennonite identity see the work of two previous Bechtel Lecturers: James Urry, *Mennonites, Politics and Peoplehood: Europe, Russia, Canada, 1525-1980* (Winnipeg: Univ. of Manitoba Press, 2006) and Terry Martin, "The Russian Mennonite Encounter with the Soviet State, 1917-1955," *The Conrad Grebel Review* 20.1 (Winter 2002): 5-59.

[3] I do not mean to diminish the distinctions between Mennonites in the southern and northern Netherlands, Flemish and Frisian etc., but such labels soon lost their association with national or local origins. As Piet Visser has remarked, "the question of an ethnic identity of the Dutch Anabaptists became altogether irrelevant." See his "Introduction," in *From Martyr to Muppy: 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 Univ. Press, 1994), vii-xi, at vii.

to Dutch Mennonites in the late 17th and 18th centuries, which suggests their history may hold much of interest and, to use a word historians employ only reluctantly, relevance to North American Mennonites in the early 21st century.[4]

The tolerance that Mennonite Anabaptists found in the Dutch Republic, as it was known after 1588 (or, more formally, the Republic of the Seven United Netherlands, the Republic of the United Netherlands, or the Republic of the Seven United Provinces), did come at some price. The Anabaptists' refusal to take oaths of loyalty ruled out military service, hardly a burden for pacifists, and it excluded the possibility of holding public office. The most important and prestigious civic office, that of regent, was unattainable, so there were limits on how high Mennonites could move in Dutch society, though this seems not to have been a major irritant. Posts at universities were also reserved for those who belonged to the "official" Reformed Church (the Republic did not have a state religion per se). Notwithstanding the intolerance, official and unofficial, and, excepting the case of Friesland where open acts of hostility against Mennonite churches lasted longer than elsewhere, by the 17th century there was effectively no persecution in Amsterdam and the Dutch Republic was by the then prevailing European standards a very safe place for Mennonites.[5] I want to emphasize that Mennonites, or *Doopsgezinden*, participated in a great many aspects of the commercial, cultural, and intellectual life of the Republic, and in doing so participated in the broader changes sweeping across early modern Europe.[6]

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[4] "Die Stillen im Lande" (the quiet ones in the land) is a phrase that resonates deeply with Mennonites, who associate it with a life of piety and humility, and a separation from the world, especially from civic and political life. The phrase did not originate with Mennonites, is often more closely associated with the 18th-century German Pietists Gottfried Arnold and Gerhard Tersteegen, has a Biblical source in Psalm 35:20, and continues to serve as a point of departure in current Mennonite theology. See, e.g., Thomas R. Yoder Neufeld, "From 'die Stillen im Lande' to 'Getting in the Way': A Theology for Conscientious Objection and Engagement," *Journal of Mennonite Studies* 25 (2007): 171-81.

[5] Jonathan I. Israel, *The Dutch Republic: Its Rise, Greatness, and Fall, 1477-1806* (Oxford: Oxford Univ. Press, 1995), 376 and 645.

[6] In these lectures "Mennonite" will be used as a term that encompasses (and translates) *Doopsgezind*. For the distinction between a Mennonite confessionalism closer to the heritage of Menno Simons and the *Doopsgezind* reform tradition that has its origins in the Waterlander division in the mid-16th century, see Piet Visser, "Mennonites and Doopsgezinden in the

Dutch Mennonites knew that the favorable circumstances they enjoyed were not always shared by other Anabaptists. As early as the 17th century they sought to help Swiss Anabaptists, who were still enduring persecution, and by 1711 had succeeded in arranging the immigration of several hundred of them to Amsterdam. The two groups shared a faith, but if a contemporary poem written from the perspective of a Swiss immigrant is to be trusted, the gulf between them was large. The poet describes the culture shock experienced by the mountain folk when they met their lowland, urban cousins. The poem opens with a personification of persecuted Swiss simplicity contrasted with Dutch excess:

> The prison was her dress, chains her lace,
> Her pearls were tears, and her table dainties:
> Reproach, persecution, pain and a cross.
> In her house she trod no marble floors nor East Indian mats.
> She had no iron chest full of gold or extorted money,
> She served no fruit in painted porcelain,
> Nor poured her wine in cut glass full to the brim,
> In luxury and excess…

Dutch generosity is acknowledged, albeit briefly, but not without decrying the quarrels between the so-called Flemish and Waterlander Mennonites, who "preach non-resistance" while arming themselves with the ban. Amsterdam Mennonites are further described as masters in the art of flattery who display pride in their dress, vanity in their love of titles, and lewdness at every opportunity. The poem, with the ungainly title "Swiss Simplicity, Lamenting the Corrupted Manners of Many Dutch Mennonites or Nonresistant Christians," is a satire published in 1713, its Swiss voice the device of Pieter Langendijk (1683-1756), a Dutch Mennonite who garnered considerable fame in his time as a playwright who wrote in the style of Molière. Piet Visser, the historian of Dutch Mennonite (*Doopsgezind*) culture, book culture, and literature, has identified Langendijk as the first Mennonite to employ poetry

Netherlands, 1535-1700," in *A Companion to Anabaptism and Spiritualism, 1521-1700*, ed. John D. Roth and James M. Stayer (Leiden: Brill, 2007), 299-346. It is as yet unclear if Visser's otherwise useful distinction helps us better understand Mennonite engagement with natural knowledge in the 17th and 18th centuries.

as a means of exposing Mennonite foibles.[7] More could be said on this, and much more on the many ways Dutch Mennonites intervened to help their Swiss kin starting as early as the 1640s and reaching a peak between 1709 and 1715,[8] but it is enough to say that the reality behind the satire is that some portion of Dutch Mennonites were indeed prominent actors in the commercial of life of Amsterdam, Haarlem, and other Dutch cities.

A Mennonite Cabinet, and Early Modern and Enlightened Natural Knowledge

Had one of the Swiss immigrants gained admission to the "cabinet" of Levinus Vincent (1658-1727), a wealthy Mennonite cloth merchant, she would have found herself in the richest cabinet of the Netherlands, a display of nature's marvels and human ingenuity. (The word "cabinet" could refer to either a collection of things, the piece or pieces of furniture that held a collection, or even the building in which a collection was located.) Cabinets of curiosities, rarities, or wonders – collections of natural and artificial objects – were not unusual in 17th- and early 18th-century Amsterdam, where many visitors sought out the Vincent cabinet. In 1705 Vincent moved to Haarlem, where his cabinet counted as one of that city's most noteworthy sights. The mounted birds, insects, lizards, tortoises, shells, corals, starfish, dried herbs and flowers, animal specimens preserved in jars, minerals, drawings and watercolors of flowers, ethnographic material and much else were initially assembled by Anthonie van Breda, Vincent's brother-in-law, then greatly expanded and organized by Vincent. The cabinet was a family matter, and Johanna van Breda, Levinus's wife and Anthonie's sister, devoted

[7] The excerpt of "Swiss Simplicity" is from the translation by Irvin and Ava Horst, "Swiss Simplicity Laments Corrupted Manners," *Mennonite Life*, July 1955, 129-31. Piet Visser, "Aspects of Social Criticism and Cultural Assimilation: The Mennonite Image in Literature and Self-Criticism of Literary Mennonites," in *From Martyr to Muppy*, 67-82, at 79. For further biographical details see C.H. Ph. Meijer, "Langendijk, Pieter," in *Nieuw Nederlandsch Biografisch Woordenboek*, ed. P.C. Molhuysen and P.J. Blok, 10 vols. (Leiden: A.W. Sijthoff's Uitgevers-Maatschappij, 1911-1937) vol. 2, 764-68; F. H. Klockenbrink, "Langendijk, Pieter (1683-1756)," *Global Anabaptist Mennonite Encyclopedia Online* [1957] www.gameo.org/encyclopedia/contents/langendijk_pieter_1683_1756, accessed 28 March 2011.

[8] For a collection, transcription, and translation of the relevant documents, see Jeremy Dupertuis Bangs, *Letters on Toleration: Dutch Aid to Persecuted Swiss and Palatine Mennonites 1615-1699* (Rockport: Picton Press, 2004).

her attention to the elegant display of parts of the collection, especially the shells, one of its highlights. The cabinet was unusual in having regular opening times, charging admission, and selling a catalog – in effect it was a private museum.[9]

Levinus Vincent's *Theatre of Nature's Marvels*, the most prominent of a number of books and catalogs describing his collection, leaves no doubt that the primary purpose of his cabinet was the glory of God through a consideration of His works. Vincent's wish was that his cabinet "awaken a special contentment in the heart" of the "devout and right-minded" and give the "unreasonable and ungodly" cause for "reverence" and "knowledge of the Creator and Sustainer who through his infinite power has made all that is visible and invisible."[10] Even if an idealized depiction of the cabinet (Fig. 1) exaggerates its splendor (and it may not), that it was printed in at least two of his books suggests it was intended to leave some impression of what a visitor might expect. Among its most prominent visitors were the Russian Czar Peter the Great, the Grand Duke of Tuscany, and the Prussian King Frederick I, who pronounced that no one could view the cabinet and fail to believe there is a God.[11] Visitors would have noticed that besides being a display of God's handiwork, the cabinet was also a testament to its owner's

[9] On the Vincent cabinet see H. F. Wijnman, "Vincent, Levinus," in *Nieuw Nederlandsch Biografisch Woordenboek*, vol. 10, 1104-06; E. C. Spary, "Scientific Symmetries," *History of Science* 42 (2004): 1-46, esp. 6-12; Bert van de Roemer, "Neat Nature: The Relation Between Nature and Art in a Dutch Cabinet of Curiosities from the Early Eighteenth Century," *History of Science* 42 (2004): 47-84, esp. 58-59; Jaap van der Veen, "Dit klain Vertrek bevat een Weereld vol gewoel: Negentig Amsterdammers en hun kabinetten," in *De wereld binnen handbereik: Nederlandse kunst- en rariteitenverzamelingen, 1585-1735*, ed. Ellinoor Bergvelt and Renée Kistemaker (Zwolle: Waanders Uitgevers and Amsterdam Historisch Museum, 1992), 232-58, 313-34. Drawing on the research of Van der Veen, Bert van de Roemer observes that of the 63 Amsterdam cabinets which held natural objects, 9 were owned by Mennonites; see "Neat Nature," 79-80, n14.

[10] Levinus Vincent, *Wondertooneel der Nature*, 2 vols. (Amsterdam: François Halma, 1706; Amsterdam: Gerard Valk, 1715) vol. 1, 23. Translations are my own, unless otherwise indicated. Similar remarks can be found in poems by various authors eulogizing Levinus Vincent and Johanna van Breda in the introductory pages of *Wondertooneel*, vols. 1 and 2.

[11] *Wondertooneel*, vol. 2, "Voorrede," unpaginated; Vincent confuses Frederick's titles by referring to him as "Frederick III, King of Prussia"; he was Elector Frederick III of Brandenburg, and after 1701 the (self-proclaimed) King Frederick I in Prussia.

Figure 1. Depiction of cabinet in Levinus Vincent, Wondertooneel der Nature*, volume 1, 1706. Engraving by Andries van Buysen after a drawing by Romeyn de Hooghe. Université de Strasbourg, Service Commun de la Documentation.*

opulence, taste, and status.[12]

The Vincent cabinet is illustrative of much that bears upon Dutch Mennonites and early modern science. Cabinets of natural and artificial objects played an important part in the making of early modern natural knowledge, and were assembled throughout Europe. Often associated with princely and royal courts, in the Netherlands cabinets were usually in private hands of members of the commercial class.[13] The wealth of objects

[12] See Spary, "Scientific Symmetries," 6-12; Van de Roemer, "Neat Nature," 59 on "fictitious hall" and 76 on collections as battling atheism. On the religious significance of the Vincent cabinet see also Eric Jorink, *Reading the Book of Nature in the Dutch Golden Age, 1575-1715,* trans. Peter Mason (Leiden: Brill, 2010), 337-41.

[13] On Dutch cabinets see Bergvelt and Kistemaker, eds., *De wereld binnen handbereik*. The literature on cabinets and collecting in the history of science is large. In addition to works already cited, see Oliver Impey and Arthur MacGregor, eds., *The Origins of Museums: The Cabinet of Curiosities in Sixteenth- and Seventeenth-Century Europe* (Oxford: Clarendon,

in Vincent's cabinet was intertwined with his life as a cloth merchant, which provided him with the means to collect and, thanks to the silk trade, gave him international contacts reaching far beyond Europe. During its Golden Age, which lasted through the much of the 17th century, the Netherlands dominated or even controlled world trade and developed what has been called the first global or modern economy. The Dutch trade with the Indies, what is now Indonesia and southeast Asia more generally – much of it via the East India Company (*Vereenigde Ostindische Companie*, or VOC), the first joint stock company, founded in 1602 – brought to Amsterdam a wealth of flora and fauna previously unknown to Europeans. Many objects in the Vincent cabinet could have come to Amsterdam only through the exchanges that were inseparable from Dutch empire and commerce.[14]

Such exchanges were by no means incidental to early modern science. Taking the longer view reaching back into the 16th century, historian of medicine and science Harold Cook has persuasively argued that exchanges with the Indies demanded a common or at least widely understood set of descriptions or standards for describing things. Such descriptions would not only serve merchants in the rich trade with the Indies, who were keenly aware of the need to distinguish different grades and kinds of peppers, varieties of orchids, cloves, and mace, plant-based dyes, and what-have-you, but they were also useful for apothecaries, physicians, gardeners, botanists, and natural historians of any sort. Many of the traded items were new to European eyes. Finding ways of describing such things was not an easy

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1985); Paula Findlen, *Possessing Nature: Museums, Collecting and Scientific Culture in Early Modern Italy* (Berkeley: Univ. of California Press, 1994); Lorraine Daston and Katharine Park, *Wonders and the Order of Nature, 1150-1750* (New York: Zone, 1998); Krzystof Pomian, *Collectors and Curiosities: Paris and Venice, 1500-1800*, trans. Elizabeth Wiles-Porter (Cambridge: Polity Press, 1990).

[14] On Mennonites in the Dutch economy see Mary Sprunger, "Why the Rich Got Mennonite: Church Membership, Status and Wealth in Golden Age Amsterdam," *Journal of Mennonite Studies* 27 (2009): 41-59, and idem., "Waterlanders in the Dutch Golden Age: A Case Study on Mennonite Involvement in Seventeenth-Century Dutch Trade and Industry as one of the Earliest Examples of Socio-Economic Assimilation," in *From Martyr to Muppy*, 133-48, which includes a discussion of Mennonite involvement (and non-involvement) in the VOC. On the Dutch economy see Jan de Vries and Ad van der Woude, *The First Modern Economy: Success, Failure, and Perseverance of the Dutch Economy, 1500-1815* (Cambridge: Cambridge Univ. Press, 1997).

task, but as Cook has shown it produced a knowledge heavily dependent on things like taste – literally, as in how things taste, but also in the related sense of connoisseurship, a matter of great importance for both the acquisition of items by Levinus Vincent and their display by Johanna Vincent. This was a matter of knowing the world not in terms of exact mathematical description but in terms of the experience of the five senses.[15]

Much about early modern science may seem very foreign to science as it is now practiced. We should expect this to be the case. Science is historical, it changes over time, and the practices of older science are often very different from those of current science. Thus far I have been using the word "science" as it is typically understood in English, as equivalent to "natural sciences." Such usage is a peculiarity of English among the major European languages; the French *science* and the German *Wissenschaft*, for example, refer to any systematic body of knowledge and as such encompass zoology as well as art history, as does the Dutch *wetenschap*. As for the term "scientist," which I have avoided, it is of 19th-century vintage, coined by Cambridge philosopher and mineralogist William Whewell, in response to poet Samuel Taylor Coleridge's complaint that the term "natural philosopher" was no longer applicable to those who studied nature.[16] What is more, the institutions we have come to associate with the natural sciences – research universities, large-scale laboratories in the service of centralized states or large industries, specialized journals – as well as the disciplinary structure of the sciences only become clearly recognizable as such in the 19th century. Historians of science sometimes refer to the changes in early 19th-century science as the Second Scientific Revolution, as distinct from the 16th- and 17th-century Scientific Revolution. Other historians have gone further and argued that "Modern Science" only began in the early 19th century.[17]

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[15] Harold J. Cook, *Matters of Exchange: Commerce, Medicine, and Science in the Dutch Golden Age* (New Haven: Yale Univ. Press, 2007). On the idea of exchange as something transformative see Georg Simmel, "Exchange," [1907] in *On Individuality and Social Forms: Selected Writings*, ed. Donald N. Levine (Chicago: Univ. of Chicago Press, 1971), 43-69.

[16] Trevor Levere, *Poetry Realized in Nature: Samuel Taylor Coleridge and Early Nineteenth-Century Science* (Cambridge: Cambridge Univ. Press, 1981), 73.

[17] The classic essay arguing this position is Andrew Cunningham and Perry Williams, "De-Centring the 'Big Picture': The Origins of Modern Science and the Modern Origins of Science," [1993] in *The Scientific Revolution: The Essential Readings*, ed. Marcus Hellyer

Early modern Europeans studied the natural world very differently than we now do, and we must take care not to assume that our categories and terms can be applied to earlier periods in a straightforward way. Consider universities, where the Netherlands was unusual in having one that was excellent, Leiden, and others that were at least competent. Much European science in the 17th century was done outside universities and not within the framework of the scientific disciplines as we now know them. In the absence of the modern or 19th-century disciplines, early moderns who studied nature could be natural historians who described things, natural philosophers who studied the causes of things, physicians who studied human health and disease, or astronomers who not infrequently also did astrology, a subject that was often a part of medical training.

For these reasons historians of science often prefer to speak of early modern *natural knowledge*, rather than *science*. This is not only a matter of a different ordering of knowledge, but of a very different social structure of knowledge making. There were early moderns who spent a great deal of time studying a particular subject, such as Copernicus studying ancient mathematical astronomy. But astronomer was not Copernicus's only and perhaps even not his primary identity, as he was also a canon in the Catholic Church, which sponsored his astronomical work. Some of the fortunate few, such as Galileo, Johannes Kepler, or the great Dutch mathematician, astronomer, and horologist Christiaan Huygens (1629-1695), found a patron who supported their studies. Gottfried Wilhelm Leibniz worked as a diplomat, mining engineer, and librarian, among other things. The distinguished Dutch professor of botany and medicine, Herman Boerhaave (1668-1738), did in fact have a career at a university (Leiden). The boundaries between different kinds of activities were more permeable than they are now, and this too was a matter of some importance for Mennonites such as Vincent, who could make his fortune as a merchant, contribute to early modern natural knowledge, and find some measure of renown through his cabinet.

Finally, the Vincent cabinet is illustrative of much that characterized the manifold linkages between natural knowledge and religion, specifically Christianity, in early modern Europe. The evangelical zeal of some 21st-century atheists who seek to found their positions on the natural sciences,

(Oxford: Blackwell, 2003), 218-46.

coupled with any number of claims about inherent conflicts between science and Christianity in particular and religion in general, should not be read back onto the past.[18] To do so would be to reify "science" on the one hand and "religion" on the other into ahistorical, stable, and opposed realms, as though there is something about them that makes them *inherently* in need of reconciliation, rather than seeing the knowledge claims, practices, and institutions of both as varying over time and place.

Mennonites are keenly aware that their religious expression has varied greatly depending on time, place, and social location; the same holds for other faiths. Likewise science has been done very differently in different times and places. The theological purpose with which Levinus Vincent imbued his cabinet was widely shared by other Dutch collectors. One can go further and say that early modern natural knowledge writ large was not so much in conflict with, as deeply motivated by, Christianity and the Bible. The "book of nature," the natural world, was understood as offering knowledge of God through His works and as fully complementary to learning about God through revelation, the Bible.[19] This is not to deny there were particular conflicts, the most famous being Galileo's conflict with the Catholic Church, a very real struggle about how scripture should be interpreted and about the status of certain kinds of physical arguments, and at times a conflict between clerics and Galileo's Florentine patrons, the Medici. It was also a conflict taking place within the Catholic Church, at least insofar as Galileo saw himself as defending the proper interpretation of scripture, an interpretation fully consistent with the Catholicism he professed.[20]

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[18] The conflict or "warfare" thesis of the relation between science and Christianity is of late 19th-century origin. The works that started the genre are John William Draper, *History of the Conflict Between Science and Religion* (New York: D. Appleton, 1874) and Andrew Dickson White, *A History of the Warfare of Science with Theology in Christendom*, 2 vols. (New York: D. Appleton, 1896).

[19] An excellent and concise introduction of the religious motivation and purposes of early modern natural knowledge is available in Steven Shapin, *The Scientific Revolution* (Chicago: Univ. of Chicago Press, 1996); the standard work is John Hedley Brooke, *Science and Religion: Some Historical Perspectives* (Cambridge: Cambridge Univ. Press, 1991); see also David C. Lindberg and Ronald L. Numbers, eds., *When Science and Christianity Meet* (Chicago: Univ. of Chicago Press, 2003). On the Book of Nature see Jorink, *Reading the Book of Nature*.

[20] For a subtle, insightful, and deeply informed discussion of Galileo see the recent – and definitive – biography by J. L. Heilbron, *Galileo* (Oxford: Oxford Univ. Press, 2010), 253-365

Presumably Levinus and Johanna Vincent likewise considered themselves faithful Mennonites. They were baptized together in 1693 in Amsterdam's "Lamist" Mennonite Church, *bij het Lam en de Toren*; he was in his thirties and she in her forties. Was there anything about the Vincent cabinet that reflected some sort of peculiarly Anabaptist-Mennonite values or identity? In the absence of direct textual evidence or reliable testimony, we can only infer on the basis of other evidence. There is little biographical material on Levinus, and even less on Johanna Vincent (I have found none on the latter). The features of the cabinet described thus far: its richness, the attention paid to the arrangement and display of specimens and the ways in which this reflected the owner's good taste and status, that its owner was of the merchant class, the links between Dutch commercial empire and the contents of the cabinet, its explicitly theological purpose – all these could apply to the cabinet of, say, a Calvinist collector. However, there is one feature of the cabinet that was peculiar and could even be called enlightened: its democratic admissions policy. Vincent kept a visitor's book that includes some 3,500 names of those who viewed the cabinet from 1705, after it had moved to Haarlem, until 1737, a full decade after his death (Johanna died in 1715). It includes the names of princes, diplomats, and other notables from across Europe, fellow collectors and scholars, typically with medical and botanical interests – all the sorts of visitors we might expect at other cabinets. Unusual, however, were the entries for tradesmen, women, and children; while they may not have liked having to pay to enter, such a policy was far less prohibitive than the more usual requirement of a letter of introduction.[21] Knowledge of the natural world, to the glory of God and for the benefit of more than the select few, was an enlightened and perhaps peculiarly Mennonite feature of Vincent's cabinet.

Mennonites for Useful Knowledge

Early modern natural knowledge was very much concerned with being useful, especially in the Netherlands. Useful for explaining the world, for

and *passim*.

[21] Roelof van Gelder, "Liefhebbers en geleerde luiden: Nederlandse kabinetten en hun bezoekers," in *De wereld binnen handbereik*, 259-92, 335-37, esp. 280-81, and Jorink, *Reading the Book of Nature*, 339.

religion, for manipulating the world mechanically through wind or water power, for making things such as books and maps, for finding places through navigation and astronomy, for healing through medicine and a knowledge of plants, and for describing, ordering, and classifying things. This was the sort of knowledge that could appeal deeply to those who shared an ethos that focused on changing the world, including Mennonites.

It was precisely this linking of the otherworldly and the temporal that was described by the sociologist Robert Merton, who argued that the great progress of and enthusiasm for experimental science in 17th-century England was a consequence of the disproportionately large number of Protestant dissenters in the Royal Society. Merton claimed that 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 having close affinity with the Mertonian claim that science has a particular "ethos."[22]

Merton's thesis continues to be a starting point even for the most recent work on science and dissenters in England, and has been discussed, debated, and misunderstood for decades. Merton's work took its cue from the historian of science Dorothy Stimson, who noticed a link between Puritans and early modern natural philosophy in England, and it built on Max Weber's analysis of Protestantism and the rise of capitalism, an argument that found resonances in the work of sociologist-theologian Ernst Troeltsch and of historian R.H. Tawney. There seems to be an almost irresistible urge when confronted with Merton's claim about *Puritanism* in early modern England to extend it (and to assume he did so himself) to a general claim about *Protestantism* and early modern natural knowledge in Europe. But there is no clear indication that

[22] 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," [1942] in *On Social Structure and Science*, ed. Piotr Sztompka (Chicago: Univ. of Chicago Press, 1996), 267-76, and "Science and the Social Order" [1938] in ibid., 277-85.

Protestants were more inclined to natural knowledge than Catholics. The Catholics who fled the Netherlands made important contributions in the places where they settled: Prague, Vienna, Cologne, Spain, and Italy; as did the Catholics already settled in those places.[23]

One thing that does seem clear about the Netherlands is that the general attitude, shared by Calvinists, Mennonites, and Lutherans, and even those Catholics who stayed in the north, was that religious expression which focused on living a blameless life was regarded as perfectly harmonious with commercial pursuits and the making of new natural knowledge.[24] We can see this in the ethics and the ethos of Galenus Abrahamszoon de Haan (1622-1706), one of the most important leaders of the Lamist Mennonite Church in late 17th-century Amsterdam. Galenus, a preacher, medical doctor, alchemist, writer, and entrepreneur, was also the leading figure in the Collegiant movement in Amsterdam. Some measure of his attitudes can be found in the two concluding chapters of his posthumously published *Christian Ethics*: the penultimate chapter focuses on Christian diligence and its attendant virtues sobriety and wisdom; the final chapter on laziness and all the harm it causes.[25] These were values Galenus proposed as much for the radically anti-confessional Collegiants as he did for Mennonites, and there is no reason he would not have considered them valid for other Christians.

So let me return to useful knowledge. Early modern natural knowledge was not the kind of abstract knowledge René Descartes described himself contemplating sometime around 1619 in the famous "stove-heated room," but the knowledge he acquired and experienced in the Netherlands, where he moved to in 1628 and where he stayed for over two decades. Not the Descartes of the *Discourse on Method*, but the Descartes who wrote (but

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

[24] See Cook, *Matters of Exchange*, 82-132.

[25] 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* (Amsterdam: Pieter Arentz en Kornelis vander Sys, 1707), 174-79, see also 154-60. On Collegiantism see Andrew C. Fix, *Prophecy and Reason: The Dutch Collegiants in the Early Enlightenment* (Princeton: Princeton Univ. Press, 1991).

feared to publish) *The World*. Descartes's Dutch experience, the proximity he had there to what was already a manufactured landscape, a world of complex machines, windmills, water power, and clockwork, and to the artisans who made and maintained such machines, turned his mind away from detached theory and closer to practice. Historian of philosophy Daniel Garber has commented that after Descartes moved to the Netherlands "method" became ever less important to him, at first in practice and eventually in theory as well.[26] The experience of Descartes embodies the explanation for the origin of "science" proposed by Edgar Zilsel, the sociologist of science, philosopher, and sometime member of the Vienna Circle, who in his most important work claimed that "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."[27]

The interactions of workers and thinkers is exemplified by Dirk Rembrandtszoon van Nierop (1610-82), a Mennonite cobbler, mathematical wizard, and Copernican, who had an important connection with Descartes. Dirk, as he was known (Rembrandtszoon is a patronymic, typically abbreviated to Rembrandtsz., Nierop the town from which he came), was entirely self-taught and the author of numerous almanacs, books on navigation, calculation tables, and works in natural philosophy, many of which aimed at practically-minded people such as mariners and fishermen. He was a strong proponent, the "foremost" in North Holland, of Copernicanism or sun-centered astronomy – not a position he was driven to by the demands of navigation, as earth-centered astronomy is entirely adequate and often assumed, for the sake of convenience, in navigation. From 1643 to 1649 Descartes lived in Egmond, a town about 25 kilometers (16 miles) from Dirk in Nieuwe Niedorp.

Eventually Dirk managed to get past Descartes's servants, who assumed he was too lowly a person to consult with their master, and make the acquaintance of the philosopher, who marvelled at Dirk's qualities

[26] Daniel Garber, *Descartes Embodied: Reading Cartesian Philosophy Through Cartesian Science* (Cambridge: Cambridge Univ. Press, 2001), 51, and 85-110; see also Cook, *Matters of Exchange*, 226-62.

[27] Edgar Zilsel, "The Sociological Roots of Science," [1942] in *The Social Origins of Modern Science*, ed. Diederick Raven, Wolfgang Krohn, and R.S. Cohen (Boston: Kluwer, 2000), 7-21 at 7. See also Nicholas Jardine, "Zilsel's Dilemma: Essay Review of E. Zilsel, *The Social Origins of Modern Science*," *Annals of Science* 60 (2003): 85-94.

and on the general level of intellectual life of the villages of North Holland. Descartes's vortex theory is very much a part of Dirk's most important work, his *Dutch Astronomy*, a textbook written in the vernacular (Fig. 2). The vortex theory proposed that the world, the solar system, and the entire universe consisted of very fine particles swirling about centers, and that the phenomena observed here and everywhere could be explained in those terms (see Fig. 3). Dirk even employed Cartesianism to explain the Biblical claim that the sun stood still. Proceeding much like Galileo in his letter to the Grand Duchess Christina (1615), he argued that Joshua 10:12-13 was entirely consistent with heliocentrism, for the sun could stand still only if the entire vortex of the solar system was made to stand still, thereby holding the earth and all the other planets stationary and extending the length of the day. Always prepared to engage in controversy for the sake of promoting the cause of Copernicanism, Dirk was "very much a man of the people," one whose activities show he was committed deeply to engaging everyday people with what might otherwise have been characterized as elite knowledge.[28]

Figure 2. Frontispiece of Dirk Rembrandtsz. van Nierop, Nederduytsche Astronomia*, 1658. University of Amsterdam Library. This book was formerly from the Library of the Amsterdam United Mennonite Church.*

[28] The details on Dirk Rembrandtszoon van Nierop are from Rienk Vermij, *The Calvinist Copernicans: The Reception of the New Astronomy in the Dutch Republic, 1575-1750* (Amsterdam: Edita KNAW, 2002), 193-200 and 293; "foremost," 211; "of the people," 202. Bearing in mind Vermij's observation that Dirk's works are "a bibliographical mess" (193),

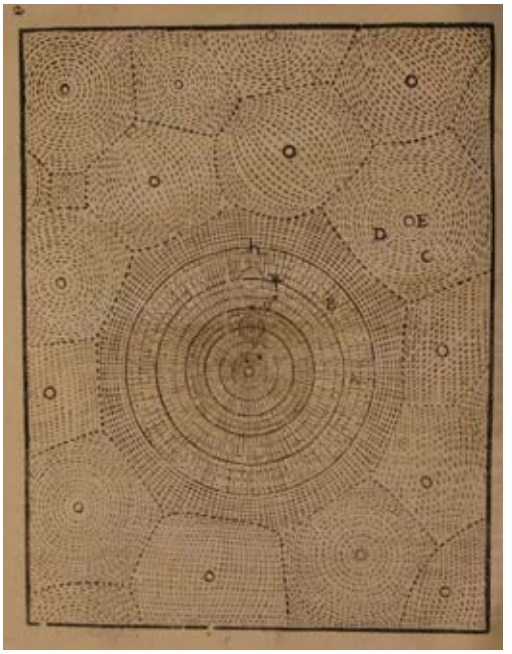

Figure 3. Depiction of Cartesian vortex that makes up the Earth's solar system and other vortices surrounding the solar system in Dirk Rembrandtsz. van Nierop, Nederduytsche Astronomia, *1658. University of Amsterdam Library. This book was formerly from the Library of the Amsterdam United Mennonite Church.*

Dirk lived in the vicinity of Zaandam, not far northwest of Amsterdam in North Holland. Zaandam had many Mennonites active in shipping, windmill construction, milling, and all the associated industries, a place much dependent on cartographic and navigational knowledge.[29] The town of Egmond was not far from it, and Descartes is said to have occasionally attended local Mennonite churches to hear the preaching of peasants and artisans. The Zaandam was a region not unlike some of the incomparable landscapes of Jacob Isaakszoon van Ruysdael (1628-82) with their depictions of human artifacts – windmills, castles, bleaching fields – set against and overshadowed by God's handiwork, the most dramatic element of which is typically the clouds. The mills were crucial for much of what we associate with learning, especially the

his navigation textbook is *Nieroper Schat-Kamer, War mee dat de Kunst der Stuerluyden, door seeckere Gront-regulen geleert en gebruikt kan worden* (Amsterdam: Abel van der Storck, 1676); his astronomy, *Nederduytsche Astronomia* (Amsterdam: Gerrit van Goedes bergen, 1658), second edition; the edition of his treatment of the earth's motion and sun's rest that I was able to consult is *Byvoeghsel op des Aertryks Beweging, of de Sonne Stilstant* (Amsterdam: Abel van der Storck, 1677), though his first book on the matter appeared in 1661.

[29] Nanne van der Zijpp, "Zaandam (Noord-Holland, Netherlands)," *Global Anabaptist Mennonite Encyclopedia Online* [1959], www.gameo.org/encyclopedia/contents/Z11.html, accessed 8 June 2011.

making of paper for books. Books that were printed and sold by Mennonite book dealers, and consumed by Mennonites and others of various social strata. The various aspects of the book trade – writing, publishing, printing, buying, selling, and reading – were to become a key element of Enlightenment culture.

Golden Age Concerns

This was the Golden Age, but nothing lasts forever. From the perspective of some Mennonites, Dutch prosperity was a most insidious thing. Thieleman van Braght (1625-64) feared that worldliness was insinuating itself among Mennonites and that they were in deep danger of forgetting their roots. His clarion call of 1660, *The Bloody Theatre of Mennnonite and Defenseless Christians*, or as it has been known since its second edition in 1685, *The Martyrs' Mirror*, was meant to remind them of the suffering that put them in a direct line with early Christianity, the form of Christianity which he believed was the most untainted by corrupting influences. The days of persecution were over, but Van Braght believed Mennonites were surely being tested, and in his Preface he insisted that they were in greater danger in his day than in the time of the martyrs, for Satan was no longer among them as a roaring beast but "as an angel of light." The corrosive effects of luxury were showing on Mennonites, who were abandoning "heavenly riches" and indulging themselves with country houses, clothes of "foreign materials" and fashions, lavish feasts, and more, all thanks to "that shameful and vast commerce which extends far beyond the sea into other parts of the world."[30]

[30] Thieleman J. van Braght, *The Bloody Theater or Martyrs' Mirror of the Defenseless Christians*, trans. Joseph F. Sohm, 11th ed. (Scottdale: Herald Press, 1977), quotations from 8, 9, and 10; the original 1660 edition was entitled *Het Bloedigh Tooneel der Doops-Gesinde, en Wereloose Christenen*…, the 1685 edition had the subtitle by which it has become known, *Het Bloedig Tooneel: of Martelaers Spiegel der Doops-Gesinde of Weereloose*…. For more detailed discussion of the interactions of the *Martyrs' Mirror* and natural knowledge, see Rina Knoeff, "Moral Lessons of Perfection: A Comparison of Mennonite and Calvinist Motives in the Anatomical Atlases of Bidloo and Albinus," in *Medicine and Religion in Early Modern Europe*, ed. Ole Peter Grell and Andrew Cunningham (Aldershot: Ashgate, 2007) and Ernst Hamm, "Mennonite Centres of Accumulation: Martyrs and Instruments," in *Centres and Cycles of Accumulation In and Around the Netherlands During the Early Modern Period*, ed. Lissa Roberts (Berlin: LIT, 2011).

On the surface, these worries were not unlike those expressed more gently by Langendijk in his satirical poem, but Van Braght was no satirist and he had other concerns besides the rich trade with the Indies. The lengthy Introduction of *The Martyrs' Mirror* leaves no doubt that he was taking aim at moderate Mennonites such as Galenus, the preacher of the Church *bij het Lam en de Toren* (which placed far less emphasis on formal confessions of faith than Van Braght would have liked) and a prominent figure in Collegiantism (which had no confessional emphasis at all). Van Braght's rhetorical move was clear: Christians committed to formal confessions of faith stood in a direct line with the faith of the martyrs, who stood in a direct line with the earliest and, in his view, most genuine Christians. There is much that makes *The Martyrs' Mirror* a work of interest to Mennonites today, but it would be unfortunate if historians took Van Braght's categories as given and went looking for a single, untainted version of Mennonitism, or Anabaptism, or Christianity, from which all the others deviated to greater or lesser degrees. Such categorization too easily lends itself to the assumption that those Mennonites who had always lived in cities or towns, engaged in commercial activities, and actively pursued natural knowledge – the Mennonites under discussion in these lectures, for example – were exceptions or anomalies who had strayed from some ideal, often narrowly defined, of Anabaptism.[31]

This is not the place to recount the quarrels between Van Braght, Galenus, and other Mennonites, the quarrels known as the "War of the Lambs." I wish only to point out that Van Braght's position was no less implicated in the ways of the early modern world than that of Galenus, the Church *bij het Lam en de Toren*, or the Collegiants. The Confession of Dordrecht of 1632, reprinted and endorsed by Van Braght, included one very marked change from the earlier confessions: Article XIII, Of the Office of the Secular Authority, shows a more moderate, accommodating attitude toward the state. There is an explicit call, absent in earlier confessions, to "pray to the Lord for [the secular authorities] and their welfare, and the prosperity of the country, that we may dwell under its protection, earn our livelihood, and

[31] See the helpful approach of the anthropologist James Urry in his "Wealth and Poverty in the Mennonite Experience: Dilemmas and Challenges," *Journal of Mennonite Studies* 27 (2009): 11-40, esp. his concluding remarks.

lead a quiet, peaceable life, with all godliness and honesty."[32] Such an attitude to the powers that be, to the state, resonates with some of the assumptions underlying the phrase "die Stillen im Lande"; it also amounted to a strong endorsement of Mennonite participation in the Dutch economy and, by extension, to the making of natural knowledge in a commercial context. Mennonites of whatever stripe were all "*in* the world," even if some felt more strongly than others than they need not be "*of* the world." It is unlikely that Mennonite-Anabaptist cartographers, printers, millwrights, navigators, physicians, apothecaries, connoisseurs, botanists, gardeners, and merchants saw themselves as contributing to an abstraction we call the State, but there is no reason to doubt that they believed new knowledge could and should be employed to change the world for the better. These ideals of improvement – fraught with tension for those who viewed Dutch prosperity as a mixed blessing – were characteristic not just of Mennonites, but of the Dutch Enlightenment and how it embraced natural knowledge.

[32] Van Braght, *Martyrs' Mirror*, 42; on the War of the Lambs see Michael Driedger, *Obedient Heretics: Mennonite Identities in Lutheran Hamburg During the Confessional Age* (Aldershot: Ashgate, 2002), esp. Chapter 3, "The Confessionalist Strategy of the Flemish Leaders." See also the comments on the Dordrecht Confession in Urry, *Mennonites, Politics, and Peoplehood*, 31-32.