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Introduction

Early modern academic writings and intellectual history: methods and perspectives of research

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What are the possibilities and perspectives of studying the intellectual history of the seventeenth- and eighteenth-century Baltic provinces? At first glance the situation does not look very promising. While intellectual historians in many European countries might be frustrated by the sheer volume of materials relevant for their chosen field of research, those interested in the Baltic provinces tend to have the opposite problem. The countries were sparsely populated, cities were small and wide apart, and academic and cultural life were, accordingly, rather thin. There was relatively little scholarly activity outside the educational establishments, unlike, for example, in Germany, Britain, or Italy where employment at princely and noble courts offered alternative opportunities for scholars.[1] Most of the positions available for educated people in the Baltic provinces – parish pastors, town *physici*, house tutors in faraway country manors, secretaries

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[1] Some examples: R. J. W. Evans, *Rudolf II and his world: a study in intellectual history 1576–1612* (Oxford: Clarendon Press, 1973); Mario Biagioli, *Galileo, courtier: the practice of science in the culture of absolutism* (Chicago: Chicago University Press, 1993). To a smaller extent this was also the case in Sweden; see Susanna Åkerman, *Queen Christina of Sweden and her circle: the transformation of a seventeenth-century philosophical libertine*, Brill Studies in Intellectual History, 21 (Leiden/New York: Brill, 1991).

at provincial government, courts, or *Ritterschaften* – offered little time for serious scholarly activity, let alone an inspiring intellectual environment.[2]

Against this background, it is quite natural that the focus of Baltic cultural and intellectual historians has been on *Academia* or *Universitas Dorpatensis*, the only school in the region that was modelled on the regular European *universitas* with the faculties of philosophy, theology, medicine, and law.[3] With a university, Tartu (Dorpat) stood out among other larger cities in the region like Riga and Tallinn (Reval), which only offered education at the gymnasium level. It has to be emphasized, however, that it was an institution of a very modest size. On average, it had ten professorships and not all of them were always occupied.[4] The number of students fluctuated between 100 and 150, making it one of the smallest universities in Europe.[5] Also, the history of the Swedish university was full of disruptions. It functioned, in total, for only 44 years: the first, later labelled as the *Academia Gustaviana* period, lasted from 1632 to 1656,[6] and the second, known as the *Academia Gustavo-Carolina* period, lasted from 1690 to 1710.[7] The latter period was also disturbed by the move from Tartu to Pärnu in 1699 and by the practical difficulties and anxieties caused by the Great Northern War that started in 1700. Eventually, the university was closed down prior to the Russian siege of the city, and was not reopened until 1802.

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[2] On the formation of the estate of intellectuals (*Literatenstand*) in the Baltic provinces, see Arvo Tering, "Vaatenurki Eesti- ja Liivimaa haritlaskonna kujunemisest 17. sajandil", *Läänemere provintside arenguperspektiivid Rootsi suurriigis 16/17. sajandil*, ed. by Enn Küng, Eesti Ajalooarhiivi toimetised, 8(15) (Tartu: Eesti Ajalooarhiiv, 2002), 27–79; Arvo Tering, *Eesti-, liivi- ja kuramaalased Euroopa ülikoolides 1561–1798*, Scripta Archivi Historici Estoniae (Tartu: Eesti Ajalooarhiiv, 2008); Wilhelm Lenz, *Der baltische Literatenstand*, Wissenschaftliche Beiträge zur Geschichte und Landeskunde Ost-Mitteleuropas, 7 (Marburg: Herder, 1953).

[3] The best account of the university during the Swedish period is still *Tartu Ülikooli ajalugu 1632–1982*, vol. I, ed. by Helmut Piirimäe (Tallinn: Valgus, 1982). Cf. earlier general surveys by Johan Bergman, *Universitetet i Dorpat under svenska tiden Gustav II Adolfs sista kulturskapelse: ett bidrag till belysning av stormaktstidens kulturträvanden* (Uppsala, 1932); Olaf Sild, "Tartu Rootsi ülikooli korraldus ja töö", *Usuteadusline Ajakiri*, lisavihk nr 3 (Tartu, 1932), and Karl Inno, *Tartu University in Estonia during the Swedish rule (1632–1710)* (Stockholm: Vaba Eesti, 1972).

[4] List of professors in Inno, *Tartu University in Estonia*, 86–98.

[5] Tering, *Eesti-, liivi- ja kuramaalased*, 285.

[6] The university continued its teaching activities in a reduced form in Tallinn until the mid-1660s, but the fact that no academic texts were published there points to the insignificance of the Tallinn period from the point of view of intellectual history.

[7] A comprehensive, if somewhat dated account of the *Gustavo-Carolina* period is offered by Georg von Rauch, *Die Universität Dorpat und das Eindringen der frühen Aufklärung in Livland, 1690–1710*, Schriftenreihe Schweden und Nordeuropa, 5 (Essen: Essener Verlagsanstalt, 1943).

Despite these limitations, it is hard to overestimate the role of the University of Tartu in the context of local intellectual history. This volume hopes to demonstrate that, despite all the attention paid to its history by mostly Estonian historians, there are still many areas of intellectual history that can be fruitfully explored on the basis of source material left over by the university during its short existence. On the whole, the volume has three main aims: first, to advance the study of academic writings produced by university professors and students during the Swedish period; second, to further our knowledge of contacts between the Baltic provinces and the European centres of learning, both during the Swedish university and after its closure; and third, to use this knowledge for locating both the university and the Baltic intellectual scene more precisely on the intellectual map of early modern Europe.

The study of academic writings: the biographical view

Accordingly, the aim of this introductory essay is to discuss the methodological issues related to this kind of study and to outline perspectives for further research. In particular, I would like to pay attention to the questions connected to the study of academic writings that – despite all the consideration given to the university as an educational establishment – are still an almost unexplored gold mine. The main scholarly output of the *Academia Dorpatensis* consisted in academic disputations, dissertations, and orations, but they have been studied only selectively and cursorily. In terms of quantity, this output was rather impressive. Just like in other European universities, the statutes required the professors to arrange public and private disputations on a regular basis, with students acting as respondents. A public disputation was also needed for promotion, in addition to a private examination.[8] Rather advantageously for later historians of ideas, the students were obliged to have all public disputations printed. The printing press of the University of Tartu published at least 672 works in these genres, plus several dozen other learned publications.[9] It is clear that in

[8] On the genre: Werner Allweiss, "Von der Disputation zur Dissertation: das Promotionswesen in Deutschland vom Mittelalter bis zum 19. Jahrhundert", *Dissertationen in Wissenschaft und Bibliotheken*, hrsg. von Rudolf Jung und Paul Kaegbein (München: K. G. Saur, 1979), 13–28. The statutes of *Academia Gustaviana* from 1626, composed on the basis of the statutes of the University of Uppsala, are published in: *Constitutiones Academiae Dorpatensis (Academia Gustaviana) = Tartu Akadeemia (Academia Gustaviana) põhikiri* (Tartu: Tartu Ülikooli Kirjastus, 1997).

[9] The bibliography of the Tartu printer: Ene-Lille Jaanson, *Tartu Ülikooli trükikoda 1632–1710: ajalugu ja trükiste bibliograafia = Druckerei der Universität Dorpat 1632–1710: Geschichte und Bibliographie der Druckschriften* (Tartu: Tartu Ülikooli Raamatukogu,

pure numbers, the scholarly output of the Swedish university far surpassed the combined output of gymnasium professors and independent scholars in the region throughout the period under observation. At the same time, it has received relatively little attention by modern scholarship compared to, for example, chronicle writing or research on local languages. It needs to be asked whether this neglect is justified. Perhaps academic writings, from the qualitative point of view, have indeed rather little to offer?

The value of academic dissertations[10] as source material for the history of ideas has been a matter of debate for quite some time. German scholar Manfred Komorowski, who has devoted a great deal of energy on the compilation of bibliographies of dissertations published at various German universities, asks whether the dissertations should be considered "tedious mass product" or "hidden treasures" of the libraries.[11] The first phrase points to the almost unimaginable number of the dissertations held at European libraries. To present a few examples, Leipzig University library holds 70,000 pre-1800 dissertations from the juridical field alone;[12] Leiden University library holds a collection of 600,000 dissertations defended between 1575 and 2005.[13] For a long time, these publications were seen as having very little value, and to a large extent the collections at European university libraries are not even catalogued. Even if we agree with Komorowski that they should be considered hidden treasures, it is clear that a comprehensive study of all of them is beyond human capabilities. What kind of tools should we use for dissecting this huge body of writings? In order to establish the appropriate methodologies, we need to find out first what kind of information they are able to give us. What is their value from the point of view of intellectual history?

2000). The bibliographical database of Tartu academic dissertations, disputations, and orations, created by Meelis Friedenthal and Pärtel Piirimäe on the basis of both this bibliography and the collections of Tartu University Library, contains 521 entries from 1632–1656 and 151 entries from 1690–1710, in total 672 publications.

[10] Henceforth I follow the tradition of using the word "dissertations" as the common denominator for all academic exercise disputations and dissertations *pro gradu* (various terms such as *disputatio*, *dissertatio*, *discursus, exercitio* were used both in Tartu and elsewhere; sometimes the generic name was omitted altogether).

[11] Manfred Komorowski, "Die alten Hochschulschriften: lästige Massenware oder ungehobene Schätze unserer Bibliotheken?", *Informationsmittel für Bibliotheken*, 5 (1997), 379–400.

[12] Hans-Joachim Koppitz, "Ungehobene Schätze in unseren Bibliotheken", *Dissertationen in Wissenschaft und Bibliotheken* (München [u.a.]: K. G. Saur, 1979), 29–37 (29).

[13] Douwe D. Breimer, *Hora est! On dissertations* (Leiden: Universiteitsbibliotheek Leiden, 2005).

Komorowski's own answer to this question could serve as the starting point for such an enquiry. He leans on the appraisal of Walter Erman, an early apologist of dissertations, who argued in 1899 that "old dissertations and lecture programmes are testimonials to the universities and schools of their time, and the study and presentation of the history of education is not possible without an extensive usage of them".[14] Following Erman, Komorowski emphasizes the benefit of dissertations for the biographical study of scholars, as they often contain more information about students than what can be gathered from the matriculation lists alone. Moreover, he points out that the occasional writings associated with dissertations, like dedications and congratulatory poems, help to outline personal relations and networks between the students and professors.[15] With regard to these aspects, the Tartu dissertations have been quite well utilized. In addition to finding out personal data about teachers and students in Tartu,[16] the occasional poems accompanying printed dissertations have been valuable sources for the study of Neo-Latin literary culture in the region.[17]

One might think that Erman and Komorowski have pointed to these aspects of dissertations that scholars tend to neglect, but in fact the opposite seems to be the case. Almost ironically, the accessories or "accidental" parts of the texts have often been more thoroughly researched than the actual content of dissertations. It can also be noticed in the case of early modern dissertations from Tartu that their content is sometimes judged on the basis of the title alone and further reading has not been deemed necessary. This can be only partly explained by diminishing Latin skills. A weightier factor seems to be the long-standing negative assessment of the possible benefits that the study of the content of dissertations may offer. This attitude is not some peculiar characteristic of Baltic historians but a shared consensus of many generations of intellectual historians in Europe. Walter Erman, a champion of the study of dissertations from the biographical point of view, is a vivid example of the sceptical approach when he said that "the content of the most of them is hardly useful for living

[14] Quoted from Komorowski, "Die alten Hochschulschriften", 398 (my translation).
[15] *Ibid*.
[16] Arvo Tering, *Album academicum der Universität Dorpat (Tartu) 1632–1710* (Tallinn: Valgus, 1984).
[17] See in particular the collection of poems with extensive commentaries: *O Dorpat, urbs addictissima musis…: valik 17. sajandi Tartu juhuluulet*, ed. by Kristi Viiding, Jana Orion, Janika Päll (Tallinn: Eesti Keele Sihtasutus, 2007).

scholarship".[18] Can we now, more than a century later, find any good reasons to study the content of the dissertations? Before we can answer that question, we first need to look more closely at the reasons for the negative assessment of early modern academic writings.

"Living" or "dead" scholarship?

The trouble with addressing the scepticism of earlier scholars is that they have hardly felt any need to theoretically justify their critical attitude. Erman's use of the concept "living scholarship" (*lebendige Wissenschaft*) is, however, quite telling. With this concept, Erman makes a distinction between the "living" or "progressive" science that brings the discipline forward and the "dead" science that is of only antiquarian interest. This represents an approach to the history of science that was common in the nineteenth and twentieth centuries. In this interpretation, the history of science is primarily an enterprise of discovering the "roots" of modern science: it looks retrospectively at earlier scholarly activities and values them according to the extent to which they "contributed" to the development of modern scientific knowledge and methodology.

This attitude condemns a large part of early modern scholarship – not to speak of even earlier periods – to the garbage bin of history. The dissertations fare even worse than many other genres, when viewed in this light, because the nature and the rules of the genre did not encourage innovation. First of all, since everyone teaching or studying at the universities was obliged to write something, many of the writings were bound to be of mediocre quality. Even more importantly, students had to demonstrate competence in common knowledge, not the ability to depart from it. Also, the dissertations had to follow certain pre-determined logical steps, starting from definitions and moving through propositions to conclusions. Many works in these genres are therefore hardly more than exercises that to a large extent copied (or, to use the modern term, plagiarized) earlier works on similar topics. These shortcomings are somewhat alleviated by the fact that often the dissertations were written by the presiding professors themselves, which certainly improved the quality of the texts. But no matter who wrote them, we should also bear in mind the actual or internalized censorship that the scholars were subjected to in early modern universities. The

[18] "[...] dürften freilich die meisten [Hochschulschriften] ihrem Hauptinhalt nach kaum noch irgendwelchen Nutzen für die lebendige Wissenschaft haben." Quoted from Komorowski, "Die alten Hochschulschriften", 398.

universities were viewed by the states primarily as instruments for training competent professionals and loyal subjects, and only secondarily, if at all, as sites for free speculation and experimentation. Historians have often emphasized the conservative nature of early modern universities, which prompted many innovative scholars like Copernicus or Tycho Brahe to leave their universities and seek employment elsewhere.[19]

The study of scholarly activities at *Academia Dorpatensis* has, to a large extent, been influenced by the same explicit or implicit distinction between living and dead scholarship. On the whole, modern historians have regarded the University of Tartu during the Swedish period as academically backward, compared to centres of learning in Sweden, Germany, and elsewhere in Europe where scholarly progress was made.[20] For this reason, historians have paid more attention to the reception of Western scholarship in Tartu, rather than to the ideas that might have emerged from there. Earlier historiography has focused on the reception of ideas that were seen as modern, progressive, or innovative. On this basis, historians have drawn a clear line between the *Academica Gustaviana* and *Gustavo-Carolina* periods. While the first period has been described as very traditional, with (Protestant) Aristotelianism dominating the disciplines, the second period is characterized by the penetration of many new "progressive doctrines" that had spread in Western Europe during the period when Tartu University was closed.[21]

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[19] Pedersen even talked about "the exodus of the scientists" from the universities in the early modern period: Olaf Pedersen, "Chapter 11: tradition and innovation", *Universities in early modern Europe (1500–1800)*, ed. by Hilde de Ridder-Symoens, A history of the universities in Europe, II (Cambridge: Cambridge University Press, 1996), 452–488. There was a similar assessment by Inno: "The Scientific Revolution progressed primarily outside the universities" (Inno, *Tartu University in Estonia*, 20). Gascoigne, however, pointed out that most of the people who carried out the anti-Aristotelian turn in natural sciences were originally educated in the universities and many actually stayed there: John Gascoigne, "A reappraisal of the role of the universities in the scientific revolution", *Reappraisals of the scientific revolution*, ed. by David C. Lindberg and Robert S. Westman (Cambridge; New York: Cambridge University Press, 1990), 207–260.

[20] Martinson summarized for the Swedish period: "With regard to higher education and scholarship, both Germany and Sweden were much ahead of the Baltic provinces." Karl Martinson, *Teadustegevuse institutsionaliseerumine Eestis XVII sajandist 1917. aastani* (Tallinn: Eesti Raamat, 1988), 39.

[21] "The scholars arriving from Western Europe brought along the new scientific ideas, the progressive doctrines of Copernicus, Descartes, Newton, Komensky, and others, and rich experience of university scholarship there." *Ibid*., 39. Georg von Rauch spoke of the "gewandelte geistige Atmosphere" of the second period: the medieval scholasticism of the first period, modified by Protestant-humanist elements, was in the second period replaced with "Hochbarock", which was characterized by the attacks on the position of Lutheran Orthodoxy and Aristotle by Pietism and Cartesianism. Georg von Rauch, "Reflexe der abendländischen Geisteslebens an der schwedischen Universität

The reception of such doctrines has been the main focus of historians interested in seventeenth-century intellectual history in the Baltic region. For example, Georg von Rauch studied the reception of the modern natural law theories of Grotius and Pufendorf,[22] and the theology of Halle Pietists in dissertations;[23] Arvo Tering has outlined the reception of the philosophy of Descartes,[24] as well as of the modern views on the solar system advanced by Copernicus, Brahe, and Kepler;[25] Ülo Lumiste and Helmut Piirimäe have studied the early teaching of Newton's *Principia mathematica* in *Academia Gustavo-Carolina*.[26] These studies are undoubtedly valuable, as they cast light on the development and diffusion of modern sciences in Europe. At the same time, the larger part of the scholarly output of the university is left aside.[27]

The study of dissertations and the "Scientific Revolution"

The idea that a large part of early modern scholarship was born dead is inseparably connected to the concept of the "Scientific Revolution". The

Dorpat", *Die Universitäten Dorpat/Tartu, Riga und Wilna/Vilnius 1579–1979*, ed. by Gert von Pistohlkors, Toivo U. Raun, Paul Kaegbein, Quellen und Studien zur baltischen Geschichte, 9 (Köln, Wien: Böhlau, 1987), 11–18 (12–14).

[22] Georg von Rauch, "Naturrätten vid 'Dorpts akademi': ett bidrag till kännedomen om 1600-talets andliga strömningar i det svenska Livland", *Akadeemilise Rootsi-Eesti Seltsi aastaraamat* (1936), in German: "Das Naturrecht an der schwedischen Universität Dorpat: ein Beitrag zur Geschichte der geistigen Strömungen des 17. Jahrhunderts in Livland", *Aus der baltischen Geschichte: Vorträge, Untersuchungen, Skizzen aus 6 Jahrzehnten*, Beiträge zur baltischen Geschichte, 9 (Hannover: Hirschheydt, 1980), 232–252.

[23] Rauch, *Die Universität Dorpat*, 187ff.

[24] Arvo Tering, *Descartes ja tema ideede jõudmine Baltimaile 17. sajandil ja 18. sajandi algul: René Descartes'i 400. sünniaastapäevale pühendatud näitus Tartu Ülikooli Raamatukogus aprill-juuni 1996* (Tartu: Tartu Ülikooli Raamatukogu, 1996).

[25] Arvo Tering, "Zur Rezeption der kopernikanischen Lehre im Baltikum im 17. Jahrhundert", *Die baltischen Länder und der Norden: Festschrift für Helmut Piirimäe zum 75. Geburtstag*, ed. by Mati Laur, Enn Küng, Stig-Örjan Ohlsson (Tartu: Akadeemiline Ajalooselts, 2005), 245–248; Arvo Tering, "Heliotsentrilisest maailmasüsteemist ja selle retseptsioonist Baltimail 17. sajandil", *Läänemere provintside arenguperspektiivid Rootsi suurriigis 16/17. sajandil II*, ed. by Enn Küng, Kai Tafenau, Eesti Ajalooarhiivi toimetised, 12 (19) (Tartu: Eesti Ajalooarhiiv, 2006), 151–199.

[26] Ülo Lumiste, Helmut Piirimäe, "Newton's *Principia* in the curricula of the University of Tartu (Dorpat) in the early 1690s", *Estonian studies in the history and philosophy of science*, ed. by Rein Vihalemm, Boston studies in the history of science, 219 (Dordrecht, Boston, London: Kluwer, 2001), 3–18.

[27] Both Rauch's *Die Universität Dorpat* and Inno's general overview lay great stress on the acceptance of modern theories (which Rauch calls "early-Enlightenment views"); to a certain extent this can also be seen in *Tartu Ülikooli ajalugu, 1632–1982, I*.

term itself, coined by Alexandre Koyré in 1939, is probably not the best choice to describe a process that took a century and a half or longer.[28] But let us use it as a metaphor to signify a period in European history when, to use the careful wording of John Henry, "arguably the conceptual, methodological and institutional foundations of modern science were established".[29] In its more moderate definition, the revolution in science does not mean a sudden and abrupt change, but a gradual transformation. One could hardly object to such an idea, as it is clear that knowledge about the natural world in 1700, at the time of Newton, was hugely advanced compared to what it had been before 1550, at the time of Copernicus.

Yet behind this seemingly innocent observation lurks a tendency to divide the entire scholarship of this period into two camps: the "revolutionary" one, and the rest. This division is, in fact, a much older one than the concept of "Scientific Revolution" itself. Its basic premise – that in the seventeenth century there were two competing approaches to gaining scientific knowledge, one based on *a priori* speculation and the other on the analysis and synthesis of empirical data – has been the foundation of the history of science since the Enlightenment. That the sharp contrast between the "medieval" speculative approach and the "modern" empirical one had become commonplace by the nineteenth century can be seen, for example, in the acrimonious attack by Thomas Babington Macaulay (the early nineteenth-century British historian and Whig politician) against radical philosopher James Mill. Macaulay ridiculed Mill as the representative of the medieval speculative approach to science: "[…] his divisions are awfully formal; and his style is generally as dry as that of Euclid's Elements. Whether this be a merit, we must be permitted to doubt. Thus much is certain: that the ages in which the true principles of philosophy were least understood were those in which the ceremonial of logic was most strictly observed, and that the time from which we date the rapid progress of the experimental sciences was also the time at which the less exact and formal way of writing came into use." By his spirit and style, Macaulay continues, Mill is "an

[28] On the history of the concept, see Roy Porter, "The scientific revolution: a spoke in the wheel?", *Revolution in history*, ed. by R. Porter and M. Teich (Cambridge; New York: Cambridge University Press, 1986). The concept has been sharply criticized by Betty Dobbs, who argues that it can only be used as a metaphor, B. J. T. Dobbs, "Newton as final cause and first mover", *Rethinking the scientific revolution*, ed. by Margaret J. Osler (Cambridge; New York: Cambridge University Press, 2000), 25–40; a defence is provided by Richard S. Westfall, "The scientific revolution reasserted", *Rethinking the scientific revolution*, 41–58.

[29] John Henry, *The scientific revolution and the origins of modern science* (2nd ed., Palgrave, 2002), 1.

Aristotelian of the fifteenth century" and "[w]e can scarcely believe that we are not reading a book written before the time of Bacon and Galileo – a book written in those days in which physicians reasoned from the nature of heat the treatment of fever, and astronomers proved syllogistically that the planets could have no independent motion, – because the heavens were incorruptible, and nature abhorred a vacuum!"[30]

A large part of the dissertations written in Tartu could be ridiculed in a very similar manner. Can we read them only as comic examples of how twisted the human mind was in the "dark centuries", before what Macaulay called "the great deliverance of the human mind"? As a matter of fact, historians of science have in the last decades pointed to the limits of the aforementioned premise. It has been indicated that the methodological divide was largely the result of the conscious effort of some seventeenth-century scholars themselves, who argued that their "new science" was radically different from the traditional natural philosophy of the universities. This was announced, as Roy Porter poignantly shows, in the very titles of their books: Bacon's *New Atlantis*, Kepler's *New Astronomy* and Galileo's *Two New Sciences*.[31] In fact, for most seventeenth-century scholars such a clear line between Baconian "empirical" and scholastic "speculative" science did not exist.[32] All natural scientists intended to construct an overarching philosophical system that would successfully explain empirical data. It is no accident that Newton called his most influential work *Mathematical principles of natural philosophy*. Modern historians of science call Newton a "physicist" and Leibniz a "metaphysicist", but as Ernst Cassirer argued already in the 1940s, they themselves would have never agreed with such a division. They were both "natural philosophers" who saw their studies as belonging to the discipline of philosophy.[33] Moreover, Leibniz did not reject Newton's theory on the grounds of its novelty. On the contrary, he complained that Newton's principle of gravity represented a reintroduction of the outmoded idea of action at a distance. This was incompatible

[30] T. B. Macaulay, "Mill on government (March 1829)", James Mill, *Political writings*, ed. by Terence Ball (Cambridge; New York: Cambridge University Press, 1992), 273.

[31] Porter, "The scientific revolution and universities", *A history of the university in Europe*, ed. by Hilde de Ridder-Symoens (Cambridge: Cambridge University Press, 1996), 531–564 (536).

[32] E.g., Peter Barker shows that Kepler was able to prove the superiority of the Copernican system only via a priori theological explanation, "The role of religion in Lutheran response to Copernicus", *Rethinking the scientific revolution*, 59–88. See also other studies in this volume and in *Reappraisals of the scientific revolution*, ed. by David C. Lindberg and Robert S. Westman (Cambridge, New York: Cambridge University Press, 1990).

[33] Ernst Cassirer, "Newton and Leibniz", *The Philosophical Review*, 52:4 (1943), 366–391.

with Descartes's principles of mechanics, which stated that bodies affect one another only through immediate contact. Leibniz complained in a letter from 1711 that Newton's gravity "is a senseless occult quality, which is so very occult that it can never be cleared up, even though a Spirit, not to say God himself, were endeavouring to explain it".[34] Interestingly, a 1709 dissertation from *Academia Gustavo-Carolina* attacks the so-called hidden qualities (*qualitates occultae*) along very similar lines: "all kinds of sympathies and antipathies, world spirit, spirit of the world, etc [...] the philosophers of present age consider these as useless, because everything that was attributed to them can be easily explained with the principles of mechanics".[35] Thus, a simple contrast between the scientists who supported "modern", "empirical", or "inductive" methods and those who supported "Aristotelian", "speculative", or "deductive" methods does not work. If Newton's ideas could be rejected by the supporters of "modern" Cartesian philosophy, it is also clear that – at least theoretically – he could find advocates among traditionalists who were not fond of Descartes's mechanical, detranscendentalized world view.[36]

Another problem that the anachronistic viewpoint creates is a very piecemeal approach to early modern scholarship. Donald R. Kelley speaks of an "epistemological barrier formed by the revolution of modern science".[37] What he mainly has in mind is that the disciplinary boundaries created by

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[34] Letter of Leibniz to Hartsoeker, 6 February 1711, Gottfried Wilhelm Leibniz, *Die philosophischen schriften*, ed. by Carl Immanuel Gerhardt (Berlin: Weidmannsche Buchhandlung, 1875–1890), III, 519. The letter was published in 1712 in a weekly journal *Memoirs of Literature*. English translation and comments on the debate in: Isaac Newton, *Principia, II: The system of the world* (University of California Press, 1966), 668–669; cf. Leibniz, *Theodicy: essays on the goodness of God, the freedom of man, and the origin of evil* [1710] (London: Routledge & Kegal Paul, 1951), Preliminary dissertation, §19.

[35] Samuel Flodin, *Dissertatio Philosophica Atmosphaeram, Breviter Delineatam exhibens, Quam ... in Illustri Livonorum Academia Gustavo-Carolina Moderante Viro Amplissimo M. Conrad Quensel* (Pernau, 1709). Cf. *Tartu Ülikooli ajalugu, 1632–1982, I*, 221. For contemporary criticism of Newton, see also Paula Findlen, "The Janus faces of science in the seventeenth century: Athanasius Kircher and Isaac Newton", *Rethinking the scientific revolution*, 221–246 (225).

[36] Many recent studies of Newton have also emphasized his preoccupation with alchemy and theology, activities that do not fit with his earlier simplified image as a fundamental "modernist". See B. J. T. Dobbs, *The Janus faces of genius: the role of alchemy in Newton's thought* (Cambridge: Cambridge University Press, 1991); James E. Force, "The nature of Newton's 'Holy Alliance' between science and religion: from the scientific revolution to Newton (and back again)", *Rethinking the scientific revolution*, ed. by Margeret J. Osler (Cambridge: Cambridge University Press, 2000), 247–270.

[37] Donald R. Kelley, "Introduction", *History and the disciplines: the reclassification of knowledge in early modern Europe*, ed. by D. R. Kelley (Rochester, N.Y: The University of Rochester Press, 1997), 1.

modern science have inhibited the understanding of how the knowledge was organized in the early modern period. I already pointed out that even the concept of "science" is a modern creation: the discipline of Newton and Leibniz was "natural philosophy". This is an indication of a more holistic world view, which considered all realms of knowledge as parts of an interconnected whole. In contrast, modern sciences are fragmented, and if we study earlier ideas or theories as pre-histories of modern scientific disciplines, we paint an equally fragmented picture. An extreme example is the 1982 *History of the University of Tartu*, the chapters of which are organized according to the modern disciplinary boundaries. It is therefore not surprising that several chapters speak more about what was missing than about what was actually there. To bring some examples: "Biology (i.e. zoology and botanics) was not taught as an independent discipline […] but some questions of botanics were discussed in connection to medicine, geography and history […]. Physical geography in its modern meaning was very weakly developed. This was caused by the fact that the disciplines that form the foundation of natural geography – geology, botanics, zoology, etc., were only doing their first steps."[38] This kind of approach not only distorts the inherent connections between the early modern spheres of knowledge but may also lead to the neglect of this part of the historical scholarship that does not form a "pre-history" of a modern scientific discipline.

Intellectual history approach

This criticism points to the importance of studying scientific ideas in their specific historical context, with an aim to reconstruct the world view of early modern people in all its complexity, not to pick out the seeds of ideas that seem modern enough for us. According to the contextual intellectual history approach, one should look at how the theorists answered the questions they posed themselves, not the questions posed by the thinkers of later centuries. This means also a move away from the history of canonical "great men" and "heroic discoveries",[39] toward a sociological and cultural history of science, or more broadly, "intellectual history" or the "history of ideas". With this move, the concept of "science" itself becomes historicized, and the traditional history of science effectively dissolves in a broader sociocultural history.[40]

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[38] *Tartu Ülikooli ajalugu 1632–1982*, *I*, 239–240.

[39] Cf. John Henry, "Ideology, inevitability, and the scientific revolution", *Isis*, 99 (2008), 552–559 (555).

[40] See the discussion on the loss of identity of the traditional "history of science" in this process by Peter Dear, "What is the history of science the history of? Early modern

In light of this methodological turn, the lack of great thinkers in a particular region or institution is no longer an obstacle, since smaller thinkers are as interesting as the canonical ones.[41] The question of whether or not a specific work was innovative is not as central for this approach as the reconstruction of the system of ideas current at the time. This does not mean that we should not be interested in the advancement of learning, but such reconstruction enables us to see more clearly the context from which the innovation arose. Innovation, of course, is not identical with progress: while the latter is established by modern standards that can be applied only retrospectively, the former is judged against the background of the contemporary knowledge horizon. A historicizing account presents a more adequate picture of the advancement of learning, which hardly resembles the familiar story of a battle between the progressives and the reactionaries, which has been the backbone of the history of science narratives from the Enlightenment up to the Marxism.

What this means for the study of dissertations is evident. The intellectual history approach to the history of science could save academic writings from oblivion, as they are very useful for the reconstruction of the early modern world view. As mentioned above, the authors of dissertations usually did not aspire to be original, which can be considered as an advantage because the content of such works reflects more closely the cultural and ideological atmosphere of the period under scrutiny than highly original works. As German scholar Hanspeter Marti pointed out thirty years ago, the academic writings on standard themes shed light on the *consensus eruditorum* of the time, on the issues that were contested, and on the slow shifts in the canon of acceptable ideas and authorities.[42] Even a purely quantitative study of the topics of dissertations can be useful, as it enables the assessment of the position of specific disciplines and themes in teaching and research. Dissertations give us a fairly good idea of what was studied and discussed, how the disciplines were systematized, and what their relations were with each other. This, in turn, permits us to assess more

roots of the ideology of modern science", *Isis*, 96 (2005), 390–406.

41 An interesting case study of "smaller" scholars in the republic of letters is Deborah H. Harkness, *The Jewel house: Elizabethan London and the scientific revolution* (New Haven, Ct., London: Yale University Press, 2007).

42 Hanspeter Marti, "Der wissenschaftsgeschichtliche Dokumentationswert alter Dissertationen. Erschliessung und Auswertung einer vernachlässigten Quellengattung der Philosophiegeschichte – Eine Zwischenbilanz", *Nouvelles de la république des lettres*, 1 (1981), 117–132 (126).

adequately the spread and acceptance of novel, innovative theories – the significance of which I do not wish to underestimate.

The traditional history of science approach rendered the study of ideas at *Academia Dorpatensis* distinctly uninteresting, as it lacked great men and discoveries that could be hailed as part of the European narrative of scientific progress. The fact that some novel ideas, like those of Newton, reached Tartu relatively quickly compared to some other regions is only a meagre consolation, and it does not offer any new avenues for research on the basis of source material known to us. But from the point of view of the contextual intellectual history approach, *Academia Dorpatensis* has its advantages, as the relatively small number of academic works published here comprises an ideal body of source material for a case study, compared to the overwhelming number of dissertations in larger European universities. The main aim of this volume is to do exactly that – to offer some fresh insights into the early modern intellectual history in the Baltic region on the basis of academic writings, and by doing this to promote the contextual history approach in the study of early modern scholarship.

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The idea for this volume originated with the conference, called the "Early modern university idea and the University of Tartu", held in October 2007 to celebrate the 375th anniversary of the University. The aim of the conference, organized by the University of Tartu History Museum, was to explore the historical context of the foundation of *Academia Dorpatensis*, the precursor of the University of Tartu, in 1632. At that time Europe was riven by denominational and territorial conflicts, warfare and religious persecution. In the intellectual world, scholasticism was challenged by various alternative traditions, from humanist Stoicism and Ramist pedagogy to the biblical perennial philosophy and theories of Adamic language. At the same time scholasticism was not only developed and adapted (primarily by Jesuits) to new circumstances and the needs of academia, but scholastic Aristotelianism also became the main framework for teaching at Protestant universities. Conference participants asked how these developments affected the foundation and work of the new academy in Tartu. What were the motives and circumstances that inspired the Swedish rulers to found a university in a recently acquired overseas province? Was *Academia Dorpatensis* a typical product of its time – were its methods and content of teaching comparable to other similar establishments in Europe or in Sweden?

To what extent did the developments in various academic disciplines affect teaching at the university?

The articles by Jānis Krēslinš, Wilhelm Schmidt-Biggemann, and Hubert Szemethy are all developed from the papers presented at this conference. Krēslinš and Schmidt-Biggemann outline the most important cultural and intellectual contexts of the establishment of *Academia Dorpatensis*. In his contribution, Jānis Krēslinš emphasizes the function of the new university for the identity-construction of the expanding multi-lingual Swedish empire, placing it specifically in the context of the transfer from oral to written and printed intellectual culture. Wilhelm Schmidt-Biggemann's contribution presents a broad survey of the most significant intellectual traditions in Protestant northern Europe throughout the seventeenth century, which forms the essential background for the study of ideas expressed by teachers and students of *Academia Dorpatensis*. Hubert Szemethy offers a case study of the contacts of the scholars of the nineteenth-century Tartu University with their colleagues in Vienna, thus demonstrating the close integration of the university with European intellectual networks.

In addition, the editors invited a number of scholars, whose work concerns the intellectual history of the University of Tartu and of the Baltic region as a whole, to contribute to this collective volume. Their contributions are based on the study of academic writings from the university – dissertations, disputations and orations – with an aim to outline the intellectual development of various disciplines in Tartu, placing them in their contemporary European context. Kaarina Rein studies the medical works, Meelis Friedenthal examines the philosophical works that deal with the issue of sense perception, and Janet Laidla focuses on writings that touch upon methods of studying and writing history. Arvo Tering studies the dissertations of future Baltic medics, defended in European universities during the period when the University of Tartu was closed down. All four contributions examine how the intellectual strands present in the European republic of letters were received by the educated elites of the Baltic region, and how these ideas were then adapted to the specific cultural, political, and social circumstances of the region.

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Kokkuvõte: *Varauusaja akadeemilised kirjutised ja ideede ajalugu: uurimismeetoditest ja -võimalustest*

Artikkel käsitleb rootsiaegse Tartu ülikooli näitel varauusaja mõtteloo uurimise meetodeid ja võimalusi. Eeskätt keskendutakse akadeemilistele kirjutistele, nimelt disputatsioonidele ja dissertatsioonidele, mis on põhilised allikad, mille najal saab *Academia Dorpatensise* õppejõudude ja üliõpilaste mõttemaailma uurida. Artiklis võetakse arutluse alla, miks on sellelaadseid kirjutisi seni suhteliselt vähe uuritud – ja seda mitte ainult Eestis või Baltimaades, vaid ka maailmas tervikuna. Olulisimaks põhjuseks on teadus- ja mõtteloo lahterdamine lähtuvalt teadusrevolutsiooni kontseptsioonist progressiivseks ja traditsiooniliseks (või "elavaks" ja "surnud") teaduseks, mille alusel omistatakse mõtteloo allikatele väärtust sel määral, kuivõrd neid saab pidada progressiivse teadusmõtte kandjateks. Sellise metodoloogilise lähenemise raames ei oma ülikoolide harjutusdisputatsioonid ja dissertatsioonid kuigi suurt väärtust, sest nende eesmärgiks pole niivõrd innovatsioon, vaid väitlemisoskuse ning tunnustatud teadmiste omandamise tõendamine.

Teadusrevolutsiooni mõistest lähtuvat eristust "elava" ja "surnud" teaduse vahel on viimastel aastakümnetel siiski järjest enam kahtluse alla seatud. Ka käesoleva artikli autor pooldab kontekstuaalset lähenemisnurka, kus mõtte- ja teadusloo tekste uuritakse nende kaasaegsest maailmapildist, mitte hilisematest teadussaavutustest lähtuvalt. Nii on võimalik rekonstrueerida ajalooline mõttemaailm terviklikumalt, heites valgust sellele, mille osas valitses konsensus ja milliste küsimuste üle vaieldi, kuidas muutus autoriteetide kaanon, millised olid distsipliinide piirid ja omavahelised seosed. Selliste küsimuste analüüsimiseks on akadeemilised kirjutised tänuväärne allikmaterjal ning rootsiaegne Tartu ülikool oma suhteliselt kompaktse ja hästi säilinud disputatsioonide ja dissertatsioonide korpusega pakub hea võimaluse seda tüüpi uurimistööks.